Influences on broad money growth

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Broad money growth—the growth of M4—is one of a range of real and financial indicators analysed by the UK monetary authorities in their assessment of inflation pressures and prospects. This article reviews how the role of broad money indicators in the monetary policy framework has evolved since 1980. It then considers the factors currently influencing M4 growth, focusing in particular on the effects of balance-sheet restructuring and disintermediation. In that context, it examines recent trends in broad money growth in three countries—Australia, Canada and the United States—where recovery from recession began about a year earlier than in the United Kingdom.

The 1995/96 Medium Term Financial Strategy (MTFS) announced by the Chancellor in last November's Budget included an unchanged medium-term monitoring range for the annual growth of M4 of 3% to 9%.(1) M4 growth—which was 4.5% in the year to November 1994—has remained in the lower half of that range since monitoring ranges were introduced in October 1992, following the suspension of sterling's membership of the ERM in the previous month.(2)

This article provides a brief review of the role that the analysis of broad money growth has had in the formulation of monetary policy since the inception of the MTFS in 1980, when the growth of sterling M3 (£M3)(3) had a unique status as an intermediate target. In the current framework, M4 is used as an information variable, along with a range of other financial and real indicators, analysed by the authorities when forming a view about likely inflationary trends.

The article then considers M4's likely growth during this year, focusing in particular on the effects of balance-sheet restructuring and disintermediation. It draws comparisons with the recent growth of broad money in Australia, Canada and the United States, where economic recovery has led that in the United Kingdom by roughly a year.

Broad money and the monetary policy framework

Central to the choice of the monetary policy framework are views about how the instruments of monetary policy affect the economy and, ultimately, inflation—the transmission mechanism of monetary policy. But as the Bank's Chief Economist, Mervyn King, noted last year,(4) 'the transmission mechanism of monetary policy is one of the most important, yet least well understood, aspects of economic behaviour.' For although inflation is a monetary phenomenon, an understanding of it requires—among other things—a coherent theory of the demand for money; this has proved elusive.

Early monetarist analysis, as exemplified by Milton Friedman and discussed by Goodhart and Crockett,(5) stressed the substitutability of monetary and real assets. The argument was that economic agents typically choose between money and goods rather than between money and other 'near-money' financial assets; as a result, the *income velocity of money*—which is a measure of the average value of transactions financed by each unit of the money stock during a given period—should remain broadly stable. More traditional Keynesian analysis had emphasised the substitutability of money and alternative financial assets.

The monetarist analysis implied that a build-up in money balances would be associated with an increase in nominal incomes and—eventually—the price level. Accompanying empirical work gave support to the monetarist viewpoint. And together, the theoretical and empirical arguments led to the adoption of monetary targeting in the United Kingdom, and later to the initial formulation of the MTFS (see the table on page 48).

But as has been well documented, problems were encountered with this 'pure' monetarism in the United Kingdom. Between 1980 and 1986, the annual target ranges for £M3 were achieved only twice—in both cases after upward revisions to the ranges originally set. The Governor of the Bank remarked in 1986 that the 'intermediate objective was chosen in the belief that there was a reasonably stable relationship between the rate of monetary

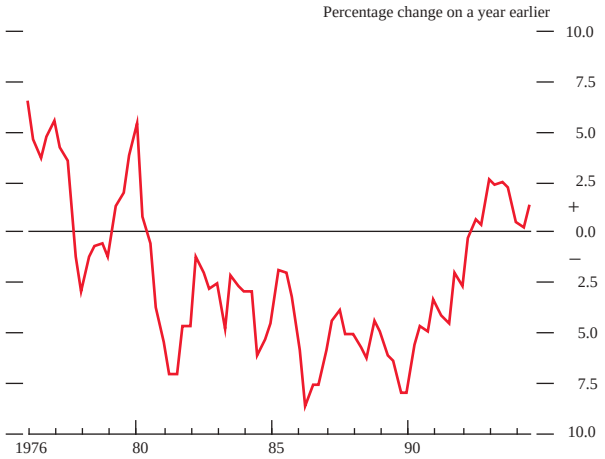
(1) The definitions of the various broad money aggregates currently used and discussed in the remainder of this article—including, in the United Kingdom's case, M4—are given in the box on page 51.
(2) Monitoring ranges were introduced for M0 and M4. Initially, M4's monitoring range was set at 4%–8% for the second half of 1992/93. In the 1993/94 Budget, it was set at 3%–9% for the remainder of the MTFS, and it was left unchanged in the 1994/95 and 1995/96 MTFSs.
(3) A definition of sterling M3 is given in the article, 'Changes to monetary aggregates and the analysis of bank lending', in the March 1984 *Quarterly Bulletin*, pages 78–83.
(4) In 'The transmission mechanism of monetary policy', a speech given by Mr King at Lombard Street Research on 9 May 1994 and reprinted in the August 1994 *Quarterly Bulletin*, pages 261–68.
(5) In 'The importance of money', June 1970 *Quarterly Bulletin*, pages 159–98.

