M E A S U R I N G M O N E Y

The Inadequacy of the Present Tools

by

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AUTHOR'S PREFACE

This monograph attempts to show that the 'money supply' is not like the solid or concrete phenomena of the natural sciences as is sometimes suggested by orthodox monetarists. The money supply, like all the subject matter of economics depends upon expectation and evaluation.

I would like to thank Simon Webley and Martin Anderson for their help with this text, W. Greenwell & Co for permission to reproduce one of their charts, Stephen Lewis of Phillips & Drew and Sudha Shenoy for the benefit of numerous conversations, and my wife for her typing and tolerance.

CONTENTS

" I wish I could share the confidence of my friend Milton Friedman who thinks that one could deprive the monetary authorities, in order to prevent the abuse of their powers for political purposes, of all discretionary powers by prescribing the amount of money they may and should add to circulation in any one year. It seems to me that he regards this as practicable because he has become used for statistical purposes to draw a sharp distinction between what is to be regarded as money and what is not. This distinction does not exist in the real world".

F. A. Hayek : Full Employment at Any Price?
Institute of Economic Affairs Occasional
Paper 45, 1975.

INTRODUCTION

The belief that the control of the money supply is a necessary if not sufficient condition for the control of inflation has become something of an orthodoxy. But a doctrine by itself is unsatisfactory if there is a lack of tools to apply it. This paper suggests that Britain has imperfect devices for measuring the money supply compared to those used in the United States. It also proposes changes which would give a more accurate measurement of this important statistic. The difference between Britain and America can be explained partly by differences in monetary institutions, and partly by the fact that since World War II neither the Treasury nor the Bank of England has believed in a monetarist approach to inflation. Consequently the UK monetary authorities have thought little about the provision of proper or relevant monetary statistics.

The lack of basic tools could have very serious consequences for the nation. One can imagine that the authorities might exercise strict control over a cluster of monetary aggregates but, without realising it, permit other sorts of monies or money substitutes to expand (or contract) at a faster pace. This is dangerous for two reasons. First, control of a misleading or distorted aggregate might allow for a much faster expansion or contraction in the money supply than was apparent, with a consequent change in the rate of inflation. Second, this would allow some to argue with some justification that the money supply (albeit imperfectly defined) has been firmly controlled in accordance with monetarist prescriptions, yet inflation has increased.

At present there are three officially calculated measures of money supply in the United Kingdom. These are known as M1, Sterling M3;M3; M2 died an unlamented death in 1971. Sterling M3 is a recent innovation and was introduced in December 1976.

M1 consists of notes and coin in circulation with the public plus Sterling 'sight' deposits (cash available on demand) held by the private sector.

M3 consists of notes and coin in circulation with the public plus all deposits (including Certificates of Deposit) whether denominated in Sterling or other currencies held by UK residents in both the public and the private sectors.

Sterling M3 (often written £M3) is the same as M3 minus the foreign currency deposits of UK residents.[1]

Chapter I sets out the different ways in which the principle measurement of money supply, M3 and £M3, can be distorted. In Chapter II the American monetary statistics are examined, and in Chapter III some proposals are made for producing better statistics of monetary movement for the task of controlling the supply of money. Chapter IV examines another useful tool - the Monetary Base.

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1. These definitions are derived from Financial Statistics, Notes and Definitions, H.M.S.O., April 1976, p 25.

I. VARIETIES OF MONETARY DISTORTION

M3 and £M3 are currently the aggregates which are used as the chief instruments of monetary policy, and both can be distorted in four different ways, each of which would be sufficient to render them defective as tools of monetary policy.

(i) There are occasions when certain money markets make it possible for the monetary aggregates to exaggerate the growth in the money supply. This effect is usually known as 'round tripping'.

(ii) It is possible for holders of liquid assets, depending upon the relative height of interest rates, to switch from those assets which are included in a monetary aggregate to those which are not, and as a result altering the size of the monetary aggregate, but leaving the amount of liquidity in the economy unchanged. The chief example of this type of distortion is known as 'soft arbitraging'.

(iii) Distortion can also be brought about by liquid assets outside the ambit of a monetary aggregate growing at a faster or slower rate than those included in that aggregate.

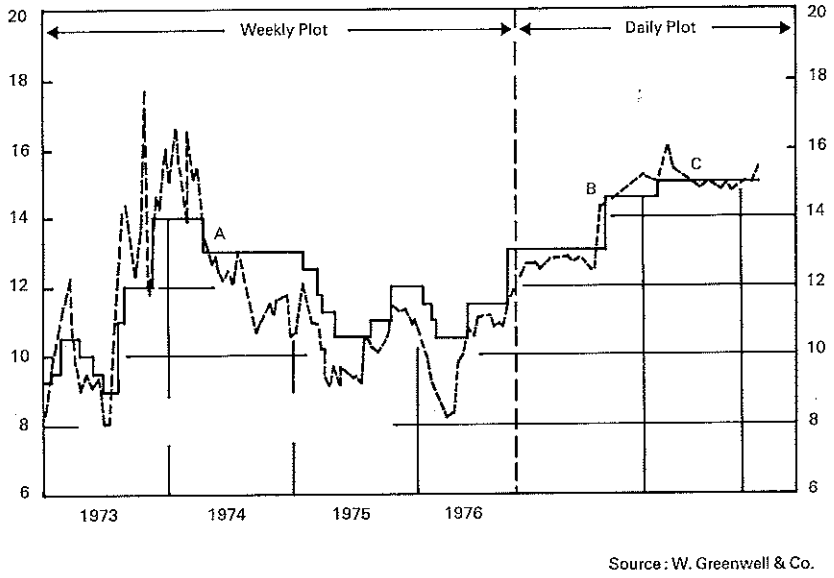
(iv) It is possible for the amount of liquidity in the economy to be seriously misjudged by the adoption of one particular convention about the status of non-residents and foreign currencies, and their relevance to monetary conditions in the British economy.

A. Round Tripping

Round tripping is the practice by companies or individuals of financing the purchase of certificates of deposit (CDs) or deposit accounts with overdrafts. This has the effect of overstating the rate of monetary expansion, as the liquidity of the individuals who carry out this type of operation is not increased and it is done only with a view to taking advantage of the possibility of arbitrage in the money markets. Round tripping takes place when the yield on CDs and deposit accounts is greater than the lending rates for prime borrowers, and disappears as soon as these abnormal conditions in the money markets are removed. Chart 1 shows when conditions were suitable for round tripping between 1973 and 1976.

CHART 1

Round Tripping 1973 - 76



It is difficult to give a quantitative estimate of the importance of round tripping, as few of the statistics necessary for such an estimate are available. It is, however, possible to give some idea of its importance by comparing the total of increases of time deposits[2] to changes in M3. Table 2 sets out these figures.

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2. Time deposits are those which can only be withdrawn without penalty until after a specified period of time, i.e. anything other than sight deposits.

TABLE 1

CHANGES IN TIME DEPOSITS AND M3

1969/70 - 1976/77

Financial Years	Change in U.K. Private Sector Time Deposits £M over previous period	Change in M3 £M previous period
1969/70	+ 35%	+ 374%
70/71	+ 771	+ 2031
71/72	+ 1689	+ 2811
72/73	+ 4072	+ 5733
73/74	+ 5581	+ 6799
74/75	+ 822	+ 3484
75/76	- 126	+ 3076
76/77	+ 995	+ 3950

Source : Bank of England Quarterly Bulletin

It will be apparent that in 1972/73 and 1973/74 the growth in time deposits was a major proportion of the growth of M3 and given the level of interest rates at that time, much of the growth of M3 must be ascribed to round tripping.

