

LINKAGES BETWEEN PENSION REFORM AND FINANCIAL SECTOR DEVELOPMENT

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**Paper presented at the Asian Development Bank workshop
entitled "Pension systems in Asia", Manila, 3-4 December 1998.**

Working Paper PI-9909, the Pensions Institute, Birkbeck College, London.

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Introduction

In the light of population ageing and the shortcomings of existing means of old age support, pension reform is viewed as essential in a variety of both developing and advanced countries. Pension reform's principal objective should be to ensure income security in old age, in a least cost manner. However, it may also have some important macroeconomic benefits, by easing any labour market distortions and by facilitating the development of financial markets. These elements are of course not independent, since efficient labour and capital markets should facilitate economic growth generally², thus helping to provide sufficient resources to cater for the elderly without an undue burden on the working population.

In this context, this article briefly sets out in Section 1 our own preferences in respect of pension reform before going on to assess in detail the linkages between pension reforms introducing an element of funding³ and financial market development. In particular, we specify in Section 2 the various effects that funding and institutional-investor growth have on financial markets, in Section 3 we illustrate some of these effects with the example of Chile, and in Annex 1 we discuss some of the preconditions for such reform. Note that the focus is largely on the direct effects on capital markets of introducing funding; we do not address in great detail the issue of design of the transition from pay-as-you-go (see Holzmann 1997).

1 Appropriate reform strategies

In this introductory section we set out our views on the various policy choices involved in pension reform, starting with the overall issue of funding versus pay-as-you-go before going on to assess the various issues involved in the introduction of a strategy of funding. Reflecting the comments above, we suggest that policy choice should primarily reflect considerations of retirement-income security and financing elements, but to the extent possible effects on labour and financial markets should also be considered. Overall, similar to the World Bank (1994), we tend to favour a mixed solution of a flat rate pay-as-you-go system at a low level to redistribute and protect against old-age-poverty, with other retirement income needs fulfilled by a funded system. A mixture of both approaches has a benefit in diversification of risks. Among other choices, we tend to prefer a voluntary to a mandatory funded scheme, benefiting from fiscal privileges, with assets administered privately, mainly occupational funds which may be either defined benefit or defined contribution, being externally funded, having prudent man rules for asset allocation and limited mandatory indexation of benefits. Some key factors underlying these choices are set out below, more details are provided in Davis (1998a).

A good starting point is the Aaron condition, that broadly speaking the return to pay-as-you-go is the growth rate of wages times the old-age dependency ratio and the return to funding is the net return on financial assets times the passivity ratio. An important aspect of the *pay as you go-funding choice* is that in equilibrium, the rate of return should always tend to exceed the growth rate of wages

² Berethelemy and Varoudakis (1995), for example, show how inadequate financial development can be a severe obstacle to growth.

³ Pension reform may of course also entail improvements to existing unfunded pension systems.

(Hemming 1998). Moreover, whereas initially pay-as-you-go seems cheap as there are few retirees, costs rise as the population ages and hence the dependency ratio rises faster than the passivity ratio. Although these arguments favour funding, given differing risks (investment and insolvency for funding and political for pay-as-you-go), both may be best employed, as a hedge. Its comparative advantage in terms of redistribution suggests pay-as-you-go should be basic - to act as a form of safety net for poverty alleviation - and funding should cover the needs for maintenance of pre-retirement living standards. This is because besides being vulnerable to the effects of population ageing, a comprehensive pay-as-you-go is likely to engender economic distortions (early retirement, disability pensions, evasion, disincentives to save), while funding offers better labour market incentives as well as aiding development of financial markets. On the other hand, as discussed in Annex 1, funding may require a certain level of domestic financial development to be viable, unless assets are to be invested internationally. Benefits of funding are vulnerable to inefficient investment and high administrative costs (Davis 1998b), as well as financial market volatility. Regulatory frameworks and the nature of the transition require careful design.

As regards *compulsion*, for relatively advanced countries, we feel that equity and efficiency are best balanced by mandating "basic" social security (i.e. flat rate payments) only; development of an efficient occupational pension sector based on opting out of earnings related social security, with appropriate tax incentives, should be sufficient to attract employers and employees. However, where a pre-existing voluntary system is wholly absent, a "savings culture" is not present and/or even basic social security schemes are moribund, a mandatory funded scheme may be appropriate (Davis 1998b).

Whether there is a case for special *fiscal treatment* of pensions may depend partly on whether the scheme is voluntary or compulsory, where compulsion reduces the need for tax incentives. Given we prefer a voluntary scheme, we also consider that appropriate incentives are essential, particularly if employees are to be encouraged to 'opt out' of earnings-related social security⁴. Retirement income security considerations suggest that pension funds should be tax advantaged even if other types of saving are not, if most or all of pension pay-outs are in annuity form.

Private is preferred to public *investment of pension monies*, despite lower administrative costs. The lack of transparency in the disposal of funds by a public agency and weak incentive structures as well as vulnerability to political influence, all of which are likely to reduce asset returns are among the reasons. It is nonetheless crucial that regulation of private asset managers should be adequate, and the market structure of asset management be such as to favour efficient investment of portfolios.

We consider that *occupational funds are superior to personal pensions*, notably owing to lower commission charges and superior risk pooling, as long as regulation protect the pension fund's assets against bankruptcy of the sponsor and labour mobility problems are minimised by appropriate regulation. That said, in developing economies where most firms are small or start-ups on the one hand, or at risk of financial distress on the other, the case for personal pensions becomes stronger.

⁴ Samwick (1998) notes that an appropriate design of rebate can help ensure that the reform maintains or increases the level of saving.

Concerning the overall *balance between defined benefit and defined contribution*, a degree of neutrality may be advisable, allowing market forces and individual preferences to play a major role. For individuals, the insurance element of defined benefit may be attractive, while firms see them as a means to manage the labour force. Defined benefit plans should, however, be complemented by regulations to overcome the key problems which arise (for example, ensuring rapid vesting, actuarially-fair transfer values, indexation of accrued benefits and ideally transfer circuits or industry wide plans) as well as minimum funding rules. In the absence of appropriate regulation and/or industry wide schemes, and particularly if a typical individual also have many jobs over a lifetime, the balance of advantage may shift to defined contribution funds despite the greater financial market risks to which members are exposed. If firms are typically short lived, there may again be benefits to defined contribution. Equally, it should be noted that if regulations impose an excessive burden on employers and/or firms are extremely short-lived, defined benefit funds may not be viable.

