



DISCUSSION PAPER PI-0303

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January 2003

ISSN 1367-580X

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<http://www.pensions-institute.org/>

INSTITUTIONAL INVESTORS, FINANCIAL MARKET EFFICIENCY AND FINANCIAL STABILITY

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**Paper to be presented at the European Investment Bank conference entitled
“Europe’s changing financial landscape”,
EIB, Luxembourg, 23rd January 2003**

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Introduction

Institutional investors have grown strongly in the past few decades, as a consequence not only of the overall expansion of financial sectors relative to GDP, but also a boost in their share of total financial claims. As outlined in Davis and Steil (2001), the growth of institutional investors can be traced to various supply and demand factors that have made investing via institutions attractive to households. Supply-side factors suggest that institutions have offered their services relatively more efficiently than banks and direct holdings, thus fulfilling the functions of the financial system more effectively, while demand-side factors imply households have enhanced requirements for the types of financial functions that institutional investors are able to fulfil. On the supply side, there is, *inter alia*, the ease of diversification, liquidity, improved corporate control, deregulation, ability to take advantage of technological developments, and enhanced competition, as well as fiscal inducements and the difficulties of social security pensions. On the demand side, one may highlight demographic aspects (notably funding of pensions and population ageing) and growing wealth.

Owing to the dominance of pay-as-you-go pensions and the lack of sustainability of current systems (Davis 1995a), scope for expansion of private pension funding and institutional investment more generally is arguably even greater in Continental Europe than in the relatively mature markets of the US and the UK, where pension systems already have major funded elements. Pension saving is likely to increase sharply over the next twenty years as individuals seek to provide for their retirements following pension reform in pension funds, or as precautionary saving in life insurance and mutual funds. We also argue that the scope for change in EU pension systems as well as growth of institutional investors is enhanced by EMU. The prospective development of institutional investors has major implications for the structure and performance of EU financial markets. Given this perspective, an overview of the likely financial implications of the growth of institutions is very timely. Note that given the lesser development of institutions in Europe to date, much of the paper has to be set out in general terms or using experience from the US and UK, which may be replicated in the rest of the EU in future.

We focus successively on the impact of institutional investor growth on the efficiency and stability of financial markets. Efficiency is defined broadly in terms of the ability to perform the underlying functions of financial systems (Merton and Bodie 1995), which are:

- The provision of ways of clearing and settling payments to facilitate exchange of goods, services, and assets
- The provision of a mechanism for pooling of funds from individual households to facilitate large-scale indivisible undertakings and the subdivision of shares in enterprises to facilitate diversification
- The provision of ways to transfer economic resources over time, across geographic regions, or among industries;

- The 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: hedging, diversifying, and insuring.
- The provision of price information, thus helping to coordinate decentralized decision making in various sectors of the economy
- The provision of 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

Our main focus is on pooling, transfer of resources and incentive problems, although the other functions are also touched upon². We begin by providing details on the current size and likely future trends in institutional investment. Then we assess successively the extent to which insurance companies, pension funds and mutual funds differ in ways that may be relevant to their impact on financial markets. We examine whether institutional investors can raise the saving and investment rate of the economy, the impact on corporate governance and other aspects of financial structure. Proceeding from efficiency to stability aspects, we look at the impact on market dynamics of the investment techniques, asset pricing models and risk management approaches adopted by institutional investors. We consider the systemic consequences of the conduct and regulation of institutional investors, we outline some specific issues linked to life insurance companies; and assess the implications of growing institutional investor sectors for prudential regulatory policy.

1 The size of institutional investors and likely future influences in Europe

The long term development of financial systems and institutional investors in the EU-4 and G-7 is traced in Tables 1-5. Table 1 shows that the financial superstructure – the value of total financial claims of all sectors relative to GDP – has grown sharply since 1970, more than doubling from 4 to 9 on average across the G-7. Table 2 illustrates that despite the rise in total claims and the interest in securitisation, financial intermediation has grown as a share of the total from 35% to 45%. Table 3 shows that it is institutional intermediation that has grown relative to banking, although except in the US banks remain larger than institutional investors. Table 4 shows the size of the institutional investor sector has increased massively since 1970. Note that the trends identified are common to Anglo-Saxon and bank-based economies, although institutions remain less important in the latter than in the former. Table 5 shows that pension funds tend to be dominant in the Anglo Saxon countries, but insurance and mutual funds come to the fore elsewhere.

Table 6 looks more specifically at EU countries in 2000 (the data are not necessarily comparable with the earlier tables). In that year, pension fund assets were equivalent to around 30% of GDP, while

² For a complete assessment see Davis and Steil (2001)

insurance company assets were over 50% of GDP and investment funds 40%. The total value of institutional assets in Europe was around Euro11 tn. The size of pension fund sectors differs markedly between countries, with Denmark, the Netherlands and Sweden as well as Switzerland standing out in Continental Europe, and the UK and Ireland also having major pension fund sectors. Life insurance stands out in the UK, Sweden, Denmark and Luxembourg while investment funds are largest in France, if we abstract from the offshore markets of Ireland and Luxembourg. The UK accounts for 30% of EU institutional assets. There is a likelihood of double counting in a table such as this, since insurance companies are important managers of pension fund assets and also pension funds are important investors in investment companies.

The fundamental pressures for growth of institutional investors in Europe are the aging of the population in the context of generous pay-as-you-go pension schemes (see Davis 1999a). There are a number of ways in which European Monetary Union (EMU) will tend to accelerate the growth of institutional investment. Changes are already taking place owing to deregulation, which will be enhanced by a new Pension Funds Directive and an amended UCITS Directive. Some autonomous developments are also relevant.

The issue of population ageing needs little expansion here. Suffice to say that there is expected to be a sharp increase in the proportion of the population aged 65 and over in the EU. This increase is largely a consequence of a decline in fertility to below replacement in most EU countries, although it also stems from an increase in average life expectancy and a low level of net migration. With an unchanged retirement age, such a demographic shift will naturally lead to an increase in the scope of transfers in the context of pay-as-you-go pension systems. The problem is, however, compounded by the fact that social security pension promises even for higher earners are extremely generous in a number of EU countries, with, for example, the net social security replacement rates (pension/earnings at retirement) being typically more than 50% even for those on twice average earnings. The exceptions are Denmark, the Netherlands, Ireland and the UK, which are also the countries where pension-funding is most developed. Consequently, projections of social security pensions expenditure feature sharp and possibly unsustainable increases in such expenditure in a number of EU countries. Dang et al (2001) of the OECD projected that with unchanged pension policies, the share of GDP accounted for by social security pension costs would be 13% or more in 2040, in all EU Member States except for Sweden, Ireland and the UK.

The EMU context enhances pressure for reform of public pension systems, stimulating future demand for institutional investment. This links to fiscal integration in EMU, notably because in the context of an effective Stability and Growth Pact, there is much less scope than would otherwise be the case for governments to run large deficits to cushion rises in taxes when aging becomes an acute burden on social security. This is the case even if such deficits are desired as part of a strategy of reform that

aims to distribute the burden of transition to funding between generations.³ To avoid sharp rises in taxation, governments will seek to deal with their social security obligations and switch to funding of pensions at an earlier stage. Furthermore, owing to the so-called “no-bailout clause” in the Maastricht Treaty,⁴ financial markets in general and rating agencies in particular are putting an increasing focus on general government obligations, of which pension liabilities are the largest part (De Ryck 1997).

Separately, companies in Germany with book-reserve pension liabilities are keen to shift to a fully funded basis. This reflects the ongoing shift to market value accounting, which will make such liabilities apparent, as well as the impact of such liabilities on their credit ratings, where ratings are increasingly crucial to the cost of capital in the securitising EMU capital market. The recent tax reform makes it easier for pension assets and liabilities to go into separately capitalized pension funds.

Macroeconomic and financial conditions in EMU also favour growth of institutional investors. Since monetary integration is giving rise to sustained lower inflation, at least in some countries, it will make it easier for defined benefit pension funds to finance inflation indexation, while pension benefits from defined contribution funds will also more readily retain their purchasing power (Dickinson 1992). Financial integration is also making institutional investment more attractive by leading to a better risk-return trade-off being attainable. One aspect is increases in the range of instruments available, owing, for example, to broader availability of private equity as well as corporate bonds and securitised loans, the latter especially as the supply of government bonds diminishes. Increased liquidity and lower transactions costs resulting from market integration in EMU are increasing institutions’ comparative advantage over bank intermediation. In due course, in a deeper EU securities market, there may arise financial innovations that are tailored to institutions’ needs. These could include currently unavailable instruments such as bonds with returns linked to average earnings, which could be useful for life insurers and pension funds in matching assets to liabilities.

Meanwhile, regulations limiting international investment have ceased to be effective in the context of the euro zone, with accompanying increased correlation of national markets leading to sectoral investment across the whole of the euro zone.⁵ Besides eliminating the effects of home bias and diversifying portfolios across the euro area, a sectoral approach necessitates a major restructuring of portfolios as for example industrial stocks are 45% of the German market and 11% of the Spanish market. It has enhanced international competition among asset managers.

³ Note that reforms that seek to distribute the costs of transition from pay-as-you-go to funding between generations may in principle involve heavy government borrowing and deficits. Pure tax financing leaves the entire burden on the current generation of workers. See Holzmann (1997b)

⁴ Both the monetary authorities and other fiscal authorities are debarred under the Treaty from rescuing a country in fiscal crisis.

⁵Beckers (1999) showed increased correlation to be an established trend even before EMU.

Partly as a consequence of the above-mentioned factors, but also complemented by regulatory reform establishing a Single Market in asset management, life insurance and mutual funds. EMU is leading to increased competition among asset managers that previously monopolized national markets, with those having pan-euro-zone expertise having a decisive advantage. Indeed, Mercer (2001) report that the number of domestic equity mandates fell 60% over 1999-2001, and domestic bond mandates by 92%. Besides benefiting returns, competition should mean that the high fees and hidden charges typical of many EU countries should diminish. By increasing efficiency in investment, such competition favours institutional investment more generally.

Banks in Europe are facing challenges to their traditional business under EMU that are leading them to expand their asset management activities to maintain profitability, which is likely to spur further disintermediation. An immediate aspect is the elimination of commissions for foreign exchange transactions within the euro area. Lower inflation in some countries due to monetary integration has reduced interest rate margins,⁶ owing to the elimination of the so-called endowment effect profit from zero-interest sight deposits in a context of positive rates of inflation. Moreover, as financial integration increases, competition between banks for wholesale deposits and loans is also tending to intensify. The scope for disintermediation of traditional banking activities is increasing, as witness the rapid growth of corporate bond issuance by EU firms since 1999. The integrated money markets generated by EMU are facilitating the use of commercial paper for short-term borrowing by companies and security repurchase agreements (repos) and commercial paper as alternative repositories for liquidity to bank deposits.

