

THE ROLE OF INSTITUTIONAL INVESTORS IN THE EVOLUTION OF FINANCIAL STRUCTURE AND BEHAVIOUR

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Introduction

This article seeks to address the evolution of financial structure in the major OECD countries from a relatively novel perspective. Whereas much of the work in this area has focused on developments in banking² as a central factor, with capital markets and institutional investors seen as something of a 'black box', this paper maintains that the development of institutional investors has been a much-neglected driving force in financial change. In effect, to an extent that varies between countries, institutional investors have proven able to fulfil many of the functions of a financial system better than their competitors (such as banks and direct holdings of securities by the household sector). While it is not asserted that all developments may be explained by institutionalisation, nor that their impact has been identical between countries, it is suggested that a focus on institutions provides both a novel perspective on 'banking' issues and also explains in itself some key developments in financial structure and behaviour³. Given that further development of institutional investors seems certain, not least in countries such as Australia, there are also important implications for the future.

The first three sections of the paper are broadly introductory. In a first section we examine data for the major OECD countries in order to assess - without analysis at this stage - the key changes in financial structure and behaviour that are actually observable empirically. In the second section, we outline the functions of the financial system, which provides an organising framework for the rest of the article. The third section provides an overview of the characteristics of institutional investors, and the comparative advantages they display in terms of functions, which together with fiscal and regulatory elements provide the main reasons for their growth.

The fourth section, which is the core of the paper, examines the role of institutional investors in the evolution of financial structure and behaviour in recent years, in the light of these introductory sections. We organise this section using the various financial functions identified in Section 2, and show that in each case, institutions have played a major role in inducing financial change. More specifically, under the function of the financial system of *facilitating clearing and settling payments*

² The following, from Blommestein (1996) may be considered to summarise this 'banking' view succinctly (although see also the quote in footnote 3); "in most OECD countries, financial systems in general, and the banking sector in particular, are going through a period of major and wide-ranging structural changes. Several factors can be identified.....domestic deregulation and external financial liberalisation resulted in increased competition for the banking industry. On both the liabilities and the assets side, banks faced intense competition from non banks. Funding became more expensive...banks became more aggressive in the riskier parts of the credit market....these developments led to a pronounced deterioration in the profitability and asset quality of banks in many OECD countries...the banking industry witnessed major banking failures or banking crises in many OECD countries...resulted in a thorough restructuring of banks....."

³ In making this suggestion, we follow the OECD (Blommestein and Bilotto (1996)), who noted that "many of the trends that have characterised securities markets in the last fifteen years...securitisation, the increasing growth and sophistication of bond markets, use of derivatives, highly leveraged corporate restructurings, the growth of equity markets, developed in large measure in response to the demands of the institutional investor community". They went on to note "in view of the growing influence that institutional investors exert...it is generally recognised that policy makers need to take a close look at both the functioning and modus operandi of these institutions..." This article is also a contribution to that process of examination; see also Davis (1995a), Huizer (1990).

we discuss institution/bank competition on the liabilities side as well as their effects on capital market structure. Under *pooling of funds* we assess institution/bank competition on the asset side and the relation of institutions to securities market development. *Transferring of economic resources* covers institutions' effect on long term saving (transfer over time) and cross border investment (transfer over space). *Managing uncertainty and controlling risk* looks at use of innovations such as derivatives by institutions. *Price information* notes aspects of capital market pricing and volatility and effect of institutions thereon. Under *dealing with incentive problems* we examine corporate governance issues, debt finance and principal-agent problems in fund management. *Non functional aspects* assessed include effects of institutions on regulatory provisions.

The final section looks briefly to the future, where the ageing of the population and the difficulties this may pose for social security systems make further development of institutional investors, and hence of capital markets, extremely likely. This could, for example, impinge further on the role of banks in the financial system, notably in countries where institutional development has not been marked to date, and may have particular implications for corporate finance and corporate governance. In addition, implications of the growth of institutions for monetary policies are considered.

1 Principal developments since 1970

In the period since 1970, there have been widespread changes in both financial structure and behaviour as banks have been deregulated and capital markets have developed. In this section we provide data for the G-7 countries which illustrate these changes, drawn from national flow-of-funds balance sheets. Summary averages are also provided for the G-7, the "Anglo Saxon countries" (UK, US and Canada) and for "Continental Europe and Japan (excluding the UK)" (Germany, Japan, France and Italy). The tables provide a view, first of the actual scale of the changes and secondly the degree to which they were apparent for the different countries. In practice, the broad directions of change are remarkably common, both for financial systems traditionally seen as "bank dominated" and "market dominated".

Summary indicators of financial structure show that the overall size of the financial superstructure has tended to grow sharply over time (Table 1), with ratios of total financial assets to GDP rising from around four times GDP in 1970 to six times in 1994.⁴ The overall degree of financial intermediation has risen (Table 2) in most countries, while the share of banks has tended to decline, even in the traditionally bank-dominated economies (Table 3). In contrast the share of financial intermediation undertaken by institutional investors has risen sharply, albeit at a higher level in Anglo-Saxon countries. Banks' balance sheets tended to grow rapidly in the 1980s, but levelled off in the 1990s. Interest-margins narrowed; banks' income stream has tended to shift towards fee income, while major increases in bad debts are apparent (Table 4).

⁴ The table is based on the sectoral breakdown of the economy into households, companies, banks, other financial institutions, public and foreign sectors.

As regards instruments (Table 5), as a share of total financial claims, the volume of securities outstanding has risen, notably in terms of bonds and money market paper, while the share of deposits and loans has declined. Reflecting the growth in the overall financial superstructure, all types of financial claim have risen relative to GDP.

Household sector balance sheets (Table 6) have seen an increase in both assets and liabilities relative to GDP. In all cases, net financial wealth has also increased relative to GDP, albeit more so in Europe and Japan. Within gross household assets, the share of deposits have fallen except in Japan and Canada (Table 7). Direct securities holdings have been flat or declining, notably for equities in Anglo-Saxon countries. In contrast, there has been a universal increase in asset holding via institutional investors. Institutions themselves, such as pension funds hold far more equities (and foreign assets) than households, and less liquid assets (Table 8). Corporate finance (Table 9) has been less subject to common trends than household finance. There has been an overall increase in financial liabilities, but this has covered both debt and equities. In countries other than the UK and Italy, there has been an increase in money market and bond financing, while the loan ratio declined except in Germany and Canada (and for Germany this appears to be linked to reunification). The equity ratio has risen except in those two countries. Structures of equity holding has tended to move away from the household sector and towards institutional investors, either domestic or foreign (Table 10).

Cross border portfolio investment (Table 11) has increased sharply in terms of volume, while its nature has changed radically from mainly banking flows to flows dominated by securities. As noted, securities markets have tended to grow in terms of market capitalisation quite significantly (compare Table 5), and even more in terms of turnover (Table 12). But in addition there has been a change in their nature, in the case of securities markets from purely retail markets to a form of polarisation between retail and wholesale business, while in foreign exchange markets the importance of institutions has increased.

Overall price volatility (Table 13) has not shown a marked increase in bond, equity and forex markets (there is rather a correlation with fundamentals such as industrial production). But there have been periods of instability whereby relatively thin securities markets have tended to undergo crises of illiquidity while liquid markets have undergone large perceived deviations of prices from fundamentals. There have also been major banking crises. Recent episodes of instability are listed in Table 14 (see Davis 1994, 1995b, 1995c).

Financial innovation has been rapid in the 1980s and 1990s. Particularly noteworthy is the growth of derivatives markets, and development of commercial paper (Table 15); also one could instance the expansion of securitised debt. Meanwhile, deregulation of both banks and of financial markets has proceeded rapidly. Virtually all OECD countries have abolished exchange controls; in the banking sector, the key changes have been abolition of interest-rate controls, or cartels that fixed rates, and abolition of direct controls on credit expansion (Table 16). In the capital markets there have been abolition of regulations on fees and commissions. Key changes affecting both sectors include removal

of regulations restricting establishment of foreign institutions and of regulations which segment financial markets and institutions.

2 Functions of financial systems

As background to the overall discussion, this section summarises the functions that financial systems are expected to fulfil. This provides a constant feature both of long term developments⁵ and of more recent trends; evolution of institutional forms and of financial structure may be seen as a form of adaptation and improvement in the ways these functions are fulfilled, under pressure of competitive forces. In effect, whereas the institutional form taken by financial systems is subject to evolution through time, the **functions** fulfilled by the financial system in the context of its overall function of resource allocation are relatively fixed. Various paradigms have been proposed⁶, here we highlight and utilise that proposed by Merton and Bodie (1995). They focus on six functions, as follows:

(i) the provision of ways of *clearing and settling payments* to facilitate exchange of goods, services and assets. Banks, for example, may offer cheque accounts, cash cards and wire transfers, while money market funds may also offer transactions services or non-financial firms may offer credit cards. Systems for transferring payments and for trading, clearing and settling securities transactions may also fall under this heading;

(ii) the provision of a mechanism for *pooling of funds* from individual households so as to facilitate large-scale indivisible undertakings, and *the subdivision of shares* in enterprises to facilitate diversification. Mutual funds, other institutional investors and banks provide means to pool funds, while securities markets and the process of securitisation of claims are examples of subdivision;

(iii) provision of ways to *transfer economic resources* over time, across geographic regions or among industries. By these means, households may optimise their allocation of funds over the life cycle and funds may be optimally allocated to their most efficient use. A capital market facilitates efficient separation of ownership and control of capital, thus aiding specialisation in production. A range of financial intermediaries are active in these processes, not least pension funds, which facilitate saving for retirement and finance of corporate investment;

(iv) provision of ways to *manage uncertainty and control risk*. Through securities and through financial intermediaries, risk pooling and risk sharing opportunities are made available to households and companies. There are three main ways to manage risk, namely hedging, diversifying and insuring. The role of derivatives in this process has come to the fore in recent years. More generally, separation of providers of working capital for real investment (personnel, plant, equipment) from providers of risk capital who bear financial risk facilitates specialisation in production;

(v) providing *price information*, thus helping to co-ordinate decentralised decision making in various sectors of the economy. Financial markets provide not only means to trade but also information useful

⁵ See Annex 1

⁶ Sanford (1993), Hubbard (1994), Kohn (1994) and Rose (1994) for example.

for decision making; for households, yields and securities prices provide information in consumption-saving decisions and in allocating portfolios. Firms may equally make investment and financing decisions on the basis of market prices. Central banks may use market prices as indicators of expectations. Not only prices per se but implied volatility (derived from options prices) may be relevant in this context;

(vi) providing ways to *deal with incentive problems* when one party to a financial transaction has information the other does not, or when one is agent of the other, and when control and enforcement of contracts is costly. Moral hazard and adverse selection are inevitable in such cases, but features of the financial system, such as delegation of monitoring by households to specialised financial intermediaries may reduce such problems. The issue remains, however, of how households may monitor the intermediaries themselves, or whether the latter have the right incentives to act in line with the interests of investors.

It will be seen in later sections that these functions have been increasingly fulfilled by institutional investors in recent decades. This is partly owing to financial innovations that have enabled securities market investors to fulfil many of the functions traditionally fulfilled by banks, thereby eroding banks' comparative advantage. But it also relates to a deterioration of the position of banks in the wake of widespread loan losses, to institutions' superiority to direct holdings of securities by households, to the increased demand for longer term saving as the population ages, and to some direct incentives to invest via institutions (such as fiscal benefits to pension funds). These tendencies have directly affected the patterns shown in the data of Section 1.

3 Institutional investors

The theme of this paper is that the growth of institutional investors is perhaps the most important of the changes described in Section 1 and the tables. It has had a pervasive effect on financial structure and behaviour in general, as institutions have assumed a more important role in fulfilling the overall functions of the financial system. In order to develop this point, it is necessary to go into more detail concerning institutional investors, first assessing their characteristics and then reasons for growth.

3.1 Characteristics of institutions

Institutional investors may be defined as specialised financial institutions which manage savings collectively on behalf of small investors, towards a specific objective in terms of acceptable risk, return-maximisation and maturity of claims. The essential characteristics of institutional investors, which pervade the various effects which are traced below, are;

Provision of a form of *risk pooling* for small investors, thus providing a better trade-off of risk and return than is possible via direct holdings. This entails, on the asset side, putting a premium on *diversification*, both by holding a spread of domestic securities (which may be both debt and equity) and also by international investment. There is also a preference for *liquidity*, and hence for use of large and liquid capital markets, trading standard or 'commoditised' instruments, so as to be able to

adjust holdings in pursuit of objectives, in response to new information. Any holdings of illiquid assets such as property typically account for a relatively small share of the portfolio. A backup for the approach to investment is the ability to absorb and process *information*, which exceeds that of individual investors in the capital market. On the other hand, unlike banks, institutions rely on public information rather than private. Most institutions have *matched assets and liabilities*, unlike banks, which tends to minimise the risk of 'runs' from such institutions (one exception is life insurers' "Guaranteed Income Contracts"). Moreover, in many cases they have *long term liabilities*, facilitating holding of high risk and high return instruments. There is however, a question regarding the stability of money market mutual funds, as like banks they offer redemption of liabilities at par (other types of mutual fund may face attenuated difficulties of a similar kind).

Size of institutions has a number of important implications. In terms of economies of scale, ability to *transact in large volumes* typically leads to a lowering of transactions costs. Size also enables them to invest in *large indivisible investments* (although there is a tension with desire for diversification). Considerable *countervailing power* also results from size. This gives rise to ability to ensure fair treatment by capital market intermediaries on the one hand, and on the other to give potential for improved control over companies in which they invest, thus reducing adverse incentive problems.

Further characteristics arise from the process of *fund management*, a service involving management of an investment portfolio on behalf of a client. On the one hand it gives rise to an essentially *fiduciary* relationship to the ultimate investor, which often entails a degree of caution in the portfolio strategy and desire to limit risks incurred. On the other, such delegation raises *principal-agent problems*, as unless the fund manager is perfectly monitored and/or a foolproof contract drawn up, he may act in his own interests (e.g. in generating excessive commission income) - or, particularly in Continental Europe and Japan, in the interests of related financial institutions - and contrary to those of the liability holders. The various means used (particularly in Anglo-Saxon countries) to counteract such problems, however, mean that fund management gives rise in turn to potential for *herding behaviour*. This may arise notably from the desire of managers to show they are of good quality, for example in the context of short mandates, owing to the pressures exerted by performance measurement, or fear of take-over (for life insurers or closed end funds).

The discussion above should of course not be taken to imply that institutions are homogeneous. Institutional investors comprise pension funds, life insurance companies and forms of mutual funds. The main differences stem from liabilities. *Pension funds* provide means for individuals to accumulate saving over their working life so as to finance their consumption needs in retirement. Returns on such funds may be purely dependent on the market (defined contribution funds) or may be overlaid by a guarantee by the sponsor (defined benefit funds). *Life insurance companies* have traditionally provided insurance for dependants against the risk of death at a given time in the future, but are increasingly used as long term saving vehicles for pensions, to repay loans for house purchase etc.