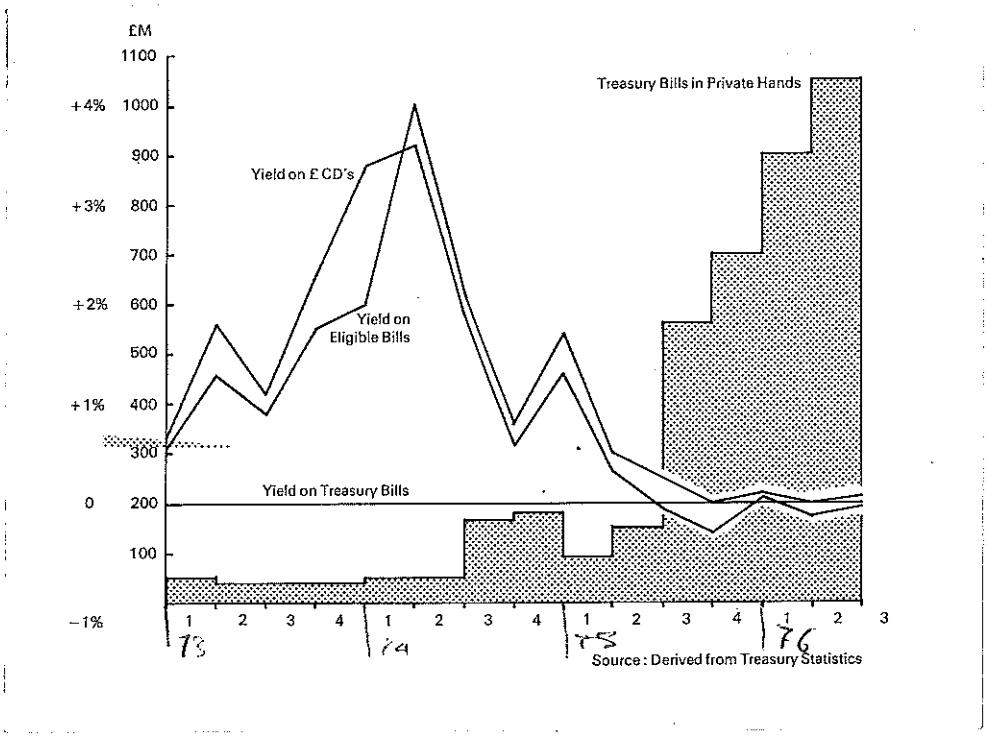
B. Soft Arbitraging

Soft arbitraging occurs when money market conditions are such that it is profitable for non-bank holders of CDs to buy Treasury Bills and short term local authority bonds and deposits. The distortion is produced because CDs are included in M3 and £M3 while Treasury Bills and local authority deposits are not. This is not just a possibility; towards the end of 1976 private sector holdings of Treasury Bills had grown to about £1.25B or 2.5 per cent of M3; this indicator was consequently understating the supply of liquidity in the economy by that amount. It is not clear why Treasury Bills should be excluded from the monetary aggregates: they are more liquid than CDs being the obligations of the British government, not of a bank. It is also worth remembering that CDs are not always of unimpeachable liquidity; during the secondary banking crisis of 1974/75 it was difficult to deal in the CDs of any London bank for several days. The importance of local authority deposits and bonds in soft arbitraging has never been as important as Treasury Bills, but they should not be ignored. Chart 2 plots the changes in the amount of Treasury Bills held in the private sector and the yield advantage of sterling CDs and eligible bills over Treasury Bills. It shows how interest differentials have led

to substantial shifts of deposits into Treasury Bills in the period since 1973. In 1976 government borrowing was the cause of the relative attractiveness of Treasury Bills in terms of interest rates, combined with a temporary reluctance by the market to subscribe for longer term debt.

CHART 2

Treasury Bills in Private Hands 1973-76 and Yield Advantage of Sterling Certificates of Deposit and Eligible Bills over Treasury Bills



C. Other Monetary Aggregates

1. Building Societies Deposits

Many prefer a building society deposit account for their liquid funds to a bank. Small sums can easily be paid in and drawn out with the minimum of formality, and competitive rates of interest are paid upon all their deposits. Building societies do not issue cheque books, but they will make cheques payable to third parties on their customers' instructions. Depositors appear not to find this a great disadvantage as they frequently organise their affairs on a cash basis and find a building society cash book better suited to their needs than any of the services offered by a bank. Building society deposits are of three kinds: Deposit Accounts, Share Accounts and Term Shares. The first is similar to a deposit account with a bank. A Share Account is the same except that the interest rate is higher and there is a penalty if the funds are withdrawn within a specified period of time. A Term Share is a completely different sort of account and can be compared to a non-negotiable Certificate of Deposit with a maximum maturity of two years. The maximum permitted deposit with a building society is £10,000 for any one person, which means that building societies are not in the money market for large 'wholesale' deposits. The total deposits of building societies approached £40B in late 1978 compared with the £42B, the total resident-owned sterling liabilities of the banks net of interbank deposits. The building societies are thus an important part of the financial system with liabilities which are mostly excellent substitutes for sterling bank deposits.

The growth in building society deposits is sensitive to the level of interest rates in other institutions.[3] This is illustrated by Chart 3 which shows how the net inflow of funds into building societies has moved with the yield advantage of the building societies' grossed-up share rate over bank deposit account rate.

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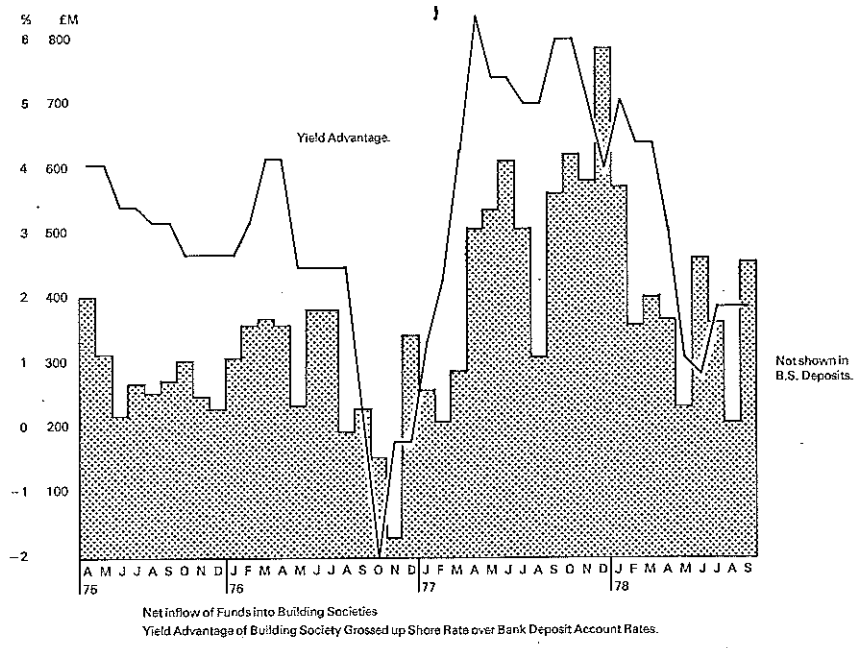
3. This tends to be particularly serious when the banks are stopped from bidding for deposits, through the operation of a Supplementary Deposit Scheme or 'corset' as it is called. The 'corset' is discussed in detail in Appendix II.

