

8. Monetary Base Control III

The Monetary Base and the Money Multiplier in the UK 1963-1979

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The Monetary Base and the Money Multiplier
in the United Kingdom: 1963-1979

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There has been a longstanding disagreement about the relevance and importance of "cash", i.e., notes, coin, and other monetary liabilities of the monetary authorities, in the determination of the U.K.'s money supply. (See, for example, the papers in part 3 of the book edited by Harry Johnson.) What can probably be called the official view that cash is essentially irrelevant in the British money-supply process was argued forcefully in the Radcliffe Report (Committee on the Working of the Monetary System, p. 128):

...the Bank [of England] prefers to deal very freely between cash and Treasury Bills. It readily varies its own holding of Treasury Bills... in order to secure reasonable stability of the Treasury Bill rate. Treasury Bills can therefore always be turned into cash without much disturbance of the market rates of discount on them. It follows that the Bank cannot restrain the lending operations of the clearing banks by limiting the creation of cash without losing its assurance of stability of the rate on Treasury Bills. It is because of this circumstance that the effective base of bank credit has become the liquid assets (based on the availability of Treasury Bills) instead of the supply of cash...

The official view that cash does and should play an unimportant role in the British monetary process was reaffirmed in the 1980 consultation paper (green paper) on monetary control issued by the U.K. Treasury and the Bank of England. Nevertheless, empirical evidence for the period 1973-1978 reported elsewhere (see David Howard) does not support the official position that the U.K. banking system views money market instruments such as U.K. Treasury bills as virtually interchangeable with cash as reserve assets. Furthermore, the evidence indicates

that there is a statistically significant and predictable relationship between the banks' demand for cash reserves and the level of their deposit liabilities.

The purpose of the present paper is to examine the usefulness of the conventional cash or monetary-base approach to monetary analysis for the study of monetary developments in the United Kingdom during the 1963-1979 period. First the monetary base is defined and the British money-multiplier expressions are derived. British monetary data are then discussed and the necessary data are constructed and collected. Using these data, the monetary history of the United Kingdom during the period 1963-1979 is examined. It is found that the monetary-base or money-multiplier approach to monetary analysis appears to be useful in the British context, and, in particular, it seems to be quite useful for explaining the sharp increases in monetary growth rates recorded in the United Kingdom during the early 1970's, when various policy measures had predictable effects on the behavioral ratios that constitute the money multiplier.

I. The Monetary Base and the Money Multiplier

The monetary base is defined to be the sum of the banking system's cash reserves and the nonbanks' holdings of cash. Therefore the monetary base usually consists largely of the stock of the central bank's monetary liabilities held by the banks and the nonbank public. In the standard monetary-base approach to monetary theory, certain definitions are presented and manipulated until the money stock is shown to be related to the monetary base by a multiple involving various ratios. These ratios are then postulated to be functions of a few variables and, therefore, the money multiplier, i.e., the ratio of the stock of money to the base, is postulated also to be a function of those same variables.

The money stock, M , is defined to be the sum of the nonbank public's holdings of notes and coin, PC , and its bank deposits, D :

$$(1) \quad M \equiv PC + D.$$

In addition, the monetary base (or high-powered money), B , consists of the banks' cash reserves, R , and PC .^{1/} That is,

$$(2) \quad B \equiv R + PC.$$

The two identities, equations (1) and (2), can be manipulated to yield:

$$(3) \quad M \equiv h B,$$

$$(4) \quad h \equiv \left[\frac{\frac{PC}{D} + 1}{\frac{R}{D} + \frac{PC}{D}} \right].$$

The ratios, PC/D and R/D , are postulated to be functions of variables suggested by economic theory.

The attractiveness of equation (3) for the purpose of monetary control derives from the fact that it relates a variable that the monetary authorities presumably want to control -- M -- to a variable over which the authorities have control -- B. The degree of control over the monetary base depends on the composition of the base and the rules governing the expansion and contraction of its various components. If the monetary base consists solely of the liabilities of the monetary authorities and there are no laws on similar arrangements restricting the authorities' discretion over changes in the base, then the monetary authorities have complete control over the monetary base. However, even if the authorities have complete control over the base, such control can be translated into control of the money stock if and only if h is a well-defined, well-behaved, and stable function of observable and known or predictable variables, which means, barring offsets, that the ratios appearing in equation (4) must be well-defined, well-behaved, and stable functions of observable and known or predictable variables.

