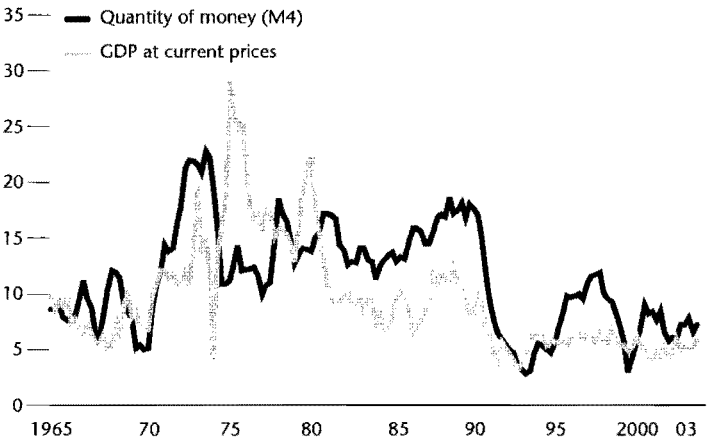
3 MONEY AND ASSET PRICES IN THE UK'S BOOM–BUST CYCLES

The causal role of money growth fluctuations in asset price volatility may be better appreciated by recalling the experience of two particularly big cycles in the UK, that between late 1971 and 1974 ('the Heath–Barber boom' and the stock market and property crashes of 1974) and that between 1985 and 1992 ('the Lawson boom' and the ensuing recession), and by reviewing the events of a more recent and fortunately much milder cyclical episode (the mini-boom of 1996–98). The economy's instability in the Heath–Barber and Lawson booms was notorious, and contrasts with relative stability in most of the other 40 years from 1963.

An overview of the main facts about money growth and the economy in this 40-year period may be a helpful preface to the detailed narrative. In the first 25 years after World War II, UK policy-makers had suppressed inflation by a variety of non-market methods, including direct controls on prices and wages. In the monetary sphere the favoured approach was to curb the growth of bank balance sheets, usually by a crude quantitative limit on bank advances. But in September 1971 the banking system was liberalised in a set of reforms known as 'Competition and Credit Control'. The banks were to be free to expand their businesses as they wished, while 'the authorities' (i.e. the government and the Bank of England) would raise interest rates to prevent exces-

Figure 2 **Money and national income, 1964–2003**
Annual % changes in M4 and GDP at current market prices, quarterly data seasonally adjusted, %



Source: Office for National Statistics website

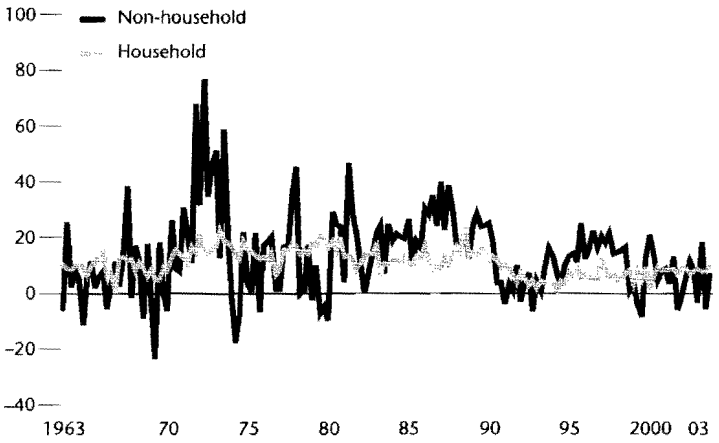
sive money supply expansion. In practice officialdom was often reluctant to administer the interest rate medicine and credit booms continued for far too long. The September 1971 reforms were followed by over twenty years of macroeconomic volatility, with large fluctuations in the growth of bank credit and money, even more dramatic swings in asset prices, and somewhat smaller fluctuations in the growth of nominal national income. Figure 2 portrays the growth rates of money and nominal gross domestic product in the 40 years to 2003, with the turbulence of the middle two decades being evident in both series.

Chapter 2 noted that the different sectors of the economy

– households, companies and financial institutions – displayed different monetary behaviours. More precisely, households' demand for money was markedly more stable than that of the other two sectors, with the standard deviation of the growth rates of financial sector money being four times that of household money and significantly higher than that of corporate sector money. Figure 3 illustrates this contrast, showing the growth rates of household and non-household money during the 40 years. A remarkable feature is that the annualised growth rate of non-household money exceeded 30 per cent in no fewer than twelve quarters.[1] Monetary economics has many problematic aspects, but it should have been obvious to all policy-makers that something had gone wrong in an economy where the money balances of key groups of agents were exploding at this sort of rate. Figure 4 gives the growth rates of non-household money and an index of asset prices in the same period. (The method of compiling the asset price index is explained in an annexe to Chapter 6.) Asset prices were more volatile than either money or nominal GDP over the four decades, but the relationship between changes in non-household money and asset prices was not of markedly worse quality than that between changes in more familiar monetary variables and nominal GDP.

1 The twelve quarters were Q3 1967, Q3 1972, Q4 1972, Q1 1973, Q3 1973, Q4 1977, Q1 1978, Q2 1981, Q1 1986, Q3 1986, Q1 1987 and Q3 1987. With two exceptions, all these quarters coincided with extreme asset price buoyancy. (The exceptions were Q3 1967, which was affected by the devaluation of the pound, and Q2 1981.)