growth and the rate of growth of nominal incomes. But in practice our ability to use an estimate of that relationship for target setting, and to meet those targets, has, quite frankly, been less than impressive'.(1)

As a result, the emphasis placed on the growth of £M3 in particular, and on broad money in general, was gradually reduced. Target ranges for other monetary variables, both narrower and broader, were first introduced and then—in the case of narrower aggregates—given more prominence than £M3. In the 1987/88 MTFS, £M3 targets were dropped completely; this left M0 as the only monetary aggregate for which a target range was set, and this was described as 'illustrative'. And now, instead of being intermediate targets, monetary aggregates are used as indicators that act as information variables on the state of inflationary pressures in the economy.

The income velocity of broad money proved unstable, reflecting changes in the relationship between money and nominal incomes (see Chart 1). Furthermore, the velocity of narrow money was more predictable over the period—hence the upgrading of its role in the MTFS. It is important here not to confuse predictability and causality, however. M0 is purely demand-determined in the short run and so has no obvious short-term causal role. It may, though, still have a predictive role. For example, if economic activity were misrecorded and narrow money measured accurately, then M0 might have more predictive power for inflation simply because it was a more accurate indicator of economic activity.

Chart 1
M4 velocity(a) growth



(a) The ratio of nominal income to the money stock.

Changes in broad money holdings and in the rate of interest received on them are affected by (among other things) the policy actions of the authorities—which ultimately influence aggregate activity and the price level, as agents substitute between assets. And the deposits included in broad money are held not only as transactions balances but also as a store of value. As a consequence, the transmission mechanism is more complex than the early monetarist analysis supposed: the demand for broad money is related to both income and wealth. And savings are more likely than transactions balances to be switched between money and other financial assets in response to relative interest rate changes.

Recent research has responded to this in two ways: by augmenting standard money-demand equations to include wealth terms,(2) and by estimating Divisia measures of money.(3) Divisia measures weight different deposits according to estimates of their transactions characteristics in an attempt to measure transactions balances. Although the two approaches are different, their intention is the same: to try to allow for the influence of changes in wealth on money holdings. If this can be done, then estimates of the income velocity of broad money could be expected to be more accurate. Researchers following both routes have found that it is useful to distinguish between the personal and corporate sectors.

More generally, research has also focused on *both* sides of banks' balance sheets—deposits and loans. Studies in the United States(4) and the United Kingdom(5) have suggested that in addition to the traditional money (deposits) channel, monetary policy may be transmitted through a separate 'credit channel'. The suggestion rests on the observation that banks have a 'special' position: they are expert at monitoring the creditworthiness of would-be borrowers. Some agents—particularly those whose risk is harder for lenders to assess—may have to rely on banks for credit. This allows banks to have some influence on the relative price of credit—their interest rate—and so to exert a separate influence on how monetary policy is transmitted to activity. Thus the overall effectiveness of monetary policy is dependent, at least in part, on banks' behaviour.

In the United Kingdom, Dale and Haldane concluded that the credit channel was important for the personal sector—which has less access to the capital market than the corporate sector—and that a sectoral analysis of personal lending by banks and building societies therefore yields additional information.

The influence of this type of research on the current monetary policy framework is apparent. First, the monitoring ranges set for M4 and M0 in the 1992/93 MTFS and thereafter were explicitly medium-term: they are intended as guides to the monetary growth that would be

(1) In 'Financial change and broad money', the Loughborough University Banking Centre annual lecture in finance, given on 22 October 1986 and reprinted in the December 1986 *Quarterly Bulletin*, pages 499–508.
(2) See, for example, Hall, S G, Henry, S G B and Wilcox, J B, 'The long-run determination of the UK monetary aggregates', *Bank of England Discussion Paper No 41*, August 1989, and Fisher, P and Vega, J, 'An Empirical Analysis of M4 in the United Kingdom', *Bank of England Working Paper No 21*, December 1993.
(3) See, for example, Fisher, P, Hudson, S and Pradhan, M, 'Divisia Indices for Money: An Appraisal of Theory and Practice', *Bank of England Working Paper No 9*, April 1993.
(4) For example Bernanke, B S and Blinder, A S, 'The Federal Funds Rate and the Channels of Monetary Transmission', *American Economic Review, 82*, pages 901–21.
(5) See Dale, S and Haldane, A G, 'A simple model of money, credit and aggregate demand', *Bank of England Working Paper No 7*, April 1993, 'Interest rate control in a model of monetary policy', *Bank of England Working Paper No 17*, September 1993 and 'Interest rates and the channels of monetary transmission: some sectoral estimates', *Bank of England Working Paper No 18*, September 1993.

