

Institutional Developments and the Effectiveness of Monetary Policy

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Institutionalist and post-Keynesian economists have argued very strongly that monetary theory and policy can never be independent of institutional developments in the financial sphere. More specifically, monetary policy is context-specific and monetary rules cannot be applied as a panacea in all economic systems regardless of the institutional framework [Niggle 1990].

The purpose of this article is to explore this proposition in the light of recent developments in the U.K. economy. More specifically, and within the spirit of the analysis just referred to and as exemplified in Hyman J. Minsky [1986] and Basil J. Moore [1986], we attempt to show how recent institutional developments in UK financial markets have influenced the effectiveness of monetary policy. This is a broadening of Minsky's theme that "In a modern capitalist economy the institution of money is inextricably tied to the institution of banking" [Minsky 1986, p. 346]. We do not attempt to provide the theoretical background to the analysis. This is well-known and the reader can find the relevant material in, for example Christopher Niggle [1991] and P. Arestis and A. Eichner (1989). An excellent summary of this theoretical position is

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Niggle's statement that "models must reflect actual practices and economic processes—that is, they must reflect the actual institutions characteristic of the economies they represent" [Niggle 1991, p. 138]. In this sense, we share the "various stages of banking" approach associated with V. Chick [1986, 1988], applied to the case of the United States by Niggle [1991].

The institutional developments with which we are concerned here are frequently subsumed under the broader heading of *financial innovation*, so another theme running through this article is that financial innovations have consequences for the real sector of the economy. We begin in section 2 with a survey of the type of financial innovation that has taken place in the United Kingdom over the last ten years or so. In section 3 we explore the circumstances that have encouraged these innovations and offer some causal priorities amongst these circumstances.

In section 4 we come to our central thesis that financial innovation in the United Kingdom has had major impacts on the effectiveness of U.K. monetary (interest rate) policy during the 1980s. We draw attention to four of these, each of which would clearly merit major study in its own right. First, we show that innovations undermined the case for monetary targeting by causing a sharp fall in velocity and reducing the information content of money growth figures and also by reducing the authorities' ability to control the monetary aggregates. Second, the sharp rise in personal sector debt has begun to cause widespread and notable hardship. This may yet become a major constraint upon the operation of policy. As Niggle [1989], Moore [1989] and P. Davidson and J. A. Kregel [1989] have shown, macroeconomic, and particularly monetary, policy must have implications for income distribution. The U.K. data does not allow direct comparison with U.S. studies, but our third and fourth findings will be of some comparative interest. The third is that the rise in *floating (variable-interest) rate* debt relative to floating rate assets within the personal sector means that a rise in interest rates causes a sharp drain of income from the personal sector. This intersectoral impact strengthens the potency of monetary policy. Fourth, the unequal distribution of this growing debt means that a change in interest rates now has a larger effect upon the distribution of income within the personal sector. Thus, interest rate changes cause both intrasectoral and intersectoral distributional changes.

UK Stylized Facts of Financial Innovation

By any conventional measure (profit, turnover, employment) and in

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sharp contrast to the rest of the U.K. economy, the financial sector has been the undoubted "success" story of the 1980s. A number of features are immediately apparent.

The first is the rate of expansion, some impression of which can be glimpsed from Table 1.

Table 1. *The expansion of financial activity in the 1980s—selected indicators*

		Avg. change 1980(4)—1989(4) % p.a.
Banks	(assets)	16
Building Societies	(assets)	14.6
Life assurance cos.	(assets)	14
Pension funds	(assets)	15
Stock exchange transactions	(value)	25
	(Volume)	8
Nominal GDP		9.3

SOURCES: Central Statistical Office, Financial Statistics, March 1981 and November 1990; Bank of England Quarterly Bulletin, May 1981 and November 1990.

In the first quarter of 1980, gross financial transactions by all sectors in the U.K. amounted to £18bn and was equivalent to about 40 percent of that quarter's GNP. In the first quarter of 1990, the corresponding figure was £96.7bn, equivalent to 90 percent of GNP [Bank 1980, 1990a]. A further interesting sidelight is provided by data from the *Association for Payment Clearing Systems* [1990]. The total value of "town clearings" (a same-day cheque and credit clearing facility available to City, and therefore mainly financial, firms for the settlement of large claims) was £393mn in December 1980. In December 1988 these transfers exceeded £126,000mn—a 320-fold increase.

A second obvious feature of financial activity has been its "globalisation." In money markets, this process was well established in the 1970s, with eurocurrency business growing much more rapidly than domestic intermediation, and received a further boost in the 1980s, particularly in the United Kingdom, with the removal of exchange controls. In the 1980s we have seen the rapid growth of the currency swap market. By using this market, companies raise funds at lower interest rates than would be possible if they were forced to borrow at the rates determined in their home countries, even allowing for the slice in the interest rate saving taken by the bank arranging the swap [Cooper 1986].

More spectacular and more recent has been the internationalization of capital markets, movements in security prices in one country having

an instant, though not always predictable, effect upon prices elsewhere. On October 19, 1987, for example, U.K. market makers reduced prices by five percent before trading began because U.S. prices had fallen so sharply after London's close on the previous trading day. The daily pre-trading adjustment of U.K. prices in the light of overnight events elsewhere is now routine. The increased elasticity of international capital movements can also be seen in the rapid response of exchange rates to relevant "news." Indeed, in the United Kingdom since 1985, monetary policy has come to rely precisely upon the fact that a rise in interest rates exerts its deflationary pressure via a rise in the exchange rate. This is perhaps less remarkable for an open economy like the United Kingdom; more telling is surely the fact that the same now applies to most other countries, including the United States [Goodhart 1986].

