Funding the public sector borrowing requirement: 1952–83

This article[1] reviews the way in which the public sector borrowing requirement (PSBR) has been financed over most of the post-war period, concentrating on the implications of that financing for the banking system and monetary developments more widely. Since the adoption of targets for broad money in 1976, funding policy has assumed particular importance. Associated with this, certain developments, notably the occurrence in some periods of sales of debt to the non-bank private sector in excess of the PSBR, ie 'overfunding', and the potential implications of this for the liquidity of the banking system, have attracted much attention. This article seeks to set these developments in a longer historical context.

The various transactions by which the PSBR may be financed are described, together with the evolution of the pattern of financing, and the implications of funding for the monetary aggregates are examined. Overfunding is not a new phenomenon, although the influences which have given rise to it have changed over time. A number of factors have recently contributed to pressures on the liquidity of the banking system, so that overfunding has not been the sole, or even the dominant, influence underlying the accumulation of commercial bills by the Issue Department of the Bank.

How the PSBR is financed

In every year since 1952 bar one (1969), current and capital expenditure by the public sector has exceeded revenue and this deficit has had to be met by borrowing. The public sector can borrow from any of three sectors: the non-bank private sector, the overseas sector, and the monetary sector.[2] The division of financing among these three main categories is shown in Table 1.[3] Financing flows include changes in certain financial assets held by the public sector as well as all changes in public sector liabilities, both interest and non-interest bearing.[4] The way in which the PSBR is financed has important monetary implications. Some of the liabilities issued directly by government are money (notes and coin). In addition, interest-bearing government debt may be purchased by financial institutions which themselves issue monetary liabilities. The division of public sector finance between different sectors is therefore of special interest.

The non-bank private sector—consisting principally of households, financial institutions other than banks and companies—contributes to the financing of the PSBR through the purchase of both marketable and non-marketable debt. Marketable debt consists predominantly of government securities and Treasury bills. Non-marketable public sector debt consists mainly of the range of national savings instruments and certificates of tax deposit.[5] Increases in the non-bank private sector's holdings of notes and coin (shown separately in Table 1) also contribute to the financing of the public sector. They will give rise to a number of changes to the balance sheets of the commercial banks and the Banking Department.[6] But ultimately (other things being equal) they will result in the Issue Department's liabilities increasing (as the note issue rises), together with its holdings of government securities, so reducing the amount of public sector debt which needs to be sold elsewhere to finance a given PSBR.

The overseas sector contributes to the financing of the public sector in part through non-resident purchases of public sector debt. These overwhelmingly take the form of purchases of government securities and Treasury bills by both official and private holders. The second element in external and foreign currency finance is foreign currency borrowing by the UK public sector from UK and overseas banks: this assumed particular importance in the mid-1970s when a considerable amount of foreign currency borrowing was undertaken at a time of external weakness. The proceeds of foreign currency borrowing may help directly to finance the public sector if used to purchase goods and services in foreign currency or in sterling (after conversion on the foreign exchange market).

Changes in the official reserves, arising from transactions in gold and foreign exchange, also contribute: the sterling proceeds of official sales of foreign exchange are used by the Exchange Equalisation Account (EEA) to repay

(1) Primarily the work of P A D Wright of the Bank's Economics Division.

(2) The monetary sector has only existed for statistical purposes since November 1981: prior to that, it is identified with the banking sector (from 1963) and before that with the London clearing banks.

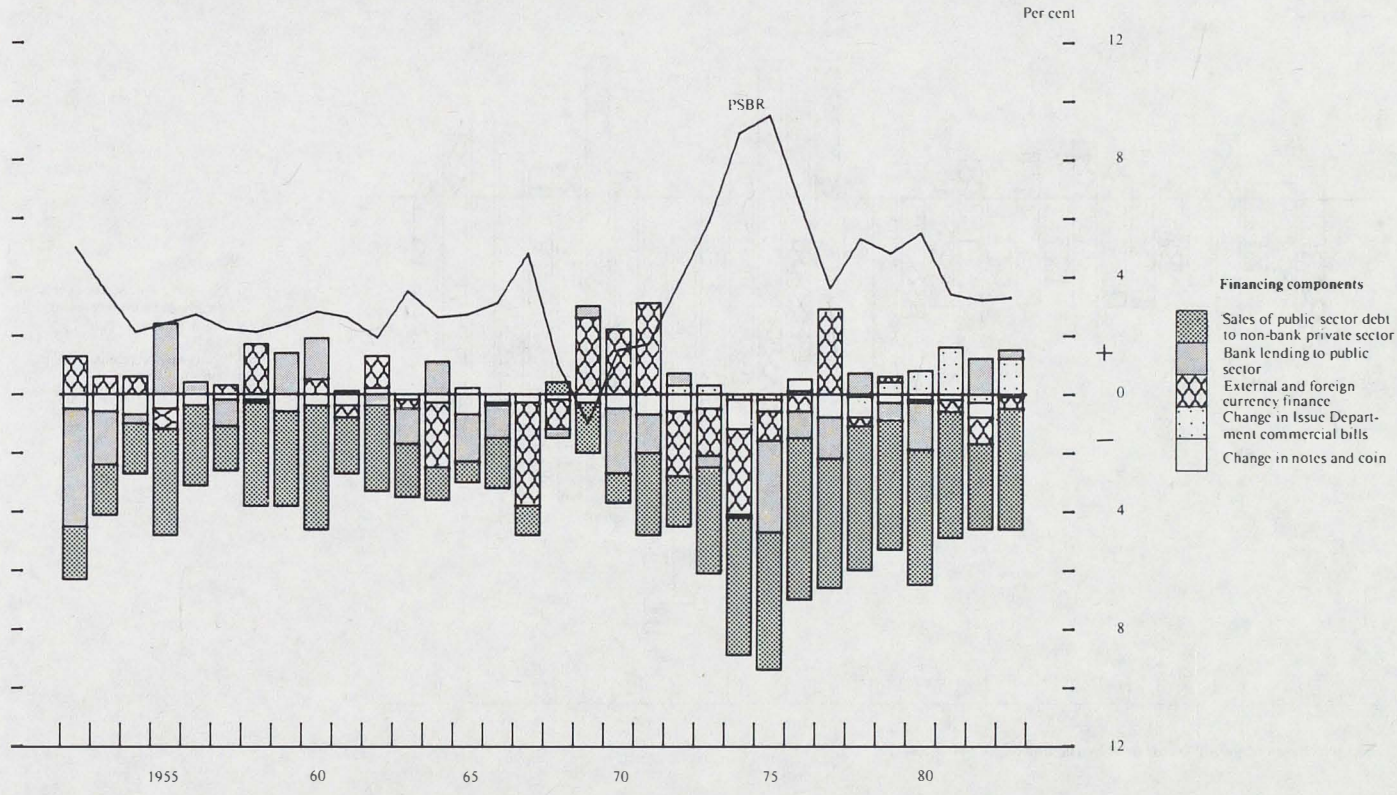
(3) Recent figures are published in *Financial Statistics*, Table 2.6.