External funding is in our view superior to internal (book-reserve) methods. In general, book reserve methods are not feasible for defined contribution funds. For defined benefit funds, external funding offers a diversified and hence less risky alternative backup for the benefit promise, as well as offering the possibility of unplanned benefit increases if the plan is in surplus and allowing broader benefits to the capital market to accrue.

Research suggests that strong *portfolio regulations* lead to lower returns than those with prudent man rules, albeit also with somewhat lower volatility (Davis 1998c). Prudent man rules also have the benefit of flexibility - their interpretation can evolve over time. There may be external benefits to the economy via greater supplies of risk capital, as well as inflows of international capital encouraged by international investment of domestic institutions. Portfolio regulations are vulnerable to political influences (desire for a captive market for government bonds). They typically limit international investment, making retirees unduly vulnerable to the performance of the domestic economy. On the other hand, regulations could be justified as a temporary measure in developing or transition economies, owing inter alia to high market risks, lack of transparency, the difficulty of enforcing a prudent man rule ex-post where financial market investment is not part of the "culture", desire to prevent capital flight, lack of a savings culture and the danger of short termism if investment were liberalised.

Finally, we consider that *indexation of pensions*, at least up to a certain level (subject to a 'prudent man' asset management rule being in operation), is appropriate as a balance between retirement income security and cost. This is particularly the case if there is a ready supply of indexed assets.

Table 1 shows characteristics of some of the most developed funded pension systems, indicating how they differ in terms of the characteristics above and indicating some of the implications for asset returns, which as noted is the key to the efficiency of a strategy of funding. Before concluding this section, it is important to add that the optimal choices are likely to differ strongly between countries depending on the underlying structural situation; notably the state of the existing pay-as-you-go scheme, the development of capital markets, existing private schemes and willingness to allow

international investment. In other words, pension reform must be carefully tailored to the existing circumstances of a country⁵.

2 Effects of pension fund growth on financial markets

Before discussing the effects of reforms introducing funding on financial markets, it is worth spelling out the functions the financial system fulfils, that may be improved by pension reform. Following Merton and Bodie (1995), these are;

- (i) *clearing and settling payments* to facilitate exchange of goods, services and assets.
- (ii) the provision of a mechanism for *pooling of funds* from individual households so as to facilitate large-scale indivisible undertakings, and *the subdivision of shares* in enterprises to facilitate diversification.
- (iii) provision of ways to *transfer economic resources* over time, across geographic regions or among industries. By these means, households may optimise their allocation of funds over the life cycle and funds may be optimally allocated to their most efficient use.
- (iv) provision of ways to *manage uncertainty and control risk* whereby through securities and through financial intermediaries, risk pooling and risk sharing opportunities are made available to households and companies.
- (v) providing *price information*, thus helping to co-ordinate decentralised decision making in various sectors of the economy.
- (vi) providing ways to *deal with incentive problems* when one party to a financial transaction has information the other does not, or when one is agent of the other, and when control and enforcement of contracts is costly.

We now go on to assess in detail the consequences of funding for financial markets⁶, drawing where appropriate on these functions to show how their performance is affected. Pension funds are defined as means whereby assets are accumulated to cover or provide collateral for pension benefits, in which context they act as institutional investors involved in management of assets on the capital market. Accordingly, they directly fulfil the functions of transferring resources over time and pooling of funds, in a potentially efficient manner (depending, as set out in Section 1, on factors such as regulation and the competitiveness of asset management sectors).

Overall, pension fund growth tends to shift financial markets towards a "capital market oriented" stage of financial development, where the functions outlined above may at least in some ways be more efficiently fulfilled than in an economy dominated by banks⁷. The effects may be conveniently

⁵ One may add that there are many other questions to address besides those mentioned, some of which are also relevant to pay-as-you-go schemes. These include the appropriate contribution rate, the floor and ceiling on contributions and benefits, the normal retirement age and any exceptions to it, treatment of civil servants and the self employed, sharing of costs between workers and employers, disability insurance, means testing, payroll and general taxation and treatment of survivors. Elimination of early retirement and raising of retirement age should be a priority in all cases.

⁶ See also Davis (1998d).

⁷ As argued by Allen and Gale (1994), a major shift to capital market financing could well be economically beneficial if the future lies with emerging industries, with high financial and economic risks and where knowledge about industry is uncertain (IT, biotechnology). In contrast, banking may have a comparative

divided into a number of categories; effects on saving, effects on demand for capital market instruments and various qualitative effects. These effects are largely identified by research on OECD economies and on Chile (see also Section 3). In Annex 1, we consider some preconditions for developing countries in order for these effects to apply. In Annex 2, we note some exploratory regressions on the link of institutionalisation of capital markets to various quantitative developments, which support the arguments presented here.

There are a number of *mechanisms whereby pension funding may increase personal saving*; imperfect substitution arising, for example, from illiquidity of pension assets may mean that other saving is not reduced one-to-one for an increase in pension wealth; liquidity constraints may imply that any forced saving (such as pension contributions) cannot be offset either by borrowing or reducing discretionary saving (Hubbard 1986)⁸; forced saving may reduce myopia of savers in respect of retirement (Morandé 1998); low income workers may not save otherwise (Bernheim and Scholz 1992); the interaction between pensions and retirement behaviour may increase saving in a growing economy, as workers increase saving in order to provide for an earlier planned retirement (Feldstein 1974); tax incentives which raise the rate of return on saving via pension funds may encourage higher aggregate saving;⁹ and finally, a cut in social security as part of a shift to funding should increase saving, given the effect on implicit wealth (World Bank 1994). If not offset by higher fiscal deficits, higher personal saving may of course permit higher aggregate investment without recourse to potentially unstable foreign inflows.