II. The Bank of England Balance Sheet and the British Money Multiplier

In this study, the monetary base is defined to be the monetary liabilities of the monetary authorities. Therefore, in the United Kingdom the monetary base consists of the monetary liabilities of the Bank of England, coin (issued by the Royal Mint), and a very small amount (about £5 million) of the bank notes issued by the Scottish clearing banks and the Northern Ireland banks. The third item can be thought of as a liability of the monetary authorities if one considers the banks involved to be agents of the Bank of England charged with issuing and maintaining a fixed amount of the outstanding stock of fiat currency. (The Scottish clearing banks and the Northern Ireland banks are authorized to issue approximately £5 million in bank notes that are not backed by reserves; the remainder of their bank notes must be covered entirely by holdings of Bank of England notes.)

Bank of England liabilities constitute the most important part of the British monetary base, and, in fact, the other two items mentioned above can be consolidated into the Bank of England's accounts very easily. In Figure 1, the balance sheet of the Bank of England, in which the Issue and Banking departments are combined, on December 12, 1979 is presented. The notes entry refers to Bank of England notes in circulation. Public deposits (PD) are balances held by the U.K. government at the Bank. Special deposits are required, interest-bearing, and non-transferable deposits amounting to a certain percentage of banks' liabilities; the percentage can vary from month to month and is determined by the Bank of England. (Supplementary special deposits, which will be explained in more detail in a subsequent section of the paper, are included in special deposits. Bankers deposits (BD) are balances held by the banks and the discount houses at the Bank. Reserves and other accounts (ROA) include deposit liabilities to foreign central banks, the accounts of local authorities and public corporations,

FIGURE 1

Balance Sheet of the Bank of England, December 12, 1979

<u>Liabilities</u>		<u>Assets</u>	
Notes	10,089	Government Securities	10,097
Public Deposits (PD)	20	Other Securities	1,465
Special Deposits	806	Advances and Other Accounts	161
Bankers Deposits (BD)	462	Coin	1
Reserves and Other Accounts (ROA)	697	Premises, Equipment, and Other Securities	365
Capital	15		

Source: Bank of England Quarterly Bulletin.

Notes: The Bank's Issue and Banking departments are combined in this balance sheet. See the Bank of England Quarterly Bulletin for detailed notes on the balance-sheet entries.

and some private sector accounts. The Bank's capital is held by the U.K. Treasury. The Bank's assets listed in Figure 1 need no explanation.

The two components of the British monetary base other than the Bank of England's monetary liabilities -- that is, coin and the fiduciary part of the bank-note issue -- can be consolidated into the Bank's balance sheet simply by adding those two components to Bank of England notes, denoting the resulting aggregate as N, and by making appropriate revisions in the asset totals to reflect the assets purchased with the coin and the bank notes. In the rest of this paper, coin and the uncovered bank notes issued by the Scottish clearing banks and the Northern Ireland banks are treated as if they were liabilities of the Bank of England.

The monetary base (B) in the United Kingdom is defined to be the sum of the Bank of England's liabilities exclusive of special deposits and capital -- neither of which is a monetary liability -- but inclusive of coin and uncovered bank notes.^{2/} That is,

$$(5) \quad B \equiv N + PD + BD + ROA.$$

N is composed of notes and coin held by nonbanks (PC) and banks (VC), and the banks' cash reserves (R) consist of VC and BD. Thus equation (5) can be written as:

$$(6) \quad B \equiv PC + R + PD + ROA.$$

The two most commonly reported and discussed measures of the stock of money in the United Kingdom are M1, which consists of notes and coin in circulation with the public plus sterling sight deposits held by the U.K. private sector (DD), and sterling-denominated M3 (LM3), which consists of notes and coin in circulation with the public plus all sterling bank deposits --

including certificates of deposit -- held by the U.K. private and public sectors (D). Thus,

$$(7) \quad M1 \equiv PC + BN + DD,$$

$$(8) \quad \text{LM3} \equiv PC + BN + DD + TD,$$

where BN denotes the nonbank public's holdings of bank notes issued by the Scottish clearing banks and the Northern Ireland banks and covered by Bank of England notes, and $TD \equiv D - DD$.

