

12. Monetary Targets and Economic Policy

Control of Monetary Aggregates

9/1/1979 – 11/1/1979

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cc Mr Middleton —
Mrs Lomax
Mr Mowl
Mr Riley

MR GRICE

CONTROL OF THE MONETARY AGGREGATES

As usual I am very grateful to you for your clear exposition of the Keynesian/Monetarist distinction.

2. First - can I clarify a point. I take it that in B(ii) the demand for real assets should depend either on real wealth - ie $\frac{W}{P}$ - or better - on the price of assets P_A , say, as well as nominal wealth. I think this is important because the paradigm then allows P_A to clear the capital asset market as ~~the~~ the price of bonds clears the bond or money market. Some correction is no doubt called for in your expenditure function.

3. You then go on to assert that the expenditure function will depend inter alia on an asset disequilibrium which can exist though the bond market may be in equilibrium. Thus it is possible at existing interest rates and prices for people to find they are holding more money than they want and less assets. The story then is that they attempt to correct this disequilibrium by buying more capital and consumption goods.

4. What I find difficult in this story is the idea of disequilibrium. I can't really see why if people want more assets \rightarrow they don't go and buy them - and what we observe is either an increase in supply of the assets or an increase in prices if supply is inelastic. Either way the money market is then in equilibrium, then behavioural functions of demand should depend on factors such as wealth, interest rates and prices. The money supply, like the bond supply and real asset supply is relevant only in determining these. You argue that all this is an empirical matter but the trouble with empirical matters is that in the absence of the ability to do controlled experiments the same observations can be interpreted in many ways.

Honor Stampler

HONOR STAMLER

9 January 1979

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- Mrs Tomax
- Mr Wiggins
- Mr Riley
- Mr Bell
- Mr Prust
- Mr King
- Mr Grice

CONTROL OF THE MONETARY AGGREGATES

1. We are due to meet on Thursday to discuss the economic issues involved. The relevant papers are:

- a. My note of **26 September**
- b. Mr Riley's minute of 7 November
- c. Mr Grice's minute of 3 January

There is no need to re-read the original Grice attachment to my minute.

2. I hope that those invited will keep the whole afternoon free. It will be difficult enough to get through the subject matter, so I should be grateful if everyone could ensure that they have re-read all the papers before the meeting. I shall ask Mr Grice and Mr Riley to open the discussion with a short exposition of any points they wish to emphasise. A blackboard will be available.

3. There is now a little more urgency attaching to the exercise. The Bank are said to have produced a paper drawing together the arguments. After we have had our discussion, we shall similarly need to decide what we agree on and what we do not. Mr Littler will be looking for a paper drawing the threads together in the next month.

4. We must try to concentrate on the economic issues though the **distinction** between economics and other branches of philosophy and policy is obscure in this area. The background concept is to rethink the role which the various monetary aggregates can play in running the economy, and the implications of this for the present system of monetary targets. At the end of the discussion we need to decide whether on balance we think it would be better to switch

to one or more other aggregates, or whether there are changes we need to make to the existing system.

5. I shall direct the discussion to the following broad groups of questions:

a. How Important is the Demand for Money?

- i. What do we mean by the demand for money?
- ii. How stable must it be to make it acceptable to direct policy towards a particular aggregate?
- iii. How do the various aggregates compare in terms of demand for money?

b. How Important is the Supply of Money?

- i. What do we mean by the supply of money?
- ii. Is it necessary to be able to control the supply of an aggregate or aggregates chosen for policy purposes?
- iii. How do the various aggregates compare in terms of our ability to control the supply side?

c. Do we Have Reasons for Wishing to Control an Aggregate Which Relates to a Particular Instrument, eg M1 and Short Term Interest Rates?

- i. Is such a thing possible?
- ii. What do we see as the main transmission mechanism to activity and prices from controlling the various aggregates; in particular what is the role of interest rates, the exchange rate and wealth?
- iii. What is the role of expectations?

d. Controlability

What is our conclusion about our ability to:

- i. Control particular aggregates - in the short and long run
- ii. Influence real activity and prices by so doing.

e. What are the Implications for Targets?

