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Effects of Changes in Banking and Exchange Control  
Legislation in the United Kingdom on the Significance  
of the Money Aggregates as Indicators 1971-81 1/

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I. Introduction

In the decade 1971-81 there were several changes made to banking legislation in the United Kingdom. In September 1971 the banking system was deregulated. At the end of 1973 the Supplementary Special Deposits Scheme (hereafter referred to as "the corset") was introduced; it was removed in early 1975, reintroduced at the end of 1976, then removed in mid-1977 until mid-1978, when it was reintroduced. It was then finally abolished in June 1980. Until 1979, too, exchange controls, principally directed at discouraging resident outflows, were in operation. In October 1979 these controls were completely abolished.

These developments had important implications for the significance of the various money aggregates as indicators of the thrust of the monetary sector. This paper will try to review the ways in which the monetary aggregates have been "distorted" as indicators by the changes in legislation which have occurred. In the discussion, we focus principally on M1, sterling M3 (SM3), and M3. (For definitions of these aggregates see Table 1).

To begin, it is important to distinguish money aggregates as "indicators" and money aggregates as "targets." <sup>2/</sup> When one is dealing with a money aggregate as an indicator, one is concerned with the question of whether its trends or development are a "good" reflection of the "true" thrust of the monetary sector on aggregate demand. For example, if the growth of M1 increases, is this an indication that the monetary sector is expansionary? Frequently, and particularly so in the United Kingdom, different money aggregates will point in quite different directions, some, for example, appearing as expansionary while others may appear restrictive (see Table 1). How in these circumstances is one to decide

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<sup>1/</sup> The author received helpful comments from H. Schmitt, J. Boughton, and L. Lipschitz. I am grateful to B. Tucci-Bartsiotas and A. Johannessen for research assistance.

<sup>2/</sup> See Argy (1983).

which aggregate points in the right direction as an indicator? By contrast, when one is dealing with a money aggregate as a target, one is principally concerned with the question of which money aggregate serves best as a stabilizer, say, of the growth of nominal income.

Because money aggregates serve different purposes as "indicators" and as "targets," particular money aggregates may be poor as indicators but serve well as intermediate targets. To illustrate this point consider base money and M1 as both "indicators" and "targets."

Suppose real expenditure rose and as a result income and interest rates both rose. Suppose, too, that base money is the target and is kept unchanged. There will now be increased demand for currency to hold; this will deplete bank reserves and put downward pressures on the money supply. At the same time, higher interest rates may encourage the banks to reduce their free reserves and this would put upward pressures on the money supply. Suppose the first effect is dominant, then the fall in the money supply would serve as a stabilizer to income: so base money would be a "good" target in this sense, but it would nevertheless be a poor indicator in that, although it remains unchanged and so as an indicator it is signaling no change in the money thrust, the associated deceleration in the growth in the money supply is stabilizing.

Consider now M1. Suppose M1 were demand determined so it rose (fell) as income rose (fell). To simplify, suppose that the total of bank deposits is fixed but the weight of demand deposits increased as income rose. Now M1 would again be a poor indicator but it would nevertheless be a good target. It would be a poor indicator because although M1 rose, the thrust of the monetary sector is not in fact more expansionary. There is simply a switch from time to demand deposits. Nevertheless, M1 would be a good target because the monetary authorities would, in the circumstances, take action to restrict the growth of M1, which would be stabilizing to income.

In more general terms, a good case could be made for the view that a broad money aggregate which includes time deposits is probably a better indicator of the monetary thrust than either base money or M1. But M3 may not be a very good intermediate target, being in this respect probably inferior to both M1 and base money. 1/

In what follows we consider the distortions to the money aggregates, created by changes in legislation, under three headings: (a) the effects of Competition and Credit Control (CCC), (b) the effects of the Supplementary Special Deposits Scheme ("corset"), and (c) the effects of the removal of exchange controls.

To put the matter in historical perspective there are eight relevant phases:

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1/ This is roughly the conclusion reached in the paper by Argy (1983).