On balance, research suggests that growth in funded pension schemes does appear to boost personal saving, subject to a partial offset arising via declines in discretionary saving. Much of the literature, such as Pesando (1992), which is focused on US defined benefit funds, suggest an increase in personal saving of around 0.35 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. Hubbard (1986) suggests a larger effect on personal saving of 0.84, Gale (1997), rather less. Effects may be less marked for defined contribution funds, where 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 (1996) suggest that 401(k) accounts in the US¹⁰ have added to aggregate saving, with tax incentives being the main reason. In developing countries, Corsetti and Schmidt-Hebbel (1997) and Morandé (1998) find a positive effects of pension reform on saving in Chile; World Bank (1993) finds similar effects in Singapore. These effects may link to the prevalence of credit constraints for low income households who would not otherwise have saved. Finally,

advantage in industries where markets are mature and innovation and uncertainty are low, as banks can then accurately monitor and diversify risk among companies.

⁸ It might be anticipated that liquidity effects on saving may weaken where credit markets are liberalised and thus access to credit less restricted, or participation in pension funds is optional.

⁹ On the other hand, one should note that taxation provisions boosting rates of return will only influence saving at the margin for those whose desired saving is below that provided by social security and private pensions; for those whose desired saving exceeds this level, there will be an income effect but no offsetting substitution effect, and saving will tend to decline.

¹⁰ These are individual, albeit company-provided defined contribution accounts.

regarding social security Edwards (1995) shows it lowers private saving in developing countries; Feldstein (1995b) suggests personal saving rises 0.5 for every unit decrease in social security wealth.

All these estimates abstract from effects on public saving in the transition (e.g. in deficit-financing of existing social security obligations) that may be fully offsetting at a national level. 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).

The quantitative impact of development of pension funds on capital markets, abstracting from potential increases in saving, arises mainly from differences in behaviour from the personal sector. Pension funds in most cases hold a greater proportion of capital-uncertain, long-term assets than households (see Table 2)¹¹. These differences can be explained partly by time horizons, which for households are relatively short, whereas given the long term nature of liabilities, pension funds may concentrate portfolios on long term assets yielding the highest returns. But given their size, pension funds also have a comparative advantage in compensating for the increased risk by pooling and diversifying across assets whose returns are imperfectly correlated, an advantage linked also to lower transactions costs for large deals and ability to invest in large indivisible assets such as property. Unlike banks, they tend to rely on more on public than private information in investment and hence seek relatively liquid assets. However, owing to economies of scale, specialisation, links to investment banks etc. their information may be typically superior to that of private individuals.

It may be added that build-up of long term funds from pension schemes can be rapid (see also Table 1¹²). If labour income is 50% of GDP, a compulsory pension scheme covering 50% of the labour force at a contribution rate of 10% will accumulate funds equivalent to 2.5% of GDP annually. If the nominal rate of return is equal to GDP growth, and initially pension payments are low, 25% of GDP could easily be accumulated in long-term financial assets in 10 years. Increases in coverage or contribution rates as well as higher asset returns may of course increase these growth rates further.

The implication is that even if saving and wealth did not increase, *a switch to funding would increase the supply of long term funds to capital markets*, thus improving notably the performance of the function of transferring resources. There may be increases in equities, long term corporate bonds and securitised debt instruments and a reduction in bank deposits, so long as individuals do not adjust the liquidity of their portfolios to fully offset effects of growth of pension funds - and so long as the macroeconomic environment favours long term financing (see Annex 1). A priori, one can argue that full offsetting is unlikely, especially if pension assets are defined benefit and/or implicitly substitute for highly-illiquid implicit social security wealth. Empirical work by King and Dicks-Mireaux (1988) found no such offset for Canada, while Davis (1988) obtained similar results for the G-5. Certainly there seems to be a correlation in OECD countries between equity market capitalisation and the size

¹¹ Differences in portfolios link to a variety of factors, notably regulation and historical developments.

¹² In considering the numbers in Table 1, it may be noted that the assets of the Singapore CPF were only 28% of GDP in 1976; the Malaysian fund was 18% in 1980 and the Chilean only 1% in 1981.

of the institutional investor sector¹³ (see also Annex 2). Moreover, radical changes in financial structure - inconsistent with full offsetting - have been widely observed to accompany growth of funding, not least in Chile, as discussed below. More generally, the size and activity of equity markets and the number of listed companies differs little between the emerging markets covered in the paper and the OECD markets (Table 3). On the other hand, a shift to funding via defined contribution plans may reduce or eliminate these shifts to longer term assets, if unlike in Chile, households can control the disposition of their pension assets, are rather risk averse and wish to maintain their existing portfolio structure.

As regards the broader economic benefits of such overall shifts to long term assets, they should tend to reduce the cost and increase the availability of equity and long term debt financing to companies, and hence may raise productive¹⁴ capital formation. Economically efficient capital formation could in turn raise output and "endogenously", growth itself (Holzmann 1997), thus potentially contributing to resolve the old-age security problem by increasing the scope of future resources available. Higher growth will of course feed back on 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). Equity market development per se has been shown to enhance overall economic development (Demirgüç-Kunt and Levine 1996). Levine and Zervos (1996) show *how* stock market development may aid growth potential, e.g. by increasing liquidity and thus facilitating financing of long term, high return projects; enabling international diversification 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 take-overs to resolve corporate governance difficulties. But they point out that there are often counter arguments to these. Meanwhile Demirgüç-Kunt and Maksimovic (1996) show that access to an active stock market increases firms' ability to borrow at long maturities, especially in developing financial markets. Finally, 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.

One note of caution is that if governments force pension funds to absorb the significant issues of bonds that may be needed in a debt financed transition strategy, or if government issuance crowds out corporate issues, many of the benefits outlined will not be realised.

Besides inducing shifts to longer term assets, funding would also *increase international portfolio investment*, where this is permitted, i.e. transfer of resources cross-border, given the benefits it offers

¹³ Simple estimation for the EU-15, the US, Japan and Canada gives a correlation of 0.97. In emerging markets, the activities of foreign investors may be relatively more important.