- i. One or more than one?
- ii. Short or long run objectives for different aggregates?



P E MIDDLETON
9 January 1979

Mr Middleton

cc Mr Bridgeman
Mr Shepherd
Mr Cassell
Mrs Lomax
Mr Wiggins
Mr Sedgwick
Mr Evans
Mr Odling-Smee
Mrs Stamler
Mr Mowl
Mr Grice
Mr Bottrill
Mr King
Mr Prust
Mr Spencer
Mr Williams
Mr Bell

CONTROL OF THE MONETARY AGGREGATES

1. I'd like to reply as briefly as possible to Joe Grice's polemic of 3 January on this subject which criticised my note of 7 November. I will try to address myself only to substantive issues and avoid making mere debating points or attempting to rebut all the points he made.

The Transition Mechanism

2. In spite of the fact that Joe claims I used "Keynesian" analysis to criticise some of his earlier propositions, I think in fact that my view of how the transmission mechanism works is fairly close to his. My main differences with him on this issue appear to be twofold (assuming that equation Biv represents his views, and forgetting about the fact that the UK is an open economy). First, I believe it possible that changes in long term interest rates will change expenditure by changing the market value of existing wealth. Perhaps Joe has omitted this from his model because he has a theoretical preconception that the effect is zero, but perhaps one should give him the benefit of the doubt and assume that the theory, having been used as an "engine of analysis", has been subjected by the data, and thus he can be spared the charge of perpetrating some of the very worst economics!

3. The second difference between the views expressed in my note and in his is that I assumed that the coefficients on excess demand

for money and excess demand for bonds in the expenditure function are equal, and thus that only the excess demand for financial wealth (the sum of the two and thus equal to the excess supply of non-financial wealth) affects expenditure. Whilst clearly this is potentially some of the very worst economics, since it is a simplifying assumption, I am not aware that it is contradicted by the data, nor that the Treasury's existing methodology is inconsistent with it. While the validity or otherwise of this assumption that liquidity as such is not important is clearly an important issue, I do not believe it is fundamental to the choice of aggregate.

4. This teasing apart, however, I think it is worthwhile to comment on precisely what is the nature of the disequilibria we are talking about above, and whether the markets for M1 and M3 could exhibit such disequilibria. It is commonly held in the literature, and is not I believe contradicted by the data, (except perhaps for bank lending), that financial asset markets generally clear in the relatively short run (a day?) but that the goods market does not. A implication of this is that the size of the public's financial portfolio is to a considerable extent pre-determined on, say, a quarter-by-quarter basis and indeed that non-clearing, of the goods market can persist for a number of quarters. Since this is so, notional demands for financial assets will generally differ from effective demands, the latter being conditional on the extent of non-clearing in the goods market. (This is the sort of analysis employed by Barro and Geosman in analysing "Keynesian" effective demand). Thus even though financial markets clear in the short run they can be in disequilibrium in the sense that notional demands differ from supplies. This is true for M1 as well as other financial aggregates, although only if financial wealth appears in its demand function (which I did not assume in my note but which is certainly possible, and indeed is implied by the monetary model). Given financial market clearing therefore, disequilibrium must be of this general form - ie a spill-over effect of non-clearing of other markets - and can apply to all financial markets, including that for M1. Thus even if asset disequilibrium effects on expenditure constituted the whole of the transmission mechanism, this would not necessarily mean that M1 should be ruled out as a monetary target.