Mutual funds differ from these long term institutions by offering short term liquidity on pools of funds, albeit at rates depending on current market prices, either via direct redemption of holdings

(open ended funds) or via ability to trade shares in the funds on exchanges (closed ended funds)⁷. They may provide this service either for individuals or for companies and other institutions. Money market mutual funds, by holding only liquid short term money market assets, are able to offer redemption of holdings at par and hence provide payments facilities. Another special type of closed end fund is a hedge fund, which seeks to pursue high returns at the cost of taking high-risk, leveraged positions.

3.2 Reasons for the growth of institutions

Section 1 showed that institutional investors play an increasing role in collecting saving, investing in securities and other financial assets, as operators in securities markets, cross border investors and owners of companies. Logically, growth of institutions is explicable either in terms of the *supply* side - a changing comparative advantage in terms of the functions they fulfil (related to the characteristics described above) - or an increased *demand* for certain functions on behalf of end-users.

As outlined at the end of Section 2, a combination of these factors is considered to be responsible for growth of institutions. On the supply side, innovations related to securitisation have reduced institutions' costs (e.g. via improvements in capital market structure which lower transactions costs, enhance of price information, and allow use of derivatives in risk control) and made them able to fulfil a wider range of functions (e.g. by facilitating growth of money market funds and enabling loans to be securitised). Their own growing size has improved ability to exert control over borrowers. Meanwhile banks have offered less attractive products owing to regulatory burdens and the need to rebuild capital following loan losses. On the demand side, institutions have been able to fulfil the need for long term saving at high return and low risk that is increasingly required as the population ages - and which has been stimulated by fiscal incentives. To offer more detail on reasons for growth, we return to Merton and Bodie's functions of the financial system which were set out in Section 2;

(i) *Clearing and settling payments*. Owing to technological advances and the innovation of money markets themselves, money market mutual funds have been able to develop, and to offer transactions accounts, based on units which are redeemable at par. Note, however, that growth may have been facilitated by impact of loan losses, regulations and reserve requirements on banks, as well as fiscal incentives. A further point to be made is that institutions have themselves influenced the structure of markets, for example by encouraging development of wholesale markets, as well as influencing the form of trading and settlements systems more generally. These developments have offered cost advantages to institutions over individual securities investors and banks.

(ii) *Pooling of funds*. As noted, pooling is a fundamental characteristic of institutions, which given their size and consequent economies of scale, they can perform much more readily than households. In this context, one may note the mutually reinforcing development of securitisation of individual assets (such as loans), which has provided a ready supply of assets in which institutions may invest in competition with banks.

⁷ In practice, various hybrids also exist, with open ended funds being traded and some untradeable closed end funds.

(iii) *Transferring economic resources.* The most crucial point is that ageing of the population, combined with curtailment and/or growing lack of confidence in the promises of social security pension systems has led to increased demand for transfer of resources over time, via growth of pension funds per se and also to retirement savings held in life insurance companies and mutual funds (Huiser 1990, Davis 1995a). More generally, there is in OECD countries an increased demand for long term saving, related to accumulation of wealth. As regards transfer across space, one may highlight the increased amplitude of international portfolio investment by institutions, motivated by desire to diversify and reduce risk, which has supplanted the bank-driven flows which were typical of the 1970s.

(iv) *Managing uncertainty and controlling risk.* Institutions are well-placed to use derivatives and other means of risk control on their portfolios; many of the related innovations have been introduced or developed especially to cater for institutional demand. On the liabilities side of their balance sheet they may provide forms of insurance to clients (life insurance, defined-benefit pension funds).

(v) *Use of price information.* The ability of institutions to employ information at lower cost than individuals and competing institutions has been highlighted above, and this is an important additional reason for their growth.

(vi) *Dealing with incentive problems.* Institutions have a comparative advantage over individual investors in dealing with issues of corporate governance, given the size and voting weight that they can wield. More generally, institutions as a whole exert influence on governments not to adopt lax fiscal or monetary policies, for fear of the market consequences. On the other hand, it should be stressed that there are limits to institutional involvement; banks' comparative advantages in overcoming asymmetric information in loans for small firms has ruled out securities market intermediation of their liabilities to date. And there are important incentive problems in the fund management relation itself.

(vii) Moving outside the functional framework, *fiscal advantages* which have often been accorded to institutional investors⁸. The tax advantage of exemption of contributions and asset returns is common for pension funds, where provision of such funds is voluntary for companies or individuals. But life insurance contributions have also often benefited from tax exemption, and mutual funds in some

8 The power of tax privileges is illustrated by the decline in institutional assets that may follow radical tax reform, such as removal of pension funds' tax benefits in New Zealand and on money market funds in France. Are tax privileges to institutions warranted? Under a pure expenditure tax, which is economically justified as not distorting the consumption/savings choice, all forms of saving would be equally tax advantaged. Households save for a variety of purposes (retirement, to cover sickness, unemployment, years of childbearing, purchase of goods or assets, and for bequests) why should certain forms of institutional saving be specially favoured? Reasons for taxing long term saving relatively leniently include, first, the need to assist people to save enough to maintain post retirement living standards; second, a desire to encourage people to save and thus cut the cost to the state of means-tested social security benefits; third, to raise the general level of saving, and fourth, that long term institutions are in some way superior to other types of financial institution. The first and second seem most convincing (although an alternative is forced retirement saving, as in Australia and Switzerland); the third is cast into doubt in c(i) below, while the fourth must rely on the points made regarding supply of long term capital market instruments in the same section.

countries also⁹. Equally, on the *regulatory side* institutions are not typically subject to minimum reserve requirements, an implicit tax on banks, although portfolio regulations on institutions may at times act in a similar way. The development of institutions has been an important catalyst for financial deregulation more generally.

4 Institutional investors and financial change

This section, the core of the paper, seeks to analyse the role institutions have played in the financial changes summarised in the data of Section 2. We employ the Merton/Bodie functional framework to organise this section, following the discussion of reasons for growth of institutions set out above. Of course, there are some overlaps, since some of the trends cover more than one function.

4.1 Clearing and settling payments

4.1.1 Institution-bank competition on the liabilities side

Money market funds are diversified open-end investment companies that invest in short-maturity and highly-rated debt securities. They seek to maintain a stable asset value per share of par, which is facilitated by the type of money-market securities in which they invest. Shareholders are allowed to redeem funds by use of cheques, thus giving transactions services identical to bank accounts. Besides being a major financial innovation per se, money market funds have two important effects on financial structure, providing competition to banks and spurring the growth of money markets. Their growth has been a particular feature of countries such as the United States and France (it is of interest that their development has been much less marked elsewhere, to date).

The development of money market mutual funds in the US in the 1970s, a period of high money market rates, took the form of massive disintermediation of bank deposits, whose interest rates were subject to control, unlike the return on money funds. This development led to abolition of controls on rates for banks and thrifts in the early 1980s. But growth of money market funds continued, since yields remained higher than banks would offer, due to the effect of reserve and capital requirements on banks' spreads. Moreover, Mack (1993) argues that even longer term mutual funds may provide effective competition for banks, given their liquidity, despite capital uncertainty. Similarly in France there has been a major expansion of money market funds, stimulated partly by tax incentives. In Japan, medium term bond funds (Chikoku) have competed with banks by offering liquidity and higher yields than deposits. Competition on the liability side is an important aspect of the competition faced by banks in these countries which has led to a narrowing of margins and greater risk taking, see 4.2.2 below.

Besides the direct effect on banks, one may highlight the effect on wholesale money market of these developments. These markets have been a crucible for many of the financial innovations of recent years, notably CDs, CP, deposit notes, swaps and repurchase agreements (Stigum 1990). This has in

⁹ In some countries such as Germany, money market funds (in Luxembourg) have been an instrument of tax evasion.

turn encouraged corporations to switch to money markets for their short term financing needs, thus disintermediating banks also on the asset side (see 4.2.2).

Meanwhile, there is a debate about possible risks of "runs" from money market funds in the event of sharp price changes and a decline in market liquidity (Wojnilower 1995). Such runs may be seen as particularly likely where money market funds offer explicit promises that "par value" will be retained for their liabilities, as this relies on ongoing ability to liquidate assets at stable prices. Lack of diversification, credit risk on the assets held, use of leveraged plays by means of derivatives and declines in money market liquidity could all be reasons for runs from money market funds. If runs prove contagious, and there is widespread impulsion to sell assets, liquidity failure and price falls could intensify, to the detriment of the whole sector. Intense competition and lack of serious adversity so far could be reasons for managers to be complacent about risk, which are familiar to students of banking crises (Davis 1995b). Note that similar issues may arise for guaranteed income contracts sold by life insurers, as US experience has already shown.

4.1.2 Market microstructure

The development of institutional investors has had a pervasive effect on capital market structure. Their key demand is liquidity, i.e. ability to transact in large size without moving the price against them¹⁰, anonymously and at low transactions costs. Rapid and efficient settlement is also essential. They are relatively unconcerned by the firmness of investor protection regulation, as they have sufficient countervailing power to protect their own interests against market makers and other financial institutions. But they are also extremely footloose and willing to transfer their trading to markets offering improved conditions. In effect, this feature renders the market for securities trading services "contestable" (i.e. any excess profitability is vulnerable to new entry).

Specialised wholesale markets which focus transactions and increase liquidity, usually centred on well-capitalised position-taking market makers ready and able to facilitate large trades, have tended benefit from their activity in recent years. Liquidity of wholesale capital markets may be aided by deregulation and reduction in commissions, that institutions have proven well-placed to press for. Increases in liquidity should in turn be beneficial more generally to the efficiency of capital markets, and lead to a reduction in the cost of capital.

As regards equity markets, growth of institutions in the US has led to development of off-exchange "block trading", disintermediating the traditional specialists. London's SEAQ International is another example; in the late 1980s and early 1990s it benefited relative to competitors in Continental Europe from continuous trading, capitalisation of market makers and lack of transaction taxes on non-UK stocks. Its initial success was marked; in the early 1990s it carried out 50% of French and Italian equity trading and 30% of German, for example. 64% of global cross border equity transactions, and

¹⁰ Whether they also require immediacy is open to dispute (Schwarz and Steil 1996).

95% of European ones, were handled by SEAQ¹¹. Its relative liquidity was reflected in transaction sizes - \$275,000 compared with \$25,000 in Paris and \$50,000 in Frankfurt.

But contestability means such markets are not invincible. SEAQ stimulated deregulation and shifts from open-outcry call-auction markets to electronic continuous auction markets in Continental Europe such as Paris, Madrid, Brussels and Milan (Pagano and Steil 1996). Their competitiveness in trading domestic stocks was helped by their inherent informational advantages, as well as liberalised commissions, block trading, and dual-capacity intermediaries. These developments eroded SEAQ's comparative advantage and, combined with a lesser willingness of London market makers to commit capital to their operations following some major losses, led to a decline in liquidity (although SEAQ remains popular for block and programme trades).

An emerging challenge to all traditional exchanges is posed by off-market trading via proprietary trading systems (such as Instinet in the US and Tradepoint in the UK), which enable direct and anonymous trade to occur among institutions and broker-dealers. In effect, institutions provide their own liquidity in periodic call markets in such systems. Profitability of market making is hence under further pressure, encouraging "proprietary trading". Meanwhile, the growth of institutions may entail a tiering of markets, with order-driven and heavily-regulated domestic markets retained for retail investors and for small company stocks.

This section focuses on equity markets, but as discussed in IMF (1994), governments have also sought to modernise the infrastructure of bond markets, driven by the need to make their debt more attractive to international institutional investors (in effect, emulating US market practices). They hope thereby to reduce costs, in the context of abolition of exchange controls, which mean domestic funding would only be available at damagingly high interest rates. But they hence also provide infrastructure which private issuers could utilise. Measures taken by OECD governments included primary dealer systems; auctions; issue calendars; vehicles for financing positions (such as repos); abolition of withholding taxes¹²; derivatives markets; tailoring of issues; benchmark issues; improvements in clearing and settlement systems; and "global bonds".

4.2 Pooling of funds

4.2.1 Security markets and institutions

Before assessing the effects of institutions on banks and households, it is relevant first to ask how the growth of institutions relates to that of capital markets in general terms. Following the discussion of Section 2, securities markets are conceptually means whereby claims may be subdivided and made tradable to facilitate diversification. Despite the general trend for size of institutions to increase, the contrasts between countries in the size of both institutional sectors and securities markets raises the issue whether securities markets are a precondition for development of institutional investors or

¹¹ Howell and Cozzini (1992). Note, however, that not all the trade was diverted, some was new trade generated by the rise of international portfolio investment by US institutions (see 4.3.2 below).

¹² When New Zealand abolished withholding taxes, the immediate fall in the bond yield was reportedly more than sufficient to cover the loss of tax revenue.

whether institutions may emerge first, and then stimulate capital market development. Note that these arguments are broadly "closed economy" based, a bias that may be justified given the tendency of institutions to invest domestically even in globalised financial markets.

In fact, there would appear to be a two way relationship. Although institutions could develop on the basis of loans or property investment, their greatest comparative advantage is in the capital market. Loans require monitoring so the customer relationship may give banks a comparative advantage there. Trading and risk pooling are more efficiently undertaken in the capital markets where transactions costs are lower. Hence capital markets facilitate growth of mutual funds, and may encourage development of funded pensions. But institutions may also spur further growth of capital markets, as the recent example of Chile has confirmed. Unlike pay-as-you-go social security schemes, where there can be an immediate transfer of income to those who have not contributed (who are old at the outset), in funded pension schemes, or life insurance saving the assets are built up while they are maturing, and this stimulates investment and the development of securities markets. Given their focus on real returns, institutions should be particularly beneficial to development of equity markets. Certainly there seems to be a correlation in OECD countries between equity market capitalisation and the size of institutions. Equally, institutions are ready customers for bonds and securitised debt instruments.

4.2.2 Institution-bank competition on the assets side

The story of securitisation and of the banking difficulties of the 1980s are intimately linked, and institutional investors were crucial players in the overall developments that occurred, of "competition-driven disintermediation into securitised money and capital markets" (IMF 1991).

An explanation of balance sheet developments which led to major losses by banks in many OECD countries at the end of the 1980s and in the early 1990s must start with the ldc debt crisis. This led to a reduction in banks' credit ratings, and hence increased their cost of funds, vis-à-vis their major corporate customers, as well as leading to a need for wider spreads in order to rebuild capital bases. Such pressure on spreads was aggravated by tightened regulation of capital bases - which itself promoted securitisation by putting the heaviest risk weights on bank loans, and the lowest on government bonds, as well as requiring less capital for trading than banking. Loss of credit rating and wider spreads both reduced banks' competitiveness as suppliers of funds to highly-rated companies as compared with institutional investors operating via the securities markets. Companies accordingly switched part of their demand for funds to the money and bond markets. In parallel, as noted above, depositors often found their needs could be served more cheaply by use of money market instruments and money market mutual funds. Note that in the absence of institutions and securities markets, banks' customers would simply have had to pay higher spreads, as was indeed the case for small companies, for whom capital markets were not accessible, either directly or via pooled loans (see 4.6.2).