CHART 3

Building Society Deposit Yield advantage over Bank Deposit Accounts and flow of funds 1975 - 78.



The significance of this chart is that a stable M3 as ordinarily defined might be offset by an inflow of funds into building societies, when building societies have a large interest rate advantage over banks.

2. National Savings Deposits

The National Savings movement which issues a variety of deposits or bonds totalling about £14B can have a similar effect on the monetary aggregates as the building societies' deposits, but since there is no single National Savings interest rate it is impossible to demonstrate conveniently the impact upon the money supply of differencies in return between important types of National Savings and bank deposits. However, Table 2 shows the relative sizes of net inflows of National Savings and Building Societies compared to increases in M3 and £M3 in 1976 and 1977. It indicates that there is room for considerable distortion of the monetary aggregates from both of these institutions.

TABLE 2

MONEY SUPPLY, BUILDING SOCIETY DEPOSITS AND NATIONAL SAVINGS INFLOWS, 1976 & 77

£ million

NSA	*Increases in*		*Net Inflow into*	*Net Inflow into**
	M3	*Sterling M3*	*Building Societies*	*National Savings*
1976J.	-288	- 78	312	95
F.	325	303	360	105
M.	441	237	370	101
A.	773	683	358	79
M.	30	69	237	70
J.	339	202	387	55
J.	1146	951	386	71
A.	554	445	194	74
S.	892	601	231	92
O.	442	235	153	91
N.	433	523	33	27
D.	230	- 72	344	47
1977J.	-1347	-950	260	221
F.	-490	-635	210	169
M.	225	263	290	299
A.	1422	1058	510	152
M.	249	190	538	236
J.	432	461	616	275
J.	591	659	512	168
A.	- 52	- 56	309	125
S.	864	809	565	139
O.	442	679	624	248
N.	179	429	583	173
D.	1222	798	791	114
1978J.	-412	60	574	192
F.	470	386	363	158
M.	673	359	404	140
A.	2320	1755	369	167
M.	775	416	238	114
J.	237	208	466	121
J.	762	935	367	- 51
A	-912	-496	208	- 47
S.	528	479	461	155

i.e. increase total outstanding

Source: Financial Statistics, CSO.

3. Overdraft Facilities at Clearing Banks

In analysing defects in British monetary statistics the existence of unused overdraft facilities cannot be ignored, although it is impossible to give any accurate estimate of their size or significance for the economy and the monetary aggregates. They operate in the economic system in the same way as a bank deposit which has not yet been used for expenditure by the owner. The importance of this for the aggregates is that overdraft facilities are just as much part of the money supply as ordinary bank deposits, but are only counted as such when they are actually drawn upon. The effect of this upon the monetary statistics is often perverse. Whenever it is thought that the authorities are going to take measures to control bank lending in order to reduce the growth in the money supply, holders of overdraft facilities draw upon them in anticipation of the controls. This has a peculiar effect, in that the threat of measures to control the money supply brings about a considerable expansion in the money supply.

It would be difficult to obtain accurate statistics of overdraft facilities from the banks. If the monetary authorities are serious about producing an accurate set of tools to control the supply of money then it is possible to devise a measure similar, for instance, to that published by the Reserve Bank of Australia.

D. Distortions Produced by Discretionary Decisons

The compilation of monetary statistics rests upon certain assumptions which are rarely made explicit. One of the most important is that the statistics should refer to a particular geographical area, this is inevitable as economists and politicians are concerned with economic developments of particular nations. In the case of monetary statistics this raises a number of questions; for instance, it is not clear how the foreign currency deposits of UK residents should be tested. Prima facie, it seems reasonable to include them in any measure of the money supply, as they can be easily converted into sterling balance. Until 1977 this was the position adopted by the Bank of England and published as M3. After research into the uses by residents of such balances which showed that they were rarely used for expenditure in the UK economy, an additional aggregate sterling M3 (or £M3) was introduced which excluded these deposits[4].

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4. It should be borne in mind that just because something happened in the past, there is no reason to expect it to continue to be the case in the future. Attention may well return to M3 should circumstances change.

Similarly the Bank has to decide whether to include foreigners' sterling deposits which are currently excluded from both M3 and £M3. There seem to be strong reasons for including them, as they are increasingly likely to be used for expenditure in Britain.

The situation is different again with respect to foreign currency deposits of foreigners in London. Here the argument seems to be conclusive: Eurodollars or other Euro-currencies might as well be deposited in the Bahamas as in London for all the effect they have on the British monetary system. This is too simple an approach, as there is considerable difficulty in deciding who is a resident and who is not. A company's or individual's legal status is not the same as his economic, For example, a company, although legally resident in the UK, may make most of its payments abroad. The compiler of monetary statistics is consequently compelled to make certain arbitrary decisions about what to include in his aggregates. Whatever decision he takes will produce distortions and statistical difficulties which will vary with time and the vagaries of business practice. Table 3 shows how different decisions can lead to quite different estimates of the size of M3.

TABLE 3

Definitions of Variants of M3, Incorporating Different Discretionary Decisions

	Total £B 13 Dec. 1978
A. Bank deposits of UK residents in any currency and Notes and Coin (M3)	54,835
B. Bank deposits of UK residents in sterling and Notes and Coin (M3 or sterling M3)	49,920
C. Bank deposits of UK residents in sterling and non-residents' deposits in sterling and Notes and Coin	55,038
D. Bank deposits of UK residents in any currency and non-residents' deposits in sterling and Notes and Coin	59,954
E. Bank deposits of UK residents in any currency and non-residents' deposits in any currency in UK banks and Notes and Coin	126,478

Source: Bank of England Quarterly Bulletin

All of these definitions are net of interbank deposits and refer solely to deposits in UK banks. It will be apparent that the final definition is not of much importance for those who are concerned with monetary developments likely to directly affect the UK economy.[5] It is worth bearing in mind that the Federal Reserve Board in the US uses the last (E) variant in the construction of its monetary statistics.

To sum up then, the different types of distortion of the monetary aggregates are not all of equal importance: there are occasions when each, separately or in combination, could have a serious effect upon the estimates of the money supply and the actions of policy makers. In August 1977, for example, the year upon year expansion of M6 was 60 per cent more than that of M3. As will be shown, the possibilities for distortion can be reduced by the introduction of new monetary statistics. What may be a satisfactory measure of money supply at one time may be wholly inadequate at another. The consequences of the 1844 Bank Act should not be forgotten. This made a distinction between bank notes and bank deposits. But, in reality this distinction did not exist and lack of knowledge of contemporary monetary institutions and behaviour led to the suspension of the Bank Act on three occasions during the following forty years. Uncritical reliance on one measure of the money supply could lead to similar difficulties in our own time. With this in mind some suggestions for new instruments are made in Chapter III. Before this, the different money aggregates used in the United States are discussed.

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5. It would be, on the other hand of great interest to someone studying the growth of the Euro-currency market in London. It is a mistake to think that the large concentration of Euro-deposits or more properly "xeno deposits" as such could have any effect on the monetary base or the rate of inflation. They are really part of the money supplies of other countries lodged (temporarily) in London. On the other hand some of these deposits could become part of the domestic money supply at a moment's notice by a change in their ownership.

II. AMERICAN MONETARY STATISTICS

Monetary policy has been given more weight by policy makers in America than in Britain, and far greater attention has been given to the development of appropriate statistics. There are now eight different aggregates which are in common use, most of which are produced by the Federal Reserve Board.