The role of broad money targets in the MTFS since 1980

1980/81	Target ranges for £M3 set for four years, as the sole intermediate target. The MTFS noted that 'to reduce inflation [the government] will progressively reduce the growth of the money stock.'
1981/82	Role of broad money unchanged.
1982/83–1983/84	Common target ranges set for £M3, M1 and PSL2.(a) The 1983/84 MTFS noted that 'in recent years the economic significance of the wider aggregates has been affected by changes in savings behaviour and by structural changes to the financial system.'
1984/85	Separate target ranges set for M0 and £M3, with attention also paid to PSL2 and M2.(a)
1985/86	Separate target ranges set for M0 and £M3, without a specific role for PSL2 and M2.
1986/87	£M3 target range set for 1986/87 only. Illustrative ranges for future years set only for M0. The MTFS noted that 'illustrative ranges for future years are not set for £M3 because the uncertainties surrounding its velocity are at present too great.'
1987/88–1992/93	No target ranges set for broad money aggregates; illustrative target ranges set for M0. On 6 October 1990, sterling entered the ERM; its membership was suspended on 16 September 1992. The 1990/91 MTFS noted that 'the authorities monitor M4 and other broad aggregates closely. But experience shows that the relationship between broad money growth and inflation is complex and variable'.
1993/94–1995/96	Medium-term monitoring ranges set for M4 and M0. The 1995/96 MTFS noted that 'decisions about interest rates are based on an assessment of the prospects for underlying inflation in one or two years' time. This assessment is based on a wide range of information, including . . . the growth in narrow and broad monetary aggregates.'

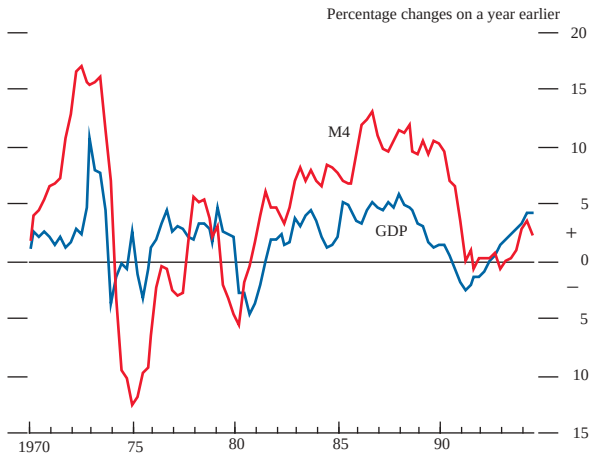
(a) Definitions of these monetary aggregates are contained in the article, 'Changes to monetary aggregates and the analysis of bank lending', in the March 1984 *Quarterly Bulletin*, pages 78–83. A discussion of the differences between the various broad money aggregates was provided in the article, 'Measures of broad money', in the May 1987 *Quarterly Bulletin*, pages 212–19.

consistent with low-inflationary growth, rather than as year-specific targets. The move away from annual targets reflected the uncertain lag between policy changes and movements in money, prices, wealth and income. Second, each of the Bank's quarterly *Inflation Reports* contains detailed sectoral analysis of developments in the components and counterparts of M4, and in the Bank's measure of Divisia M4.

Current trends in M4 growth

As Chart 2 shows, real M4 grew more quickly than real GDP throughout the 1980s.(1) But since 1991, their growth rates have been closer. Charts 3 to 5 compare the recent trends with similar phases in previous business cycles; because there have been different rates of nominal income growth in the periods concerned, it is more instructive to compare M4 velocity growth—which takes account of the effect of income growth on M4—than M4 growth itself. The charts show that total and sectoral M4 velocity growth since the beginning of the current recovery have not been unusual. Recent velocity growth has generally been slower

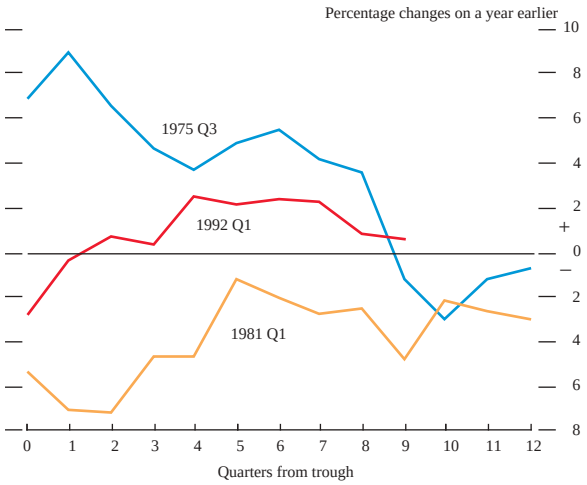
Chart 2
Real GDP and real M4 growth(a)



(a) Deflated by the GDP deflator.