Figure 3 **Household and non-household money in the UK, 1963–2003**
Annualised growth rate in quarter, %

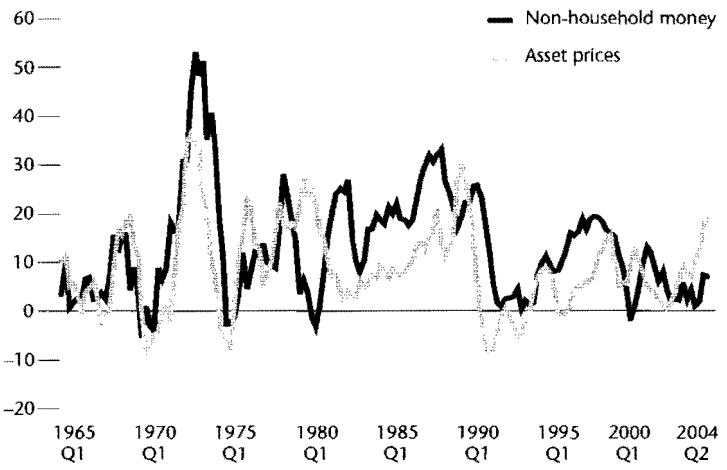


Sources: Office for National Statistics website and author's calculations

Financial sector money and asset prices in the Heath–Barber boom

The first of the boom–bust cycles is usually named after Edward Heath, who was prime minister at the time, and Anthony Barber, who was Chancellor of the Exchequer. As already noted, the Competition and Credit Control reforms of September 1971 were intended to end quantitative restrictions on bank credit, which had been in force for most of the preceding 30 years. Rapid growth in bank credit and, hence, in a broadly defined measure of money followed in 1972 and 1973. In the year to the third quarter 1970 M4 increased by 10.7 per cent and in the year to Q3 1971 it increased

Figure 4 **Non-household money and asset prices, 1964–2004**
Annual changes in M4 held by companies and financial institutions (i.e., non-households) and an asset price index, quarterly data, %



Sources: Office for National Statistics website and author's calculations for non-household money and see appendix

by 14.1 per cent. In the following two years M4 advanced by 22.0 per cent and 23.0 per cent respectively.[2] The difference in the monetary behaviours of the economy's sectors was particularly clear in the cycle of the early 1970s. In the year to Q3 1970 personal sector money increased by 11.5 per cent and in the year to Q3 1972 by 13.7 per cent, both figures being roughly in line with total

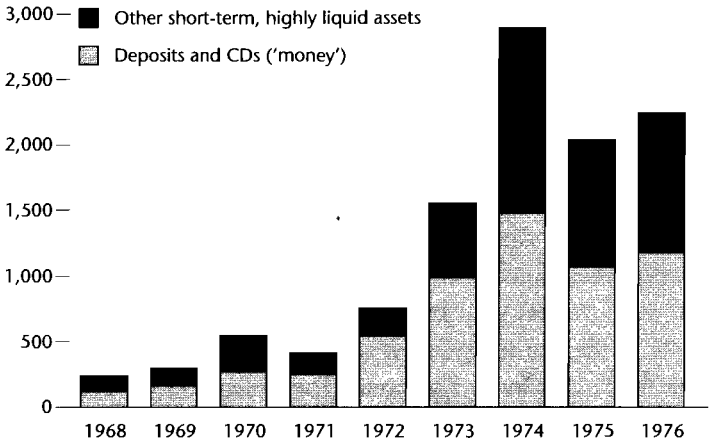
2 *Economic Trends: Annual Supplement* (London: National Statistics, 2002 edn), p. 245. The data on changes in the sectors' money balances in the following paragraphs come from the database in the National Statistics website, as it was in the spring of 2004.

M4 growth. But in the next two years the underlying stability of personal sector money meant that it did not increase by as much as total M4, and it rose by 16.3 per cent and 18.5 per cent respectively.

Recalling the discussion in Chapter 2, the households, companies and financial institutions comprising the UK private sector were the only holders of M4 money. For any given quantity of money, the less that was held by one sector, the more that had to be held by the other two sectors. Logically, the shortfall in personal sector money growth in 1972 and 1973 implied an extremely sharp acceleration in the growth rates of corporate and financial sector money. In the years to Q3 1970 and Q3 1971 corporate sector money grew by 2.7 per cent and 22.2 per cent respectively; in the year to Q3 1972 it soared by 48.2 per cent and in the year to Q3 1973 by 39.2 per cent. The violence of the change in corporate balance sheets between the two years before the boom and the two years of the boom itself is obvious. It was, however, overshadowed by even more extreme movements in financial sector money. In the year to Q3 1970 financial sector money increased by 22.8 per cent and in the following year it fell slightly, by 1.3 per cent. But in the year to Q3 1972 it jumped by 75.0 per cent and in the year to Q3 1973 by 46.0 per cent!

Further insights are gained by extending the analysis to particular types of institution and seeing how they responded to the money supply shock. Friedman's game of musical chairs – as agents interacted to bring money balances to a desired amount after an unexpected change to such balances – was played at the level of the thousands of organisations that belonged to the financial sector, as well as at the level of the three sectors that constituted the UK private sector. At the end of 1971 life assurance

Figure 5 **The explosion in financial institutions' liquidity in the Heath–Barber boom**
Value of short-term assets held by life offices and pension funds at end-year, £m



Source: *Financial Statistics* (London: Central Statistical Office), various issues

companies had short-term assets (mostly bank deposits) of £349 million. In 1972 these short-term assets leapt by £202.3 million (by 58.0 per cent) and in 1973 by a further £201.1 million (36.5 per cent). At the end of 1971 private sector pension funds had short-term assets of £144 million. In 1972 they increased by £74.0 million (51.4 per cent) and in 1973 by another £170.3 million (almost 80 per cent!).[3]

What happened to asset prices? At the time corporate bonds

3 *Financial Statistics* (London: Central Statistical Office), December 1974 issue, pp. 89 and 93.