1. From the implementation of CCC in September 1971 to the introduction of the corset in December 1973.
2. Corset (I)--December 1973 (effective April 1974) to February 1975.
3. No corset--February 1975 to November 1976.
4. Corset II--November 1976 (effective February 1977) to August 1977.
5. No corset--August 1977 to June 1978.
6. Corset IIIA--June 1978 (effective August 1978) to November 1979 (end of exchange controls).
7. Corset IIIB--November 1979 to June 1980.
8. Post-corset, post-exchange controls from June 1980.

## II. Competition and Credit Control (CCC)

The principal changes introduced by CCC in September 1971 were the following: controls over bank interest rates were lifted; lending ceilings, which had been the principal method of monetary control up to then, were discontinued; the 8 percent minimum cash ratio and the 28 percent minimum liquidity asset ratio were both replaced by a 1 1/2 percent cash ratio and a 12 1/2 percent minimum reserve asset ratio, respectively. 1/

From our standpoint the freeing of controls over bank lending and interest rates was the most important development. Table 2 tries to provide a detailed indication of how the money aggregates would have been distorted by deregulation as such.

It is evident from a close examination of the table that the effects are very complicated. We concentrate, to begin with, on the effects of deregulation, i.e., the effects of the banks' competitive bidding for funds which followed deregulation. 2/

To begin, the banks can attract funds out of currency into interest-bearing deposits. In this case, M1 will fall but SM3 and M3 will be unchanged. Clearly, M1 will now be a poor indicator, since there has not been any significant change in private sector liquidity.

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1/ Eligible assets here are balances with the Bank of England, Treasury bills, local authority bills, money at call with discount houses and listed brokers, commercial bills, and government securities with one year or less to maturity. Previously eligible liquid assets were cash, money at call with discount houses, commercial bills, and Treasury bills.

2/ This became particularly acute from end-1972.

In principle, too, the banks could attract funds from overseas: 1/ if residents switch from foreign deposits, SM3 will rise but M3 and M1 will be unchanged. Now SM3 will be a poor indicator while M1 and M3 will be better indicators.

The inflow into interest-bearing deposits may also come from demand deposits. 2/ In this case M1 will be distorted.

The higher interest rates offered on interest-bearing deposits may also attract funds from outside the banking system (e.g., from finance houses, building societies, etc.). This forces up market interest rates; the probable end result is some fall in M1 while SM3 remains unchanged. 3/ Now, however, SM3 will be a poor indicator because although SM3 is unchanged the thrust of the monetary sector is now restrictive (i.e., there is now an increase in the demand for SM3, which is deflationary). In this case M1 might be the better indicator.

If the interest rate on advances adjusts upward more slowly than the interest rate on time deposits, there is a possibility that the latter will be higher than the former, encouraging "round tripping," i.e., borrowing to place funds in interest-bearing deposits. Now SM3 and M3 will record an increase while M1 will be unchanged. Although round-tripping creates additional deposits, these are, by definition, held idle hence have no significance for aggregate demand. Now SM3 and M3 are distorted while M1 is the better indicator. This round-tripping did in fact become significant in the United Kingdom in the course of 1973.

Finally, there is the potential multiple expansion of deposits from excess reserves. Deregulation itself created some excess reserves: principally from shifts out of currency; but, as we also noted, CCC lowered reserve requirements which would have led to some deposit creation. Much of the deposit creation would have ended up in the form of interest-bearing deposits. So now SM3 and M3 would be much better indicators than M1.

To summarize then, CCC would have distorted the money aggregates in many ways. In some cases M1, in other cases SM3, would have been distorted. It is evident from the analysis that neither M1 nor M3 would,

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1/ In the post-CCC environment with sterling relatively weak this could not have been important.

2/ We disregard here the possibility that banks may hold smaller prudential reserves.

3/ The reasoning here is that a switch out of a deposit in a nonbanking financial institution into interest-bearing deposits in banks does not alter the total of bank deposits but only the composition of these deposits. For example, if building societies hold their cash reserves in demand deposits, the initial switch simply increases time deposits at the expense of demand deposits. Of course, in due course building societies will restrict their own lending, but the final outcome is still very likely to be in the direction suggested.

other things being equal, have been very good indicators in the post-CCC environment. But the detailed analysis undertaken above does leave a presumption that, on balance, SM3 would probably have been a superior indicator.

