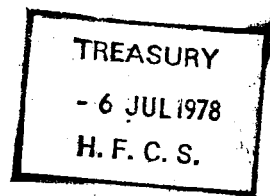


**9) MONETARY TARGETS – PART I:
1ST DEC 1977 - 8TH DEC 1977**



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1.12.77

MR. GOODHART

Copies to: Mr. Burman
Mr. R. H. Atkinson
Mr. Hewitt
Mr. Price
Miss Balfour

Rolling Targets

It seems to me that it is not possible to decide the technical questions raised in Corinna Balfour's note of 22nd November 1977 until a fairly definite answer has been given to the policy question of what the authorities' reaction will be to base drift (raised as point 4 in her note). Once this has been decided, it becomes relatively easy to decide the technical question.

4. Base drift

There are three basic reasons why a new base is above (or below) the original target figure (or range) - erratic movements in the target aggregate; a failure by the authorities to take action to meet the target; and developments in the economy not foreseen when the target was set. The new base embodies differences on all three accounts; which would and should be offset in the target for the next period? Obviously any difference which had arisen because of erratic movements would unwind within the following target period: it should therefore be completely offset in the new target. Commentators would also expect a fairly complete offset for differences due to a failure to take the necessary action in the previous period. It is only to the extent that the difference had arisen because of unforeseen developments, eg, a faster real growth of the economy, that 'failure' to meet the target might be acceptable and then the new target might embody a further divergence from the previous rate of growth rather than try to regain the lost ground. Such a change would, of course, require considerable justification in public.

2. Expression of the target

If this is a correct description of the authorities' reaction to base drift, it would not be right to express the target in terms of bands. Commentators would certainly be suspicious, and rightly so, if every time we reset the base, the new base was right at the top of

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M.T.C.S.(4)

the previous band, and this was not offset in the target for the next period. They (and ourselves) would also presumably be unhappy if the new bases were always at the bottom - with no offset - as then monetary policy would be, generally, too restrictive. If the new bases were sometimes at the top and sometimes at the bottom of the band, policy would be no different than if there were no bands at all. Thus the use of bands seems at best to be neutral, at worst to bring into doubt the policy which is being applied - a conclusion which is rather different from that for fixed targets.

This discussion relates to the use of a band at the roll-forward date. Bands are also discussed in the note in the context of intermediate months. Here again the answer to the questions posed depends on the authorities' reaction. If there is not automatically going to be a reaction from the authorities when the target variable is outside the band in intermediate months - and, with rolling targets and the above reaction by the authorities to base drift, an automatic response does not seem to be required - then bands for the intermediate months are irrelevant. All that is important is whether the authorities arrive at or near the target level at the roll-forward date. Of course, if there were doubts about the authorities willingness to react to base drift, the existence of bands for intermediate months could provide some reassurance, but only if the authorities were willing to react automatically to movements of the target variable outside the bands. Otherwise they would have the reverse effect.

(If it was decided to allow a target band to apply at the roll-forward date, commentators would be likely to gross up to annual rates the cumulative growth to date, to see if it were within the target range, ie, they would be looking at a CONE. However, to the extent that the cumulative growth to date contains an erratic element which grossing up would enlarge - whereas in the outturn, the contribution of the current erratic element would be smaller - they would be misled. Thus some idea of a constant band around each figure - due to erratic movements - should also be impressed on the commentators. Given the way that commentators have grossed up, it was perhaps lucky that the first couple of months of 1977/78 were below the target range rather than above: if the order of the months May to September were reversed, we would have been forced to initiate fairly drastic action at an early date as the grossed up figures would have been above the accepted range for each of the first four months. This would be generally true if an erratically high figure occurred at the beginning of a period.)

1. Base dates

The final questions relate to how the base is calculated. There are two effects to be considered - erraticness and revisions to the seasonals. On the former, the discussion in the note is relevant only to the first base. If the figures used to calculate subsequent bases are high because of erratic movements in the target variable, there should be an offset to the target for the next period. Thus the target level for the end of the next period does not depend on whether the starting point is erratically high or low and thus whether or not subsequent base points contain an erratic element is largely irrelevant for the achievement of the policy. There thus seems no point in subsequent bases being averages of several months¹. Any erratic element contained in the first base point, however, would be difficult to remove. This argues for the first base being an average over quite a long period, eg, 3 months and for a delay before the base point is announced until such time as the figures have become as firm as possible.

The impact of revisions to the seasonal adjustments is rather different. As Peter Burman argued in his note of 22nd November 1977 the credibility of an announced base would be impaired if it were revised prior to the announcement of the next target. But if new seasonals were used for dates after the base period, when the base was calculated using old seasonals, the inconsistency would affect the extent of allowable growth in the target variable. I do not, however, agree with Peter Burman that the answer is to use unadjusted figures. This would have been alright if roll-forward dates were 12 months apart, as the difference between the target growth between the base dates of unadjusted and adjusted figures would have been small². However, if targets are rolled-forward more frequently than once a year, the use of unadjusted data would add a further complication to the choice of the next target rate of growth. Rather the answer seems to be that new seasonals can only be introduced at the time the new base and new target are announced. Then the discussion of the correct targets can either be a comparison of previous and current bases with both adjusted using old seasonals, or both with new seasonals.

(1) There is a further danger in monitoring in terms of moving averages in that a 3 month moving average is already a month out of date. A high figure in the latest month may have little effect on the average, but if it is not an erratic high (and we would probably have sufficient external evidence to decide this) it may be the first of a new, higher, trend. To monitor in moving average terms might mean a month's delay before this was picked up.

²See footnote on next page.

As Peter Burman stated in his note, the annual update of the seasonal adjustments cannot be completed until mid-April. We could, however, I would think, produce some seasonals which are pretty close to the final ones up to a month earlier³. And those would be sufficient for the purpose of readjusting (all but the first of the) bases. As with the erratic element in bases, slight errors in the seasonal adjustments are not important because, by definition, they must cancel out within the target period. The introduction of the final seasonal adjustments could then be left to the next roll-forward date.

The first base is of course different - as it was in the discussion of the erratic element. Revision of the seasonal adjustment for the purpose of the first base is caught up with the problem of the seasonal adjustment of the current year's corporation tax. The announcement of the first base, if the base period were to include January or February 1978, would have to wait until the corporation tax data for (most of) the first quarter were available. However, as by mid-March all of banking January and February and some of banking March would be known, I would have thought that by then we could be pretty firm on a seasonally adjusted base which included either or both of January and February⁴. In addition there must be some possibility of getting the Inland Revenue to speed up the collection of their data. For the exercise to be made so much harder just because of the three to four week delay in the Inland Revenue sending us their analysis of taxes does not seem reasonable.

For the first base period I have argued that an average over quite a long period would be correct. As has been explained elsewhere, January is a problem month because of corporation tax - any shortfall or excess in January is reflected in February. December is also a problem month because it is the only three week banking month - any shortfall or excess in December is reflected in January. Thus it would appear that the only satisfactory months around the turn of the year are November and February. I would find it difficult to justify the use of an average of those two as the base and would be loathe to accept either one by itself. It seems then that the base must

²(from previous page). That there is any difference at all may be a surprise to some. The difference arises because not all elements of the seasonals on flows are constrained to add to zero over calendar years and those that are do not add to zero over other 12 month periods. In addition the seasonals on levels (which would be used to construct bases) are not just cumulatives of the seasonals on flows but are partially centred and the centring varies from year to year.

^{3,4}Both these statements are on the assumption that the rules for payment of corporation tax are not changed eg back towards what they were pre-1976.

include December and January. Of the possibilities I prefer an average with an odd number of items in it because (with equal weights) it is centred approximately on a particular make-up date which then makes it easier to use single months for subsequent bases^{and monitoring}. My preference for the first base is therefore the average of December, January and February - a base centred on January. This seems the best choice now; however by the time the base has to be announced we will know the outturn for all these months. At that stage it might well be possible to decide that an individual month - either January or February - was in fact better than the average I am now proposing.

Economic Intelligence Department,
1st December 1977.

O. Page (4876)

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MR. GOODHART

7.11.77 98
CAEC

Some quick comments on your note "Which M for Emphasis".

Wholesale/retail deposits

A breakdown between wholesale and retail deposits is, I agree, badly needed and it is on our long-term list of requirements from the banks. The best way of identifying wholesale deposits would probably be by size, but deposits are not at present classified in this way and there would be a number of questions to be decided (e.g. what the limit should be, how to deal with accounts that fluctuate above and below the limit); banks that are fully computerised could no doubt cope, given time to program (though this means diverting resources from other tasks) but it would be a much harder job for those still relying on clerical resources. And to be of use for a monetary aggregate, a cross-classification by sector is required in order to eliminate inter-bank and overseas deposits. To lay on something like this for a monetary target in 1978 is out of the question.

The other approach is to separate those accounts which relate to deposits taken in at market rates from normal branch accounts. For the clearers this is probably a reasonably clear-cut distinction, but for other banks, having perhaps only one office, this may not be so. I am hoping very shortly to get some monthly figures from the London clearers (parents) for their seven-day deposits. Initially the figures will be for our own (and HMT's) use, and the banks will probably resist making them available for publication (which would be necessary if used for a target). There are not, however, so far as I am aware, any comparable figures available for the Scottish or Northern Ireland banks. And those for the London clearers do not distinguish between inter-bank, overseas, and other UK accounts (though they are no doubt predominantly private sector).

Thus while for the longer term we should certainly investigate further the best way of identifying wholesale deposits, for the immediate future we should shortly be able to get an approximation for the London clearers by taking their non-interest-bearing sight deposits and their seven-day time deposits. For other banks, the position is more difficult: the division of sight deposits into interest and non-interest-bearing is less helpful, as many banks pay interest on current accounts, and we have no breakdown of time deposits.

Which M for Emphasis

This paper starts by reviewing briefly the historical behaviour of the main monetary aggregates. This is first done descriptively; then a report is given of our recent econometric research in this area. There is then a discussion of the advantages and disadvantages that each monetary aggregate would have if used as an intermediate target for monetary policy, and the paper ends with some recommendations.