5. Joe has also queried my stress on financial rather than total wealth in my analysis of the effects of monetary and fiscal policy. This is simply because the authorities can exercise some degree of control on the supply of financial assets to the economy by running a budget deficit (strictly speaking this is true only insofar as any change in the budget deficit is not offset by an equal and opposite change in the current account, but empirical evidence does not support anything like an exact offset within a year) or the value of existing financial assets by varying long term interest rates, but cannot directly affect the private sector's stock of physical capital (although it can indirectly affect equity prices). I am therefore not asserting that non-financial wealth does not affect expenditure, and neither did I in my note. It is simply that the government can only cause disequilibrium in the private sector's holdings of real assets from the demand side by changing interest rates or financial wealth in the context of Joe's equation (Bii) (and probably also by changing income), or indirectly from the supply side insofar as it can change equity prices.

Monetary Targets when the Transition Mechanism is entirely through Interest Rates

6. Joe argues that there is no role for monetary targets if it is only interest rates which influence activity and prices; and if we do not believe that data on the monetary aggregates provide useful leading information about the future behaviour of the economy, or in reduced form monetarism of the St Louis variety. Essentially his argument is that although in a deterministic world the choice between interest rate targets and targets for the monetary aggregates is immaterial, since any given interest rate target can be expressed in terms of exactly equivalent targets for each of the monetary aggregates, if there are errors in the equations relating interest rates and the monetary aggregates a target for the latter may yield an inappropriate value for the interest rate. Hence it is "plainly preferable to express the target in terms of the interest rate".

7. There have been a number of articles in the literature which suggest that this conclusion is not necessarily correct. Possibly the first was by Poole (QJE, May 1970) who argued that in a simple

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stochastic "Keynesian" fix-price model, the choice between M and i targets depends on the relative importance of disturbances to the IS and LM curves. He assumed that the target variable of macro-economic policy is real output and measured the degree of success of each type of monetary policy by the smallness in each case of the variations of output around its target level in the face of disturbances to the economic system. When these disturbances occur solely in the demand for money function (ie in the LM curve) he demonstrated the intuitively obvious conclusion that an interest rate target is superior, given that the transmission mechanism is entirely through interest rates. On the other hand when the disturbances occur mainly in the determination of expenditure and output (the IS curve) he showed that a money supply target may well be superior if the LM curve is upward sloping (ie higher income requires higher interest rates to equilibrate the money market at a fixed value of the money stock). In the general case, however, he suggested that the optimal policy is to fix a linear combination of M and i.

8. The Poole model is obviously deficient in an important respect in that the price level, which is arguably the main variable to which monetary policy is directed, is exogenous. But similar analyses have been conducted by other authors using models with a variable price level, Phillips curves etc, but retaining an interest rate based transition mechanism. Much depends on the nature of the expectations formation mechanism, but for example Sargent and Wallace (JPE April 1975) show that on the assumption of autoregressive expectations formation and using a loss function which includes deviations of both output and prices from desired levels, the optimal form of monetary rule depends on the parameters of the model and the variance-covariance matrix of the disturbances to it, as in Poole. With rational expectations, however, a money supply rule is unambiguously superior to an interest rule in their model because in the latter case the price level is indeterminate. In fact I understand that indeterminacy of the price level under a fixed interest rate regime is a fairly well known phenomenon in the literature.

9. Parkin (Manchester School, September 1978) gets round the

problem of price level indeterminacy with rational expectations and interest rate control by postulating that inflationary expectations are determinate as long as the government announces what it believes will be the outcome for the money supply given its interest rate rule, and the private sector accepts this as its expected money supply. In a model relating to open economies and again using an interest rate based transmission mechanism he comes to conclusions similar in spirit to those of Poole, namely that fixing the money supply (with a flexible exchange rate regime) is likely to be superior to fixing interest rates (and the exchange rate) if disturbances to the domestic aggregate demand and supply functions and to foreign prices and output are more important than domestic and foreign monetary disturbances, and vice versa. In any event the choice is an extremely complex matter in the general case, and once again the size of key model parameters and the variance-covariance matrix of the disturbances are of critical importance.

10. These are just three articles in the quite extensive literature on the subject of the optimal monetary policy instrument in the context of what Joe calls "Keynesian" models. My reading of it is that the issues involved are very complicated - not "simpliciter" (sic) as Joe suggests (if I understand his Latin correctly).

