The nature and implications of financial innovation

On 18–20 May, the Bank held a conference of senior officials from central banks and supervisory authorities in eleven countries[1] to discuss the implications of changes which are taking place in different monetary systems.

The conference grew out of the programme of work of a group within the Bank which has been studying a variety of developments within the UK monetary system and their central banking implications. The paper on page 363 was presented at the conference and reflects some of the work of the group. In the course of the group's work, it became clear that many of the factors which were bringing about change in UK monetary institutions were also at work in other countries. The conference was thus arranged to consider the nature of developments in monetary systems in different countries, and to identify issues of common interest and concern.

This note considers factors for change within monetary systems, and implications of such changes for the regulation of those systems, which were discussed at the conference. Particular reference is made to banking supervision and monetary control.

The process of financial innovation

All participants at the conference agreed that there has recently been an acceleration in the development by financial institutions of new financial instruments and techniques. The causes have varied from country to country but include the effects of economic developments such as inflation and fluctuating exchange rates; the increasing sophistication of companies and individuals in financial matters; greater competition for business between financial companies; the impact on financial activity of regulatory and supervisory structures; and recent rapid advances in the application of technology to financial systems and payment processes.

The uncertainty generated by unpredictable and large variations in inflation, interest rates and exchange rates has led to a number of important developments in financial markets, in particular a move away from long-term fixed rate instruments towards shorter-term and variable rate business. In the United Kingdom this has contributed significantly to the almost complete replacement of fixed rate corporate bonds by variable rate bank loans and to the marked success of building societies in attracting funds by paying interest rates more closely related to those in the wholesale markets. In the United States the growth of the commercial paper market and the success of the money market mutual funds (MMMFs) have the same origins.

There have also been behavioural and structural developments affecting the position of banks and financial institutions. In most developed countries the number of people who hold no form of account with a bank or other similar institution is now small, and the degree of financial sophistication on the part of individuals and corporations is much greater. They are more responsive to variations in the terms offered by different companies, as recent switching by depositors in the United States between the MMMFs and the competing accounts now offered by banks has shown. As competition between them has increased in response to these developments, financial companies have tended to disregard the boundaries which previously marked the preserves of other institutions. In Japan, for example, the securities companies are now marketing money-like instruments which allow the withdrawal of capital at short notice and without penalty. Similarly, in the United States securities houses are offering near banking through MMMFs and cash management accounts, while the banks are now moving into securities business in the form of discount brokerage. In South Africa, as in the United Kingdom, the traditional distinction between deposits with building societies and those with banks is becoming increasingly blurred. Moreover in a number of countries the postal giro systems and public sector savings schemes have competed successfully in other areas of banking business.

In addition to the evident increase in competitiveness among existing financial institutions, new sources of competition have also emerged. In the United States the most striking example has been the move by the country's largest retail chain, Sears Roebuck, into the provision and marketing of financial services. In other countries too commercial companies have moved increasingly into the

(1) The countries and authorities represented at the conference were Australia: Reserve Bank of Australia; Canada: Bank of Canada; Denmark: Danmarks Nationalbank; France: Banque de France; Japan: The Bank of Japan; Netherlands: De Nederlandsche Bank NV; New Zealand: Reserve Bank of New Zealand; South Africa: South African Reserve Bank; United Kingdom: Bank of England, Registry of Friendly Societies; United States: The Federal Reserve System, Office of the Comptroller of the Currency; West Germany: Deutsche Bundesbank.

financial sector through the development of corporate treasury functions which are active in the wholesale money markets and sometimes through the establishment of their own banking subsidiaries. A further source of potential competition for aspects of banks' domestic business comes from the international credit card companies, though in some countries they operate in association with banks.

The form which financial innovation has taken in many countries has been importantly affected by the regulatory structures governing financial activity, and is in turn bringing pressure to bear on those structures. Thus in the United States, the MMMFs grew up because official interest rate ceilings did not allow banks to pay market rates on retail deposits, and non-bank competitors have been able to establish financial networks partly because of regulations which limit the geographical spread of any one bank. In South Africa formal controls over banking business have led to the widespread use of techniques designed to circumvent these controls. These include the use of contingent liabilities in the form of guarantees and endorsements in place of outright lending by banks, and the development of a sizable inter-company market.

By contrast, the impact of financial innovation appears to be smaller in countries such as West Germany and the Netherlands where some regulatory constraints affecting financial markets have been phased out, boundaries between competing financial institutions are more liberally defined, and inflationary disturbances have been better contained. In these countries there has been a trend over several years towards universal banking (ie the provision by one bank of services such as securities brokerage, mortgage financing and savings accounts, alongside more traditional banking activities), and consequently the impact of recent developments in financial intermediation has been less pronounced.