Until 1971 the Federal Reserve Board prepared statistics only for M1, which was then known as 'the money supply'[6]. In April 1971 the Federal Reserve Board began to publish statistics for M2 and M3. The three aggregates were then defined as follows:

M1 - Private demand deposits, plus currency outside commercial banks.

M2 - M1 plus savings and time deposits at commercial banks other than large negotiable Certificates of Deposit.

M3 - M2 plus deposits at mutual savings banks and savings and loan association shares.

In April 1973, M3 was re-defined to include credit union shares and two new measures of the money supply were introduced, M4 and M5 which include respectively aggregate large CDs with M2 and M3. By the end of 1977, statistics for the following eight aggregates were regularly produced by the Federal Reserve:

(i) M1 : Averages of daily figures of (i) demand deposits of commercial banks other than domestic interbank and US Government, less cash items in process of collection and Federal Reserve float; (ii) foreign demand balances at Federal Reserve Banks; and (iii) currency outside the Treasury, Federal Reserve Banks, and vaults of commercial banks.

(ii) M2 : Averages of daily figures for M1 plus savings deposits, time deposits open account, and time certificates of deposit other than negotiable CDs of over $100,000 of large weekly reporting banks.

(iii) M3 : M2 plus the average of beginning and end-of-month deposits of mutual savings banks, savings and loan shares, and credit union shares (non bank thrift).

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6. This is the definition of the money supply which is used in A Monetary History of the United States 1867 - 1960, Milton Friedman and Anna Jacobson Schwartz, Princeton University Press, 1971.

(iv) M4 : M2 plus large negotiable CDs.

(v) M5 : M3 plus large negotiable CDs.

(vi) M6 : M3 plus large negotiable CDs, savings bonds, and short term marketable US Government securities.

(vii) M7 : M6 plus Commercial Paper.

(viii) Bank credit proxy : Total member bank deposits subject to reserve requirements plus Euro-dollar borrowings, loans sold to bank related institutions and certain other non-deposit items.[7]

The development of monetary statistics in the United States is continuous as techniques of measurement and of seasonal adjustment are refined. The aim, however, is not to provide a single measure of the money stock which would satisfy all purposes, but a range of different measures. Economists with differing views are able to choose whichever aggregate or aggregates best serve their purposes. This approach is in sharp contrast to that of the Bank of England, which attempts to pre-judge technical questions about which reputable experts may differ, by the continuous refinement of one measure alone.

A particularly important feature of American monetary statistics is that they are published quickly and frequently. The Federal Reserve issues money supply totals for M1 to M5 each week, giving data for the week ended Wednesday of the previous week.[8] This almost instantaneous provision of money supply data of all but the broadest aggregates, M6 and M7, is of great assistance in controlling the money supply. It compares with the British practice, where the monthly figures for two aggregates are made available on or about the 20th of each month and refer to the middle of the previous month.[9]

The American M2 and M3 expressly leave out large certificates of deposit to avoid distortions due to 'round tripping', and the broader aggregates, M3 and M5, are large enough to avoid distortions caused by switching between classes of institution which is known in America as 'disintermediation'.

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7. The eight U.S. aggregates listed here are not the only ones of importance, only those produced by the Fed. The Federal Reserve Bank of St. Louis publishes statistics for the 'Monetary Base' or 'High Powered Money' which will be discussed later.

8. The information is given in the Board of Governors' 'H6' Press Release issued at 1610 hrs every Thursday.

9. It has been reported that the British authorities are planning to gather weekly monetary data; this will be a considerable improvement, but the position could be improved further by compelling banks to submit their figures on computer tapes rather than on manual forms.

A further feature of American monetary statistics is that series for all eight Federal Reserve aggregates are available for every month back to 1952. What is available in the UK goes back only to 1963.

The broad scope of American monetary statistics has been of great help to the American authorities in determining monetary policy. The Federal Reserve Board aims to keep the growth of four monetary aggregates, M1, M2, M3 and the bank credit proxy within pre-announced target ranges. Thus the growth rate of M1 might be at least 4 per cent and at most 6.5 per cent for the next year. These targets are selected every quarter for the following year, but are reconsidered every month. What is particularly interesting about this process is that the effect of distortions upon any one measure of the money supply can be allowed for in the selection of targets and in the emphasis given to each.

An example of this ability was the argument, described in the Federal Reserve Bulletin for November 1976, which led the Federal Reserve Board to adjust monetary targets for the year ending in the third quarter of 1977. In the previous year the growth in M1 had been less than expected, because of a number of technological and industrial changes which allowed companies and individuals to economise on their current accounts. These were:

(i) The spread of overdraft facilities at banks had tended to reduce the use of current accounts.[10]

(ii) The growth in Negotiated Order of Withdrawal of NOW accounts in New England. These are interest-bearing chequing accounts.

(iii) Federal Reserve regulation changes allowed commercial banks to accept savings deposits from businesses and state and local governments.

(iv) The increasing use of savings accounts to make regular recurring payments.

(v) The growth of telegraphic transfers from savings to current accounts.

(vi) The increasing use by some state-chartered savings and loan institutions of chequing accounts for their customers.

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10. British readers will note that banks in America usually do not permit overdrafts as we know them.

Taken together, these induced an apparently slow growth of M1 and forced the Federal Reserve Board to lower its target range for that aggregate. At the same time M2 and M3 were adjusted targets for M2 and M3 because illusory slow growth in M1 would have destroyed the whole rationale of the Federal Reserve's monetary policy. The targets for M2 and M3 were adjusted upward from 7.5 per cent to 10 per cent and from 9 per cent to 11.5 per cent respectively, because of a diversion of funds from market instruments (CDs and bonds) into savings deposits. This was because market rates paid by banks and thrift institutions for time and savings (other than large CDs) had remained near their regulation ceilings.

III. TOWARDS BETTER MONETARY STATISTICS IN THE UK

The following two proposals for new British monetary statistics are intended to help remove the distortions which currently beset the figures produced by the Bank of England. The proposals are practicable and would not involve serious changes in the present methods of reporting statistics by the banking system. They would also bring the UK more into line with American practice.

First, the Bank of England should amend the statistical returns made by the banking system, so that it would be possible to produce an M2 aggregate as is now done in both the United States and West Germany. It is not possible to give an estimate of the size or movements of this proposed new statistic because the data are not available.

Secondly, the Bank should prepare statistics for three other new monetary statistics, M5, M6 and M7. Provisional estimates made for changes in these new statistics and the rationale of their construction are discussed below.

Each of these aggregates can be of use as an instrument for monetary control, but it is not claimed that all or any of them can replace M3 and £M3. They should be thought of as important supplements to the statistics already provided, and could be of considerable importance in certain circumstances. If the US Federal Reserve find this kind of statistic necessary, it is probable that Britain would find it useful too.

M2

The development of an M2 measure by the US or West German method of calculation has been proposed by stockbrokers W. Greenwell and Co. in their monetary bulletins Nos 50 and 55 of March and July 1976. They suggest that certificates of deposit (CDs) and bank accounts of more than £50,000[11] should be excluded from the official M3 series to form a new measure of the money supply to be known as M2. This measure would have the advantage over M3 of being free from the distortions caused by 'round tripping', and would exclude all large deposits which may be unusually inactive. The exclusion of CDs alone would be unsatisfactory, as CDs and deposits dependent upon base rate are close substitutes: when market rates (i.e. yields CDs and Treasury Bills) exceed ordinary deposit rates.

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11. This would at present exclude all CDs as the minimum size for a CD is £50,000.