Manipulation of equations (6) - (8) yields:

$$(9) \quad M1 \equiv \left(\frac{PC}{D} + \frac{BN}{D} + \frac{DD}{D} \right) \frac{B}{\left(\frac{PC}{D} + \frac{R}{D} + \frac{PD}{D} + \frac{ROA}{D} \right)}$$

$$(10) \quad \text{LM3} \equiv \left(\frac{PC}{D} + \frac{BN}{D} + 1 \right) \frac{B}{\left(\frac{PC}{D} + \frac{R}{D} + \frac{PD}{D} + \frac{ROA}{D} \right)}$$

The bracketed expressions in equations (9) and (10) are the M1 multiplier (h1) and the sterling M3 multiplier (h3), respectively. The behavior of the money multipliers depends on the behavior of the ratios of which they are composed. In this paper, the behavior of the individual ratios during the period 1963-1979 is investigated.

III. British Monetary Data

The study of the British monetary system is made difficult by the fact that in 1971 there was a fairly extensive reform of both the institutional and policymaking environment (see Bank of England). This structural change was accompanied by a change in the method of reporting and presenting monetary data as well. Thus some of the data necessary for the present paper are not available on a consistent basis for the entire period studied here (1963-1979) and proxies and constructed series must be used instead.

The Bank of England publishes both quarterly and monthly data on the U.K. monetary aggregates. The monthly data are available only for the period commencing June 1971 for sterling M3 and October 1971 for M1. Thus in a study covering the 1960's as well as the 1970's it is necessary to use the Bank's quarterly series, which are available for the period commencing the end of the first quarter of 1963. Unfortunately, the quarterly money-stock data are end-of-quarter figures while most of the rest of the U.K. monetary data that are used in this study are mid-month figures for the last month of the quarter.^{3/} Thus a discrepancy of some two weeks in the timing of the variables must be introduced. In the Appendix to this paper, the data on M1 and sterling M3 are presented as well as data on notes (including Scottish and Northern Irish bank notes) and coin held by nonbanks. These data can be used to calculate series on sight deposits (DD) and total deposits (D), which are presented in the Appendix also.

The data on the Bank of England's balance sheet are available for mid-month dates, and in the Appendix figures for Bank of England notes in circulation with the public, PD, special deposits, BD, and ROA as of the middle of the last month of the quarter are presented. Data on coin in circulation (estimated

weekly averages on the last month of the quarter) are presented also. These data on coin circulation plus the fiduciary part of the bank notes issued by the Scottish clearing banks and the Northern Ireland banks -- £5 million -- constitute the additions one must make to the sum of the Bank of England's monetary liabilities reported in the Appendix in order to calculate one estimate of the U.K. monetary base;^{4/} this calculated series for the monetary base also is presented in the Appendix.

An estimate of the value of BN in the middle of the last month of the quarter can be obtained by adding mid-month data on the notes outstanding of Scottish clearing banks and data on those of Northern Ireland banks (mid-month from the second quarter of 1975 and end-of-quarter before that date) and subtracting the £5 million that is being treated as part of the monetary base in this study. (This method of estimation assumes that all of the note issue of the Scottish and Northern Irish banks is held by nonbanks, which, of course, is not necessarily the case.) The estimated BN series is reported in the Appendix.

The form in which data on banks' vault cash are published was changed twice during the period 1963-1979. For the period ending in the third quarter of 1971, mid-month data on notes and coin held by the London clearing banks plus mid-month data on notes and coin held by the Scottish clearing banks, end-month data on notes and coin held by the Northern Ireland banks, and end-month data on notes, coin, and bankers deposits at the Bank of England held by U.K. accepting houses, overseas banks, and other banks approximately equal the vault cash held by U.K. banks at the middle of the last month of the quarter. For the period from the end of 1971 through the end of the first quarter of 1975, mid-month data on bank holdings of bankers deposits at the Bank of England must be subtracted from mid-month data on notes, coin, and bankers deposits at the Bank held by all U.K. banks in order to obtain data on banks' vault cash.^{5/} Since

the first quarter of 1975, mid-month data on U.K. banks' holdings of notes and coin have been published. The series on vault cash (VC) held by U.K. banks in the middle of the last month of the quarter resulting from linking the three above-mentioned series is presented in the Appendix.