For all of these reasons, Continental universal banks are increasing their focus on asset management and other investment banking services as a result of EMU, as the means to ensure continuing profitability and taking advantage of their distributional advantages. This is particularly marked in countries such as Germany, where the major commercial banks are seeking to redefine their business focus toward investment banking and aim to downplay or even eliminate their traditional—and relatively unprofitable—domestic retail and corporate banking.

Some autonomous developments are also relevant. European countries are developing professional bodies of asset managers and analysts that, by contributing to the understanding of financial markets, risk, and return, are tending to enhance competition. The European Federation of Financial Analysts' Societies is in the process of developing a single European examination of fund manager competence. Further development of performance measurement, shifts toward equities/international investment, and use of derivatives are aiding competition. And the tendency toward cross-border acquisitions of fund managers (notably of UK managers by German and Swiss banks) is already facilitating

⁶The margin is the difference between the average rate on loans and the average rate on deposits.

consolidation at a European level, although the motivation of such mergers may be partly a desire to consolidate entrenched positions at home.

The thrust of the points made above is that the euro zone will increasingly feature much less banking activity and more securities market financing and institutional investment. Meanwhile, Pragma Consulting (1999) have predicted that pension assets in Europe will rise \$2–5 billion per annum over the next ten years.

2 Portfolio behaviour of institutional investors

Following the financial function of pooling of funds, institutional investors may be defined as specialized financial institutions that manage savings collectively on behalf of small investors toward a specific objective in terms of acceptable risk, return maximization, and maturity of claims. In this section, we trace the essential characteristics of institutional investors, which will determine their impact on financial markets, and also consider how these characteristics differ between types of investor in a way that may influence their asset management.

2.1 General features common to all institutional investors

Institutional investors, in common with other financial institutions, provide a form of risk pooling for small investors, thus providing a better trade-off of risk and return than is generally 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 by international investment. Institutions also prefer liquidity and hence use 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 is superior to that of individual investors in the capital market. On the other hand, unlike banks, institutional investors rely on public information rather than private, which links strongly to their desire for liquidity. Most institutions have matched assets and liabilities in terms of maturity, unlike banks, which tends to minimize the risk of runs. Moreover, in many cases, they have long-term liabilities, facilitating the holding of high-risk and high-return instruments.

The size of institutions has a number of important implications. There may be economies of scale, which result in lower average costs for investors. These may arise from, inter alia, the ability to transact in large volumes, which typically leads to a lowering of commission charges. Investors share

the costly services of expert investment managers and thereby save in advisory fees. 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, which may be used to reduce transactions costs and custodial fees. This countervailing power also gives rise to the 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 the incidence of adverse incentive problems (Section 4).

Further characteristics arise from the process of asset management. Fund management can be broken down into two stages: asset allocation between broad asset categories and security selection of individual assets within those categories. There are offsetting forces in the asset management relationship. 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 a desire to limit risks incurred. On the other hand, such delegation raises principal-agent problems, as unless the fund manager is perfectly monitored and/or a foolproof contract is drawn up, the fund manager may act in his or her own interests (e.g., in generating excessive commission income)—or, particularly in Europe and Japan, in the interests of related financial institutions—and contrary to those of the liability holders. However, the various means that are used (particularly in Anglo-Saxon countries) to counteract such problems mean that fund management gives rise in turn to a potential for herding behaviour, as we discuss in Section 6. This may arise notably from the desire of managers to show that they are of good quality, for example in the context of short mandates, owing to the pressures exerted by performance measurement, or fear of takeover (for life insurers or closed-end funds).

2.2 The Main Types Of Institutional Investor

The discussion above should, of course, not be taken to imply that institutional investors are homogeneous. The main types of institutional investors are pension funds, life insurance companies, and forms of mutual funds. They differ generally in terms of the contractual relations between the owners of the assets and the asset managers, that is, the rules determining the distribution of risk and return, as well as in the definition of their liabilities. The main differences stem from liabilities.

Pension funds collect, pool, and invest funds contributed by sponsors and beneficiaries to provide for the future pension entitlements of beneficiaries (Davis 1995a, 2000a). They thus provide means for individuals to accumulate saving over their working life so as to finance their consumption needs in retirement. Pension funds are often sponsored by employers, although personal pensions (generally contracts between individuals and life insurance companies) are also common. Pension funds may be internally or externally managed. Returns to members of pension plans backed by such funds may be purely dependent on the market (defined contribution funds) or may be overlaid by a guarantee of the

rate of return by the sponsor (defined benefit funds). The latter have insurance features that are absent in the former (Bodie 1990b). These include guarantees with respect to replacement ratios (pensions as a proportion of income at retirement) subject to the risk of bankruptcy of the sponsor, as well as potential for risk sharing between older and younger beneficiaries. Defined contribution plans have tended to grow in recent years as employers have sought to minimize the risk of their obligations while employees desired funds that are readily transferable between employers. They may also prefer the ability, offered by some defined contribution arrangements, to control the disposition of their investment--an arrangement that also reduces asset management costs by eliminating the need for the fund to undertake asset allocation.

For both defined benefit and defined contribution funds, the liability tends to be set in real terms, as the objective of asset management is to attain a high replacement ratio at retirement (pension as a proportion of final salary), which is itself determined by the growth rate of average earnings. Hence they will hold considerable shares of real assets such as equities and real estate, as well as foreign assets (Table 7). Defined benefit plans may need to hedge or hold more cautious portfolios than defined contribution to allow for the risk of going below minimum solvency levels. On the other hand, the sponsors have an incentive to maximise returns on defined benefit funds to lower their own costs, while the individual members of defined contribution funds may pursue cautious strategies given the risks they face. If pension funds develop more than other types of institution in Europe in future, these features will have major importance for EU financial markets.

Life insurance companies, like pension funds, are long-term institutional investors with a large share of tradable assets in their portfolios. They historically provided insurance for dependents against the risk of death at a given time in the future, but are increasingly offering long-term saving vehicles for pensions, to repay loans for house purchase, and the like. Whereas life insurance companies' liabilities have traditionally tended to be nominal, that is, offering a guaranteed return that is fixed in money terms, an increasing proportion of policies are now "variable" and either lack such guarantees, or may have option features, with, for example, variable returns but a guaranteed floor. There are increasingly close links with pension funds and pension provision, as life companies offer annuities for guaranteeing pension benefits as well as guaranteed investment contracts (GICs) purchased by pension funds. They often also provide defined contribution pensions directly, they may act as external asset managers for pension funds or may offer insurance to defined benefit funds on behalf of small employers⁷.

As regards asset holdings, these will depend on the balance between money fixed and variable liabilities, which varies between national markets (Table 8). The former will often be matched by bonds, although private as well as government bonds may be sought to maximise returns. The latter,

⁷ For a discussion of life insurers' investments see Dickinson (1998) and Davis (2002a).

being less risky for the firm, and with the understanding that higher returns will be sought, may be invested to a greater extent in equities, real estate and foreign assets.

Mutual funds are simply vehicles for the pooling of assets for investment purposes. In this context, they seek to offer an enhanced risk-return profile and greater liquidity to individual investors by exploiting synergies from pooling assets of many individuals, economising in particular on transactions costs and management costs while offering low minimum holdings. They hence differ from the long-term institutions by offering short-term liquidity on pools of funds, albeit at rates that depend on current market prices, either via direct redemption of holdings (open-end funds) or via the ability to trade shares in the funds on exchanges (closed-end funds). End investors in mutual funds are residual claimants and bear all the risk. Managers' remuneration is typically linked to the value of assets under management.

Asset allocation of an individual fund is generally fixed by the prospectus, especially in the case of specialized funds that invest in a given class of assets (domestic equities, foreign bonds, etc.⁸). The asset manager is thus responsible only for security selection. Accordingly, the size and asset allocation of the mutual fund sector largely reflect the asset preferences of households directly⁹ as they choose between investing in different types of funds such as equity, bond, and money market funds (Table 9).

A special type of closed-end fund is a hedge fund, a private unadvertised mutual fund that is limited to wealthy investors¹⁰ who are willing to incur high short-term risk in exchange for high return potential.¹¹ Hedge funds may engage in unlimited short-term trading, take short positions, and borrow to a greater extent than other institutions. Because of their ability to leverage and willingness to take risks, hedge funds may create sharp market movements and thereby provoke other institutions to similar action (e.g., in exerting pressure on currency pegs). They may have more scope to act in a contrarian manner than other types of institutional investor¹². Assets are currently around \$500 bn in 6000 funds.

A further key distinction between types of institution, which warrants further comment, links to the locus of risk bearing. In a defined benefit pension fund and a life insurance contract having guaranteed returns, the risk of market volatility is taken by the sponsoring company and the life insurer, respectively. In contrast, in the case of a defined contribution pension fund, a mutual fund, and an

⁸There are also some balanced funds that hold a variety of assets at their discretion; these are notably popular in Continental European countries such as France.

⁹The existence of mutual funds may itself modify such preferences relative to a situation in which direct securities holdings are the only options, for example by reducing risk aversion.

¹⁰In the United States, individuals must have \$1 million in investable assets to be permitted to invest in onshore hedge funds.

¹¹See Basle Committee (1999).

¹²An extensive discussion of the hedge fund sectors' structure, investment strategies, and effects on market dynamics can be found in Eichengreen and Mathieson (1998).

index-linked life insurance contract, the risk is borne wholly by the individual (except for a rather low guaranteed amount for the life contract). As noted, there appears to a widespread tendency in recent years for institutional investors to switch from bearing risks themselves to transferring them to the household sector, whereby the institutional investor offers less or no insurance.

In combination with the growth of mutual fund investment *per se*, the rise of defined contribution plans means that households are tending to have an increasing influence on asset allocation. Implications for asset allocation are unclear. In the early 1990s, the shift to defined contribution in the United States was thought to have accompanied less aggressive portfolio distributions, which could threaten overall returns in the long term (Rappaport 1992). More recently, equity proportions have risen, but the reaction of the household sector to a prolonged bear market has yet to be seen. Certainly, it was the 1970s bear market that drove the earlier shift *away* from defined contribution arrangements in countries such as the United Kingdom and led to a collapse in holdings of equity mutual funds in the United States.

More generally, it can be argued that, as in the rest of the financial sector, there is a blurring of distinctions between types of institutional investor, as mutual funds in particular are being used as a vehicle for retirement saving and pension saving often has a life insurance aspect. Insurance companies are tending to launch their own investment funds, either to run unit-linked policies or as separate profit centres. As we noted, they are also widely involved in pension provision, in provision of annuities and guaranteed investment contracts for pension funds, and in segregated asset management for pension funds. Meanwhile, banks themselves are becoming active in this area, by purchasing or launching their own insurance companies (where regulations permit) to form financial conglomerates and selling their own mutual funds and personal pensions and setting up or purchasing fund managers. Pension funds and, to a lesser extent, life insurers are linking more closely to the rest of the financial system via their choices of external fund managers.