The Historical Record

Figure 1 records the annual growth rate of the main components of the money stock, since 1963, divided into notes and coin, current accounts, seven-day time deposits, and other interest-bearing deposits including CDs and other wholesale-type time deposits. This chart shows that the components moved in dissimilar ways. In particular the fluctuations in wholesale-type deposits were much the most extreme. Although such deposits had formed only a small proportion of the total money stock in the early years of this period, from 1971 onwards the movements in the broad money stock (M3) have been dominated by the sharp fluctuations in this component.

To provide an indication of the main reasons for such different behaviour, the next charts, Figures 2-5, show the movement over this same period of the ratio of each component of the money stock to nominal incomes (GDP) - the inverse of its 'velocity' - plotted with the movement of interest rates, represented by the three month LA rate. The ratio of notes and coins to nominal incomes declines at a fairly steady rate over this period, and shows hardly any response to variations in interest rates, Figure 2. The ratio of sight deposits (both non-interest bearing, currently 78% of the total, and interest-bearing) to nominal incomes shows some indication of an inverse relationship with the level of interest rates, Figure 3. The ratio of seven-day time deposits to incomes, based on the annual observations of seven-day time deposits held with London Clearing Banks,⁽¹⁾ is plotted both against the LA rate by itself, Figure 4A and the LA rate - own rate differential, Figure 4B. Neither chart shows a very close relationship. In the first few years of this period there is perhaps a slight sign of some inverse relationship between holdings of such deposit accounts and interest rates on competing assets, but from 1969-73 any such relationship is dominated by a sharp downward movement in relative

(1) Separate data from all banks on such deposits ceased to be regularly collected by the Bank in 1971. In their evidence to the Wilson Committee the LCBs however gave figures for these deposits as at mid-November (banking November make-up date) for each subsequent year. From 1962-1970 the LCB deposit accounts were approximately 85% of the total held with all deposit banks, and the data are

III The Purpose of Monetary Targets

In order to select which of the various aggregates might best serve as intermediate monetary target(s), it is desirable to ask first what might be the purposes of having such targets. For example there is a large literature on monetary targetry in the US which treats them as providing early warning of untoward current developments in nominal incomes. This early warning then allows policy, not necessarily monetary policy, to be addressed to offsetting the unforeseen divergence (from its chosen path) in nominal incomes.

If that was the *raison d'etre* of monetary targets, then the best monetary early warning of current economic developments would probably be provided by variations in currency outstanding, notes and coin. Of all the aggregates this has had the closest relationship with movements in domestic expenditures. Moreover, if the purpose of the target was to be an early warning device of current developments, then the fact that the monetary authorities cannot control the outstanding volume of notes and coins would not be relevant. The movements of currency outstanding would be a signal that something might be going wrong elsewhere, not important of itself.

Maurice Scott, at the academics' meeting, half in jest did suggest a currency target, but the reasons that the authorities have adopted monetary targets are not the above. In the first place the need for any monetary early warning of current developments is doubtful. Direct observations of industrial production, retail trade, overseas visible trade, housing starts, retail prices, etc., are sufficiently prompt that even data on currency outstanding have little lead time over more direct information. Moreover given the short-term fluctuations in the relationship between currency (a fortiori with other monetary aggregates) and nominal incomes, the extent of additional information on current economic developments provided by short-term movements in any monetary aggregate is strictly limited. A monetary target is not an information device, although much of the academic literature on targets (Poole, B.Friedman) treats it as just that.

Instead I take the purpose of a monetary target to be to act as a form of long-run stabiliser, a fail-safe mechanism to prevent the economy going far off the rails in the future. Short-run movements in the aggregates - far from serving as an early warning of current developments in the economy - are on this view treated as of little significance, but long-run trends relative to the desired path are regarded as likely to have significance for the future development of the economy. This requires that the relationship between the monetary

aggregate(s) adopted as the target and the level of nominal incomes should remain reasonably stable over time.

In practice the relationship between all the aggregates and nominal incomes has been quite stable. The least stable relationship has been between M3 and nominal incomes, with the sharp changes in velocity, declining from 1971-3 and rebounding 1974-6 being unforeseen in advance and only partially explicable in retrospect. Such explanation as can be attempted is largely in terms of the structural change brought about by the increased usage of wholesale-type deposits after 1971. Structural changes are always possible within the financial system. The effect of such changes on the relationships may, perhaps, be less when a broad range of liquid assets is covered (M5) and structural changes may, perhaps, impinge less on transactions balances, especially if non-interest bearing⁽¹⁾, than on shifting choices among interest-bearing liquid assets.

If the monetary targets adopted are to be achieved, policy has to be adjusted to that end. The implications for policy differ, however, depending on the particular aggregate chosen as the target. Thus, as already noted, a target for notes and coins would have no particular implications for ^{monetary} policy at all, except that other unstated steps should presumably be taken to restore nominal incomes to the desired path. A target for M1 implies that short-term money market rates must be varied to the end of maintaining the chosen path of M1, and cannot be used for any other purpose. However a target for M1 has no direct implications for fiscal policy or exchange rate policy, except in so far as the variations in interest rates necessary to control M1 have an indirect effect on policy options elsewhere, (for example if interest rates have to remain high to control M1, this will affect the extent of international capital flows and thus the options for exchange rate policy; again concern about rising interest rates may curtail expansionary fiscal action). Nevertheless the relationship between monetary policy actions and other arms of policy is furthest apart when M1 is the target.

The relationship between monetary policy and the other arms of policy is, perhaps, closest when M3 is the target. In the first place the movements in M3 are directly linked to counterpart movements in the PSBR, external flows, bank lending and debt sales - and, with the demand-for-money relationship being perhaps least reliable for M3 among all the

(1) If inflation continues and possibly even worsens, there could be growing pressure for allowing/encouraging interest payments on clearing/^{banks} current account balances. while it can be strongly argued that this would improve micro-level efficiency in banking, the effect of this change on macro-level control and targetry would need to be considered very carefully.

The adoption of a target for M2 (M3 less wholesale-type deposits⁽¹⁾) or for a wider monetary aggregate (M5) could be seen as offering a compromise between a target of M1 type or of M3 type. An M2 target would aim to exclude those deposits which banks bid for by raising CD rates and market rates when under pressure, and a wider (M5) target would include more liquid assets with traditionally sticky rate structures thereby reducing the effect on the aggregate of banks' competitive behaviour. In both cases (M5 and M2) the aggregate should be easier to control by normal market operations (i.e. by varying interest rates) than M3, but even so less easy than M1, because in both cases movements in the aggregate would depend on variations in (a set of) own rates that the authorities do not directly control. There would also be room for various distortions. The dividing line between retail and wholesale-type deposits within banks would undoubtedly be quite arbitrary, and, if placed under pressure by an M2 target, banks would take cosmetic action to shift deposits out of one category into another. If an M5 target were adopted, decisions on interest rate changes for National Savings or building societies would become influenced by the desire to obtain a 'good' M5 figure.

Moreover, while the attraction of M3 rests in part on its linkages with the rest of the economy and of M1 on its relatively good econometric relationship, neither M2 nor M5 have either attribute. In order to get from M2 back to the counterparts, PSBR, external flows, etc. it is necessary to estimate the excluded wholesale deposits, i.e. $M2 = DCE + \text{External Flows} - \text{Wholesale Deposits} - \text{Non-Deposit Liabilities}$. It would be somewhat easier ^{in concept though more cumbersome statistically} to maintain linkages with the counterparts with M5, but it would require the designation of a rather awkward liquid assets' sector, e.g. sales of debt to non-liquid-asset private sector and liquid-asset-sector lending to rest of UK private sector. Moreover the boundary of this sector would be appallingly arbitrary, and always open to debate and attack (e.g. some building society liabilities to the public are liquid, some are not).

There are no statistics currently available to allow one to estimate a demand-for-retail deposits equation. Nevertheless the work done on M2 relationships up till 1971, and the partial information on LBS seven-day-deposits since then, suggest that such a relationship probably exists. Because of the statistical limitations of the wider liquidity series, no common date, no seasonal adjustment as yet, arbitrary boundary, etc., little econometric work has yet been carried out on such an aggregate.

(1) Which would be defined as deposits in excess of £1000.

As is clear from the above, the statistical basis necessary for the adoption of a target does not currently exist in the case of M2, and is most unsatisfactory for that purpose in the case of M5. To alter the statistical basis into a form suitable for targetry, by obtaining a (somewhat arbitrary) split between retail and wholesale-type deposits (M2), or by requiring all non-bank issuers of liquid assets to report promptly on banking make-up dates would be most onerous and take time to set up even if everybody was willing. Moreover it would subsequently take quite a long further time to interpret the resulting figures, as happens when any new series is introduced.