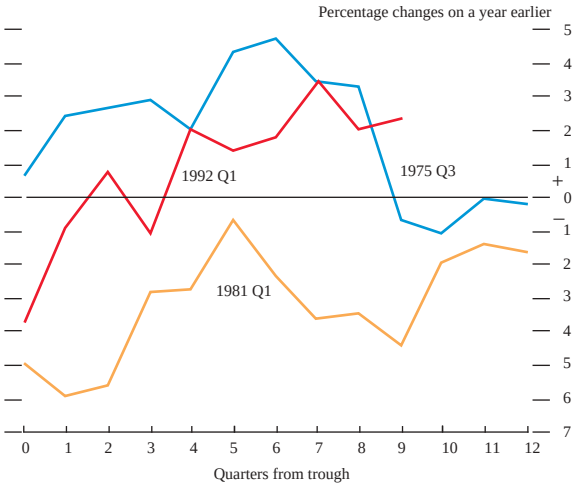
(1) The analysis of trends in M4 growth in this article covers data up to the third quarter of 1994.

Chart 3
M4 velocity growth[a] following recessions



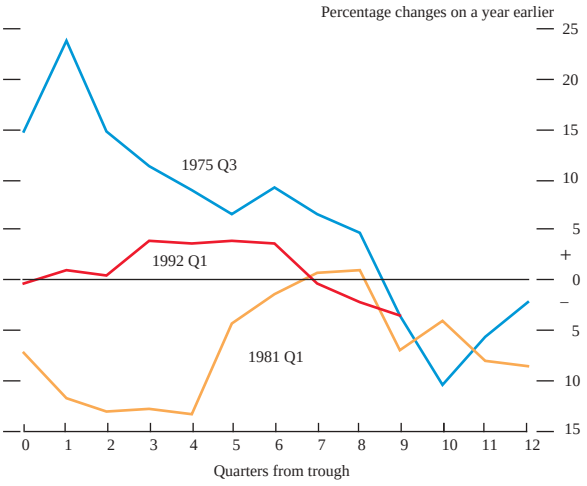
(a) Dates shown indicate the quarter in which the trough in output was reached.

Chart 4
Personal sector M4 velocity growth[a]



(a) Dates shown indicate the quarter in which the trough in output was reached.

Chart 5
Corporate sector M4 velocity growth[a]



(a) Dates shown indicate the quarter in which the trough in output was reached.

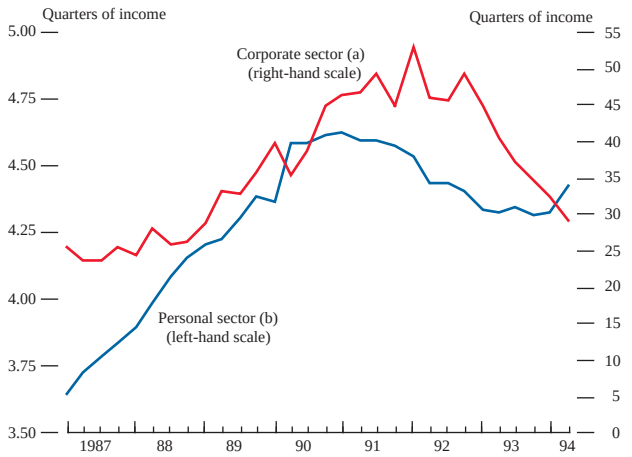
than in the 1970s' recovery and faster than in that of the 1980s. In the two earlier upturns, velocity fell in the third year of recovery. If repeated this time, a similar fall would require a significant pick-up in M4 growth in 1995, given nominal GDP growth of around 6%.

A significant feature of the most recent recession and recovery has been balance-sheet restructuring by the private sector.[1] Agents have used income that they might otherwise have spent to repay debt. In general, the banking sector actively manages its liabilities, bringing its deposits into line with the perceived opportunities for profitable lending. So, other things being equal, the weak private sector demand for credit as a result of balance-sheet restructuring has been translated into low M4 growth.

Personal sector

A significant influence on personal sector behaviour has been the decline in house prices from their peak in the late 1980s. Households have found themselves with either negative housing equity or less tangible wealth than they previously expected. Many have suffered financial distress—as evidenced by the rise in mortgage possessions and arrears after 1991. The value of one-off mortgage repayments has also greatly increased, as households have attempted to counteract the impact of the house price falls on their debt. As Chart 6 shows, the personal sector's gross debt fell slightly as a proportion of income between 1991 and 1993.