The disadvantages of this approach are that it may 'throw the baby out with the bath water', as in the effort to eliminate the distortions caused by 'round tripping' there may be no indication of the level of company liquidity in the form of bank deposits. It is plain that some adjustment for this type of distortion is necessary, although it may be possible to do it only very imperfectly. The extra information required can be produced only by increasing yet again the detail of the information given by the banks in their monthly statistical returns to the Bank of England.

M5

This new aggregate, which is the equivalent of the American M5 would include the total of the official M3 and building society shares and deposits, less building society holdings of bank deposits.[12] M5 has the considerable advantage over M3 in that it would be free from the distortion caused by switching from bank to building society deposits, and would slow changes in a very large proportion of the liquid assets of companies and individuals. It can be produced from information which is currently available at about the same time as the official money supply figures.

Although building society deposits are as liquid as bank deposits, the limit of £10,000 on the size of any one building society deposit means that large corporate deposits do not enter into the picture as they do with a bank[13]. Building societies do not give their customers cheque books, but they will make their own cheques payable to third parties on the instructions of a depositor.

M5 suffers from three possible disadvantages:

(i) it aggregates mid-month with end-of-month statistics, as money supply figures are based on mid-month totals and building society deposits on the end-of-the-month. However, this should not cause any serious distortion.

(ii) monthly totals for building society holdings of bank deposits involve estimates, as the figures are only available quarterly. Fortunately the figures do not change very rapidly, and anyway are not of a size to cause any major disruption to the series.[14]

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12. The bank deposits of building societies must be excluded to avoid double counting.

13. Building societies do not accept large deposits with yields connected to rates in the money market, as it is the case with banks. Building society deposits are not artificially inflated by 'round tripping'. These large deposits are sometimes known as 'wholesale bought deposits'.

14. Over the four quarters to the second quarter of 1977, bank deposits and CDs held by building societies varied between 1.57 per cent and 3.58 per cent of their total shares and deposits. (Financial Statistics Table 8.7).

(iii) the most important difficulty with the proposed M5 is the large increase in recent years in the issue of term shares by building societies. They are deposits with a higher than usual rate of interest and cannot be withdrawn or sold before their maturity, which is usually a period of two years. Unlike a CD which in some respects they resemble, they are illiquid.

The following additions to official statistics would make possible the publication of a fully satisfactory M5:

(i) figures for building society deposits would have to be collected on the same day as bank deposits.

(ii) figures for building society bank deposits would have to be reported monthly on the same day as bank deposits.

(iii) figures for building society term shares would have to be reported monthly, on the same day as bank deposits.

M6

Stephen Lewis, of stockbrokers Phillips and Drew, has developed a monetary aggregate which he has called 'liquidity3' or L3. Using the American systems of measuring monetary aggregates adopted in this paper. it should be known as M6. It includes a large number of liquid assets in addition to those included in M5, and consequently it is unaffected by the movement of funds between bank deposits and the whole range of close substitutes that are available. In Table 4 the value of bank deposits (M3) and other assets included in M6 are set out as they were at the end of June 1978.

TABLE 4

THE COMPOSITION OF M6

Money Aggregates	*£Billion*
Bank deposits (M3)	52.321
Finance house deposits, etc.	0.325
Building society shares and deposits	33.659
Tax reserve deposits, etc.	0.347
Treasury bills in private hands	0.701
National Savings, Bonds and deposits	10.478
Savings Bank depositsd	4.300
Local Authority Temporary Debt	0.504

Note: Bank deposits and building society deposits are net of their holdings of bank deposits and CDs.

Source: Financial Statistics Tables : 3.12, 9.3 and 10.3

All of these assets, with few exceptions, can be converted into cash or bank deposits with little inconvenience or prospect of loss. In some cases, interest may be foregone by such a conversion, and some types of National Savings and building society terms cannot be converted into cash until they mature; these are, however, unimportant exceptions to the general rule.

A major difficulty with M6 is that without considerable changes and improvements in the collection of official statistics, it is only possible to give figures for this aggregate which are as much as six weeks in arrears. Thus figures for Treasury bills in private hands are held back currently by the Bank of England for what it calls 'market operational reasons'. Many of its components are issued on a quarterly basis, so that monthly statistics produced by Phillips and Drew involve a dress of estimation and the coverage on some of the components is not complete.

Like M5, M6 includes the increasingly important element of building society term shares which are very illiquid. M6 is also inadequate as it excludes bankers' acceptances, held outside the banking system. These are commercial bills issued by companies and 'accepted' or guaranteed by leading banks. As described later, these tend to increase when 'corset' credit control is operating on the banking system. Finally M6 is unsatisfactory as it excludes private holdings of Treasury Variable stocks, which are for many purposes indistinguishable from an ordinary Treasury bill.

These difficulties apart, M6 is an aggregate which is free from distortions caused by 'soft arbitraging' and other shifts between different kinds of liquid asset. It would not be difficult for the authorities to introduce changes in the collection of official statistics which would remove the blemishes described, and produce a wholly satisfactory British M6. Chart 4 sets out comparative rates of growth of M1, M3, M5 and M6 in recent years.

Note:

Mr. David Kern, of the National Westminster Bank, has produced figures for an aggregate similar to M6 which he has called M5. It includes all the assets contained in this paper's M6 with the exception of all non-deposit liquid assets. To this extent it is less satisfactory than M6, for the distinction between deposit and non-deposit liabilities is no longer real and consequently Mr. Kern's M5 can be distorted by soft arbitraging.[15] Since October 1978 W. Greenwell and Co. have produced

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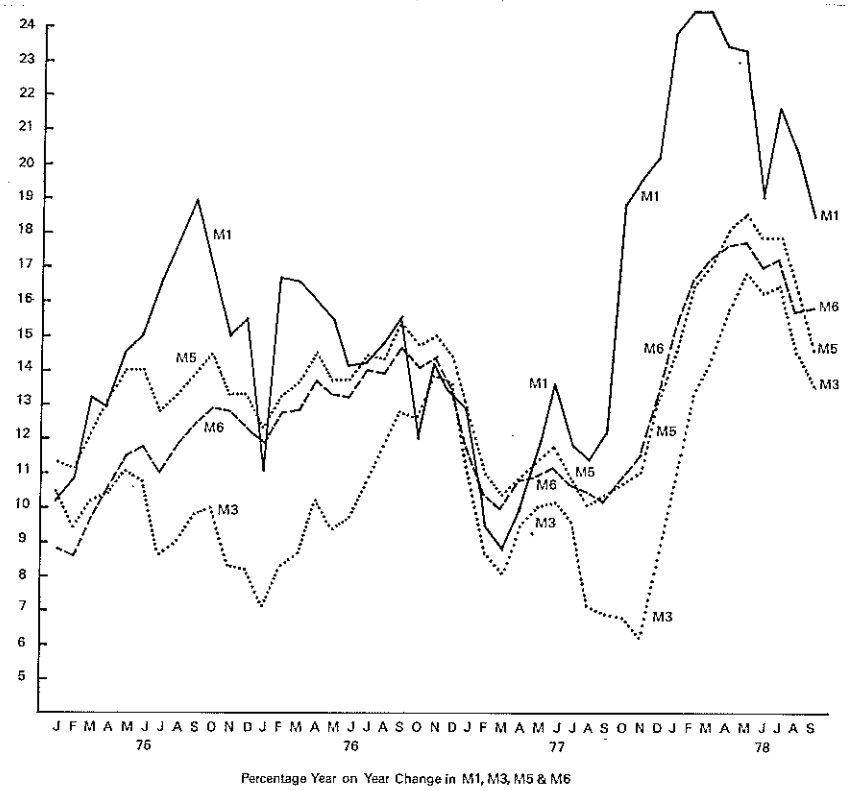
15. M5 is described by Mr. Kern in articles in the following issues of The National Westminster Bank Review:

    November 1970, p.29: Implications of DCE
    November 1972, p.34: Monetary Policy & Competition and Credit Control
    August 1975, p.6 : Monetary Aspects of the Current Economic Debate

statistics for aggregates which they have called M4 and M5.[16] M4 is defined as sterling M3 plus the non bank private sector's holdings of Treasury bills, Tax instruments and commercial bills. M5 is defined as M4 plus building society deposits, but no allowance is made for the double counting of Treasury bills and bank deposits held by building societies. Furthermore, Greenwells make no allowance for National Savings and the Trustee Savings Bank. None of these aggregates is as comprehensive as the definition of M6 adopted in this paper although Greenwell's M5 includes commercial bills which are not included in M6.