Accounting Identities and the Money Supply

11. In a separate note to Michael Bridgeman (3 January) Joe argues that the essence of his case against M1 is that with "existing powers", the supply of $M1$ can be controlled, but not that of $M2$, repeating and expanding the arguments in his polemic. In my view this assertion about supply control is simply wrong, for the following reasons:

1. As I have already said in my earlier note, under present institutional arrangements the Bank do not directly control the supply of gilts, they control the demand by varying interest rates. One might argue that the Bank could control the supply of gilts in this manner, but this appears (alas) to be just about as remote a possibility as directly controlling the banks' CD issue and time deposits. Thus

given present institutional arrangements - not essentially different from "existing powers" - the argument about control of the supply of $\text{\pounds}M3$ is fatally flawed. A change to control over the supply of gilts would in my view be no less momentous than, for example, a change to control of M1 by means of a reserve asset ratio requirement and appropriate use of special deposits etc.

b. Even if the Bank did control total gilt sales, it could not (with existing powers) control net sales to the non-banks. Neither could it control non-bank purchases of Treasury bills and local authority debt. Given that, as Steven Bell has pointed out, it does not control non-deposit liabilities and externals, which are subject to large fluctuations even under a floating exchange rate, the whole edifice of supply control of $\text{\pounds}M3$ looks distinctly shaky, even given exact control over the PSBR (!) and bank lending.

c. Joe argues that the supply of M1 cannot be controlled under existing arrangements because the Bank cannot control time deposits and CDs. It should be noted, however, that this means also that $\text{\pounds}M3$ cannot be controlled. This is so because an increase in the banks' CD issue - presumably to finance extra holdings of either reserve assets or other parallel money if bank lending is statutorily fixed - must in practice imply a reduction in non-bank holdings of public sector debt - either Treasury bills or 3 month LA deposits. In fact were this to occur on a one-for-one basis (eg if there was no requirement for bankers' balances and special deposits) and assuming all other items in the identities are held constant, as Joe assumes is possible, the net effect on M1 would be zero and the fall effect would be felt on $\text{\pounds}M3$! Of course there would in practice be relative interest rate ramifications which would make the picture more complex, but the fact surely remains that if ^{you} cannot control the CD issue - the most volatile component of the non-M1 part of $\text{\pounds}M3$ in recent years - one cannot control $\text{\pounds}M3$ in the way suggested. Incidentally also, in the above example the additional CD issue would not affect M5 either except in the event that the

banks used the funds to buy gilts rather than short term assets, whereas to affect $SM3$ it does not matter what sort of public sector debt they buy.

12. In conclusion, it will be clear that I am far from convinced by Joe's arguments that $M1$ is completely unsuitable for use as a target variable. I am not, however, arguing that it is unambiguously the most satisfactory target variable, although in my view any reasonably simple demand function for it is likely to be more stable than that for $SM3$, though possibly not more so than that for $M5$. My original note was intended simply to suggest some factors other than those which had already been discussed that might be taken into account in the argument about the relative merits of $M1$ and $SM3$, although as Peter Spencer has pointed out to me the arguments in the second and third sections of my paper in fact apply more to $M5$ than to $SM3$. What does surprise me, however, is that Joe should nail his colours to the mast of $SM3$ when this appears, to me and many others, as by some way the worst on theoretical grounds of the three aggregates under consideration.

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E. A. Clarke

RP

C J RILEY
10 January 1979

✓ MR MIDDLETON

MRS LOMAX

MR WIGGINS

MR RILEY

MR GRICE

MR BELL

MR PRUST

MR KING

CONTROL OF THE MONETARY AGGREGATES

At the possible expense of overburdening people with paper for this afternoon's meeting I have decided to recirculate a paper I wrote some time ago on this subject. It attempts to make some of the points made in Mr Riley's note, concerning the interest rate transmission mechanism. It probably does this less clearly than Mr Riley's note but it does anticipate the question raised in paras 16 and 17 of Mr Grice's minute of 3.1.79: Why do Keynesians ever advocate monetary rather than nominal interest rate targets if the former works exclusively through the latter?