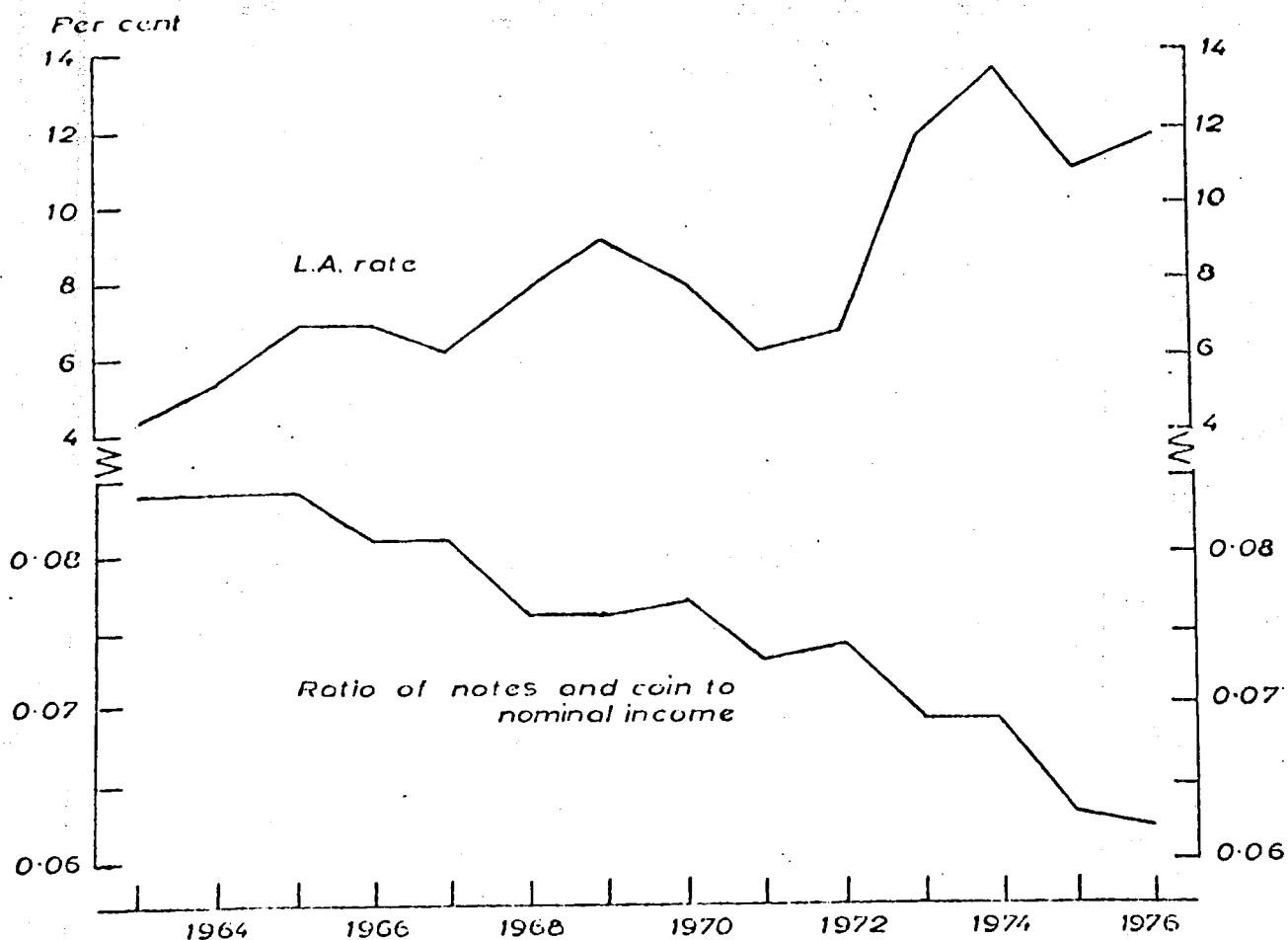
It would however in any case help considerably with our interpretation of monetary developments if we could distinguish the movements of retail and wholesale-type deposits, though returning to the banks for more information so soon after the introduction of weekly figures would be most unhappy. Nevertheless if it was thought that we must stick to a single aggregate for the monetary target, for example on grounds of simplicity and greater strength of purpose, there could be arguments for choosing M2, as a form of compromise candidate, rather than either M1 or M3, though this could not be done in time to set a target for M2 in 1978. A note by RHA commenting further on the statistical aspects of this subject is appended.

Recommendation

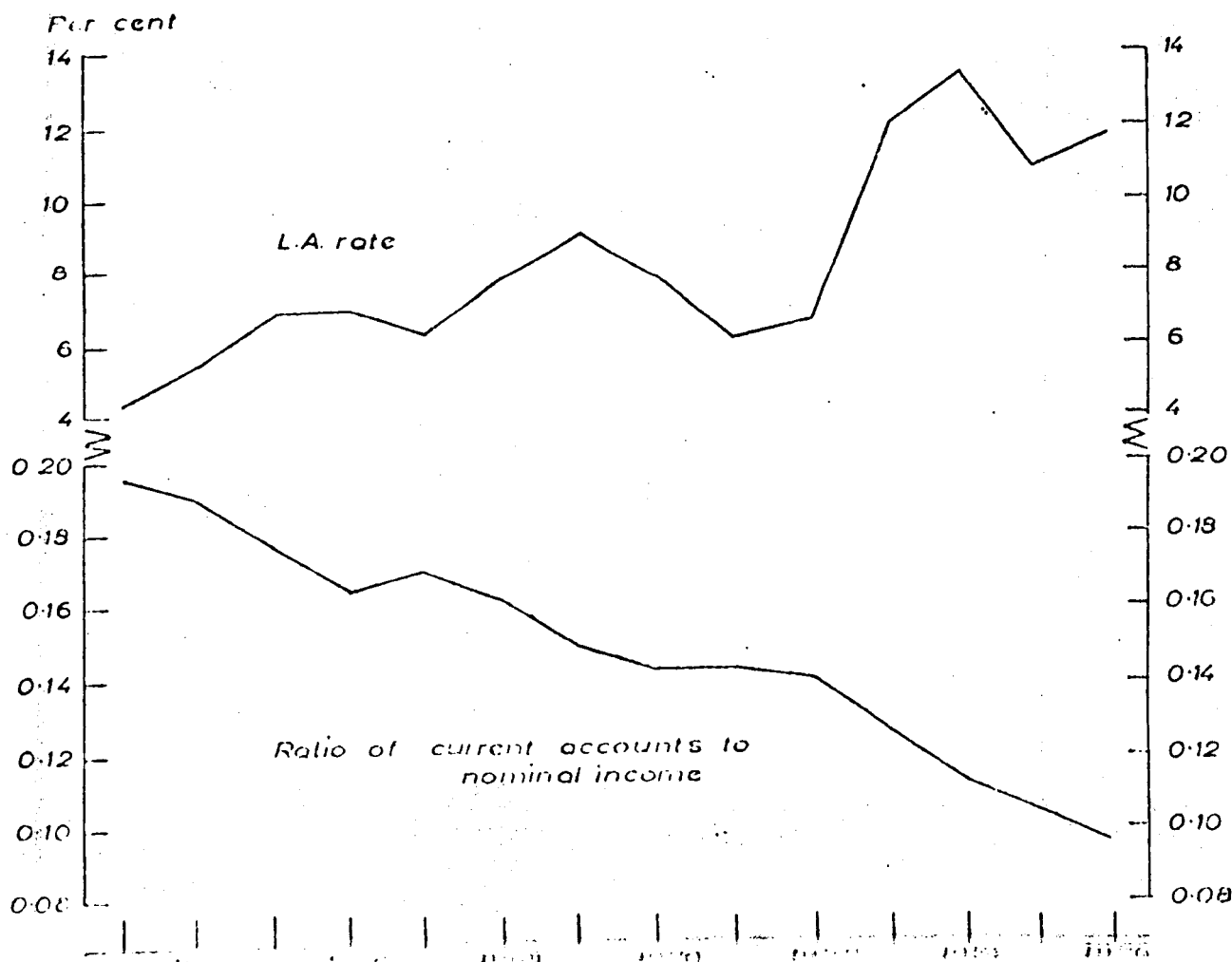
A review of the characteristics of each monetary aggregate reveals that none of them is perfectly suited to perform as the monetary target. All have potentially serious shortcomings in that role. Indeed these shortcomings are sufficiently serious to suggest that sole reliance on any one aggregate could within the foreseeable future put the concept of attachment to monetary targets at greater risk. This risk could be reduced if weight was placed on more than one aggregate. In this respect the characteristics of M1 provide a quite nice balance of strengths and weaknesses compared with M3.

The recommendation here is that in future the monetary targets should be expressed in terms of both M1 and M3, though in the first instance it might be right to suggest that rather more weight be given to the development of M3. But the monitoring of M1 would be more difficult than that of M3. It is more subject to erratic fluctuation. The lack of links with counterparts makes it more difficult to guess progress during the course of a month, while weekly figures will not help much initially