¹⁴ This also requires allocation of funds to their most profitable uses and adequate shareholder-monitoring of the investment projects, which as detailed below should also tend to occur in capital markets dominated by pension funds.

in terms of risk reduction to pension funds¹⁵ while household activity in this area is low¹⁶. This has been a particular feature of OECD countries in recent years. Important, and conflicting, issues are raised, notably for developing and transition countries. On the one hand, international investment may be seen as a loss of potential to develop domestic capital markets. It may also be seen as posing a risk of capital flight. On the other, it may be seen as beneficial to pension funds as volatility of returns could be reduced. In addition, it will forestall the point at which pension fund investment becomes so large as to face diminishing returns domestically. Also there may be a benefit at a national level if national income is subject to frequent terms-of-trade shocks owing to the position of being largely dependent on commodities for export earnings, while export earnings account for a large proportion of GDP, as is common in developing countries. Hence, holdings of assets offshore can actually help to contribute to greater stability of national income (Fontaine 1997).

Besides the quantitative effects noted above, the development of pension funds is also likely to trigger *qualitative developments in financial markets*, which will facilitate in particular the functions of managing uncertainty and controlling risk, and providing price information. They are in general subject to positive externalities, as once instituted other investors may also benefit from them.

One qualitative improvement is *financial innovation*, which in emerging markets may include equities per se, junior markets, corporate bonds, securitisation, CDs, derivative markets¹⁷ and indexed instruments. In OECD countries, pension funds' need for hedging against shortfalls of assets against liabilities has led to the development of a number of recent financial innovations such as zero coupon bonds and index futures (Bodie 1990). Similarly, immunisation strategies and the development of indexation strategies by and for pension funds has increased demand for futures and options. There may be important indirect benefits in this context, as pension funds press for improvements in what Greenwald and Stiglitz (1990) call the "architecture of allocative mechanisms", including better accounting, auditing, brokerage and information disclosure. Modern banking and insurance supervision, new securities and corporate laws, junior equity markets and credit rating agencies are also stimulated to develop. Such improvements are crucial for financial development more generally.

Modernisation of the infrastructure of securities markets as required by pension funds and other institutional investors which should entail improved clearing and settlement on the one hand and provide more sensitive price information on the other, thus improving resource allocation. As a consequence it may help reduce the cost or increase the availability of capital market funds, and hence aid industrial development *per se* as well as facilitating privatisations. In developing countries, their

¹⁵ Finance-theory arguments for international investment (Davis 1995b) apply particularly strongly to emerging markets. Such markets may be highly vulnerable to macroeconomic shocks such as high and variable inflation that are damaging to the value of domestic financial assets. If the domestic currency tends to depreciate owing to inflation, real returns on foreign assets will be boosted temporarily. The domestic stock market may itself be poorly diversified, being dominated by a small number of companies, or unduly exposed to one type of risk. Small markets - particularly in developing countries - may be inherently volatile. There may be industries offshore which are not present in the domestic economy, investment in which will reduce unsystematic risk.

¹⁶ Pension funds still tend to be subject to so-called "home asset preference" however, and do not tend to shift to the "global portfolio" even when permitted to do so.

¹⁷ On the development of derivatives exchanges in emerging markets see Tsetsekos and Varangis (1997).

influence may be seen in terms of development of the overall market infrastructure (such as trading and settlement systems) and enhancement of liquidity. Similar effects may be anticipated to OECD countries, given their focus on liquidity¹⁸ and lesser emphasis on investor protection, pension funds offer benefits to wholesale equity markets as opposed to heavily regulated retail markets (Steil 1996). They are footloose in their trading, and thus make the business of trading “contestable” rather than monopolistic, and facilitate its concentration. Increased funding would raise the proportion of “wholesale” trading activity which would be willing to translocate. It would also put pressure on cartels in bond issuance and price fixing in equity trading.

By leading to disintermediation, funding is likely to entail increased *competition to the banking sector*. Besides increasing demand for capital market financing generally, disintermediation is facilitated in an institutionalised capital market as the scope of public as opposed to private information and the efficiency of its use by markets may be increased by the development of information technology and the related growth in influence of rating agencies, investment banks and credit assessors covering a wider range of firms. The traditional comparative advantages of banks in this area resulting from economies of scale in information gathering, screening and monitoring (Diamond 1984) may be eroded, even abstracting from price considerations. Meanwhile on the liabilities side of banks’ balance sheets, pension funds tend to be ready customers for repos, commercial paper and other money market instruments rather than bank deposits, thus undermining banks’ comparative advantage in liquidity provision (Diamond and Dybvig 1983).

On the one hand such competition may lead to heightened efficiency of banks, thus aiding economic development. As discussed below, there are also complementarities in corporate finance between bank and market funding; and banks are essential components of capital market activity per se (as providers of collateral, clearing, settlement etc. services). By providing an alternative source of liquidity and long term finance to banks, institutional and capital market growth helps the economy to diversify against the risks of banking problems (IMF 1997). But it may also help to generate them; the lessons of history from OECD countries suggest a need for vigilance, particularly if disintermediation coincides with deregulation and hence heightened competition within the banking sector (Davis 1995b). Banks may respond to the associated pressure on their profits partly by increasing their focus on non-interest income – including asset management income per se, mutual funds and insurance – and reducing excess capacity by merger or branch closure. However, disintermediation historically also led at times to increased risk-taking via aggressive balance sheet expansion (e.g. by lending to property developers) with risk premia which in retrospect proved to be inadequate¹⁹. Attention to shifts in the riskiness of banks portfolios, focus on capital adequacy and the issue of excess banking capacity are warranted by regulators in this context.

Turning to the *corporate sector*, as outlined, the availability of long term debt and of equity capital should be increased by a wider investor base as funding develops. These are not independent; as

¹⁸ Liquidity may be less important where pension funds focus on buy-and-hold strategies, as in Chile.

¹⁹ It may be added that rapid economic growth and at times inappropriate monetary policy also played a role in this typical late 1980s pattern.

noted, access to long term finance may also be aided by flotation. Besides equity issues by existing firms, IPOs and privatisations would tend to be facilitated. Particularly for existing firms with small equity bases, there may be important competitive advantages to be reaped from equity issuance in terms of growth potential as well as reducing risks of financial distress in case of economic downturn; long term debt finance is correlated with higher growth for manufacturing firms (Caprio and Demirgüç-Kunt 1998).