To the consumer of financial services, one of the most visually obvious features of the 1980s has been the diversification of financial institutions and the breakdown of traditional demarcations. Retail banks have become mortgage lenders, market-makers in securities, unit trust companies, insurance agents, and, with a sense of timing paralleled only by their judgment of the merits of Third-World lending, estate agents. Building societies¹ have become banks (virtually in most cases, literally in one). They too have taken on the functions insurance and estate agencies and the providing of legal services. *Within* banking, traditional divisions have become blurred as retail banks join others in raising funds in wholesale markets and moving away from their traditional function of "direct" lending, to advising commercial clients on a wide range of financial matters, offering acceptances and guarantees and other "contingent facilities," all of which are "off-balance-sheet" and earn fees rather than interest.²

The rapid expansion of financial activity in the 1980s has been accompanied by further numerous innovations. We have already remarked upon the burgeoning swap market, but this has been paralleled by markets in financial futures, traded options, Eurobonds and a bewildering range of short-term securitized lending ranging from CDs (originating in the late-1960s) to floating rate notes. While clearly not a new product, the practice of securitization has developed dramatically into areas where it was previously unknown. In the 1980s, firms that might previously have borrowed from banks have discovered that they can frequently borrow more cheaply by issuing their own securities while banks and building societies have been happy to charge fees for arranging and guaranteeing these securities, earning fee income, rather than earning interest from loans that appear in their balance sheets.³

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One of the most far-reaching developments of the 1980s was the entry of banks into the mortgage market in 1981. From this stemmed a period of intense competition between banks and building societies on both sides of their balance sheets. At a disadvantage in this competition, the societies lobbied the government for a change in the Building Societies Act, 1962, which limited their sources of funds and restricted their lending to first mortgages secured on property. Pushing on an open door where deregulation was concerned, the societies were quickly rewarded with the Building Societies Act, 1986, which broadened both the sources and destinations of societies' funds. In particular, large societies were permitted a limited amount of unsecured personal lending. This apparently minor change had momentous results. Since societies could now legally permit customers to be overdrawn, they could, for the first time, issue check guarantee cards. This made building society checking accounts indistinguishable from those of banks except for the considerable advantages that societies paid interest on all positive balances, stayed open longer and were generally seen as more user-friendly by the public. The change in building society regulation, therefore, ensured that banks, which had since 1983, grudgingly paid interest on selected checking accounts with restricted use, would have to follow. The payment of interest on bank deposits has had far-reaching consequences for the effectiveness of monetary policy, as we shall see shortly.

The aggressive bidding for deposits ("liability management") was necessary to fund the rapid growth of advances on the asset side of the balance sheet. Between August 1981 and January 1990 the total stock of bank advances to U.K. residents rose from £72.6bn to £390bn [CSO, 1982; 1990] but within this figure personal sector indebtedness increased more than tenfold from £11.6bn to £120bn.

Causes of Financial Innovation in the United Kingdom

As nominal incomes rise over time, we would of course expect the size of deficits and surpluses to increase and therefore the volume of financial business to grow correspondingly. Explanations for the disproportionate growth of financial activity, however, must obviously lie elsewhere. There is no shortage of candidates. Deregulation, technological change, high inflation, increased uncertainty and volatility in the real economy, and growing competition, can all be plausibly advanced in the light of the evidence. Another interesting explanation in this context is R. Goldsmith's emphasis on the distinction between "rotation"

and “offset” ratios, which influence borrowing: income levels [Goldsmith 1969]. (The offset ratio measures the degree of divergence across a sector’s units in deficits and surpluses; the rotation ratio captures the volatility with which units alternate *between* deficit and surplus). The challenge is to provide some logical priority to each since they are clearly to some degree interdependent. Growing competition, particularly in the case of diversification and the interpenetration of traditional territories, could be a product of deregulation, as could increased uncertainty. Deregulation could be either a response to or a cause of technological change, while improved communication and computer-based “program trading” has been blamed for some of the instability. One could plausibly advance a set of complex and partly circular interactions in which deregulation encourages technological change, which in turn facilitates larger and programmed deals, which heighten the volatility of markets. This encourages derivative instrument-style innovations whose fullest exploitation then requires more technology and further changes in rules. We have no wish to assert simple, unidirectional causal significance for any individual factor but, following I. Cooper [1986], we think it instructive to use the term “exogenous” to describe those influences that originate to a significant degree outside the financial system itself, and to distinguish them from “endogenous” variables—changes that occur within the financial system in response to the initial disturbance, but which help to carry it forward. We must, however, begin with some preliminaries.

The fact that lenders and borrowers are prepared to pay brokers or intermediaries to work on their behalf is *prima facie* evidence that intermediaries provide a service, the cost of which is lower than the costs that would be faced by lenders and borrowers if they had to confront each other directly. Our opening hypothesis might therefore be that something has happened in the 1980s generally to lower the costs of intermediation *relative* to direct dealing and that the change in the composition of financial activity indicates greater relative price effects in some areas than in others.

Rather obviously, the price of intermediation falls relative to the cost of direct dealing when either the cost of intermediation falls or the cost of direct dealing rises, *ceteris paribus*. The costs are of two kinds—transactions costs and information costs.