The growth of M1 in 1972 and 1973 was much more modest than the growth of SM3. From some 14 percent growth in 1971, SM3 grew at some 25 percent in the subsequent two years. The growth of M1, however, fell from 17 percent in 1971 to some 13 percent in 1972, then fell sharply again to 5 percent in 1973 (Table 1). The very sharp acceleration in inflation which occurred between 1973 and 1975 is clearly much better related to the behavior of SM3 than M1, and this is largely consistent with our own interpretation of the money aggregates.

Our own analysis suggests that, following CCC, one would have expected (a) a fall in the currency to total deposit ratio, (b) a fall in the cash deposit ratio, (c) a fall (rise) in the sight (interest-bearing) to total deposit ratio, and (d) a rise in the SM3 money multiplier. These expectations were in fact completely fulfilled in the relevant years (Table 3). From end-1970 to end-1973 the currency to total deposit ratio fell from 22 percent to some 16 percent. Over the same period the cash deposit ratio fell from 7.5 percent to 4.5 percent, while the sight (interest-bearing) to total deposit ratio fell (rose) from 44 (52) percent to 32 (65) percent. <sup>1/</sup> Finally, the money multiplier rose from 4.1 to 5.7.

### III. The Supplementary Special Deposits Scheme ("Corset")

#### 1. Background

The corset was first introduced in December 1973. <sup>2/</sup> Its principal aim was to contain the growth of sterling M3 which, as we have seen, had been growing very rapidly in the previous two years. It laid down certain penalties for banks whose interest-bearing eligible liabilities grew at a faster-than-prescribed rate. The penalty, which took the form of lodgment of noninterest-bearing deposits with the Bank of England, was progressive, ranging from 5 percent to 50 percent depending on the extent of infringement.

#### 2. How the corset distorts the money aggregates

As might be expected, in response to any new control system, the imposition of the corset generated a variety of reactions by the banking system and their customers aimed at offsetting or relieving the effects of the new legislation.

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<sup>1/</sup> This is in broad agreement with the analysis in Howard (1981).

<sup>2/</sup> For details and an analysis of the corset see Bank of England, Quarterly Bulletin (1982).

First, the corset induced some "onshore" disintermediation. One important form this took became known as the "bill leak." Banks would accept bills issued by customers and then sell these to nonbank holders. The bills, which did not appear as liabilities on the books of the banks, were similar to the certificates of deposit whose growth was being restricted by the legislation.

There are two questions to ask here. First, how significant was this leak? Second, given its scale, what did it imply about the meaning of the money aggregates as indicators?

During the first corset period (1974 to February 1975), bills held outside the banking system rose from £350 million to some £500 million. During the second corset period (end-1976 to August 1977), these bills increased from £320 million (to which they had dropped in the intervening period) to some £430 million. During the third corset period (mid-1978 to June 1980), the bills rose from a new low base of some £150 million to some £2,700 million. These again fell dramatically soon after the abolition of the corset. <sup>1/</sup> It is evident, then, from the fluctuation in these bills that they bore a consistent relationship with the imposition and abolition of the corset.

What significance should be attached to these figures and what do they imply for the meaning of the money aggregates as indicators?

It is difficult to see the bill leak as a "complete" offset to the corset as if, in other words, those bills were the exact equivalent to the growth of SM3. The reason is that, with banks restrained, the growth of borrowing and lending outside the banking system requires some increase in interest rates and hence implies some restriction.

This is not to say, however, that they ought to be totally discounted. They represented in effect a form of "financial innovation" induced by the controls and so probably served to increase the interest elasticity of the demand for money. So while it would be illegitimate to treat the bill leak as the equivalent of sterling M3, it nevertheless did constitute some leak.

One way of approaching this is to add this bill leak to SM3 to see how it changes its rate of growth. This would provide an absolute upper limit to the offset, recognizing that in reality it would be less than this. In the first period SM3 rose by some 10 percent; with the bill leak the figure is roughly 10.5 percent. In the second period the growth in SM3 was some 1.5 percent; with the bill leak this becomes 1.8 percent. In the third period the growth of SM3 was 32 per cent; with the bill leak the growth becomes some 37 percent. Thus, the bill leak was "significant" only in the last period. During the operation

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<sup>1/</sup> These figures are taken from the Bank of England, Quarterly Bulletin (1982) p. 82. For difficulties in measuring this leak see Coghlan (1979).

of the corset, then, the bill leak would have led to both M1 and M3 appearing more contractionary (less expansionary) than in effect they were.