Experience suggest that firms would also need to fulfil certain requirements in order for equity funds to become available from institutional investors. They may need to adapt themselves in various ways, as well as putting pressure on governments for appropriate legal provisions. The types of adaptation required are clear from the existing "shareholder value" based demands made by Anglo-Saxon institutional investors both on their own domestic companies and overseas - demands which would be multiplied by growth of domestic institutions via funding (Davis 1995a). For example, companies would face enhanced pressure for higher and more sustained dividend payments; primacy of equity holders as owners of the firm over stakeholders; greater provision of information by firms; removal of underperforming managers; appropriate management structures; equal voting rights for all shares; pre-emption rights; and equal treatment in take-overs. To back up these requirements, pension funds would demand laws and regulations such as firm take-over codes, insider information restrictions and limits on dual classes of shares, which seek to protect minority shareholders, as well as equal treatment of creditors in bankruptcy, to protect their holdings of corporate bonds.

Such an overall development would have implications not just for balance sheet structure - with potentially lower debt-equity ratios - but also for corporate governance, implying a greater degree of control by capital markets and institutional investors, improving the financial market function of dealing with incentive problems. In this context, the "corporate governance movement" in OECD countries reflects dissatisfaction among pension funds with costs of the take-over mechanism, and preference for direct influence as equity holders on incumbent management (Davis 1995a). It also links to indexation by large funds, which seek to improve the performance of firms they have to hold, as well as more generally where pension funds are very large and cannot readily sell their participations without significant market movements against them. In practice, however, the scope of "direct influence" is limited in most emerging market countries; Brazil and South Africa are two exceptions.

One can trace a potential transition path for the various types of corporate governance structure that exist when capital markets are rudimentary or absent, as pension funds become dominant. Family enterprises which seek equity capital from the market may have to reduce their role in governance; privatisation would obviously tend to diminish the role of the state. Meanwhile "relationship banking" would tend to diminish (Davis 1993). There remain limits to such shifts of corporate finance and corporate governance to capital markets; even in a securitised financial system companies may prefer to incur some bank debt as a signal to capital markets that they are being monitored (James and Wier 1990). In all countries, there would remain a size class of firms too small for even IPOs which would still need a close bank link.

Indeed, there is evidence that pension funds and other institutional investors are reticent in *investing equity in small firms*, (i.e. there are limits to potential transfer of resources) despite the fact that their potential for innovation, growth and job creation is widely seen as crucial for economic growth²⁰. For example, Revell (1994) shows that in 1989, UK pension funds held 32% of large firms and only 26% of smaller ones. Sias (1996), shows that for the United States institutional holding of the largest firms on average over 1977-91 is over 47% and for the smallest, only 8%. The consequence of neglect of small firms by institutional investors (assuming individual investors do not fill the gap) may be biases economy towards sectors with larger firms (for even if small firms can obtain bank loan finance, growth potential via debt is likely to be more restricted than with equity in addition). This may be contrary to the comparative advantage of the economy as a whole²¹. It suggests a need for venture capital funds, junior equity markets and appropriate pension fund regulation.

A further key financial market topic is *pension funds' direct effect on liquidity and price formation*. Do pension funds increase or dampen volatility? In normal times institutions, being willing to trade, having good information and facing low transactions costs, should tend to speed the adjustment of prices to fundamentals. It need hardly be added that such market sensitivity generates an efficient allocation of funds and acts as a useful discipline on lax macroeconomic policies. Again, the liquidity that institutional activity generates may dampen volatility, as is suggested by lower share price volatility in countries with large institutional sectors²². And evidence on average day-to-day asset price fluctuations shows no tendency for such volatility to increase (Davis 1996).

On the other hand, some medium term deviations of asset prices from levels consistent with fundamentals - at times affecting global capital markets - may link to institutionalisation. Clearly, these imply a weakening of the financial market function of providing price information. Correction of such situations may involve massive price adjustments or even market liquidity failure. Examples (see Davis 1995b) are the stock market crash of 1987, the ERM crises of 1992-3, the bond markets in 1993-4 and the Mexican crisis of 1994-95. Such events were characterised by features such as heavy involvement of institutional investors in both buying and selling waves; international investment; signs of overreaction to the fundamentals and excessive optimism prior to the crisis; at times, inappropriate monetary policies; a shock to confidence which precipitated the crisis, albeit not necessarily sufficient in itself to explain the scale of the reaction; and rapid and wholesale shifts between markets, often facilitated by financial innovations. Such patterns have been part of the background for renewed discussion of capital controls in recent years. Underlying factors appear to be, crucially, influences on fund managers which induce herding behaviour (notably the prevalence of

²⁰ 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. The development and improvement of stock markets for small company shares is one initiative that may make such holdings more attractive to pension funds.

²¹ Of course, problems of equity provision to small firms are much more severe with book-reserve pension financing, which tends to preserve the existing industrial structure and not aid equity financing of new firms.

²² This is not to deny that markets may be subject to forms of excess volatility relative to fundamentals, but that the scope of average volatility does not seem to be linked to institutionalisation

performance measurement²³, due in turn to principal-agent incentive problems between the sponsor and the fund manager²⁴). In countries such as Chile, 'herding' may also be stimulated by regulations which require pension funds to obtain similar returns.

As is the case for excess volatility as outlined above, regular performance evaluation of pension fund managers by trustees is said to underpin *the short-termist hypothesis*, (entailing under-valuation of firms with good earnings prospects and willingness of funds to sell shares in take-over battles). This in turn is held to discourage long term investment or R&D as opposed to distribution of dividends, which would imply a suboptimal transfer and allocation of resources. Schleifer and Vishny (1990) provide an empirical model suggesting that short time horizons are an equilibrium property of capital markets, owing to the higher cost of long-term than short-term arbitrage²⁵. Some recent empirical research seems to confirm the existence of short termist effects in the UK, with overvaluation of profits in the short term (Miles 1993). Evidence from a survey of US CEOs goes in the same direction (Poterba and Summers 1992) Against this, Marsh (1990) notes that in the absence of information relevant to valuations, excessive turnover will hurt performance of asset managers, and reaction to relevant information on firms' long term prospects, which itself generates turnover, is a key function of markets. High stock-market ratings of drug companies, with large research expenditures and long product lead times, would seem to tell against the short-termist hypothesis.