An immediate and dramatic saving in transaction cost provided by intermediaries is the virtual elimination of search cost. A unit wishing to run a deficit position no longer has to find a unit wishing to run an *exactly corresponding* surplus position. Costs of contractual negoti-

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ations are also virtually eliminated by the use of standard contracts. Everyone deposits on one of a small range of standard terms; borrowers borrow at a (known) base rate of interest plus a margin for risk. Furthermore, a specialist intermediary can almost certainly provide the keeping of records, the legal advice and the general administration of loan contracts more cheaply than most small lenders and borrowers could do for themselves. And these savings on transaction costs are likely to be subject to economies of scale.

A major problem all lenders and borrowers have to face is that they lack adequate information about each other. (Two parties with corresponding lending/borrowing needs who are fortunate enough to find each other might still lack adequate trust). Furthermore, the available information is likely to be asymmetric. In the absence of intermediation, borrowers are almost bound to have better information about the project they wish to finance than do lenders and therefore the risk for lenders is greater than for borrowers. The assessment of risk is thus one of the major tasks of intermediaries and with experienced and specialized personnel this can almost always be done more cheaply than any lender could do it individually. Furthermore, intermediaries can monitor the performance of a loan and protect lenders from excessive risk by allocating funds to a diversified range of projects. The larger the portfolio the lower the risk that can be potentially attained through diversification. This provides a further basis for economies of scale, especially if the intermediary's skill enables it to select projects with low covariances in returns.

One feature of the 1980s that must have contributed to the growth of financial activity but may help also to explain some of its particular features, is the extraordinary volatility (and therefore risk) of international markets. Surpluses and deficits (of countries and of sectors) are both absolutely larger, but larger also in relation to their respective GDPs, than at any time in the past. Commodity prices have shown larger deviations from trend than in any earlier period (with the exception of oil in the 1970s). Nominal interest rates and exchange rates in the developed countries have also been extremely volatile and, in the case of interest rates, unprecedentedly high. Relevant information (about future price movements) has become not so much costly to obtain as almost unobtainable and therefore intermediaries and markets that have been able to develop practices and instruments that help to manage the risk associated with international price movements have prospered. It is not a coincidence that the big growth markets in the 1980s have been in currency and interest rate swaps, financial futures,

and traded options. These are all “derivative” instruments, intended to facilitate hedging against unforeseen events, and the events in question are predominantly international [Gilbody 1988, pp. 143–46]. The increased volatility of international prices is one example of an “exogenous” variable.

While increased uncertainty has lowered the relative cost of intermediation by raising the absolute cost of direct lending, technology has achieved its relative price effect principally by lowering the cost of financial operations. The development of ever-more powerful and compact computers and the simultaneous development of communications networks allowing remote operators virtually instant access to centrally stored information has widened the range of services financial firms can offer. It has also increased the speed with which those services can be supplied, has lowered their cost, has changed dramatically the conditions (and locations) of work for those employed in the industry, and has changed the relationship between the supplier and consumer of financial services. At the glamorous end, one thinks of the high speed and low cost with which firms based in London can transact business in Tokyo or New York through their local subsidiaries. Indeed, the existence of local subsidiaries is itself dependent upon the cheap and instant interchange of information between the subsidiary and head office. The “globalisation” of money and capital markets would simply not have been possible without these developments.

Seemingly less glamorous, but equally far-reaching, technology has had its effect upon retail consumers. Cash-dispensing automated teller machines (ATMs) first appeared in the mid-1970s. In the 1980s, the same technology is being extended to electronic funds transfer (EFT). Two processes are at work here. Firstly, the electronic handling of transactions is much cheaper than paper-based transfer, not just in labor but also in its requirement for premises. For years banks defended bank charges and later the non-payment of interest on checkable deposits on the grounds that they needed the endowment effect to subsidize the high cost of the money transmission system. One of the reasons that banks have been able (“willing” would be incorrect since the transmission service has still to be subsidized from other banking activities) to pay interest on sight deposits since 1983 is that the unit cost has fallen.

Secondly, this lowering of costs has also lowered one of the barriers to entry in the provision of financial services. Building societies have been able to enter the money transmission business because electronic transfer of funds requires merely an extension to their existing comput-

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ing capacity where previously it would have required prohibitive expenditure on labor and premises. The cost of entering the cash management part of banking business is now so low for any nationwide organization that has a large number of retail outlets linked to a central computer that it is difficult to see where this development will end.

The electronic storage, transmission and manipulation of data did not, of course, begin with the boom in financial activity. It was developed originally to handle the computational requirements of the pure sciences. From there it quickly spread to engineering and the applied sciences in the 1960s and 1970s. The case might be made that the advances in networking and possibly even the rapid development of powerful PCs (as opposed to mainframe computers) in the 1980s have originated in the needs of business and finance. Clearly that is true of the specialized software. Nonetheless, the picture is essentially one of prior technological developments awaiting application to financial activity. In our classification, therefore, technology is another "exogenous" variable.

Many of the developments in financial activity in the 1980s appear in response to deregulation. The building societies' issuing of check guarantee cards, the increasing international mobility of capital, and the reforms of the London Stock Exchange in 1986, popularly christened "Big Bang," are three obvious examples. Indeed, one might even try to credit deregulation with technological innovations. In this view, building societies invested in the money transmission technology in order to take advantage of their new freedom under the 1986 Act.