The loss of rating by banks is only half the story, however. Competitiveness of the securities markets was sharply improving, partly due to the growth in institutional investors themselves, following a shift by the household sector away from deposits (which expanded the supply of long term funds)¹³, but

¹³ Hargraves et al (1993) trace this pattern in the United Kingdom, United States and Japan in the 1980s.

also due to supply side factors such as large government deficits and privatisation, and other developments partly related to institutionalisation such as improved trading technology (see 4.1.2), deregulation of domestic securities markets and growth of rating agencies (which supplanted banks' role of credit assessment for many borrowers, thus reducing the value of bank relationships).

Financial innovations to service need of institutions has played a key role in this process; with financial products in effect migrating from banks to markets once they prove sufficiently standardised and high-volume (although the higher costs of banks as outlined above also proved to be an important incentive). Such migration has been accompanied by an increasing focus on public information disclosure (Bisignano 1995). For example, low grade bond and medium term note markets have enabled a broader range of companies than before to benefit from securities market financing - and have facilitated highly-leveraged corporate restructurings. A further innovation was the expansion of packaging and securitisation of loans (such as mortgages and consumer debt), which besides involving institutions as investors, led to competition for banks from investment banks for origination and servicing fees. These developments coincided with deregulation and technical advance which entailed increased competition by foreign banks and non-banks even in areas where securities issuance was less viable (such as for business loans) and from money market funds on the retail deposit side, as noted in 4.1.1 above.

Besides the general demand of institutions for securitised assets, demand for some securitised instruments is closely linked to specific regulations. For example, minimum funding requirements for US and Canadian pension funds sharply increased demand for hedging (Bodie 1990). This stimulated the development of immunisation strategies (to match assets to liabilities) based on long-term bonds. The requirement of a fixed duration¹⁴ for investment instruments in the context of such strategies in turn stimulated innovations in the US and Canada tailored to funds' needs such as zero coupon bonds, collateralised mortgage obligations and guaranteed income contracts (GICs) offered by life insurers. This in turn spurred the overall process of securitisation; of mortgages in the case of collateralised mortgage obligations and of loans and private placements in the case of GICs.

Commercial banks' responses to these challenges, in the context of deregulation of their own activities and difficulty of restructuring to remove excess capacity¹⁵ were twofold. First, there was a much greater focus on off-balance-sheet and fee-earning activity (see Table 4), in order to economise on capital and share in the increase in securities market activity, taking advantage of their distribution networks and customer relationships. The activities in question included underwriting, broking, market making, insurance business, and fund management itself. In effect, institutionalisation gave a spur to the 'universalisation' of banking even in countries such as the UK and US where activity of banks has been traditionally restricted (Rybczinski 1995). There was also increased penetration of

¹⁴ Bodie (1990) suggests that fixed duration securities (and associated strategies) have little role in terms of household utility maximisation, as they are unable to hedge against the inflation risk to future consumption. US (and Canadian) defined contribution funds nonetheless tend to hold significant quantities of fixed duration instruments, partly due to the risk aversion of the members.

¹⁵ Bisignano (1995).

previously segmented lending markets, particularly where their branch networks could be used (e.g. for mortgage lending).

Second, there was increased balance sheet growth, focusing particularly on higher risk borrowers, in order to maintain profitability. These included lending to property companies, to finance leveraged takeovers and in foreign markets. Often these patterns accompanied a shift from relationship to transactions banking (in parallel to the trend towards transactions-driven securities finance). In principle, shifts to higher-risk and unfamiliar markets should have been possible without major increases in risk to the banks if the associated risk had been priced accurately. The fact that major losses have been made by banks in many OECD countries suggests that risk pricing - or quantity rationing - were not accurate. Three main cases can be outlined as to how this could come about, namely accurate risk pricing ex-ante, but unexpected developments generating losses ex-post; deliberately inaccurate risk pricing to generate competitive advantages; and inaccurate risk pricing due to errors in credit assessment. Experience suggests the second and third played an important role (Davis 1995b); mispriced safety-net protection may have encouraged such errors, as they meant the cost of funds did not rise with risk.

The response to the losses that have been incurred in terms of further loss of competitiveness has included a wave of mergers, as excess capacity is removed (Berger et al 1995). There also seems likely to be a second wave of securitisation and institutionalisation, following further the lines set out above. One point to note is that now that market making itself is becoming less profitable (see 4.1.2), proprietary trading is becoming more important to both commercial and investment banks, which could increase risks.

4.2.3 Household sector portfolios

Transactions costs in securities markets, including the bid-ask spread, make it difficult for households of average means to diversify via direct securities holdings¹⁶, while excess risk incurred if diversification is insufficient is not compensated by higher return (as such risk is diversifiable to the market as a whole). Depending on the volume of assets available to invest, the costs that would need to be incurred to eliminate such risks on an individual basis are extremely high. Despite the relatively low levels of commission costs in the US, estimates suggest that costs amount to 1.2 to 9.8 percentage points per year on a seven year holding period. Even for an investor with \$100,000 to invest, 150-200 basis points of commission would be incurred per year (Sirri and Tufano (1995)). Liquidity is low in the case of direct holdings. Equally, individual investors would face the difficulty of controlling the companies in which they hold shares (see 4.6.1).

Accordingly, a feature of a number of OECD countries in recent years is that the share of households' portfolios held in the form of securities has tended to decline (Table 7), while the proportion of equities and bonds held via institutions has tended to increase. This pattern can only be explained in

¹⁶ Typically around 40 shares are needed to offer the same volatility as the market as a whole; in the US the 'round-trip' commissions needed would amount to 12% of value, even for a person of median wealth (Sirri and Tufano (1995)).

the light of the development of institutional investors, which offer superior forms of pooling. The reduced demand for transactions by retail investors that this tendency has entailed has led in turn furthered the evolution of market structures towards wholesale market-maker based systems which were outlined in 4.1.2 above. One implication is that there is less need for the type of protective regulation of individual investors and of subsidies to their costs than has hitherto been the case. Equally, oversight of companies will shift to institutions, which opens a richer menu of means of corporate control (see 4.6.1).

4.3 Transfer of economic resources

4.3.1 Long term saving

Development of institutions, especially those where savers enter into long term contracts involving payments at regular intervals, has been linked closely to the increase in long term saving - transfer of economic resources over time. This appears to have involved both a switch of asset holdings towards longer maturities and also an increase in saving per se linked to the development of institutional investors.

Evidence suggest that the effect on the *maturity* of saving may be more important than its influence on the *aggregate volume* of saving. For increased contractual saving via long-term institutions is typically partly or wholly offset by declining discretionary saving,¹⁷ although studies such as Hubbard (1986) and Poterba et al (1993) suggest a larger effect. Taxation provisions and credit rationing are the main channels analysed as potentially leading to an effect of institutionalisation on saving. However, even the effect on saving of tax concessions that raise the return on institutional saving is ambiguous. For target savers it will lower overall saving, even if it encourages others to consume more in retirement via greater saving, although saving by higher income households may be boosted by tax incentives which raise the rate of return to saving above a certain level¹⁸.

To the extent that an effect on aggregate saving does occur, this may rather result from liquidity constraints on some individuals (especially the young), who are unable to borrow in order to offset obligatory saving via life insurance or pension funds early in the life cycle. Following this view, forced institutional saving may have interesting side effects in the case of financial liberalisation. It is notable that the household sectors in countries with large pension fund sectors such as the US and UK have also been at the forefront of the rise in private sector debt in the 1980s, see Table 6 (Davis (1995b)). The familiar story underlying this is of release of rationing constraints on household debt following financial liberalisation, which allowed households to adjust to their desired level of debt. But in the context of pre-existing accumulation of wealth via institutions and high returns to

¹⁷ On the US, see Feldstein (1978), Munnell (1986) and the review in Smith (1990), on Australia see Morling and Subbaraman (1995).

¹⁸ Developing this argument, the suggestion is that up to a certain level of income, saving is of a target nature, i.e. to assure a minimum standard of living at retirement. Such target saving may be diminished by higher rates of return generated by tax concessions. It is only beyond a certain level of wealth that households are freer to reallocate resources so as to increase retirement consumption beyond this minimum level. Such saving will be interest rate sensitive in the normal way, as individuals substitute future consumption for current consumption.

institutional assets, this adjustment could be partly seen to entail borrowing by households to offset forced saving through institutions.

It can also be anticipated that, even in a liberalised financial system, credit constraints will affect lower income individuals particularly severely, as they have no assets to pledge and less secure employment. Therefore forced institutional saving will tend to boost their overall saving particularly markedly (see Bernheim and Scholz (1992)). This point is of particular relevance in countries having or currently introducing compulsory private pensions such as Australia.

Meanwhile the effect of institutional growth on personal saving may be offset at the level of *national saving* by the impact of tax subsidies to personal saving, especially if they are financed by public dissaving. However, a switch away from social security to pension funding would probably have a major effect on saving, given the former has been shown significantly to depress saving in a number of countries¹⁹, notably for the first generation which has not contributed.

Abstracting from the likely increase in saving and wealth, the implications of growth in institutions, notably life insurers and pension funds for *financing patterns* arise from differences in behaviour from the personal sector, who would otherwise hold assets directly. Portfolios of long term institutions vary widely, but in most cases they hold a greater proportion of capital uncertain and long term assets than households. For example equity holdings of pension funds in 1994 varied from 70% of the portfolio in the UK, and 48% in the US, and 18% in Germany (Table 8). But in each case they compared favourably with personal sector equity holdings, which were 12%, 19% and 6% of gross financial assets respectively. On the other hand, the personal sector tends to hold a much larger proportion of liquid assets than institutions. These differences can be explained partly by time horizons, which for persons are relatively short, whereas given the long term nature of liabilities, institutions may concentrate portfolios on long term assets yielding the highest returns. But institutions also have a comparative advantage in compensating for the increased risk, by pooling across assets whose returns are imperfectly correlated.

The implication is that institutionalisation *increases the supply of long term* funds to capital markets, and reduce bank deposits, even if aggregate saving and wealth does not increase, so long as households do not increase the liquidity of the remainder of their portfolios fully to offset growth of institutional assets. As was shown in Table 7, in fact, deposit shares have tended to decline in most countries over the last 25 years. Some offsetting shifts were apparent in econometric results of Davis (1988), which suggested that over 1967-85 the growth of institutions has been accompanied by a greater holding of deposits than would otherwise be the case, albeit insufficient to prevent an overall shift towards long maturity assets. However, King and Dicks-Mireaux (1988) found little effect in Canada. On balance, results are consistent with an increased demand for long term saving, which besides demographics may be related to rising overall income and wealth (where only a certain volume of saving is needed to cover contingencies).

¹⁹ See Feldstein (1977, 1995). However, analysts in countries such as Germany dispute this effect (Pfaff *et al* (1979)) and suggest social security had no effect on saving.

4.3.2 Cross border investment

The growth of international portfolio investment - transfer of resources in the form of securities across national borders - is intimately linked to growth of institutional investors. As shown in Table 11, cross border flows have been transformed since the late 1970s, from dominance by banks to a situation where securities represent over 75% of both inflows and outflows from OECD countries.

This pattern links to developments on the banking side, namely that prior to the ldc debt crisis, banks were active lenders, intermediating the funds deposited by OPEC countries to ldc. After the crisis banks' willingness to lend to ldc collapsed, capital bases were weakened and the fall in oil prices reduced inflows from OPEC. However, saving/investment imbalances between countries persisted, notably between the US and Japan (see below). But these changing patterns of net flows, the size of which was determined by macroeconomic developments, tended to be *more than accounted for* by gross institutional flows, which ensured that portfolio flows predominated (and as a by-product also strongly influenced exchange rates). In effect, there has been a sharp expansion of international investment by pension funds in recent years, as well as for life insurers in some countries. The expansion of mutual funds has entailed a sizeable proportion of specialised funds investing only in foreign markets.

International investment has been apparent also in terms of holders of securities. Foreign holdings of French and German bonds rose from zero and 5% in 1979 to 38% and 25%, respectively, in 1992 (note, however, that foreign central banks as well as institutions may be responsible). As shown in Table 9, foreign holdings of equities of German, French, UK and Japanese companies (virtually all by institutions) also rose in the 1980s. In this context, companies are increasingly seeking listings on major stock markets, to tap investor bases. Internationalisation has been accompanied by an increasingly *active approach to international portfolio investment* on behalf of institutions. Whereas in 1982 UK pension funds held foreign equities for 2 years on average, in 1994 the average holding period was under 6 months (WM (1995)), while the stock of foreign equities held by UK pension funds had risen from around \$20 billion to \$150 billion.

In addition to securities markets, international activity of institutions has also affected the foreign exchange market. Whereas it has traditionally been the preserve of the banks²⁰, participants in foreign exchange markets have become more diverse, with the entry of institutional investors as direct players. Commentators suggested, for example, that involvement of mutual funds, pension funds and life insurers was both the most novel feature of the 1992/3 crises of the ERM, and explained why speculative pressures rapidly increased (IMF 1993). International diversification meant such institutions would inevitably be affected by exchange rate turbulence; they are becoming increasingly willing to turn over investments rapidly and change the currency composition of their portfolios, given falling transactions costs and development of derivatives; managers are exceptionally sensitive to any losses that could make their own funds perform badly relative to the rest of the market, thus

²⁰ Banks are increasingly limited in position taking by prudential requirements as well as internal risk-management rules; they are tending to focus on their role as intermediaries in the foreign exchange markets, providing liquidity, innovative portfolio strategies and advice to customers.

encouraging adoption of similar strategies; they often separate exchange rate and investment risk for investment management purposes by hedging, thus encouraging focus on exchange rates; and the resources available to pension funds and life insurers far exceed national foreign exchange reserves, so that relatively small proportionate portfolio shifts could lead to major pressures on exchange rates²¹.

The benefits of international investment for institutions, particularly in terms of risk diversification, have always been present. Why did diversification of institutions' portfolios increase so significantly in the 1980s and early 1990s? As noted in Dailey and Motala (1992), factors underlying growth in foreign asset holdings of institutions include those underlying retirement saving itself (better coverage, demographics, funding requirements, investment returns) and growth of the relative size of institutions in domestic markets. But these do not explain growth in *portfolio shares*. Key autonomous factors underlying the general growth of international financial investment and trading, must also be highlighted as having a causal significance. These include improved global communications, liberalisation and increased competition in financial markets, which have reduced transactions costs, improvement of hedging possibilities via use of derivative instruments and marketing of global investment by external managers.