There are two alternative ways of obtaining data on PC (nonbank holdings of notes and coin other than BN). First, mid-month data can be obtained by subtracting VC from N. (Recall that N is the sum of Bank of England notes in circulation with the public plus coin in circulation plus the £5 million fiduciary bank-note issue.) Alternatively one can calculate an end-month series for PC by subtracting BN from the end-quarter data on notes and coin held by nonbanks published in conjunction with the monetary aggregates. The decision of which method to use amounts to deciding whether to conform to the identity represented by equation (6) or to those represented by equations (7) and (8) and is made necessary only because of the unavailability of mid-month data on the monetary aggregates prior to June 1971. Both PC series are presented in the Appendix. An alternative monetary-base series obtained by adding the end-month PC series to the sum of VC, ROA, BD, and PD is also reported in the Appendix.

Finally, it is interesting to decompose the cash reserves (VC plus BD) of the U.K. banking system into "required" reserves (RR) and "excess" reserves (XR). Although the U.K.'s reserve requirements on the banks are not statutory and are not binding on any particular day, but rather are those agreed upon by the banks and the Bank of England and refer to a vaguely defined average over time, they will be treated in this paper as if they were legal requirements. Thus, prior to the reform of the monetary system in 1971, the London clearing banks are treated as if they were obliged to hold cash reserves -- i.e., vault cash plus bankers deposits at the Bank of England -- amounting to 8 percent of their gross deposit liabilities in the previous month; after the reform the

London clearing banks are treated as if they were obliged to hold bankers deposits at the Bank amounting to 1-1/2 percent of their eligible liabilities in the previous month.^{6/} Banks other than London clearing banks had no cash-reserve requirement during the period 1963-1979 other than the requirement that all but £5 million of the bank notes issued be backed fully by Bank of England notes. In the Appendix, a series on required cash reserves -- reflecting the cash-reserve requirements on the London clearing banks -- is presented.^{7/} Note that the series drops markedly in the fourth quarter of 1971; this drop represents the effects of the lowering of the cash-reserve requirement in the monetary reform of 1971. The data on excess cash reserves -- that is, cash held in excess of "legal" requirements -- can be calculated as the difference between total cash reserves and required cash reserves and are reported in the Appendix.

In this section of the paper the data necessary for calculating the various ratios in the money-multiplier expressions as well as other pertinent data have been discussed. The data themselves are presented in the Appendix. In the next section these data are used to calculate the relevant ratios and examine monetary developments in the United Kingdom during the period 1963-1979.

IV. Monetary Developments in the United Kingdom: 1963-1979

In Table 1, data on the money stock and the monetary base for the period 1963-1979 are presented. As one can readily see, the growth rates of the two monetary aggregates -- M1 and sterling M3 -- fluctuate quite markedly. For example, the monetary deceleration in 1966 was followed by a sharp acceleration which in turn was followed by a deceleration during the next two years, 1968-1969; in 1970 there was another sharp acceleration. During the 1970's monetary growth rates continued to fluctuate but the striking characteristic of the period is the divergent behavior of the two measures of the money supply. The period 1971-1974 is particularly noteworthy. The growth rate of sterling M3 nearly doubled during 1972 -- to over 24 percent -- while that of M1 increased by only 2-1/2 percentage points -- to 13-1/2 percent. In the following year, the growth rate of sterling M3 remained essentially unchanged while that of M1 fell dramatically -- to about 5 percent; in 1974 M1 growth rebounded strongly while sterling M3 growth declined very sharply -- from 26 percent in 1973 to 10 percent in 1974. Note that between 1972 and 1979, with one minor exception, whenever the rate of growth of M1 increased, the growth rate for sterling M3 declined, and vice versa; the one exception was in 1977 when M1 increased strongly and sterling M3 increased slightly.

The two measures of the monetary base reported in Table 1 moved fairly closely together during the 1963-1979 period, although the year-to-year rates of growth differed somewhat. In general the path of the monetary base was smoother than that of the money stock but appears to have coincided broadly with movements of the money stock. The coincidence in the monetary base and the money-stock series is particularly apparent in the case of M1, as is evidenced by the fact that the M1 multiplier (i.e., M1 divided by the monetary base) -- reported in Table 2 -- was nearly constant during the period studied here.