(4) The correspondence between the financing of the PSBR and changes in the national debt, as defined in the article on page 493, is not very close. The national debt consists of certain liabilities of central government (and, in the article on page 493, stocks issued by nationalised industries and guaranteed by the government). A reconciliation between the CGBR (which is of course only part of the PSBR) and changes in the national debt is given on page 496.

(5) And (prior to 1975) tax reserve certificates.

(6) The Banking Department of the Bank of England is part of the monetary sector along with the commercial banks.

Chart 1
PSBR and its financing as percentage of GDP[a]



(a) Expenditure measure at market prices. For clarity and consistency with the tables, total borrowing has the opposite sign to the individual sources of finance.

outstanding government debt. Thus, in effect, they reduce the amount of government debt sales needed to finance a given PSBR. (It follows that there is no net effect on government financing where the proceeds of foreign currency borrowing are added to the reserves.)

The importance of this form of financing will obviously depend on the extent of official intervention in the foreign exchange markets. Until 1972 the authorities had an obligation to maintain the international value of sterling within a narrow margin either side of a fixed parity. The intervention required in this connection implied a direct link between external pressure on sterling and the contribution of the EEA to financing. Since then, no official peg for the exchange rate has existed and the authorities have exercised discretion in deciding whether, and by how much, to intervene to moderate changes in the exchange rate. There were several occasions in the mid and late 1970s when intervention was very heavy, notably in 1977. Since 1979, however, intervention has taken place on a much smaller scale.

The monetary sector also helps to finance the public sector through its holdings of cash and marketable and non-marketable debt (the latter being mainly certificates of tax deposit). In fact, historically, the monetary sector has been the residual source of finance for the public sector: this used to be secured through members of the discount market agreeing to underwrite the weekly Treasury bill tender. More recently, the public sector has changed from debtor to the monetary sector to short-term creditor. The amount of outstanding Treasury bills has been run down to a minimum level consistent with maintaining a Treasury bill market in existence, and the Issue Department of the Bank (which is included in the public sector rather than the monetary sector) has built up a portfolio of commercial bills. This development, which is explained later, has taken place against a need to provide assistance on a considerable scale to offset cash shortages in the money markets arising in part from central government debt sales in excess of the shortfall in other Exchequer transactions.

Scaling by prices and output[1]

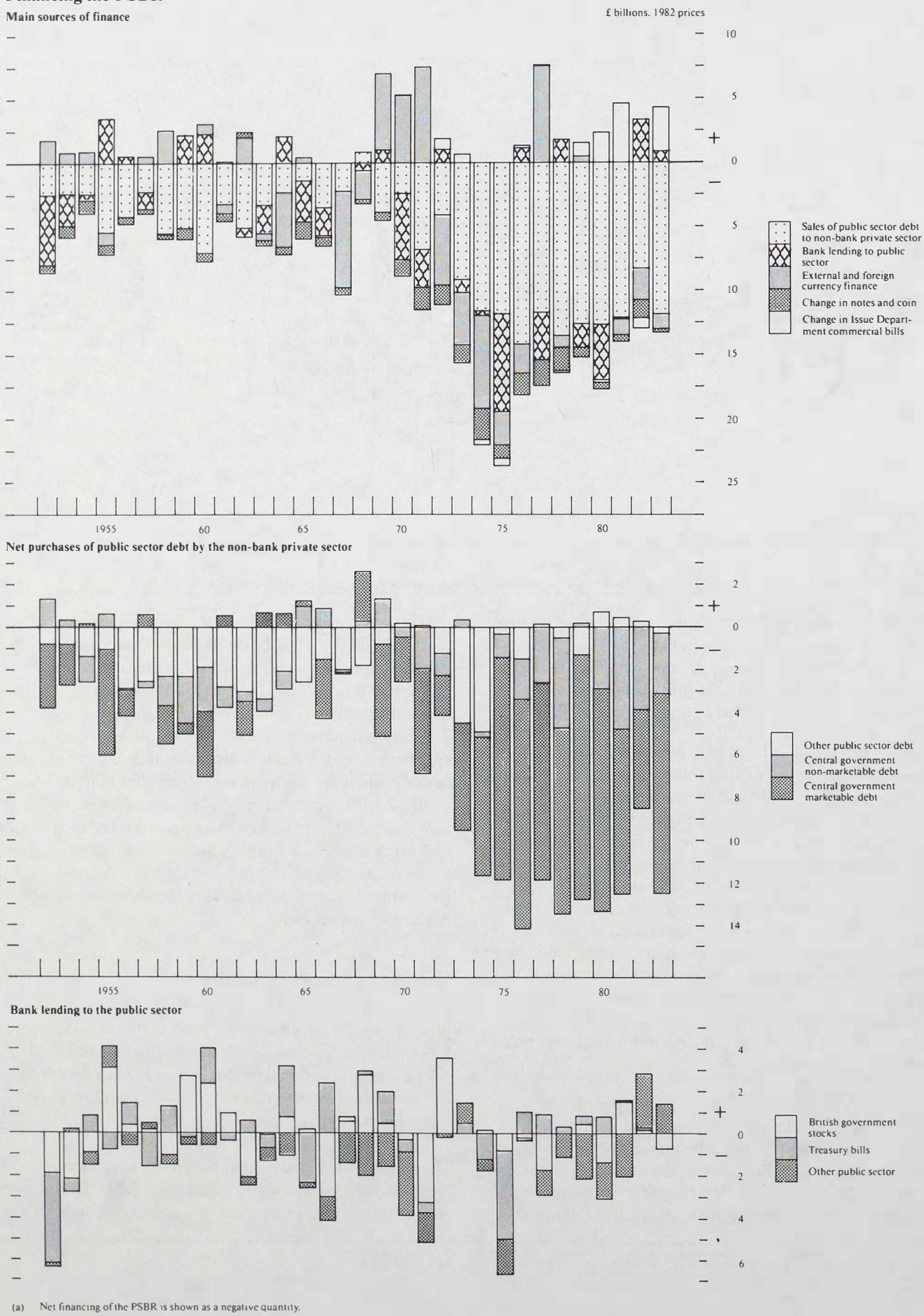
The data shown in Table 1 are in nominal terms, ie at the prices prevailing in each of the years under consideration. Since the price level increased approximately nine-fold over the period and real output has more than doubled, it is difficult to discern real trends in the composition of financing from these data.

The PSBR and the main financing flows have therefore been recalculated as a percentage of nominal GDP for each year (Chart 1).[2] After a period of considerable stability

(1) Adjusted using the GDP deflator derived from national income statistics. The adjustment to constant prices throughout this article should not be confused with the concept of 'inflation adjustment' which has been used elsewhere, as in 'Real national saving and its sectoral composition' by C T Taylor and A R Threadgold, *Bank of England Discussion Paper No 6*, October 1979.

(2) All data, in both charts and tables, are for calendar years up to and including 1962 and financial years thereafter. References to years in the text should be interpreted accordingly.