Abolition of exchange controls was an important factor underlying growth of international investment in countries such as Japan, the UK and Australia. But equally, it cannot be a complete explanation, as Germany, where long term institutions hold few foreign assets, abolished exchange controls in the 1959. Underlying parameters of regulation are the key remaining factor. Taking the example of pension funds (Davis 1995a), under the Employee Retirement Income Security Act (ERISA) US pension funds are subject to a "prudent man rule" which requires the managers to carry out sensible portfolio diversification, and which is taken to include international investment. Australian funds are not subject to portfolio regulations²². UK pension funds are subject to trust law and again follow the "prudent man" concept; they are not constrained by regulation in their portfolio holdings. Japanese funds face non-binding ceilings on foreign asset holdings, currently 30%. In contrast, Canadian pension funds have till recently faced limits on the share of external assets (but not their composition) as tax regulations limited foreign investment to 10% of the portfolio, and 7% for real estate. A tax of 1% of excess foreign holdings was imposed for every month the limit is exceeded. The limit was raised to 20% in 1994. Meanwhile German funds remain subject to the strict limits on foreign investment - only recently raised from 4% to 20% - imposed on life insurers.

It is also relevant to assess some economic implications. In a macroeconomic context, international portfolio investment by institutions may be an important conduit for saving to flow to countries with

²¹ Long term institutions' involvement was not the only novel feature. Also active were hedge funds which seek to profit from movements in exchange rates and interest rates by leveraged investments, either selling vulnerable currencies forward, borrowing in the threatened currency, using their capital to finance margin requirements, or by establishing interest rate positions via futures to profit from an interest rate decline after a crisis. Corporate treasury operations have also expanded, meaning their funding, positioning and hedging operations can also lead to exchange rate pressures.

²² Taxation provisions, which enable domestic dividend tax credits to be offset against other tax liabilities, are reportedly a major disincentive to international investment (Bateman *et al* (1993))

demand for capital in excess of domestic saving, and thus high returns to capital (as well as balance of payments deficits). A particular example may be seen in the way institutional investors (notably in Japan, once exchange controls were abolished) played a key part in financing trade imbalances between the *G-3 countries* over the 1980s, by investing heavily in US bonds. This may be seen conceptually as facilitating a form of consumption smoothing²³, that would not be possible in closed economies, whereby Japanese savers were able to postpone consumption via international investment while allowing American consumers to advance it via international borrowing (Bisignano (1993)). This in turn helped to equalise covered returns on financial assets, making the world market portfolio more efficient. However, a risk is that inflows may allow countries to pursue ultimately unsustainable policies for longer than was desirable. The example in this case is expansionary fiscal policy in the US, which given the role of capital inflows in its financing can be seen as the US government doing its own consumption smoothing, transferring income from future generations of taxpayers to existing ones, in precisely the opposite direction to that required by "ageing of the population".

Asset market effects of international investment are not confined to the transnational level. International investment may also help to relieve excessive pressure on domestic asset prices. In the mid-1980s the Japanese equity market might have been even more buoyant - perhaps dangerously so - if institutions could not invest offshore while repatriation may have limited more recent declines. In the UK, the 1981 appreciation of sterling, which damaged the domestic economy, might have gone much further in the absence of capital outflows from UK institutions. The Swiss pension fund (and life insurance) sectors have been accused of distorting the housing market, as a result of which constraints on foreign and securities investment have been relaxed.

4.4 Managing uncertainty and controlling risk

4.4.1 Use of innovations by institutions

As regards risk management, the focus of many analysts has been on "Recent Innovations in International Banking". BIS (1992), for example, showed how swaps, FRAs, interest rate options and short term interest rate futures have complemented and substituted for traditional international interbank deposits, in the context of volatile interest rates and asset prices. However, the process of financial innovation - the invention and marketing of new financial instruments which repackage risk or return streams - has also been closely related to the development of institutional investors. On the liabilities side of their balance sheet, institutions may provide forms of insurance to clients (life insurance, defined benefit pension funds); we do not develop this point further here (see Davis 1995a).

The general process of securitisation, which itself may be seen as a means of pricing and trading risks of the securities markets, has already been discussed; here we highlight use of derivative instruments and innovative investment strategies. However, a general point to note before focusing on particular

²³ Such consumption smoothing as highlighted here for the G-3 is a general feature of capital flows among advanced countries, according to research by Brennan and Solnik (1989); they suggest that in recent decades it has yielded benefits in eight advanced countries equivalent to 4-8% of total annual consumption in the early 1970s.

issues is the effect of institutional demand on the dynamics of innovation generally. Prior to the mid 1980s, most innovation originated in the euromarkets, after that in the US domestic market. But increasingly over time, in cases where innovations proved essential to fund management, institutional investors have tended to press other markets to adopt similar innovations (equity and bond futures markets etc.).

It has been noted that immunisation strategies are linked to securitisation. They also spurred development of markets for index options and futures, which in turn facilitate sharing and unbundling of risk. For example, pension funds writing call options on equities can be seen as converting them into short-term fixed-income securities for matching purposes. Another strategy is holding assets in excess of the legal minimum in equities, as long as their proportion is reduced when the market value of pension assets falls. This strategy is known as portfolio insurance or contingent immunisation, and has stimulated development of index options and futures markets and of programme trading more generally.

Another area in which institutions are active is use of derivatives in international investment. Whereas equity holdings are often left unhedged, bond investments are routinely hedged against currency risk. As discussed in Davis (1995a), stock index futures are seen as particularly useful in tactical asset allocation, facilitating rapid shifts between different national markets, which would later be translated into stocks. Derivatives might also be used for long term strategic movements into markets or stocks, if they enable such shifts could occur without moving the market against the fund. This will be the case if the derivatives markets are more liquid than the underlying (as, for example, in Japan, where in mid-1991, outstanding futures contracts represented three times the daily number of shares traded on the stock market). Also temporary adjustments in exposure could be obtained by purchase and sale of index futures without any transaction in the underlying (overlay strategies), thus avoiding disturbance of long-term portfolios, see Cheetham (1990). Such strategies facilitate 'unbundling' of fund management into currency, market and industry exposure. Finally, institutions might invest cashflow awaiting long term investment in derivatives, as it ensures the manager is always invested and will not miss an upturn. As noted, demands of these type by international investors have encouraged the development of options and futures markets to accompany domestic markets, which have themselves further encouraged international investment.

An emerging development of interest in the context not only of innovation but also cross border investment and corporate finance is the creation of synthetic shares which replicate dividend and price behaviour of existing shares (but circumventing foreign ownership restrictions). These can increase liquidity for issuers without changing control structures. Other innovations enable investors to create and unwind controlling blocks of shares at low cost; this would reinforce destruction of existing control structures (Berglöf 1996).

4.5 Price information

4.5.1 Capital market pricing and volatility

The tendencies for important changes to occur in the structure of capital markets as a consequence of institutional development have implications equally for their pricing behaviour. It is often suggested that the growing dominance of financial markets by institutional investors has led to heightened volatility.

Such hypotheses must, however, be formulated with care. In normal times institutions, having good information and low transactions costs, are likely to speed the adjustment of asset prices to fundamentals; this should only entail price volatility to the extent fundamentals are themselves volatile. This suggestion is supported by econometric analysis (Davis (1988)) of the portfolio distributions of life insurers and pension funds, which show they are strongly influenced by relative asset returns, particularly where there are few regulations governing portfolio distributions and low transactions costs, as in the UK and the US. Adjustment to a change in such returns is generally rapid. Assuming adequate information and appropriate incentives to fund managers, this should imply an efficient allocation of funds and correct valuation of securities. In Davis' research, these results did not all hold where transactions costs are high and regulations are strict - e.g., in Germany, Japan and Canada. In these countries adjustment to a change in returns is somewhat slower²⁴. It need hardly be added that market sensitivity generates an efficient allocation of funds and also acts as a useful discipline on lax macroeconomic policies (see 4.6.2). The liquidity that institutional activity generates may dampen volatility, as is suggested by lower share price volatility in countries with large institutional sectors. Evidence on average day-to-day asset price fluctuations shows no tendency for such volatility to increase (Table 13). It can be argued that securitised financial systems have important stabilising features (ease of marking to market, distance from the safety net, opportunities to diversify and spread risk).

In a global context, cross-border portfolio investment as outlined above should enhance the efficiency of capital markets, by equalising total *real* returns (and hence the cost of capital) between markets. Such a process occurs as investment managers shift between over - and undervalued markets. Increased efficiency enables capital to flow to its most productive use and for savers to maximise their returns²⁵. It is aided by the increase in speed of information flows and the ability of institutions to conduct cross border arbitrage using derivatives markets (stock index futures for equities, FRAs for money markets and swaps for bond markets).

The key offset to such stabilising tendencies seems to be occurrence of episodes of "one way selling" by institutions, which may generate securities market instability. BIS (1986) for example suggests the key reason for one-way selling to occur is the increasing concentration of portfolios in the hands of

²⁴ The results also contrast with those for households and companies (Davis (1986)) where adjustment to changes in returns tends to be slow, due to higher transactions costs and poorer information.

²⁵ There is some evidence (Howell and Cozzini (1990)) that international investment has tended to reduce the dispersion of real returns, although a longer run of data and more disparate economic performance between countries would be needed to prove it. It is clearer that *nominal* covered returns have tended to equalise, notably as capital controls are abolished (Frankel (1992)). Indeed Bisignano (1993) argues that gross flows alone will only tend to equalise nominal returns; net flows of saving and investment are needed to equalise real returns. But net flows have been common for some time, as highlighted above in 4.4.2, such as the flows between Japan and the US.

few institutional investors, which may react similarly and simultaneously to news, transmitted increasingly rapidly by global telecommunication links; the fiduciary role of such investors; the fact they see their holdings as short-run, low-risk, high-liquidity assets; that they may have less detailed information than would a bank on which to base a credit decision, and less of a relationship reason (than banks) to support a particular borrower or keep a particular market functioning²⁶. In 4.6.3 below we assess various incentive-based reasons why institutions may "herd".

One consequence seems to be the observation of occasional medium term deviations of asset prices from levels consistent with fundamentals, generally in highly liquid financial markets, which raise concerns for monetary and financial stability. Examples are the stock market crash of 1987, the ERM crises of 1992-3, the global bond markets in 1993-4 and the Mexican crisis of 1994-95. Common features of these events (see Davis 1995c) included heavy involvement of institutional investors in both buying and selling waves; bank lending being rather subordinate; cross border investment flows; signs of overreaction to the fundamentals and excessive optimism prior to the crisis; at times, inappropriate monetary policies; a shock to confidence which precipitated the crisis, albeit not necessarily sufficient in itself to explain the scale of the reaction; and rapid and wholesale shifts between markets, often facilitated by derivatives. Such volatility may have important macroeconomic consequences, generate inefficient resource allocations and lead to systemic risk via losses incurred by leveraged investors. The Mexican crisis showed that institutions are not immune to the sovereign risks that plagued banks in the 1970s.

A second consequence is the tendency of financial markets which are rather thin and illiquid to face complete liquidity failure when institutions begin to sell heavily (Davis 1994, 1995b). Examples are the ECU bond market crisis of 1992, the FRN market in 1987, junk bonds in 1987, Swedish commercial paper in 1990 and the Penn Central crisis in the US commercial paper market in 1970. Market liquidity depends on all other holders not seeking to realise their assets at the same time, in other words there are externalities to individual behaviour. If doubt arises over the future liquidity of the securities market for *whatever* reason (it could be heightened credit risk or market risk), it is rational to sell first before the disequilibrium between buyers and sellers becomes too great, and market failure occurs (i.e. yields are driven up sharply, and selling in quantity becomes extremely difficult). The associated decline in liquidity of claims is likely to sharply increase the cost of raising primary debt in such a market (i.e. there will effectively be heightened price rationing of credit), or it may even be impossible to gain investor interest at any price (quantity rationing).

The nature of such liquidity failure may be clarified by analysis of the role of *market makers*, who buy and sell on their own account, increasing or reducing their inventories in the process²⁷, at announced bid (buy) or ask/offer (sell) prices. A market maker provides (to buyers and sellers) the services of immediacy and a degree of insurance against price fluctuations. To be able to satisfy buyers of the asset, the market maker may have an inventory of the asset in question (although the

²⁶ Because of the loss of positive externalities from liquid markets, they may be induced to display club-like supportive behaviour.

²⁷ Unless they are able to "cross" individual buy and sell orders.

securities may be borrowed rather than purchased), together with access to finance for such inventories; the spread must obviously cover the cost of finance. There is a risk of a capital loss on the inventory through unforeseen changes in prices. Accordingly, the response of market makers to "one way selling" where the new equilibrium price is uncertain is often simply to refuse to quote firm prices, for fear of accumulating stocks of depreciating securities, which itself generates a collapse of liquidity. Uncertainty is crucial; if there is a clear new market-clearing price at which buyers re-emerge, the market-makers will adjust their prices accordingly, without generating liquidity collapse²⁸.

Bingham (1992) argues that such collapses are particularly likely when returns to market making are low, and hence investment banks are unwilling to devote large amounts of capital to it. In such cases, the secondary market, in effect, ceases to function. These patterns pose major risks to securitised financial systems given the central importance of liquidity to financial institutions (such as banks' funding via CDs, companies via CP, dealers/brokers via repos, money market funds on the asset side, etc.)

4.6 Dealing with incentive problems

4.6.1 Corporate governance issues

The development of institutional investors, and their growing dominance as owners of corporations (Table 9), has had a pervasive influence on corporate governance. The basic issue is simply stated. Given the divorce of ownership and control in the modern corporation, principal-agent problems arise, as shareholders cannot perfectly control managers acting on their behalf. Principal-agent problems in equity finance imply a need for shareholders to exert control over management, while also remaining sufficiently distinct from managers to let them buy and sell shares freely without breaking insider trading rules. If difficulties of corporate governance are not resolved, these market failures in turn also have implications for corporate finance in that equity will be costly and often subject to quantitative restrictions²⁹. In this context, there are well-known systemic contrasts between the behaviour of financial institutions and markets in the major OECD countries, notably as they relate to the financing and governance of companies. The general division is between the "Anglo-Saxon" systems of the UK, US, Canada and Australia, together with the international capital markets (or "euromarkets"), on the

²⁸ Market collapse in dealer markets, even in the absence of generalised uncertainty, may also result from perceptions of asymmetric information (Glosten and Milgrom (1985)). Market makers face a mix of investors who are more (insiders) or less (liquidity traders) than they are. A relative increase in "insiders" leads market makers to widen spreads to avoid losses. This discourages "liquidity" traders, who withdraw, increasing adverse selection. Some dealers may cease to operate. Once the insiders are too numerous and if their information is too good, bid and ask prices may be too far apart to allow any trade. Since a wide spread in turn prevents the insider from revealing his information by trading, shutting down the market will worsen subsequent adverse selection (i.e. the proportion of insiders relative to liquidity traders) and widen the spread further.

²⁹ In practice, new equity is typically issued by established firms with good reputations in the markets and prospects for steady dividend growth; by firms being floated for the first time; for high return/high risk ventures which cannot be wholly financed by debt; and to restructure the balance sheet of firms in 'financial distress'. Finally, experience shows that - probably owing to the difficulties outlined above - equity markets are highly unreliable as a source of funds, being subject to cyclical "feasts and famines".

one hand, and the systems which prevailed historically in Continental Europe and Japan. We would characterise the traditional distinction between the two systems in terms of the finance and control of corporations as that between *direct control via debt* and *market control via equity*. (Davis 1993b, 1995a).