TABLE 1

The Money Stock and the Monetary Base

<u>End Of:</u>	<u>M1</u>		<u>M3</u>		<u>B1</u>		<u>B2</u>	
	<u>£m</u>	<u>% Change</u>	<u>£m</u>	<u>% Change</u>	<u>£m</u>	<u>% Change</u>	<u>£m</u>	<u>% Change</u>
1963	7,979	n.a.	11,616	n.a.	3,083	n.a.	3,067	n.a.
1964	8,219	3.0	12,265	5.6	3,325	7.8	3,361	9.6
1965	8,524	3.7	13,198	7.6	3,503	5.4	3,577	6.4
1966	8,511	-0.2	13,646	3.4	3,630	3.6	3,666	2.5
1967	9,252	8.7	14,937	9.5	3,779	4.1	3,814	4.0
1968	9,636	4.2	15,961	6.9	3,952	4.6	3,929	3.0
1969	9,647	0.1	16,339	2.4	4,083	3.3	4,102	4.4
1970	10,554	9.4	17,893	9.5	4,287	5.0	4,364	6.4
1971	11,707	10.9	20,372	13.9	4,660	8.7	4,775	9.4
1972	13,295	13.6	25,355	24.5	5,240	12.4	5,304	11.1
1973	13,967	5.1	32,029	26.3	5,705	8.9	5,711	7.7
1974	15,457	10.7	35,282	10.2	6,592	15.5	6,607	15.7
1975	17,483	13.1	37,595	6.6	7,356	11.6	7,511	13.7
1976	19,467	11.3	41,160	9.5	8,172	11.1	8,349	11.2
1977	23,659	21.5	45,290	10.0	9,570	17.1	9,669	15.8
1978	27,535	16.4	52,062	15.0	10,834	13.2	11,009	13.9
1979	30,046	9.1	58,677	12.7	11,903	9.9	11,876	7.9

Note: For exact definitions of the variables, see the Appendix to this paper.

TABLE 2

Money Multipliers and Other Ratios

<u>End of:</u>	<u>M1/B1</u>	<u>M1/B2</u>	<u>EM3/B1</u>	<u>EM3/B2</u>	<u>Percent</u>					
					<u>PC1/D</u>	<u>PC2/D</u>	<u>BN/D</u>	<u>DD/D</u>	<u>R/D</u>	<u>(PD+ROA)/D</u>
1963	2.6	2.6	3.8	3.8	22.8	22.7	1.4	61.2	9.2	0.9
1964	2.5	2.4	3.7	3.6	23.3	23.7	1.3	58.8	9.6	1.0
1965	2.4	2.4	3.8	3.7	23.0	23.7	1.3	55.7	9.1	1.0
1966	2.3	2.3	3.8	3.7	23.0	23.4	1.2	53.1	9.0	1.1
1967	2.4	2.4	4.0	3.9	21.8	22.0	1.2	53.1	8.3	1.1
1968	2.4	2.5	4.0	4.1	20.9	20.7	1.1	51.7	8.2	1.1
1969	2.4	2.4	4.0	4.0	21.2	21.4	1.2	49.8	8.3	1.1
1970	2.5	2.4	4.2	4.1	21.1	21.6	1.2	49.6	7.1	1.2
1971	2.5	2.5	4.4	4.3	19.6	20.2	1.1	48.4	6.2	2.0
1972	2.5	2.5	4.8	4.8	17.9	18.2	1.0	43.3	5.5	1.3
1973	2.4	2.4	5.6	5.6	14.9	15.0	0.9	34.7	4.5	1.2
1974	2.3	2.3	5.4	5.3	15.9	15.9	0.9	34.3	4.8	1.2
1975	2.4	2.3	5.1	5.0	17.2	17.7	1.0	36.5	4.7	1.4
1976	2.4	2.3	5.0	4.9	18.0	18.5	1.0	37.0	4.3	1.5
1977	2.5	2.4	4.7	4.7	19.2	19.4	1.1	42.5	4.7	1.6
1978	2.5	2.5	4.8	4.7	19.2	19.6	1.1	43.2	4.3	1.7
1979	2.5	2.5	4.9	4.9	18.9	18.8	1.0	41.5	4.0	1.5

Note: For exact definitions of the variables, see the Appendix to this paper.