Second, the corset, after the abolition of exchange controls in November 1979, also induced some "offshore" disintermediation. United Kingdom residents were now able to place sterling deposits in banks overseas. These then lent them on to U.K. residents, who had been denied loans by the operation of the corset. What happens here is that the ownership of a sterling deposit shifts from one U.K. resident to another, so, although SM3 is unaffected, additional lending is generated.

It would seem that in the first half of 1980, after the abolition of exchange controls but before the removal of the corset, U.K. residents' Eurosterling deposits more than doubled to £2.7 billion. 1/ These fell sharply after the removal of the corset, suggesting some relationship with the corset.

If we treat these as having effects similar to those of the bill leak, then in the last period of the corset these would have, at most, added a further 2-2 1/2 percentage points to the growth of SM3. So again, the money aggregates would have been distorted downward.

Third, the corset, again after the abolition of exchange controls, induced some offshore "pure intermediation" by the banking system. Now banks could borrow and lend in foreign currency to U.K. residents who in the absence of exchange controls could switch into sterling by selling the foreign currency to other U.K. residents. Thus, the ownership of a sterling deposit would change hands from one U.K. resident to another. So SM3 would be unchanged, but there would be more lending in sterling. Although precise figures are not available, it seems that foreign currency lending by the banks to the U.K. private sector also increased substantially in the first half of 1980 and then fell in the second half. 1/ So again this would have understated the significance of the money aggregates.

Fourth, as a means of evading the corset the banks may have been able to induce their customers to increase their noninterest-bearing balances (e.g., by the offer of free banking services). A switch of this kind, to the extent it occurs, reduces the significance of M1 as an indicator but leaves SM3 unchanged. However, the Bank of England has argued that there is "no evidence of this having occurred on any large scale." 2/

Fifth, and finally, in calculating the limits for eligible liabilities, banks could deduct monies lent to the discount houses, as long as these were not designated as a reserve asset. 3/ If banks held excess reserves,

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1/ See Midland Bank Review (1981).

2/ Bank of England, Quarterly Bulletin (1982).

3/ Money lent to the discount houses was a reserve asset if it was on call and secured.

they would arrange to run these down by converting these from money at call, which was a reserve asset, to money not at call, which was not a reserve asset. In this way net eligible liabilities would fall. 1/

Banks did in fact hold excess reserves during the first two periods when the corset was in operation and for a while in the third period, so there was scope for "evasion" in this form although how much actually occurred is unknown. This form of evasion probably distorts M1 more than SM3 since it allows "room" for expansion of interest-bearing liabilities.

### 3. The effects of the removal of the corset in June 1980

Because from mid-1979 the corset was producing substantial distortions to banking behavior and the money aggregates, its removal produced equally dramatic reversals. The basic analysis underlying the removal of the corset is somewhat similar to the analysis underlying the introduction of Competition and Credit Control (see again Table 1A).

In the (banking) month of July alone, sterling M3 grew by 5 1/4 percent while interest-bearing eligible liabilities (IBEL) rose by some 14 percent; at the same time the bill leak fell by £1,000 million. The growth of the key money aggregates in the second half of 1980 is shown in Table 4. The growth of both base money and M1 slowed down (sharply in the last case); the growth of SM3 and M3, however, accelerated significantly while there was little change in the growth of private sector liquidity.

What appears to have happened is the following. There was a sharp fall in private sector holdings of money market instruments (principally in the form of bank bills). SM3 grew most rapidly because of the very sharp increase in IBELs; the ratio of sight (interest-bearing) to total deposits fell (rose) while at the same time the SM3/base money multiplier rose and the cash/deposit ratio fell sharply. As one would have expected, these developments almost exactly parallel the developments in 1972-73 after the banking system was first deregulated (Table 3).