Furthermore, there exists a body of economic theory, and in recent years a strong element of ideology, that argues the merits of unrestricted market forces as a matter of general principle. In this view, the pursuit of individual self-interest produces the best attainable allocation of resources and thus regulation is objectionable in principle because if it succeeds in modifying behavior, then it acts as a tax. People will still strive to achieve their ends but will be forced to achieve them by second best methods. In a fundamental sense, therefore, the cost of achieving the ends will be higher. Fewer people will be able to meet the costs (of time, ingenuity, or simply of evading the regulations). Fewer desired ends will be achieved. There are, of course, additional arguments advanced by market optimists. Deregulation is likely to further lower costs by encouraging competition. It also encourages allocative efficiency. The function of financial markets and institutions is to channel funds from lenders to borrowers. Allocative efficiency requires that funds go to their most socially beneficial use. Assuming that the profit-

ability of investment projects is an accurate representation of the value society places upon those projects, then efficiency requires that funds flow to the most profitable projects. Provided the funds cost less than the return on the project, the project and others like it will go ahead. The socially desirable activity represented by these projects will increase and will continue to do so until the rate of return no longer exceeds the cost of the funds. Leaving aside the question of equating social benefit with private profit, it is clear that the happy results envisaged in this argument will not follow if financial markets and institutions are highly segmented.

Building societies (pre-1987) again provide a useful illustration. For reasons of history, tax treatment and successive governments' desire to provide cheap finance for owner occupation, building societies have attracted large quantities of retail deposits at comparatively low cost. These they have lent at comparatively low cost and owner occupation (and house prices) have risen rapidly since the late 1960s. However, since building societies were restricted in both their access to, and, more importantly, their uses of funds, there is no way of knowing whether a booming housing market was genuinely more desirable than, say, investment in manufacturing.

However, before we rush to list deregulation as another exogenous variable driving financial innovation, it is worth considering the circumstances in which regulatory changes take place. In the building society case, for example, it is clear that regulations were loosened in response to pressure from the societies. This pressure began seriously in 1983, and it is equally clear that what lay behind that pressure was the societies' recognition of the opportunities opened to them by the new technology [Goacher et al. 1987; Bank of England 1983; Wolman 1985].

The reform of the London Stock Exchange provides further interesting insights. The changes are often presented as follows from the threat of the Director-General of Fair Trading 1979 to test the Stock Exchange Rule Book in the Restrictive Practices Court (an apparently exogenous variable if ever there was). But such a test never materialized because of the accord reached in 1983 between the Secretary of State for Trade and Industry and the Chairman of the Stock Exchange. This accord embodied undertakings on the part of the Stock Exchange Council to abolish minimum commissions, to allow freedom of entry to financial conglomerates and to abolish single capacity dealing, a collection of simultaneous changes which, as we noted above, quickly acquired the name "Big Bang." The Stock Exchange Council understandably strove to influence events for the benefit of its members but many of these

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were sanguine about future opportunities. Elsewhere in the financial system, among banks in particular, there was strong pressure for the liberalization of securities dealing as an urgent response to the more rapid growth of international securities trading in other financial centers. It was clear that London's geographical position was ideally suited for twenty-four-hour trading and that it could share more largely in this expanding business, but that this required more competitive pricing, the installation of screen-based dealing systems, and vastly more capital than could be provided by traditional partnerships. These changes were not imposed from outside the financial system, driven on by an intellectual commitment to free markets. The regulatory changes were an induced, or endogenous, response to the growing internationalization of trade and to the recognised potential of the new technology [Thomas 1987, pp. 20–27].

From the foregoing it should be clear by now that competition, the other development so frequently advanced as a "cause" of financial innovation, is also an endogenous response to a process that had its ultimate origins elsewhere. Deregulation is one proximate cause of the increasingly competitive financial environment, and competition is a proximate cause of the falling cost of financial intermediation but, as we have tried to show, deregulation and the increase in competition both have their origins in events outside the financial system.

There is no doubt that deregulation and increasing competitiveness, whatever their origins, have lowered the cost of financial services to consumers. In some cases this is easily shown. The average commission rate on London Stock Exchange transactions fell from 0.43 percent in July 1986 to 0.28 percent in December 1988 [International Stock Exchange, various issues]. At least as important, however, is what has happened to the spread or differential between advances and deposit rates charged and paid by deposit-taking institutions. It is this differential that is the primary source of profit to deposit-taking institutions and movements in that differential must represent changes in the cost of intermediaries' activities. Since any deficit unit faces the option of financing its deficit by either drawing on existing liquid assets (and losing interest) or borrowing (and paying interest), the *net* cost of borrowing via an intermediary is also represented by this spread.⁴

The simplest way to chart the differential just referred to is to subtract a representative deposit rate from a representative advances rate. This has to be done separately for ICCs and for the personal sector, however, since they face significantly different rates in both cases. For ICCs we may realistically subtract the three-month London Interbank Offer Rate (LIBOR) from the banks' base rates. The differential was

about 1.7 percentage points for the first half of the 1970s, fell to about 1 point in 1979 and has remained at or below that throughout the 1980s, becoming negative in the round-tripping episodes in 1981 and 1985, as we noted earlier.

In the 1980s the impact on spreads has been greatest for the personal sector as banks were forced by building societies to offer interest on retail deposits. Unfortunately, in the case of the personal sector, where people face a wide range of different rates, it is not quite so clear how we should choose representative figures. A seven-day deposit rate is perhaps reasonable for their deposits but then we have to make some fairly arbitrary judgement about the average mark-up over the banks' base rate charged to customers. As far as changes in the *differential* are concerned, fortunately our estimates will be reliable provided that the average mark-up remains constant. Its absolute level is unimportant. Subtracting the seven-day deposit rate from "base rate plus six percentage points" shows the spread on bank deposits and advances for the personal sector narrowing in the 1980s from some nine percentage points at the beginning of the period to six points at the end. With the narrowing of these spreads it is hardly surprising that people have chosen throughout the 1980s to simultaneously increase the amount of their indebtedness and their holdings of liquid assets.