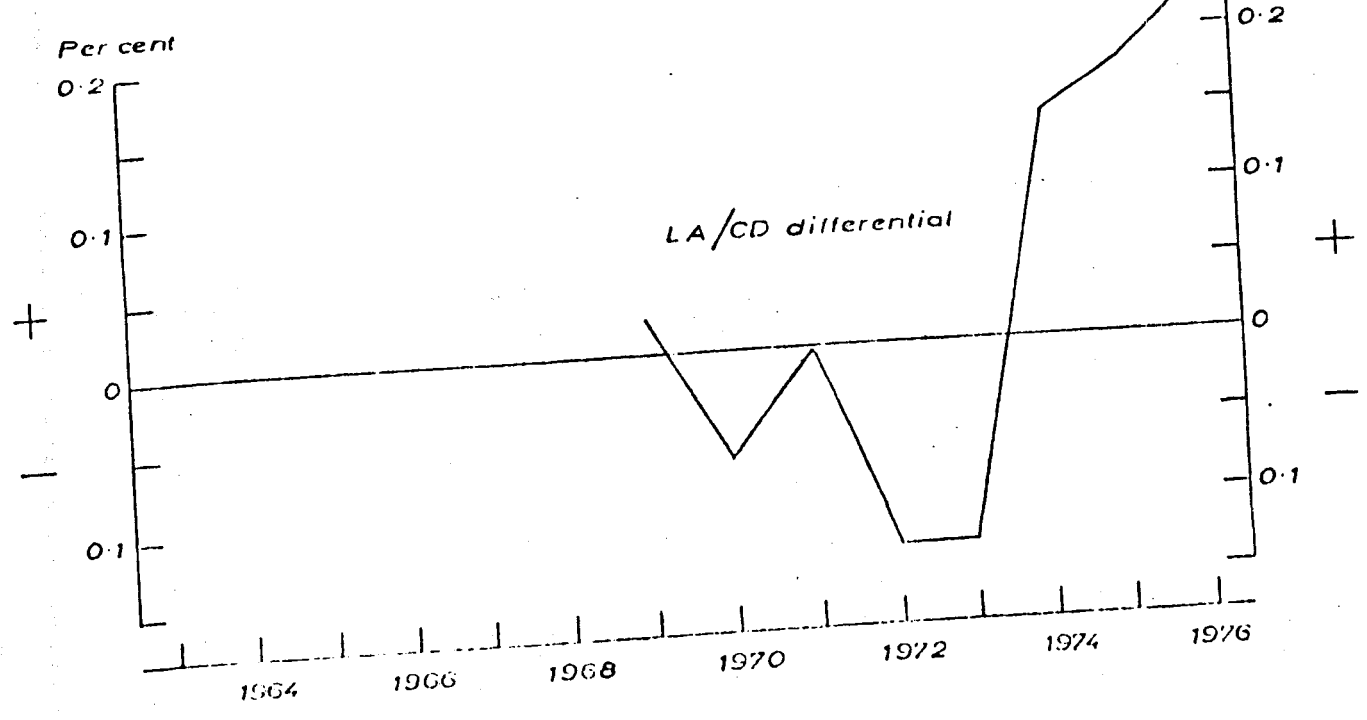
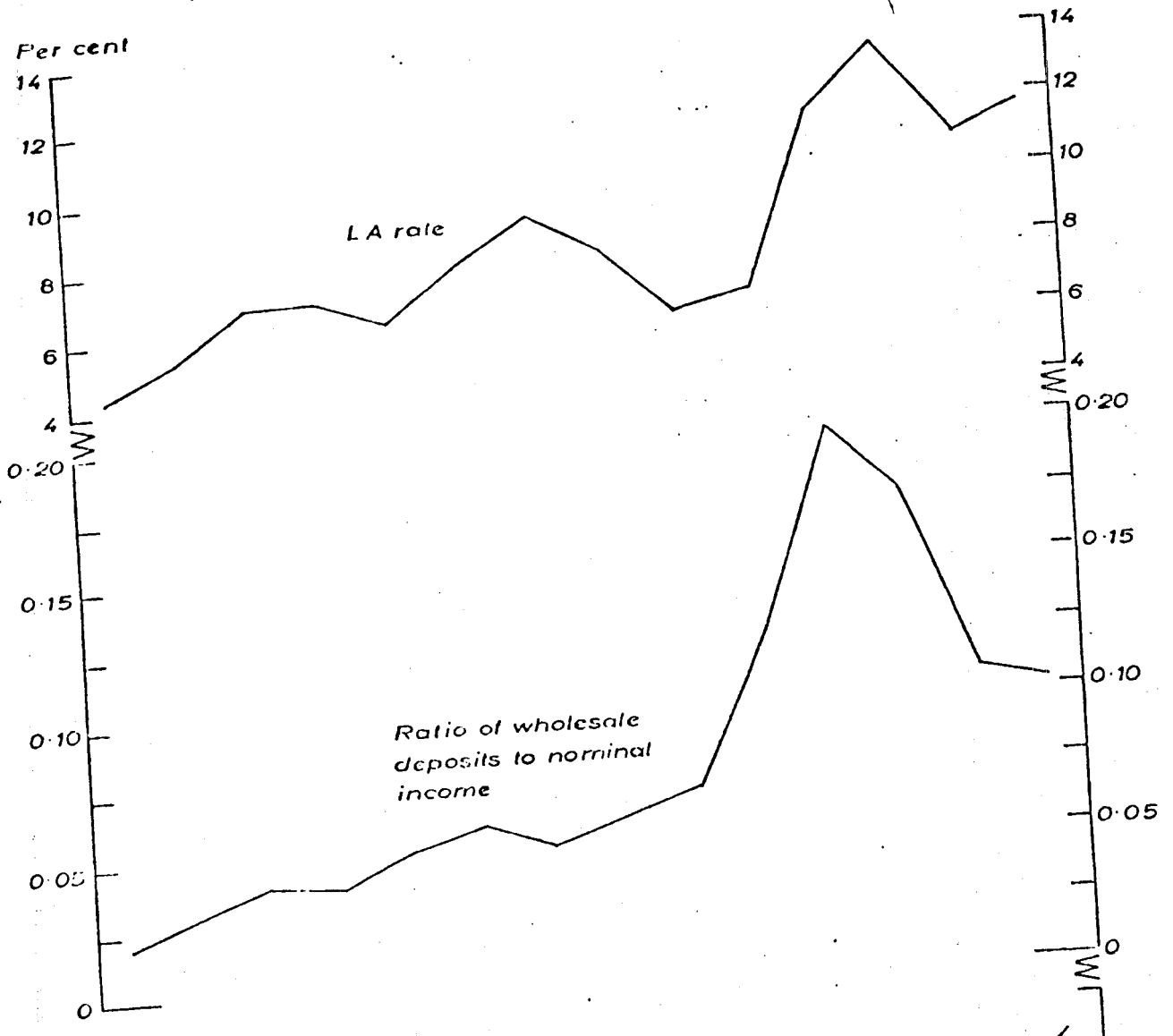
Ratio of Notes and Coin to Income