What does all this imply for the money aggregates as indicators? We concluded earlier that, while the corset was on, because of the

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1/ The precise mechanisms here are not very clear. The Bank of England Quarterly Bulletin (1982) on page 79 says that "the banks would increase their nonreserve asset lending to discount houses and the funds could then be used by the houses to purchase commercial bills or other assets from the banks. In this way a fall in interest-bearing eligible liabilities could be arranged without falls in reserve assets, in nonbank deposits with the banking sector, or in lending to the nonbanks by the banking sector. In effect, lending to nonbanks could be shifted from the banks to the discount houses".

In this case, as distinct from the other case in the text, liabilities and assets of the houses increase. The banks are in effect selling non-reserve assets to the discount houses and at the same time extending their lending to them.

disintermediation process, SM3 tended to understate the thrust of the monetary sector. The removal of the corset reversed this. As a result of the reintermediation process, SM3 now tended to overstate the thrust of the monetary sector. This view was in fact widely held and indeed allowed for at the time the corset was removed. At the same time, M1 was also significantly distorted. The shift into interest-bearing deposits sharply reduced the demand for M1, so now M1 understated the thrust of the monetary sector. 1/

#### IV. The Removal of Exchange Controls

The removal of exchange controls induced U.K. residents to increase their holdings of Eurosterling deposits and as well of foreign currency deposits. On the former, it is worth noting that since the abolition of exchange controls, the ratio of U.K. residents' Eurosterling deposits to domestic deposits rose from 1 percent to 2 percent. Eurosterling deposits are not included in either SM3 or in M3, so a significant increase in these holdings presumably distorts all money aggregates including M1, SM3, and M3.

#### V. Some Tentative Conclusions

The principal conclusions appear to be the following:

1. Competition and Credit Control, introduced in September 1971, had significant effects on the monetary aggregates as signals of the thrust of the monetary sector. These effects, however, were very complex, sometimes distorting one aggregate, sometimes another. Our own conclusion was that it almost certainly distorted M1 more than SM3, so that the latter was a better, albeit still misleading, indicator of the monetary thrust.

2. The corset was introduced at the end of 1973, removed early in 1975, reintroduced at the end of 1976, then removed in mid-1977, until mid-1978 when it was reintroduced. We have argued that over that period (from end-1973 to mid-1978), while certain distortions may have occurred, these would have been very small. This is not surprising considering that in the first two periods, when the corset was in use there were only minimal penalties actually paid, and most of the time banks were below their allowable limits.

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1/ It is widely held that M1 growth in 1980/81 is a better indicator of the thrust of the monetary sector than SM3 growth. The reasoning seems to be based on the observed fact that inflation fell sharply in 1982, hence that there must have been some earlier slowing down in the growth of some money aggregate. We have argued that M1, and indeed base money, are also distorted downwards. The fall in inflation may have more to do with nonmonetary factors (e.g. until 1981 the rise in sterling, the fall in commodity prices in 1982, the restrictive fiscal policies and the world recession, the fall in interest rates, and the effects of the dishoarding of labor on wage demands) than monetary factors.

However, during the third period (particularly from mid-1979), banks were running up against their limits and indeed paying substantial penalties for infringement, so, not surprisingly, the corset did then begin to bite. We have argued that the operation of the corset acted to understate SM3 as an indicator. This effect was reinforced over the period when the corset was in force and exchange controls removed. By contrast, after the corset was removed, SM3 tended to overstate SM3 as an indicator.

3. The important point that needs to be made is that whenever a particular monetary aggregate is made scarce by a system of controls, the financial system will tend to adjust, in part at least, by creating substitutes (Goodhart's Law). This in turn will weaken the significance of the money aggregate both as an indicator and as a target. What happened in the United Kingdom as a consequence of the corset would most likely have also happened if, instead of controlling SM3 by the corset, some other form of control (e.g. base money control) had been used.

4. A most striking feature of the United Kingdom is the divergences which appear in the growth in the money aggregates (Table 1). This is particularly noticeable for M1 and SM3. With the possible exception of 1979, the two money aggregates give conflicting signals in every other year. In many of the years the two money aggregates actually moved in opposite directions. Some of these conflicts, as we have seen, could be explained in terms of changes in banking legislation but by no means all. Indeed, the discrepancies persisted in years (1974-77) when legislation was only having a minimal effect; moreover, they continued (in 1981) even after all controls were abandoned.