Direct control via debt implies relationship banking along the lines of the German or Japanese model. This typically involves companies forming relationships with a small number of creditors and equity holders. There is widespread cross shareholding among companies³⁰. Banks are significant shareholders in their own right and in Germany are represented on supervisory boards both as equity holders and as creditors. They have also been able to exert control through the voting rights conferred on them by custody of bearer shares of individual investors who have surrendered their proxies. Meanwhile, the influence of other (institutional) shareholders is often limited by voting restrictions, countervailing influence of corporate shareholders and lack of detailed financial information, as well as the right of other stakeholders (employees, suppliers, creditors) to representation on boards. Implicitly, monitoring of managers is delegated to a trusted intermediary - the bank.

Meanwhile, as regards *market control via equity*, the principal advantage of take-over activity is that it can partly resolve the conflict of interest between management and shareholders; those firms which deviate most extensively from shareholders' objectives - and which consequently tend to have lower market values as shareholders dispose of their holdings - have a greater likelihood of being acquired. The threat of take-over, as much as its manifestation, acts as a constraint on managerial behaviour. Institutional shareholders, both directly and via non-executive directors can have an important role to play in this context both in complementing take-over pressure as a monitoring constraint on management behaviour, and in evaluating take-over proposals when they arise.

The willingness of banks - and institutions, via junk bonds - to finance highly leveraged buyouts and take-overs in the 1980s brought to the fore a new form of control, *market control via debt*. A key source of conflict between managers and shareholders stems from firms' retention policies. Debt issue can ease tensions, since by increasing interest payments, the internal resources at managers' disposal are reduced. This forces them to incur the inspection of the capital markets either via debt issue or equity issue for each new project undertaken. Jensen (1986) argues that desire for improved corporate control by means of debt could have been an important motivation behind the wave of leveraged take-overs and buyouts in the 1980s. A disadvantage of increased gearing is that potential conflicts between shareholders and debt holders become more intense³¹. Jensen and Meckling (1976) suggest that shareholders in highly-leveraged firms have an incentive to engage in projects that are too risky

³⁰ Although bidirectional crossholdings are typically means of cementing alliances or collusion rather than exerting control.

³¹ Perhaps more importantly, high leverage is likely to have various deleterious consequences. By raising the bankruptcy rate, it increases the incidence of dead weight bankruptcy costs arising from legal costs, diversion of managerial energies and breakup of unique bundles of assets, for example. And at a macro level increased corporate fragility is likely to magnify the multiplier in the case of recession (Davis (1995b)).

and so increase the possibility of bankruptcy. If the projects are unsuccessful, the limited liability provisions of equity contracts imply that creditors bear most of the cost³².

Institutions in countries such as the US have however, been increasingly disenchanted with take-overs³³ and buyouts. Combined with new regulations on US institutions, this brought to the fore a 'corporate governance movement' based on *direct control via equity*. Of course, in all models of governance, boards of directors, and in particular non-executive directors, act as shareholders' representatives in monitoring management and ensuring the firm is run in their interests. Shareholder influence is ensured by their right to vote on choice of directors (as well as other elements of policy proposed by management). But these mechanism may be supplemented by direct links from institutional investors to management³⁴ either formally at annual meetings, or informally at other times. This is precisely what has been observed in recent years. A further important motivation has been development of indexing strategies, which force funds to hold shares in large companies as long as that policy is maintained, and thus encourage them to improve management of underperformers to boost overall asset returns³⁵. Even active investors holding large stakes in a company must bear in mind the potentially sizeable cost of disposing of their share holdings, thus again encouraging activism; in effect, they are driven to seek direct control due to illiquidity. With growing institutionalisation it becomes much easier and cheaper to reach a small number of well-informed key investors who will command a majority of votes (note however that such coalition building is essential for effective institutional control to be exerted, as either by law or by strategy of diversification, institutions do not seek to hold large stakes in firms).

In the US, the change in attitude was crystallised by two events, first a 1988 ruling by the US Department of Labour (the Avon letter) that decisions on voting were fiduciary acts of plan asset management under ERISA³⁶, which must be performed either directly by trustees or delegated wholly to external managers and, second, shareholder initiatives on ethical and social issues³⁷ (South Africa, the environment) in the late 1980s, which stimulated increased interest by public pension funds in the

³² But this benefit to shareholders may only be temporary. Since creditors are assumed to understand the incentives facing shareholders and are aware of the risks involved when loans are negotiated, ultimately the owner will bear the consequences of the agency problem in terms of a higher cost of debt.

³³ This relates to increasing use of take-over defences by managers of weak companies and/or greenmail payoffs of raiders, regardless of shareholders' interests; increased dissatisfaction with managerial compensation and performance under the protection of such devices; high costs in terms of fees to investment bankers etc

³⁴ Note that in countries such as Italy, direct control via equity is exerted in pyramidal groups of companies, where those (larger firms) higher up hold shares in those (smaller) lower down (OECD 1995).

³⁵ This is an important observation, since it is often suggested in countries such as the UK that the longer term relationships, close monitoring of company performance and large shareholdings needed for alternatives to take-over to operate will not be present in the case of indexation.

³⁶ The US shareholder activist movement was further encouraged in the early 1990s by two new rules from the Securities and Exchange Commission (SEC), the US securities regulator. The first helped provide information; it enforced comprehensive disclosure of executive pay practices (salary, bonuses and other perks for the top five officers over a three year period) as well as policy regarding their relation to performance of the company as a whole, and details of share price performance over five years relative to the index and a peer group. The second enabled investors to collude more readily; now any number of shareholders can communicate orally without restriction, so long as they are not seeking to cast votes for others.

³⁷ Ethical investment more generally is playing an increasingly important role via specialised mutual funds.

importance of proxy issues generally. The collapse of the take-over wave itself at the turn of the decade³⁸ helped to boost activism, by removing an alternative means of corporate control. Since these developments, US funds have consistently voted on resolutions they might previously have ignored. Public funds such as the California Public Employees' (CALPERS) and New York Employees' (NYEPF) have been particularly active, notably in seeking to challenge excessive executive compensation and take-over protections, in seeking to split the roles of chairman and chief executive, remove under-performing chief executives³⁹, ensure independent directors are elected to boards⁴⁰, and that new directors be appointed by non-executives. These ends are reached by filing proxy resolutions and directing comments and demands to managers, either privately or via the press.

Broadly similar tendencies towards shareholder activism are apparent in other Anglo-Saxon countries such as the UK and Canada. In the *UK*, pressure from shareholders (and the Bank of England) led to formation of the so-called Cadbury Committee on corporate governance, which set a code of good practice. Its key recommendations include separation of chief executive and chairman, appointment of a minimum of three independent non-executive directors, disclosure of directors pay and that directors' appointments be only for three years. The National Association of Pension Funds has orchestrated pressure on managers to accept the Cadbury guide-lines. More recently, institutional investors have been active in opposing lax and overlong executive contracts, pensions and share options, which were not covered in detail by the Cadbury guide-lines. In *Canada*, (Simon (1993)) activism has been encouraged by the US example, but also by poor performance of Canadian firms, and the scope for such pressure offered by the loosening grip of foreign multinationals and family owners. For example, in 1993 OMERS (The Ontario Municipal Employee Retirement System) one of the largest Canadian pension funds, published a list of proxy voting guide-lines, covering executive stock options, LBOs, unequal voting shares and environmental practices. Successes of shareholder activism include concessions by companies to allow secret voting, boosting the numbers of non-executive directors and better disclosure.

Even in the bank-dominated countries such as Germany and Japan, US pension funds have introduced shareholder activism, and often encouraged domestic shareholders to be more willing to stand up to the status quo. Many firms in Continental Europe are already seeking access to international equity finance, and are accordingly being obliged to meet the needs for transparency, dividend payment etc. of Anglo-Saxon pension funds (Schulz (1993)). French domestic shareholders have been active in a number of cases such as Suez and Navigation Mixte. It is notable that European countries are developing their regulations in this area, for example a new French law to protect minority shareholders in take-overs, under pressure from institutions. The scope of such convergence to date should not be exaggerated (Berglöf 1996), not least because of the large proportion of corporate firms

³⁸ This was attributable to such factors as recession, which made target companies less attractive to bidders and the retrenchment of banks from take-over finance, following their losses on property, as well as the anti-take-over strategies noted above.

³⁹ Examples in the early 1990s include those of IBM, Westinghouse, Kodak, Amex and General Motors.

⁴⁰ Celebrated cases include the CALPERS agreement to back Texaco management in a take-over bid, if they agreed to support independent directors, and CALPERS and the NYEPF pressure on General Motors to accept a resolution for more than half the directors to be independent.

which are private in Continental Europe and Japan. However, as noted by Davis (1993a), possible convergence in behaviour on a "modified Anglo-Saxon model" of corporate governance - direct control via equity - would be accelerated by development of home-grown institutions in response to demographic pressures. Introduction of pension funds in Italy in the wake of social security reform (OECD 1995) may be a forerunner of changes elsewhere.

4.6.2 Institutions as creditors

Given their willingness to hold government bonds, the development of institutional investors is widely considered to have facilitated financing of budget deficits, as the constraint of domestic saving no longer applies. The more efficient are international capital markets, and hence the greater the substitutability of domestic and foreign assets in investors' portfolios, the less the effect of additional government borrowing on domestic interest rates. European countries have taken advantage of this, as well as the US, discussed above. In France, for example, whereas in 1986 1% of government debt was held abroad, in 1992 it is 38%, and 25% in Germany⁴¹ (Bisignano (1993)). In some ways this may be seen as desirable, as it helps to ensure non-monetary financing, and thus aids counter inflation policies. On the other hand, correction of fiscal positions may also be delayed for longer than is desirable, as the government faces less budgetary discipline. Once market discipline begins to take hold, the process may be brusque, as outlined in 4.5.1 above; in effect perceptions by international creditors of major disequilibria in an economy can lead to major shifts of funds, and governments may face a situation akin to a bank run, when the yield on government debt rises sharply and the exchange rate collapses (as in Mexico, and on a lesser scale in many OECD countries).

The limits of the financial-market functions of institutions are shown in the field of private debt finance; whereas they are ready holders of rated paper, they are not active in direct lending. Traditionally, there are considered to be four main factors that divide borrowers from banks and markets (Davis and Mayer (1991)). These are, first, economies of scale: owing to transactions costs, small investors and borrowers use banks, while wholesale users can access bond markets. Second, information: banks have a comparative advantage in screening and monitoring borrowers to avoid problems of adverse selection and moral hazard which arise in debt contracts - market finance is only available to those borrowers having a reputation. Third, control: banks are better able to influence the behaviour of borrowers while a loan is outstanding and seize assets or restructure in the case of default than markets. And fourth, commitment: banks can form long-term relationships with borrowers, which reduces information asymmetry and hence moral hazard. Analysis of institutions and banks suggests that these differences continue to hold, but boundaries are shifting, as highlighted by the development of rating agencies, junk bonds and securitised debt.

Reflecting these factors, institutions in the Anglo-Saxon countries tend either not to invest significant amounts in corporate debt, as in the UK and Australia, or to invest in instruments such as corporate bonds and securitised debt, as in Canada and the US, where the services of rating agencies can be

⁴¹ Foreign holdings were much lower in countries with major institutional sectors, such as the UK 12%, Japan 6%, the US 18%, Canada 20%.

employed to assess credit quality. However, as recorded in Carey *et al* (1993), US life insurers have been significant investors in private placements⁴² in recent years, employing their own credit screening and monitoring facilities. In Germany, most of the loans by institutions (registered bonds, borrowers note loans and other loans) are to banks and public authorities, and only indirectly to firms. Thus banks retain the role that the theory above suggests reflects their comparative advantage in debt finance. Similarly, in Japan, many loans are arranged and guaranteed by the trust bank which manages the funds, or the commercial bank in the life insurer's industrial group, thus again leaving banks in the controlling position.

4.6.3 Principal-agent problems in fund management

A final section relating to the functional analysis seeks to probe difficulties raised for the modern financial system by institutional investors in a more fundamental manner, by highlighting the outstanding principal-agent problems to which institutions are prone, which in turn pervade some of the effects on financial structure and behaviour outlined above (notably price volatility).

Fund management is a service involving management of an investment portfolio on behalf of a client. Unless the manager is perfectly monitored and/or a foolproof contract drawn up, she may act in her own interests (e.g. in generating excessive commission income) and contrary to those of the fund. Various features of fund management can be seen as ways to reduce principal-agent problems. For example, pension fund managers in countries such as the UK and US are offered short (3-year) mandates, with frequent performance evaluation;⁴³ fees related to the value of funds at year-end and/or performance related fees. At least in countries where performance figures are widely used, open-ended mutual-fund and life insurance managers will suffer loss of new business if they underperform, while closed-ended mutual funds may be taken over. Disclosure itself is of course essential for these mechanisms to operate.

These means used to resolve principal-agent problems give rise to institutional behaviour which *could* induce capital market volatility. One is the *desire of managers to show they are of good quality*, for example in the context of short mandates. In the model of Scharfstein and Stein (1990), herding - whereby all managers move in the same direction to buy or sell assets - occurs because the market for fund management skills takes into account both the success of investment strategies and the similarity to others' choices. The first is not used exclusively, since there are systematically unpredictable components of investment, while good managers are expected to receive correlated signals (they all observe the same relevant pieces of information); hence all good managers may be equally unlucky. On the other hand, a manager who alone makes a good investment may be a lucky but poor quality manager. So mimicking others is the best way to show quality. A related factor that could induce volatility is *regular performance checks against the market*. This may induce similar behaviour, and

⁴² In effect, a hybrid between bank loan and public bond financing, requiring extensive screening and monitoring and negotiation of covenants (although since 1990, under SEC rule 144a, institutions have been able to transact freely in such bonds, thus aiding liquidity).

⁴³ Note that performance evaluation over a short period contrasts sharply with the nature of liabilities, whose maturity may extend to 25 years or more for life insurers and pension funds.

hence 'herding' to avoid performing significantly worse than the median fund.⁴⁴ As a consequence, institutions may, for example, adopt similar portfolio shifts even if their own information suggests a different pattern could yield better returns. This may in turn amplify shocks to prices.

Short time horizons may affect *information acquisition* and hence market dynamics (Froot et al 1992). If assets were to be held forever, it would be rational to seek to gain information not held by others, but with a short time horizon - for reasons as above - it may be rational to concentrate on the same information as others, even if it is extraneous to fundamentals. This is because the larger the number of investors who study the information, the more quickly it enters the market, and the greater the benefit from early learning. Use of chartism may be a case in point.