and government fixed-interest securities (or 'gilts') were a large part of life company and pension fund assets, but some observers were concerned that high money supply growth would lead to inflation and higher interest rates, and that higher interest rates would decimate the value of bonds and gilts. (These observers – such as Professor Alan Day of the London School of Economics, Peter Jay of *The Times* and Gordon Pepper of W. Greenwell & Co., the stockbrokers – were correct.) The institutions therefore wanted to increase their equity weightings (i.e. the proportion of their total assets in equities) while their money balances were exploding at annual rates of between 30 and 80 per cent. As suggested in the analytical sketch above, the individual fund managers wanted to keep their cash ratios down, but if they bought securities they would be buying them mostly from other institutions. To use Minford's word, the money would be 'reshuffled' between them. But they would continue to have excess money holdings until share prices had increased. In practice stock exchange turnover soared and share prices rose dramatically. The FT Industrial Ordinary Index of shares climbed from 322.8 (1 July 1935 = 100) in May 1971 to 533.7 a year later, an increase of 65.3 per cent.[4]

Unfortunately, that was not the end of the story. The early 1970s were a period of considerable political and social uncertainty, and share prices were constrained by heavy selling by the personal sector. May 1972 was the stock market peak. Asset price buoyancy in the rest of 1972 and during 1973 was instead most marked in property. Both residential and commercial property registered enormous price increases, at a pace never before

4 The figures for the FT Industrial Ordinary Index are monthly averages.

recorded in the UK's peacetime history. The economy as a whole was profoundly affected. The increase in real domestic demand in 1973 was 7.8 per cent, almost the highest figure in the post-war period. The sequel to the cyclical excesses was a dramatic rise in inflation (to over 25 per cent in early 1975) and the worst recession since the 1930s, as policy-makers struggled to bring inflation down to an internationally acceptable figure.

One cause of the slide in activity was a severe squeeze on company liquidity in 1974, which was a by-product of a decline in aggregate money supply growth. In the year to the end of 1973, M4 rose by 22.1 per cent, but in the year to end-1974 it increased much more slowly, by only 10.8 per cent. The swing from monetary ease to restraint can be seen as more abrupt if one considers the inflation-adjusted rate of money growth, because inflation was higher in 1974 than in 1973. Corporate and financial sector money saw more extreme movements than aggregate money in the downturn, in line with the long-run behaviour patterns and just as they had in the upturn. In the year to Q4 1973 financial sector money advanced by 35.1 per cent; in the first three quarters of 1974 it contracted. Share prices started to fall in late 1973 and plunged in 1974, with the FT Industrial Ordinary Index in November at little more than a third of its value in May 1972. Corporate sector money climbed by over a third in the year to Q4 1973, but declined by almost a tenth in the year to Q4 1974. Companies' attempts to protect their balance sheets were responsible for heavy run-downs in stocks and cutbacks in investment, while commercial property values slumped.

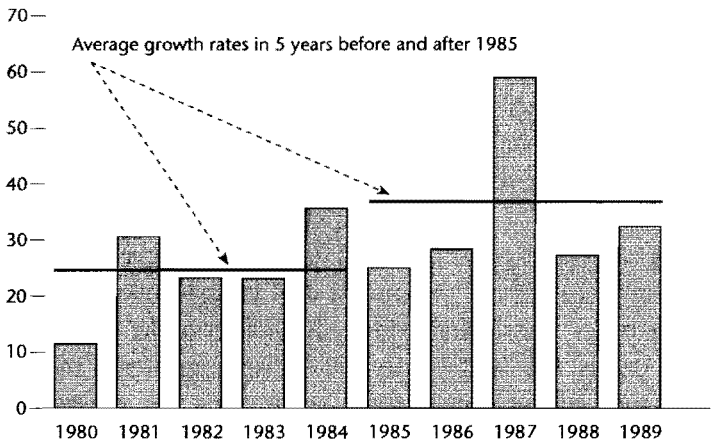
Financial sector money and asset prices in the Lawson boom

After the recession of 1980 and 1981, the early 1980s were a fairly quiet period in which output grew at a rate that was slightly above trend, inflation was stable at about 5 per cent a year, employment increased gradually and asset markets were steady. But in late 1985 a drastic change in monetary policy occurred, comparable in its cyclical consequences to Competition and Credit Control in 1971. The growth of the quantity of money had been held back in the early 1980s partly by a technique known as 'over-funding'. This involved sales of government debt to non-banks in excess of the budget deficit, and led to reductions in banks' assets and their deposit liabilities. For technical reasons apparently related to money market management, over-funding was stopped in the autumn of 1985. Broad money targets were suspended and, in due course, they were to be abandoned. An acceleration of money supply growth quickly became clear. Whereas M4 growth averaged 13.0 per cent in the four years to end-1985, it averaged 16.9 per cent in the following four years.[5]

The contrast in monetary conditions before and after autumn 1985 was in fact greater than implied by this 4-per-cent-a-year difference in the annual growth rates. A big fall in oil prices cut UK inflation in 1986 and dampened inflation expectations. The increase in personal incomes remained fairly steady in 1986 and 1987, and the rise in the personal sector's money holdings was more or less constant – at a little above 11.5 per cent a year – from 1983 to 1987. The result – as in the Heath–Barber boom – was that the upturn in aggregate M4 growth led to an explosion in the

5 *Economic Trends: Annual Supplement*, 2002 edn, p. 245.

Figure 6 **Growth of financial sector money, before and after 1985**
Annual change in M4 held by non-bank financial institutions, %



Source: Office for National Statistics website

money holdings of companies and financial institutions. In the four years to 1985 companies' M4 holdings grew on average by 11.6 per cent; in 1986 and 1987 they increased by 30.3 per cent and 19.2 per cent respectively. Financial institutions were in a somewhat different position, because a sequence of liberalisation measures had encouraged their rapid growth in the early 1980s, and much of this growth is best interpreted as a benign, once-and-for-all adjustment in their economic importance. The average growth rate of financial institutions' money holdings in the five years from 1980 to 1984 inclusive was a very high 24.8 per cent. Even so, in the next five years – the years of the Lawson boom – the average

growth rate was about 10 per cent a year more, at 34.4 per cent (see Figure 6).