There is one further and interesting way in which competition, aided by the new technology has lowered the cost of intermediation to retail users. In addition to lowering the cost of borrowing relative to using existing liquid assets, this combination has dramatically reduced the non-pecuniary costs of borrowing for many people. The unsecured personal bank loan (as opposed to overdraft) is a product strictly of the 1970s, when it became available to established bank customers in exchange for the prior completion of an application form requesting extensive personal information. In the 1980s the forms got shorter and the development of credit-rating agencies using computer datafiles removed the delay. What once involved an interview with a bank manager is now available on demand from major stores. Furthermore, a combination of advertising, unsolicited postal offers of credit and unrequested increases in established agreements has not only made borrowing easier, but has transformed its image. The stigma of "debt" has been replaced by the status of "credit."

Implications for Monetary Policy

The financial innovations we have been discussing entail manifold consequences, but there is one aspect that we wish to concentrate on

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in the rest of this article. This is their ability to pose problems, some of them urgent, for policymakers.

First, the cheapening of bank intermediation, as represented by the narrowing of the spread, has led people to hold more liquid assets and more short-term debt than they did in the early 1980s. Between 1980 and 1990 the personal sector's holdings of bank deposits have risen from the equivalent of 60 percent to the equivalent of 70 percent of GDP. At the same time, indebtedness to banks has risen from 25 percent of GDP to 80 percent (Central Statistical Office, *Financial Statistics*, March 1981 and Feb 1991 table 9.5). For industrial and commercial companies (ICCs) the corresponding figures are 18 percent rising, to 40 percent and 55 percent, rising to 70 percent. Increasing indebtedness, particularly for the personal sector, may carry with it problems of its own to which we return below.

From the point of view of economic policy, however, it is the dramatic rise in the ratio of bank deposits to GDP that is important. From the mid-1970s governments throughout the developed world came to espouse various aspects of "monetarism," one of which was that the rate of growth of money stock, roughly bank deposits, would be reflected in a similar rate of increase in nominal GDP. Since real output could not increase at more than its modest "natural" rate, typically around 3 percent, any growth in money in excess of this figure must be reflected in the price component of GDP.

A stable relationship between monetary growth and nominal GDP relies upon a stable relationship between the rate of monetary growth and the rate of increase in spending in the economy, that is, upon a stable velocity of circulation. Clearly this has not been true for the 1980s. The UK broad money stock has grown much more rapidly than GDP (at rates averaging 16 percent). Monitoring the growth of monetary aggregates no longer provides the authorities with any very reliable information about likely levels of demand, output or inflation; and following a stable money growth rule, once the cornerstone of *the new right* economic policy, no longer guarantees a predictable rate of inflation.

However, the decline in the quality of information provided to the authorities by the monetary aggregates may serve a minor useful purpose. It may help to reconcile the authorities to the fact that financial innovation has made the aggregates impossible to control. In the United Kingdom, as in many other developed countries, the authorities endeavor to control monetary expansion by restraining the bank lending that creates deposits. This they do by raising and lowering short-term interest rates in a triumph of hope over experience that this will

influence the demand for bank lending. It is now well-recognized that any effect that a change in interest rates ever had on the demand for bank lending came from a change in *relative* rates [Gowland, 1990 p. 45; Howells, 1990]. In earlier times, a rise in interest rates induced by the authorities caused, as it always must, a general rise in interest rates. When bank deposits did not generally pay interest, the rate paid on non-money assets necessarily rose *relative to* that paid on money. Money became less attractive.

Relative to holding the liabilities of banks, therefore, holding the (interest-bearing) liabilities issued directly by deficit units became more attractive. Deficit units then had less need to borrow from banks, bank lending and monetary growth slowed. Since it is not possible for the community to move out of money in the aggregate (except by the purchase of public sector debt) complex changes in relative interest rates followed until a new portfolio equilibrium was reached. However, the essential starting point was the authorities' ability to make holding bank liabilities ("money") less attractive relative to non-bank liabilities. This they plainly cannot do when deposits pay interest, since deposit rates rise in step.

Furthermore, as we noted in the last section, technology first and competition second have led and pushed financial firms to lower the non-pecuniary cost of credit. Whatever the authorities were doing to the interest cost in the 1980s, the non-interest costs were falling rapidly. We have already commented on the ease of obtaining consumer credit. The same process, however, has been at work in the housing market. Throughout the 1980s the rate of increase in housing prices has exceeded the rate of inflation as measured by the RPI and was particularly dramatic in 1981–1983 and 1987–1989 [Bank of England 1989a, p. 68]. As several studies of the UK housing market have shown [Bank of England, 1985, and 1989a], the reasons for this have been various but include what amounts to the "derationing" of mortgage lending in the early 1980s, when banks entered the mortgage market following the removal of "the corset"⁵ in 1980 and the emergence of problems with sovereign lending to less developed countries. The stock of outstanding bank loans secured on housing increased six-fold between 1980 and 1984 and banks' flow of net new mortgage lending peaked at £11bn. in 1988 [Bank of England 1990b]. Furthermore, the average loan/value ratio of new mortgage lending rose from 0.72 in 1980(Q1) to 0.87 in 1988(Q1); and the average income multiple of new loans rose from 1.65 to 2.15 [Bank of England 1989a, p. 70].