3 Can institutional investors raise the saving and investment rate of the economy?

In the light of the financial function of transfer of resources, development of institutional investors—notably those such as pension funds and life insurance in which savers enter into long-term savings contracts—has often been linked to changing patterns of long-term saving. It is commonly suggested that the development of institutional investors could in principle have caused both a switch of asset holdings toward longer maturities and also an increase in saving *per se*. This may in turn have implications for investment and economic performance more generally.

It may be noted at the outset that a strong effect of institutionalisation on saving appears *a priori* unlikely to hold. Empirically, the countries where institutions are most important—the United States

and the United Kingdom—are also typified by low personal saving. European countries with small institutional sectors have high saving. There are also theoretical objections. The basic argument against any effect of institutionalisation on saving is that individuals choose a lifetime savings pattern separately from its distribution, so a rise in one component of wealth (such as pension funds, mutual funds, or life insurance claims) will be fully offset by falls elsewhere, either by reducing forms of discretionary saving or by borrowing. This offset will be particularly likely to occur when contractual saving and discretionary savings are close substitutes.

Nevertheless, in principle, growth of long-term institutional investors could generate increased saving via the following channels (for an overview, see Kohl and O'Brien 1998):

- Illiquidity of long-term institutional (life insurance and pension) assets may mean that other household wealth is not reduced one-to-one for an increase in wealth held in the form of claims on such long-term institutional investors, because households do not see such claims as a perfect substitute for liquid saving such as deposits (Pesando 1992).
- Liquidity constraints whereby some households are not free to borrow may imply that any forced saving (such as life insurance or pension contributions) cannot be offset either by borrowing or by reducing discretionary saving (Hubbard 1986).
- The interaction between the need for retirement income and retirement behaviour may increase saving in a growing economy, as workers increase saving to provide for an earlier planned retirement (Feldstein 1974).
- As unfunded social security is typically seen to reduce saving, because it implies an accumulation of implicit claims on future income, a switch toward funding of pensions via institutional investors should increase it (World Bank 1994, Feldstein 1977, 1995).
- Tax incentives that raise the rate of return on saving via life insurance or pension funds may encourage higher aggregate saving. On the other hand, one should note that taxation provisions boosting rates of return will influence saving at the margin only for those whose desired saving is below that provided by social security and tax-favoured institutional saving. For those whose desired saving exceeds this level, the increased returns on saving¹³ will have an income effect but no offsetting substitution effect. Hence their saving will tend to decline.

Moreover, even if tax provisions and the other mechanisms outlined above increase private sector saving, this could be more than offset at a macroeconomic level by the government's revenue loss due to tax concessions.

¹³Note that increased returns may link not only to the tax concession but also to increased underlying returns on saving via institutions relative to the alternative.

Most of the research on institutions and saving links to the introduction of pension funding (although the results could also apply to life-insurance-based saving). On balance, research suggests that growth in funded pension schemes does appear to boost personal saving, but not one-to-one. A significant offset arises via declines in discretionary saving.

- Much of the literature¹⁴, such as Pesando (1992), which is focused on U.S. defined benefit funds, suggest an increase in personal saving of around 0.35–0.5 results from every unit increase in pension fund assets, though the cost to the public sector of the tax incentives to pension funds reduces the overall benefit to national savings to around 0.2.
- Effects would plausibly be less marked for defined contribution funds, in which the worker is more likely to be able to borrow against pension wealth and participation is generally optional. On the other hand, Poterba, Venti, and Wise (1993, 1996) suggest that 401(k) accounts in the United States have added to aggregate saving. Tax incentives are one important reason, but employer matching of contributions, payroll deduction schemes, and information seminars may also be relevant factors in encouraging net saving by this route.
- These results do not extend to shorter-maturity nonpension saving instruments, even if they are tax privileged. Banks et al. (1994) found that tax privileged equity accounts (PEPs) as well as tax free deposits (TESSAs) had no effect on personal saving in the United Kingdom but only generated portfolio substitution.
- In developing countries, Corsetti and Schmidt-Hebbel (1997) find that the pension reform replacing pay-as-you-go with funding boosted saving in Chile; World Bank (1994) finds similar effects in Singapore. These effects may link to the prevalence of credit constraints for low-income households that would not otherwise have saved.
- Unfunded social security appears to lower private saving; Feldstein (1995) suggests that personal saving rises 0.5 for every unit decrease in U.S. social security wealth (and vice versa). Neumann (1986) gives similar estimates for Germany, and Rossi and Visco (1995) find a figure of 0.66 for Italy. Kohl and O'Brien (1998) argue that the displacement of private saving by pay-as-you-go is more likely, the more imperfect capital markets are.

Institutional investment may have side effects on saving in the case of financial liberalization and easing of credit constraints. It is plausible that there would be an institutional effect on saving before such liberalization owing to liquidity constraints as outlined above. This might disappear after liberalization. Indeed, it is notable that the household sectors in countries with large pension fund sectors, such as the United States and the United Kingdom, have also been at the forefront of the rise in private sector debt (see Davis 1995b, 1995d). The familiar story underlying this is that rationing of household debt diminished following financial liberalization, which allowed households to adjust to their desired level of debt. But in the context of pre-existing accumulation of wealth via institutions

¹⁴ For important earlier studies, see Feldstein (1978) and Munnell (1986).

and high returns to institutional assets, this adjustment could be partly seen to rebalance portfolios, thus entailing borrowing by households to offset earlier forced saving through institutional investors.

On the other hand, even in a liberalized 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 (for evidence, see Bernheim and Scholz (1992)). This point is of particular relevance in countries that have or are currently introducing compulsory private pensions, such as Australia, which thus anticipate a rise in personal saving *ceteris paribus* (Edey and Simon 1996), and would apply to EU countries following the same strategy.

All these estimates abstract from effects on public saving in the transition to a privately funded system (e.g., in deficit financing of existing social security obligations) that may be fully offsetting at a national level (see Holzmann 1997b). Even tax-financed transitions may, according to some authors, have at most a small positive effect on saving in the long term (Cifuentes and Valdes Prieto 1997). However, a switch away from social security to pension funding would probably have a major effect on overall saving, given that the former has been shown significantly to depress saving in a number of countries, notably for the first generation that has not contributed to pay-as-you-go.

It may be added that population ageing will of itself generate changes in saving which may have a major macroeconomic impact (see for example Cutler et al (1990b), Roseveare et al (1996), Turner et al (1998) and Davis (2002a)). These changes will undoubtedly be channelled via institutional investors, but institutions may not always be themselves a causal factor in such shifts, see also stability issues in Section 9.

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, which would otherwise hold assets directly. As we showed in Tables 7-9, 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 (Table 10). For example, equity holdings of pension funds in 1998 were 68% of the portfolio in the United Kingdom (including foreign equities) and 64% in the United States. But in each case, they compared favourably with personal sector equity holdings, which were 17% and 25%, respectively, in 2000. On the other hand, the personal sector tends to hold a much larger proportion of liquid assets than institutions do. These differences can be explained partly by time horizons, but institutions also have a comparative advantage in compensating for the increased risk of long-maturity assets by pooling.

The implication is that institutionalisation could increase the supply of long-term funds to capital markets and reduce bank deposits, even if saving and wealth do not increase, as long as households do not increase the liquidity of the remainder of their portfolios fully to offset growth of institutional assets. Total deposit shares have indeed tended to decline in most countries over the last thirty years (Table 10), including Germany, France and Italy. Some offsetting shifts were apparent in the econometric results of Davis (1988), which suggested that over 1967–1985, the growth of institutions was accompanied by a greater holding of deposits than would otherwise have been the case, albeit insufficient to prevent an overall shift toward long maturity assets. On the other hand, King and Dicks-Mireaux (1988) found little such offsetting effect in Canada. Moreover, radical changes in financial structure—inconsistent with full offsetting—have been widely observed to accompany growth of funding, not least in Chile (Holzmann 1997a).

On balance, results are consistent with an increased demand for long-term saving as institutional investors grow, implying that institutionalisation has indeed accompanied a shift in the composition of households' overall portfolios. Besides demographics, this may be related to rising overall income and wealth (where only a certain volume of saving is needed to cover contingencies). Interestingly, a shift to defined contribution plans in which individuals determine their own asset allocations may reduce or eliminate these shifts to longer-term assets (Friedman 1996).

Blanchard (1993) suggests that the increased supply of long-term capital market instruments, which he attributes to the development of institutional investors, may be leading to a compression of the yield differential between equities and bonds, which may have significant implications for corporate capital structures by making issuance of equities cheaper relative to bonds than was the case in the past. Recent trends and market comment suggest that there has been considerable further compression of the equity risk premium since 1993 (Bank of England 1999), although this may partly be a cyclical rather than a structural phenomenon.

As regards the broader economic effects of overall shifts to long-term assets in Europe or elsewhere, they should tend to reduce the cost and increase the availability of equity and long-term debt financing to companies, while the accompanying growth of capital markets should also increase allocative efficiency. There may hence be an increase in productive capital formation, especially if saving also increases. This result also requires allocation of funds to their most profitable uses and adequate shareholder monitoring of the investment projects via corporate governance. As discussed in the following section, this should also tend to occur in capital markets that are dominated by institutional investors.

Economically efficient capital formation could in turn raise output and, endogenously, growth itself (Holzmann 1997a), thus potentially contributing to resolving the problem of financing retirement as

the population ages by increasing the volume of future resources available. Higher growth will feed back onto saving. Endogenous growth effects of an increase in capital investment on labour productivity may be particularly powerful in developing countries if a switch from pay-as-you-go to funding induces a shift from the labour-intensive and low-productivity “informal” sector to the capital-intensive and high-productivity “formal” sector (Corsetti and Schmidt-Hebbel 1997).

Certainly, there has been a shift from loans to securities in the G-7 on the part of firms (Table 11). In this context one may note that equity market development per se has also been shown to enhance overall economic development (Demirgüç-Kunt and Levine 1996) – this may be a particular benefit in some EU countries whose equity markets are little developed to date. Levine and Zervos (1996) show how stock market development may aid growth potential, for example, by increasing liquidity and thus facilitating the financing of long-term, high-return projects; enabling international diversification of portfolios to take place and thus encouraging investment in riskier long-term projects; increasing incentives to acquire information about firms; facilitating the tying of management compensation to share prices via stock options; and facilitating takeovers to resolve corporate governance difficulties. But they point out that there are often counterarguments to these. Meanwhile, Demirgüç-Kunt and Maksimovic (1996) show that access to an active stock market also increases firms’ ability to borrow at long maturities, especially in developing financial markets. Access to a range of securities in domestic currency should limit the incentive for companies to borrow in foreign currency, which was a feature of the recent Asian crisis (Davis 1999b).