The upturn in the growth rate of non-personal money holdings was particularly marked in 1986 and 1987. Indeed, in 1987 financial institutions' money holdings jumped by 58.9 per cent, a figure that was comparable with their experience in the Heath–Barber boom fifteen years earlier. Again it is easy to trace a relationship between the money balances held by the financial sector as a whole and those held by particular types of institution. At the end of 1985 life assurance companies had £3,262 million held in 'cash and balances with the monetary sector' and £123 million held in certificates of deposit (CD); at the end of 1986 the corresponding figures were £4,062 million and £173 million; and at the end of 1987 they were £5,975 million and £188 million.[6] At the end of 1985 pension funds had £3,970 million held in 'cash and balances with banks' and £156 million in CDs; at the end of 1986 the corresponding figures were £5,697 million and £229 million; and at the end of 1987 they were £8,263 million and £570 million.[7] So the money balances of these two types of institution together advanced from £7,511 million at the end of 1985 to £10,161 million at the end of 1986 (or by 35.3 per cent) and to £14,996 million at the end of 1987 (representing 47.6 per cent growth in 1987). In two years they almost exactly doubled, while financial sector money in aggregate increased by 104 per cent.

And what happened to asset prices in this cycle? Table 1 showed that by the late 1980s insurance companies and pension funds owned about half of all UK equities, while other types of long-term

6 *Financial Statistics* (London: Central Statistical Office), July 1987 and April 1989 issues, Table 7.13 in both issues.

7 Ibid., Table 7.14 in both issues.

savings institution (unit trust groups and investment trusts) held at least another 10 per cent. It is therefore unsurprising that the surge in these institutions' money holdings should be associated with large stock market gains. In the two years to September 1987 – which, roughly speaking, were the first two years from the end of over-funding and the consequent acceleration in money supply growth – the FT All Share Index rose from 633.18 to 1,174.38. In other words, share prices doubled. Share prices behaved much like financial sector money, and life company and pension fund money, in the same period. It is true that an abrupt fall in share prices in late October 1987 prompted comparisons with the Great Crash in the USA in the late 1920s, with several alarming forecasts being made of an impending slump in economic activity. An alternative view – that the stock market fall of October 1987 was due to market participants' anticipation of future inflation trouble – is, however, also tenable. If so, the likely sequel would be attempts to move portfolios away from equities and into property. In fact, the late 1980s were a period of rapid property appreciation, with 1988 seeing the peak of the house price increases and a commercial property bubble.[8]

The response of the economy to asset price gains had many similarities to the events of the Heath–Barber boom. The forecasts of a recession in 1988 were totally wrong. Domestic demand, measured in real terms, grew by 5.0 per cent in 1986 and 5.3 per cent in 1987; it then jumped by 7.9 per cent in 1988, roughly

8 Rising inflation would lead to rising interest rates. A recurrent feature of investment cycles seems to be that this anticipation of higher interest rates worries investors in equities (many of them sophisticated institutions) earlier than investors in property (many of them naive individuals). Property is often regarded as a good diversifier of investment portfolios because property returns are not correlated with equity returns.

matching the 1973 experience. In mid-1988 particularly large trade deficits were reported. Officialdom began to realise that the boom in spending was out of line with the economy's ability to produce. The boom caused a sharp fall in unemployment, and asset price inflation spread to markets in goods and services. Interest rates were raised sharply in late 1988 and 1989, with clearing bank base rates reaching 15 per cent on 5 October 1989. Higher interest rates dampened the growth of bank credit and money.[9]

The monetary data give insights into the balance-sheet strains of the period. As in 1974, money supply growth in 1990 declined while inflation (again affected by international oil prices) was rising. The result was a squeeze on real money balances and a collapse in asset values. M4 growth fell from 18.1 per cent in 1989 to 11.9 per cent in 1990 and 6.0 per cent in 1991. Company sector money – which had been soaring in 1986 and 1987 – contracted in the year to Q1 1991. The change of trend in financial sector money came later, but was more pronounced. Financial sector money dropped by 4.5 per cent (i.e. at an annualised rate of almost 9 per cent) in the first half of 1991 and showed little growth from mid-1991 to mid-1993. The imprint of these trends on pension funds' cash holdings, in particular, was marked. The pension funds had 'cash and balances with banks' of £17,492 million at end-1990, but only £9,834 million at end-1992.[10]

The main asset classes did not respond in a neat and tidy way to the change in the monetary environment. Nevertheless, the

9 Note that this is the first occasion on which interest rates have been introduced into the narrative. The narrative would undoubtedly have been enriched and been brought closer to reality if they had been introduced earlier, but a perfectly sensible account of events has been given without them.

10 *Financial Statistics* (London: Central Statistical Office), August 1992 issue, Table 7.22, p. 92, and December 1994 issue, Table 5.1B, p. 83.

impact of excess money until 1990 and deficient money thereafter is obvious in their price movements. The equity market had reasonable years in 1988 and 1989 but struggled in 1990, and share prices in January 1991 were lower than they had been in September 1987. But a big rally in early 1991 was the start of the long bull market. By contrast, the property market was badly hit by the monetary squeeze and asset price deflation continued until 1993. The fall in house prices in the four years to mid-1993 was the worst in the UK's post-war history and scarred the financial memories of the many millions of people who had been tempted to buy a home in the boom of the late 1980s. The UK's expulsion from the Exchange Rate Mechanism of the European Monetary System in September 1992 was so humiliating that it persuaded many key policy-makers that monetary policy should in future be based on domestic conditions, not the exchange rate.