The evidence that these levels of debt are causing hardship is now

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well-known to the point where, as we note below, the authorities themselves have been calling for restraint. In 1979 the number of mortgaged properties taken into repossession by building societies alone was 2,530, equivalent to 0.05 percent of the total number of outstanding mortgages. By 1987, the figure had risen to nearly 23,000 or 0.32 percent of the total. Further hardship may reasonably be assumed for those with mortgage loans in arrears by 6–12 months. These increased from 8,420 in 1979 (0.16 percent) to 48,220 (0.67 percent) in 1987 [Council of Mortgage Lenders 1990].

Compromising the authorities' ability to control the monetary aggregates and raising the spectre of debt-related hardship are just two of the issues raised for policymakers by recent developments in financial innovation. There are two more we would like to briefly consider.

Given the effects of financial innovation upon monetary control it is something of a paradox that many of the innovations that have undermined the recent interpretation and conduct of monetary policy may have strengthened the impact of interest rates upon the macroeconomy. The liberalization of credit markets has increased competition leading to such aggressive marketing of credit that the otherwise pro-market authorities have been heard calling for restraint [Bank of England 1988; Bank of England 1989b]. At any given absolute level of interest rates, the real cost of borrowing has fallen as the spread between advances and deposit rates has fallen;⁶ again, at any given level of absolute rates, the weighted average cost of credit has fallen since a greater proportion of debt has been in the form of comparatively cheap mortgage lending, itself a consequence of banks entering this market and effectively ending the non-price rationing of mortgages. The result has been a dramatic change in the balance sheets of the personal sector and ICCs as both have rapidly expanded their assets and liabilities relative to income during the 1980s. As we shall see, the expansion has been particularly marked for the personal sector where the growth of floating (variable) interest rate liabilities has been especially dramatic.

It is clear from recent statements on the interest rate transmission mechanism [Leigh-Pemberton, 1987; Bank of England 1990c] that the U.K. authorities now see interest rate changes as having an impact upon aggregate demand through a number of diverse channels. These include the cost of borrowing, income and wealth effects, and the exchange rate. In its latest macroeconomic model of the United Kingdom, the Bank of England incorporates interest rates in all the equations explaining the main components of aggregate demand [Breedon, Murfin and Wright, 1990].

The income and wealth effects, however, depend crucially upon agents' holdings of assets and liabilities, particularly floating rate assets and liabilities, and these, we shall see, have changed dramatically in recent years. At its most obvious, a rise in interest rates has a negative income effect for agents with *net* floating rate liabilities. However, such a negative effect could also arise, even with net assets, if the rate earned on assets were sufficiently "sticky" compared with that paid on liabilities. Furthermore, the picture is complicated by the tax treatment of interest payments and receipts. If interest payments enjoyed zero tax relief while all interest receipts were paid net of tax, then again a negative income effect could arise even for agents with net assets. Both of these complications are, however, dwarfed by the rapid shift in the composition of personal and corporate sector balance sheets in the 1980s.

Table 2 provides a summary of the data from which Figure 1 is constructed. It shows in particular the rapid rise in floating rate liabilities, mainly mortgage loans for housing purchase, matched on the asset side by increasing holdings of real assets in the form of dwellings.

Figure 1 shows the dramatic fall in net floating rate assets from a surplus equivalent to more than 40 percent of (quarterly) personal disposable income in mid-1981, to a deficit equivalent to 60 percent of quarterly disposable income by the middle of 1989.

Meanwhile, net wealth, including dwellings, rose from 11 times to more than 18 times disposable income over the period 1980–1989 and even net *financial* wealth rose from 3.9 to 7.0 as a multiple of quarterly income. In a naive view (excluding tax considerations and the effects upon asset values) a one percentage point rise in interest rates would have had a modest but positive effect in 1980 (fourth quarter), raising the income from floating rate assets by £177m. more than it increased payments on liabilities. By the end of 1989, however, a one point rise cost the personal sector about £556m. per quarter, equivalent to about 0.6 percent of disposable income.

Last, whatever may have happened to the balance of personal sector floating rate assets and liabilities and *in aggregate*, it seems likely that there are significant differences between regions, age, and income groups. Little attention has been paid to the redistributive effects of interest rate policy in the United Kingdom perhaps because the data underlying Table 2 and Figure 1 are not available by such categories. But the United Kingdom's Council of Mortgage Lenders, using survey data, was able to show the effects upon post-interest income distribution in 1989 that resulted from regional, income, and age disparities in the distribution of mortgage debt and building society deposits.

