

OECD DEVELOPMENT CENTRE

POLICY BRIEF No. 9

PENSION FUND INVESTMENT FROM AGEING TO EMERGING MARKETS

by

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- The rapid ageing of populations in the rich economies can be expected to stimulate strong growth in private funded pensions, providing a massive potential of foreign finance for developing countries
- Pension managers can reap big diversification benefits by investing on the emerging stock markets of the younger economies, benefits which are largely unexploited so far
- The authorities in OECD countries should consider removing regulatory constraints imposed on pension assets that deprive retirees from the pension-improving benefits of global diversification
- Policy makers in developing countries should design policies that reassure institutional investors on default risk and stock market illiquidity, if they want to tap a higher share of OECD pension assets

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DEVELOPMENT CENTRE POLICY BRIEFS

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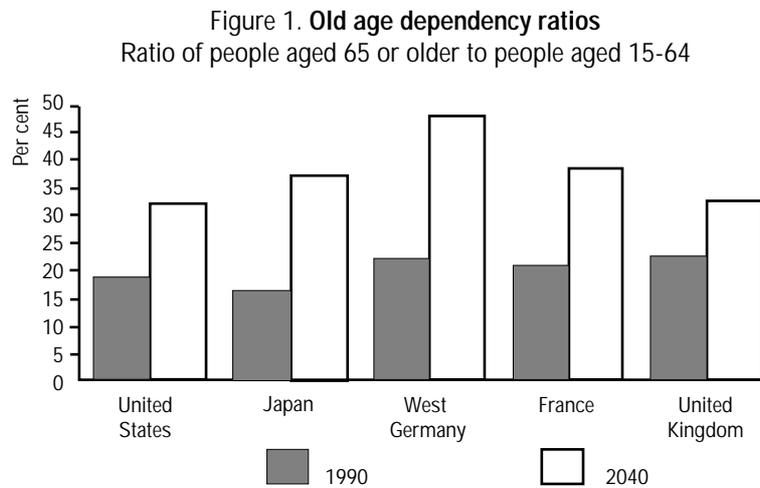
This *Policy Brief* argues that both the need of tomorrow's retirees for high investment returns and the hunger for capital in the young nations can be satisfied when first-world pension assets are staked in the superior growth prospects of the younger economies. The Brief provides evidence that pension managers can reap big diversification benefits — a higher mean return for a smaller overall risk — by investing on the emerging stock markets. Governments will have to remove important regulatory and market barriers if they want to realise these mutual benefits. Regulators in OECD countries are advised to free pension assets from localisation requirements, while the authorities in developing countries should design policies that reassure institutional investors on sovereign risk and stock market illiquidity. If these policies are adopted, this Brief predicts that OECD pension funds will invest about 3 per cent of their assets (\$350 billion) in the emerging stock markets by the year 2000.

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I. Ageing Populations and Growing Pension Assets¹

The rich world's ageing population will inevitably intensify pressures that can be expected to stimulate strong growth in private funded pensions (and other means of private old-age maintenance), both inside and outside the OECD area. Unfunded, earnings-related pension schemes could be reasonably well sustained under the demographic conditions of the immediate post-war decades. Increasingly, though, as the baby-boom generation starts to retire, a dwindling cohort of taxpayers will have to support an increasingly old population, as Figure 1 exemplifies for the five major OECD economies (the G5).



The demographic time-bomb imposes some most unpleasant arithmetic on unfunded state social security systems:

- *Public finances* will come under ever growing pressure from the scale and financing requirements of public pension schemes. Public debt in almost every country is much larger than is generally documented when pledged state pension benefits and future pension contributions are factored in. Recent simulations (van den Noord and Herd, 1993) have estimated the gap between the present value of contributions and pension payments. As

shown here for the G5 (Table 1, first column), the gap runs from 43 per cent of GDP in the United States to 216 per cent of GDP in France. Further increases in public borrowing to finance these gaps would raise public debt ratios in OECD countries to probably unsustainable levels. To close the deficits of the state pension system with the level of benefits unchanged, current contribution ratios (second column) will either have to be raised successively under the current Pay-As-You-Go (PAYG) schemes (third column) or they will have to be immediately raised to balance the net present value of net public pension liabilities (fourth column). Alternatively, the pensionable age has to be raised significantly to net out pension liabilities. None of these alternatives can appeal to policy makers.

- *Employment creation* will be strongly discouraged under the scenario presented above. Unemployment in the OECD area is concentrated among those with low skills and low potential earnings. The OECD Jobs Study (1994) finds that rising social security contributions, both by employers and employees, have significantly contributed to low-skilled unemployment since the late 1970s. Because of ceilings on social security contributions, and due to real-wage resistance resulting from minimum wages, rising employer's contributions depress labour demand especially for low-income jobs. It goes without saying that the required rise in contribution ratios shown in Table 1 would further dampen the prospects for job creation. The rise would also reduce labour supply as it further stimulates the desire to work tax-free in the black economy or, alternatively, discourages entry or return to the workforce. Finally, the policy option to raise the pensionable age is also clearly at odds with the current need to lower the high incidence of unemployment on young labour market entrants.
- *Economic performance* of those countries will be badly damaged where contribution ratios would be raised further to balance net public pension liabilities. Where little has been put aside into funded pensions, rising social security taxes will cut more and more deeply into profits (or wages). Simulations undertaken by the Dutch Central Planning Bureau (cited in Mortensen, 1993) suggest for Europe (EU) a rise in contribution rates from 15 per cent of gross wages in 1990 to 26 per cent in 2040 under current PAYG schemes. Ageing countries with unfunded pension schemes will lose out to those countries which, thanks to demography or funding, impose lighter welfare costs on businesses.