Financial sector money and asset prices in the mid- and late 1990s

The relevance of money, and in particular money held by companies and financial institutions, to asset prices is also illustrated in the upturn of the late 1990s. Happily, the quarter-by-quarter and year-by-year variations in the strength of demand were so mild in the decade from September 1992 that a business cycle cannot readily be identified from the data. Nevertheless, the years immediately after September 1992 saw weak economic conditions. The house price collapse between 1989 and 1993 and an associated spate of bankruptcies in small businesses inflicted heavy losses on the banks, and reduced both their profits and their capital. Between 1991 and 1995 UK banks were short of capital and

reluctant to expand their balance sheets. As a result, the growth of the money supply was the lowest over a sustained period since the 1950s. In the four years to end-1994 the average annual growth rate of M4 was only 5.0 per cent, dramatically lower than in the 1970s and 1980s. Domestic demand was restrained, but the economy grew satisfactorily because exports were helped by the sharp fall in the pound's value in late 1992. Inflation fell to the lowest levels for over twenty years.

But the monetary background to the economy changed once again in the mid-1990s. By late 1994 house prices had stabilised and the banks no longer needed to write off large amounts of bad mortgage loans. Moreover, by adopting new computer technologies they had reduced their costs heavily and were making good operating profits. Whereas in mid-1992 banks had been short of capital and keen to limit balance-sheet expansion, by early 1995 their capital position was comfortable and they were keen to grow at the same sort of annual rate (over 10 per cent) as seen in the 1970s and 1980s. Households were generally nervous about borrowing, because of continuing balance-sheet strain, which was a legacy of the house price collapse of the early 1990s. The banks therefore sought to expand by lending to companies, which had made a good recovery from the recession.

One difficulty was that companies did not have plans to increase investment sharply, as capacity utilisation was still below normal. Lending had therefore to be largely to finance corporate deals, such as takeovers and purchases of assets from other companies. In early 1995 the UK's biggest pharmaceutical company, Glaxo, announced that it wished to acquire another sizeable pharmaceutical company, Wellcome, in a £9 billion takeover. This was the largest-ever acquisition of one UK company by another. It was

financed partly by running down Glaxo's cash balance and partly by heavy bank borrowing. In March Glaxo drew down £3.5 billion of its loan facilities in order to purchase the Wellcome shares, adding 0.5 per cent to banks' and building societies' total loan portfolios and a similar amount to M4. A series of major corporate deals followed the Glaxo–Wellcome announcement. Expenditure on mergers and acquisitions by UK companies – which had averaged just above £7 billion a year in the three years to end-1994 – was £32.1 billion in 1995. The consideration was split between £25.3 billion of cash and £6.8 billion of securities (mostly ordinary shares, but with a small element of fixed-interest securities). In turn the £25.3 billion paid both for other companies as a whole (£19.4 billion) and for the acquisition of other companies' subsidiaries (£5.8 billion). In the four years to end-1994 the stock of bank lending to companies declined from £144.2 billion to £127.8 billion; in the year to end-1995 it jumped 11.2 per cent to £142.1 billion.

The heavy volume of corporate deals in 1995 enabled the banks to achieve faster balance-sheet expansion and altered the monetary landscape. M4 growth in the year to December 1995 was 9.8 per cent, sharply higher than in the 1991–94 period. But – as in the other cyclical episodes discussed in this study – the money balances of the household sector were relatively stable. They rose by just over 7 per cent in 1995, compared with an average of just under 5 per cent a year in the previous four years. A necessary consequence was an abrupt acceleration in the growth of money held by the financial sector. Whereas in the previous four years financial sector money had risen by under 3 per cent a year, in 1995 it soared by 23.9 per cent. (Corporate sector money also increased, but by only 6.7 per cent. The effect of the merger and acquisition

activity was to transfer money balances from companies to financial institutions, as the financial institutions sold shares to the bidder companies and received cash in return.)

Merger and acquisition activity remained strong over the next few years, with totals of £30.7 billion, £26.8 billion and £29.5 billion in 1996, 1997 and 1998 respectively. Bank loans were often one ingredient in the financing package. Banks were also able to expand their loans to households, as mortgage demand revived. With banks increasing their assets so easily, their deposit liabilities (i.e. money) also rose. M4 growth was 9.6 per cent in the year to December 1996, 11.8 per cent in the year to December 1997 and 8.3 per cent in the year to December 1998. But inflation stayed down, partly because shocks to the world economy (the Asian crisis in the autumn of 1997 and the Russian default in 1998) undermined commodity prices. The household sector's money balances advanced at annual rates of 6–8 per cent, beneath that of M4 as a whole. Financial sector money soared, climbing by 22.5 per cent in 1996, 26.3 per cent in 1997 and 17.5 per cent in 1998. (As in the previous episodes, the imprint of the sector-wide trend on particular classes of institution was clear. For example, life assurance companies' 'cash and balances with banks' leapt from £12.6 billion at end-1994 to £29.6 billion at end-1997.)

And, once again, we have to ask, 'What happened to asset prices?' The short answer is that the late 1990s saw a sustained bull market in equities, which reached extreme high levels of valuation. In the four successive years to December 1998 the FT All Share Index rose by 18.5 per cent, 11.7 per cent, 19.7 per cent and 10.9 per cent – 76 per cent over the whole period. Share prices continued to rise in 1999, partly in response to advances in the US stock market. In 1999, however, the monetary background in the

UK itself changed significantly. M4 growth slowed, while companies reduced their takeover activity and issued more paper (mostly in the form of bonds). The financial institutions received less cash from bids, and saw cash being depleted by the bond and equity issues. Their M4 holdings declined. The equity market peaked in December 1999. Over the next few years their money holdings grew only sluggishly, typically by 5 per cent a year or less. The equity market was unable to make much progress and at the time of writing remains lower than it was in December 1999.[11]

What was the direction of causation in the boom–bust cycles?

What do the passage of events and the statistics relating to money supply change and asset price fluctuations say about the direction of causation in the boom–bust cycles? Do they support or invalidate the arguments made by Kaldor and the narrow-money school?