Looking at the importance of equity finance in an EMU context more broadly, monetary integration will leave euro area national economies - and hence their corporate sectors - more vulnerable to asymmetric shocks. Simultaneously, increased banking competition seems likely to undermine exclusive banking relationships (Petersen and Rajan 1993), owing to competition between lenders, and as a corollary, lenders will be less willing to rescue firms in financial distress, as they could not charge higher interest rates to finance such "implicit insurance". For both these reasons, companies will be under pressure to issue equity¹⁵, in order to increase the robustness of their balance sheets. Moreover, the amplitude of corporate restructuring has increased in EMU owing to price transparency and scope for cross border consolidation of industry, which requires a proportion of equity financing. Increased equity issuance implies a need to satisfy institutional investors that their interests as owners have primacy, as discussed in the next section. On balance, a rise in long-term savings is possibly more beneficial to the EU than more saving per se.

One note of caution is that if governments force pension funds to absorb the significant issues of government bonds that may be needed in a debt-financed transition strategy, or if government debt

¹⁵ In addition, if there are heightened information asymmetries owing to a decline in relationship banking, debt maturities may decline and collateral requirements increase.

issuance crowds out corporate issues, many of the benefits of long-term financing from funding may not be realized. In Europe this underlines the importance of the current Pension Funds Directive, which mandates a “prudent person rule” and would outlaw such rules as have applied historically in countries such as Germany and France. Another is that there is evidence that institutional investors are reticent in investing in equity of small firms, despite the fact that their potential for innovation, growth and job creation is widely seen as crucial for economic growth¹⁶ and are of particular importance in many European countries. For example, Sias (1996), shows that for the United States institutional holdings of the largest firms on average over the period 1977-91 was over 47%, and for the smallest, only 8%. There are sharp cross country differences; UK pension funds reportedly invest at most only 1-2% in venture capital compared with 5-10% in the US. If reproduced in Europe as institutions grow, the consequence of neglect of small firms (assuming individual investors do not fill the gap) may bias the European economy towards sectors with larger firms.

4 Institutional investors and corporate governance

The growth of institutional investors has been accompanied by a rising share of equities held by them (Table 12) not only in the Anglo Saxon countries but elsewhere also. There are prospects for further increases, especially due to demographics as the population ages and pension systems switch towards funding. This clearly raises the issue of the impact of the change in ownership on corporate governance patterns – the financial function of overcoming incentive problems. As noted above, improved corporate governance may have feedback effects on wider economic performance.

As is well known, the reason corporate governance is needed is the problem of agency costs and equity finance – linked to information asymmetries and incomplete contracts between shareholders and managers. Evidence for agency costs is considerable (see the literature survey in Davis (2002)), for example share prices of bidder firms fall when acquisition announced; managers resist takeovers threatening their positions; and there is a premium to shares with voting rights. Equity holders are vulnerable compared to other stakeholders since dividends are discretionary, and hence need control mechanisms but also remaining distinct from management so they can sell shares without insider contraventions. If the problems are not resolved an issue arises for the firm also since equity finance becomes costly or unavailable. The basis of shareholder leverage is the right to vote in meetings and appoint non-executive directors and managers’ duty to serve shareholders, legally enforceable. But boards are often captured by managers or passive in all but extreme circumstances. There is no incentive for individual shareholders to monitor managers as others can free-ride on their actions. Hence there is a need for large investors with leverage to complement legal rights. These can overcome free rider problems for shareholders, but beyond 5% may exploit minorities.

¹⁶ This tendency may link to illiquidity or lack of marketability of shares, levels of risk, which may be difficult to diversify away, difficulty and costs of researching firms without track records and limits on the proportion of a firm's equity that may be held.

To discuss institutional investors' role, it is useful to sketch four paradigms of corporate governance. These are market control via equity (takeovers); market control via debt (LBOs and leveraged takeovers); direct control via equity (the "corporate governance movement"); and direct control via debt (relationship banking). Generally, development of institutional investors will tend to shift a financial system towards a combination of the first three and away from the fourth.

Anglo Saxon modes of governance are three fold. Market control via equity – the takeover sanction – is the core of Anglo Saxon shareholder capitalism, where voting rights are enforced and minorities protected, there is a high level of public information disclosure, a focus on liquidity, and agency problems are resolved by takeovers. Institutional investors are active in assessing takeover proposals and selling poorly performing firms' shares. But there are also well-known problems; takeovers are so costly that only major performance failures are likely to be addressed; they may increase agency costs when bidding managers overpay for acquisitions; and they require a liquid capital market, there are "waves" and they may give rise to "short termism".

Market control via debt is in effect a variant, a new paradigm that emerged in 1980s, complementing equity control. It views retention policy as key to the agency conflict (so-called "free cash flow"). Debt issue reduces the conflict as cash flow is pre-empted (encouraged by institutional investors); and managers are given equity stakes and stock options to perform well. The capital market inspects new investment; tax deductibility of debt is a further incentive. But debt availability is a prerequisite and higher leverage raises the creditor/shareholder conflict, while if monitoring is inadequate, stocks and options give rise to adverse managerial incentives.

In direct control via equity - the "corporate governance" movement – board representation is supplemented by direct contacts by institutional investors at other times. Institutions may challenge excessive executive compensation, takeover defences, combined chairman/CEOs, remove under performing managers, appoint more non-executives. They issue codes of conduct for firms. The leverage mechanism is often the shareholder initiative. Motivations include indexation and need to improve performance directly (as index funds are obliged to hold all the constituents); the issue of active managers and large stakes (so illiquidity makes selling costly); the cyclicity of the takeover wave, so it cannot be relied on to solve agency issues; and the key role of public pension funds. There are also important regulatory preconditions; collaboration among institutional shareholders must be permitted (as institutional stakes rarely exceed 5%), also a fiduciary obligation to vote as in the US but not the UK and rules on disclosure of executive remuneration

Finally, direct control via debt involves Continental-style relationship banking – banks maintain corporate control via credit, also as equity holders/representatives sitting on boards. There is extensive

cross shareholdings among companies, low liquidity of equity markets, low public information disclosure, voting restrictions and discrimination against minorities. Institutional investors in such systems are traditionally largely passive (delegating a monitoring role to banks). An important role is played by laws that protect stakeholders, and may limit public disclosure. Allen and Gale (2000) point to the benefit of this system in “time series risk sharing”, e.g. credit insurance to firms, which is absent in the Anglo Saxon system. A key issue for Europe is whether this system is likely to decline in favour of Anglo Saxon modes. It seems clear there has been movement, as US institutions put pressure on “direct control via debt” to improve corporate governance, European firms seek access to international capital markets and cross holdings begin to unwind (tax reform, legal changes). There have also been hostile takeovers even in Germany (e.g. Mannesmann). Banks are seeking to reduce relationship links/sell equity and become investment banks, as profitability of traditional lending declines. Barriers to change remain, for example the need to reform laws and company statutes; and shareholder blocs are slow to change (including cross-holders). On the other hand, as we have noted, EMU is likely to speed development of capital markets and hence corporate governance, owing inter alia to companies’ desire to issue equity, hence satisfy institutions’ requirements (dividends etc.); the fact the burgeoning euro corporate bond market facilitates LBOs; also the international diversification of institutions in the eurozone. Future pension reform will increase pressure

Summarising empirical results on aspects of corporate governance, the performance of mergers in capital markets is typically studied by event studies and share returns. There is an interesting dichotomy in that the UK shows more pessimistic results for bidder firm than US. In terms of economic performance of mergers in profitability, there is little evidence that it is boosted. Benefit to shareholders, if they exist, may thus link to reallocation of wealth from other stakeholders such as customers and workers. As noted, a possible adverse effect of Anglo Saxon corporate governance is “short termism”, which implies an excessively high discount rate on future earnings, due to threat of takeover. Miles (1993) finds some evidence of e.g. higher discount rates on cash flow further in future, while Poterba and Summers (1992) see mean reversion in stock prices as evidence of short termism. Against the hypothesis, Marsh (1990) argues it is incoherent as prices depend on future earnings; markets favour capital gains over dividends, the announcement of capital expenditure and R and D boosts share prices and pension funds hold shares for long periods. Short termism may be variable over time, varying with the scope of takeovers.

Finally, in the empirical literature, institutional activism is on balance seen as successful in changing management structures, but there is mixed evidence on increased returns. On the positive side, Wahal (1996), in a sample of forty-three cases, found that efforts by institutions to promote organizational change via negotiation with management (as opposed to proxy proposals) are associated with gains in share prices. Strickland et al. (1996) report that firms that were targeted for pressure by the United

Shareholders Association¹⁷ experienced positive abnormal stock returns, although corporate governance proposals per se had no effect. On the negative side, Del Guercio and Hawkins (1999) found no evidence that activism had a significant effect on stock returns over the three years following the proposals. Gillan and Starks (1995) found some positive returns in the short term but no statistically significant positive returns over the long term, leading them to question the overall effectiveness of shareholder activism. Monks (1997) explains the ineffectiveness of corporate governance activity in raising returns by reference to the political nature of public pension funds. While they are well placed to raise fairness issues such as excessive managerial remuneration, the incentive structure of trustees is not such as to encourage the long-term pressure on management that is needed to obtain positive excess returns in the long term. More effective institutional pressure may be exerted by so-called relationship investors.

Turning to our own macro work on estimation of the effects of institutionalisation on the corporate sector (Davis 2002b), we argue that the often contradictory results from micro studies link to the fact that disciplinary effects of corporate governance may impact more widely than on firms targeted, which in some cases might actually obscure the specific effects sought in these studies. We tested a number of hypotheses, finding that in Anglo Saxon countries, a larger institutional share of equity implies that distribution of profits in dividends is stimulated at the macro level; aggregate fixed investment itself is lower as institutions oppose unprofitable investments; and productivity growth is improved at the economy wide level, implying that use of capital and labour is improved by institutional investment. These are at least partly consistent with a long term viewpoint and should apply elsewhere as institutions grow.

Some regulatory changes can improve corporate governance. Recent EU proposals include the overriding of unequal voting structures when a bidder owns a “breakthrough” majority such as 75%; requirements to disclose investment policy and the exercise of voting rights, with voting strategies published and individual votes disclosed to beneficiaries of the institutional investor on request.

5 Other efficiency aspects

By demanding *liquidity*, institutional investors help to generate it, firstly by their own activity in arbitrage, trading and diversification, secondly via the fact that liquidity is a form of increasing return to scale, as larger markets in which institutional investors are active attract more trading, reducing costs and improving liquidity further. A third effect arises from institutional investors’ countervailing power as they press for improvements in market structure and regulation. These include deregulation and reduction in commissions, advanced communication and information systems, reliable clearing and settlements systems, and efficient trading systems, all of which help to ensure that there is efficient arbitrage between securities and scope for diversification. They also demand adequate public

¹⁷Note that this is actually a coalition of small investors rather than an institutional investor per se.

disclosure of information and a market-oriented accounting system. In this regard, institutional investors have considerable leverage as they are extremely “footloose” and willing to transfer their trading to markets offering improved conditions. This renders the market for securities trading services “contestable”, regulation permitting. Any excess profitability is vulnerable to “new entry” by other markets; and markets need to innovate (e.g. by setting up futures exchanges or electronic trading) to retain institutional investors’ business. The resulting financial structure, which will be encouraged in Europe as institutions develop, reduces volatility and bid-offer spreads and enables financial and non financial institutions to hold, obtain and transfer liquidity much more readily. 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.