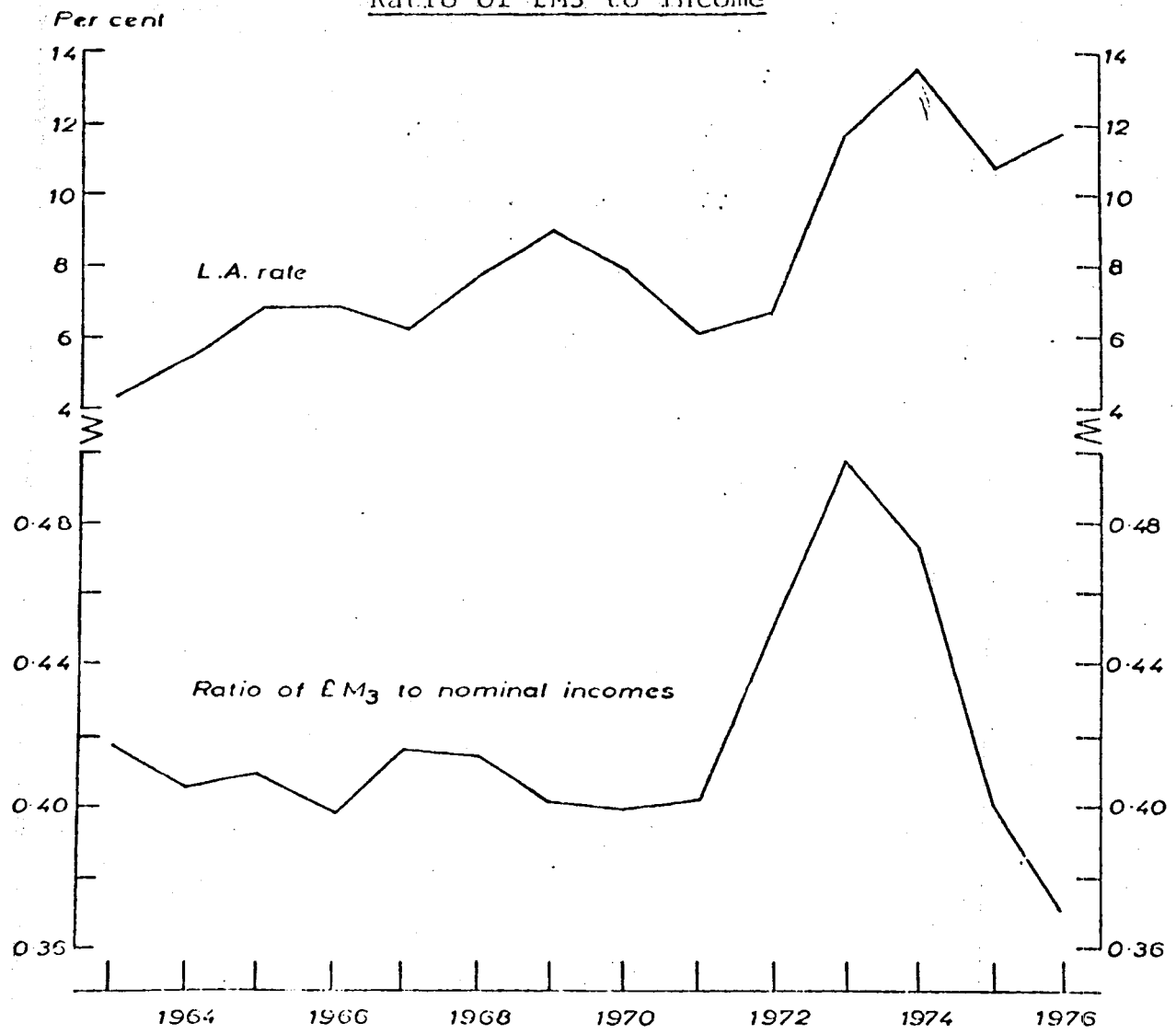
Ratio of Current Accounts to Income

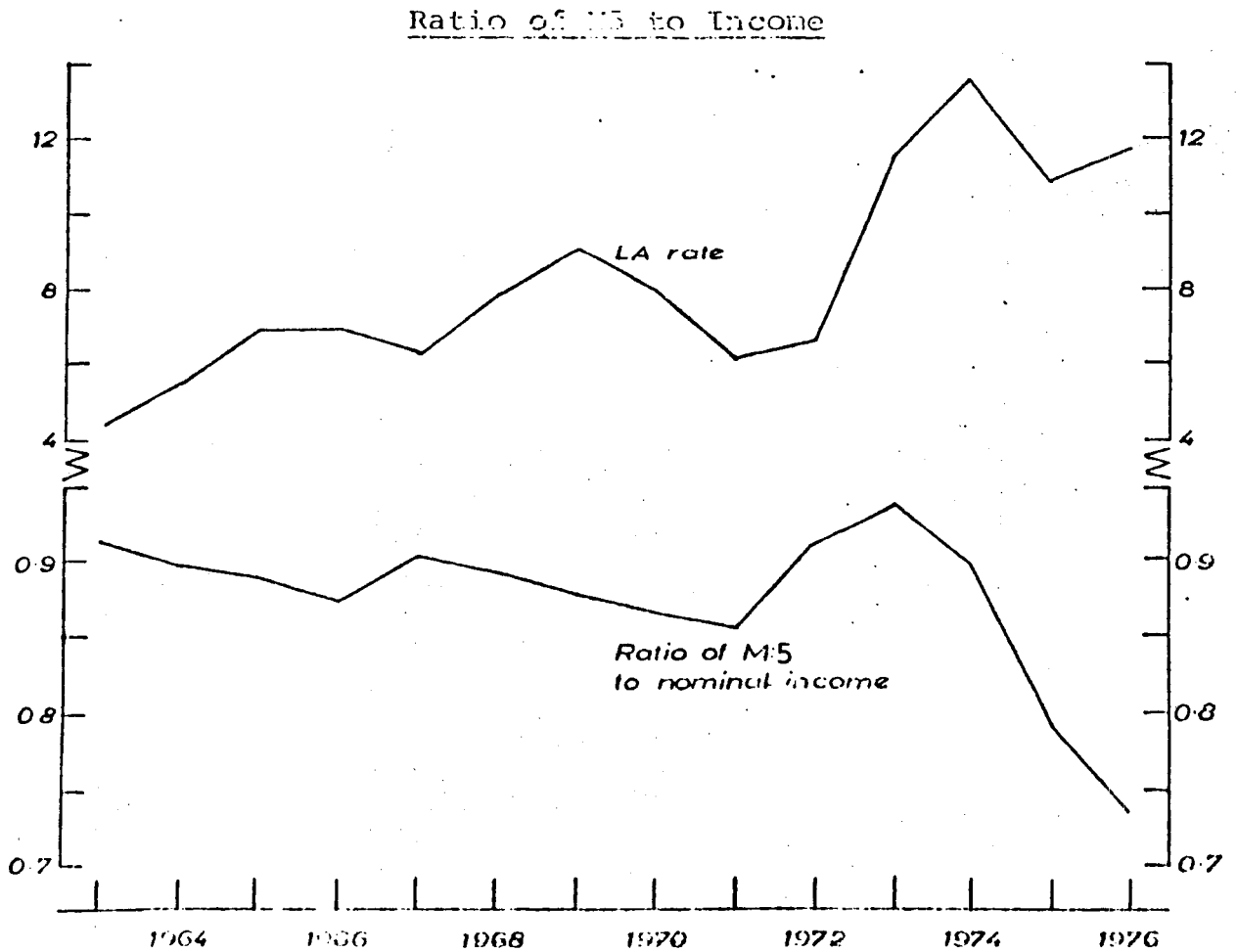
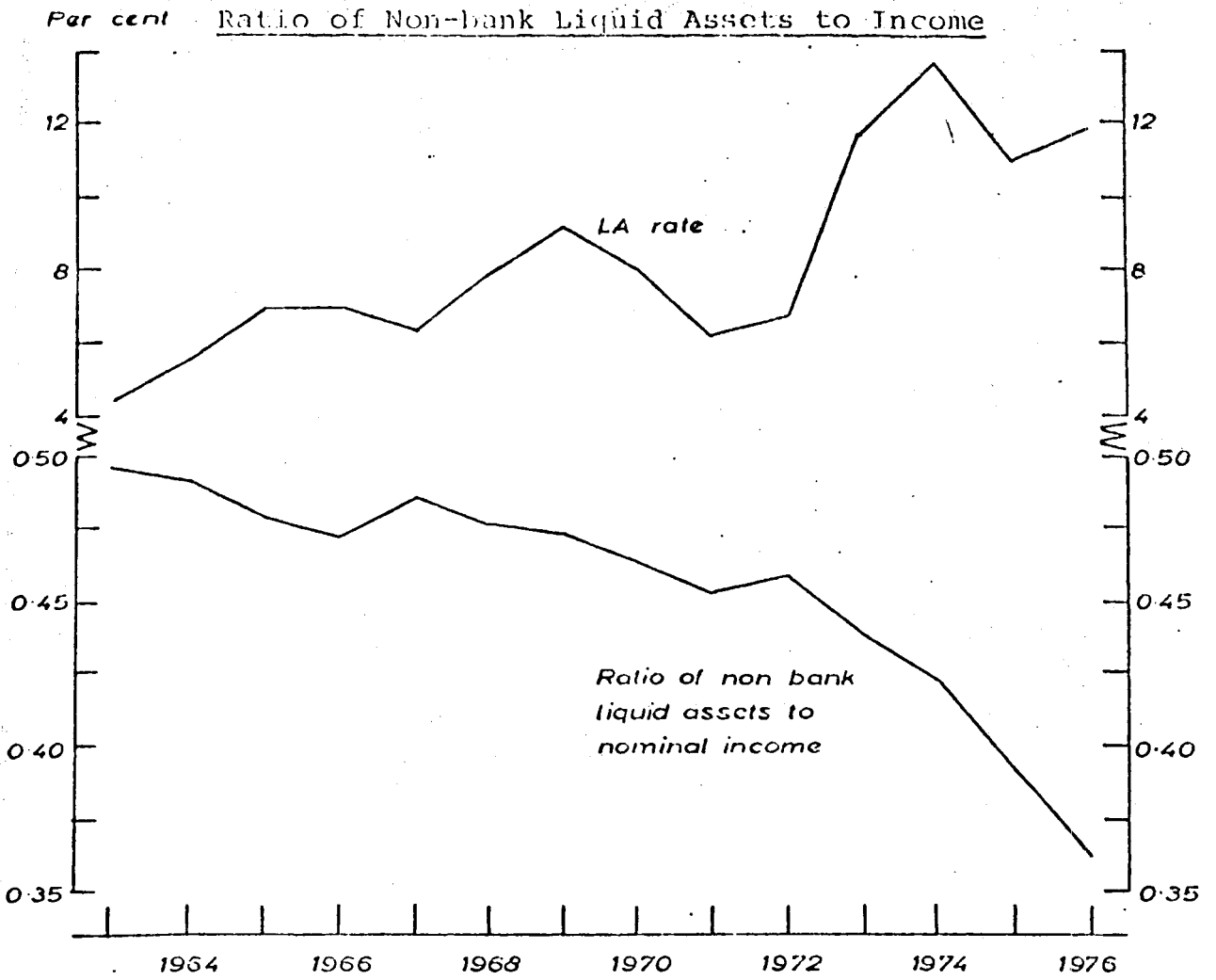


Ratio of wholesale type deposits to income



Ratio of M3 to Income





LDDP

RTC

LMS/JH

To see returns to. From latest SMEB.
CAED

NOTES, COMMENTS, AND REPLIES

CD Behavior and the Use of Broader Monetary Aggregates

A Note by Roger N. Waud*

Recently there has been an increased interest in broader measures of monetary aggregates defined to include other financial assets in addition to those already encompassed in the familiar measures, M_1 and M_2 .¹ The monetary aggregates currently in use at the Fed are defined in terms of their components as follows:²

M_0 = currency

M_1 = M_0 + demand deposits

M_2 = M_1 + time and savings deposits other than large CDs at commercial banks

M_3 = M_2 + savings and loan shares + deposits at mutual savings banks + credit union shares

M_4 = M_2 + large negotiable CDs

M_5 = M_3 + large negotiable CDs.

It will be argued here that whether or not an aggregate is defined to include large negotiable CDs appears to be a major determinant of the manner in which an aggregate may be useful to a policy maker or an aggregate watcher. It appears that shifts toward increased monetary tightness typically lead to an increase in the rate of CD growth that is reflected in a noticeably different behavior pattern for M_4 and M_5 , which include CDs, compared to that of M_1 , M_2 , and M_3 , which do not.³

*This paper was motivated while the author was a visiting scholar on a two-year appointment (August 1973-August 1975) as a Senior Economist at the Board of Governors of the Federal Reserve System. David Lindsey, Jack Kalchbrenner, James Pierce, and Richard Porter provided many helpful discussions. The views expressed here are in no way to be interpreted as representing those of the Federal Reserve System.

Helpful comments were also provided on an earlier draft of this paper by Arthur Benavie and Richard Froyen of the University of North Carolina, and by participants of a seminar at the University of Pennsylvania.

¹Perhaps of most significance and interest is the statement by Arthur Burns, Chairman, Board of Governors of the Federal Reserve System, before the Committee on Banking, Housing and Urban Affairs, U.S. Senate, May 1, 1975, reprinted in [2, especially pp. 285-88].

²Data on the aggregates M_3 , M_4 , and M_5 are presented along with those on M_1 and M_2 on a regular weekly basis in Federal Reserve statistical release H.6.

³Because of this apparent predictability of CD behavior in response to increased monetary tightness, it may be significant when a perceived would-be increase in monetary tightness is not accompanied by the predicted CD behavior.

Roger N. Waud is professor of economics, University of North Carolina, Chapel Hill.

Evidence from Monthly Data, 1972-1975.1

Of particular interest for examination in this regard is the evidence provided by recent experience since 1972. During this time the economy has had its deepest recession since the thirties, experienced an unusual amount of inflation by United States standards, and been subjected to a sudden energy crisis as well as some unsettling and abrupt developments in food markets such as that for wheat. The influence of these events has led to several shifts in the general movement of the federal funds rate, a rate considered by many Fed watchers to be the bellweather of monetary policy during this period. Against the background of these shifts we consider the behavior of the monthly data for the monetary aggregates and their constituent components.

Throughout this period the Fed used the federal funds rate as its operating instrument. The actual federal funds rate along with the monthly tolerance ranges for the rate set by the Federal Open Market Committee (FOMC) at its monthly meetings are shown in Figure 1; occasionally these ranges were changed between meetings as shown.⁴

Four distinct shifts in monetary policy can be identified over the period of time covered by Figure 1. We date these shifts by the changes in the tolerance bands that we take to be indicative of shifts in monetary policy direction; for example, if one or both ends of the tolerance range are moved in a direction opposite to that in which they have previously been moved from month to month, this typically would be treated as a shift in monetary policy.⁵ The first such shift is that toward a tighter policy as manifested by the rapid increase in the funds rate beginning in January 1973 and continuing through September 1973. This largely reflected an increased concern about the accelerating rate of inflation. Second is the shift toward a more expansive monetary posture with the advent of the energy crisis, a phase lasting from October 1973 into March 1974 as reflected by the downward movement of the funds rate over this period. Then in April 1974 the third shift occurred, quite abruptly, back toward a much tighter policy stance, which lasted from April through August 1974, as reflected in the rapid rise in the funds rate. During this phase there was considerable alarm over double-digit inflation. Finally, the fourth shift was back toward monetary ease beginning in September 1974, as reflected in the precipitous drop in the funds rate which continued uninterrupted into June 1975.⁶ This phase, of course, corresponds with the Fed's attempts to deal with a deepening recession.

⁴It is obvious from the chart that the Fed almost always succeeds in keeping the funds rate within its targeted tolerance range.

⁵It might be argued that a change in the direction of the tolerance range for the Fed funds rate is an ambiguous indication of policy maker intentions. For example, one observer might say that an upward shift in the tolerance range marks "a definite decision to fight inflation by slowing the growth of the aggregates." Another observer might characterize the same shift as "a half-hearted accommodation to the reality that inflation was pulling up the funds rate." We could discriminate between the two by whether money growth slowed. The first observer would be wrong if it didn't. Even if it didn't, however, to the extent that the Fed funds rate is moved up into the higher tolerance range, monetary policy is *effectively tighter than would have been the case had the upward movement not occurred*. It is in this sense that we speak of shifts in monetary policy in the ensuing discussion.