A reply to the Kaldorian argument

Vital to the Kaldorian argument was the idea that banks and their customers adjusted their money holdings to 'the needs of trade'. Bank borrowing altered to keep the demand for money and the supply of money in balance. This argument runs into several difficulties, however, when an attempt is made to relate it to real-world institutions. The greater part of the money supply

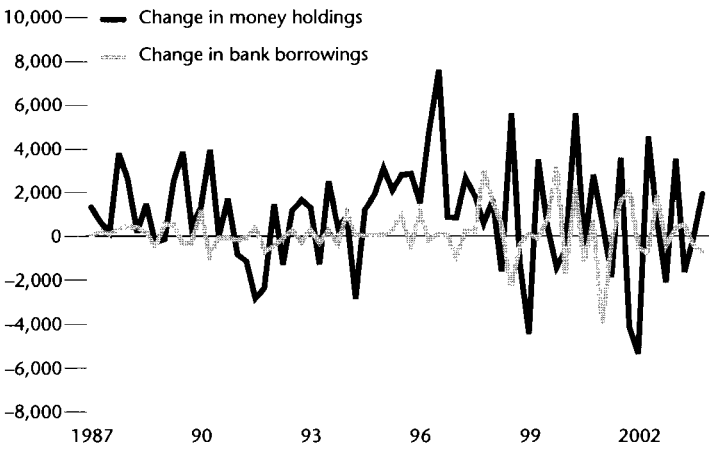
11 The data in the discussion of the 1995–99 period were taken partly from the National Statistics website in the spring of 2004 and partly from various issues of *Financial Statistics*.

is held by members of households (i.e. the personal sector) and it is not clear that the phrase 'needs of trade' has any application to them. A high proportion of bank and building society deposits is held by people who are retired, and for them the notion of the 'needs of trade' is incongruous. More to the point for the current exercise, the Kaldorian thesis simply does not work in the UK financial sector during the boom–bust cycles. Crucially, neither of the two dominant types of financial institution – the life assurance companies and the pension funds – had any significant bank borrowings.[12] The short-term bank borrowings of these institutions were tiny relative to other balance-sheet magnitudes in the Heath–Barber and Lawson booms, and it is difficult to believe they figured centrally in management decisions.

Even more damaging for Kaldor's thesis is that bank borrowing did not change in the manner he postulated. It is obvious from Figure 7 that life offices and pension funds did not react to the receipt of extra money by repaying bank loans and thereby bringing their money holdings back to the desired level. If Kaldor were right, changes in bank loans and changes in bank deposits would have been inversely related, and the regression equation of changes in bank loans on changes in bank deposits would have had a high correlation coefficient and a regression coefficient close to minus one. An equation relating to these variables is given in an annexe to this chapter and, very plainly, it does not have these properties. The analytical sketch in Chapter 2 comes much closer to describing the task of portfolio manage-

12 This point was noted on p. 11 of Chrystal and Mizen, 'Other financial corporations: Cinderella or ugly sister?' (London: Bank of England Working Paper Series no. 151, 2001). In their words, 'Life insurance companies and pension funds, for example, hold money on deposit but they do not take on significant bank borrowings.'

Figure 7 **Does Kaldor's endogeneity thesis work in the financial sector?**
Changes in financial institutions' bank borrowings compared with changes in their money holdings, quarterly data, £m



Source: Office for National Statistics website

ment in these large financial organisations. In the periods of rapid money supply growth in the boom–bust cycles the heart of this task was to maintain some sort of equilibrium between their money holdings and their total assets, when money holdings were often exploding by 10 per cent a quarter. Changes in bank borrowing hardly entered the picture. As suggested in the analytical sketch, a realistic assessment is that the senior investment executives tried to keep the money/asset ratios fairly stable. In addition in both the boom–bust cycles they became increasingly, and justifiably, worried that the value of their bond holdings would suffer from rising inflation. As they switched away from

bonds, the results were surges in equity prices and commercial property values.

More generally, the problem with the Kaldorian argument is that it is cavalier in its treatment of agents at the individual level. It makes bold assertions about the macroeconomic consequences of certain actions without taking the trouble to establish a secure microeconomic underpinning for such actions. The primacy of the 'needs of trade' in financial management has obvious applicability only to the corporate sector. But – when interrogated a little – Kaldor's idea does not work even here. If a company is short of money balances, its strained liquidity is typically an aspect of balance-sheet weakness. If so, the banks are unlikely to want to lend to it. At the individual level, bank credit and the quantity of money emphatically do not adjust to 'the needs of trade'. A company on the brink of bankruptcy may need a large bank loan and its executives may plead for 'accommodation' from the local bank manager, but that does not mean it is a deserving supplicant or that it will receive finance.

In two severe corporate liquidity squeezes in our 40-year period – one in 1974, and the other in late 1990 and early 1991 – cash-starved companies could not conjure up new money balances out of thin air or even from easygoing bank managers. The only way they could restore sound balance sheets was to sell more and spend less. If they could not boost their sales revenue, they might try to offload subsidiaries, buildings, spare plots of land and other miscellaneous assets. Obviously, if other companies were also suffering from inadequate liquidity (with corporate sector money balances contracting while general inflation ran at double-digit annual rates), the efforts of numerous companies to offload subsidiaries, buildings, spare plots of land and so on

would cause the prices of these assets to fall. The theme recurs, that whereas excess money balances are associated with buoyant asset prices, deficient money balances are accompanied by asset price weakness.

Alternatively, the companies might spend less, by cutting back on investment, and by economising on holdings of raw materials and components. That would certainly affect aggregate demand. If so, money was driving national expenditure, rather than the other way round. The Kaldorian argument does not fit the facts of the boom–bust cycles. The big fluctuations in aggregate money supply growth – and the associated even larger fluctuations in the money holdings of companies and financial institutions – were in no sense motivated by 'the needs of trade'. Instead they were due to the erratic, foolish and wholly exogenous mismanagement of monetary policy by the government and the Bank of England, and the results were extreme asset price volatility and the destructive boom–bust cycles.