The near constancy of the M1 multiplier is largely the result of two offsetting, but not unrelated, circumstances. The change in reserve requirements toward the end of 1971 mentioned in the preceding section reduced the banks' cash-reserve ratio (R/D in Table 2) -- required cash reserves as a percentage of deposits went from 5.8 percent at the end of 1970 to 1.0 percent at the end of 1971 -- in 1971 and subsequent years. This change in R/D and the contemporaneous fall in the PC/D ratio were translated into an increase in the sterling M3 multiplier but not in the M1 multiplier because of an offsetting change in the DD/D ratio -- recall that DD/D does not appear in the expression for h_3 -- which occurred at about the same time. The changes in the three ratios are all results of the 1971 financial reforms, which lowered cash-reserve requirements and removed quantitative limits on both bank lending and deposit interest rates. The latter change meant that any increases in the money stock most likely would be in the form of increases in interest-bearing bank deposits rather than either DD or PC.

At this point, it is convenient to make a choice between the two measures of B and PC. Examination of Table 2 indicates that the money multipliers and the PC/D ratios behave in approximately the same way irrespective of the choice of B and PC. Because the choice seems to be of no substantive significance, and because there is a slight preference for using mid-month rather than end-quarter data and for using as the base the definition that is exactly observable and controllable by the monetary authorities, B1 and PC1 will be used as the measures of the monetary base and nonbanks' holdings of fiat currency and coin, respectively.

In Charts 1 and 2, quarterly data on the two money multipliers (each evaluated using B1) are plotted along with the PC/D ratio (evaluated using PC1) and the R/D ratio. In addition, in Chart 1, in which the M1 multiplier is