5. It is worth noting that the money multiplier appears to be more stable for M1 than for SM3 (Table 3). It is also particularly noteworthy in our context that, in 1972-73 and again in 1980, when the money multipliers for SM3 rose very sharply, the multiplier for M1 remained relatively stable. The reason for the latter is that, in those years, the fall in the bank cash deposit ratio, and as well in the currency deposit ratio, was offset by the sharp fall in the sight deposit to total deposit ratio (see Equations 5 and 6 in Table 3).

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Table 1. United Kingdom: Growth of Money Aggregates  
(Changes, in percent)

Year	B <u>1/</u>	M1 <u>1/</u>	SM3 <u>1/</u>	M3 <u>1/</u>
1971	8.5	17.0	14.6	13.8
1972	11.1	13.4	26.4	27.6
1973	8.2	5.1	26.0	27.6
1974	17.0	10.8	10.2	12.6
1975	12.6	18.6	6.5	7.6
1976	11.5	11.3	9.5	11.2
1977	13.9	21.5	10.0	9.8
1978	14.9	16.4	14.9	14.9
1979	8.4	9.1	12.7	12.3
1980	2.6	3.9	18.6	18.7
1981	5.1	9.8	13.6	18.0

Source: Bank of England, Quarterly Bulletin, various issues.

1/ From end-year to end-year.

B = Base Money = notes and coins in circulation with public plus U.K. banks' balances with Bank of England and banks' notes and coins.

M1 = notes and coins in circulation + private sector sterling sight deposits.

SM3 = M1 + private sector sterling time deposits and public sector sterling deposits.

M3 = SM3 plus U.K. residents' deposits in other currencies.

Significance of Money Aggregates (M1, SM3, and M3) 1/

Potential Source Of Funds to Banks	Effects on Bank Reserves	Implications for Money Aggregates as Indicators
Currency	Increase	M1 down. SM3 and M3 unaffected. SM3 and M3 better as indicators than M1.
Resident switches from foreign currency <u>2/</u>	Increase	SM3 up. M1 and M3 unaffected. M3, M1 better indicators than SM3.
Nonresident inflow <u>2/</u>	Increase	M1, SM3, and M3 all unaffected. All three good indicators.
Demand deposit	None	M1 down, SM3 and M3 unaffected. M1 distorted--inferior as an indicator.
Other financial assets (finance houses, building societies, local authorities)	None	M1 down, <u>3/</u> SM3 and M3 same. SM3 and M3 distorted. M1 probably better indicator.
Reduced free reserves	None	Increase in SM3, M3. Assumed no effect on M1. SM3, M3 better indicators.
Advances ("round tripping")	None	Increase in SM3, M3. No change in M1. M1 better indicator.
Multiple expansion from excess reserves	None	Assumed increase in SM3, M3. SM3, M3 better indicators.

1/ Assumes the monetary authorities take no monetary action following deregulation.

2/ Assumes fixed exchange rates.

3/ Indirect effect of shift.

Table 3. 1/  
Sources of Changes in Money Multipliers

1	2	3	4	5	6	7	8	9	10
Year	$\frac{M1}{B}$	$\frac{SM3}{B}$	$\frac{M3}{B}$	$\frac{BC}{TD}$	$\frac{PNC}{TD}$	$\frac{PSSD}{TD}$	$\frac{PSTD}{TD}$	$\frac{PBSD}{TD}$	$\frac{RDF}{TD}$
1970	2.2	4.1	4.2	7.5	22.4	44.0	52.5	3.5	3.5
1971	2.4	4.3	4.4	6.4	21.7	45.8	51.1	3.2	2.6
1972	2.4	4.9	5.1	5.1	19.1	40.2	56.9	2.9	3.8
1973	2.4	5.7	6.0	4.4	15.8	32.3	65.1	2.6	5.2
1974	2.3	5.4	5.8	4.8	16.8	32.0	65.9	2.2	7.9
1975	2.4	5.1	5.5	4.6	18.6	36.5	60.5	2.9	9.4
1976	2.4	5.0	5.5	4.4	19.5	37.0	60.3	2.7	11.5
1977	2.5	4.8	5.3	4.4	20.5	42.5	54.1	3.4	11.4
1978	2.6	4.8	5.3	4.3	20.6	43.2	53.8	3.0	11.4
1979	2.6	5.0	5.5	4.0	19.8	41.5	55.9	2.6	10.9
1980	2.6	5.8	6.4	2.6	17.6	35.2	62.1	2.7	10.8
1981	2.7	6.3	7.1	2.3	16.2	34.2	63.4	2.4	15.7

Source: Bank of England, Quarterly Bulletin, various issues.