Chart 2
Financing the PSBR[a]



(a) Net financing of the PSBR is shown as a negative quantity.

during the 1950s, the PSBR increased as a proportion of nominal income during the 1960s with a peak in 1963, and again in 1967 when it reached nearly 5% of GDP. It fell sharply in the late 1960s—a period of fiscal restraint following the devaluation of 1967—and in 1969 the PSBR was negative (ie in surplus). The early 1970s saw a very rapid expansion of the PSBR/GDP ratio following expansionary budgets in 1972 and 1973. By 1975, it was equivalent to no less than 9½% of GDP. This, and the later peak of 5½% in 1980, both occurred in years in which real activity was depressed following sharp increases in the oil price. The policy of the present Government has been to reduce the PSBR as a proportion of GDP in order to facilitate monetary control without excessive reliance on interest rates, and by 1983 the proportion had fallen to less than 3½%.

In order to keep the data simple, the remainder of the article is concerned with public sector borrowing and its financing in constant price terms, ie no attempt is made to adjust for real growth.

The pattern of financing flows

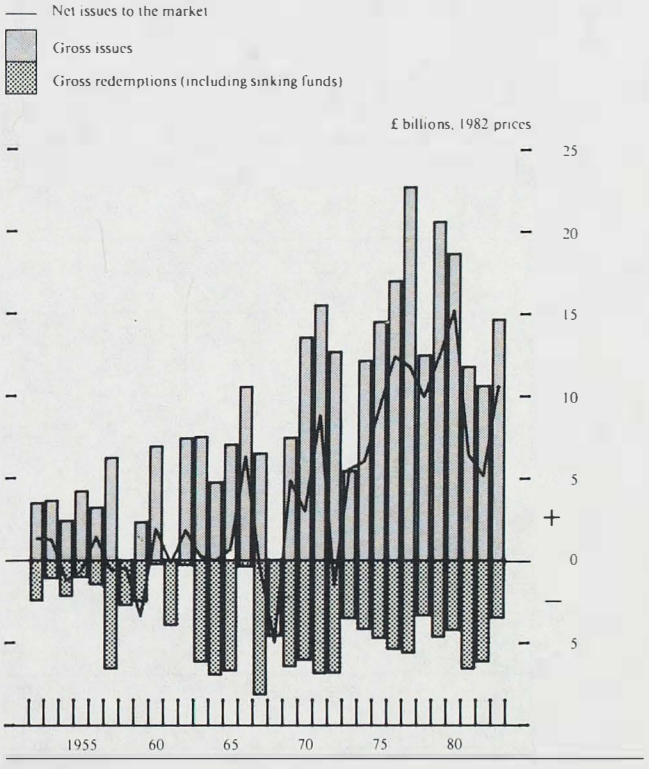
It is immediately apparent that, even without taking account of real economic growth, the PSBR at constant (1982) prices has fallen markedly in recent years when compared with the mid-1970s (Chart 2).

Sales of public sector debt to the non-bank private sector have been consistently the largest source of finance to the public sector (top panel). Such sales have made a net contribution to financing in every year except one (1968) and have assumed increasing importance (in proportional terms) since the mid-1970s, the period during which targets have been set for monetary growth. However, the importance of different types of public sector debt sales within the total has altered (middle panel).

Sales of public sector debt other than that of central government ('other public sector' debt) were of considerable importance during the 1950s and 1960s. In the early part of this period, local authorities and, to a lesser extent, the public corporations borrowed heavily in order to finance large investment programmes. Much of this finance was raised by capital issues, although restrictions were placed on the total amount of borrowing in this form which was therefore heavily supplemented by borrowing from central government. Since then (except in 1973 and 1974 when the local authorities' borrowing requirements expanded extremely rapidly) sales of 'other public sector' debt to the non-bank private sector have been less important; in 1980, 1981 and 1982, net repayments were made.

After expanding quite strongly in the late 1950s, sales of non-marketable central government debt declined as a proportion of total debt sales, and net repayments were made in the second half of the 1960s as a whole. Sales

Chart 3
Issues of government securities 1952–83



have subsequently revived, however, and become an important component in total financing in the last ten years. But the most important and stable element of funding over the past decade has been the sale of marketable central government debt and, in particular, government securities. Very high net sales (by historical standards) have been made despite continuous large redemptions of stock (Chart 3). Heavy redemptions also occurred throughout much of the previous decade, but net sales of stock between 1963 and 1972 were much lower than in recent years.

A second noteworthy feature of the pattern of financing (apparent in the top panel of Chart 2) has been the variable, but often very large, contribution of external and foreign currency finance in both positive and negative directions. Changes in the reserves have been an important component of this, both before 1972 and occasionally since when the authorities resisted downward pressure on sterling for prolonged periods. In contrast, when upward pressure was resisted (1969–71 and 1977), the reserves made a negative contribution. Since 1979, although intervention has generally been on a smaller scale than previously, external and foreign currency finance has still made a substantial contribution to total financing in some years (particularly 1982). This is attributable both to falls in the reserves and to heavy overseas purchases of central government debt. Foreign currency borrowing by central government and the rest of the public sector has also made an important contribution to financing, most notably in 1974 and 1975 when the government raised over £1 billion in foreign currency from a group of international banks, and in 1976 when over £1.1 billion was borrowed from the IMF.