CHART 4

Growth of Selected Monetary Aggregates 1975 - 78



16. W. Greenwell & Co. : Monetary Bulletin No. 84 October 1978 p.2.

M7

M7 is similar to the American aggregate of this designation. It is the total of M6/L3 and private non-bank, non building society holdings of short-dated British Government securities, i.e. those in the traditional 'short end' of the market, of up to five years to maturity. The chief difficulty in preparing M7 figures is that an estimate of its size can be made only once a year. This is because statistics which show the disposition of the National Debt by categories of holder and by period to maturity are available only for 31 March each year. They subsequently appear in an article in the Bank of England Quarterly Bulletin each December.

One of the more disturbing financial developments of recent years has been the shortening of the maturity structure and the consequent increased liquidity of the National Debt. This process is illustrated in Table 5.

TABLE 5

SHORT-DATED BONDS AS A PERCENTAGE OF QUOTED NATIONAL DEBT 1950-1975

1950	22.31%
1955	23.98
1960	20.41
1965	27.34
1970	25.87
1971	26.63
1972	28.54
1973	25.27
1974	27.19
1975	36.47

Source: British Government Securities in the Twentieth Century, Pember & Boyle, 1976.

Notes: (1) Short dated bond is defined as one with maturity up to 5 years.

(2) Government guaranteed securities are excluded.

(3) Nominal values are used in every case.

(4) Figures are for 31 March of each year.

Furthermore in 1950, 31.16 per cent of the quoted national debt was in the form of irredeemable securities, while in 1975 the figure was 11.46 per cent.

Table 6 sets out percentage increase year on year in M6 and M7 as a percentage of the national debt. It shows how the increasing liquidity of the quoted national debt has affected the growth of total liquid assets. M7, for instance, diverges significantly from M6 only in 1975, when the authorities allowed the private sector's holdings of short dated bonds to expand very rapidly. It is not proposed that M7 should be a direct instrument of control but only that it should act as a warning device to show that the authorities' debt policy is tending to offset control of the money supply.

TABLE 6

PERCENTAGE INCREASE ON PREVIOUS YEAR IN M6 & M7 OF THE PROPORTION OF THE NATIONAL DEBT

	M6	*M7*
1970	3.3%	2.6%
1971	10.9	10.3
1972	14.6	14.5
1973	19.6	19.2
1974	16.5	16.7
1975	10.0	14.4
1976	10.9	10.6
1977	10.0	11.5
1978	17.3	15.3
Totals 1978 £Billion	96.975	103.806

Source : Phillips & Drew - Bank of England Quarterly Bulletin

Some critics may object to the very conception of a measure of the money supply that includes government bonds. But gilts with less than one year to maturity count as reserve assets for the banking system. Short-dated bonds of all kinds, and particularly the 'variable' interest rate or 'floating bonds', are assets of exceptional liquidity and being free of capital gains tax when held for more than a year, they are very attractive to many types of investor.

Appendix III sets out the annual changes since 1970 in the UK Money Supply according to the five different definitions discussed in this chapter.

IV. THE MONETARY BASE

An important tool for controlling and measuring the money supply and one which is scarcely known in the United Kingdom is what is known in the United States as the Monetary Base and in West Germany as Central Bank Money.[17]

The Monetary Base includes the liquid or reserve assets of the banks and all assets which are capable of acting as reserve assets. Its importance is that, given a particular ratio of bank deposits to banks' liquid assets (whether established by law or by custom), it is possible to tell the maximum quantity of deposits that the system can sustain. In the American context, the Monetary Base consists of banks' deposits with the Federal Reserve, their holdings of notes and coin (or 'vault cash' as it is known) and all notes and coin in circulation with the public. An alternative way of describing the monetary base is to think of it as the liabilities' side of the balance sheet of the Federal Reserve System.

The Monetary Base has two advantages for purposes of control over other money supply measures. It can be measured accurately and at very short intervals; no central bank should have difficulty in discovering the size and shape of its own balance sheet! It is also easy to control, as all the central bank concerned has to do is to expand or contract its balance sheet. In America, statistics for the Monetary Base are published by the Federal Reserve Bank of St. Louis, but not by the Federal Reserve Board itself. The Federal Reserve prefers to use statistics for bank reserves of 'high powered' money, i.e. that part of the Federal Reserve System balance sheet which is currently the reserve asset base of the banks.

The Monetary Base or Central Bank Money (hereafter called CBM) is important in West Germany as it is the chief instrument of the Bundesbank in the control of M3.[18] Chart 5 shows how German M3 has followed closely the movements of CBM; this is because nearly all deposit taking institutions, not just banks, are required to maintain reserves with the Bundesbank. Changes in CBM have an immediate effect upon the monetary aggregates.

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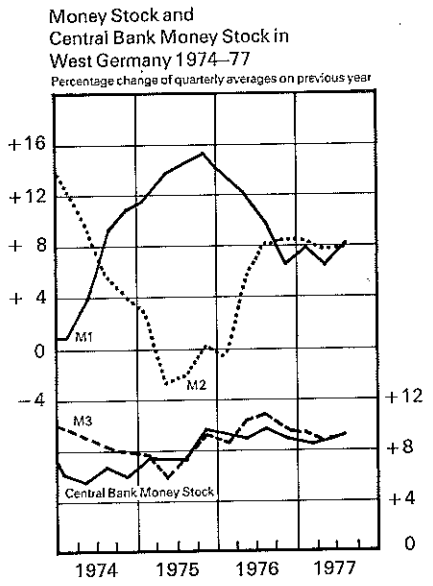
17. It is also known to the International Monetary Fund as Reserve Money viz. International Financial Statistics.

18. M3 in West Germany is an aggregate similar to the American M3 rather than the British. It includes the equivalent of building society deposits.

CHART 5



At present British monetary institutions make it impracticable to use figures for the Monetary Base as a means of money and credit control. Statistics for its calculation are not readily available, as there are so many different types of potential reserve asset, and figures for only a few are collected by the authorities. Table 7 shows the different assets which banks can hold as their reserve assets.[19]

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19. A precise definition of what can be used as Reserve Assets is given in the Bank of England Quarterly Bulletin.