1/ Last six columns as percent.

Notes to Table 3: Notation used and Derivations

B = Base money  
 BC = Bankers' deposits with Bank of England and bankers' notes and coins  
 PNC = Notes and coins in circulation with public  
 PSSD = Private sector sterling sight deposits  
 PSTD = Private sector sterling time deposits  
 PBSD = Public sector sterling deposits  
 RDF = Residents' deposits in other currencies  
 TD = PSSD + PSTD + PBSD (total deposits in sterling)  
 B = BC + PNC  
 M1 = PNC + PSSD  
 SM3 = PNC + PSSD + PSTD + PBSD (sterling M3)  
 M3 = PNC + PSSD + PSTD + PBSD + RDF

$$(1) \quad \frac{B}{TD} = \frac{BC}{TD} + \frac{PNC}{TD}$$

$$(2) \quad \frac{M1}{TD} = \frac{PNC}{TD} + \frac{PSSD}{TD}$$

$$(3) \quad \frac{SM3}{TD} = \frac{PNC}{TD} + \frac{PSSD}{TD} + \frac{PSTD}{TD} + \frac{PBSD}{TD}$$

$$(4) \quad \frac{M3}{TD} = \frac{PNC}{TD} + \frac{PSSD}{TD} + \frac{PSTD}{TD} + \frac{PBSD}{TD} + \frac{RDF}{TD}$$

$$(5) \quad \frac{M1}{B} = \frac{\frac{PNC}{TD} + \frac{PSSD}{TD}}{\frac{BC}{TD} + \frac{PNC}{TD}}$$

$$(6) \quad \frac{SM3}{B} = \frac{\frac{PNC}{TD} + \frac{PSSD}{TD} + \frac{PSTD}{TD} + \frac{PBSD}{TD}}{\frac{BC}{TD} + \frac{PNC}{TD}}$$

$$(7) \quad \frac{M3}{B} = \frac{\frac{PNC}{TD} + \frac{PSSD}{TD} + \frac{PSTD}{TD} + \frac{PBSD}{TD} + \frac{RDF}{TD}}{\frac{BC}{TD} + \frac{PNC}{TD}}$$

Table 4. United Kingdom: Monetary Aggregates

(In millions of pound sterling; end of period; amounts outstanding) 1/

End of Period	Monetary Base	Percent Change 2/	M1	Percent Change 2/	Sterling M3	Percent Change 2/	M3	Percent Change 2/	Measures of Private Sector Liquidity			
									PSL1	Percent change 2/	PSL2	Percent change 2/
1975	6,914	10.8	17,483	18.6	37,595	6.5	40,573	7.6	39,406	...	66,695	...
1976	7,671	10.9	19,467	11.3	41,160	9.5	45,129	11.2	43,115	9.4	73,897	10.8
1977	8,961	16.8	23,659	21.5	45,290	10.0	49,565	9.8	46,715	8.3	82,479	11.6
1978	10,121	12.9	27,535	16.4	52,062	15.0	56,964	14.9	53,943	15.5	94,825	15.0
1979												
1st qtr.	9,968	15.9	27,495	13.3	51,677	11.4	56,372	10.7	56,136	13.9	98,456	13.2
2nd qtr.	10,240	12.6	27,892	12.6	54,248	12.7	59,370	11.3	58,550	16.8	101,947	14.8
3rd qtr.	10,518	12.5	28,957	11.2	55,850	13.1	60,687	11.8	60,664	16.9	104,719	14.3
4th qtr.	11,172	10.4	30,046	9.1	58,677	12.7	63,996	12.3	62,752	16.3	107,749	13.6
1980												
1st qtr.	10,744	7.8	29,173	6.1	58,118	12.5	63,859	13.3	64,135	14.2	110,519	12.3
2nd qtr.	11,101	8.4	29,743	6.6	62,459	15.1	68,272	15.0	67,698	15.6	114,730	12.5
3rd qtr.	11,484	9.2	29,791	2.9	64,845	16.1	70,726	16.5	69,971	15.3	118,060	12.7
4th qtr.	11,785	5.5	31,230	3.9	69,591	18.6	75,974	18.7	72,895	16.2	122,256	13.5
1981												
1st qtr.	11,500	7.0	31,633	8.4	68,794	18.4	76,813	20.3	73,371	14.4	125,291	13.4
2nd qtr.	11,711	5.5	32,787	10.2	73,165	17.1	83,011	21.6	76,472	13.0	129,995	13.3
3rd qtr.	12,043	4.9	33,352	12.0	75,830	16.9	87,410	23.6	80,006	14.3	134,672	14.1
4th qtr. 3/	12,222	3.7	32,446	7.6	75,841	13.5	86,966	19.7	79,095	11.5	133,987	11.5