But these specific mechanisms are not the only possible reasons for institutional herding. A simpler mechanism may underlie sharp movements by open-ended mutual funds, namely simple *purchases and sales* by households, which oblige the manager to liquidate assets immediately in order to redeem the units. This may be a powerful mechanism if households are risk adverse and subject to major shifts in sentiment. It may be increased by the shift to defined contribution pension funds; the assets are typically held in mutual funds and their disposition is often at the discretion of the individual investor. Risk averse investors may sell funds in response to short run moves, contrary to appropriate long-run time horizons of their (retirement) assets. Or mutual fund managers may *transact repeatedly* to generate commission income, thus generating market volatility. Other reasons for herding by institutions could include institutions' *inferring information from each others' trades*, about which they are relatively well informed, and herding as a result (Shiller and Pound (1989)). Moreover, they may be *reacting to news*, which they all receive simultaneously, in a similar manner; such news may cause sizeable portfolio shifts in a world characterised by *uncertainty* if it causes funds to change their views about the future.

The *risk management framework* may also play a role. If defined benefit pension funds have strict minimum funding limits, they are subject to heightened shortfall risk if asset values decline (Davis (1995a)). This may encourage "herding" either via direct sales of equities for bonds or by the effects of hedging in so-called contingent immunisation or portfolio insurance strategies on market prices. More generally, as shown by Frijns et al (1995), tighter solvency requirements will shorten time horizons, with possible consequences as noted in this section.

Herding by institutions need not always be destabilising, it may speed the market to a new equilibrium price. What is needed is for institutions also to follow strategies which may be contrary to fundamentals and profit maximising - buying high and selling low - so-called *positive feedback trading*. Cutler et al (1990) suggest that institutions may *themselves* act in this manner. This may be a consequence of biases in judgement under uncertainty by fund managers, which leads to extrapolative

⁴⁴ See Davis (1995a), who, after interviewing 12 fund managers on international investment strategies in London in 1991-93 found "Most of the managers, but particularly those who are external managers, felt some pressure not to underperform relative to their peers, for fear of losing the management contract. Managers who could afford to act more freely, perhaps because of their firm's reputation, still felt a need to know the consensus in order to act in a contrarian manner."

expectations or trend-chasing rather than focus on fundamentals. Certain investment strategies may also induce such behaviour, such as stop-loss orders, purchases on margin and dynamic hedging strategies. These may be common when there are minimum funding limits. Institutions may also seek *indirectly* to provoke positive feedback trading (De Long et al (1990)), since in the presence of irrational investors such as households it is rational for institutions (such as hedge funds) to buy in the knowledge that their own trades will trigger further feedback trading by irrational investors, thus amplifying the effect.

The effects of herding have been largely covered in Section 4.5.1, namely heightened volatility of market prices and quantities, and/or liquidity failures at specific times. But one might add that herding may also entail a loss of diversification benefits (as markets move together) and may expose institutions themselves to major losses.

4.7 Non functional aspects

4.7.1 Deregulation

One may distinguish aspects of the regulation of institutions themselves which has had an impact on financial change from the broader forms of financial liberalisation, that their growth and behaviour has, we suggest, helped to trigger. As regards regulation of institutions, an important point is the contrast with banking regulation, which helps to promote differing behaviour. For example, institutions do not face the strict capital and reserve requirements of banks and hence may be able to offer funds at a lower cost. On the other hand, more or less binding minimum funding and portfolio restrictions apply to life insurers and pension funds, which mean their portfolio allocation is not entirely free. Some changes in regulation have induced shifts in behaviour; the ERISA for US pension funds led to a focus on long term bonds and derivatives for immunisation purposes, for example, as well as justifying international diversification. Under the UCITS Directive, mutual funds must also diversify. It was noted above that new Department of Labour regulations helped promote the 'corporate governance movement' among US institutions. Abolition of restrictions on use of derivatives by UK pension funds led to a major increase in their use; and easing of restrictions on international investment by funds in countries such as Japan has had a major impact on their cross border activity independent of that of exchange controls.

Institutions have also had an impact on financial liberalisation more generally. Several major types of deregulation can be discerned (see Edey and Hviding 1995, also Table 16): abolition of interest-rate controls, or cartels that fixed rates; abolition of direct controls on credit expansion; removal of exchange controls; removal of regulations restricting establishment of foreign institutions; development and improvement of money, bond, and equity markets; removal of regulations segmenting financial markets; deregulation of fees and commissions in financial services; and, partly to offset these, tightening of prudential supervision, particularly in relation to capital adequacy, and often harmonised internationally. This point shows that liberalisation is not a removal of all regulation but a shift in its locus from structural to prudential regulation.

The main motivations of the authorities have been: to increase competition (and hence to reduce costs of financial services); improved access to credit for the private sector; to improve efficiency in determining financial prices and allocating funds; pressures from competition authorities to remove cartels; desire to maintain competitiveness of domestic markets and institutions; increased flexibility, responsiveness to customers, and innovation; securing a ready market for increasing sales of government bonds, and desire to secure stability of such a system against excessive risk-taking.

However, it would be wrong to see deregulation purely as a proactive shift by the authorities. In many cases, it was necessitated by structural and technological shifts which had already made existing regulations redundant. In this context, the role of institutions may be highlighted, whether indirectly or directly. Notably, it was the willingness of institutions to bypass domestic securities markets that led to deregulation of fee and commission structures that were contrary to their interests (as in the case of Big Bang in the UK). As noted, governments more generally have sought to streamline their domestic bond markets so as to satisfy the liquidity needs of institutional investors, in the hope of thereby reducing their own funding costs. Exchange controls' abolition in countries such as the UK and Japan can be seen in the light of desire to ease upward pressure on the exchange rate via capital outflows, in the context of growing pressure by institutions to invest offshore. The US deregulation of secondary trading of private placements (Article 144a) showed a recognition that institutions do not require elaborate investor protection - and was a response to fear of competition for domestic securities issuance generated by offshore issues of bonds to institutional investors.

Much of the banking deregulation outlined above was seen as necessary owing to the intense competition banks faced from institutions. The abolition of the US interest rate regulations (Regulation Q) owing to competition from money market funds is a good example; easing of reserve requirements are another (although clearly wholesale delocalisation of banking was also an implicit threat). The fact that institutional competition left banks with lower quality credits made removal of controls on credit expansion on the one hand and capital adequacy regulation on the other, all the more urgent. Moreover, once the process of liberalisation began, one measure quickly led to others, due to desire to maintain a level playing-field (within countries) and competitive equality (between countries).

5 Conclusions

It has been argued that the development of institutional investors has played a pervasive and often neglected role in the development of financial systems, This article has sought to clarify this role, by analysing changes wrought by institutional growth under the headings of the main functions which are fulfilled by the financial sector. It is relevant in conclusion to briefly assess implications for the future and for monetary policy.

The growth of institutional investors shows little sign of easing. The general features outlined in Section 3 making institutions attractive continue to hold, notably ageing of the population. But significantly, in many countries (notably in continental Europe) future demographic pressures on

pay-as-you go social security are likely to lead governments to seek to stimulate further growth of private pensions as a substitute for social security (Davis (1993a), Makin (1993)). For example, if France and Italy were to develop schemes equivalent to those in the United Kingdom, the sums involved would be over a trillion dollars. And following the example of countries such as Chile, Singapore and Malaysia, it is considered that developing countries also have considerable scope for development of pension funds, assuming a pre-existing level of development of capital markets and of administrative skills (World Bank 1994).

The assumption of most financial market analysts has been that although there may be excess capacity in the banking sector, there will remain a role for depository institutions making non marketable loans at fixed terms. Some economists would by contrast suggest that *all of banks' functions could be taken over by institutions* such as pension funds, life insurers and mutual funds operating via securities markets (together with rating agencies and other specialised monitors). They would point to the successful securitisation of personal loans, the ability of bond and commercial paper markets to serve an expanding range of companies, the development of corporate banking and treasury operations, and the success of money-market mutual funds in countries such as the US, in providing market-based means of transactions as well as saving (see Browne and Fell (1994)).

One counter argument would point to the shift of banks into fee earning business noted above. This includes not only their traditional role in the payments system, but also provision of back up lines of credit, broking and market making fees and commissions, underwriting, forex, advice on mergers, proprietary trading in capital markets, income from origination and servicing of securitised loans, and institutional fund management itself. Indeed, analysts such as Boyd and Gertler (1994) show that if balance sheets are adjusted to allow for these services, much of the decline of banks in the US disappears. A further counter argument, asserting a continued role in banks' traditional business, must rely on banks' advantages in overcoming asymmetric information, such as for small firms, that rules out securities market intermediation. Recent studies of banks' uniqueness would seem to underpin this suggestion⁴⁵.

⁴⁵ Emerging direct evidence of comparative advantages of banks over other forms of finance include signalling effects of bank lending relationships on the cost of other forms of finance, as other providers of external finance appear to take existing lending relationships and the associated agreement on the part of the firm to be monitored as a positive signal about firm quality (James (1987), James and Wier (1990)). Fama (1985) and James (1987) show that borrowers and not depositors tend to bear the tax of reserve requirements in the US. This suggests that borrowers obtain services from banks which are not obtainable elsewhere, otherwise they would shift to avoid the burden of the tax. Elliehausen and Wolken (1990) show the importance of bank lending relations to small firms and reliance of such firms on banks which are geographically close, see also Hannan (1991). This implies that imperfect substitutability is an important empirical phenomenon. Regarding the value of banking relationships, Slovin, Sushka and Polonchek (1993) found that borrowers from Continental Illinois bank, had negative excess stock returns during its crisis and positive returns during the bank's rehabilitation. The size of the excess returns varied with the importance of the relationship between the bank and the borrower. Petersen and Rajan (1994) similarly found positive effects of close and committed banking relationships on firms' value. Meanwhile, Berger and Udell (1992) show that securitisation has not changed the importance of banks as monitors of debt claims holding illiquid assets, partly because the loans which are securitised are often held by other banks rather than direct investors. These studies suggest that banks do have a clear comparative advantage over other sources of finance, for certain types of transaction.

There remains a great deal of scope for expanding international investment of institutions. Current portfolio shares of international assets are well below those which would minimise risk for a given return, and even below those that would appear optimal taking into account the share of imports in the consumption basket⁴⁶. Equally, the uneven pace of demographic changes, as well as differences in saving and investment between countries (Grundfest 1992), suggest that net cross border flows are likely to accompany, and accentuate, further shifts by institutions. Such an expansion would magnify the effects of existing crossborder investment as outlined above. It could also bring risks of international investment in securities markets (such as those highlighted by the Mexican crisis) more to the fore.

A further suggestion is that *institutional growth can revolutionise financial structure*. As noted, countries such as Germany, Japan and, to a lesser extent, France are often characterised as "bank dominated", with close relations between banks and firms based on sharing of information unavailable to other investors, a preponderance of bank lending in corporate finance and relatively underdeveloped securities markets (see Edwards and Fischer (1991), Davis (1993b)). This is often seen as an advantage, giving scope for firms to obtain long term debt finance for investment and R&D, and for banks to mount rescues of firms in difficulty. Bisignano (1991) has pinpointed key underlying features, such as a low level of public information disclosure by companies, scepticism regarding the allocative efficiency of markets, preference for "insider control" and close holding of companies, and a maintenance of an informal rather than rule based system for governing financial relations. Growth of domestic institutions free and willing to invest in equity seems likely given pressure on social security pension systems. Complementing existing pressures from international institutions outlined in 4.6.1 above, growth of such domestic institutions, a class of institutions unlikely to be willing to be subordinate to banks, could in the opinion of the author (Davis (1993b)) overturn this system and lead to convergence on the "Anglo-Saxon" model.

The effect on corporate finance, for example, could be profound. Rather than the case at present, where equity holders are seen as co-equal partners with creditors and other stakeholders, there would be moves towards absolute primacy to equity holders, as ultimate owners of the firm. This could imply, for example, pressure on firms for higher and more sustained dividend payments; greater provision of information by firms; removal of underperforming managers; equal voting rights for all shares; pre-emption rights⁴⁷; and equal treatment in takeovers. To back up these requirements, pension funds would demand laws and regulations such as take-over codes, insider information restrictions and limits on dual classes of shares, which seek to protect minority shareholders, as well as equal treatment of creditors in bankruptcy, to protect their holdings of corporate bonds. Shifts of corporate financing to securities markets would be reinforced by structural changes as outlined above, which will deprive banks of their comparative advantage in lending arising from superior information

⁴⁶ Such a limitation of international investment might be justified if PPP was not considered to hold in the long run.

⁴⁷ That is, the right of existing shareholders to first refusal on a new issue of shares, to prevent dilution of their holdings.

and ability to control firms. Partly due to free rider problems⁴⁸, securities market development would have the side effect of reducing banks' willingness to "rescue" firms in difficulty. Companies would need to reduce their gearing in response to this; a move that would be facilitated by the increased demand for equities from institutions⁴⁹.

Concluding with a summary of *monetary policy implications*, it is suggested that policymaking in an institutionalised and globalised environment is clearly a more difficult and uncertain process than in a purely domestic and retail/bank based setting. For example, to the extent that equity, foreign-exchange and bond-market adjustments become recurrent features of international capital markets, monetary policymakers generally will have to take increasing account of the views and expectations of the global financial markets concerning their monetary policy and economic developments. They will need to be aware that, whereas markets may at times work on the basis of fundamentals and hence impose useful discipline on policymakers "undermining policies which are not credible or sustainable" (Bisignano (1995), Browne and Fell (1994)), at other times they may be subject to bubbles or trend chasing "amplifying the disruptive implications of collective misjudgements" in the words of BIS (1995). Massive and undetected overhangs of open positions may develop in markets, to be sharply unwound when the underlying market assumptions are proved incorrect.

These issues make convergence of economies - notably in adopting fiscal consolidation, but also low inflation and provision of a "nominal anchor" - and co-operation between authorities yet more important. They may also present major dilemmas to the authorities when there is a potential conflict between growth and counter-inflation objectives, or indeed between monetary and financial stability more generally. Notably for countries defending exchange-rate pegs, the rapidity with which markets are able to react to news shortens the reaction times required of central banks, and necessitates action on the basis of less complete information. Reserves are likely to be wholly inadequate against the scale of transactions that institutions can undertake, particularly given ability to utilise derivatives to gain leverage, and hence greater stress is placed on the interest rate.

Bond-market globalisation, and the consequent tendency for foreign yields to have a greater influence on domestic bond markets may diminish the leverage of domestic monetary policy over the economy (Fell 1996). Equally, the possibility of overshooting and movement for non-fundamental reasons reduces the clarity of the signals from bond yields. Conventionally these are seen as composed of three components, real yields, inflation expectations and uncertainty, where the use of index linked

⁴⁸ Because equity and bond holders would benefit from banks' actions.