This question is underlined, and an answer attempted, in the central paragraph of p3 of my note.

P D SPENCER
11 January 1979

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M1, M3, AND RELATED ISSUES

You asked if I could note down my views on M1. I shall try to separate the feasibility question from the question of what it would be best to control assuming feasibility.

What should we like to control?

There seems to be some degree of consensus about the way in which rational beings go about their decisions. It is reasonable to suppose that they choose levels of various types of expenditure and investments which at the margin equate the various returns from each. Returns from any investment occur in both pecuniary and non pecuniary forms but will be equal across the portfolio in equilibrium. Of course the portfolio in this context includes productive capital goods and consumer durables. Consumption of non durables will increase until the marginal return to consuming today rather than tomorrow, (the subjective rate of time preference) equals the total rate of return yielded by any (and every) asset minus the rate of price inflation. This 'real' rate is essentially unmeasurable, depending upon expectations and the security and other psychic utility to be obtained from holding wealth even in the form of illiquid assets. This argument is essentially Friedmanite but is consistent with the Tobinite "supply price of capital".

It follows that real expenditure will be a function of real income Y (or the wage rate) the perceived rates of interest and inflation, R and π , and possibly real wealth W , taxes and other shift variables Z . Given the national income identities this makes real income a function of these other variables

$$Y = g(R, \pi, W, Z)$$

Money is likely to appear directly as part of W , exports, public expenditure and other Keynesian shift variables can be considered as elements of Z . The demand for any asset will depend upon the 'average' rate of return R , the own pecuniary rate of return R_j , and transactions and other variables which affect non pecuniary returns. If we define M1 to be assets which pay a zero (or a constant) explicit rate of return (\bar{R}) then the second of these arguments is fixed and may be disregarded. It is usual to assume that the demand for such 'monetary' assets is homogenous in real income and the price level P so we have:

$$\frac{M1}{YP} = f(R, \bar{R}) = V(R) \quad \frac{\partial V}{\partial R} > 0$$

Thus money income velocity, $M1/YP$ may be taken as a unique indicator of the unobservable rate R . It is unique in the mathematical sense that there is a one to one relationship between V and R . It is unique in the literal sense that no other asset/income velocity ratio has this property. Any other asset MX pays a variable rate of return RX by definition so we have analogously

$$\frac{MX}{YP} = VX (R, RX)$$

so that a shift in RX will change the relationship between R and MX .

The immediate consequence is that V may be inverted to give R as a function of $M1/YP$, and substituted into the real income equation:

$$\begin{aligned} R &= V^{-1} (M1/YP) \\ \therefore Y &= g (V^{-1}(M1/YP), \pi, W, Z) \\ &= h (M1/YP, \pi, W, Z) \end{aligned}$$

It is easily demonstrated that this makes Y an increasing function of real balances $M1/P$, especially if wealth (or using rational expectations, π) depends upon $M1$.

It must be admitted that 'R' is a nominal rate so that if $M1$, or money income velocity is held constant, changes in price expectations (π) will disturb the system. This will produce changes in output, prices, unemployment and so on depending upon the other equations of the system. It would be nicer to control $R - \pi$ or the real perceived rate in order to get around this problem. However this is not possible unless we have information about π and the V relationship and make suitable adjustments.

Even if we could fix the real rate, changes in W or Z due to say an oil price rise will disturb the system. (Again we could make some allowance for this if we knew the numbers involved.) However the essential monetarist conclusion is that even if such shocks to W , Z and π are ignored the system will be stable if we allow $M1$ to grow at the same rate as potential output (Y^*) in the sense that the price level will converge to an equilibrium value. (It must also be assumed that the Phillips curve, political processes etc are stable!) This can be seen by setting $Y = Y^*$ and substituting into the last equation to get the long run solution. It is easy to show the long run properties of any $M1$ - based rule in this way. Short run characteristics will depend upon the other equations of the system.