Chart 6
Personal and corporate sector gross debt as a proportion of income



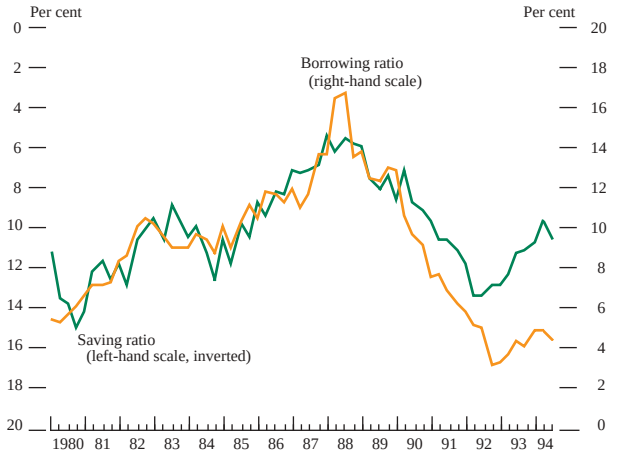
(a) Gross debt (at market value) as a proportion of post-tax income.
(b) Gross financial liabilities as a proportion of personal disposable income.

Personal sector borrowing for house purchase has grown relatively slowly in the upturn—at around 9½% a year, compared with an average increase of 19½% during the 1980s. Unless people are now much more content with their levels of debt, growth in borrowing for house purchase seems unlikely to increase substantially in the short term.

(1) This feature has been widely noted; see, for example, Sterne, G and Smith, J C, 'Personal and corporate sector debt', in the May 1994 *Quarterly Bulletin*, pages 144–55.

There has also been a breakdown in the previously close inverse relationship between total personal sector borrowing and the saving ratio (see Chart 7). This may reflect a shift towards financing consumption from income rather than from borrowing. Until last April's tax rises, such a hypothesis was supported by very slow growth in lending for consumption by banks and building societies. But lending for this purpose has since picked up, perhaps because households have borrowed to offset the impact of the tax rises on their post-tax spending power. So the breakdown in the borrowing:savings ratio may prove temporary.

Chart 7
Personal sector borrowing[a] and saving ratios[b]



(a) Bank and building society lending to persons as a proportion of personal disposable income.
(b) Personal sector saving as a proportion of personal disposable income.

However, borrowing for consumption accounts for only around 10% of individuals' borrowing from banks and building societies; the rest is mortgage lending. So while the housing market remains subdued, the prospect of a significant increase in overall personal sector borrowing remains low.

Corporate sector

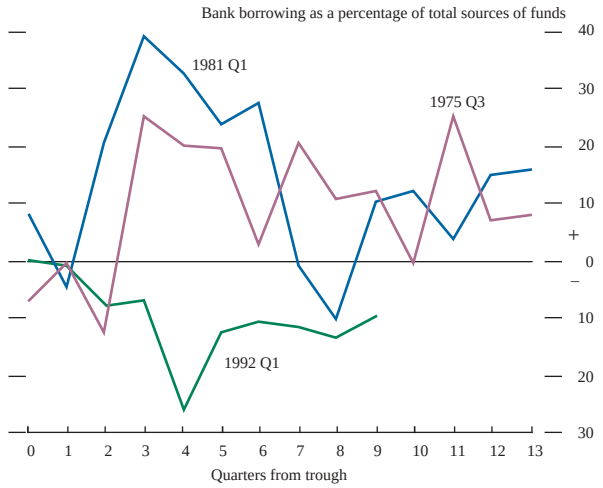
Recent developments in the corporate sector have been different. In the early stages of the recovery, corporate net debt as a proportion of post-tax profits changed little. Since the beginning of 1993, however, it has fallen sharply. Although both assets and liabilities have fallen as a proportion of income over the period, the decline in gross debt has been much larger, accounting for the reduction in net debt (see Chart 6). In aggregate, industrial and commercial companies (ICCs) made net repayments of borrowings from banks and building societies of £7.0 billion—from an end-1992 level of around £140 billion—between 1993 Q1 and 1994 Q3.

In previous upturns, UK companies have increased their borrowings. The change to net repayments reflects a switch in ICCs' methods of financing. Although their gross investment has been slightly greater as a proportion of GDP than during the previous two recoveries, ICCs have made less use of debt financing, preferring to use equity finance instead (see Charts 8 and 9). Their use of internal funds has been comparable with previous recoveries (as Chart 10 shows).

It is possible that once companies have succeeded in reducing their debt to desired levels, the flow of new corporate borrowing from banks and building societies will pick up, as in the past. But given their wider access to the capital markets than individuals, companies' recent switch to equity finance could herald a long-term shift in their preferences away from debt.