⁶Until February 1975, it seems clear that the Fed was accommodating rather than causing the fall in the Federal funds rate, since money growth measured by M_1 , M_2 , M_4 , and M_5

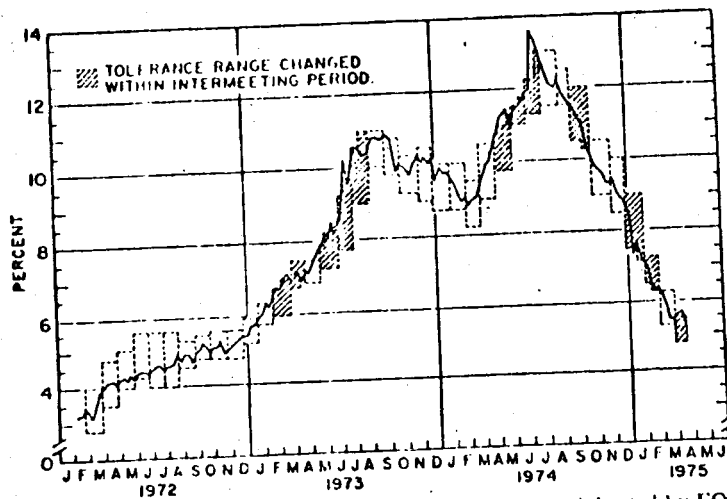


FIG. 1. Actual Federal Funds Rate and Tolerance Range Adopted by FOMC

Now consider what happens to the growth rates of the aggregates M_1 through M_5 , shown in Table 1, after each of these policy shifts. We focus first on those shifts that represent moves to a tighter monetary policy. Consider the months immediately after the shift to a tighter policy in early 1973. What is most striking here is the distinct difference between the behavior of M_1 , M_2 , and M_3 in contrast to that of M_4 and M_5 . From December 1972 to January 1973 the growth rates of all five aggregates fall. From January to February the growth rates of M_1 , M_2 , and M_3 continue to fall, and by contrast those for M_4 and M_5 now rise very nearly back to their December levels. From February through April the growth rates of M_1 , M_2 , and M_3 are all lower than they were in January whereas those for M_4 and M_5 are all higher. This phenomenon is somewhat more pronounced in the case of M_4 than for that of M_5 . During the eight-month phase of increased monetary tightness from February through September the monthly growth of M_4 is higher in six out of eight months relative to what it had been in January, and for M_5 it was higher in five out of eight months relative to January. By contrast, the same comparison for M_1 , M_2 , and M_3 reveals that their monthly growth rates were lower in six of the eight months relative to what they had been in January. More generally, whether one chooses to date the shift to increased monetary tightness as beginning in December 1972 or January 1973, there is a distinct contrast between the behavior of the growth rates of M_4 and M_5 on the one hand the growth rates of M_1 , M_2 , and M_3 on the other.

When we examine the shift to the period of monetary tightness beginning in April 1974 and extending through August 1974, much the same pattern emerges. From Table 1 we see that from March to April 1974 the growth rates of M_1 , M_2 ,

averaged less from September 1974 through January 1975 than in the preceding 5 months. However, for present purposes, the distinction between "accommodating" and "causing" is not relevant. The fact is that the reduction in the funds rate could not have happened unless the Fed "willed" it or was "willing" to let it happen.

TABLE I
Selected Monetary Measures
(percent annual rates of growth)

Date	M_1	M_2	M_3	M_4	M_5
7201	3.1	11.2	12.7	10.9	12.5
7202	11.7	13.1	14.2	13.8	14.6
7203	11.6	11.9	13.2	10.0	11.9
7204	7.5	8.4	10.6	9.4	11.3
7205	3.5	8.3	10.5	10.5	11.8
7206	6.4	10.7	12.7	12.0	13.2
7207	10.8	10.8	13.2	11.7	13.7
7208	7.3	11.0	13.6	11.8	14.0
7209	9.7	10.6	13.2	12.7	14.4
7210	7.7	9.8	12.0	11.3	13.0
7211	7.2	8.8	11.0	11.9	12.8
7212	14.2	12.5	13.1	15.8	14.6
7301	5.2	9.4	10.7	11.2	11.9
7302	4.7	7.0	8.4	15.2	13.6
7303	6.5	5.4	7.0	15.3	13.1
7304	6.5	7.8	8.2	13.8	12.2
7305	13.4	12.0	11.2	14.7	12.9
7306	13.7	11.7	11.8	12.7	12.3
7307	3.6	5.2	6.0	8.3	8.0
7308	-0.5	7.0	5.3	11.5	8.4
7309	-1.4	4.5	4.4	5.6	5.1
7310	4.1	9.5	8.4	5.8	6.1
7311	12.6	12.0	10.5	7.9	7.8
7312	9.4	10.6	10.3	10.9	10.5
7401	-2.7	6.9	7.2	11.1	9.9
7402	9.7	11.1	9.6	13.3	11.1
7403	9.2	9.7	9.7	8.1	8.6
7404	6.1	8.0	7.5	18.2	14.2
7405	4.3	4.5	3.7	12.5	8.8
7406	10.4	11.2	9.0	14.7	11.6
7407	1.7	5.0	4.9	8.5	7.2
7408	0.4	4.6	3.6	4.4	3.5
7409	0.9	3.0	2.9	4.4	4.0
7410	3.8	8.4	7.1	9.8	8.0
7411	8.5	7.9	7.7	5.7	6.2
7412	3.4	3.7	5.9	11.5	10.8
7501	-9.3	3.9	6.5	7.7	8.7
7502	5.5	9.4	10.5	6.9	8.7
7503	11.0	11.8	14.0	6.4	10.4
7504	4.2	7.7	11.7	4.4	9.2

and M_3 decline, but the growth rates of M_4 and M_5 increase. From April through August, the entire period of shift to monetary restraint, the growth rates for M_3 are all lower than its growth rate was in March. For both M_1 and M_2 the same comparison reveals their growth rates to be lower in four out of five of these months—April, May, July, and August. By contrast, the growth rates for M_4 are higher in four out of five months during this period than they were in March. The same is true of M_5 for the first three months of this five-month period.

In order to gain insight into why M_4 and M_5 behave so differently from M_1 , M_2 , and M_3 during periods of monetary tightness, it is necessary to examine the behavior of the components that make up these aggregates. The definitions of the aggregates in terms of those components were given at the beginning of this paper.

M_5 contains all of the components contained in M_1 through M_4 . It differs from M_4 only in that it contains the nonbank thrift component (equal savings and loan shares plus deposits at mutual savings banks) and M_4 does not. M_3 does contain this component, yet we have seen that M_3 behaves more like M_1 and M_2 , and M_4 behaves more like M_5 . The component common to both M_4 and M_5 , but not contained in M_3 (or of course M_1 or M_2), is CDs. An examination of Table 2, which contains the monthly annual rates of growth of each of the components for the same period of time as Table 1, confirms our suspicion that the behavior of CDs underlies the difference between the behavior of M_1 , M_2 , and M_3 as contrasted with that of M_4 and M_5 following policy shifts toward tighter money. The large increase in the rate of growth of CDs after January 1973 is dramatic in February,

TABLE 2
Components of Selected Monetary Measures
(percent annual rates of growth)

Date	Currency	Demand	Time and Savings	Nonbank Thrift	Credit Union Shares	CDs
7201	6.8	2.0	19.7	15.1	13.1	7.2
7202	6.8	12.5	14.9	15.3	19.5	24.9
7203	5.0	13.0	11.8	15.6	19.1	-17.4
7204	4.5	8.3	9.2	14.5	12.6	28.3
7205	6.7	3.2	13.0	14.3	12.4	38.0
7206	4.4	5.7	14.8	15.9	18.5	30.2
7207	6.6	12.7	10.8	17.0	18.2	22.5
7208	6.6	7.5	14.5	18.1	11.9	22.5
7209	8.7	10.0	11.5	17.4	23.6	40.9
7210	10.8	7.4	11.4	15.9	17.4	33.5
7211	10.8	4.9	10.9	14.0	17.1	47.4
7212	12.8	15.3	10.8	13.5	18.9	51.3
7301	6.3	5.4	13.3	12.9	18.7	35.5
7302	6.3	3.6	9.2	10.4	18.4	111.5
7303	8.3	-1.8	10.0	8.7	16.2	121.5
7304	14.5	4.2	9.1	8.6	16.0	72.8
7305	6.1	15.5	10.7	9.4	15.8	39.5
7306	8.1	15.3	9.8	10.8	20.8	20.1
7307	4.0	3.5	6.8	7.3	10.2	37.6
7308	6.1	-2.3	13.4	2.7	5.1	53.8
7309	8.0	-4.1	10.4	3.8	10.1	14.7
7310	6.0	3.5	15.4	6.4	5.0	-25.4
7311	9.9	13.4	11.0	7.9	10.0	-29.7
7312	11.8	8.6	12.1	9.4	14.8	13.3
7401	7.8	-5.7	15.8	7.8	9.8	48.9
7402	13.5	8.6	12.2	6.3	9.7	32.5
7403	11.5	8.6	10.1	9.6	19.2	-3.5
7404	11.4	5.1	9.3	5.8	14.2	104.1
7405	7.5	2.8	6.0	1.5	9.3	74.7
7406	5.6	11.8	11.8	4.3	18.5	42.8
7407	3.7	1.1	7.9	4.7	9.1	33.9
7408	13.0	-3.3	8.6	1.8	0.0	2.4
7409	7.3	-1.1	4.5	2.9	9.1	14.3
7410	10.9	2.2	11.9	4.3	9.0	19.8
7411	16.2	5.6	7.7	7.1	13.4	-9.7
7412	8.9	1.7	4.0	9.2	13.2	67.4
7501	5.3	-13.9	15.3	9.9	17.5	31.9
7502	10.6	3.9	12.8	11.5	17.2	-7.8
7503	12.2	10.6	12.5	17.6	21.2	-30.0
7504	1.7	5.0	10.6	18.1	20.8	-18.7

March, and April when contrasted with the behavior of the other components. Compared to January, the rates of growth of the other components (except for currency) are all *lower* during this three-month period. Throughout this entire period of monetary tightness, compared to January, the growth rates for currency were equal to or less than the January rate in four of the next eight months, those for demand deposits were less in six of the next eight months, those for time and savings deposits were less in seven of the next eight months, those for nonbank thrift were less in all eight months, and those for credit union shares were less in seven of the next eight months. By contrast, the growth rates of CDs were *greater* in six of the next eight months relative to January's growth rate.