CHART 1
M1 Multiplier

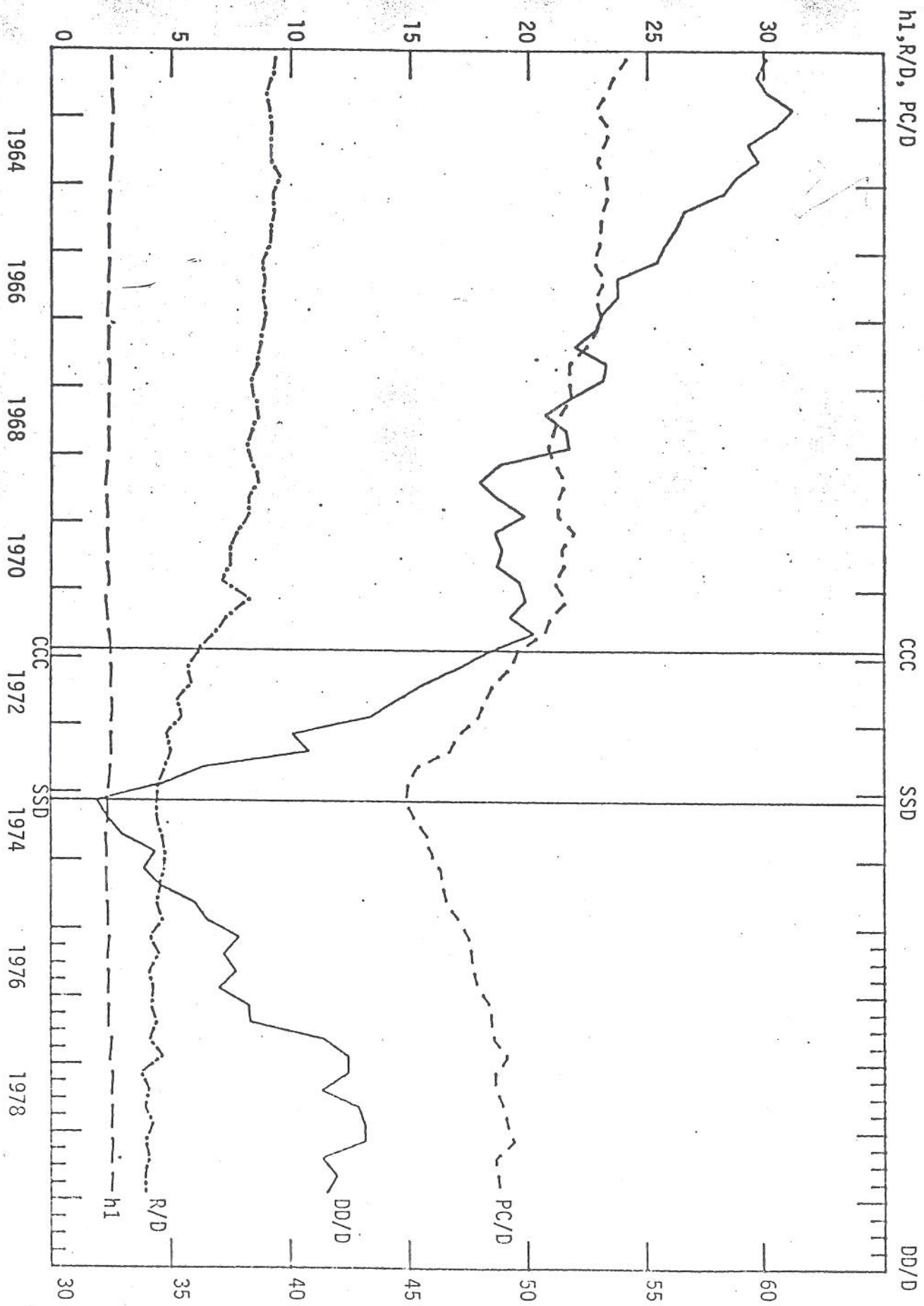
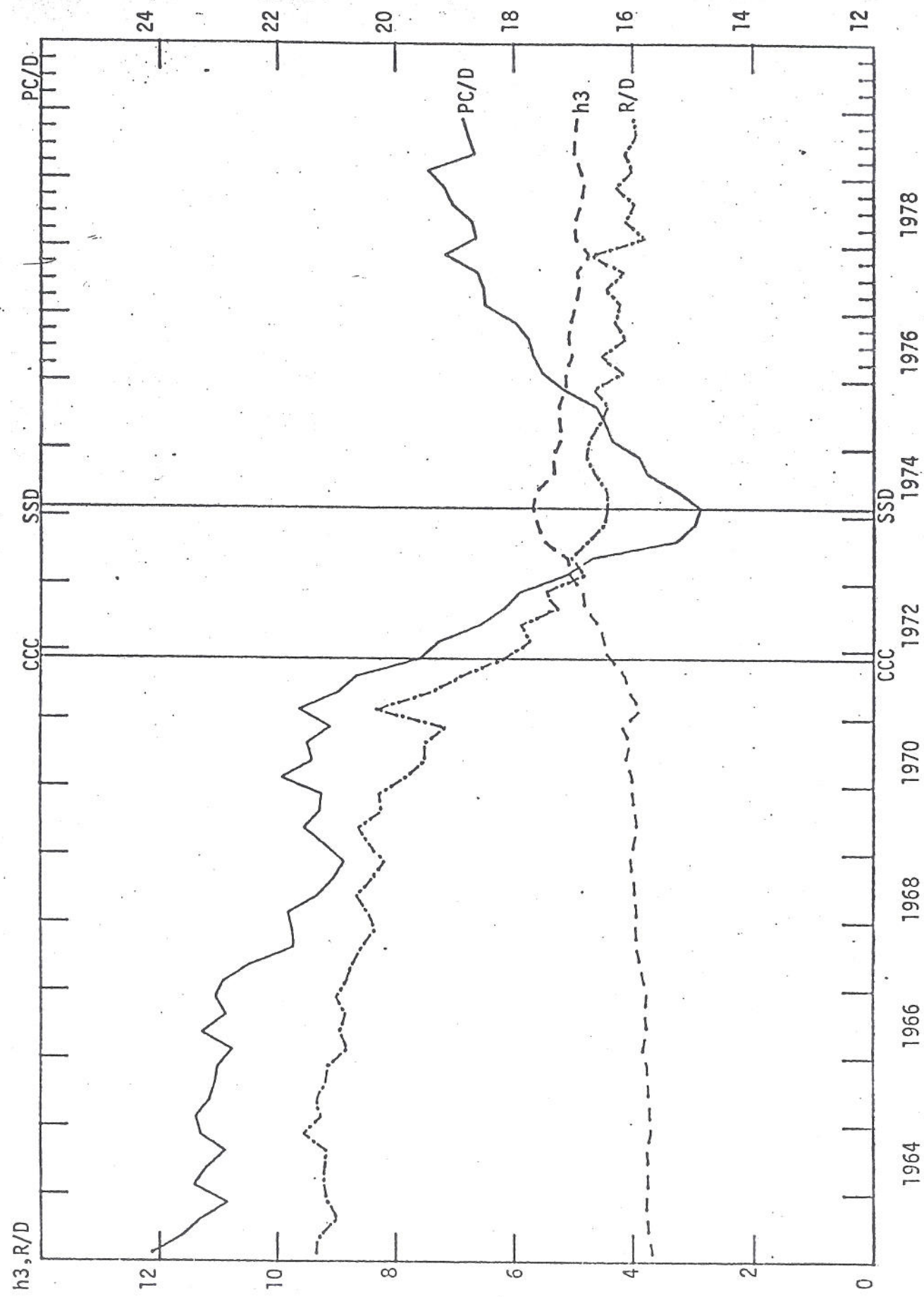