Concerning *management of uncertainty and controlling risk*, financial innovation may be stimulated by institutional growth. For example, Bodie (1990a) suggests that the need for hedging against shortfalls of assets against liabilities by defined benefit pension funds has led to the development of a number of recent financial innovations such as zero coupon bonds and index futures. Similarly, the development of indexation strategies by and for institutional investors has increased demand for futures and options. Institutional growth would consequently boost demand for derivatives in the EU.

Superior ability to employ *price* information is suggested by studies showing that initial public offerings that are largely subscribed by institutional investors tend to do well, while those largely purchased by the general public tend to do badly. This suggestion is also supported by econometric analysis (Davis 1988) of the portfolio distributions of life insurers and pension funds, which show asset holdings at a sectoral level relate strongly to relative asset returns. Such market sensitivity generates an efficient allocation of funds as pension funds, having good information and low transactions costs, speed the adjustment of asset prices to fundamentals. In a global context, cross-border portfolio investment should enhance the efficiency of international 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 via tactical asset allocation (utilising price information). Increased efficiency, reflected in accuracy of market prices, enables capital to flow to its most productive use and savers to maximise their returns, also within the increasingly-unified euro area capital markets.

6 Asset allocation, risk management and market dynamics

We now turn from efficiency to stability aspects. In general, a financial system characterised by institutional investors and extensive capital market financing should be more stable than a bank-based one, especially if there is mispriced safety net protection in the latter and low values of banking

charters. For in normal times, institutional investors, having good information¹⁸ and low transactions costs, are likely to speed the adjustment of asset prices to fundamentals; this should entail price volatility only to the extent that fundamentals are themselves volatile. Moreover, the diversity in types and sizes of institutional investors - in their liabilities, incentives, and consequent attitudes to risk - should be stabilizing to financial markets. The liquidity that institutional activity generates may dampen volatility, as is suggested by lower share price volatility in countries with large institutional sectors (Davis and Steil 2001). In a global context, enhanced cross-border portfolio investment undertaken by institutional investors should enhance the efficiency of global capital markets by equalizing total real returns (and hence the cost of capital) between markets.

It can, moreover, be argued that securitised financial systems have important stabilizing features, such as ease of marking to market, matched assets and liabilities – notably for mutual funds and defined contribution pension funds - distance from the safety net. There are wider opportunities to diversify and spread risk. And the “multiple channels of intermediation” available to the corporate sector in securitised financial systems will reduce the impact of any crises which affect either banks or securities markets (see Greenspan (1999), Davis (2000b)).

On the other hand, a considerable volume of theoretical research focuses on the implications of principal-agent problems to which institutions are prone for financial structure and behaviour, as noted in Section 2. It examines in particular potential effects on price volatility. As outlined in the surveys by Devenow and Welch (1998) and Bikhchandani and Sharma (2000), this literature suggests that institutional investors may be subject to rational herding, all seeking to buy or sell assets at the same time. In effect, although institutions are usually best seen as merely a conduit through which investors’ changing moods are transmitted to financial markets, in exceptional circumstances herding behaviour may induce capital market volatility beyond what would be generated by similar reactions in a more traditional investor base composed of individuals. In other words, the hypothesis is that institutionalisation, in the context of modern capital markets, may amplify market dynamics by virtue of institutions’ size and common behaviour. Such herding may be a periodic rather than continuous phenomenon, being much more marked in periods of market stress than in the case of normal market conditions, which in turn makes it more difficult to detect by using standard statistical techniques on average volatility.

Recall that 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 is drawn up, the manager may act in his or her own interests (e.g., in generating excessive commission income) and contrary to those of the fund. Various features of competitive fund management can be seen as ways to

¹⁸ The concept of superior information of institutions is underpinned by studies showing that initial public offerings that are largely subscribed by institutions tend to do well, while those that are largely purchased by the general public tend to do badly (Trzcinka 1998).

reduce principal-agent problems. For example, pension fund managers in countries such as the United States and the United Kingdom are offered short (three-year) mandates, with frequent performance evaluation,¹⁹ 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-end mutual fund and life insurance managers will suffer loss of new business if they underperform, while closed-end mutual funds may be taken over.

Principal-agent problems and the means that are used to resolve them could give rise to institutional behaviour that induces capital market volatility. One underlying mechanism is reputation—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 (based on skills and information) 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.

Overall, the result of monitoring may be a preference to follow the leadership of the successful managers, with the danger of a contrarian bet going wrong being much more severe than that of performing badly along with the rest of the market. In each case, such monitoring may, as a corollary, lead to short time horizons (Benartzi and Thaler 1995). As a consequence, institutions may, for example, adopt similar portfolio shifts even if their own information suggests that a different pattern could yield better returns. This may in turn amplify shocks to prices. A corollary is that if managers avoid positions that could result in a large deviation from the benchmark because of the risk-reward structure of incentives, they will not seek contrarian positions that might otherwise help to stabilize markets. It is notable in this context that according to the Financial Times (1999), 75% of U.K. pension funds still use a peer group benchmark. Davis and Steil (2001) in a questionnaire for institutions found that relative rather than absolute return was one of the crucial aspects of asset manager competition.

Regular performance checks against the market benchmark themselves may induce similar behaviour and hence herding to avoid performing significantly worse than the median fund, not least because fund managers' bonuses, like performance checks, are typically provided annually.²⁰ For mutual

¹⁹Note that performance evaluation over a short period contrasts sharply with the nature of liabilities, whose maturity may extend to twenty-five years or more for life insurers and pension funds.

²⁰See Davis (1995a), who, after interviewing twelve fund managers on international investment strategies in London in 1991–1993, found that “Most of the managers, but particularly those who are external managers, felt

funds, the incentive arises from the desire of managers to be the best performer and hence attract high volumes of inflows (Brown et al. 1996); conversely, net cash outflows may lead to dismissal of managers.

Short time horizons may also 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 described 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 is an illustration of this point.

Herding by institutions could also include institutions' inferring information from each others' trades, about which they are relatively well informed compared to individuals, and herding as a result as information cascades (Shiller and Pound 1989, Bikhchandani et al. 1992). This may be a marked feature if some managers have a reputation for being well informed. Moreover, they may be reacting to news, which they all receive simultaneously, in a similar manner.²¹

The risk management framework may also play a role. If defined benefit pension funds and life insurers have minimum funding limits, they are subject to heightened shortfall risk (Bodie 1991) if asset values decline. This may entail herding either via direct sales of equities for bonds or by the effects of hedging in so-called dynamic hedging, contingent immunization, or portfolio insurance strategies on market prices. It also severely limits funds' stabilization role, that is, the degree to which they are free to act in a contrarian manner. As Borio et al. (1997) noted, dynamic hedging can be disruptive for at least two reasons: the mechanical impact of large volumes of sales and because other market participants may infer changes in sentiment from what are actually mechanical, value-insensitive strategies and revise their own expectations accordingly (see Genotte and Leland 1990). In this context, we note that use of VaR models by institutional investors may also lead to destabilisation of markets, as observed in the Russia/LTCM crisis of 1998, if they signal simultaneous sales by a range of institutions. (VaRs are more commonly used by banks than long term institutions, however.) As Frijns et al. (1995) show, tighter solvency requirements will also shorten time horizons, consequences as noted in this section. Credit quality standards, which may be imposed by regulators or by the institution itself, may limit the scope for taking contrarian positions. Hence a downgrading of a certain borrower may lead to a liquidation of positions even if the risk of default is considered remote, and such a withdrawal may itself worsen credit quality.

some pressure not to under perform 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."

²¹News may cause sizable portfolio shifts in a world characterized by uncertainty if it causes funds to change their views about the future

Further elements of the overall framework of asset allocation dominated by institutional investors may, while not strictly involving herding, still give rise to positive feedback mechanisms that increase market price momentum. The increasingly narrow style distinctions being employed by mutual fund managers as a means of communicating with investors may imply that swings in investor sentiment lead to more leverage on market prices as they switch between such narrowly defined asset classes. The increasing focus on the “best-performing fund” over a recent period, combined with managers’ desire to stick to a narrowly defined style, can lead to disproportionate rewards for good performance of a style, which lead on to sharp price rises in the asset class concerned. The popularity of momentum trading, which was seen as highly profitable in the bull market of the late 1990s, illustrates this point.

A simpler mechanism may underlie sharp movements by open-end mutual funds: simple purchases and sales by households, which oblige the manager to liquidate assets immediately to redeem the units or in an upturn to purchase stocks. 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 (assets are “individualised”). Risk-averse investors may sell funds in response to short-run moves, contrary to appropriate long-run time horizons of their (retirement) assets. However, evidence from the Investment Company Institute (1995, 1996, 1998) tends to suggest that U.S. mutual fund shareholders have at least in the last two decades not sought to liquidate en masse when markets fall.

The use that is made of benchmarks may also have destabilizing consequences. If asset managers are seeking to replicate the benchmark and benchmarks are based on capitalization weights, then there may again be self-reinforcing tendencies. For example, the IFC index weights for Latin America and emerging Asia were 34% and 45%, respectively, in January 1997, whereas in the wake of the Asian crisis they changed to 41% and 24%, respectively, following sharp falls in Asian share prices and exchange rates. To the extent that managers were following such benchmarks by selling Asian stocks, this may explain why there were no rapid reflows back to Asian markets after prices fell.

Herding is more likely to have a market impact when no investors are able to take offsetting contrarian positions. But not all institutions are at liberty to act in a contrarian manner. Mutual funds must adhere to the asset allocation strategy set out in their prospectus. Moreover, whereas the overall strategy of leveraged institutional investors, such as hedge funds, is precisely to adopt contrarian positions, they may at times of market stress have limited scope for manoeuvre. They may, in effect, be forced to herd, owing to the way in which credit that is freely available in the upturn in asset prices may be sharply withdrawn in the downturn. This was apparent in the bond market crisis of 1994 as well as after Russia/LTCM in 1998 (Davis 1995c, 1999c). Pension funds and life insurers have the greatest

freedom to act as contrarians, but as noted, the tightening of solvency regulations in recent years is also constraining them in the current bear phase, in contrast to 1975 (Davis 2003).