Table 1
Financing the PSBR

£ millions, current prices

Borrowing and Issue Department purchases+/financing flows–

	PSBR(a)	Purchases of public sector debt by the non-bank private sector						Bank lending in sterling to the public sector						External and foreign currency finance of the public sector					Change in notes and coin held by the public	Change in Issue Department holdings	
		Central government debt				Other public sector debt	Total	Central government debt				Other public sector	Total	Stocks and Treasury bills	Change in the reserves (d)	Other central government transactions(e)	Other public sector debt	Total		Commercial bills	Export and shipbuilding credit
		Non-marketable(b)	Stocks	Treasury bills	Total			Stocks	Treasury bills	Other(c)	Total										
	1						*2*						*3*					*4*	*5*	*6*	*7*
Calendar years																					
1952	+ 794	+ 155		−353	− 198	− 94	− 292	− 220	− 512	+ 109	− 623	− 19	− 642	+ 398		−186	—	+ 212	− 72	—	
1953	+ 593	+ 45		−232	− 187	− 100	− 287	− 260	− 75	+ 13	− 322	+ 23	− 299	− 241		+344	—	+ 103	− 110	—	
1954	+ 371	− 147		+ 21	− 126	− 171	− 297	− 109	+ 111	+ 15	+ 17	− 75	− 58	− 147		+262	− 3	+ 112	− 128	—	
1955	+ 470	+ 79		−645	− 566	− 134	− 700	+ 403	− 99	+ 20	+ 324	+ 132	+ 456	+ 50		−182	+ 2	− 130	− 96	—	
1956	+ 573	− 11		−166	− 177	− 394	− 571	+ 59	+ 138	− 45	+ 152	− 76	+ 76	+ 103		− 93	− 13	− 3	− 75	—	
1957	+ 487	− 42		+ 85	+ 43	− 364	− 321	+ 32	− 217	− 45	− 230	+ 42	− 188	+ 112		− 37	+ 1	+ 76	− 54	—	
1958	+ 491	− 201		−266	− 467	− 340	− 807	− 144	+ 190	+ 10	+ 56	− 70	− 14	+ 41		+341	− 1	+ 381	− 51	—	
1959	+ 573	− 332		− 86	− 418	− 352	− 770	+ 418	− 31	− 14	+ 373	− 40	+ 333	− 91		+114	− 25	− 2	− 134	—	
1960	+ 710	− 320		−475	− 795	− 287	− 1,082	+ 365	+ 253	− 186	+ 432	− 78	+ 354	− 245		+404	− 40	+ 119	− 101	—	
1961	+ 704	− 164		+ 86	− 78	− 432	− 510	+ 162	− 43	− 91	+ 28	− 8	+ 20	+ 213		−277	− 53	− 117	− 97	—	
1962	+ 546	− 91		−258	− 349	− 482	− 831	− 328	+ 110	+ 177	− 41	− 74	− 115	+ 142		+239	− 51	+ 330	+ 70	—	
Financial years																					
1963/64	+ 1,083	− 99	+ 24	+ 89	+ 14	− 563	− 549	− 16	− 89	− 150	− 255	− 120	− 375	− 141	− 55	+ 130	− 23	− 89	− 70	—	
1964/65	+ 880	− 154	− 13	+126	− 41	− 359	− 400	+ 141	+ 418	− 19	+ 540	− 175	+ 365	+ 127	− 118	− 729	− 23	− 743	− 102	—	
1965/66	+ 995	+ 165	+ 29	+ 19	+ 211	− 464	− 253	+ 36	− 415	− 155	− 534	− 45	− 579	+ 141	+ 128	− 221	+ 30	+ 78	− 241	—	
1966/67	+ 1,217	+ 145	− 556	+ 38	− 372	− 281	− 653	− 562	+ 450	− 88	− 200	− 210	− 410	+ 55	− 112	+ 11	+ 17	− 29	− 125	—	
1967/68	+ 1,982	− 27	− 17	+ 1	− 44	− 383	− 427	+ 110	+ 41	+ 119	+ 270	− 271	− 1	+ 49	− 365	−1,151	+ 19	−1,448	− 106	—	
1968/69	+ 466	+ 60	+ 422	+ 42	+ 525	− 355	+ 170	+ 551	+ 34	− 312	+ 273	− 393	− 120	+ 112	− 105	− 473	+ 19	− 447	− 69	—	
1969/70	− 511	+ 254	− 899	+ 7	− 639	− 162	− 801	+ 93	+ 317	+ 122	+ 532	− 324	+ 208	− 42	− 71	+1,461	− 115	+1,233	− 129	—	
1970/71	+ 804	− 112	− 477	+ 5	− 584	+ 44	− 540	− 61	− 124	− 290	− 475	− 690	−1,165	− 186	+ 128	+1,311	− 70	+1,183	− 288	+ 6	
1971/72	+ 1,005	− 485	−1,235	+ 4	− 1,716	+ 21	− 1,695	− 819	− 125	+ 550	− 394	− 351	− 745	− 401	+1,399	+1,047	− 172	+1,873	− 433	− 5	
1972/73	+ 2,532	− 267	− 516	+ 5	− 778	− 337	− 1,115	+ 976	− 1	− 654	+ 321	− 41	+ 280	− 148	− 811	− 277	− 266	−1,502	− 421	+ 226	
1973/74	+ 4,450	+ 116	−1,499	+ 6	− 1,377	−1,334	− 2,711	− 11	+ 158	− 730	− 583	+ 282	− 301	+ 17	+ 123	+ 74	−1,434	−1,220	− 411	+ 193	
1974/75	+ 7,950	− 69	−2,290	− 49	− 2,408	−1,768	− 4,176	+ 52	− 437	+ 459	+ 74	− 201	− 127	−1,073	+ 280	− 999	− 832	−2,624	− 874	− 149	
1975/76	+10,604	− 478	−3,859	−807	− 5,144	− 144	− 5,288	− 357	−1,875	− 436	−2,668	− 756	−3,424	+ 575	− 619	− 523	− 602	−1,169	− 460	− 263	
1976/77	+ 8,514	− 972	−5,797	+349	− 6,420	− 755	− 7,175	− 161	+ 518	+ 281	+ 638	− 55	+ 583	+ 69	+2,166	−1,685	−1,711	−1,161	− 850	+ 89	
1977/78	+ 5,520	−1,488	−4,914	−330	− 6,732	+ 82	− 6,650	− 967	+ 512	− 957	−1,412	− 685	−2,097	− 413	+6,345	−1,058	− 525	+4,349	−1,152	+ 30	
1978/79	+ 9,212	−2,688	−6,179	+676	− 8,191	− 326	− 8,517	+ 24	+ 200	+1,624	+1,848	− 719	+1,129	− 80	−1,523	+ 828	+ 193	− 582	−1,141	− 101	
1979/80	+ 9,932	+ 127	−8,328	− 7	− 8,208	− 952	− 9,160	+ 357	+ 263	− 398	+ 222	−1,554	−1,332	−1,390	+ 381	+ 763	+ 595	+ 349	− 554	+ 765	
1980/81	+13,173	−2,508	−8,871	− 74	−11,453	+ 638	−10,815	−2,684	+ 694	− 226	−2,216	−1,503	−3,719	−1,181	− 5	+ 837	+ 132	− 217	− 437	+2,015	
1981/82	+ 8,794	−4,473	−7,146	−102	−11,721	+ 392	−11,329	+1,392	+ 87	+ 309	+1,788	−1,902	− 114	− 110	−2,749	+1,445	+ 315	−1,099	− 492	+4,240	
1982/83	+ 9,161	−3,907	−4,609	−192	− 8,708	+ 270	− 8,438	+ 136	+ 142	+ 507	+ 785	+2,546	+3,331	− 802	−2,062	+ 346	+ 226	−2,292	−1,415	− 787	+ 440
1983/84	+10,043	−3,067	−9,763	+ 11	−12,819	+ 332	−12,487	− 708	− 19	+ 144	− 583	+1,504	+ 921	−1,230	− 28	+ 71	− 216	−1,404	− 219	+3,586	− 440

(a) The PSBR definition used here is that which applied before the 1984 Budget and thus includes changes in public sector bank deposits. Net borrowing is recorded as a plus in this column while financing items in the rest of the table are recorded with the opposite sign. Thus column 1 *equals* the sum of columns 2–7, but with opposite signs.

(b) Includes national savings, certificates of tax deposit, and Northern Ireland debt.

(c) Banking sector purchases of other central government debt consists mainly of certificates of tax deposit and (prior to 1975) tax reserve certificates, changes in holdings of notes and coin, Northern Ireland debt and changes in government indebtedness to the Banking Department. The trustee savings banks' claim on the Fund for banks for savings is included from 1982/83.