Table 1. Balancing Net Public Pension Liabilities
Per cent of 1990 GDP

	Memorandum items:		Required changes:		
	Estimated net pension liabilities (a)	Contribution ratios in 1990	in contribution ratios		in pensionable age (years) (d)
			PAYG (b)	Funding (c)	
United States	43	5.9	4.4	1.1	4
Japan	200	5.7	6.8	4.3	9
Germany	160	6.6	6.2	3.6	11
France	216	9.2	5.5	4.0	8

Notes: (a) Accrued and future pension liabilities, less existing assets and future contributions. The estimation is based on several assumptions which relate, among other things, to the real discount rate (4 %), the typical retirement age (60), entitlement (40 contribution years for a full pension), the old age dependency ratio (see Figure 1), as well as constant eligibility, employment and transfer ratios.

(b) Maximum increase in contribution when pension expenditure peaks (in most cases around the year 2030).

(c) Once-and-for-all increase in contribution from 1990 on.

(d) Baseline pensionable age is 60.

Source: Van den Noord and Herd (1993).

Those who defend the status quo — the prevalence of public PAYG schemes — maintain that higher labour market participation, more immigration, and rising productivity provide enough potential to pay for the old. They are likely to be wrong. To be sure, with high unemployment, in particular in Europe, there is a lot of potential to put people back to work, thus contributing towards the pensions required by the elderly. It is hard to envisage, however, ways to change current PAYG schemes so as to avoid their detrimental impact on employment creation presented above, in particular when they remain funded from payroll taxes. Certainly, immigration can help improve the age pyramid, but it must be massive to compensate demographic trends. France, for example, would need one million immigrants year by year to balance the financial requirement set by the 300 000 who will each year retire from 2005 to 2020 (Kessler, 1993). Finally, what can we reasonably expect from future rises in productivity? It would be heroic to venture predictions in this notoriously uncertain area of economics. It is safer to predict, however, that our children — should they be more productive and richer than we are today — will be unlikely to agree to see their income taxed to the extent required (recall Table 1). They would try to avoid and evade taxation, if necessary even by emigrating — leaving the old alone.

In particular in the European Union (EU), private funded pension schemes have seen their development hampered by mandatory and generous PAYG pension schemes, which at present account for some 90 per cent of basic and supplementary pension benefits in the EU. Deferring any longer the required overhaul of the pension system will only complicate the unavoidable reform effort since the elderly will account for an increasingly higher share of votes in the elections. But to safeguard public finances, jobs and performance², expert reports — such as the Mortensen Report (1993) and the World Bank (1994) — recommend unanimously the same option: funded pension schemes have to be phased in — now!

Table 2. **Pension Fund Assets in Selected OECD Countries, 1992**

	Total billion dollars	thereof: private billion dollars	Total as a percentage of GDP	Foreign asset share, percentage of total
1. United States	3315	2265	56.4	4.6
2. Japan	728	362	19.8	8.2
3. United Kingdom	644	544	61.9	28.0
4. Netherlands	242	147	75.5	13.8
5. Canada	230	108	40.9	9.2
6. Switzerland	188	125	78.2	7.7
7. Germany	114	85	6.4	4.3

Sources: InterSec Research Corp., London Representative Office, European Federation for Retirement Provision (as reported in *The Guardian*, 5 October 1993). OECD, *Main Economic Indicators*, September 1993.

Fully funded pension funds have so far been important (as a percentage of financial assets and GDP) in only a handful of OECD countries, such as the United States, the United Kingdom, the Netherlands and Switzerland (see Table 2). Nevertheless, at the end of 1992 funded pensions in the OECD area alone had already assets of almost \$6 000 billion under their control. Taking into account country-specific demographic trends and the likely trends for asset appreciation and contributions, Davanzo and Kautz (1992) project an increase in OECD

pension assets at an annual growth rate of over 10 per cent. US and British pensions are expected to grow at a slower rate because of their relative maturity. Continental Europe, still largely unfunded, and Japan, ageing most rapidly, will see their pension assets grow at higher speed. We can thus expect OECD pension funds to manage assets worth more than \$12 000 billion by the year 2000³. Pension assets will dominate investment trends and capital flows around the world.

The demographic and economic pressures will not only stimulate strong growth in private funded pensions, they will also create incentives to seek maximum returns on pension fund assets. According to the European Federation for Retirement Provision, every 1 per cent improvement in pension funds' investment returns will reduce employers' costs by 2 to 3 per cent of the payroll. The World Bank (1994) estimates that funded schemes have to yield a real rate of return 2 to 3 percentage points higher than the growth of real earnings, if the contribution rate is not to rise above 15 per cent to cover a replacement rate of 40 per cent of the final salary. The need for high returns on pension assets implies a need for global diversification. Pension fund managers can reap big diversification benefits — an improved combination of risk and return — by investing on the emerging stock markets of the younger economies.

The ageing world is thus likely to buy a stake in the superior growth prospects of the younger economies, mostly by way of stock-market investment. Pension money is relatively stable money (reflecting pension schemes' stable liabilities structure). Provided they remove barriers and bottlenecks on their own, the young capital-hungry countries can count on long-term money to flow in, giving microeconomic benefits (such as risk-sharing and lower capital cost) without much in the way of macroeconomic costs (lower monetary autonomy to target inflation and the real exchange rate). The shift of pension money from ageing to emerging markets can thus benefit both the young recipient nations and the retirees in the greying economies.