TABLE 7

VALUE OF RESERVE ASSETS OF BANKS (13 DECEMBER 1978)

	£Billion
Money at call:	
discount market	3.002
other, i.e. stockjobbers	0.220
Commercial bills eligible for resale to the Bank (but only up to 2% of eligible liabilities	0.804
Treasury Bills	0.838
Local Authority Bills	0.148
British Government stocks and stocks of nationalised industries guaranteed by the Government with less than one to maturity	0.700
Deposits with the Bank of England other than Special or sup-Deposits	0.420
TOTAL	6.133

Source: *Bank of England Quarterly Bulletin*

It will be seen that deposits with the Bank of England make only a very small proportion of reserve assets, currently some £370m out of total reserve assets of £6.174B. Unless the types of asset which can count as reserve assets were changed, it would be very difficult to produce the necessary statistics for potential reserve assets, i.e. those held outside the banks. Details of gilt edged securities outside the bank are only available for 31 March of each year, and a monthly review of the stock registers would be inordinately expensive. Details of Treasury Bill holdings, although known to the Authorities cannot be made public until after a lapse of two months or so, for "market operational reasons".[20]

It has been argued that British monetary institutions should be changed so that it would be practicable to introduce statistics for the Monetary Base and use it for control of the growth in the money supply.[21] Gradually reserve assets other than deposits with the Bank of England would be phased out so that in time it would become possible to control the money supply by altering the size of the balance sheet of the Bank of England.

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20. It is strange that 'vault cash' or banks' holdings of notes and coin do not count as reserve assets in Britain, contrary to the practice in West Germany and America. The British practice probably reflects the fact that today cash is the small change of the monetary system.

21. Professor Brian Griffiths' 'How the Bank has managed Monetary Policy', The Banker, December 1976.

W. Greenwell & Co. have also taken up this suggestion. In A Monetary Base for the UK (January 1977) they argue that the current system of monetary control is volatile and difficult to manage. The government's residual finance is supplied by the sale of Treasury Bills which can form part of the reserve assets of the banking system. The demand for residual finance is itself extremely volatile, as it depends on the exigencies of the tap method of gilt sales and intervention in the foreign exchange market. Consequently it is desirable to have a form of residual finance which does not affect the reserve assets of the banking system and the level of deposits that the system can support. Greenwells propose that Treasury Bills should cease to count as reserve assets and similarly that secured loans with the discount houses should also lose that status. They suggest that Special Deposits by the banks with the Bank of England should be converted into reserve assets to form a part of the British monetary base. They argue further that the position of the discount market has changed from being the buffer between the banks and the Exchequer and that this function has shifted to the inter-bank market. If call money with the discount houses was to cease to count as a reserve asset they would be restored to their old position before Competition and Credit Control.[22] Before the authorities' emphasis shifted from the 8 per cent cash ratio to the 30 per cent and then 28 per cent liquid assets ratio, the discount houses provided the Treasury's need for residual finance without affecting the lending capacity of the banks.

The regular provision of Monetary Base statistics in Britain would be a considerable improvement in the tools available to control money supply. Changes in British monetary institutions would be necessary, but this would not be too high a price to pay for a method of measuring and controlling the money supply as convenient as the Monetary Base.

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22. Competition and Credit Control 1971. Consultation document reprinted in the Bank of England Quarterly Bulletin, June 1971.

CONCLUSION

The new British monetary statistics proposed in this paper go at least some way to destroying one of the most potent criticisms of opponents of monetarism: that it is pointless to control the money supply in a modern economy in order to control inflation, as sophisticated financial markets will produce substitutes that will offset the thrust of official policy. This doctrine was one of the reasons why the Radcliffe Committee[23] rejected what more recently has come to be known as monetarism, and is exemplified in this quotation (para 392):

> 'If there is less money to go round, in relation to other assets (both physical and financial), it will not, unaided, rise by much, because in a highly developed financial system, there are many highly liquid assets which are close substitutes for money, as good to hold and only inferior when the actual moment for a payment arrives.'

This led the Committee to its considered judgement on "monetarism":

> 'Though we do not regard the supply of money as an unimportant quantity, we view it as only part of the wider structure of liquidity in the economy. It is the whole liquidity position that is relevant to spending decisions, and our interest in the supply of money is due to its significance in the whole liquidity picture' (para 381).

Professor N. J. Gibson describes the difficulty thus:

> 'The crux of the problem would seem to be the ease with which lenders may transfer their funds from one institution or market to another and similarly the access of borrowers to a wide range of alternative sources of funds'.[24]

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23. Report of the Committee on the Working of the Monetary System. Cmnd 827 HMSO August 1959.

24. N. J. Gibson: Financial Intermediaries and Monetary Policy. IEA 1967 (2nd Edn. 1971), p.39.

There are two possible reactions to this difficulty. First, it can be argued that any attempt to control the money supply is misconceived and that other measures ought to be used to control inflation. Secondly, there are those who believe that so long as action to control the growth of money supply is sufficiently resolute, the ability of sophisticated financial markets to offset the thrust of official monetary policy is reduced. This is the position adopted in this paper, but only if the broadest aggregate expands at an appropriate pace can it be seen whether official monetary policy is resolute enough.

It may be that monetary policy has not been deflected by other financial institutions, although the evidence adduced here indicates otherwise; but there can be no guarantee that this will not happen in the future since institutional changes and entrepreneurial activity in the financial markets cannot be foreseen. It is not often realised that the term "money supply" is a subjective concept which depends upon the subjective evaluations by the money and securities markets. There can be rapid changes in these judgements and consequently in what counts as money or good substitutes for money.[25] The issuing on a regular basis of a selection of broad aggregates will allow observation of these changes.

Professor F. A. Hayek has pointed out that there is a continuum of assets of varying degrees of liquidity which have the quality of "moneyness" in different amounts. He writes:

> 'I have always found it useful to explain to students that it has been rather a misfortune that we describe money as a noun, and that it would be more helpful for the explanation of monetary phenomena if 'money' were an adjective describing a property which different things could possess to varying degrees. 'Currency' is, for this reason, more appropriate, some objects can 'have currency' to varying degrees and through different regions or sectors of the population'.[26]

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25. For instance, in times of high economic activity even equities might temporarily become good subsititutes for money.

26. F. A. Hayek : Denationalisation of Money, Hobart Paper Special No. 70, IEA, 1976 (2nd Edn 1978), p.47.

The broad aggregates described in this paper provide some of the tools to ensure that monetary policy has the intended effect. The concentration of monetary control on one or two narrow definitions of the money supply could lead to the discrediting of "monetarism" as reliance upon the narrow aggregates may not be sufficient to control inflation. It then could be argued with apparent plausibility, that monetarism had been tried and had failed.

The Bank of England should set up an expert committee to assess the current monetary aggregates and recommend any necessary changes to the existing figures and what new data should be collected.

APPENDIX I

The United States Advisory Committee on Monetary Statistics

One of the most attractive features of the American approach to monetary statistics is that continuous assessment of their relevance is carried out publicly with the assistance of independent experts. It is also characteristic that the Federal Reserve Board recognises that it has a duty to provide a service for all scholars and experts who may have very different ideas about the significance of the differing monetary aggregates. (This is not the only interpretation of the Fed's behaviour. In the author's hearing a very eminent monetary economist described the introduction of the broad aggregates as 'obfuscation'). The theoretical impartiality of the Fed in dealing with monetary statistics, is parallel in Britain only to the independent committee which supervises the production of the retail price index. This led to the establishment in 1974 of the Advisory Committee on Monetary Statistics. The Committee, whose expert members included Professors Philip Cagan, Milton Friedman, Franco Modigliani, Arthur Okun and, for a time, Paul McCracken, reported early in 1976.