(d) Changes in reserves exclude changes resulting from allocations of special drawing rights.

(e) Other central government transactions consist of foreign currency borrowing and net transactions with overseas monetary authorities (foreign currency borrowing by local authorities and public corporations under the exchange cover scheme are not included). Changes in overseas holdings of notes and coin are also included.

Borrowing from the monetary sector has also changed in importance over the period (bottom panel of Chart 2). Until the late 1950s, there were net repayments of government debt held by the banks. This was part of the protracted process of adjustment by the banking system from its wartime role which had been essentially one of intermediary between the private sector and government and which had left it with very large holdings of (mostly short-term) government debt. From the mid-1960s, however, the public sector overall became a more consistent and heavier borrower from the banks, although net repayments of central government debt continued on balance to the end of the decade, offset to some extent by bank lending to the rest of the public sector. The early 1970s saw several episodes of heavy borrowing by central government. In 1971, the London clearing banks agreed to subscribe for £750 million of government stock in order to reduce their liquid asset holdings as part of the transitional arrangements for the introduction of *Competition and credit control* (although holdings fell back sharply the following year). In 1974 and 1975, the monetary sector's holdings of Treasury bills rose sharply in the face of a rapidly growing PSBR and relatively slack loan demand from the private sector. In certain years, notably 1972 and 1973, calls for special deposits contributed to financing the PSBR since the proceeds were lent by the Banking Department to central government.

Perhaps the most striking feature of recent changes in the monetary sector's holdings of public sector assets has been the fall in holdings of Treasury bills since 1976. This reflects the persistent pressure which has been placed on the monetary sector's liquidity in recent years, partly as a result of the heavy sales of public sector debt other than Treasury bills. Such pressures were traditionally relieved by the Bank purchasing Treasury bills from the banking system. The persistent shortages of liquidity, however, inevitably led to a depletion of the stock of these bills in the hands of the monetary sector. The Bank has more recently relieved such pressures by purchasing commercial bills from the banking system, a development facilitated by the measures announced in 1981 to broaden the list of (eligible) banks whose bills the Bank is prepared to buy.[1]

It is possible to analyse changes in the banks' asset holdings corresponding to these developments (Chart 4). Changes in definitions and coverage prevent a totally consistent balance sheet being constructed for the monetary sector over the period as a whole. Nevertheless, the chart illustrates how lending to the public sector has declined in importance in the banks' total business. The scale of adjustment required from the banks' wartime role can be gauged from the fact that in 1952 government stock and Treasury bills together were equivalent to no less than 50% of total sterling deposits of the London clearing banks. Apart from a temporary reversal in 1975–77, banks' sterling lending to the public sector, and in particular to central government, has declined in importance continuously, so that by 1982 only 18% of the monetary sector's total sterling balance sheet comprised lending to the public sector. At the same time bank lending to the private sector has increased rapidly.

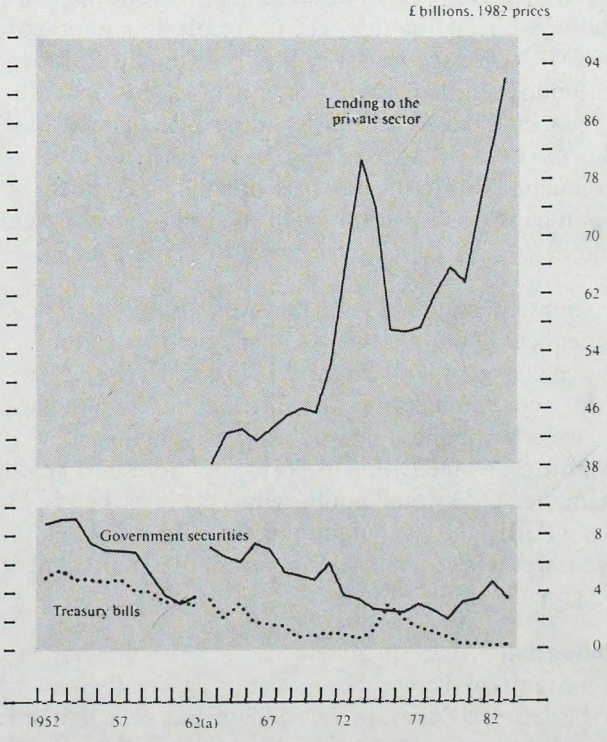
The monetary implications of alternative forms of finance

The government's deficit is always financed by one means or another so that the sum of the PSBR and the financing components in Table 1 necessarily is zero. The way in which financing is spread among the various sectors, however, has important consequences for the growth of the monetary aggregates. An important distinction is between borrowing from the non-bank private sector or the overseas sector on the one hand, and borrowing from the monetary sector on the other. For a given PSBR, an increase in sales of public sector debt to the non-bank private or overseas sectors will tend to reduce the growth of broad money, whereas borrowing from the monetary sector will not.

Funding and £M3

This can be shown in terms of the asset 'counterparts' to changes in £M3. These comprise changes in bank lending to the public, private and overseas sectors. Since banks form the residual source of finance to the public sector, it is usually helpful to consider bank lending to the public sector in terms of the total PSBR less that part financed

Chart 4
Sterling bank lending 1952–83



(a) Before 1962 figures relate to the London clearing banks, after 1962 to the banking sector.

(1) Recent changes in the Bank's operating techniques in the money market and the decline in the role of Treasury bills in favour of commercial bills are discussed in detail in the article, 'The role of the Bank of England in the money market', in the March 1982 *Bulletin*, pages 86–94.

from non-bank sources. In this way, the following relationship can be shown to hold:

Change in £M3 *equals* the PSBR
- *less* net purchases of public sector debt by the non-bank private sector
- *plus* the change in bank lending in sterling to the private sector (including Issue Department purchases of commercial bills)
- *less* any increase in external and foreign currency finance
- *less* increases in banks' net non-deposit liabilities.

It is important to remember that this is an accounting identity whose components are not independent of one another. The relation between the change in any one item and the growth in £M3 will not, therefore, generally be one for one. It is nevertheless true that the method by which the PSBR is financed is likely to have implications for the growth in £M3. At the simplest level, if sales of public sector debt to the non-bank private sector in a given period are exactly equal to the PSBR (ie the PSBR is 'fully funded' on the most familiar definition), then the government's domestic borrowing need have no statistical effect on the growth of £M3.

If, on the other hand, the PSBR is 'underfunded' on this basis (ie sales of public sector debt to the non-bank private sector are smaller than the PSBR), then domestic finance of the PSBR may contribute to the growth in £M3 if the government is forced to borrow from the banking system. Such borrowing has no direct effect on bank deposits but these will tend to rise as a result of the government spending which it finances. The net result is therefore to raise £M3, *ceteris paribus*. In contrast, when the PSBR is 'overfunded' (sales of public sector debt to the non-bank private sector exceed the PSBR), the growth of deposits and hence £M3 will tend to be reduced (since not all of the reduction due to the purchase of public sector debt by the non-bank private sector is replenished by government spending).