What is needed to make such vision come true? This Policy Brief aims at identifying the appropriate policy responses in both OECD and non-OECD countries. It will first present the mutual benefits to both OECD and developing countries which can be exploited by shifting a fraction of OECD pension assets towards the emerging stock markets. Such a shift is likely to raise the risk-adjusted return on OECD pension assets and to provide the receiving countries with relatively stable foreign equity investment. The Brief then proceeds to identify the barriers that currently prevent a larger diversification of OECD pension assets to the emerging stock markets. Localisation requirements for pension fund investment in several OECD countries and the investors' concerns about

emerging stock market illiquidity and default risk are most important in that respect. Before deriving policy suggestions how best to remove such barriers, the Brief provides an investment scenario for the potential shift of OECD pension assets to the emerging stock markets.

II. The Mutual Benefits of Global Pension Investment

1. Benefits for ageing OECD countries

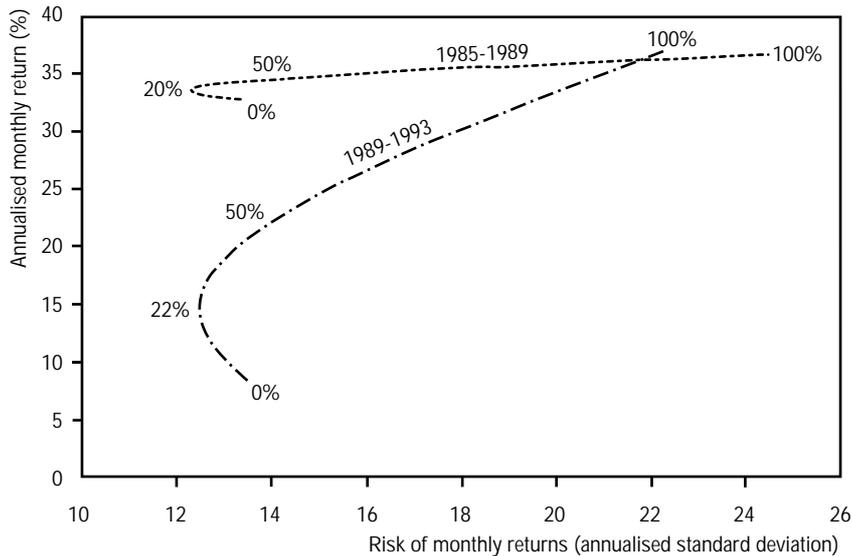
It is little understood that even fully funded pension schemes will not escape demographic pressures if their assets remain invested in ageing economies alone. Funded pension schemes, unlike earnings-related schemes, can beat demography, however, by serious asset diversification into younger economies. Pay-as-you-go schemes, by contrast, are locked into the ageing economy. The mean return of portfolios is likely to be raised through investment in emerging markets as long as GDP growth in the OECD remains substantially below that of many non-OECD countries. Stock-market capital gains cannot outpace GDP growth in the longer run: share prices cannot rise faster than the dividends which give them their value, nor can dividends rise faster than the profits from which they are paid. Profits in turn can scarcely rise faster than the economy, as that would mean shareholders winning consistently at the expense of someone else. Investment in high-growth developing countries thus promises higher returns than in slow-growth OECD countries, as long as the market is less than perfectly efficient at arbitrating away such differences.

For any portfolio currently under-invested in foreign assets (as a percentage of world stock market capitalisation) there is the prospect of a free lunch: international diversification can lower risk by eliminating non-systemic volatility without sacrificing expected return; alternatively, it will raise the expected return for a given level of risk. Risk is reduced by investing in markets which are relatively uncorrelated with the investor's domestic market. International diversification reduces risk faster than does domestic diversification because domestic securities exhibit stronger correlation as a result of their joint exposure to country-specific shocks. An international portfolio provides some insurance against losses originating, say, from a domestic wage push or a decline in the country's terms of trade.

From the perspective of the globally diversified pension fund, investment into the emerging markets promises a much improved risk-return profile. Emerging stock markets are defined by the International Finance Corporation (IFC) as

those markets with potential for growth in size and sophistication. The IFC data base now covers 25 countries⁴ and more than 1 400 stocks. The market capitalisation of these emerging stock markets topped the \$1 600 billion mark in 1993, representing almost 12 per cent of world stock market capitalisation, up from 4 per cent in 1984. The emerging stock markets have become a distinct asset class for global investors: Malaysia, South Africa, Korea and Taiwan are among the world's top fifteen markets in terms of market capitalisation, far ahead of many OECD markets. To be sure, as events of the first half of 1994 demonstrated, these emerging stock markets are risky — riskier as a group than the developed stock markets. What matters to the globally diversified investor, however, is not the local systemic risk but, rather, the contribution of the emerging markets to the riskiness of his total portfolio. The biggest diversification benefits that the emerging markets have offered in the past to the global investor have resided in the low (and at times negative) correlation of returns yielded between the emerging stock markets themselves and vis-à-vis the developed stock markets (see, for example, Divecha *et al.*, 1992). By contrast, OECD stock markets are already highly integrated, with monthly returns displaying correlation coefficients on the order of 50 to 90 per cent. A key question for investors is whether stock markets in Asia and Latin America will continue to display low correlation with those in the industrialised countries (Mullin, 1993).

Figure 2. Efficient frontiers: IFC composite vs developed markets
(% share of IFC in total portfolio)



Source: *Emerging Stock Markets Factbook*, 1990 and 1994, International Finance Corporation.