⁴⁹ On the other hand, the position of banks will to some extent be protected by shareholding structures, which give them both stakes and voting rights on behalf of custodial holders. Medium sized firms may prefer to avoid flotation to retain "insider control". Company statutes in countries such as Germany recognise the rights of stakeholders, including creditors, to a say in management. And company secrecy is to some degree protected by law, thus maintaining banks' comparative advantage over markets as a source of finance. Even if there is a broader switch to an Anglo-Saxon system, the banks could maintain control via dominance of securities issuance and fund management. And control over fund management could be used to avoid some of the changes in financial structure outlined above. However, in our view the Single Market and the superior performance of competitors from the UK and US mean that such dominance cannot be guaranteed. On balance, the position of European banks would be weakened by institutional growth, but not wholly compromised.

bond yields and volatility of options prices enable an idea to be obtained of the size and movement of the inflation component. But the possibility of overshooting makes this potentially highly inaccurate.

As regards prudential policy, whereas institutions are not in general subject to runs, having matched assets and liabilities, liquidity failure of securities markets which may be generated by institutional behaviour may raise prudential concerns and lead to call for a market maker of last resort (raising a risk of moral hazard). Again, there are doubts about the stability of money market mutual funds. A point of major debate in the wake of the Mexican crisis was whether an international lender of last resort for countries is also needed in a globalised and institutionalised financial system.

In this context, some have revived the well-known issue of a tax on gross foreign exchange transactions to slow the response of financial markets (Eichengreen, Tobin and Wyplosz (1995)); others point out the well known shortcomings of this suggestion (Garber and Taylor (1995)).⁵⁰

Annex: Long term development of financial systems

The processes whereby an economy develops from an informal financial system through banking to securities markets can be analysed by use of the theories of corporate finance. Whereas an entrepreneur can begin a firm by relying on his own funds and retained earnings, rapid growth of his enterprise requires access to external finance. The simplest form of this is from the family, who will be able to monitor him closely and hence protect their own interests. Beyond this, banks tend to be the first to offer funds, as they have a comparative advantage in monitoring and control of entrepreneurs lacking a track record, for example in terms of access to information, ability to take security and to exert control via short maturities. Obviously, they are also able to offer benefits to depositors in terms of pooling across investments and 'liquidity insurance', that is, ability to offer access to deposited funds at any time, at a positive interest rate. This may then dominate the alternatives of extremely undiversified finance of enterprises or hoarding.

Share issuance becomes important when bank debt becomes sizeable in relation to existing own-funds, as the high resultant level of gearing gives rise to conflicts of interest between debt and equity holders, as for example owner-managers have the incentive to carry out high risk investments. Banks may also protect themselves by means of covenants or even the acceptance of equity stakes, which internalises the associated agency costs. Apart from banks, at the initial stages of development of share markets, securities are typically held by wealthy individuals as an alternative, diversifiable, liquid, higher return albeit riskier alternative to bank deposits. Corporate bond markets are only viable when firms have a very high reputation, as this then constitutes a capital asset, that would depreciate if the firm engaged in opportunistic behaviour. High credit quality is needed because bond market investors are likely to have less influence and control over management than equity holders or banks,

⁵⁰ Notably that a country imposing such taxes unilaterally would face disintermediation, while a global tax could still be avoided by undertaking of separate positions and transactions, particularly via use of derivatives, to mimic a foreign exchange deal, necessitating application to an ever wider range of instruments. And since success of such a tax would likely entail a decline in liquidity, and liquidity tends to be stabilising, it might have directly counter productive effects on volatility.

even if one allows for the existence of covenants. Rating agencies help to alleviate associated information problems, but do not thereby open the bond market for firms with poor reputations or volatile profitability. The pattern is completed by institutional investors, as outlined in the main paper.

Evidence from history suggests that the progress of an economy through these stages depends on a number of preconditions. Partly these relate to macroeconomic and structural factors. But they also require a satisfactory regulatory structure and a sound banking system. Without a satisfactory framework for enforcing property rights and financial contracts, as well as for providing public information, securities markets will not tend to develop; forms of relationship banking with equity stakes held mainly by banks in borrowers are likely to be the limits of financial development. Institution of limited liability for equity claims, a structure for collateralising debt, satisfactory accounting standards and appropriate protection against securities fraud (listing requirements and insider trading rules, for example) are also important for public securities markets (see Stiglitz 1990). Moreover, the development and satisfactory regulation of the banking system may be a precondition for growth of securities markets, given the role of banks in providing credit to underwriters and market makers, even when they do not take on security positions themselves.

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Table 1: Size indicator of financial structure

(total financial claims as a proportion of GDP)

	1970	1975	1980	1985	1990	1994		change 70-94
UK	4.73	5.98	4.85	7.92	8.86	10.35		5.62
UK excluding euro- markets	4.73	5.36	4.20	6.86	7.92	9.43		4.70
US	4.05	3.81	4.06	5.02	5.66	6.16		2.11
Germany	2.89	3.29	3.58	4.40	4.69	5.54		2.65
Japan	3.79	4.52	5.06	6.51	8.53	8.03		4.24
Canada	4.67	4.38	5.06	5.21	5.78	5.46		0.79
France	4.41	4.35	4.78	5.60	6.92	8.36		3.95
Italy	3.35	3.78	3.93	4.10	4.27	5.07		1.72
G7	3.99	4.21	4.38	5.39	6.25	6.87		2.88
Anglo- Saxon	4.03	4.27	4.39	5.60	6.52	6.93		2.90
Europe and Japan	3.82	4.06	4.48	5.16	6.04	6.49		2.67

Source: National balance-sheet data

Table 2: Financial intermediation ratios

(intermediated claims as a proportion of the total)

	1970	1975	1980	1985	1990	1994		change 70-94
UK	0.32	0.35	0.42	0.46	0.47	0.46		0.14
UK excluding euro- markets	0.32	0.27	0.34	0.37	0.40	0.41		0.09
US	0.33	0.37	0.37	0.35	0.35	0.40		0.07
Germany	0.44	0.44	0.45	0.43	0.43	0.46		0.03
Japan	0.39	0.41	0.42	0.42	0.42	0.47		0.09
Canada	0.29	0.32	0.34	0.34	0.37	0.43		0.14
France	0.34	0.41	0.45	0.44	0.39	0.36		0.01
Italy	0.36	0.39	0.32	0.31	0.31	0.30		-0.05
G7	0.35	0.37	0.38	0.38	0.38	0.40		0.05
Anglo- Saxon	0.35	0.36	0.38	0.38	0.39	0.44		0.08
Europe and Japan	0.36	0.39	0.39	0.39	0.38	0.41		0.04

Source: National balance-sheet data

Table 3: Bank and institutional intermediation ratios

(proportion of intermediated claims held by banks and institutional investors)

		1970	1975	1980	1985	1990	1994		Change 70-94
UK	Bank	0.58	0.65	0.64	0.56	0.55	0.47		-0.11
	Instit	0.28	0.24	0.26	0.33	0.32	0.36		0.08
US	Bank	0.58	0.59	0.58	0.53	0.44	0.33		-0.25
	Instit	0.31	0.28	0.31	0.35	0.39	0.44		0.13
Germany	Bank	0.84	0.85	0.86	0.84	0.83	0.78		-0.06
	Instit	0.10	0.11	0.12	0.15	0.17	0.22		0.12
Japan	Bank	0.45	0.40	0.36	0.34	0.38	0.34		-0.11
	Instit	0.10	0.10	0.10	0.12	0.16	0.16		0.05
Canada	Bank	0.45	0.51	0.55	0.49	0.44	0.44		0.00
	Instit	0.23	0.20	0.19	0.24	0.25	0.27		0.04
France	Bank	0.95	0.95	0.96	0.95	0.81	0.76		-0.19
	Instit	0.05	0.04	0.04	0.04	0.18	0.23		0.18
Italy	Bank	0.98	0.98	0.98	0.92	0.95	0.93		-0.04
	Instit	0.06	0.05	0.05	0.10	0.11	0.13		0.06
G7	Bank	0.69	0.70	0.70	0.66	0.63	0.58		-0.11
	Instit	0.16	0.14	0.15	0.19	0.23	0.26		0.10
Anglo-Saxon	Bank	0.53	0.58	0.59	0.52	0.48	0.41		-0.12
	Instit	0.28	0.24	0.25	0.31	0.32	0.36		0.08
Europe and Japan	Bank	0.80	0.80	0.79	0.76	0.74	0.70		-0.10
	Instit	0.08	0.07	0.08	0.10	0.16	0.18		0.10

Data do not add to 1.0 owing to other financial institutions not classified as banks or institutional investors.

Source: National balance-sheet data

Table 4: Banking sector developments

(a) Change in lending/GDP ratio

	1970-1975	1975-1980	1980-1985	1985-1990	1990-1994
UK	-0.22	0.00	0.28	0.44	-0.10
US	0.06	0.15	0.08	0.09	-0.07
Germany	0.14	0.16	0.15	0.01	0.20
Japan	0.23	0.18	0.33	0.36	0.11
Canada	0.11	0.14	-0.09	0.10	0.05
France	-0.16	0.00	0.02	0.10	0.11
Italy	0.17	-0.20	-0.06	-0.05	0.14

(b) Non interest income/total income (percent)

	1979-1984	1985-1989	1990-1992
UK	31	37	41
US	24	30	34
Germany	19	21	25
Japan	18	32	20
Canada	22	27	31
France	15	16	26
Italy	27	29	24

(c) Interest margins/assets (percent)

	1979-1984	1985-1989	1990-1992
UK	3.2	3.0	2.8
US	3.0	3.3	3.6
Germany	2.2	2.1	1.9
Japan	1.1	0.9	0.8
Canada	2.5	2.9	3.0
France	2.5	2.3	1.7
Italy	2.7	2.9	3.2

(d) Provisions/assets (percent)

	1979-1984	1985-1989	1990-1992
UK	0.41	0.86	1.2
US	0.35	0.83	0.89
Germany	0.41	0.37	0.38
Japan	0.02	0.04	0.08
Canada	0.49	0.74	0.64
France	0.55	0.53	0.54
Italy	0.66	0.48	0.52

Source: OECD Bank Profitability

Table 5: Volume of financial instruments outstanding (% of GDP)

		1970	1975	1980	1985	1990	1994		Change 70-94
UK	Deposits	0.87	0.72	0.64	1.20	1.50	1.37		0.50
excluding	Equities	0.83	0.51	0.43	0.84	1.14	1.64		0.81
euromkts	Bonds	0.37	0.26	0.30	0.50	0.32	0.43		0.06
	Loans	0.66	0.43	0.44	0.71	1.16	1.06		0.40
US	Deposits	0.65	0.71	0.67	0.71	0.64	0.57		-0.08
	Equities	0.85	0.54	0.58	0.64	0.63	0.90		0.05
	Bonds	0.68	0.69	0.69	0.93	1.19	1.37		0.69
	Loans	0.80	0.86	1.00	1.09	1.17	1.10		0.30
Germany	Deposits	0.89	1.01	1.08	1.16	1.21	1.36		0.48
	Equities	0.28	0.27	0.23	0.41	0.47	0.50		0.22
	Bonds	0.23	0.29	0.35	0.57	0.62	0.95		0.73
	Loans	0.97	1.11	1.27	1.43	1.44	1.64		0.67
Japan	Deposits	0.97	1.17	1.44	1.72	2.12	2.20		1.23
	Equities	0.27	0.40	0.40	0.44	0.75	0.65		0.38
	Bonds	0.26	0.40	0.64	0.88	0.77	1.07		0.81
	Loans	1.13	1.36	1.54	1.87	2.23	2.33		1.20
Canada	Deposits	0.74	0.80	0.99	0.90	0.92	0.89		0.16
	Equities	0.94	0.71	0.82	0.90	1.07	1.25		0.31
	Bonds	0.77	0.65	0.70	0.82	0.79	1.05		0.28
	Loans	0.79	0.90	1.04	0.94	1.04	1.09		0.31
France	Deposits	1.05	1.37	1.62	1.67	1.71	1.74		0.69
	Equities	0.92	0.63	0.72	1.22	1.77	2.69		1.77
	Bonds	0.15	0.19	0.23	0.42	0.51	0.67		0.51
	Loans	2.10	1.94	1.94	1.95	2.05	2.16		0.07
Italy	Deposits	0.95	1.21	1.17	0.97	1.08	1.14		0.19
	Equities	0.37	0.27	0.61	0.92	0.81	0.92		0.54
	Bonds	0.45	0.53	0.41	0.58	0.71	1.08		0.63
	Loans	1.19	1.36	1.16	1.10	1.05	1.19		-0.01
G7	Deposits	0.87	1.00	1.09	1.19	1.31	1.33		0.45
	Equities	0.64	0.48	0.54	0.77	0.95	1.22		0.58
	Bonds	0.41	0.43	0.47	0.67	0.70	0.95		0.53
	Loans	1.09	1.14	1.20	1.30	1.45	1.51		0.42
Anglo-Saxon	Deposits	0.75	0.74	0.77	0.93	1.02	0.94		0.19
	Equities	0.87	0.59	0.61	0.79	0.95	1.26		0.39
	Bonds	0.61	0.54	0.56	0.75	0.77	0.95		0.34
	Loans	0.75	0.73	0.83	0.91	1.12	1.09		0.34
Europe and Japan	Deposits	0.97	1.19	1.33	1.38	1.53	1.61		0.65
	Equities	0.46	0.39	0.49	0.75	0.95	1.19		0.73
	Bonds	0.27	0.35	0.41	0.61	0.65	0.94		0.67
	Loans	1.35	1.44	1.48	1.59	1.69	1.83		0.48

Source: National balance-sheet data

Table 6: Household assets and liabilities/GDP

		1970	1975	1980	1985	1990	1994		Change 70-94
UK	Assets	1.82	1.33	1.16	1.81	2.07	2.48		0.66
	Liabilities	0.39	0.37	0.35	0.58	0.80	0.78		0.40
	Net fin. wealth	1.43	0.96	0.82	1.22	1.27	1.69		0.26
US	Assets	1.90	1.60	1.66	1.90	2.08	2.31		0.41
	Liabilities	0.48	0.49	0.55	0.58	0.68	0.72		0.23
	Net fin. wealth	1.42	1.11	1.11	1.32	1.40	1.59		0.17
Germany	Assets	0.78	0.93	1.01	1.19	1.26	1.45		0.67
	Liabilities	0.38	0.42	0.50	0.57	0.54	0.61		0.23
	Net fin. wealth	0.41	0.51	0.51	0.63	0.72	0.84		0.43
Japan	Assets	0.98	1.20	1.44	1.81	2.20	2.41		1.43
	Liabilities	0.38	0.46	0.54	0.61	0.77	0.78		0.39
	Net fin. wealth	0.60	0.74	0.91	1.20	1.43	1.63		1.03
Canada	Assets	1.48	1.38	1.54	1.58	1.74	1.95		0.47
	Liabilities	0.51	0.53	0.56	0.50	0.63	0.68		0.17
	Net fin. wealth	0.97	0.85	0.98	1.08	1.11	1.27		0.30
France	Assets	1.11	1.03	1.04	1.14	1.38	1.72		0.60
	Liabilities	0.41	0.43	0.44	0.45	0.46	0.55		0.13
	Net fin. wealth	0.70	0.60	0.60	0.69	0.92	1.17		0.47
Italy	Assets	0.92	0.92	0.87	1.12	1.68	2.04		1.11
	Liabilities	0.07	0.09	0.06	0.07	0.19	0.24		0.16
	Net fin. wealth	0.85	0.84	0.80	1.05	1.49	1.80		0.95
G7	Assets	1.29	1.20	1.25	1.51	1.77	2.05		0.76
	Liabilities	0.37	0.40	0.43	0.48	0.58	0.62		0.25
	Net fin. wealth	0.91	0.80	0.82	1.03	1.19	1.43		0.52
Anglo-Saxon	Assets	1.73	1.44	1.46	1.76	1.96	2.24		0.51
	Liabilities	0.46	0.46	0.49	0.55	0.70	0.73		0.27
	Net fin. wealth	1.27	0.98	0.97	1.21	1.26	1.52		0.25
Europe and Japan	Assets	0.95	1.02	1.09	1.31	1.63	1.90		0.95
	Liabilities	0.31	0.35	0.39	0.42	0.49	0.54		0.23
	Net fin. wealth	0.64	0.67	0.71	0.89	1.14	1.36		0.72