Herding by institutions need not always be destabilizing; it may speed the market to a new equilibrium price. Indeed, Wermers (1999) suggests that U.S. mutual funds on average tend to speed the price adjustment process for individual stocks to which they herd (although overshooting of equilibrium levels could not be ruled out). This is so-called rational positive feedback trading. What is needed for herding to be of concern is for institutions also to follow strategies that may be contrary to fundamentals and profit maximizing—buying high and selling low—which is “irrational” positive feedback trading.²² Cutler et al. (1990a) suggest that institutions may themselves act in this manner. This may be a consequence of biases in judgment under uncertainty by fund managers, which leads to extrapolative expectations or trend chasing rather than focus on fundamentals. Such approaches may help the money manager by “adding winners” to the portfolio and removing embarrassments for the sponsor, that is, window dressing (Lakonishok et al. 1991). Institutions may also seek indirectly to provoke positive feedback trading (DeLong et al. 1990), since in the presence of less-informed 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 less-informed investors, thus amplifying the effect.

The potential effects of herding are discussed below, namely, heightened volatility of market prices and quantities and/or liquidity failures in debt markets at specific times. But one might add that herding may also entail a loss of diversification benefits (as markets move together) and expose institutions themselves to major losses as prices deviate from fundamentals.

Lest this section be too negative regarding competitive asset management sectors, we note that volatility could also be induced if monitoring is weak. Mutual fund managers may transact repeatedly to generate commission income in uncompetitive markets such as Switzerland, thus generating market volatility.²³ Furthermore, asset manager sectors in Germany and Japan, which are effectively oligopolies, offered historically poor returns and high costs. Fortunately, the Single Market and EMU are helping to eliminate such oligopolies in the EU.

7 Systemic consequences of the conduct and regulation of institutional investors

As a consequence of the phenomena discussed in Section 6, institutional investors may sporadically give rise to unfamiliar types of financial instability from the point of view of regulators and market

²²Evidence for destabilizing herding would be a later correction of market prices, with no change to the “fundamentals.”

²³Certainly, De Bondt and Thaler (1994) observe that the turnover rate for institutional investors exceeds that of individual investors.

players, which will be accentuated as they grow. Already in existing experience of financial instability one can distinguish two particular types of financial turbulence they give rise to. Note that those financial sectors that do not have institutional investors are not necessarily protected from them, given the importance of international investment.

A first type involves extreme market price volatility after a shift in expectations and consequent changes in institutional investors' asset allocations. Whereas misaligned asset prices and sharp price movements during corrections which result from institutional "herding" may not in themselves have systemic implications²⁴, these may emerge when such movements threaten e.g. institutions that have taken leveraged positions on the current levels of asset prices. Examples are the stock market crash of 1987, the ERM crisis, the 1994 bond market reversal and the Mexican crisis (Davis 1995c). There were also elements of this in the Asian crisis. Emerging Market (EME) securities markets, as well as those for forex, derivatives, bonds and equities in OECD countries, could be vulnerable to these shifts.

A second type of turbulence involves protracted²⁵ collapse of market liquidity and issuance (Davis 1994). Again often involving one-way-selling by institutional investors as they seek to shift asset allocations simultaneously, the distinction is often largely one of whether markets are sufficiently resilient, and whether market maker structures are suitably robust. Also such crises tend to characterise debt markets rather than equity or foreign exchange. The risks are acute not only for those holding positions in the market but also for those relying on the market for debt finance or liquidity – which increasingly include banks. Examples in the past have tended typically to be rather specific and idiosyncratic markets, which by nature relied on a narrow investor base, market maker structure and/or issuer base (junk bonds, floating rate notes, Swedish commercial paper, ECU bonds). However, the events following the Russian default and the rescue of the hedge fund LTCM were much more serious, as liquidity failure was threatened in markets such as the US securities repurchase (repo), swaps, commercial paper (CP), corporate and Treasury bond market (see IMF (1998), Davis (1999b)). In this context, note that real estate crises, which could also follow institutional herding, have elements of illiquidity as well as price declines.

Price-volatility and market-liquidity based crises may threaten EMEs, banks and the non-financial sector more than institutional investors themselves. Many of the latter can "sit out" such crises given their long-term liabilities if permitted by their regulation. But increasingly regulation is forcing firms to adjust rapidly to any short run underfunding, generating a risk of further financial instability, while markets focus strongly on such solvency aspects (see Section 9).

²⁴ They may, however, lead to resource misallocation.

²⁵ It is not denied that all sharp price changes will tend to affect market liquidity to a greater or lesser degree

Three points may mitigate related systemic concerns, first that insurance companies and defined benefit pension funds are not easily subject to runs on suspicion of insolvency given they have matched and long term assets and liabilities, while mutual funds and defined contribution pension funds are not themselves subject to solvency risks – credit risks are passed directly to the household sector. Second, most institutional-investor claims are not insured, or the insurance is mutual, thus generating incentives for interfirm monitoring. Third, given the ease of adopting market value accounting for securitised claims, it can be argued that debt crises are much less likely in corporate bond markets than for banks where the deterioration of credit quality is hidden from view in the balance sheet (Davis 2000). Markets can still make mistakes however, as witness the repeated bond-based debt crises of the late Victorian period; and US experience suggests bond markets generally find rescheduling after financial distress difficult (Gilson et al 1990).

Beyond the consequences for asset price volatility and securities market liquidity, further risks may arise for the banking sector in an institutionalised financial system. A lesser proportion of saving being channelled via banks, given lower deposit inflows and greater competitiveness of capital market financing, may give rise to banking crises of the familiar type, where banks take increased risks so as to boost their profitability in a highly competitive market situation, while higher quality credits seek capital market financing. It can be argued that the banking crises in a number of countries in the late 1980s were linked to the heightened competition banks faced from the capital markets (Davis and Steil 2001). In this context, note that a number of authors such as Demirguc-Kunt and Detragiache (1998) have looked at the effect of financial liberalisation on systemic risks, and found that banking crises were more likely to occur in liberalised financial systems. Crises tended to occur a few years after liberalisation, and were linked to a decline in bank franchise value, because monopoly power is eroded (see Hellman et al 2000). Securities market competition driven by institutional investment can arguably have a similar effect on franchise values and risk taking, which could become an increasing problem in the EU given the simultaneous scope for increasing competition in the banking sector itself.

8 Financial stability and life insurance companies

Life insurance trends and prospective dangers to them as the population ages offer an interesting illustration of the new stability risks from institutional investors (Davis 2002c). They are also of major relevance for the EU given the predominance of that sector in most countries. As pointed out by the UK insurance regulator FSA (2002), one of the key risks for annuities for insurance companies is that owing to market-share competition or simple errors, they underestimate the average age to which people live. This could in turn lead to insolvency of an insurance company heavily reliant on annuities. Indeed, Blake (1999) suggests that UK insurance companies have already underestimated life expectancy of their annuitants by 2 years or more, which could lead to major losses. Similar losses

were made by US firms in the 1930s (Poterba 1997). This resulted from lower than expected nominal interest rates during the deflation of the Great Depression, and underestimation of longevity (companies still used mortality tables from 1868, till 1938). Whereas well-capitalised life insurers could charge such losses to shareholders, the Equitable Life case shows grounds for caution for mutuals when capital is low and liabilities are underestimated. There are clearly great difficulties in forecasting mortality, especially given the possibility of cures for cancer and heart disease in coming years. This leads some commentators to suggest that government intervention is the only answer to the uncertainty in this area, either by direct provision of annuities as in Sweden or via “survivor bonds”.

Risks linking annuities and insurance companies may be aggravated by taking on of increased credit risk, if it is not properly priced and reserved for. A number of credit risk concerns are emerging for life insurance companies at the time of writing, exposure to which has been prompted by a desire for higher yields than are available on government bonds. In particular, defaults on corporate bonds are expected to impact on insurance companies that have sought low-rated high-yield bonds in the search for sufficient return (Financial Times 2002). Background to this includes increased competition, lower inflation reducing market yields and the current shortage of government bonds. There remain questions whether insurers’ credit risk assessment is adequate, with simple reliance being placed on fallible credit ratings (IMF 2002b) or inappropriate application of actuarial approaches to volatile credit risks.

Furthermore, credit risk has been transferred from banks to insurance companies via securitised claims (such as collateralised debt obligations) and credit derivatives at an unprecedented rate (Bank of England (2001)). Such a process is widely seen as driven by regulatory arbitrage, whereby insurance companies are seen as less regulated than banks and so are willing to hold credit risk at prices banks cannot afford (IMF (2002a)). Such a situation where banks transfer credit risk to insurers may leave the banks also vulnerable if the insurers fail, i.e. they enhance systemic risks arising from insurance company failure (Financial Stability Forum 2000).

Further perspectives on risks are provided by the consequences of population ageing for life insurers. As discussed in Davis (2002d), the prognosis among forecasters is for a major build-up of aggregate retirement funds in OECD countries owing to saving by workers in the large “baby boom” prime saving cohort up to around 2010, followed by decumulation, including a switch from pension funds to annuities.

As regards the build-up phase, Davis (ibid) points out that even if funds are invested in life insurance companies, avoidance of systemic risk is not guaranteed. Owing to the nature of their liabilities, as well as regulations, life insurers tend to invest heavily in domestic bonds. As noted, a shortage of government bonds that may continue for some time ahead, as well as competition in asset management

driving life insurers to increase returns, is already prompting more investment in higher risk assets such as high-yield bonds and low-rated securitised loans. Besides their general effect on credit expansion, which could generate fragility in the non-financial sectors, such funds may feed a property boom, leaving the insurers as well as banks vulnerable to a downturn in the property cycle, as was the case in the Jamaican insurance crisis of 1996 (IMF 2001). Following Allen and Gale (1999, 2000), if insurers become significantly involved in property investment and related credit finance, the massive inflows to pension funds as well as insurance companies could generate expectations of ongoing boosts to credit flows into property. There may also be increasing uncertainty about future such flows as ageing progresses. These in the past have tended to foreshadow asset bubbles generated by such credit flows. Externalities in property lending are significant, owing to the effect of new construction on the profitability of contiguous buildings.

When insurance companies focus increasingly on debt claims as members approach retirement, competition may lead insurance companies and their investment managers again to be willing to take heightened credit risks in order to maximise their return on assets (Bishop (1998), Allen and Gale (1999)). This suggests again that insurers could increasingly invest in high yield bonds and EME sovereign and corporate debt, and thus be vulnerable to credit risk to a greater extent than was the case in the past. Credit cycles could, in other words, affect them as well as banks. Solvency could be threatened directly for life insurance companies if a significant proportion of their assets defaulted.