Figure 2 suggests that diversification benefits from investing into Asia and Latin America have been left intact, in spite of the massive equity flows of the early 1990s into these regions. The Figure describes the diversification opportunities for two five-year periods: 1985-89 (when portfolio flows were small) and 1989-93 (a period of heavy equity flows to emerging markets). The diversification benefits derived from investing into the emerging markets are exhibited by calculating the risk and return of a global portfolio, when varying proportions of the IFC composite index are stirred into a portfolio which initially has a 0 per cent share of IFC stocks, and only comprises stocks from the developed countries with the country mix weighted by stock market capitalisation. During 1989-93, a portfolio passively invested in industrial countries alone would have yielded around 7.5 per cent per year (annualised monthly returns), with a risk almost twice as high at 14 per cent, measured by the standard deviation of these returns. An investment of up to 22 per cent during that period in emerging markets would have reduced (rather than increased) risk for the industrial-country investor, by almost two percentage points. Note that the risk-reduction achieved by investing in the emerging markets would have been somewhat lower in the preceding five-year period (1985-89) when capital flows to the emerging markets were still small. This evidence contradicts the hypothesis that the 1990s period of heavy equity flows to developing countries raised the correlation between OECD- and developing-country stock markets, and implies that the benefits from diversification of OECD pension assets into the emerging markets remain. Differences between emerging markets and OECD markets with respect to the exposure to country-specific shocks, the stage of economic maturity and the harmonisation of economic policies suggest that the “diversification free lunch” will not be depleted quickly. Only when the share of IFC stocks in the global portfolio is greater than 22 per cent, does the proposition that higher returns can only be obtained at the price of higher volatility become confirmed.

During both five-year periods considered in Figure 2, the emerging stock markets outperformed the developed markets. Investment in emerging markets would thus not only have reduced risk, but would also have increased the annual return. For example, a shift from zero to the risk-minimising 22 percentage share of emerging market stocks would have raised the annualised return of the global portfolio from 7.5 to 15 per cent.

2. Benefits for the recipient emerging markets

To the extent that economic development requires a long period of permanent (as opposed to temporary) capital inflows, pension funds seem a particularly suitable vehicle for such inflows. In contrast to managed funds

(country and mutual funds) and to private domestic and foreign investors who switch assets rapidly in the search for short-term returns (Gooptu, 1993), pension funds (like life-insurance companies) can be taken as a risk-averse group interested in participating in long-term investment. Pension funds are usually not forced to withdraw their assets suddenly due to a short-term demand for funds. Moreover, unlike money-market funds and bond houses, pension funds are primarily interested in foreign equity investment; since the diversification of pension funds fosters stock market integration rather than interest linkages, it carries little macroeconomic cost in terms of limiting short-term monetary sovereignty (Reisen and Williamson, 1994). Most importantly: pension assets, being huge and long-term, are best suited to absorb, pool and thus reduce risk; the cost of risk capital will be lowered and the level of risk-taking in developing countries will be enhanced; that is, pension funds' investment can stimulate investment and growth.

An obvious advantage of attractive stock markets is the increased availability of private portfolio inflows. Increased foreign equity investment can further enhance confidence in host countries and stimulate the return of flight capital. Provided these flows do not substitute for other forms of external finance or domestic savings, they will result in higher domestic investment. In addition, private equity inflows can improve the mix and risk profile of external finance as they do not create debt, imposing a lower leverage on the recipient countries. Allowing an increase in risk-sharing and risk absorption, equity flows can result in a higher level of risk-taking which may fuel additional investment. Finally, the expansion of a domestic equity market triggered by capital inflows opens up additional sources of funds for companies with sufficient market presence internationally. Such equity flows may also be encouraged by establishing foreign depository receipts to be sold in foreign markets (such as the American Depository Receipts)⁵. This leads not only to additional funding but also to an improvement of the reputation and a broadening of the investor bases. The engagement of foreign investors in emerging markets can help to reduce capital costs for domestic firms. The increase in foreign demand for local stocks will *ceteris paribus* increase the equity prices which lower the cost of capital and encourage new equity issues and raise investment.

The market presence of foreign investors may enforce the discipline of corporate management through more competitive selection for corporate control. By imposing a higher degree of control over the investment behaviour of companies through continuous monitoring of their share prices and thereby of the implied possibility of merger and takeover, foreign investors can contribute to more efficient investment. In addition, open equity markets may emerge as an important alternative to debt-based external finance for developing countries by

reducing firms' vulnerability to earnings declines and interest rates. Unlike debt service, common stock dividends can be adjusted with some discretion. At the macroeconomic level, developing countries' vulnerability to interest rate increases can be equally reduced by relying more on equity finance than on excessive debt accumulation. Finally, for developing countries which are pursuing comprehensive privatisation of state-owned enterprises a well functioning stock market is essential for facilitating efficient valuation and allocation of the national assets among local and foreign assets.

An important condition for a stock market to fulfil its allocative role is its informational efficiency. The efficient market hypothesis postulates that the prices of the securities traded in the market act as if they fully reflect all available information and react immediately and in an unbiased way to new information. Cornelius (1993) has recently examined the efficient market hypothesis for the six largest and most active emerging markets, namely India, Korea, Malaysia, Mexico, Taiwan, and Thailand. He found that money-supply changes could be used to improve forecasts of changes in stock prices which implies that profitable trading rules could be established. These results cast doubt on the ability of these emerging markets to channel funds into the most productive sectors of the economy. Cornelius presumes that to the extent that legal and institutional reforms would increase the speed at which information is disseminated, further gains in the efficiency of capital allocation were likely to occur. This process is certainly enforced to the extent that foreign investors increase their engagement in emerging markets.