The counterparts to £M3 are, however, unlikely to be independent of one another, so in practice the relation between changes in funding and £M3 growth will not be one for one. If, to take an extreme example, the non-bank private sector financed new purchases of public sector debt entirely by increasing its borrowing from the banking system then £M3 would not be reduced. Nevertheless, for a given PSBR, the level of funding from the non-bank private sector is generally an important determinant of £M3 growth.

Funding and PSL2

Asset counterparts for other monetary aggregates may also be derived. For example, PSL2 includes the liabilities of a wider range of institutions than does £M3 (most notably building societies) and also includes holdings of certain short-term public sector debt instruments by the private sector (other than by banks and building societies).[1] Its counterparts will include lending by this broader group of institutions; and sales of a narrower range of debt instruments to a smaller residual private sector will act to reduce such lending. Thus, debt sales to the non-bank private sector are likely to have a proportionately smaller contractionary effect on PSL2 than on £M3. If such sales took the form of assets included in PSL2, they would, other things being equal, have no effect on that aggregate, while £M3 would tend to be reduced.

Funding and M0

M0, the measure of narrow money currently targeted, consists of notes and coin in circulation with the public, banks' till money and operational bankers' balances with the Bank of England.[2] Virtually all central government transactions with the private sector affect the last of these. The purchase of any central government debt instrument by the non-bank private sector or the banking system itself will, in the first instance, reduce bankers' balances and hence, other things equal, M0; any domestic central government expenditure will tend to increase them. Bankers' operational balances are very small however, relative to cash flows in the economy on any day, so the assumption that other things are equal is primarily an expositional device.

The remainder of the public sector (local authorities and public corporations) conducts its banking business with the commercial banking system so that flows between it and the private sector do not normally affect bankers' balances or M0.[3] An exception is where such transactions are financed by borrowing from the central government. In this case the CGBR is increased and there is a flow of cash from the central government to the monetary sector which affects bankers' balances and M0. Bankers' balances, however, represent a very small proportion of the total stock of M0 (about 1% in August 1984), and, because they are non-interest-bearing, are held at low levels by the clearing banks. Other things being equal, therefore, particularly heavy sales of central government debt in relation to the CGBR will necessitate action on the part of the Bank to relieve the strain on the banking system's liquidity before the change is large enough to have much impact on M0.

In accounting terms, changes in M0 can be related to the CGBR and its financing in the following way:

Change in M0 *equals* the CGBR
- *less* net sales of central government debt to all sectors

(1) Treasury bills, local authority deposits, certificates of tax deposit, and some national savings instruments.

(2) Non-operational deposits, which recognised banks and licenced deposit-takers are required to maintain at the Bank, are not included.

(3) Where local authorities or public corporations maintain accounts with the Bank, and also for the small number of private customers, their transactions will normally result in changes in bankers' balances. But such transactions tend to be small in relation to transactions on central government accounts and are ignored here.

less other net sterling and foreign currency borrowing by central government (including changes in the reserves arising from transactions in gold and foreign exchange)

plus all forms of money-market assistance by the Bank.

An increase in the public's holdings of cash will be reflected in reductions either in the banks' till money or, if banks need to acquire new notes from the Bank, in bankers' balances as these notes are paid for. As bankers' balances are replenished by the Bank's money-market operations, the last term in this identity will rise.

This identity for changes in M0, like that for £M3, has to be interpreted with care: it implies nothing about behaviour or the relationship between individual components. In addition, it should not be inferred that funding could be used as a means of exerting close short-term control over M0, because that would entail the Bank declining to buy bills in sufficient amounts to replenish bankers' balances when these were depleted by central government transactions. This, in turn, could leave the banks unable to meet their liabilities. Over a longer period, of course, it would be possible for the authorities, by underproviding money-market assistance, to put steady upward pressure on interest rates, which through its effect on the economy could reduce the demand for M0. The authorities' present methods of money-market intervention allow them to influence short-term interest rates but in a different fashion.

To keep the discussion manageable, the analysis in the remaining sections is in terms of definitions of funding particularly relevant to £M3.

External transactions and a wider definition of funding

So far, the discussion of funding has related the PSBR to domestic sales of public sector debt instruments. An alternative wider definition of over and underfunding takes account additionally of external and foreign currency finance of the public sector. Just as sales of public sector debt to the non-bank private sector help to restrain the growth in £M3, so do some of the external transactions by which the PSBR may be financed. For example, if overseas residents purchase British government securities and acquire the sterling to do so from the UK non-bank private sector, then UK residents' sterling deposits and hence £M3 will be reduced, in the same way as if these securities had been bought by the non-bank private sector itself. The extent to which the PSBR is over or underfunded on this wider basis, therefore, may help to provide a more complete picture of the effect of public sector finance on monetary growth: this picture may be particularly useful in periods when external finance of the PSBR is substantial.

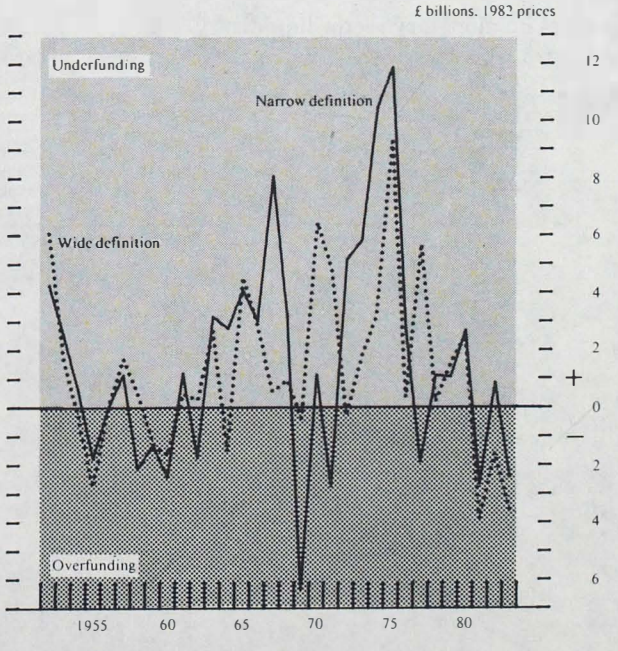
As with sales to UK residents, it does not automatically follow that sales of public sector debt to non-residents will depress domestic monetary growth by an equivalent amount. This will depend on non-residents' purchases being financed by bidding-away UK residents' sterling deposits. If, alternatively, the sterling required is provided by official intervention in the foreign exchange market, or if non-residents finance their purchases by running down their existing sterling deposits, there will be little or no effect on £M3.[1] Under normal circumstances, when the exchange rate is floating it is likely that such sales will have some restraining effect on the growth of £M3, though sales to domestic residents are likely to be more powerful.