When we examine the shift to monetary tightness during the period April through August 1974, again much the same pattern of behavior is exhibited by the growth rates of the components. From Table 2 we see that relative to its growth rate in March 1974, the growth rate of CDs leaps upward dramatically whereas, by contrast, that of each of the other components falls. Relative to March, the growth rate of CDs is higher in all five months of this period; by contrast, nonbank thrift deposits and credit union shares were lower in all five months. Relative to March, the growth rates of currency, demand deposits, and time and savings deposits were lower in four of the five months.

In sum, our examination of the data reveals that when the Fed allows the funds rate to rise, the growth rate of CDs increases abruptly and the growth rates of the other components typically decrease. The significance of this in terms of the aggregates is that the growth rates of M_1 , M_2 , and M_3 , none of which include the CD component, typically decrease, whereas the growth rates of M_4 and M_5 , both of which include CDs, increase as we have seen in Table 1.⁷ The economics of such behavior would appear to be as follows. When the Fed tightens up on credit, banks get around the added constraint on the rate of expansion of their asset portfolios by raising the rates they will pay on CDs and thereby increasing their issuance of CDs. This is because it is less costly for banks in the short run to issue CDs than to contract credit and total deposits. Hence the rates of expansion of M_4 and M_5 do not initially reflect the tightening of monetary policy that we observe in M_1 , M_2 , and M_3 .

Consider now the behavior of the aggregates in those periods when monetary policy has shifted towards greater ease—the period from October 1973 through March 1974, and the period beginning in September 1974 and continuing into 1975. Unlike the periods of greater monetary tightness just examined, during periods of shift to greater monetary ease we do not observe in Table 1 any notable differences among the behavior patterns of the growth rates of the five aggregates. All seem to show fairly similar patterns of expansion in the early months in both of these periods. However, when we examine the behavior of the growth rates of the components in Table 2 during these two periods we again observe a rather notice-

⁷From Table 2 the growth rate of CDs subsequent to the first monetary tightening appears to peak in March 1973; the rate of growth in April 1973 is still higher than any of the CD growth rates in 1972, the period prior to the tightening. During the second tightening phase, the peak in the CD growth rate occurs in April 1974 whereas the rate of growth in May is still higher than in any month during the previous easier phase from October 1973 through March 1974.

able difference in CD behavior as compared to that of the other components. The shift toward the easier money period, October 1973 through March 1974, precipitated a drop in the growth rate of CDs from 14.7 percent in September 1973 to -25.4 percent and -29.7 percent in the next two months, the first two months of the easy money period. Nowhere near this kind of volatility is observed in the other components, nor were any of them growing at negative rates. However, with the shift to the next easy money period, beginning in September 1974, CD behavior is just the opposite, rising from a 2.4 percent growth rate in August 1974 to rates of 14.3 and 19.8 percent in September and October. By comparison, the other components behave in much the same fashion as they did in the previous period of easier money. Throughout both of these periods CD behavior is extremely volatile by comparison with the other components. However, the anomalous behavior of CDs does not seem to overwhelm that of the other components enough to cause the behavior of M_4 and M_5 to appear all that different from the other three aggregates in Table 1.

Implications for Monetary Policy

Our examination of monthly data for the aggregates suggests that, during periods when monetary policy shifts towards greater tightness, there is a distinct difference between the behavior of the growth rates of M_1 , M_2 , and M_3 , on the one hand, and those of M_4 and M_5 on the other. M_1 , M_2 , and M_3 appear to reflect the increased tightness in a much more pronounced manner than either M_4 or M_5 . To the degree that an aggregate's behavior is an indicator of the future course of economic activity,⁶ the aggregates M_1 through M_3 would appear to be earlier indicators than

⁶Recent regression analyses [1, 3] indicate that all aggregates such as M_1 through M_5 , or changes in them, bear a positive relationship to changes in GNP. Using quarterly data, as was also the case in [1] and [3], such an analysis was carried out in the course of this study (the results will be furnished to the interested reader on request). Although the relationship between changes in the aggregates and changes in nominal GNP appear to be strongly significant, whichever one of M_1 through M_5 was used, it was not possible to discern any statistically significant difference between the regressions. The analyses in [1] and [3] found very similar results in this regard, although each of these studies used somewhat differently defined aggregates from those examined here. There are at least three *interrelated* reasons why such regressions do not tell all on the issue of whether there is a difference between the aggregates. First of all, the regressions are estimates of the "on average" behavior of the data—a characteristic of any regression analysis. Second, because the GNP data are quarterly, the monthly behavior of the aggregates is averaged out when they are measured quarterly to make them temporally comparable with the GNP data in order to run the regressions. Third, the Fed's FOMC meetings are monthly and the behavior of the monthly data for the monetary aggregates is what they focus on when formulating policy.

It should be pointed out that we do not view these regression analyses as necessarily saying anything about a causal relationship between monetary aggregates and GNP such as that suggested by the proponents of the St. Louis-type equation. The proposition of causality is not necessary to the question examined here. So long as policymakers look at monetary aggregates as indicators or predictors of the effects of their policy actions on economic activity, it is sufficient to examine the question of whether there is any significant difference among the aggregates in terms of the degree to which they are correlated with current and subsequent movements in economic activity. In this sense it is not so much a question of *why* the sun rises, but rather which of five roosters crows in a fashion that best predicts the sunrise. We interpret the regressions discussed here from the latter point of view.

M_4 or M_5 . The evidence examined here suggests that failure to distinguish between these aggregates could obviously lead to a less than optimal policy strategy. Suppose the Fed were to shift to a tighter monetary policy and that it was focusing on M_4 or M_5 to gauge its effectiveness. To the extent that the growth rates of these aggregates fall less than those of M_1 , M_2 , or M_3 in response to increased tightness, the Fed might well be led to follow a much tighter policy than is consistent with the level of economic activity it desires to bring about.

For periods when the Fed shifted toward greater ease, the monthly data for the aggregates do not reveal a notable difference in behavior among them. However, both the volatility and the unpredictability of the growth rate of CDs during these periods suggest it may be unwise to look at aggregates, such as M_4 and M_5 , that contain this component. Although this behavior did not appear to show up that significantly in M_4 and M_5 during the periods we examined, it could very well make a significant difference in some future period of shift toward easier money.

Finally, because the behavior of CDs appears to be quite predictable when monetary policy shifts towards tightness, an occasion when a shift to monetary tightness is not accompanied by the predicted CD behavior may well be a signal that increased tightness is not appropriate, that spending activity is in fact beginning to slacken, and therefore loan demands at banks are not large enough to cause banks to issue more CDs in an attempt to raise funds.

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35/08

BANK OF ENGLAND
Threadneedle Street
London
EC2R 8AH

1st December 1977

TREASURY
- 6 JUL 1978
H. F. C. S.

J.M.Bridgeman, Esq.,
HM Treasury,
Treasury Chambers,
Parliament Street,
London,
SW1P 3AG

Dear Michael,

I attach a wadge of papers on subjects of current interest in the monetary area. The first set of papers provides further material dealing with the choice of monetary aggregates as targets. This includes a main paper setting out recent history and emphasising the large scale variations in wholesale deposits that have occurred in recent years. This paper then goes on to discuss in the light of recent events the arguments for and against choosing one aggregate rather than another as a target. This is supported by an accompanying statistical note by Bob Atkinson, an academic comment from a recent American Journal on monetary developments in the US, and three shortish papers reporting preliminary econometric work on the demand for M3. We have not got very far with the latter yet, but our preliminary results suggest clearly that a single demand for money function (for M3) is very difficult to fit successfully over the whole period, and is not yet sufficiently re-stabilised since the disturbance of 1971/1973 to provide a confident basis for forecasting. We have some hopes of trying to develop a larger model in which to explore the possibility of disequilibrium between the supply and demand of M3, but that remains a will-of-the-wisp for future work. In contrast to the relatively unsuccessful attempts to fit demand for money functions for M3, we have successfully re-estimated what appears to be successful and stable demand functions for M1. I will be sending you a long and thorough paper on this, written by Richard Coghlan, probably early in the course of next week. The second set of papers, which I am sending you, relates to certain technical questions concerning rolling targets. I think that these latter will be self-explanatory.

Happy reading!

Yours sincerely,

Charles

C.A.E. Goodhart

35/05

TREASURY
- 6 JUL 1978
H. F. C. S.

Mr Bridgeman

- cc Mr Wiggins
- Mr Matthews
- Mr King
- Mr Spencer
- Mr Williams

BANK PAPERS ON THE MONETARY AGGREGATES AND MOVING TARGETS

We need to consider how to deal with the wad of papers which Mr Goodhart sent over last week. Until we receive the vital material on M1 which we have been awaiting for so long and which is promised early this week it will not be possible to reach a properly considered conclusion. But the papers are so bulky we ought to start thinking about them and I suggest we might prepare two pieces of work on the technical merits of the arguments:

- a. The appraisal of the Bank's assessment of the case for various measures of the money supply.
- b. Some comments on the technical problems which they have been looking at associated with rolling targets.

The Bank papers are complicated and will require a good deal of cooperative effort on our part. I suggest however that we might proceed as follows:

- i. Prepare quick comments on all the papers - in note form. Perhaps Mr King could coordinate these in so far as they affect the M's and Mr Matthews or Mr Bell coordinate the ones relating to moving targets.
- ii. Prepare a more considered note on the technical aspects of the various indicators. I suggest that Mr King's paper of 14 October on Indicators of Monetary Stance which I am ashamed to say we have never discussed, could form the framework for a considered paper on the subject incorporating our main points on the Bank papers.

We need the initial comments fairly quickly - we really ought to think in terms of a meeting early next week in case the Chancellor wishes to say anything on either subject before Christmas. On balance however this seems a rather likely eventuality than it did at one time and it might be best to think in terms of the redraft of Mr King's paper for consideration by say Friday 16 December.