The extent to which the growth of stock markets in developing countries can contribute to the efficiency of the financial system and help enhance investment is difficult to assess. While a positive relationship between economic growth and stock-market development has been observed for some countries it is unsettled, however, whether stock-market development supports growth or whether growth induces an enlargement of stock markets. What lessons can be drawn with regard to securities markets and economic growth from industrial countries? Observations over the 1970-85 period reveal that retentions were the most important source of finance although there were some marked variations in self-financing ratios across industrial countries (Mayer, 1989). Bank loans were the most important source of debt financing while newly issued equity played a minor and historically a declining role in financing investment. But in no industrial country did companies raise a substantial amount of finance from securities markets although small and medium sized firms were considerably more reliant on external finance than were large firms. One might conclude from these observations that securities markets have made little contribution to industrial finance and economic growth.

This conclusion has been challenged by information gathered by the IFC on the corporate financial structures of nine developing countries (Singh and Hamid, 1992). The evidence established by the IFC study reveals differences in the pattern of corporate finance in developing versus developed countries. Firstly, retentions are a more important source of finance in developed than in developing countries. Internal finance ratios in the sample developing countries never reach the respective averages of the developed world. Secondly, external equity also plays a more important role in the financial structures of developing countries than in developed countries. Moreover, the importance of equity appears to be rising in developing countries, whereas it is falling in the developed world. The implication of these findings would be that broader, deeper and more efficient securities markets are essential to provide the funds that firms need in order to grow.

Due to the multiple interlinkages with other financial-market segments the widening and deepening of stock markets in developing countries cannot be achieved without a comprehensive approach to the financial system as a whole. For example, securities market participants rely heavily on bank credit to ensure liquidity in these markets. Actors in the primary and secondary markets need access to bank credit lines to support prices immediately after the initial issue, to hold undistributed securities and to manage settlement delays or failures. Therefore, the creation of securities markets in an economy with a weak banking sector will unduly increase systemic risk. Furthermore, an active government securities market is a possible precursor of corporate fixed-income markets and the development of a functioning market for equities. Finally, broader financial-system reforms may also create new sorts of domestic institutional investors such as private pension funds and mutual funds which are likely to create demand for securities issues of all types on their preferred investment assets. This discussion suggests that the development of direct securities markets is complementary to the development of bank-based systems, not an alternative as is often suggested in the literature.

III. Barriers to Global Pension Investment

1. Explaining the home bias of pension assets in OECD countries

A look back at Table 2 (fourth column) reveals that most OECD pension funds are little invested abroad. Even where pension funds have diversified into foreign assets more seriously — in the United Kingdom, Ireland and Belgium —

their foreign assets shares stay way below the global portfolio as suggested by portfolio theory. Why have OECD pension funds failed to exploit the risk-reducing benefits of global diversification⁶ and remained so parochial?

Table 3 tells us that the diversification of pension-fund assets has been limited, in particular in most of continental Europe, by localisation requirements and by requirements of currency matching⁷ (which force funds to align the currency mix of their assets with the currency mix of their pension commitments). Only in Australia, Ireland, Luxembourg, now in Spain, and in the United Kingdom are there no governmental limits to foreign investment; in the Netherlands and in the United States non-public pension schemes are also free to invest (generally, a 'prudent man' rule applies). Another group of countries imposes portfolio restrictions that can be qualified as 'medium'; the group includes, among others, Canada, Japan and Switzerland, all countries with important pension assets. Foreign asset holdings are severely restricted in Germany and the Scandinavian countries, either by way of ceilings or currency-matching requirements. Tight restrictions are mirrored by a low proportion of foreign assets in the portfolio of pension funds. The experience in the United Kingdom, where pension funds already accounted for an important proportion of personal savings and of GDP when capital controls were dismantled in 1979, suggests that pension funds will diversify globally once restrictions have been lifted (Reisen and Williamson, 1994). Freed in their portfolio choice, UK pension funds invested almost exclusively in foreign equities, withdrawing funds from illiquid real estate and low-return government bonds at home. The foreign asset share of UK pension funds rose to 15 per cent in 1985, up from 7 per cent in 1979; in 1994 it stood at around 30 per cent.

'Prudential concern' is often cited as a major motive for imposing government restrictions on investment by pension funds, both home and abroad. Foreign investments come under particular scrutiny in some countries, because of deficiencies in information about local business and financial conditions, including regulatory standards for the issuance of securities, settlement risk, transfer risk and default risk. But these are risks which can be dealt with by the market; other motivations for government restrictions on foreign investment play a role. These motives are not pronounced in public, because they closely resemble those for the more 'classical' capital controls, which have been officially dismantled in most OECD countries. Governments still see pension funds:

- as a captive market for absorbing government debt;
- as a vehicle for retaining domestic savings at home; and

**Table 3. Regulatory Constraints on Foreign Investment by Pension Funds
in Selected OECD Countries, 1994**

Level of restrictions	Country	Ceiling	Matching requirements
1. Loose	Australia	None	None
	Ireland		
	Luxembourg		
	Netherlands (a)		
	Spain		
	United Kingdom		
	United States (a)		
2. Medium	Belgium	Location in Belgium	Not applicable
	Canada (a)	20%	None
	Japan	30%	80%
	Portugal	40% (only EU)	None
	Switzerland	30% (global)	None
		25% (equities)	
		30% (debt instruments)	
5% (real estate)			
	20% (foreign currency)		
3. Tight	Denmark	"Small proportion" stipulated	80%
		60% minimum in domestic debt	
	Finland	5% (foreign currency)	None

(a) Applies only to private pension funds. France and Italy are not included, because private funded pension schemes are almost nil.

Source: OECD; the classification of the level of restriction is based on the authors' judgement.

- as a means for retaining government control over the allocation of large financial resources towards ailing banks, target industries and other 'priority' areas.