3 Developments in Chile

Besides being typical of OECD financial markets with large pension fund sectors such as the UK and US (Davis 1998d), a number of these phenomena highlighted in this section are illustrated by the experience of Chile. Holzmann (1997) points to the fact that Chilean pension funds grew from zero in 1980 to 39% of GDP in 1995. They may have played a major role in stimulating the rise in private saving observed over this period (Morandé 1998)²⁶. This accompanied an expansion of overall financial assets from 28% of GDP in 1980 to 68% in 1993 (Fontaine 1997), with pension assets accounting for a third of this total. Initially funds were invested mainly in debt securities owing to regulatory prohibition of equity investment, but not solely those of the government - also bank CDs and mortgage bonds. Debt maturities increased as a consequence of the development of pension funds to 12-20 years by 1990. Equity investment was permitted in 1985 and holdings have grown to over 30% of assets (Table 2). This accompanied and encouraged a marked expansion of equity market capitalisation from 32% of GDP in 1988 to 90% in 1993; in the early 1990s, closed companies were encouraged by high P/E ratios to go public and accept standard record keeping and auditing practices,

²³ It is important to add, however, that the "cure" (of seeking to reduce performance pressure) may be worse than the "disease" (potential for herding). An uncompetitive fund management sector without pressure from performance assessment may actually be "value deducting", investing in securities which do not minimise risk for given return and possibly investing client funds in a way which favours holdings of a parent institution (e.g. "front running").

²⁴ See Scharfstein and Stein (1990), Froot et al (1990).

²⁵ It is interesting to add that Von Thadden (1992) has noted that bank monitoring can in theory increase investment time horizons by enabling banks to detect at an early stage whether projects will be viable. This argument implies that a weakening of "relationship banking" may induce a further shortening of time horizons.

²⁶ However, Holzmann (1997) notes that the initial effect on private saving was low or even negative.

thanks to better access to pension fund financing. In 1991 the pension funds held 1/3 of public bonds, 2/3 of private bonds and 10% of equities. Holzmann (1997) shows econometrically that the development of financial markets in Chile correlates with strong development of the real side of the economy, via rising total factor productivity and capital accumulation. Holzmann also estimates that long term growth in Chile is 1-3% higher owing to the effects of the pension reform operating via financial markets, although he also points out that the structuring of the transition may have played an important role²⁷.

As shown in Table 4 (EBRD 1996), pension fund growth was accompanied inter alia by rising stocks of corporate bonds, often placed direct by large companies into pension funds, the bond market having been improved by a new risk-classification industry. The life insurance sector grew to provide annuities as well as survivorship and invalidity reinsurance as required by the new system. And other investor groups such as mutual funds and foreign investor funds have emerged, increasing the diversity of market participants.

Fontaine (1997) also notes that pension fund development facilitated internal resource transfers, enabling the Chilean government to service its international debts without extreme fiscal adjustment which was elsewhere damaging to the real economy, by providing a domestic source of borrowing without requiring excessively high interest rates (in fact the debt was generally CPI-indexed). Correspondingly, public sector debt rose from 5% of GDP in 1980 to 28% in 1990. Later, the demand of pension funds enabled debt conversion - by both private and public institutions - to occur smoothly. In addition, the fact that pension funds were not permitted to invest internationally till 1989, and then only in a limited way, is considered to explain why the capital markets in Chile grew in size and depth so rapidly. Again, given the existence of domestic long-term institutions and the high domestic saving that pension reform helped to stimulate, Chile is probably better insulated from the shifting behaviour of international investors, as witness the lower correction after the Mexican crisis than for other Latin American markets. Hansell (1992) suggests development of pension funds has been a major factor behind Chile's bonds being rated investment-grade, the first Latin American country to be so rated since the debt crisis. Disclosure standards are reportedly higher than elsewhere in Latin America. Corporate governance is improved by requirements that pension fund managers vote for independent directors. On the other hand, Chileans have been rather unsuccessful at ownership dispersion, one reason being unwillingness of closely held companies to accept dilution of control. Rating regulations have till recently prevented funds investing in start-up companies and venture capital.

Conclusions

It has been suggested that pension reforms which introduce elements of funding may have a powerful effect on financial market development, improving the performance of the functions of financial markets and potentially boosting saving, albeit also having some potential side effects that may warrant vigilance (impact on the banking sector, short termism, neglect of small firms). As discussed

²⁷ The tight fiscal stance may have contributed to economic performance by crowding in of private investment and offering a higher credibility to the reform programme within and outside the country.

in Annex 1, there are also some important preconditions for pension reform, which if not fulfilled may lead to dissipation of pension assets and disappointing results in terms of financial development. These affect in particular the more market related forms of funding featuring decentralised administration, which we nonetheless consider to be superior models to that of public pension administration. More generally, the type of pension reform will have a strong influence on the effects on capital markets. For example, internal funding, investment purely offshore and investment solely in government bonds owing to portfolio restrictions will reduce or eliminate the broadly beneficial effects on capital markets set out here.

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Annex: How much financial development is needed before introducing funding?

We complement the main text with views as to the extent to which relatively highly-developed securities markets are a precondition for development of funded pension systems or whether funded systems may emerge first, and then stimulate further capital market development. How important, in other words, is the "reverse linkage"? The reason for the link of capital market development to funding is clear. Although funded systems could develop on the basis of loans or property investment, their greatest comparative advantage is in the capital market. Loans require monitoring so the customer relationship may give banks a comparative advantage there. Trading and risk pooling are more efficiently undertaken in the capital markets where transactions costs are lower and liquidity higher. Hence capital markets facilitate development of funded pensions, at least on a decentralised basis. Some would go further and say that countries must have at least fairly established financial markets before a private pillar can be put in place, as well as considerable regulation and supervision to avoid fraud and excessive risk taking (IMF 1998)²⁸.

Many developing and transition economies have fledgling stock markets with few securities traded, a paucity of financial instruments, few regulatory safeguards, inadequate information disclosure and a patchwork of government subsidies and financial instability which make securities and companies difficult to value. In transition economies, even basic legal systems protecting property rights and ensuring legal rights in bankruptcy may not be established (Stiglitz 1993). Meanwhile, where there are few companies, there is little possibility of diversification. Inflation can be very high and volatile, which renders financial assets vulnerable to real losses. Share and bond prices are typically volatile and vulnerable to effects of purchases and sales by foreign investors,

²⁸ In addition, a problem even of well-run schemes in countries where capital markets are moderately developed is often lack of annuities - and lump sum withdrawals, which are the only alternative, are often dissipated. (Mitchell 1997).

as well as insider manipulation. It can be argued that in such situations, accumulated pension funds would risk to be used as a captive source of financing government deficits, to bail out state enterprises or if free to invest in non government assets would be channelled into speculative or risky assets (real estate, loans to related parties, equity stakes in related firms) (Vittas and Michelitsch 1994). Also countries without securities markets may lack the human capital and regulatory capacity needed to run a funded pension system.