A reply to the narrow-money school

What about the claims made by the narrow-money school and, in particular, the objections to the causal role of money made by Minford? To some extent Minford's argument is simply a misunderstanding. Of course, the assets and liabilities of financial institutions (and indeed of companies) are equal, and their net wealth is always nil. But the economy's assets must – of course – belong to someone. If a mutually owned life assurance company holds assets in the form of a large portfolio of equities, it may have liabilities to policy-holders equal to these assets and no net wealth. But that does not mean its policy-holders also have no net wealth!

On the contrary, the higher the value of the life company's assets because of, say, a soaring stock market, the higher the value of its liabilities and the better-off are the policy-holders. Despite the veil that many layers of financial intermediation may seem to draw over underlying economic realities, and despite the equivalence of financial institutions' assets and liabilities, the value of the assets they hold remains relevant to expenditure decisions.

Further, it is certainly not true that transactions within the financial system leave asset values unchanged. Minford writes as if individual agents can alter the aggregate quantity of money by switching between money balances and close alternative assets. In his discussions such switches can therefore alter the quantity of money, and so eliminate excess or deficient money holdings, without an excess supply of or demand for money affecting asset prices and the economy at large. An essential feature of the Fisher and Friedman accounts of the transmission mechanism, however, and of the sketch of asset price determination given here, is that when money is in excess supply individual attempts to reduce the quantity of money do *not* alter the aggregate quantity of money. Indeed, it was precisely this feature of the story – to repeat, the distinction between the individual and market experiments within a closed circuit of payments – which gave the quantity of money the power to determine other variables.

A fundamental feature of the analysis must be emphasised. It is essential to the argument that the quantity of money is an all-inclusive measure (i.e. a broadly defined money aggregate, which includes all bank deposits). The point is that an all-inclusive measure of money cannot be changed *in the aggregate* by individual agents' attempts to alter their own money holdings. That is the pivot on which the real balance effect works. But a

narrow measure of money does not have the same characteristic. Narrow money (for example, an aggregate measure of money like M1 which includes sight deposits but not time deposits) can be changed by a large number of individual switches between sight and time deposits. Such switches do not lead to any transactions in goods, services or assets, and have no effect on the price level of goods and services or on asset prices.[13]

It is therefore surprising that Minford should prefer narrow money to broad money as a monetary indicator. Indeed, he stated his preference for the particularly limited narrow money measure Mo at the peak of the Lawson boom when asset prices were also at extreme highs. This measure excludes *all* bank deposits held by private sector agents, implying that, if contemporary money supply developments had some bearing on the asset price buoyancy, non-deposit forms of money had to be responsible. According to Minford, 'an implication of financial competition' is that 'money changes its form' and 'in particular the only "pure" money left is currency' (i.e. Mo).[14] Minford persuaded many economists at the Treasury and the Bank of England about the import-

13 The author has made this point on a number of occasions. See, for example, 'Credit, broad money and economic activity', in Congdon, *Reflections on Monetarism*, pp. 171–90, particularly pp. 182–3, and Tim Congdon, 'Broad money vs. narrow money', *The Review of Policy Issues* (Sheffield: Sheffield Hallam University, 1995), pp. 13–27. All measures of narrow money are endogenous in that agents' individual attempts to alter their money holdings also change the aggregate quantity of money. An all-inclusive money measure, i.e. a broad money measure, is not endogenous in this sense. A broad money measure may nevertheless be endogenous in the sense that it reflects processes within an economy, and particularly processes inside the banking system, subject to price incentives. But the endogeneity of broad money in this sense still leaves it with the ability, when disturbed from an equilibrium level, to change asset dispositions and expenditure patterns, in accordance with the Fisher/Friedman/Patinkin story.

14 Minford, *Markets Not Stakes* (London: Orion Business Books, 1998), p. 104.

ance of Mo, and his analysis was one of the inputs into the policy discussion that led to the abandonment of broad money targets in the mid-1980s.

An examination of the holders of Mo, however, quickly shows that it cannot have been relevant to the asset price swings seen in the boom–bust cycles. A compelling attribute of modern economies is that companies, financial institutions and wealthy individuals hold negligible amounts of notes. Part of the explanation is that notes cannot be used – without inordinate expense – to conduct the large transactions, notably transactions in substantial assets, in which companies, financial institutions and wealthy individuals are routinely involved. The irrelevance of narrow money to big corporate decisions, to the decisions that determine asset prices and influence company investment, should hardly need to be stated.

In fact, in the 40 years under consideration in this monograph no official data were compiled on the currency holdings (i.e. notes and coin) of life assurance companies and pension funds, presumably because official statisticians could not see any purpose in the exercise. Since 1987, statistics have been prepared for the currency holdings of non-monetary financial institutions, which include life assurance companies and pension funds. In 1987 they amounted to £55 million and in 2002 to £83 million. It seems likely that the bulk of this is held by minor financial institutions with some retail business involving cash, such as some hire purchase companies and pawnbrokers. For all significant financial institutions, and for all the big institutional players in UK asset markets, note holdings are trifling compared with bank deposits. A sense of perspective is given by comparing the bank deposits held by non-monetary (i.e. non-bank, non-building-

society) financial institutions with their currency holdings (see Table 4). At the end of 2002 the deposits – at £279,597 million – were almost 3,400 times larger than the amount of currency. For life assurance companies and pension funds by themselves, the multiple would have been considerably higher, but – as noted – official data are not available.