Home bias of pension assets can also be observed in countries where regulatory limitations have been relaxed. Pension funds do not only seek to maximise return, but they also worry about the real purchasing power of their assets. To be sure, long-term deviations from purchasing power parity (PPP) mainly due to currency fluctuations have been widely observed. Pension funds may seek a currency exposure comparable to the imported proportion in the basket of goods consumed by the typical pensioner. Investors in small countries should thus hold a higher share of foreign assets than investors in large, more self-sufficient countries (which moreover provide more potential for domestic

diversification benefits than do small mono-structured economies). The argument ignores, however, that currency risk gets partly diversified away in a well-built portfolio, or can be hedged.

Table 4. **Suggested and Actual Foreign Portfolio Shares as a Percentage of Total Pension Assets, 1993**

Country	Global portfolio (a)	Consumption basket (b)	Actual
United States	63	14	8
Japan	76	9	9
Germany	96	34	5
United Kingdom	90	34	30

(a) Neutral weighting of foreign equities from Morgan Stanley Capital International world equity index.

(b) Imports (cif) as a percentage of private consumption.

Sources: *The Economist*; International Monetary Fund; InterSec Research Corp.

Table 4 suggests that pension fund managers seem more to seek stable purchasing power for pension assets than to reach portfolio shares along world market capitalisation as postulated by modern portfolio theory. Where they are, unlike in Germany, free to invest, foreign holdings correspond already (UK, Japan) or are approaching (US) the country's import share in private consumption.

A high share of bonds (and cash instruments) held in the portfolio of pension funds will also tend to lower foreign exposure. An examination of in-house investment guidelines of largely unconstrained pension institutions in Australia, the Netherlands, Switzerland and the United Kingdom recently found a tendency to allocate foreign investments mostly into equities, rather than real estate and bonds (Coote, 1993). This is not surprising. Over the long run, equities have performed higher real returns than any other broad asset class; the diversification benefits derived from equities are higher than those from bonds, as well, since covered interest parity holds across most OECD economies while stock-market integration is still less than perfect⁸. Nevertheless, several factors favour high bond holdings (and thus lower foreign exposure):

- First, pension funds have to align the mix of their asset holdings to the structure of their liabilities. The definition of retiree benefits (nominal vs. real, defined-contribution vs. defined-benefit) and the maturity structure of

receipts thus feature prominently among the determinants of portfolio investment. Mature pension funds, particularly if they are at risk of actuarial insolvency, will shy away from instruments that entail currency risk and potential capital loss, and instead will prefer domestic bonds. A conservative asset allocation, however, is induced in several OECD countries by accounting rules that impose penalties for temporary deficits and by restrictions on overall equity holdings.

- Second, a track record of high real returns on domestic bonds and loans, such as observed in Germany and the Netherlands (Davis, 1993), may seem to justify a conservative asset allocation in favour of domestic bonds. The growing integration of capital markets, however, makes superior inflation-adjusted bond returns increasingly unlikely, raising the shadow costs of regulation that locks pension funds into domestic fixed-income instruments.

Finally, pension fund investment to the emerging markets may well be restrained by the “benchmark” orientation of pension fund managers. As long as the emerging stock markets are under- or not represented in the benchmarks, investment in these markets will lead to (positive or negative) tracking errors. Pension fund managers will avoid investing into emerging markets because, in the absence of appropriate benchmarks, such investment will constitute a personal downside risk as long as these other funds try to track the benchmark.

Whatever the motives for pension funds’ home bias, this bias is very costly. Only irrational expectations about the level of returns on domestic securities can possibly justify the dominance of domestic securities in portfolios. Tesar and Werner (1992), comparing actual portfolios with the value-weighted world portfolio for ‘risky’ assets, find that investors are consistently more optimistic about the returns on the domestic market than they are about investment in foreign markets. Most ‘optimistic’ are German investors who think that the expected return is 420 basis points higher in Germany than what the world market portfolio would indicate — the return differential needed to justify the observed degree of home bias in German investment portfolios.

2. Host country barriers

The home bias of pension assets observed in many OECD countries is obviously not only explained by regulations in investor countries alone — host country barriers matter at least as much. A survey of market experts and

participants revealed as most frequently cited impediments to institutional investing in emerging markets the perceived riskiness of these markets, limited information on these markets and illiquidity problems arising from smallness of markets; surprisingly, inflow restrictions in host countries did not appear to be a crucial factor (Chuhan, 1994). Table 5 confirms this impression by comparing the regions' global market weights with those where foreigners are free to invest (investible index). The table shows Latin America and other emerging regions to be more open than Asia. Yet, in 1993 Asia received the bulk of cross border equity inflows to the emerging stock markets (which totalled a net amount of \$52 billion).

Table 5. **Stock Market Investibility and Equity Inflows, 1993**

	Stock market weights		Share of net equity inflows
	Global	Investible	
Asia	63.7	42.5	57.7
Latin America	31.1	48.8	38.4
Other emerging	5.4	8.7	3.8

Sources: IFC, *Emerging Markets Factbook 1994*; Baring Securities, *Cross Border Capital Flows, 1992/93 Review*.

Nevertheless, there are still some extreme cases where formal inflow restrictions may simply prevent foreign equity portfolio investment. Some countries are still completely closed to foreign investment. Direct foreign ownership restrictions can also take the form of certain sectors' being closed for foreign investment or direct equity participation limits. Another group of direct barriers to portfolio investment is exchange and capital controls that affect investment in and the repatriation of dividends and capital from emerging markets. Discriminatory tax treatment may also prevent foreigners to invest. (How best to dismantle capital controls, is put forward in Fischer and Reisen, 1993, 1994). Only to a certain degree can these restrictions be circumvented. Instead of investing directly, foreign investors may put their funds in global depository receipts (GDRs) or American depository receipts (ADRs) which are traded on principal stock markets in particular on the New York Stock Exchange (NYSE). Restrictions can be side-stepped by investing in other, more open markets with close ties to the chosen economy. Discriminatory tax treatments are avoided by investing via a country that has more favourable bilateral tax treaties. In general, however, restrictions on portfolio capital inflows have been

gradually relaxed with an acceleration of this process occurring in the 1990s. The most difficult task remains to assure institutional investors on sovereign risk and stock market illiquidity.