A further key issue is whether asset prices will also be put under general downward pressure in coming decades by declining saving in OECD countries, implicitly affecting the real interest rate or the risk premium. Schieber and Shoven (1994) note that given the correlation of ageing in OECD countries, and the likely decumulation of defined benefit pension fund assets, there could be widespread falls in asset prices, linked to high real interest rates. Supporting this, Erb et al (1997) find a positive correlation in the US between the fraction of the population 25-45 and 65+ to stock returns²⁶, while those 45-65 have a negative effect. Looking at a range of OECD and EME countries, they find a positive relation of stock returns to the average age of the population. Brooks (2000) focuses on the relation between ageing and the demand for equities and bonds, and suggests that there will be excess demand for bonds and excess supply of equities in coming decades, with a marked decline in the returns on the retirement savings of baby boomers. It should be noted that not all researchers agree that a meltdown is likely, see Poterba (1998). Changes in issuance, for example, might smooth equity returns. Nevertheless, the possibility means prudence is warranted. In this context, solvency could be threatened for life insurance companies and defined benefit pension funds that had made undertakings based on expected returns on assets formed during the bull period (as has been the case recently for UK insurers such as Equitable Life). Mismatched balance sheets could have particularly adverse consequences.

²⁶ And thus a negative effect on prices.

In this context, a key ongoing policy issue in Japan is the negative net worth of life insurance companies (and a number of pension funds). The pattern shows the downside of life insurance when there are guarantees on returns to beneficiaries in combination with poor risk management, restricted investment of assets, low levels of competition in asset management, and poor returns on the assets available. Japanese life insurers basically offered forward rate agreement options to their clients (mainly on life policies rather than annuities), at prevailing rates such as 5.5% up to 1992 (Fukao 2002). There was no duration matching of assets and liabilities, partly because most Japanese bonds are 10-year maturity. Average duration on the asset side has been 5 years and liabilities 15 to 20 years. As Japanese long-term interest rates have now fallen to 1–2%, the firms have been unable to make returns sufficient to meet guarantees to policyholders. The life insurers also faced huge bad debts on loans. Accordingly a number have become insolvent. Indeed, since the failure of Nissan Life in April 1997, seven life insurance companies of the 20 traditional firms have failed, of whom 5 were mutual.

There is massive double gearing between Japanese banks and life insurers, with banks providing subordinated credit and surplus notes (non voting redeemable preference shares) of Yen 2.3 trillion in 2000, and life insurers providing Yen 6.7 trillion in subordinated loans to banks, as well as owning Yen 7.7 billion in bank stocks. This sharply increases systemic risk, since failure of a bank or a life company impinges directly on the other sector. Also it weakens corporate governance. When Chiyoda Life failed in October 2000, Tokai bank lost Yen 74 billion. Earlier on in the crisis (Clark 1994), book value accounting obscured poor performance of life insurers and prevented a clear assessment of solvency. It has also prevented institutions from selling poorly performing shares and prevented switching of asset managers (as both would entail realization of losses).

10 Aspects of the prudential regulation of institutional investors

There are considerable differences in the regulation of the behaviour of the various types of institutional investors. The tightness of regulation in turn tends to reflect the differences in fiduciary obligations and in the above-mentioned contractual obligations and their implications for risk bearing. In particular, regulation reflects differences in the degree to which insurance features are bundled with asset management. Mutual funds are rather lightly regulated. The main regulations of mutual funds link to information disclosure to holders (as well as various other investor protection provisions). Reflecting the nature of obligations, life insurers and defined benefit pension funds are generally subject to forms of solvency or minimum funding regulations and may also have restrictions on the disposition of assets.²⁷ Defined contribution pension fund regulation is typically intermediate in terms of tightness. There is no particular focus on financial stability more generally. As noted, an important

²⁷Pension funds are subject to a variety of additional regulations with respect to liabilities, such as rules regarding portability, vesting, indexation, and benefit insurance. However, the main focus here is on assets. For a broad discussion of pension regulation, see Davis (1995a), see also Davis (2002a).

reason for this is that unlike banks, institutional investors are not in general subject to panic runs, because they have assets and liabilities of similar maturity.

Some have argued that a wider range of institutions may need to be covered by lender of last resort assistance in the context of an institutionalised financial system. Federal Reserve policy during the 1987 stock market crash aimed to avoid systemic risk arising from failure of investment banks, which was ensured by a general easing of liquidity and moral suasion on commercial banks to lend. The private sector rescue of the hedge fund LTCM was undertaken with the good offices of the Federal Reserve Bank of New York because of fears of both the authorities and major financial institutions that serious disruption could follow an unwinding of LTCM's portfolios. It cannot be ruled out that nonbanks may need direct public sector rescues in the future. For example, as discussed in Edwards (1995), the stability of money market mutual funds could be threatened in some circumstances. A fund that breaks par value could plausibly lead to a run on such funds, which could lead to a more general liquidity crisis in the money markets. There is an issue whether individuals realize that such funds are not subject to deposit insurance and whether demands for policy assistance could become loud if a crisis supervened.

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. The IMF rescues of Thailand, Indonesia, and South Korea have renewed discussion of this issue. As is the case for the domestic lender of last resort, the issue is linked to a trade-off between moral hazard created by such rescues and the damage that an ongoing financial crisis could cause. 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 et al. 1995); others point out the well-known shortcomings of this suggestion (Garber and Taylor 1995).²⁸

Liquidity failure of securities markets (money, bond, and derivatives markets), which may be generated by institutional behaviour, may raise prudential concerns. Notably, funding difficulties of banks and other intermediaries are a potential source of instability. Also markets are seen as a repository for liquidity. Derivatives markets are often vital for the smooth functioning of asset and liability management strategies, so failure of such markets may threaten wider defaults on the part of intermediaries. If they consider that systemic risks are likely to arise from market liquidity failure in debt securities markets, central banks may intervene, either by offering liquidity assistance to market participants or even by maintaining market liquidity using their own assets. Clearly, moral hazard may

²⁸Notably, that a country imposing such taxes unilaterally would face disintermediation, while a global tax could still be avoided by undertaking 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 stabilizing, it might have directly counterproductive effects on volatility.

arise for securities markets in the same way as for banks, with imprudent underwriting and market-making practices being followed on the assumption that liquidity will be maintained; non-financial companies would also be more willing to increase leverage via securities markets. Moreover, maintaining an incorrect level of market prices is a recipe for market distortion and, ultimately, inflation.

The incidence of debt market liquidity crises may be reduced by policy action that increases the robustness of markets. For example, issuance of standardized benchmark securities by governments and avoidance of interest rate instability as a by-product of monetary policy²⁹ are strategies that can be helpful to ensuring market liquidity. Robustness of intermediaries requires adequate capital, encouraging clearing and settlement, adequate management and control procedures, and inducing firms to monitor each other. An obvious additional point is that both intermediaries and end-users of securities markets must diversify their sources of funds and of liquidity to protect themselves against problems in individual markets. Crisis scenarios could play an important role in such calculations. Integration of capital markets as is taking place due to EMU is likely to make markets more robust, and indeed historically liquidity crises were in narrow markets dominated by few market makers (ECU bonds, FRNs, Swedish CP, junk bonds).

As cited by Bingham (1992), a traditional view is that robustness of debt securities markets may also require some limits to competition between market makers, possibly via designation, recognition, and licensing rules. In this view, economic rents associated with market maker status may be needed to ensure that they devote sufficient capital to prevent frequent liquidity collapses. An alternative to limits on entry in this context is low levels of disclosure of trades and the ability to post indicative prices. One reason why this approach has not typically been adopted (and indeed remaining cartels have been liberalized) is that such markets might be subject in the short term to oligopolistic abuses, with high fees, wide bid-offer spreads, and risks of price manipulation. In the longer term, trading in such markets would be disintermediated. More generally, the number of market maker markets, in the sense of there being an obligation to make markets, is declining. The more common type of market nowadays is the “dealer market” with no obligation to make markets (examples are the foreign exchange, bond, and OTC derivatives markets, as well as many equity markets). In such markets, high levels of capitalization might protect the dealer from bankruptcy but could not guarantee that market liquidity would always be maintained, since the dealer has no obligation to do so.

Some further issues are raised by the Japanese life insurance crisis. Fukao (2002) points out also that the firms that failed had healthy declared solvency margins before closure, and more generally that the crisis was worsened by forbearance by the supervisory authorities. Assets may be included in solvency

²⁹Volatile and unpredictable interest rate movements may undermine the profitability of market making, by increasing position risk as well as driving away liquidity traders.

calculations that have no liquidation value, and also deferred tax liabilities and future profits can be included in net assets. Risk weights for equities are 1/3 of those for US insurance and real estate and foreign currency assets one half. Due to this lenient solvency margin and slow closure, firms tended to be massively insolvent at the time of closure, worsening the losses of policyholders.

In our view, there are no strong reasons to change the prudential regulation of institutional investors in respect of trading per se, e.g. by requiring longer mandates or holding periods of shares. Herding is in our view largely an issue that markets and regulators must learn to live with, also in the light of benefits to market efficiency. Rather, the need is for “prudent person” based rules to ensure that institutions may optimise their risk-return tradeoffs in the light of liabilities – as failed to occur in the Japanese life insurance crisis. The move to defined contribution funds could reduce some aspects of herding, notably those related to solvency. More controversially, there could be a need to enforce solvency regulations on pension funds over a number of years to prevent “fire sales” of real assets during price falls and allow institutions to act in a contrarian manner. It is also useful for reporting by institutions such as hedge funds to be sufficiently detailed and timely to highlight concentrations of holdings in certain markets leading to overhangs and risks to stability. But obtaining such a result is likely to be difficult given the need for international agreements on regulation, including by offshore centres.

Conclusions

The growth of institutional investors is a key financial innovation of recent years. It is entailing a shift away from traditional bank intermediation, necessitating a re-evaluation of financial market structure and behaviour. The impact is likely to be of particular importance in Continental Europe, given that institutionalisation will be spurred in the future by the interaction of EMU, autonomous financial market developments and population ageing in the context of generous social security pension systems. All of these tend to shift the focus of the financial system towards an Anglo Saxon paradigm. This will necessitate considerable adaptation by regulators and market participants alike. We have traced impacts on financial structure, saving, investment, corporate governance and on financial stability in detail, as well as touching on benefits for performance of other financial functions. Generally, we suggest that an institutionalised financial sector is a more efficient one in a broad sense, but there are also risks to stability from asset manager incentives, including aspects of risk management. Current risks for life companies illustrate the evolving difficulties of institutional investors as competition increases and financial structures evolve, while the situation in Japan shows the dangers of inadequate regulation.