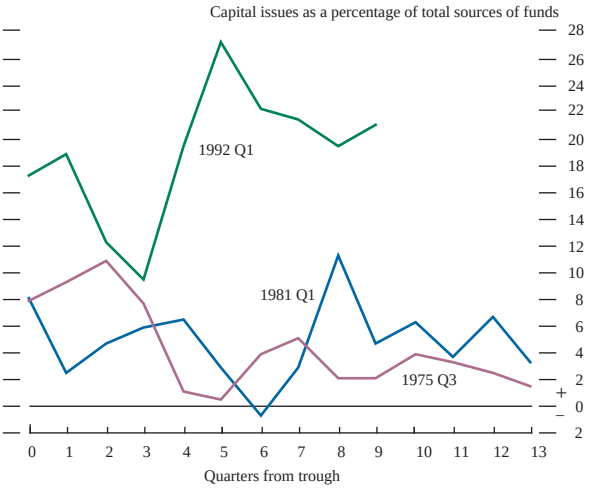
The Association of Corporate Treasurers' 1994 survey of the UK corporate banking market suggested that, whatever long-term trends eventually emerge, significant numbers of companies will remain reluctant to borrow from banks in 1995. It provided a detailed breakdown of larger companies' financing intentions.(1) 34% of companies surveyed intended to increase bank borrowing during 1995 and 27% to reduce

Chart 8
ICCs' bank borrowing[a]



(a) Dates shown indicate the quarter in which the trough in output was reached.

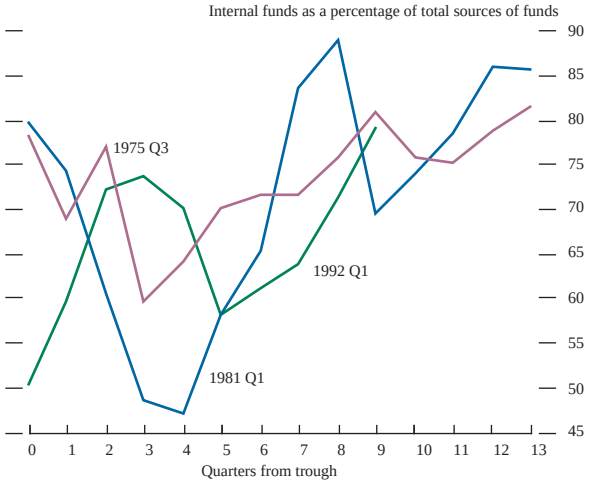
Chart 9
ICCs' capital issues[a]



(a) Dates shown indicate the quarter in which the trough in output was reached.

(1) 233 companies responded to the survey, of which 189 had a turnover in excess of £200 million.

Chart 10
ICCs' internal funds(a)



(a) Dates shown indicate the quarter in which the trough in output was reached.

it—a positive balance of just 7%. Within this, a positive balance of the largest companies in the sample (those with a turnover greater than £2 billion) and those with high credit ratings (A+/A or higher) intended to reduce bank borrowing. Other forms of debt financing, such as leasing and bond finance, were said to be preferred debt instruments, with private placements (especially in the United States) the most favoured source of finance. Large firms have the widest capital market access and the survey responses suggested that they would increase their recourse to capital market funds.

Medium-sized firms (those with turnover in the £201–500 million range) with lower credit ratings seem the most likely to increase bank borrowing during 1995, according to the survey. The survey also covered banks, and revealed some mismatch: banks seemed keen to increase their corporate lending, but still had a preference to lend to the largest firms—those that were least interested in borrowing from them—although they seemed more inclined to lend to medium-sized firms than previously.

The weakening of global equity and bond markets during 1994 could have a countervailing influence. Companies may have taken the weakness into account in their 1995 plans and the survey results may indicate a continued preference for equity despite the weakness in equity prices last year. If so, the slowdown in capital market activity in the second half of 1994 may have resulted from firms delaying equity issues until market conditions became more favourable.

A possible stimulus to borrowing by ICCs could come from a significant increase in investment. If this occurs, even if the proportion of debt to total finance remains relatively low by historical standards, borrowing will increase. Investment surveys suggest that some increase in investment is likely, although the timing remains uncertain.

These factors do not seem to point to a sharp rise in ICCs' or individuals' borrowing from banks and building societies. But there are considerable uncertainties. In particular, agents' desired debt levels are not known, so it is not possible to know whether balance-sheet restructuring is yet complete.

International comparisons

The United Kingdom has not been alone in experiencing low broad money growth during the 1990s. It is therefore instructive to examine developments in other countries to see if they can throw any light on developments in the United Kingdom. Such comparisons can, of course, only be suggestive: each country has features unique to its financial structure in particular and its economy more generally, so that the demand for money will have characteristics specific to each. But in Australia, Canada and the United States at

Broad money aggregates

The definitions of the currently used broad money aggregates discussed in this article are:

1 United Kingdom: M4

M4 consists of holdings by the 'M4 private sector' (all UK residents except the public sector, banks and building societies) of sterling currency and deposits (including CDs and similar bank and building society liabilities) at banks and building societies in the United Kingdom.

2 Australia: M3

M3 consists of currency in circulation outside banks, non-bank private sector (NBPS) sight and time deposits with banks, and NBPS holdings of CDs.

3 Canada: M2 and M3

M2 consists of currency in circulation outside banks, demand deposits, non-personal notice deposits and personal savings deposits with banks.

M3 consists additionally of non-personal fixed-term deposits and foreign currency deposits by residents.