Funding in an historical perspective

Chart 5 shows under or overfunding since 1952 on both narrow and wide definitions. Only rarely, if ever, has the PSBR been exactly fully funded. On the narrow measure, overfunding occurred in the late 1950s, again in the late 1960s, in 1977 and in two years since 1980, with periods of large-scale underfunding in between. In constant prices, the scale of overfunding in these latest episodes has been about the same as during the late 1950s, but rather less than in 1969 (when the PSBR was in surplus).

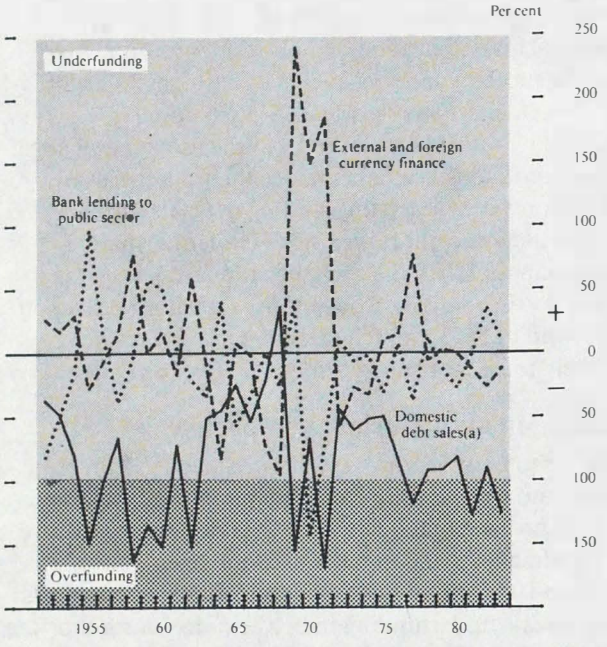
On the wide definition, although overfunding has been larger and more continuous since 1980, before then it was less common. This is because, particularly during the fixed exchange rate period, the conditions giving rise to strong domestic financial markets, substantial debt sales and (narrow) overfunding, would also normally be associated with external strength (and would imply rising reserves and positive external and foreign currency finance of the PSBR). The strong inverse relationship

Chart 5
Funding of the PSBR



(1) This is because non-resident holdings of sterling are excluded from all definitions of the UK money supply. These issues are more fully considered in the article 'External flows and broad money' in the December *Bulletin*, pages 525–9.

Chart 6
Sources of finance as a proportion of the PSBR



(a) Net purchases of public sector debt by the non-bank private sector.

between public sector debt sales to the non-bank private sector and external and foreign currency finance is shown in Chart 6.

The circumstances giving rise to overfunding have changed over time. Historically, the desire to maximise sales of government debt over the long run gave rise to a policy of 'leaning into the wind' in the gilt-edged market in order to maintain orderly market conditions and reduce the public sector's dependence on the monetary sector. At times when market sentiment was strong, this policy contributed to overfunding without this being necessarily an objective of policy *per se*. In the late 1950s, overfunding also arose because, as the banks ran down their holdings of government securities, these were effectively taken up by the non-bank private sector. Funding policy has assumed greater importance as a means of influencing the rate of broad money growth since the adoption of monetary targets in 1976. In 1977 the need to neutralise the monetary effects of substantial intervention in the foreign exchange market led to large issues of public sector debt and overfunding (narrowly defined). And overfunding has again been necessary at times in the last few years in order to offset the monetary effects of a rapid expansion in bank lending in sterling to the private sector.

Public sector finance and the liquidity of the banking system

Besides its monetary implications, the scale of funding also has potentially important implications for the banking system's liquidity. Many of the transactions involved have a direct impact on the banks' balances with the Bank of England, which form a crucial part of the banking system's liquidity—but this link is far from precise.

Thus, while overfunding is defined as the PSBR less debt sales by the public sector as a whole, it is the CGBR less central government debt sales which affect money-market liquidity. The reason is straightforward. The difference between the PSBR and the CGBR represents that part of the borrowing requirements of local authorities and public corporations which is not met by borrowing from central government. Because these bodies bank mainly with the commercial banking system, any borrowing they undertake from banks or through sales of debt to the

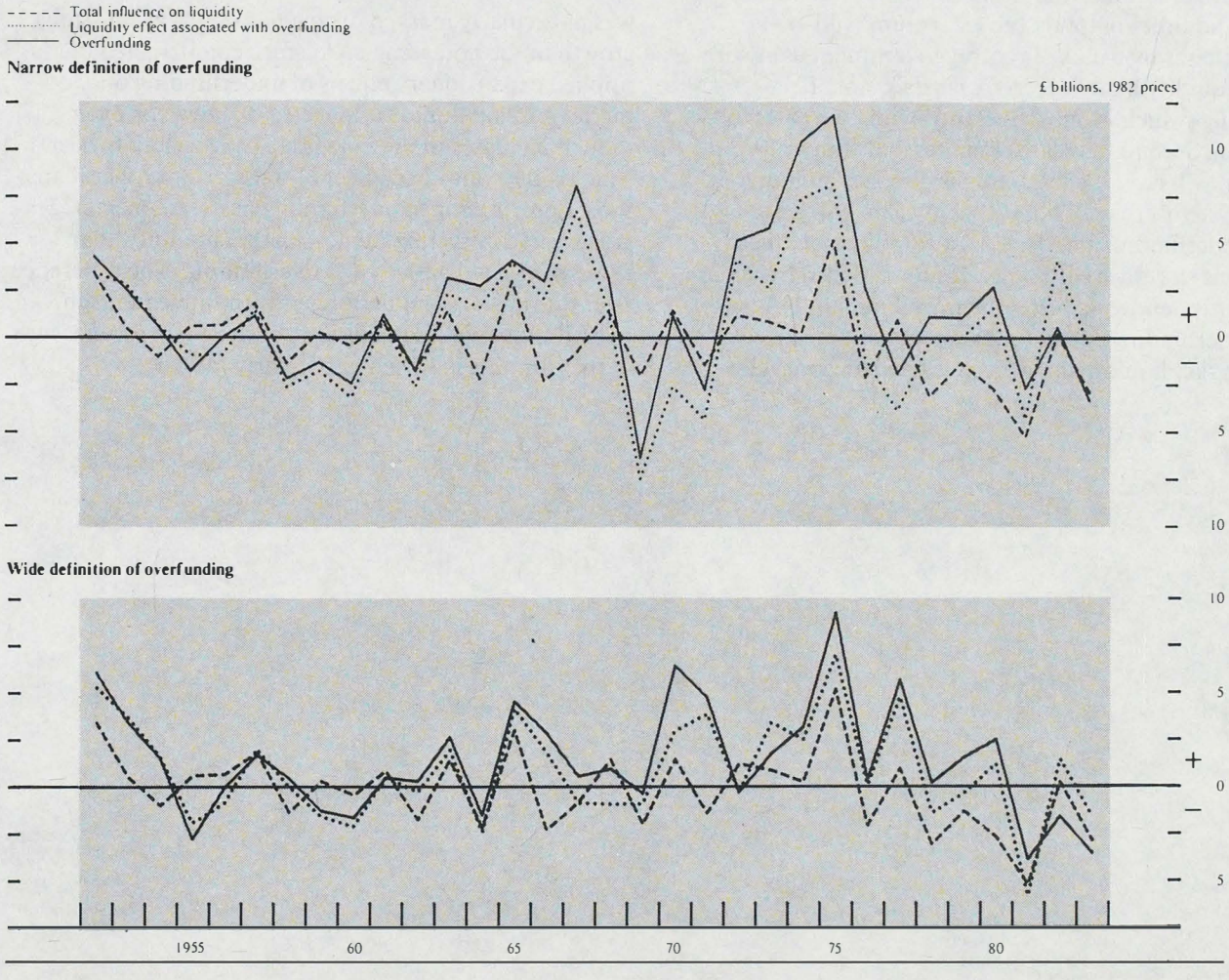
Table 2
Influences on monetary sector liquidity