CHART 2

EM3 Multiplier



plotted, the DD/D ratio is plotted as well. (The BN/D and $(PD+ROA)/D$ ratios are ignored for the sake of visual simplicity.^{8/}) The remarkable stability over time of the $M1$ multiplier ($h1$) is clearly shown in Chart 1, although it is important to note that its stability relative to the behavior of $h3$ over time is exaggerated by the scales used in the two charts. In contrast with the path of $h1$, the sterling $M3$ multiplier -- see Chart 2 -- began to move sharply upward at the end of 1971 and appears to have stabilized at a level about 1 percentage point (25 percent) higher than that prevailing in the 1960's. The behavior of $h3$ is, of course, primarily a reflection of the declines in the R/D and PC/D ratios shown in the chart.

The acceleration of monetary growth in the early 1970's, reported in Table 1, and the sharp increase in the sterling $M3$ multiplier at the same time, shown on Chart 2, merit further discussion. Following the 1971 changes in the financial system, usually referred to as "competition and credit control" (CCC), the course of $M1$ growth was somewhat erratic, with some acceleration in 1972 being followed by alternating quarters of negative and positive growth. However, the path of sterling $M3$ shows an acceleration of growth commencing in the fourth quarter of 1971, i.e., immediately after the financial reform. The different behavior of $M1$ and $M3$ implies that the increases in the money stock consisted largely of increases in interest-bearing bank deposits. The two factors mainly responsible for the divergent behavior of the narrow and broad monetary aggregates are the removal of quantitative controls on bank lending and interest rates on bank deposits, and the manner in which the banks reacted to a shortage of liquid-asset reserves starting in late 1972. The former allowed the banks to expand their lending by increasing their interest-bearing liabilities; thus the removal of controls enabled the banks to adjust their balance sheets and the adjustment itself implied a rate of growth of interest-bearing deposits exceeding

that of non-interest-bearing deposits. The second factor became operative toward the end of 1972 when the banks reacted to a shortage of liquid-asset reserves by purchasing the needed liquid-asset reserves (e.g., U.K. Treasury bills) with funds obtained by expanding their interest-bearing liabilities (e.g., certificates of deposit) rather than by reducing their other assets. Thus growth in the interest-bearing component of money was increased relative to the growth of the non-interest-bearing component of money.^{9/}

The new financial regime introduced in September 1971 removed ceilings on bank lending and encouraged the banks to compete for deposits by using interest rates. To the extent that the ensuing increase in the money stock reflects switching from (non-bank) money substitutes to (bank) money as financial flows returned to the banking sector (reintermediation) after the quantitative limits on bank lending were removed, the recorded increase in the money stock may be something of a statistical illusion. On the other hand, if the new regime allowed the economy to make more efficient use of the monetary base, then the advent of the CCC system may very well have contributed importantly to the ensuing acceleration of monetary growth. The cash reserves held by the banks can support a higher level of deposits the lower is the amount of reserves required by the authorities and the more incentive and opportunity there is for the banks to expand deposits. The 1971 changes in the financial system lowered the amount of cash reserves that had to be held by the banking system to meet "legal" requirements, removed quantitative limits on the expansion of deposits, and encouraged the use of interest rates to bid for deposits. The banks' use of interest rates to bid for deposits increased the attractiveness of deposits relative to currency (and demand deposits) to the nonbanks. Thus it would not be surprising to find that the financial changes of 1971 led to a decrease in the bank and nonbank cash-to-deposits ratios, an increase in