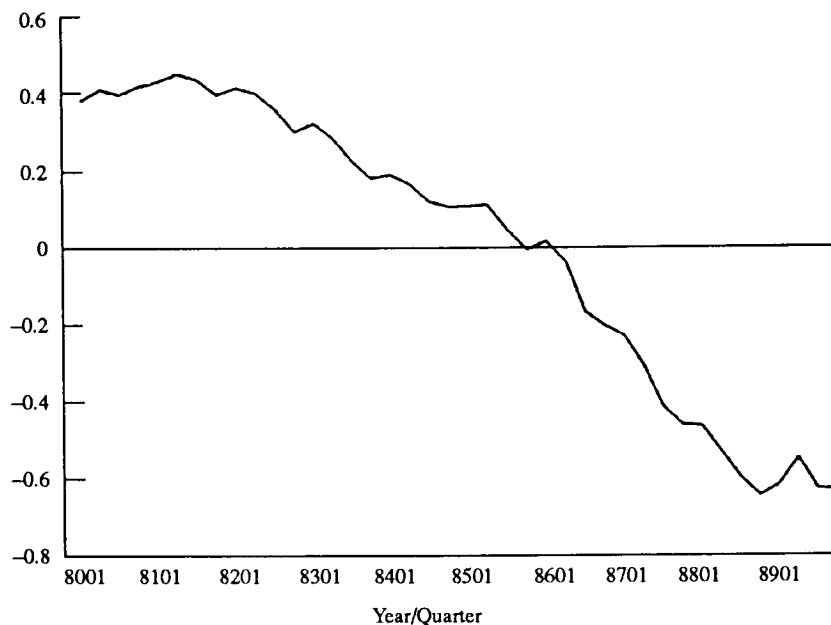
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Table 2. Personal Sector Balance Sheet 8004-8904 (£mn)

	8004	8104	8204	8304	8404	8504	8604	8704	8804	8904
Financial Assets (exc. N1BMI)										
Floating Rate Assets	89,138	102,902	118,940	134,119	152,291	172,223	190,831	210,930	244,411	285,713
Shares, unit trusts, LAPF equity, etc.	124,890	144,001	194,606	256,583	311,464	349,084	437,150	731,929	528,543	668,888
Fixed rate and other assets	33,726	35,404	49,153	54,102	65,570	66,969	77,218	89,398	101,521	121,574
TOTAL	247,754	282,307	362,699	444,804	529,325	588,266	705,199	1,032,257	874,475	1,076,175
Financial Liabilities										
Floating rate liabilities	71,479	85,085	104,065	124,495	146,110	172,530	204,125	243,581	296,185	341,393
Other	10,971	11,579	19,633	20,615	25,981	30,388	33,307	38,543	42,102	58,770
TOTAL	82,450	96,664	123,698	145,110	172,091	202,918	237,432	282,124	338,287	400,163
Net Financial Wealth	165,304	185,643	239,001	299,694	357,234	385,348	467,767	750,133	536,188	676,012
Housing Assets	306,602	319,926	349,912	410,100	461,400	527,300	620,600	738,700	964,300	970,000*
Net Wealth	471,906	505,569	588,913	79,794	818,634	912,648	1,088,367	1,488,833	1,500,488	1,646,012
Floating Rate Balance	17,659	17,817	14,875	9,624	6,181	-307	-13,294	-32,651	-51,774	-55,680
Personal Disposable Income (Qrly)	42,172	44,944	49,268	53,274	57,745	61,237	65,708	70,758	80,493	88,681
Net Floating Rate Assets/PDI	0.418738	0.396427	0.30192	0.180651	0.10704	-0.00501	-0.20232	-0.46145	-0.64321	-0.62787
NFW/PDI	3.919757	4.13054	4.851039	5.625521	6.186406	6.292732	7.118874	10.60139	6.6613	7.622963
NW/PDI	11.19003	11.24887	11.95326	13.32346	14.17671	14.90354	16.56369	21.0412	18.64122	18.56104

SOURCE: CSO Financial Statistics. Adapted from table 14.4, October 1982, 1986, 1990.

* = estimate

Figure 1. *Personal sector's net floating rate assets to income ratio, 1980-90.*

Inevitably, some regions are net debtors in the balance of mortgage debt and building society deposits held by their inhabitants. In the South East, for example, the net deficit was $-\pounds 2.2\text{bn.}$ in 1989. For Greater London it was $-\pounds 4.3\text{bn.}$ while for Wales there was a net surplus of deposits over debt of $\pounds 3.4\text{bn.}$ and for the South West a surplus of $\pounds 2.7\text{bn.}$ Again ignoring the tax treatment of interest payments and receipts, the conclusion on the regional effects was that "Overall, the [1 percent] increase in interest rates involves a movement of funds from Greater London, the East Midlands and the West Midlands . . . to the other regions." [Costello 1990 p. 19].

Predictably, perhaps, building society mortgage debt in 1989 exceeded deposits most dramatically among the 25-34 ($-\pounds 42.8\text{bn.}$) and 35-54 ($-\pounds 20.9\text{bn.}$) age groups. The age group with the largest surplus of deposits over debt ($\pounds 50.7\text{bn.}$) were those of 65+. The naive effects of a 1 percent rise were therefore to reduce post-interest income of the 25-34 age group by some $\pounds 428\text{mn.}$ per annum and to increase post-interest income for the over-65s by $\pounds 507\text{mn.}$ Those in the 55-64 age group were also clear gainers while those in the 35-54 group were losers. For the youngest age groups there was no discernible impact [Costello 1990 p. 20].

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Considered by the Registrar-General's socio-economic classification, the largest losers when interest rates rose were the C2 group (of skilled manual workers). Their excess of mortgage debt over deposits was £6.8bn in 1989, a figure that undoubtedly increased during the 1980s as a result of the council housing sales policy. Their net loss in the face of a one point rise in interest rates was -£68.1mn, compared with a loss for the C1 group (administrative and junior managerial) of -£41.8mn. The gainers were the ABs (senior managers and professionals) by +£62mn., and the DEs (unemployed and pensioners) who have little mortgage debt but a small surplus of deposits that yielded a net gain of +£37.2mn [Costello 1990 p. 21].