5 * Cash
P E MIDDLETON
6 December 1977

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MR LITTLER

cc Mr Isaac
Mr Middleton
Mr Dixon
Mr Wiggins (OR)
Mr Williams

Mr Fforde)
Mr Page) Bank of
Mr Goodhart) England

MONETARY TARGETS ETC

I attach a first draft of the monetary section for the Chancellor's statement next week, if there is to be such a statement. As I see it, the main purposes of the draft are to emphasize the Chancellor's determination to keep control of the monetary supply, to take credit for the timely action on the exchange rate and interest rates, to emphasize the importance of using monetary targets sensibly and to refer to the possibility of switching to rolling targets next year.

2. I also attach a list of the issues which will have to be decided before the full details of the new system are set out and the specific target named. It also indicates those issues which probably ought to be settled before even the limited announcement outlined in the draft is made. We presumably ought to think in terms of letting the Chancellor have a paper on the latter group of issues by the weekend.

3. How much or how little is put to the Chancellor on the first group of issues, namely the choice of aggregate, depends critically on whether the Bank wish to press further the question of having a target for M1 as well as M3, whether as a secondary target or as a single one. My understanding is that the Chancellor has made a provisional decision that he only wants one target, but it is, at this stage, still open for the Bank to re-open the issue after discussion with us if they wish to do so. There are two general papers in existence on this - the very simple summary of pros and cons included in the longer version of my paper on rolling targets, and Mr Goodhart's paper on M1 which the Governor put to the Chancellor. We received at the end of last week a number of technical papers by the Bank which are relevant, but they all concentrate on the strength and weaknesses of M3: we are still awaiting the substantive paper on M1. If the Bank now accept that,

whatever the economic merits, the political arguments against having two targets are such that a secondary target for M1 is no longer a live issue, then clearly we can put this to the Chancellor, leaving for further discussion between ourselves how M1 can best be used as a lead indicator. If, on the other hand, the Bank still want to pursue the idea of a secondary target, I am doubtful whether we can get the technical considerations carried to the stage at which we can put forward a reasonable paper for discussion between the Chancellor and the Governor before the statement - the statement would have to avoid being specific on the choice of target variable (as the present draft is). This does, of course, make it even more of a non-event.

4. The only other group of issues which ought to be settled at this stage are the linked ones of the principle of a calendar year and half year roll forward and announcement in the Budget and roughly 6 months later. My impression was the Chancellor has agreed this on the basis of the earlier submission, and that probably it would be sufficient to re-submit what he has already had on this. It will also be necessary to put in a note explaining the problems with the Chancellor of the Duchy's alternative of always using the last 12 months figures. This could draw on the work which Mr Locke did for you.

5. I would have thought that the right thing to do on the other issues would be to prepare a synoptic paper with a series of technical annexes. The Bank have already produced some technical papers on this. If it is agreeable to you and Mr Fforde, I would suggest that Mr Middleton and I should carry this forward with the Chief Cashier and Mr Goodhart to the stage at which we could put a draft of the synoptic paper forward for discussion between Mr Fforde and yourself.

6. I am sending copies of this direct to Mr Fforde and the Chief Cashier as I think the first step is for you to have a word with Mr Fforde about how the matter can best be handled between the Bank and ourselves in the next day or two.

J. M. B.
J M BRIDGEMAN
7 December 1977

DRAFT

Control of the Money Supply

[The repayments of overseas debts which we are now able to make are but one benefit from the recovery in the United Kingdom's standing in financial markets which we have been able to secure over the last 12 months.] One factor which has helped this recovery, and which I intend to continue, is the practice of setting specific monetary targets for the period ahead. Sensibly applied, the existence of such targets can both reassure the markets of the Government's determination to keep control of the monetary aggregates and give some indication of the likely stance of monetary policy over the period.

The primary monetary objective this year has been to keep within the limit for domestic credit expansion of £7.7 billion which I agreed with the IMF this time last year. In the first half of the financial year DCE was only a little over £1 billion. While I expect DCE to be higher from now on, because the exceptionally low level was associated with the large inflows of foreign money across the exchanges, I am confident that the cumulative figure will not only be well within the limit of £7.7 billion by the end of the financial year, but will not even have exceeded it 3 months later.

However, as the balance of payments has swung into surplus the control of the money supply has become relatively more important than limiting DCE. As I made clear to the House on 10 November, I would not like to see the growth of £M3 for the year as a whole very far outside the preferred range of 9-13%. So far this year that has been the case: the figures for banking November published this afternoon show that up to then the growth has been at an annual rate only a fraction over 13%. But trends were clearly developing by the end of October which were putting at risk our ability to continue to control the growth of the money supply: that is why I took timely action both to change our

intervention tactics in the exchange markets and subsequently to allow the adjustment in short term interest rates which brought MLR back to 7%, its level at the beginning of September.

I expect this action to be sufficient to bring the growth of the money supply back to the desired trend, although as I indicated to the House, the tax reliefs which I announced 6 weeks ago may lead to one or two high months of rapid growth of the money supply at the turn of the year.

More generally, it is most important that monetary targets should be used sensibly, if they are not to defeat their own purpose. There are many inevitable fluctuations in the components of the change of money supply from month to month. But most commentators agree that it is the underlying trend of the growth of the money supply that affects the rest of the economy. This means that it would both be unnecessary in relation to the Government's overall economic policy, and thoroughly destabilising for the markets, to try to control it over too short a period, or to attach critical importance to making sure that it is at a particular level at the end of a particular, but inevitably arbitrary, calendar period. I want to avoid the excessive market reactions one way or the other, with the markets trying to out-guess the reactions of the authorities, which can arise if the system of monetary targets is applied too mechanistically or for too short a period. I intend that the emphasis therefore should be on keeping growth fairly close to the desired trend, with the authorities reacting in a timely way when it appears that developments in respect of one or more of the components of the growth of the money supply are putting the control of the total at risk. So far, I hope that the actions which we have taken in relation to the exchange markets and short term interest rates has shown that the Government's readiness to react in this way. For the future, I am looking very seriously at the possibility of using rolling targets for the money supply from next year onwards as a better way of presenting monetary targets. But there are still quite a few technical problems to be thought through before I finally decide what form of monetary target I should announce in next year's Budget.

ISSUES ON MONETARY TARGETS

Required:

- | | |
|----------------------------------|--|
| a. For statement
of principle | b. for
exposition
of details
and for
specifying
target in
Budget |
|----------------------------------|--|

1. Choice of Aggregate

a. Relative importance of M1, M3, M5 and DCE as either influencing economy or being a lead indicator for important trends. ✓ (✓)

b. Relative suitability as a target. ✓

c. One target or several, and if the latter whether any precedence. ✓

2. Criteria for Setting Target or Targets

What criteria to be used - in particular in relation to

a. desired and expected rates of growth of inflation - earnings and prices. ✓

b. forecasts of growth of money GDP and TFE. ✓

c. flow of funds forecasts, and assessment of financial position of various sectors. ✓

d. market expectations particularly about trend from year to year. ✓

Required:

- a. For statement of principle
- b. for exposition of details and for specifying target in Budget

- e. timing of lags. ✓
- f. interaction with external capital account / exchange rate. ✓

3. Base Date

- a. Principal of calendar year and half year roll forward. ✓
- b. Principle of Budget and October/ November announcement. ✓
- c. Rejection of "last 12 months" alternative. ✓
- d. One or three months? ✓
- e. Which month or months? ✓

4. Range or Single Figure

- a. Range or single figure. ✓
- b. "Cone" or "tramlines". ✓
- c. Width of range ✓

5. Presentation

- a. How to get emphasis on trend rather than month to month figures. ✓
- b. How to minimise risk of destabilising markets. ✓

MR WIGGINS

ROLLING TARGETS

77/68
TREASURY

5 JAN 1979

H. F. C. S.

cc Mr Matthews

You showed me a copy of the minute, internal to the Bank, from Mr Page to Mr Goodhart. I hope that this minute cannot be taken as a good indication of the Bank's thinking on rolling targets. There are four areas that concern me:

1. A point, as opposed to range, a target will inevitably become a ceiling. The Bank recognise that the authorities can justify divergences from the target as a result of unforeseen developments. It is likely, however, that commentators will take a different view; the advantage of a range is that it allows us to operate with some room for manoeuvre. I would also hope to be able to operate within different ranges according to the time period assessed. For example, we could specify our target as 9-13% for a three month moving average, and 7-15% for the monthly figures. I accept that there is no chance of a formal target along these lines, but it might be an idea that could be publicly mentioned at some stage.

2. At the bottom of his page 2, Page mentions that monitoring by a cone means that an erratic element in the figures at the start of the year could, when grossed up, give a very misleading picture of the trend. We were, as he says, lucky to stay within the cone during the early months of this banking year. Erratic movements at the end of the financial year are less important. It is to avoid this problem, that we must base the new target on some period in the past; we will then be away from the apex of the cone, and know whether movements since the start of the target year are within the desired range. Page's idea of a constant band around each figure is sensible, but gives commentators very little with which to compare each monthly figure.

3. I am strongly opposed to the suggestion (at the top of page 3) that each base should be a single month, rather than an average. In theory, Page is correct and we could pick up any erratic element with a different target for the following period. Even assuming a constant underlying trend, however, this would mean targets that fluctuated up and down with the erratic elements of particular months. If we manage to reduce the target

from one period to the next, there would be every expectation that we would have to increase it in the following period. But this has presentational and political difficulties. It would be much more sensible to accommodate any erratic element in the target base and maintain an unchanged target over the subsequent target periods. There is another point here. Although a target will relate to the money supply growth ^{between} over two periods, there is an implicit expectation that any target (perhaps taken in conjunction with targets for earlier periods) carries an indication of the likely target in subsequent periods. Thus, our earnings target has been falling over time, and there is an expectation that it will continue to do so (other things equal). If the monetary target fluctuated because of erratic elements in the base period, then it would bear no relation to the underlying trend.

4. I take the point in Page's footnote on page 3, but there is surely every advantage in getting the press to monitor in terms of moving averages. An erratic high may be the first of a new, higher trend but the authorities, who have more information than the press, are in a position to act on this. The footnote seems to assume that we will become victims of our own propaganda.

I have not sent a copy of this minute to Mr Bridgeman at this stage, as I assume that Mr Goodhart sent it to you on a personal basis.

M L WILLIAMS

8 December 1977

P.S. I dictated this minute before seeing Mr Middleton's minute of 6 Dec, plus attachments. It can therefore be taken as my initial contribution to the notes Mr Bell is assembling.

*lh
8.12*