Minford appears to believe that the variations in the growth rate of broad money were unrelated to the extreme asset price movements of the boom–bust cycles. This monograph has shown that the broad money growth rates of 20 per cent a year in the boom were associated with both 40 per cent, 50 per cent and 60 per cent annual growth rates of money held by the financial sector as whole, and 40 per cent, 50 per cent and 60 per cent annual growth rates of money held by such leading institutions as life offices and pension funds. Equally, it has shown that the decelerations in broad money growth rates to 10 per cent a year or less during the busts were associated with virtual stagnation in the money holdings of the financial sector and leading financial institutions. It is clear that the periods in which the institutions' money holdings were expanding rapidly were also periods of rising asset prices and that the periods when they were static were periods of falling asset prices. Further, the notion that financial institutions' senior executives cared more about their note holdings (i.e. their Mo balances) than about their bank deposits is – to say the least – most implausible, given the quantitative insignificance of the note holdings. Minford wants us to believe that 'monetary forces' are best represented by 'the printing of money' and 'Mo', and that such variables 'are still central to our understanding of inflation'. Some economists apparently attach credence to these remarks, but it is difficult to believe that Mo

Table 4 **The insignificance of financial institutions' currency holdings**

Non-monetary financial institutions' holdings of:			*Multiple of deposits held to currency held*
	Sterling deposits £m	*Currency £m*	
1987	40,082	55	729
1988	51,008	59	865
1989	73,142	63	1,161
1990	86,210	70	1,232
1991	77,117	74	1,042
1992	88,140	77	1,145
1993	99,866	79	1,264
1994	106,180	81	1,311
1995	144,709	83	1,743
1996	173,317	83	2,088
1997	200,529	83	2,416
1998	216,459	83	2,608
1999	200,617	83	2,417
2000	247,853	83	2,986
2001	286,958	83	3,457
2002	279,597	83	3,369

Source: National Statistics website

could ever have been central to the asset price inflation that was such a notorious element in the boom–bust cycles.[15]

What about other views of the narrow-money school? According to Walters, 'one would clearly not count £50,000 negotiable CDs [or 'certificates of deposit'] as money; so far as I am aware no one would ever accept such an instrument to pay an outstanding expense'.[16] But – when applied to corporate entities and, in particular, to large financial institutions – Walters' comment ignores the practicalities of the matter. A life assurance company would be foolish to keep its money in a cash till,

15 Ibid., p. 105.

16 Walters, *Britain's Economic Renaissance*, pp. 116–17.

because of the awkwardness and inefficiency of making large asset transactions in notes. But it would also be unwise to leave its money in a non-interest-bearing sight deposit (or 'checkable account', in Walters' terminology), as it would fail to collect the interest on quite sizeable sums of policy-holder funds. Its appropriate behaviour would be to hold money in an interest-bearing but highly liquid form, such as in £50,000 parcels of CDs. Because of its bargaining power (as a large customer) with the banks, a life assurance company can convert a £50,000 CD into a checkable account at little cost and use the funds in purchases of equities, buildings, land and so on. Walters' conception of 'money in the transactions sense' as 'money readily available for small-scale, retail transactions' is limited and unsatisfactory. In a modern economy money is used in all transactions, small, medium and large, while the majority of transactions *in assets* are so large that they can be conducted sensibly only by payment instructions against bank deposits.[17] When asset-rich agents take decisions to alter their portfolios, the critical definition of money to them is a broadly defined one, in which deposits are dominant. Their decisions on the right balance between all their non-monetary

17 In an article on 'Monetary policy, gilts and equities' in the December 1970 issue of *The Investment Analyst*, Walters analysed the link between the money supply and share prices and remarked, 'My predilection is to believe that movements in the money stock are the *cause* of the oscillations in the equity market'. (The paper was republished in John Goodchild and Clive Callow [eds], *Double Takes* [Chichester: John Wiley, 2000]. The quotation is from p. 101 of this book.) But it is difficult to believe that any narrow money measure could cause equity market fluctuations, for the reasons given in the text here. In fact, Walters was critical of the explosion in the growth rate of *broad money* in the boom of the early 1970s, and saw a connection then between the high rates of *broad money growth* and large asset price increases. In a footnote on p. 118 of *Britain's Economic Renaissance* he notes that he used 'M3 statistics' to make an accurate prediction of 15 per cent inflation in 1974, where M3 was a broad money measure.

assets and all their money assets are far more interesting for the wider economy than their decisions on the right balance between different types of monetary instrument (such as £50,000 CDs, term deposits and interest-bearing sight deposits) within an all-inclusive money total.[18]

Annexe

The Kaldorian thesis is that bank borrowings change to eliminate an excess supply of or demand for money: so an excess supply of or demand for money does not alter expenditure patterns. In other words, the change in bank loans should be similar (i.e. with a regression coefficient in an estimated equation close to one) to the recent or concurrent change in cash and deposits, with the sign reversed.

Data on the net acquisition of financial assets are available, on a quarterly basis, for 'insurance corporations and pension funds' from 1987, including three categories, 'Currency and deposits' and 'Short-term loans' (from MFIs [or 'monetary financial institutions', mostly banks]), in both sterling and foreign currency. Note that changes in borrowing in foreign currency were large relative to those in sterling in the period under consideration, but no significant relationship could be identified with any definition of bank borrowing. (The series were NBSG, NBWX and NBXB in

18 The survey of asset price movements in the UK in this chapter was influenced by the work of Gordon Pepper, senior partner of the stockbroking firm W. Greenwell & Co. from 1980 to 1986 and later professor at City University Business School. See, for example, pp. 203–9 of Pepper, *Money, Credit and Asset Prices* (Basingstoke and London: Macmillan, 1994), where share price movements are attributed to deviations of the growth rate of broad money from that of nominal GDP.

the 2004 National Statistics database.) The following relationship is found between changes in bank loans and changes in currency and deposits:

Change in bank loans, £m per quarter = £138.2 million – 0.011 (change in currency and deposits, £m in same quarter)

The following statistics are derived from the regression:

r squared	0.0006
Standard error for intercept term	140.25
Standard error of regression coefficient	0.05
t statistic for intercept term	0.99
t statistic for regression coefficient	−0.21

The regression coefficient is not significantly different from zero, while the relationship itself has a very poor fit (with an r^2 of almost nothing), and neither the intercept term nor the regression coefficient is statistically significant, with very low values of the t statistics.

As far as UK financial institutions in the period from 1987 to 2003 are concerned, the Kaldorian thesis of the endogeneity of money can be rejected outright.