On the other hand, it can be argued that there is a potential dynamic link of decentralised funding and securities market development that may permit funding also to be introduced or developed at an early stage in financial development. Even if they initially invest largely in government bonds and bank assets, pension funds may in due course, and given appropriate easing of regulations, spur further growth of capital markets. As set out in Section 2 above, this may be in terms of market structure, the role of fund management strategies, liquidity and volatility of markets and demand for capital market instruments.

Some minimal preconditions may still apply. Local personnel skilled in asset management may be scarce, implying a potential need for joint ventures with foreign firms (Vittas 1994). Pension funds, even if they benefit from tax privileges, may only be attractive when other financial assets such as deposits and bonds are (effectively) taxed, which is not often the case in developing and transition economies. Laws governing prudence, self dealing, and other aspects of fiduciary behaviour and concerning enforcement of financial contracts, settlement of property disputes and bankruptcies are necessary prior to introducing funding to prevent excessive financial risks (Turner and Rajnes 1995). To be effective, social security and pension reform requires a streamlining of the regulatory framework, with independent regulators having the right to intervene, including not only regulators of pension providers themselves but also providers of other financial services such as banking, insurance, payment services, the securities markets and in the legal, accounting and auditing areas.

A sound banking sector is an essential precondition for pension reform, as funded pensions typically hold some bank assets, so weak banks threaten retirement income security (Mitchell 1997); banks are also necessary (as providers of collateral, clearing, settlement etc. services) for security markets to grow and provide alternative pension fund investments. Efficient and liquid government bond markets are also essential, given the role such bonds have as pension fund investments early on in financial-sector development. Asian experience shows that lacking government bond markets, corporate bond issuance may also be hard to develop. Long term debt requires a sound legal system so that contracts may be enforced or renegotiated. Also, a strong insurance sector - and a profession of actuaries - is needed in order to provide a competitive annuity market which is an essential counterpart to a defined contribution pension fund sector, if individuals are to be protected against longevity risk. The way funds are invested is crucial. If funds are used as a captive source of funds for governments - which may be a particular temptation if there are sizeable unfunded obligations - the beneficial effects may be lost. And sound macroeconomic policies and financial stability are essential counterparts. Institutional investors such as pension funds and life insurers cannot function properly in a highly inflationary environment unless they are based on real assets such as equities and property, and/or fully indexed debt contracts. Full indexation may nonetheless be problematic in hyperinflationary conditions. More generally, it may be noted that high inflation²⁹ and volatile real interest rates tends to inhibit growth of securities markets.

Clearly, difficulties relating to domestic capital market development may to some extent be overcome by allowing pension funds to invest offshore, raising issues as noted in the main text. International investment may be essential if a reform is to commence in a situation where capital markets have not yet developed at all. It may also have external benefits such as helping funds to take advantage of modern accounting, regulatory and risk pricing techniques (Mitchell 1997). On the other hand, international investment may be risky as long as real exchange rates are highly volatile, as in the transition economies.

The importance of these preconditions varies between differing models of funding. In the case of occupational funds or personal funds managed on a decentralised basis by investment management companies, a certain level of financial development is clearly required, e.g. a banking sector and a rudimentary securities market. On the other hand, there may well also be strong feedback effects from the growth of funds to capital market development. For occupational funds, the corporate sector must have a reasonable degree of stability. For personal funds invested centrally by public institutions (so-called provident funds), the switch to funding can in principle be made at an earlier stage in financial development. As the government directs and invests the funds itself, there is in principle no need for a pre-existing securities market or even a banking sector. However, the difficulty for financial development is that such a system may also inhibit development of securities markets, leaving a country in a state of financial underdevelopment relative to what could have been achieved. And except

²⁹ High inflation is destructive of saving generally, especially if real interest rates on bank deposits become negative owing to administered rate-setting.

in exceptional cases such as those in Malaysia and Singapore, funds may be wasted on government consumption or unprofitable investments.

Annex 2: Estimates of the effects of “institutionalisation” that funding will stimulate

In order to support the arguments of the main paper, in this section we show the results of using data on financial structure indicators for the G-7 countries (UK, US, Japan, Canada, France, Italy, Germany) to investigate the potential effects of growth in institutional investors (including also life insurance and mutual funds) following introduction of pension funding on capital markets (these results are from Davis 1998d). The simple estimates shown utilise financial structure variables (5 yearly over the period 1970-95) as a panel (pooled cross section and time series) dataset. There are in effect 42 observations for each series, with 6 observations each for 7 countries. We then regressed various indicators of the size of the institutional sector on indicators of financial structure, linearly. We used both of the standard panel data estimation techniques, namely testing for random and fixed effects. The latter being considered more appropriate, we only report results of this (while noting the random effects results are very similar). The work thus differs from otherwise-comparable work such as Demirgüç-Kunt and Levine (1996), which estimated correlations on purely cross sectional data. It should be emphasised that the results will not have any causality implication, but rather show what patterns or changes in financial market structure and behaviour has accompanied institutionalisation. It cannot be ruled out that other causes have affected both dependent and independent variables (such as overall financial development, liberalisation generally and technological change). Results for OECD countries may not apply for emerging markets. Finally, the datasets are small so again conclusions must be drawn cautiously; outliers may have a disproportionate effect. More generally, further and more systematic investigation is needed.

With these caveats in mind the results for the G-7 (Table 5) tend to indicate the following: higher levels of institutionalisation (measured by the share of total financial assets) accompanies a larger size of the financial superstructure (total financial assets/GDP). Second, higher institutionalisation accompanies a higher share of equity in total financial assets. Third, there is no significant link of the level of institutionalisation to volatility. Of course, as noted above, average volatility may still be consistent with occasional, disruptive, peaks of volatility. Concerning household sector portfolios, the share of institutional investment in households' portfolios appears to be negatively related to the share of deposits and bonds, suggesting some substitution. Looking finally at company liabilities, the share of institutional investment in total financial assets tends to accompany higher levels of the share of equities in corporate liabilities and lower levels of loans. Concerning bonds, the coefficient is insignificant. It is notable that strong substitution is indicated for both key elements of banks' balance sheets, namely household deposits and company loans.