The application of new technology to financial intermediation, and notably to payment systems, is a further factor which is likely to be increasingly significant in changing the nature of financial activity. Computers have of course been used by banks for many years to assist with their internal operations. Indeed, the use of paper based payment systems (particularly cheques) has grown so much over the past twenty years that without automation banks would have been swamped with costly and repetitive paperwork. All the major national banking systems now have an automated interbank settlement system, and in many countries the central bank plays an active part in the provision of such systems. On an international level the development of the Society for Worldwide Interbank Financial Telecommunication (SWIFT) has also played an important part in improving the speed and efficiency of banking.

Until recently, though, the use of new technology by banks has only had a limited impact on the services they offered to their customers. As a result of electronic data processing it has become possible for corporate customers to initiate direct debits and credit transfers on their own computers by magnetic tape exchange rather than by paper; but for retail customers the effect of automation for the most part has been confined to the installation of cash dispensing machines. In the past two or three years, however, there have been a number of developments in different countries which indicate that the pace of change in electronic payments is about to quicken.

With the number of paper based payments continuing to grow at a significant rate, encouraged in many countries by the practice of cross subsidising payment services out of other business, and with staff costs rising too, banks have become increasingly interested in providing alternatives to the cheque system. This has led to a number of experiments with new forms of electronic payment. Perhaps the most comprehensive approach has been that adopted in France where, with official support, several distinct experiments are being conducted with different electronic payment systems. In Denmark the banks are themselves introducing a national debit card—the Dancard—for use at point of sale, in cash dispenser machines and as a bank card. The UK clearing banks too have recently announced a decision to move towards a unified national point of sale system.

In parallel with moves towards electronic funds transfer at point of sale (EFT/POS) there have also been moves to enhance the interbank payment system. In some cases, as in Japan, this now consists of an on-line message system, but with next day settlement. In the United States the introduction of the Clearing House Interbank Payment System (CHIPS) has gone one stage further in providing an automated interbank payment system with same day settlement, and the Clearing House Automated Payment System (CHAPS) will provide a similar facility in London from 1984. These systems will not only allow member banks to make same day paperless payments, but will also make it easier for banks to offer 'office banking' facilities to their corporate customers that allow corporate treasurers a similar opportunity. In due course, further developments of EFT may also lead to a more widespread introduction of 'home banking', which has so far only been attempted on a very limited scale.

But although the developments in technology point towards greater use of electronic means of payment, there remains considerable uncertainty about the speed of such a change. A number of participants at the conference pointed out that the main impetus for change is the banks' own desire to move towards cheaper systems and a more direct recovery of costs. In some countries, such as France, this is complemented by official encouragement to exploit new forms of technology. There is, however, little evidence of customer dissatisfaction with existing payment systems and the banks may have to overcome significant consumer resistance if the new systems are to be successfully introduced.

The implications of financial innovation

The experiences of most countries represented at the conference suggest that the various factors mentioned are

leading to more active and competitive financial systems. The special place of banks as providers of financial services has been eroded, with the share of private sector savings held with banks falling in many countries. In some cases this trend has been reinforced by particular controls on banks' business which do not apply equally to their competitors. There are also some signs of a tendency towards the emergence of large 'financial supermarkets'. These developments raise a number of issues concerning the nature of financial regulation in general and banking supervision and monetary control in particular.

Financial regulation in general

With systems of regulation subject to increasing avoidance and disintermediation, it was generally accepted that attempts to retain strict barriers between financial institutions together with the relevant detailed institutional controls would be futile. Indeed, the way in which present structures of regulation should be adapted to the new and more competitive financial environment has been under consideration in a number of countries. The Campbell Commission in Australia suggested that a greater role be accorded to market forces in the financial sector, while in South Africa the de Kock Commission is examining ways in which the present regulatory structures should be amended to achieve the same objective. Similarly in the United States the Depository Institutions Deregulation and Monetary Control Act 1980, which dismantled a range of controls over banking business, was a direct response to the increasing competitive disadvantage which interest rate ceilings created for the banks; and in the United Kingdom the suspension of the supplementary special deposits scheme in 1980 was a tacit acceptance that a control of this nature was no longer effective.

There was, however, widespread agreement on the need to retain a formal structure of regulation over the financial system. The objective should be to move towards a system which is sufficiently wide ranging to encompass all institutions engaged in similar activities, but to avoid unnecessary interference with the evolution of financial activity. Nevertheless, it was recognised that the process of deregulation can itself pose problems both for financial companies and for the authorities. The effect of easing controls over various activities of financial institutions depends upon the speed with which such changes are implemented and the environment within which they take place. Thus in West Germany the gradual easing of controls affecting banking was spread over a period of some fifteen years from the late 1950s against a background of low inflation and stable interest rates and was accomplished with very little disturbance. In the United Kingdom by contrast the deregulations of 1969–71 preceded a period of rising inflation, considerable interest rate volatility and speculative excess, which was followed by the secondary banking crisis of 1973–74. In the United States too there are concerns that the savings and loan institutions, which have recently undergone extensive deregulation in an attempt to ease the pressures occasioned by former controls, may have difficulty in adapting their business successfully at a time of increasing competition and volatile interest rates.