£ billions, 1982 prices; annual averages

	Public sector borrowing requirement		Sales(−)of public sector debt to the non-bank private sector		Over-funding(−) narrow definition (columns 1+3)	Impact on liquidity (columns 2+4)	External and foreign currency finance		Over-funding(−) wide definition (columns 5+7)	Impact on liquidity (columns 6+8)	Sales of central government debt to monetary sector(a)	Notes and coin in circulation with the public	Other influences on liquidity (b)	**Total influences on liquidity** (columns 10+11+12 +13)
	Total	*of which, CGBR*	Total	*of which, central government*			Total public sector	*of which, central government*						
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
Years(c)														
1952–54	+ 4.9	+ 3.7	− 2.4	− 1.4	+2.5	+2.3	+1.2	+1.2	+3.7	+3.5	−1.6	−0.9	—	**+1.0**
1955–59	+ 3.7	+ 1.3	− 4.5	− 2.3	−0.8	−0.9	+0.4	+0.5	−0.4	−0.5	+1.1	−0.6	—	**—**
1960–1964/65	+ 4.8	+ 1.4	− 4.2	− 1.6	+0.6	−0.2	−0.6	−0.3	—	−0.5	+0.4	−0.4	—	**−0.4**
1965/66–1969/70	+ 4.4	+ 1.6	− 2.0	− 0.3	+2.4	+1.3	−0.7	−0.7	−1.7	+0.7	+0.1	−0.7	−0.2	**−0.1**
1970/71–1974/75	+10.8	+ 6.2	− 6.8	− 4.7	+4.0	+1.5	−0.8	+1.0	+3.2	+2.5	+0.1	−1.7	−0.4	**+0.5**
1975/76–1979/80	+15.7	+12.7	−12.8	−12.1	+2.9	+0.6	+0.5	+1.4	+3.4	+2.0	−0.5	−1.5	−0.2	**−0.1**
1980/81–1983/84	+10.9	+11.9	−11.2	−11.7	−0.4	+0.2	−1.3	−1.4	−1.7	−1.2	−0.5	−0.7	−0.2	**−2.6**
1980/81	+15.3	+14.9	−12.6	−13.3	+2.7	+1.6	−0.2	−0.4	+2.5	+1.2	−3.1	−0.5	−0.1	**−2.5**
1981/82	+ 9.5	+ 8.3	−12.2	−12.6	−2.7	−4.3	−1.2	−1.5	−3.9	−5.8	+1.5	−0.5	−0.4	**−5.2**
1982/83	+ 9.2	+12.7	− 8.4	− 8.7	+0.8	+4.0	−2.3	−2.5	−1.5	+1.5	+0.2	−1.4	—	**+0.3**
1983/84	+ 9.6	+11.7	−11.9	−12.2	−2.3	−0.5	−1.3	−1.1	−3.6	−1.6	−0.7	−0.2	−0.3	**−2.8**

(a) Excluding Treasury bills and government indebtedness to the Banking Department.
(b) Central government borrowing from the 'other public sector' and other Exchequer transactions.
(c) Prior to 1963 calendar years are used; from 1963/64 they are financial years.

Chart 7
Overfunding and influences on the liquidity of the banking system



private sector will not involve a flow to or from the Exchequer, and bankers' balances will not be affected.

Table 2 (columns 1–6) shows first the relationship between overfunding on its narrow measure and the impact of the associated central government transactions on the banking system's liquidity. Over much of the period, the banking system's liquidity has taken the form of bankers' balances plus banks' till money and holdings of Treasury bills. With the depletion of the stock of outstanding Treasury bills, commercial bills have become an important component of the banking system's liquidity but these are excluded from the measure of liquidity used here, which is designed to reflect the impact of public sector transactions alone.

Through much of the period, the PSBR exceeded public sector debt sales to the non-bank private sector by a greater margin than the CGBR exceeded central government debt sales to the non-bank private sector; the scale of underfunding was therefore greater than the associated increase in money-market liquidity resulting from these transactions. This was particularly true on average during the 1970s (top panel of Chart 7) when the PSBR was much larger than the CGBR and the relationship between underfunding and its impact on liquidity loosened. More recently, however, as public corporations and local authorities have borrowed more from central government and less from the non-bank private sector, increasing the CGBR relative to the PSBR, the relationship has reversed.[1]

Thus, in 1982/83, there was modest underfunding but the CGBR greatly exceeded central government debt sales, implying a significant expansion in money-market liquidity, while in 1983/84 overfunding of £2.4 billion was associated with a much smaller contraction in liquidity. Broadening the concepts to include external and foreign currency finance (bottom panel of Chart 7 and columns 7–10 of Table 2) shows a rather different picture, especially during the 1970s. The relationship then between underfunding on this wide measure and the implied effect on the banking system's liquidity was much closer than on the narrow definition. During the 1980s overfunding has been much greater on average on this wide definition and has had a substantial contractionary effect on liquidity.

(1) The measures introduced in 1982 to encourage public corporations and local authorities to borrow from central government (through the National Loans Fund and the Public Works Loan Board) are described in the September 1982 *Bulletin*, page 353.

Besides the central government transactions identified so far, there are other financial flows which have a bearing on banks' liquidity in total (Table 2, columns 11–14). First, purchases by banks of central government debt will contract liquidity but will, *ceteris paribus*, not affect overfunding (which is only concerned with debt sales to non-banks). Second, increases in notes and coin in circulation will have a contractionary impact on the banking system's overall liquidity but again will leave over or underfunding unaffected. In combination, these transactions (together with other, residual, flows) have, until recently, tended to offset the impact on liquidity of (wide) underfunding, so that movements in overall money-market liquidity have been less expansionary than would be implied alone by those transactions affecting funding (bottom panel of Chart 7). This offset was particularly marked during the 1970s, when strong growth in the note issue on average counteracted the implied expansionary effects of underfunding on money-market liquidity. Since 1979, however, even though increases in the note issue have generally been smaller, the combined effect of transactions other than those contributing to overfunding has been on average greater, in contracting money-market liquidity, than those connected with (wide) overfunding. The difference over this most recent period between movements in overall money-market liquidity and the narrow measure of overfunding has been particularly marked.