We split the sample between the “Anglo Saxon countries” i.e. the UK, US and Canada (with 18 observations) and “Continental Europe and Japan”, i.e. Germany, France, Italy and Japan (24 observations). Were the results for the G-7 “driven” by only one group, bearing in mind that institutional growth has been much more marked in the Anglo Saxon countries – and are the results thus only applicable to a certain type of financial system? In fact, there are a number of results that appear consistently for both groups examined separately. In each case, the rise in institutions in total financial assets has accompanied a larger overall financial superstructure as shown by total financial assets/GDP; the growth of institutions' share of household portfolios has accompanied a decline in deposits; and a higher level of institutional assets as a proportion of total assets has accompanied a higher level of corporate equity and a lower level of corporate loans. Interesting “idiosyncratic” results are that in the Anglo Saxon countries, a larger institutional sector is indeed associated with a lower level of capital market volatility; that there is strong substitution from equities and bonds to institutions in households' portfolios in the Anglo Saxon countries; and some evidence of higher bond shares in company liabilities in Continental Europe and Japan as institutions increase in size and importance.

Table 1: Characteristics of selected funded pension systems

	Real returns 1970-95	less average earnings	less global portfolio	Assets (% of GDP)	Coverage	Contribu- tion rate	Benefit type	Asset manage- ment	Administra- tive costs	Portfolio regulations
Chile	13.0 (9.5) (1980-95 only)	+9.8	+4.1	39% (1995)	99% members; 58% contribute	13%	Defined contribution, mandatory	Decentralised (personal)	High	Portfolio restrictions
Singapore	1.3 (2.0)	-5.6	-3.8	56% (1996)	90% members, 67% contribute	40%	Defined contribution, mandatory	Centralised	Low	Discretion- ary
Malaysia	3.0 (3.9)	-1.4	-3.7	47% (1996)	86% members, 50% contribute	23%	Defined contribution, mandatory	Centralised	Low	Portfolio restrictions
Switzerland	1.7 (7.5)	+0.2	-2.0	73% (1994)	90%	7%-18%	Defined contribution as minimum, mandatory	Decentralised (occupational)	Moderate	Portfolio restrictions
Australia	1.8 (11.4)	+0.8	-4.3	56% (1996)	92%	9%	Defined contribution as minimum, mandatory	Decentralised (occupational)	Moderate	Prudent man rule (since 1983)
Nether- lands	4.6 (6.0)	+3.2	-0.2	85% (1996)	89%	Variable	Defined benefit, voluntary	Decentralised (occupational)	Moderate	Prudent man rule
UK	5.9 (12.8)	+3.1	0.0	76% (1996)	75%	Variable	Defined benefit and defined contribution, voluntary	Decentralised (occupational and personal)	Moderate	Prudent man rule

Source: Davis (1998b)

Table 2: Portfolio distributions of selected funded pension systems

	Bonds	o/w Public	o/w Private	Shares	Property	Loans and mortgages	Short term assets	Foreign assets
Chile (1994)	45	39	6	33	2	13	6	1
Singapore (1996)	70	70	0	0	0	0	28	0
Malaysia (1996)	55	34	21	16	1	0	30	0
Switzerland (1994)	28	-	-	14	16	41	2	0
Australia (1995)	15	13	2	41	9	0	20	14
UK (1996)	14	n/a	n/a	78	5	0	4	27
Netherlands (1996)	63	n/a	n/a	26	8	n/a	3	23

Sources: Chile: Mitchell and Barreto (1997), Singapore and Malaysia: Asher (1998), Switzerland: OECD (1997); Australia: Central Bank Bulletin, UK, Netherlands Davis (1998d) Note: the Singaporean fund holds undisclosed assets in foreign markets to back the bonds and deposits held by members

Table 3: Indicators of financial development

Percent of GDP	Stock market capitalisation	Stock market turnover	Listed companies (no.)	Bank credit
Chile	149	22	284	63
Singapore	174	71	212	61
Malaysia	255	88	529	129
Switzerland	141	101	233	183
Australia	69	28	1178	83
Netherlands	90	63	387	118
UK	127	92	2078	125

Source: IFC Emerging Markets Factbook

Table 4: Developments in the Chilean financial sector

Percent of GDP	1980	1986	1992
Fixed income instruments	0.2	26	60
Stock market capitalisation	30	24	88
Corporate bonds	0.2	0.4	5
Mutual funds	3	1	2
Foreign capital country funds	0	0	3
Insurance company reserves	n/a	3	7
Pension funds	0	13	32

Source: EBRD (1996)

Table 5: Results of correlation analysis

(fixed effects regressions; variables significant at 95% level)

Dependent variable	Independent variable	G-7 Countries	Anglo-Saxon	Continental Europe and Japan
Size indicator	Institutional assets/total financial assets	47.9 (9.1)	42.5 (5.6)	54.3 (7.5)
Equity/total financial assets	Institutional assets/total financial assets	0.8 (2.8)		1.28 (3.2)
Volatility of share prices (monthly standard deviation)	Institutional assets/total financial assets		-35.2 (3.7)	
Household equity/household financial assets	Household institutional assets/household financial assets		-0.4 (3.4)	
Household bonds/household financial assets	Household institutional assets/household financial assets	-0.13 (2.0)	-0.24 (3.8)	
Household deposits/household financial assets	Household institutional assets/household financial assets	-0.63 (4.4)	-0.45 (4.0)	-0.9 (3.4)
Corporate equity/corporate liabilities	Institutional assets/total financial assets	1.8 (3.4)	1.1 (1.9)	2.6 (3.2)
Corporate bonds and market paper/corporate liabilities	Institutional assets/total financial assets			0.35 (1.8)
Corporate loans/corporate liabilities	Institutional assets/total financial assets	-1.4 (2.9)	-0.56 (2.0)	-2.3 (2.8)