4 United States: M2 and M3

M2 consists of currency in circulation outside banks, travellers cheques, demand and time deposits with commercial banks, overnight repurchase agreements issued by commercial banks, overnight eurodollars held by US residents at foreign branches of US banks worldwide, time deposits of less than US $100,000 and individuals' holdings of money-market mutual funds.

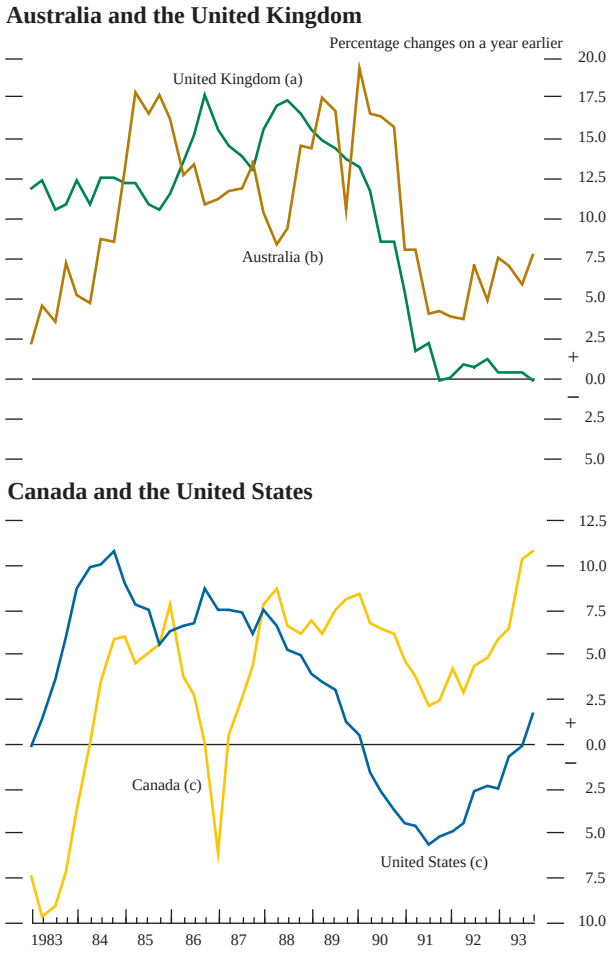
M3 consists additionally of large time deposits, term repurchase agreements, term eurodollars held by US residents at foreign branches of US banks worldwide, and balances of institution-only money-market mutual funds.

least, there may be enough common characteristics to make comparative analysis worthwhile.

These economies share two particular features. First, their recoveries began before the United Kingdom's—their most recent troughs in output were 1991 Q1 (for Canada and the United States) and 1991 Q2 (for Australia), compared with 1992 Q2 in the United Kingdom. Second, their most recent economic cycles share common features with the United Kingdom's. In particular, the upturns which preceded the last recession were associated with rapid balance-sheet expansion by the private sector and asset-price booms (both property and financial prices)—key elements in any explanation of the evolution of broad money in the United Kingdom since the mid-1980s.

Chart 11 compares developments in real private sector borrowing from the banking sector. The pattern in Australia has been that most similar to the United Kingdom, with a sharp increase in the rate of growth of debt during the second half of 1980s, followed by a sharp reduction in 1990. The debt build-up in the United States started in 1983—earlier than in the United Kingdom—but accelerated less rapidly during the late 1980s. In Canada, a cycle in debt is also apparent, but it was more muted than in the other countries and less similar to the United Kingdom's. Since 1990, the growth rate of real borrowing from banks has increased in Australia, Canada and the United States, but not in the United Kingdom—suggesting that the early 1990s' recession had a greater impact on private sector behaviour here.

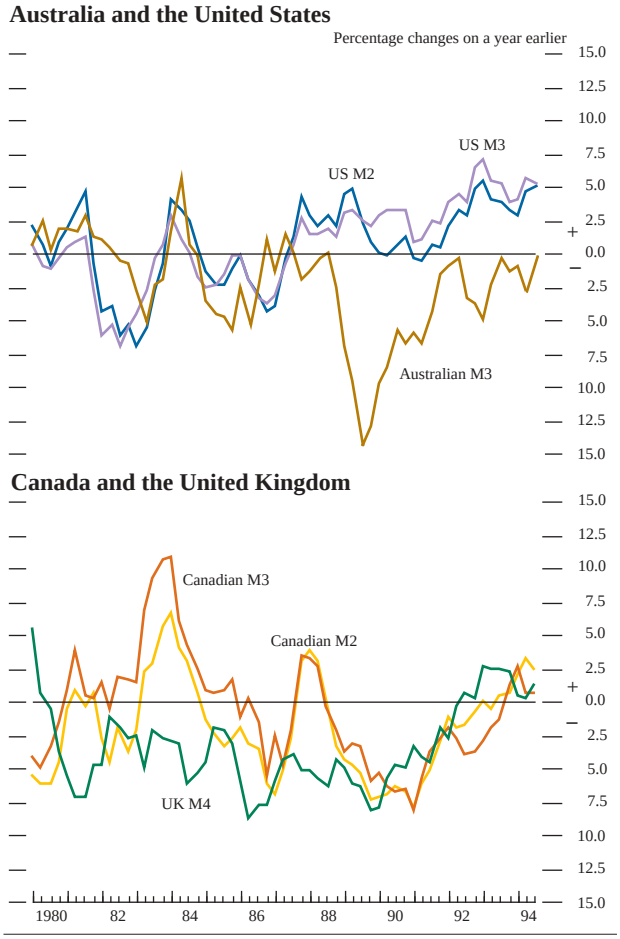
Chart 11
Growth in real private sector indebtedness to banks