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Table 1: Size Indicator Of Financial Structure (Total Financial Claims As A Proportion Of GDP)

	1970	1980	1990	2000	Change 1970–2000
United Kingdom	4.7	4.9	8.9	11.0	6.2
United Kingdom excluding Euromarkets	4.7	4.2	7.9	9.7	5.0
United States	4.1	4.1	5.9	8.4	4.4
Germany	2.9	3.6	4.7	7.9	5.0
Japan	3.8	5.1	8.5	11.9	8.1
Canada	4.7	5.1	5.8	6.6	2.0
France	4.4	4.8	6.9	11.4	7.0
Italy	3.4	3.9	4.3	7.1	3.7
G7	4.0	4.4	6.3	9.0	5.0

Source: National Flow of Funds Balance Sheets

TABLE 2: Financial Intermediation Ratios (Intermediated Claims as a Proportion of the Total)

	1970	1980	1990	2000	Change 1970–2000
United Kingdom	0.32	0.42	0.47	0.58	0.26
United Kingdom excluding Euromarkets	0.32	0.34	0.40	0.52	0.20
United States	0.33	0.37	0.34	0.44	0.11
Germany	0.44	0.45	0.43	0.45	0.01
Japan	0.39	0.42	0.42	0.52	0.14
Canada	0.29	0.34	0.37	0.47	0.18
France	0.34	0.62	0.41	0.39	0.05
Italy	0.36	0.32	0.31	0.35	-0.01
G-7	0.35	0.41	0.38	0.45	0.10

Source: National Flow of Funds Balance Sheets

Table 3: Bank And Institutional Intermediation Ratios (Proportion Of Intermediated Claims Held By Banks And Institutional Investors)

		1970	1980	1990	2000	Change 1970–2000
United Kingdom	Bank	0.58	0.64	0.55	0.44	-0.13
	Institutional	0.28	0.26	0.32	0.38	0.10
United States	Bank	0.58	0.58	0.42	0.21	-0.37
	Institutional	0.31	0.31	0.40	0.44	0.13
Germany	Bank	0.84	0.86	0.83	0.73	-0.12
	Institutional	0.10	0.12	0.17	0.23	0.14
Japan	Bank	0.45	0.36	0.38	0.24	-0.21
	Institutional	0.10	0.10	0.16	0.17	0.06
Canada	Bank	0.45	0.55	0.44	0.38	-0.07
	Institutional	0.23	0.19	0.25	0.35	0.12
France	Bank	0.94	0.68	0.82	0.65	-0.29
	Institutional	0.05	0.04	0.19	0.27	0.22
Italy	Bank	0.98	0.98	0.95	0.64	-0.34
	Institutional	0.06	0.05	0.11	0.31	0.25
G7	Bank	0.69	0.66	0.63	0.47	-0.22
	Institutional	0.16	0.15	0.23	0.31	0.15

Source: National Flow of Funds Balance Sheets

Table 4: Institutional Investor Claims As A Proportion Of GDP

	1970	1980	1990	2000	Change 1970–2000
United Kingdom	0.42	0.37	1.02	1.93	1.51
United States	0.41	0.47	0.79	1.62	1.21
Germany	0.12	0.20	0.33	0.84	0.71
Japan	0.15	0.21	0.58	1.03	0.88
Canada	0.32	0.32	0.52	1.10	0.79
France	0.07	0.12	0.52	1.20	1.13
Italy	0.07	0.06	0.15	0.76	0.69
G7	0.23	0.25	0.56	1.21	0.99
Anglo-Saxon	0.39	0.39	0.78	1.55	1.17
Europe and Japan	0.11	0.15	0.40	0.96	0.85

Source: National Flow of Funds Balance Sheets

Table 5: Institutional Investment, 1998

	Life Insurance		Pension Funds		Mutual Funds		Total	
	(\$ billion)	% of GDP	(\$ billion)	% of GDP	(\$ billion)	% of GDP	(\$ billion)	% of GDP
United Kingdom	1294	93	1163	83	284	20	2742	197
United States	2770	33	7110	84	5087	60	14,967	176
Germany	531	24	72	3	195	9	798	35
Japan	1666	39	688	16	372	9	2727	63
Canada	141	24	277	47	197	34	615	105
France	658	43	91	6	624	41	1373	90
Italy	151	12	77	6	436	35	664	54
G-7	7212		9479		7195		23,886	

Source: National Flow of Funds Balance Sheets

Table 6: Assets of EU Institutional Investors (2000) Percent of GDP

	Pension funds	Investment funds	Insurance
Belgium	6	30	42
Denmark	24	20	78
Germany	16	12	43
Greece	4	25	1
Spain	7	30	13
France	7	55	61
Ireland	51	144	45
Italy	3	39	21
Luxembourg	1	3867	117
Netherlands	111	25	65
Austria	12	40	24
Portugal	12	16	20
Finland	9	10	57
Sweden	57	34	90
UK	81	27	107

Sources: EFRP, FEFSI, CEA quoted in CEPS (2002)

Table 7: Pension Funds' Portfolio Composition, 1998

percent	Liquidity	Loans	Domestic Bonds	Domestic Equities	Property	Foreign Assets
United Kingdom	4	0	14	52	3	18
United States	4	1	21	53E	0	11E
Germany	0	33	43	10	7	7
Japan	5	14	34	23	0	18
Canada	5	3	38	27	3	15
France	0	18	65	10	2	5
Italy	0	1	35	16	48	0

Source: National Flow of Funds Balance Sheets, Mercer (1999)

Table 8: Life Insurers' Portfolio Composition, 1998

Percent	Liquidity	Loans	Domestic Bonds	Domestic Equities	Property	Foreign Assets
United Kingdom	5	1	25	48	6	13
United States	6	8	52	26	0	1
Germany	1	57	14	17	4	0
Japan	5	30	36	10	0	9
Canada	7	28	55	26	7	3
France	1	2	74	15	7	0
Italy	0	1	75	12	1	0

Source: National Flow of Funds Balance Sheets, OECD

Table 9: Open-End Mutual Funds' Portfolio Composition, 1998

Percent	Liquidity	Loans	Domestic Bonds	Domestic Equities	Property	Foreign Assets
United Kingdom	4	0	8	56	2	33
United States	17	0	30	51	0	N.A.
Germany	10	0	22	18	0	29
Japan	23	18	27	9	0	22
Canada	20	3	18	31	0	23
France	29	0	37	20	0	14
Italy	19	0	54	22	0	0

Source: National Flow of Funds Balance Sheets, FEFSI

Table 10: Evolution of household assets

		1970	1980	1990	2000	Change 1970-2000
UK	Deposits	0.34	0.43	0.31	0.22	-0.12
	Bonds	0.07	0.07	0.01	0.01	-0.06
	Equities	0.24	0.12	0.12	0.17	-0.07
	Instits	0.23	0.30	0.48	0.56	0.33
US	Deposits	0.28	0.33	0.23	0.12	-0.16
	Bonds	0.13	0.10	0.11	0.07	-0.06
	Equities	0.36	0.21	0.14	0.25	-0.11
	Instits	0.22	0.28	0.39	0.49	0.28
Germany	Deposits	0.59	0.59	0.48	0.34	-0.25
	Bonds	0.08	0.12	0.16	0.10	0.03
	Equities	0.10	0.04	0.07	0.16	0.06
	Instits	0.15	0.17	0.21	0.34	0.19
Japan	Deposits	0.55	0.69	0.60	0.54	-0.01
	Bonds	0.06	0.09	0.09	0.08	0.02
	Equities	0.12	0.07	0.09	0.03	-0.09
	Instits	0.14	0.13	0.21	0.31	0.17
Canada	Deposits	0.31	0.38	0.36	0.25	-0.06
	Bonds	0.14	0.08	0.05	0.05	-0.09
	Equities	0.27	0.24	0.21	0.27	0.00
	Instits	0.22	0.21	0.28	0.41	0.19
France	Deposits	0.49	0.59	0.38	0.25	-0.23
	Bonds	0.06	0.09	0.04	0.02	-0.04
	Equities	0.26	0.12	0.26	0.37	0.12
	Instits	0.06	0.09	0.26	0.23	0.18
Italy	Deposits	0.45	0.58	0.35	0.25	-0.21
	Bonds	0.19	0.08	0.19	0.19	-0.01
	Equities	0.11	0.10	0.21	0.26	0.14
	Instits	0.08	0.06	0.08	0.30	0.22
G7	Deposits	0.43	0.52	0.39	0.28	-0.15
	Bonds	0.10	0.09	0.09	0.07	-0.03
	Equities	0.21	0.13	0.16	0.22	0.01
	Instits	0.16	0.18	0.27	0.38	0.22

Source: National Flow of Funds Balance Sheets

Table 11: Evolution of corporate liabilities

		1970	1980	1990	2000	Change 1970-2000
UK	Bond	0.07	0.02	0.00	0.07	0.00
	Equity	0.49	0.37	0.53	0.67	0.17
	Loan	0.15	0.22	0.21	0.21	0.06
US	Bond	0.14	0.17	0.18	0.14	0.00
	Equity	0.55	0.49	0.39	0.63	0.08
	Loan	0.15	0.13	0.18	0.10	-0.04
Germany	Bond	0.03	0.02	0.02	0.01	-0.02
	Equity	0.27	0.20	0.31	0.49	0.22
	Loan	0.47	0.52	0.42	0.37	-0.09
Japan	Bond	0.02	0.03	0.06	0.10	0.07
	Equity	0.16	0.22	0.29	0.29	0.13
	Loan	0.48	0.45	0.45	0.40	-0.08
Canada	Bond	0.12	0.08	0.13	0.18	0.07
	Equity	0.46	0.41	0.41	0.54	0.08
	Loan	0.15	0.22	0.22	0.12	-0.03
France	Bond	0.03	0.04	0.04	0.04	0.01
	Equity	0.41	0.34	0.56	0.70	0.29
	Loan	0.54	0.60	0.38	0.14	-0.40
Italy	Bond	0.08	0.04	0.03	0.01	-0.07
	Equity	0.32	0.52	0.48	0.52	0.20
	Loan	0.60	0.43	0.41	0.30	-0.29
G7	Bond	0.07	0.05	0.07	0.08	0.01
	Equity	0.38	0.36	0.43	0.55	0.17
	Loan	0.36	0.37	0.32	0.24	-0.13

Source: National Flow of Funds Balance Sheets

Table 12: Institutional shares of equity holding (proportion of total)

		1970	1980	1990	1998
Germany	Life and pension	0.04	0.07	0.12	0.14
	Foreign	0.15	0.17	0.14	0.16
Italy	Life and pension	0.02	0.01	0.02	0.02
	Foreign	0.18	0.05	0.07	0.15
France	Life and pension	0.02	0.04	0.02	0.04
	Foreign	0.08	0.13	0.12	0.18
Japan	Life and pension	0.09	0.08	0.09	0.12
	Foreign	0.09	0.06	0.04	0.13
Canada	Life and pension	0.05	0.06	0.11	0.14
	Foreign	0.08	0.07	0.04	0.06
US	Life and pension	0.13	0.24	0.33	0.34
	Foreign	0.04	0.06	0.08	0.10
UK	Life and pension	0.14	0.45	0.47	0.46
	Foreign	0.13	0.15	0.34	0.33
G-7	Life and pension	0.07	0.13	0.17	0.18
	Foreign	0.11	0.10	0.12	0.16

Source: National Flow of Funds Balance Sheets