In addition, developments in the financial system may bring novel concerns for the authorities. The new technology in payments, for example, raises a number of issues for consideration outside the areas of supervision and monetary control. The conference discussed the role of central banks in designing and running the interbank payment networks, and the extent to which free competition was appropriate in systems which require some measure of collective action to be effective. The development of new systems may also depend on regulations in other areas such as those governing access to telecommunications networks, the taxation of companies and the legal status of electronic payments.

Banking supervision

The central prudential concern associated with financial innovation is that developments now under way may make banking a more risky and uncertain activity. Supervisory authorities, in seeking to maintain the stability of the banking system and to protect the interests of depositors, need to ensure that changes are introduced in a way which takes account of these risks without frustrating the changes themselves. Thus the conference considered how supervision can best be organised to meet these new demands.

The principal concern of many participants was the problems which could emerge if financial innovation led to excessive competitive pressures. Three tendencies were identified: excessive competition could erode the profitability of banks directly through downward pressure on margins; banks could be prompted to enter new areas of business which carry risks incompatible with banking or for which they lack the necessary management expertise; and non-bank companies could be encouraged to move into banking or quasi-banking business. Such institutions might lack banking skills, and their supervision could be based on differing standards and aim at different objectives, or they might not be subject to supervision at all.

A second source of concern was the increased volatility of interest rates. Banks are now potentially at greater risk from variations in interest rates because financial innovation is increasingly allowing depositors to exploit interest rate differentials, with implications for profitability and funding. Banks will need to pay continuing attention to the management of liquidity and, in particular, to a more systematic matching of the interest maturities of assets and liabilities to minimise the risks from unexpected movements in interest rates.

Third, technological developments in banking, and notably in money transmission systems, bring their own particular concerns. Banks have come to rely extensively on computers to perform a variety of functions and in many cases to revert to manual processing would be impossible. Banks therefore face a number of operating risks: failure of the equipment, or of the power supply, loss of file records, and industrial problems with key staff could affect a bank's ability to meet its obligations. The cost of adequate protection against such risks, and also against fraud, is high.

Moreover, linkages between individual banks' computers, notably for settlement and payment systems, have compounded these risks. Individual banks rely on the performance of other banks in the system, but a new risk of rapidly spreading 'contagious' disruption has emerged, where a bank is technically unable to meet its obligations because of system failures in another bank. International banks are to a large extent dealing with the same counterparties in most banking centres around the world, so the technical inability of a bank to meet its obligations in one centre could also disrupt settlement systems in others. In the United States where electronic systems have probably developed further than elsewhere, the three major supervisory agencies already have a procedure to monitor the CHIPS system. Other supervisory authorities are also having to develop their understanding of new systems in order to monitor and perhaps regulate them.

With these considerations in mind the conference discussed how supervision could be most effectively organised and how supervisors could best respond to the changes in prospect. The scope of supervision needs to be clearly and sensibly defined. Because distinctions between types of financial institutions are becoming blurred, supervision should be based on functional rather than institutional criteria, and institutions engaged in similar activities should be treated on a common basis. No one definition of a bank or of banking would avoid all the border line problems, but a general set of criteria in terms of deposit-taking and lending would probably be sufficient to encompass institutions which should fall within the supervisory framework. In countries where the supervision of financial institutions is shared between different authorities this implies continuing contact and close co-operation between them.

Within this framework the approach should be sufficiently flexible to allow institutions to respond to change in financial markets. It might not be possible or desirable to set precise rules for all aspects of a bank's business. Where possible the system should acknowledge the role of markets in the development of new products and the efficient allocation of resources. In this connection there was close discussion of the value of wider disclosure of information by banks; this might allow the discipline of market forces to supplement supervision. Some participants favoured more disclosure of banks' operations while others were more reserved, arguing that banking remained crucially dependent on confidence and that greater disclosure could exacerbate problems which might be better resolved between the supervisor and the supervised institution in confidence.

But an adaptable system of supervision does not imply that the authorities must simply follow innovation by reacting to it. Supervisors have a responsibility to identify the limits of acceptable activity. Some activities might be considered inappropriate for banks, for example where there are potential conflicts of interests or dangers of significantly compounding risks (eg between banking and certain kinds of insurance). In these cases the supervisory authorities should issue guidance on the acceptability of particular activities, including how corporate structures might be organised to minimise such risks.