Source: Bank of England, Quarterly Bulletin, various issues.

1/ The monetary aggregates are unadjusted. The private sector liquidity aggregates are seasonally adjusted.

2/ Rate of change over same period in previous year.

3/ Data for this quarter are for banking month December rather than end-of quarter, and percentage changes are over the corresponding month in 1980.

PSL1 is the sum of sterling M3, money market instruments (Treasury bills, bank bills, deposits with local authorities and finance houses) and certificates of tax deposits.

PSL2 is the sum of sterling M3, money market instruments, savings institution deposits and securities, certificates of tax deposits (adjusted for holdings by Building Societies).

Table 5. Changes in U.K. Residents' Deposits  
in Other Currencies

(In millions of pounds sterling)

	Transactions basis (excluding valuation changes)	As percent of M3 (end-previous year)	Resident holdings of foreign cur- rency as percent of M3 (end-year)
1977	+778	1.7	0.8
1978	+910	1.8	0.9
1979	+802	1.4	0.9
1980	+1,515	2.4	0.9
1981	+2,609	3.4	1.2

Source: Bank of England, Quarterly Bulletin, various issues.

Summary of "Effects of Changes in Banking and Exchange Control  
Legislation in the United Kingdom on the Significance  
of the Money Aggregates as Indicators 1971-81"

In the decade 1971-81 there were several changes made to banking legislation in the United Kingdom. In September 1971 the banking system was deregulated (Competition and Credit Control). At the end of 1973 the Supplementary Special Deposits Scheme ("the corset") was introduced; it was removed in early 1975, reintroduced at the end of 1976, then removed in mid-1977 until mid-1978, when it was reintroduced. It was then finally abolished in June 1980. Until 1978, too, exchange controls, principally directed at discouraging resident outflows, were in operation. In October 1979 these controls were completely abolished.

The paper tries to review the ways in which the monetary aggregates (principally M1, SM3, and M3) have been "distorted" as indicators by the changes in legislation which have occurred.

The paper evaluates these distortions under three headings: (a) the effects of Competition and Credit Control (CCC), (b) the effects of the corset, and (c) the effects of the removal of exchange controls.

The principal conclusions of the paper are:

1. Competition and Credit Control had significant effects on the monetary aggregates as signals of the thrust of the monetary sector. These effects, however, were very complex, sometimes distorting one aggregate, sometimes another. The paper's conclusion is that it almost certainly distorted M1 more than SM3, so that the latter was a better, albeit still misleading, indicator of the monetary thrust.
2. During the third period of the corset (particularly from mid-1979), it acted to understate SM3 as an indicator. This effect was reinforced over the period when the corset was in force and exchange controls removed. By contrast, after the corset was removed, SM3 tended to overstate SM3 as an indicator.
3. A striking feature of the United Kingdom is the divergences which appear in the growth in the money aggregates. This is particularly noticeable for M1 and SM3. With the possible exception of 1979, the two money aggregates give conflicting signals in every other year. Some of these conflicts at least are explained in terms of changes in banking legislation.