The changes in the monetary aggregates proposed were seven in number, and are concerned primarily with the seasonal adjustment, institutional changes and technical questions of collection and presentation. Of particular interest to the British reader are the recommendations concerning foreign deposits in the US and US dollars held abroad, and the discussion of the problems of concept and definition that confront the compiler of monetary statistics. In dealing with foreign deposits in the US and Eurodollar deposits, the Committee recommended that Eurodollars continue to be excluded, and that the deposits of foreign governments and financial institutions also be excluded. However, it recommended that the relevant statistics for these deposits should continue to be collated and published for those who wished to 'include them in the monetary aggregates, or to use them for other purposes'.[27] It is significant that the Committee was eager to assist economists whose approach to the aggregates was thought unsatisfactory on theoretical and practical grounds.

The Committee's discussion of "consolidation" is interesting, more for its relative lack of criticism than for the recommendations themselves. "Consolidation" is important in the compilation of money statistics, as it is the removal of interbank deposits and amongst other things cash held by banks from the monetary aggregates to avoid double counting. The Committee recommended that the broad aggregates M3 and M5 should cease to be a mere

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27. Improving the Monetary Aggregates, Board of Governors of the Federal Reserve System, Washington DC 1976.

combination of the accounts of commercial banks and thrift institutions, and that the currency and bank deposits of thrift institutions should be subtracted. The Committee did not condemn the practice of presenting 'conceptual' aggregates, for it appeared to accept the principle that even bad statistics are better than no statistics at all. Similarly the Committee did not condemn the Fed's practice of making considerable estimates in statistics from non-member banks for provisional money supply figures. This is because non-member banks report only infrequently and although the Committee suggests that their reporting be improved, it is impracticable to make them report on the same basis as member banks.

APPENDIX II

The Effect of the 'Supplementary Deposit Scheme' upon the Monetary Aggregates

> 'If the Bank of England had been instructed to devise a control to circumvent any restriction on the growth of M3 in a future IMF Letter of Intent the Bank could not have devised a more effective mechanism than the IBEL's constraint'. Greenwell's Monetary Bulletin No. 38 Special Edition July 1973.

The purpose of the Supplementary Deposit Scheme, known colloquially as the "corset", is to reduce the power of the banks to increase their lending by penalising the growth in their "bought" deposits. These are the "Interest Bearing Eligible Liabilities" (IBELs), which are an important part of the base which the banks use for the expansion of their lending. IBELs are the total of CDs (Certificates of Deposit) and ordinary deposit accounts and amount to about 60 per cent of M3, i.e. all of M3 except notes, coin and current accounts. The mechanics of the scheme as it was in force until August 1977 were described by the Bank of England as follows:

> 'Under the arrangements announced on 18 November 1976 and extended in May 1977, supplementary deposits initially became payable if an institution's interest-bearing eligible liabilities for the average of February/April 1977 had grown by more than the specified rate of 3 per cent over the average of August/October 1976. Further growth of 0.5 per cent per month was permitted for the following eight months. The rate of deposits was progressive, according to growth in excess of the guideline, at 5 per cent (up to 3 per cent excess), 25 per cent (over 3 per cent up to 5 per cent) and 50 per cent (over 5 per cent) of interest-bearing liabilities'.[28]

Supplementary deposits had to be made with the Bank of England and received no interest.

If there were strong demand for loans under a "corset" regime, there would be a tendency for the growth in deposits to take place in current accounts or outside the banking system altogether. This would not happen if interest rates were kept at a high level, but if interest rates were to fall a growth in building society and local authority deposits could be expected, as they would become relatively attractive compared to bank deposit accounts or CDs. The growth in local authority deposits, however, might be contained by government control on local authority borrowing. Should a "corset" regime be maintained for any length of time, a considerable amount of growth in "acceptances" can be expected. "Acceptances" are short term paper issued by companies wishing to borrow and "accepted" or guaranteed by a bank. Such a development would be a direct equivalent to an increase in the money supply as an accepted bill is easily as marketable as a CD. In America, such paper is included in M7.

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28. Bank of England Quarterly Bulletin Vol 17, No. 3, September 1977. Note to Table 3.

Similarly building societies would be in an increasingly strong position, given relatively low interest rates, to compete for funds with the banks. Another possible beneficiary of the "corset" is the government, as gilt-edged would become relatively attractive. This would not necessarily mean a decline in the liquidity of persons or companies, as many types of gilt-edged security are almost as liquid as money market instruments.

The 'massive disintermediation'[29] which might result from the imposition of the "corset" for any considerable length of time, would thus hopelessly distort the official money supply statistics. If the "corset" were to become the main instrument of control of the money supply, the official money supply statistics would need augmentation to avoid giving a false impression of tight monetary policy.

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29. This phrase was used in International Currency Review (Vol. 8 No.6 p.29) to describe the possible effects of the "corset".

APPENDIX III

Annual Changes in the U.K. Money Supply according to Different Definitions

	M1	*M3*	*M5*	*M6*	*M7*
1970	2.0	2.4	8.5	3.3	2.6
1971	17.9	12.6	14.3	10.9	10.3
1972	12.1	16.5	14.6	14.6	14.5
1973	10.4	28.0	27.3	19.6	19.2
1974	3.6	25.1	20.5	16.5	16.7
1975	15.4	10.3	12.2	10.1	14.4
1976	20.8	8.1	13.5	10.9	10.6
1977	8.8	8.1	10.4	10.0	11.5
1978	24.6	14.3	17.1	17.3	15.3

Source : Bank of England

GLOSSARY

Central Bank Money	Name given to "High-Powered Money" or "Monetary Base" in West Germany.
CDs	CDs or certificates of deposit are IOUs issued by banks which are freely marketable.
The "Corset" or Supplementary Special Deposit Scheme	A means adopted by the Bank of England for penalising banks who allow their liquidity to rise too quickly for monetary policy. It is discussed in detail in Appendix II.
Disintermediation	The shift of savings from financial intermediaries to other securities or institutions because of the relative height of interest rates.
Eligible Liabilities	These are the deposits against which banks must keep at least 12½ per cent in reserve assets. Eligible liabilities are defined as follows: sterling deposit liabilities excluding deposits with maturities of over two years plus sterling resources obtained by switching from a foreign currency.
Gilt-Edged	Government debt quoted on the stock exchange. Stock with less than one year to maturity counts as reserve assets when held by banks.
High-Powered Money	Another name for the Monetary Base or Central Bank Money.
IBELs	Interest bearing eligible liabilities - effectively deposits obtained by banks by bidding for them in the money market.
Monetary Base	This is the total of reserve assets and potential reserve assets, and given a particular reserve ratio, it indicates the amount of deposits that the banking system can support. In America, it consists of member bank deposits with the Federal Reserve System and currency in circulation.
NIBELs	Non-interest-bearing eligible liabilities - e.g. current accounts with banks.
Reserve Money	Name used by the IMF to describe the Monetary Base.
Special Deposits	The name given to compulsory deposits which banks are required to make with the Bank of England as an instrument of monetary policy. All banks maintaining the 12½ per cent reserve ratio are liable.

Tap Method of Gilt Sales	This is the method the government uses to sell its bond to the public. After initial subscriptions, often advertised in the press, the stock is fed gradually into the market until it is sold out.
Treasury Bill	Treasury Bills are short term government debt, issued at a discount and with a maximum maturity of 91 days. Banks and discount houses usually hold most of the Treasury Bills in issue. When held by banks Treasury Bills count as reserve assets.
Variable Stocks	Government stocks with variable interest rate, linked to the yield on Treasury Bills.

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