It is not as easy to analyse policies involving variable interest earning assets. Substitution of the expression for a typical alternative velocity $VX(MX, RX)$ will make Y depend upon RX as well as MX . This introduces the own rate RX as another shift variable. To take a specific case, a rise in $M3$ due to the CD component could be due to a rise in CD rate relative to a fixed average rate R (or perhaps bank rate). It should not be taken as indicative of a general fall in rates and may not lead to increased expenditure and income. Changes in $M3$ (or $M3$ minus $M1$ components) are in this context meaningless unless it is known whether they are 'froth' due to differentials or due to changes in the perceived level of rates.

Why, it might be asked, is control of $M1$ which is related to the perceived nominal rate of return any better than fixing nominal rates? An immediate answer is that operationally the latter means fixing observed yields to redemption. These may be very different from expected holding period rates of return due to expected capital gains and non pecuniary returns. A more important argument stems from the stability of the system. If there are shocks in π , W or real variables represented by Z and money is fixed this will move the general level of interest rates in such a way that the effects on output are offset. (For example increased exports will raise income, the demand for money and hence the level of interest rates, producing a negative feed back onto income.) This will not occur if rates are fixed. Moreover if the nominal rate is fixed below the equilibrium real rate plus the level of inflation the real rate will be too low, producing more inflation, a lower real rate, yet more inflation and so on until the nominal rate is belatedly revised upwards.

Which is easiest to control?

Controlling observed rates wins hands down on this count but is obviously out of the question. I think it is also accepted that $M1$ is more amenable to control by interest rates (crowding out) than $M3$. I think we also agree that this is why central banks prefer $M1$.

One of the major issues which came up at our meeting was how the two aggregates might be controlled by PSBR changes or affected by changes in the reserves. The ex post relationship between these and changes in $M3$ are given by the well known identity. However the ex ante effects of such factors cannot be worked out in such a simple manner and are certainly not one for one.

The simplest case is the fixed interest rate case. It is then possible to substitute the overseas flows identity into the usual $M3$ identity to get an $M3$ identity based on the private sector portfolio:

$M3 = \text{Financial Surplus} + \Delta(\text{Advances} + \text{Overseas net liabilities} + \text{public sector loans} - \text{gilts} - \text{LA deposits, T Bills and other liquid non } M3 \text{ assets})$

A rise in the PSBR ex post must be accompanied by changes in overseas or private sector ^{flows} and will be given by the NIF. We then calculate the fraction of financial surplus/wealth (or capital inflows or public sector loans) which will wind up in M3 components, either directly or indirectly by looking at the effects on gilts and advances. A similar procedure could be used to find the effect on M1 either directly or indirectly. In the model (and in principle the financial forecast) the calculations are both equally simple.

If interest rates are floating however we know from model simulations that PSBR effects on M3 are varied, sometimes perverse and often unstable. Some of the early results are reported in MMWG (57). They show that the results depend critically upon whether the banks are under pressure or not, and whether bill rate is fixed, floating or kept in line with market rates. If someone asked me what the effects of the PSBR on M3 were I could not therefore give them an unqualified answer in this case. However there are grounds for thinking that the effects of the PSBR on differentials will not seriously affect the direct effects on M1 working through private sector wealth and the general level of rates. So I am reasonably sure that I could give an acceptable range of figures for the M1 effects no matter what the financial environment. (This is only an assertion however since I have not looked at PSBR effects since putting M1 on the model).

Conclusion

M1 as currently defined is more meaningful than M3, since the variance in its 'own rate' is negligible. Control of this aggregate will thus lead to monetarist results in the medium term and possibly the short term as well if expectations are economy-wide rational and based on the most sensible aggregate. We are probably making life difficult for ourselves by attaching so much importance to M3 which is arguably more difficult to control than M1.



P D SPENCER
FEV

1 August 1977