(a) M4 lending, deflated by the GDP deflator.
(b) Bank credit to the private sector, deflated by the GDP deflator.
(c) Credit claims on the private sector of the banking sector, deflated by the GDP deflator.

Chart 12 compares the changes in broad money velocity in the four countries between 1980 and 1993. For Australia the M3 aggregate is used, for Canada and the United States both M2 and M3. The measures differ in coverage, making comparisons complicated: in particular, US and Canadian definitions of M2 are somewhat narrower than UK M4, and M3 somewhat broader. (The box on page 51 provides detailed definitions of the aggregates.) Three features stand out, however. First, by all measures broad money velocity growth in all the countries has been variable. Second, velocity growth increased in each country from the beginning of the 1990s until at least mid-1992. And third, in Canada and the United States, M2 and M3 velocity growth are very similar, suggesting that parallels with the United Kingdom are not sensitive to the choice of aggregate.

Chart 12
Broad money velocity



Looking at more recent developments, Australian M3 velocity growth has been erratic since 1992 Q2, exhibiting no clear trend. In Canada, M3 velocity growth peaked in 1994 Q1, and fell in Q2 and Q3 (by a total of around two percentage points), whereas M2 velocity growth peaked in

Q2, before falling back by around ¾ of a percentage point in Q3. US broad money velocity growth (both M2 and M3) abated significantly during 1993, but increased again in 1994 Q2 and Q3, partly offsetting 1993's falls.

One interpretation of these developments is that broad money velocity growth in each country is at a turning-point—that the increase in velocity growth observed during the 1990s has run its course. Detailed analysis of corporate sector behaviour in these economies shows that since the beginning of 1994:

- In Australia, after three years of decline, business credit expanded by 3% in the second quarter and by 4% in the third (at annualised rates). Total private sector credit picked up as well, as private sector borrowing grew (stimulated by rising house prices).

- In Canada, business loans by chartered banks were roughly 7% higher during the second and third quarters of 1994 than in the previous five.

- US non-financial companies have increased their borrowing substantially—from a quarterly average of $51 billion in 1993, to an average of $121 billion in the first three quarters of 1994. This was mainly the result of increased bank borrowing.

These data suggest that companies in all three countries have been willing to make increased use of bank financing, perhaps because they have largely completed their balance-sheet restructuring.(1)

It would be wrong to draw strong conclusions for UK M4 from this comparison. But the developments elsewhere do suggest that once UK companies have completed their balance-sheet restructuring they may resume bank financing—prompting greater M4 growth.(2) The international comparisons do not, however, indicate the likely timing or scale of such a development.

Conclusions

Inflation is ultimately a monetary phenomenon. Analysis of developments in the stock of money can therefore help in an assessment of the state of inflationary pressures in the economy. The money:inflation relationship is complex, however, partly because it is affected by variations in the level of wealth and by financial innovations. For that reason, monetary aggregates are used as information variables by the UK monetary authorities when analysing the appropriate stance of monetary policy, rather than as intermediate targets.

Broad money growth—as measured by M4—is currently being influenced by private sector balance-sheet restructuring and a shift away from bank and building society intermediation. It is less clear whether there has been an enduring change in the preferred financing methods of the private sector; companies seem more likely to have changed their preferred techniques than the household sector. In Australia, Canada and the United States, however—countries where recovery began about a year earlier than in the United Kingdom—companies have recently increased their borrowing from banks.

(1) Of course, the attitude of banks towards lending demand is also important. For instance, during 1994 US banks relaxed their credit terms to companies, facilitating the increase in corporate borrowing.

(2) The increase in US M2 and M3 velocity during 1994 seems related to significant direct purchases of money-market instruments (such as Treasury bills) by households. Previously broad money growth in the United States had been depressed by strong growth in bond and equity market mutual funds. It is rare for British households to substitute between assets in this way, and such substitution is unlikely to be a significant feature of behaviour during 1995, suggesting that the most recent pick-up in US velocity is not pertinent to the United Kingdom.