In a time of changing activities and new types of risk, it is particularly important that banks maintain adequate capital as a cushion against loss, and maintain high quality management. For some years the capital ratios of banks in most countries have declined steadily. Strengthening banks' capital resources was identified as the single most important target over the next few years to which supervisors should aim in their task of maintaining the health and stability of the banking system. This task is likely to be made both more difficult and more important by the wide fluctuations in interest rates which may continue, partly as a product of the authorities' commitment to maintain monetary control.

Monetary control

The difficulty of designing and implementing monetary policy at a time of significant financial innovation has received considerable attention in the past two years. In large part this is because of the complications experienced by the US monetary authorities with interpreting and controlling narrower aggregates, M_1 and M_2, in the wake of recent deregulation. But this problem has not been confined to the United States. Conference participants expressed varying measures of concern as to the effects of innovation on monetary management in their economies; such problems were least acute in West Germany where there appeared little evidence of financial changes that could weaken the effectiveness of monetary control.

As payment of interest on current accounts continues to become more widespread the value of certain monetary aggregates as intermediate targets could become progressively more limited. Already in several countries M_1 (as usually defined) is no longer a clear-cut and simple measure of transactions balances. Moreover, technological innovations seem likely to have a significant, if unpredictable, effect on the velocity of circulation of transactions accounts. Reliance on other measures of monetary conditions will therefore increase. Some participants argued that more attention should also be paid to wide measures of credit outstanding. But most saw a need to retain monetary aggregates, even though their interpretation would become an increasingly difficult judgement.

There were different views about the methods of control available to the authorities. The principal difference lay between those who consider that direct controls over banks' business can still be effective and those who believe that the problems of disintermediation associated with direct controls dictated a move towards market oriented methods that rely on interest rates. Moreover, even among countries using direct controls there was an awareness that these would become increasingly difficult to sustain as technological innovation made it easier for domestic banking business to be done offshore.

Except perhaps in countries using direct controls, action to control monetary growth will alter interest rates, whether through operations to affect the monetary base or more directly. But the impact of such changes in interest rates on the financial and economic system will itself be affected by other changes that are taking place in the financial system. Thus a redistribution between transactions balances and investment assets that the monetary authorities might seek would most easily be achieved by varying relative interest rates on these assets. When a substantial proportion of transactions balances are held on non-interest-bearing terms this can be done by changing the general level of interest rates. But as competition and innovation encourage banks to pay market-related interest rates on transactions balances it becomes harder to effect this redistribution.

In addition, the more that credit is supplied at floating rates the smaller may be the effect of interest rates on the demand for credit. This problem is already apparent in the United Kingdom, where bank overdrafts and mortgage finance are on variable rates, but is less familiar elsewhere. In this situation increases in interest rates may have a smaller impact on the demand for credit, because the incentive to the marginal borrower to wait for lower rates is reduced, but perhaps a wider impact on aggregate expenditure because higher rates affect the behaviour of existing borrowers as well. Consequently interest rate changes may have a direct impact on the final objectives of policy—output and inflation—before they are reflected in the intermediate monetary objectives.

Thus financial innovation may make monetary aggregates increasingly insensitive to small changes in interest rates. Consequently the pursuit of monetary control may make interest rates more volatile and the financial system less stable. It is in this context that the interdependence between a sound banking system and effective monetary control is most clear.

These problems may turn out to be transitional rather than fundamental. For the time being, however, in a number of countries established monetary relationships are ceasing to hold, and precise targets for particular aggregates are likely to have limited value, at least in the next few years. It therefore seemed that monetary authorities would increasingly need to examine a range of indicators including real interest rates, exchange rates, inflation and output as measures of the stance of policy.

Nevertheless, there was a wide measure of agreement that the setting of quantified monetary objectives remains an important function of central banks in combatting inflation and inflationary expectations. There could be a danger of monetary signals being misinterpreted if the authorities exercised too much discretion in their interpretation of movements in target aggregates.

Conclusions

There seems little doubt that for many reasons monetary systems are undergoing significant change: and, even if in some cases the conditions which gave rise to change are removed, with for example a return to low inflation and simpler regulatory structures, this process will not now be reversed. Indeed, much of the change has been a response to the demands of users of financial services and is clearly of value to them. The experience of many countries is that central banks and official regulation cannot effectively stand in the path of change for long and must eventually adapt to it; and the problems associated with deregulation are likely to be greater the longer the process of adjustment is postponed.

Perhaps the most important conclusion of the conference was that in adapting to the changing environment, central banks will have to be consistent in their various activities. As markets become more homogeneous the actions of supervisory and monetary control authorities will interact much more directly, and will require greater dialogue among authorities within particular countries and on an international scale.