A central concern not only for institutional investors is sovereign country risk, reflecting political and economic instability. Sovereign risk involves threats of nationalisation, expropriation, application of price, wage and exchange controls but more implicit socio-political hazards may also arise, for example, from a very uneven income distribution and/or weak political institutions. The importance of political and economic stability in attracting foreign portfolio flows is underlined by a set of preliminary empirical tests attempting to identify the factors that determine the ability of countries to tap into global portfolio equity flows (Walter, 1993). These tests reveal that growth and trading volume in emerging markets are strongly linked to a cluster of macroeconomic and policy variables.

Most institutional investors are concerned that every shift of their large portfolio will move prices against them in an illiquid markets. This may explain why larger institutional investors may prefer to avoid the equity markets of smaller countries unless they decide to move into markets under a “buy and hold strategy”. Indeed, illiquidity in some emerging markets can be severe with individual stocks sometimes not trading for weeks at a time. As a consequence, the investor becomes locked in and executed trade produces extraordinary price movements. These features are frequently attributed to the following characteristics of emerging stock markets: small size, high market concentration, small volume of trading, small number and small size of listed companies, and small number of active traders. Although these characteristics have prevailed in stock markets at their infant stage there are meanwhile a number of emerging markets where the turnover ratio (i.e., the ratio of value traded over capitalisation) is comparable to that prevailing in mature markets and where the concentration ratio (i.e., the share of market capitalisation held by the 10 largest companies) is on average not higher than the average of developed markets. In addition, the number of domestic companies listed in emerging markets has increased, in particular in countries with comprehensive privatisation programmes. However, the market capitalisation as a fraction of GDP of many emerging markets is still small.

Thin markets, being characterised by low numbers of transactions per unit of time, tend to increase the volatility of asset prices. The volatility of a speculative market may feed back on its size, in the sense that the high liquidation risk implied by very volatile prices can keep potential entrants out of the market (Pagano, 1989).

Other market frictions which are critical determinants of international investor interest include high information costs, inefficient price-discovery processes, lack of efficient local securities clearance and settlement systems, stamp duties, high fixed commission rates, lack of market transparency and the absence of hedging techniques. Perhaps the most important requirement for a positive attitude of foreign investors is an adequate information system. However, publicly available sources of accurate, reliable and honest information are still scarce in most developing countries. Lack of information, the absence of adequate accounting standards, and reluctance to make balance sheets and profit- and loss-accounts available to investors probably constitute the most severe obstacles to capital market development even in the more advanced developing countries.

A last set of barriers to private capital inflows has to do with the legal, regulatory and supervisory environment, which is weak in many emerging markets. The legal system should provide a framework for the enforcement of property rights or financial contracts which is particularly important for financial markets. Because of the intertemporal nature of exchange the very existence of securities markets relies on the rules protecting the rights of debtors and shareholders and on the rights of individuals to own and trade these rights. Another more specific contribution that the legal system can make to the development of capital markets is to define and enforce penalties on securities fraud. Effective prosecution of violations of securities laws increases confidence in the markets and encourages foreign investor participation.

Institutional investors often miss an adequate regulatory and supervisory framework for a viable securities market that protects investors, promotes public confidence and guarantees market discipline. Particularly in low-income countries important elements of such a framework (UNCTAD, 1993) are often notoriously absent, such as:

- prudential standards to establish capital adequacy requirements (along international standards), safekeeping of securities, financial reporting requirements for intermediaries as well as a system for monitoring and enforcing such requirements;
- prescriptions to protect investors from market manipulations and lack of transparency including information disclosure, clarity of contractual relationship and strict fiduciary responsibility; and
- organisational rules to provide for the establishment and operation of stock exchange, clearing houses and market information systems, based on the concept of private market organisations (such as stock exchanges).

IV. The Potential for Pension Fund Investment into Emerging Markets

1993 may be remembered as the year when OECD pension funds have started to diversify seriously their assets into the so-called emerging markets. While by the end of 1992 pension funds had less than 0.2 per cent of their total asset portfolios invested there (Chuhan, 1994), first evidence by research consultants Greenwich Associates and InterSec Research reports UK pension funds to have raised the emerging market share in total assets to 2.0 per cent and US pension funds to 0.7 per cent by end 1993. It is likely that these very recent trends will continue for a while.

Table 6 compares the small amounts invested by OECD pension funds in the emerging markets in 1992 with an estimate of their potential investment by the year 2000. Although the difference between the tiny pension fund investment in 1992 and our estimates for 2000 is striking, it has to be emphasised that our scenario is based on fairly cautious assumptions.

Table 6. **A Pension Fund Investment Scenario**

Year	1992 (a)		2000 (b)	
	bn \$	(%)	bn \$	(%)
Total OECD pension assets	5 750	(100.0)	12 000	(100.0)
Invested in emerging markets	12	(0.20)	353	(2.9)
of which:				
Asia	6	(0.10)	235	(2.0)
Latin America	4	(0.07)	101	(0.8)
Other emerging				

Notes: (a) Estimates about total OECD pension assets are from InterSec Research Co.; the emerging stock market share of the assets is based on Chuhan (1994). The allocation to Asia, Latin America and other emerging markets assumes neutral weighting within the emerging market allocation according to the *IFC Global Composite Index* in 1992.