Source: National balance-sheet data

Table 7: Household sector balance sheets

(proportions of gross financial assets)

		1970	1975	1980	1985	1990	1994		Change 70-94
UK	Deposits	0.34	0.40	0.43	0.30	0.31	0.26		-0.08
	Bonds	0.07	0.08	0.07	0.02	0.01	0.01		-0.06
	Equities	0.24	0.16	0.12	0.11	0.12	0.12		-0.13
	Instits	0.23	0.26	0.30	0.47	0.48	0.54		0.31
US	Deposits	0.28	0.36	0.33	0.30	0.25	0.18		-0.10
	Bonds	0.13	0.13	0.10	0.10	0.12	0.12		-0.01
	Equities	0.36	0.24	0.21	0.16	0.15	0.19		-0.17
	Instits	0.22	0.26	0.28	0.35	0.41	0.44		0.22
Germany	Deposits	0.59	0.62	0.59	0.52	0.48	0.45		-0.15
	Bonds	0.08	0.09	0.12	0.15	0.16	0.14		0.06
	Equities	0.10	0.07	0.04	0.06	0.07	0.06		-0.04
	Instits	0.15	0.15	0.17	0.19	0.21	0.28		0.14
Japan	Deposits	0.55	0.59	0.69	0.65	0.60	0.62		0.07
	Bonds	0.06	0.06	0.09	0.11	0.09	0.06		0.01
	Equities	0.12	0.10	0.07	0.08	0.09	0.07		-0.05
	Instits	0.14	0.13	0.13	0.15	0.21	0.25		0.11
Canada	Deposits	0.31	0.37	0.38	0.34	0.36	0.33		0.02
	Bonds	0.14	0.12	0.08	0.10	0.05	0.04		-0.09
	Equities	0.27	0.22	0.24	0.23	0.21	0.25		-0.02
	Instits	0.22	0.20	0.21	0.25	0.28	0.31		0.09
France	Deposits	0.48	0.60	0.59	0.50	0.38	0.32		-0.15
	Bonds	0.06	0.07	0.09	0.07	0.04	0.04		-0.02
	Equities	0.26	0.15	0.14	0.27	0.27	0.32		0.05
	Instits	0.06	0.06	0.07	0.08	0.26	0.29		0.23
Italy	Deposits	0.45	0.63	0.58	0.42	0.35	0.29		-0.16
	Bonds	0.19	0.14	0.08	0.17	0.19	0.20		0.00
	Equities	0.11	0.02	0.10	0.10	0.21	0.24		0.13
	Instits	0.08	0.07	0.06	0.11	0.08	0.09		0.01
G7	Deposits	0.43	0.51	0.51	0.43	0.39	0.35		-0.08
	Bonds	0.10	0.10	0.09	0.10	0.09	0.09		-0.02
	Equities	0.21	0.14	0.13	0.14	0.16	0.18		-0.03
	Instits	0.16	0.16	0.17	0.23	0.28	0.31		0.16
Anglo-Saxon	Deposits	0.31	0.38	0.38	0.31	0.31	0.26		-0.05
	Bonds	0.11	0.11	0.08	0.08	0.06	0.06		-0.06
	Equities	0.29	0.21	0.19	0.17	0.16	0.18		-0.10
	Instits	0.22	0.24	0.26	0.36	0.39	0.43		0.21
Europe and Japan	Deposits	0.52	0.61	0.61	0.52	0.45	0.42		-0.10
	Bonds	0.10	0.09	0.10	0.12	0.12	0.11		0.01
	Equities	0.15	0.08	0.09	0.13	0.16	0.17		0.02
	Instits	0.11	0.10	0.11	0.14	0.19	0.23		0.12

Source: National balance-sheet data

Table 8: Pension Funds' Portfolio Distributions, 1994

Percent	Equities	Bonds and loans	Property	Liquidity and deposits	Of which(1): foreign assets
UK	80	11	6	3	30
US	48	38	0	7	10
Germany	11	75	11	3	6
Japan (March 1994)	27	61	2	3	7
Canada (1992)	38	49	3	7	9
France	14	39	7	40	5
Italy	9	62	23	6	5

Source: EFRP, National data. (1) Included in data to the left

Table 9: Corporate sector balance sheets

(proportions of gross liabilities; bonds include short term paper)

		1970	1975	1980	1985	1990	1994	Change 70-94
UK	Bonds	0.07	0.04	0.02	0.00	0.00	0.00	-0.07
	Equity	0.49	0.37	0.37	0.52	0.53	0.65	0.16
	Loans	0.15	0.23	0.22	0.16	0.21	0.12	-0.03
US	Bonds	0.14	0.18	0.17	0.18	0.18	0.16	0.02
	Equity	0.55	0.48	0.49	0.49	0.45	0.55	0.00
	Loans	0.15	0.17	0.13	0.13	0.13	0.13	-0.02
Germany	Bonds	0.03	0.03	0.02	0.02	0.02	0.08	0.04
	Equity	0.27	0.24	0.20	0.28	0.31	0.25	-0.02
	Loans	0.47	0.48	0.52	0.43	0.42	0.50	0.03
Japan	Bonds	0.02	0.02	0.03	0.04	0.06	0.06	0.03
	Equity	0.16	0.21	0.22	0.23	0.29	0.26	0.09
	Loans	0.48	0.46	0.45	0.48	0.45	0.47	-0.01
Canada	Bonds	0.12	0.09	0.08	0.11	0.13	0.18	0.06
	Equity	0.46	0.39	0.41	0.42	0.41	0.44	-0.02
	Loans	0.15	0.20	0.22	0.21	0.22	0.19	0.04
France	Bonds	0.03	0.04	0.04	0.04	0.04	0.03	0.00
	Equity	0.41	0.32	0.34	0.46	0.60	0.70	0.29
	Loans	0.54	0.62	0.60	0.48	0.41	0.28	-0.26
Italy	Bonds	0.08	0.08	0.04	0.02	0.03	0.03	-0.05
	Equity	0.32	0.21	0.52	0.57	0.48	0.46	0.14
	Loans	0.60	0.69	0.43	0.35	0.41	0.44	-0.16
G7	Bonds	0.07	0.07	0.05	0.06	0.07	0.08	0.01
	Equity	0.38	0.32	0.36	0.42	0.44	0.47	0.09
	Loans	0.36	0.41	0.37	0.32	0.32	0.30	-0.06
Anglo-Saxon	Bonds	0.11	0.10	0.09	0.10	0.10	0.11	0.00
	Equity	0.50	0.41	0.42	0.47	0.46	0.55	0.05
	Loans	0.15	0.20	0.19	0.17	0.18	0.15	0.00
Europe and Japan	Bonds	0.04	0.04	0.03	0.03	0.04	0.05	0.01
	Equity	0.29	0.25	0.32	0.38	0.42	0.42	0.13
	Loans	0.52	0.56	0.50	0.43	0.42	0.42	-0.10

Source: National balance-sheet data

Table 10: Ownership of listed shares by sector

Sector	Households		Non financial companies		Public sector		Financial institutions		Foreign	
	1970	1992	1970	1992	1970	1992	1970	1992	1970	1992
UK	50	19	5	2	3	1	36	62	7	16
US	51	48	15	9	0	0	28	37	6	6
Germany	28	17	41	39	11	3	11	29	8	12
Japan	40	20	23	28	0	1	35	42	3	8
France	41	34	20	21	3	2	24	23	12	20

Source: Berglöf (1996)

*1970 except for the US (1981), and for France (1977).

Table 11: International investment flows

Share (%)	1975-79		1995	
	Outflows from OECD countries	Inflows to OECD countries	Outflows from OECD countries	Inflows to OECD countries
Banking	49.5	72.0	9.2	5.4
Equities	5.1	3.2	35.0	35.7
Bonds	9.8	13.3	41.7	48.2
Direct investment	35.6	11.5	14.2	10.7

Source: Howell and Cozzini (1995)

Table 12: Capital Market Turnover

(percent of GDP)

	1977	1980	1985	1990	1993
UK	70	50	70	160	220
US	110	130	420	430	620
Germany	10	10	30	70	110
Japan	20	50	320	320	220
France	10	10	20	60	120
Italy	10	10	20	50	290+
Euromarkets*	10	10	30	40	130

Estimates of the annual value of secondary market transactions in equities and bonds, including OTC transactions. A purchase and corresponding sale count as a single transaction.

* Total transactions settled through Euroclear and Cedel as a percentage of total GNP of G-10 countries in US dollars

+ 1992 Source: BIS

Table 13: Market price volatility

(standard deviation of monthly percentage changes)

		65-70	70-75	75-80	80-85	85-90	90-95
UK	Bond total returns	1.2	3.4	3.5	2.6	2.4	1.9
	Share prices	4.0	8.7	5.1	3.3	5.2	3.3
	Exchange rates	1.2	1.3	1.9	2.0	1.8	1.7
	Memo: Indl. prod.	1.0	2.4	2.1	1.3	1.3	1.0
US	Bond total returns	2.0	1.7	2.5	3.0	2.3	1.8
	Share prices	3.4	4.3	3.2	3.5	3.9	2.2
	Exchange rates	0.2	1.3	1.2	1.8	1.6	1.6
	Memo: Indl. prod.	0.8	1.2	0.8	0.9	0.6	0.5
Germany	Bond total returns	1.1	1.4	1.7	1.6	1.5	1.4
	Share prices	4.3	4.3	2.5	3.2	6.0	3.6
	Exchange rates	0.9	1.6	1.1	1.1	0.8	1.0
	Memo: Indl. prod.	2.0	1.7	1.7	2.5	1.6	1.4
Japan	Bond total returns	0.1	0.6	2.1	2.1	3.5	1.9
	Share prices	3.3	4.7	1.9	2.8	5.2	5.0
	Exchange rates	0.2	1.6	2.6	2.1	2.5	2.5
	Memo: Indl. prod.	1.1	1.5	1.3	1.2	1.4	1.6
Canada	Bond total returns	1.2	1.5	1.9	3.4	2.1	2.0
	Share prices	4.0	5.1	5.1	5.2	4.7	3.0
	Exchange rates	0.5	0.7	1.3	0.9	1.1	1.1
	Memo: Indl. prod.	0.9	1.4	1.2	1.5	0.9	0.7
France	Bond total returns	0.7	1.0	1.6	1.9	2.2	1.7
	Share prices	3.9	4.0	4.2	4.8	6.2	4.0
	Exchange rates	1.1	1.3	1.1	1.2	0.7	0.9
	Memo: Indl. prod.	6.1	2.0	1.7	1.3	1.5	1.2
Italy	Bond total returns	0.9	1.8	1.9	2.0	1.9	2.6
	Share prices	3.8	7.3	6.2	7.0	7.0	5.7
	Exchange rates	0.3	1.3	1.7	0.7	0.6	2.2
	Memo: Indl. prod.	2.3	3.9	3.0	2.5	3.2	3.5

Source: BIS macroeconomic database

Table 14: Selected episodes of financial instability 1970-95

Date	Event	Main feature	Institutions' involvement
1970	US Penn Central Bankruptcy	Collapse of market liquidity and issuance	Moderate
1973	UK secondary banking	Bank failures following loan losses	Moderate
1974	Herstatt	Bank failure following trading losses	Low
1982	Ldc debt crisis	Bank failures following loan losses	Low
1984	Continental Illinois (US)	Bank failure following loan losses	Low
1985	Canadian Regional Banks	Bank failures following loan losses	Low
1986	FRN market	Collapse of market liquidity and issuance	High
1986	US thrifts	Bank failures following loan losses	Low
1987	Stock market crash	Price volatility after shift in expectations	High
1989	Collapse of US junk bonds	Collapse of market liquidity and issuance	High
1989	Australian banking problems	Bank failures following loan losses	Low
1990	Swedish commercial paper	Collapse of market liquidity and issuance	High
1990-1	Norwegian banking crisis	Bank failures following loan losses	Low
1991-2	Finnish banking crisis	Bank failures following loan losses	Low
1991-2	Swedish banking crisis	Bank failures following loan losses	Low
1992-6	Japanese banking crisis	Bank failures following loan losses	Moderate
1992	ECU bond market collapse	Collapse of market liquidity and issuance	High
1992-3	ERM crisis	Price volatility after shift in expectations	High
1994	Bond market reversal	Price volatility after shift in expectations	High
1995	Mexican crisis	Price volatility after shift in expectations	High

For detailed accounts see Davis (1994, 1995b, 1995c)

Table 15: Indicators of financial innovation

(a) Commercial paper outstanding/GDP

	Market Opening	1986	1988	1990	1992
UK	1986	0.1	0.6	0.7	0.7
US	1960	7.5	9.0	9.9	8.8
Germany	1991	0	0	0	0.6
Japan	1987	0	2.4	3.6	2.6
Canada	1960	3.2	4.0	4.6	4.4
France	1985	0.4	1.0	2.3	2.3

Source: IMF

(b) Turnover in derivatives on organised exchanges (millions of contracts)

	1986	1988	1990	1992	1994
Total	315	336	478	636	1140
of which:					
In the US	288	251	311	340	510
In Europe	10	41	83	185	399
In Japan	9	23	61	52	71
Elsewhere	7	21	24	59	162
of which:					
Interest rate futures	91	156	219	330	628
Interest rate options	22	31	52	65	115
Currency futures	20	22	30	31	70
Currency options	13	18	19	23	21
Stock index futures	28	30	39	52	109
Stock index options	140	79	119	133	200

Source: Bisignano (1995)

Table 16: Selected patterns of deregulation

	1960	1980	1987	1990	1995
UK	IEC	IC			
US	I	I	I		
Germany	I				
Japan	IEC	IC	IC	IC	
Canada	I				
France	IEC	IEC	IE		
Italy	IEC	EC	EC	E	

I = Interest rate controls

E = Exchange controls (being checked)

C = Direct controls on credit expansion (being checked)