Conclusions

In the United Kingdom, as in many other developed countries, the financial sector has expanded rapidly during the 1980s. At the same time, it has accommodated a wide range of new products, practices, and techniques. These changes, and some of the reasons for them, we outlined in sections 2 and 3. Of greatest interest to economists, however, are the implications for monetary (in effect "interest") policy.

In section 4 we drew attention to four of these. The first two might be described as negative implications. The narrowing of the spread between deposits and advances and a reduction in the non-pecuniary costs of borrowing encouraged the private sector to hold more liquid assets and short-term debt than before, causing a sharp fall in velocity and undermining the information content of broad money targets. Furthermore, the payment of interest on sight deposits prevented the subtle changes in *relative* interest rates required by the authorities if they were to be able to influence the growth of monetary aggregates. Second, the rise in personal sector indebtedness is recognized by the authorities as a problem. It is a problem that clearly worsens as interest rates rise, and we must therefore suppose that it places some constraint upon the use of interest rates for policy purposes.

At the same time, however, this increasing private sector liquidity created at least one positive opportunity for monetary policy. Higher levels of gearing mean bigger income and wealth effects when interest rates rise and fall. This is especially so for the personal sector where higher levels of floating rate debt have been used to finance the purchase of physical assets. A one point rise in interest rates now costs the U.K. personal sector 0.6 percent of disposable income. As an indication of the effect on aggregate demand this is almost certainly an underestimate for three reasons. The first is that this 0.6 percent is a *net* figure.

It is arrived at after allowing for the positive effect on interest income of the rise in rates. However, we know that a very high proportion of interest income is saved: it is subject to a very low marginal propensity to consume. Secondly, it is calculated on the assumption that a one point rise on advances is matched by a one point rise in deposit rates. But it is well-known that the spread widens in the upswing of the interest cycle. Third, the loss in post-interest disposable income is reinforced by the fall in present value of the physical assets on which the debt is secured.

Last, the growth of debt is not evenly distributed by income, age, and geographical location. Increasingly, monetary policy has significant redistributive effects. We have some indication of these effects as we noted above, but this information on winners and losers is based solely upon people's net indebtedness to building societies. A full view requires a look at the whole range of assets and liabilities held by particular groups. Here, further research is required, for post-Keynesians and institutionalists have been very slow in taking up the potential distributive effects of monetary policy in their research efforts. This article has made, perhaps the first step in this direction.

Notes

1. UK building societies are similar in many ways to the savings and loan associations of the United States. Prior to the Building Societies Act, 1986, they were strictly limited to lending funds secured by mortgage on residential accommodation and financing this by accepting retail deposits.
2. In a recent summary of off-balance sheet activities, M. K. Lewis [1988] distinguished "contingent claims" from "financial services," listing twenty-eight of the former and thirty-two of the latter. It would be particularly instructive to know the contribution to total profits (or even turnover) of off-balance sheet activities in recent years. For obvious reasons, this data is not readily available.
3. The explanations Lewis offers for the growth of this activity [Lewis 1988, section 4] are similar to those we list as responsible for financial innovation in general: changes in technology, changed economic environment, and increased arbitrage opportunities in capital markets. He also refers to the "regulatory tax hypothesis" (off-balance sheet activity avoids reserve and capital requirements); to the "moral hazard hypothesis" (banks know that customers are covered by deposit insurance schemes and therefore take greater risks); and to the "bank failure hypothesis" (customers prefer bank-guaranteed paper because it gives them a stronger claim against the bank in the event of liquidation) [Lewis 1988, section 4].
4. "Running down liquid assets" as an alternative to borrowing is an option available only at the individual level, not in the aggregate. The liquid asset

relinquished must, of course, be held elsewhere in the system, though not necessarily in its original form. Changes in the *composition* of the liquid assets aggregate occur continuously in response to changes in the relative costs and attractions of different types of asset and liability. Our argument is that changes in the interest differential between bank lending and bank deposits (as a subset of liquid assets) cause changes in the aggregate quantity of bank deposits.

5. The "corset," or "Supplementary Special Deposit Scheme" was a device used intermittently by the Bank of England between 1973 and 1979 to penalize banks whose interest-bearing deposits expanded at a rate exceeding a target rate specified by the bank. Supplementary special deposits (SSDs) had to be lodged with the bank on a rising scale linked to the size of the overshoot. Since the SSDs paid no interest they acted as a progressive tax on excessive deposit expansion. By penalizing excessive growth of interest-bearing deposits it was hoped the scheme would help widen the differential between deposit and advances rates by removing the disincentive to bid for deposits by raising interest rates. In this the scheme was largely successful, though it was abandoned in 1979 when the abolition of exchange control made it vulnerable to offshore disintermediation.
6. One referee has objected to our use of the differential between lending and deposit rates as a measure of the real cost of borrowing on the grounds that bank borrowing and deposits are not equally distributed. We concede the point that for people with no interest-bearing savings deposits the deposit rate is effectively zero and that the differential is therefore equal to the cost of bank borrowing. However, it is necessary only that people hold some such deposits for the differential to be relevant. Figures that show households to have net financial liabilities are therefore irrelevant. For the United Kingdom we simply do not know the distribution of interest-bearing deposits between income groups, but interest-bearing deposits are at least equal to personal sector holdings of non-interest-bearing bank deposits and have grown more rapidly in the 1980s. Moreover, it seems reasonable to suppose that low income and low wealth groups would hold interest-bearing deposits before accumulating other assets. Certainly there is no basis for believing that most people do not hold such deposits. We are not, of course, suggesting that this differential is the *only* variable of relevance to the borrowing decision.

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