(b) The estimates of total OECD pension assets are based on Davanzo and Kautz (1992). The allocation of these assets to and between the emerging markets assumes a) that 20 per cent are held abroad and b) that foreign assets are neutrally weighted. The underlying stock market capitalisation weights for the year 2000 have been computed from out-of-sample predictions based on linear OLS regressions for the emerging market shares during the period 1980-93, as given in various issues of the *IFC Emerging Stock Market Factbook*.

First, market observers agree that total OECD pension assets will grow rapidly; the estimate by Davanzo and Kantz (1992) that they will swell to \$12 trillion is in line with other forecasts. Second, our scenario assumes that the trend for global diversification of OECD pension assets will lead to a 20 per cent average share held abroad, a sum of \$2 400 billion. Third, we assume that these foreign pension assets will be neutrally weighted along country shares in world stock market capitalisation. On the trends established during the period 1980-93, we predict the total emerging market share in world stock market capitalisation to reach 14.7 per cent by the year 2000, compared to 11.9 per cent in 1993. Neutral weighting would then imply that OECD pension funds invest 2.9 per cent of their assets, or \$353 billion, in the emerging stock markets. Again based on trends established during 1980-93, we expect the emerging stock market capitalisation to reach \$8 200 billion by the year 2000; the \$353 billion predicted to be invested by OECD pension funds would thus represent about 4 per cent of the emerging stock market capitalisation.

Based on the assumptions outlined above, we predict Asia, especially as a result of China's and India's stock market growth, to capture the bulk of the emerging market investment by OECD pension funds, 2.0 per cent of their total assets (\$235 billion). Latin America would receive 0.8 per cent (ca. \$100 billion) and the other emerging markets 0.1 per cent (\$17 billion).

Should our scenario materialise, this would imply net equity flows from OECD to emerging markets of annually \$40 billion to raise the emerging market investment of OECD pension assets to the predicted level. Whether our scenario has a chance to materialise, however, crucially depends on its two important assumptions: that OECD pension funds will continue to diversify globally up to the assumed foreign asset share of 20 per cent, and that these foreign assets will indeed be neutrally weighted instead of being concentrated in OECD countries.

Following the successful example set by Chile, Singapore, Malaysia and Korea, more and more developing countries are now establishing their own fully-funded pension schemes. To insure the retirees against country-specific risks, developing-country funds will increasingly invest their assets abroad. Consequently, *net* foreign assets related to pension funds will be smaller than indicated by the gross asset positions estimated in Table 6, with a corresponding smaller net capital flow from North to South. In equilibrium (after the home bias of pension assets has been deleted), net pension-related capital flows to developing countries will be reduced by the superior growth of their pension assets and will be stimulated by the relative growth of their stock market capitalisation.

V. Implications for Regulators

The rapid ageing of the rich-country populations can be expected to stimulate strong growth in fully-funded pensions and create incentives to seek maximum returns on pension fund assets. The need for high returns implies a need for global diversification of pension assets. Pension managers can reap big diversification benefits — an improved combination of lower risk and higher return — by investing on the emerging stock markets of the younger economies. There is a massive potential for pension-driven capital flows from the OECD to the developing countries, matching the capital needs of the young recipient economies with the need for high returns of the rich and ageing OECD countries.

In order to realise the mutual benefits of shifting OECD pension assets from ageing to emerging markets, policy makers will have to remove important regulatory and market barriers. The challenge for regulators in OECD countries is to free pension assets so that they will be able to seek the best mix of risk and return. The costly home bias of OECD pension assets will only be corrected when policy makers, in particular in most of Continental Europe, remove localisation requirements and requirements of currency matching. A helpful step would be to bring pension funds and life insurance companies under the discipline of the OECD Codes of Liberalisation. Pension funds should strongly lobby for the deregulation of investment constraints, in particular those militating against investment in countries where demographic trends are more favourable than at home. Fund managers should then raise the emerging-market share in their portfolios, with a focus on those markets where low price-earning ratios suggest unexploited opportunities. This will require an adequate representation of the emerging stock markets in the performance benchmarks relevant to the pension industry.

The challenge for policy makers in the young nations is to remove legal and market barriers to pension fund investment in order to reassure institutional investors about sovereign risk and stock market liquidity. The most difficult task seems to assure institutional investors on sovereign risk and stock market liquidity. A convincing demonstration by young nations that they have a strong commitment to respect property rights permanently is their openness; during the 1980s, it was the threat of being cut off from the benefits of trade integration which has prevented outright default by highly indebted countries.

Regulators in young nations also need to foster the deepening of domestic stock markets in order to deal with the illiquidity concern of institutional investors. Encouraging companies that are already listed to issue more stocks and/or firms to be listed at the stock market is — at least in the short-run — a

difficult task. A review of the impact of the tax system on the equity supply may lead to measures by authorities to reduce the cost of equity issues and to reduce distortions (such as interest subsidies and exchange-rate risk guaranties) that enhance the attractiveness of borrowing relative to the further issuance of equity. As more active trade in stock markets may provide an incentive for companies to issue more stocks reducing capital gains taxes and avoiding double taxation of capital gains may make equity purchases and therefore issues more attractive.

Important sources to increase the supply of new stocks are the privatisation of public sector companies and bringing privately held companies to the market. Privatisation of state-owned enterprises was indeed the major source of new equity supply in recent years, especially in Latin America, and more recently, in Central and Eastern European countries. In many developing countries the scope for privatisation is far from being exhausted. With more companies listed and their share holdings disbursed among the local population, stock markets will gain in depth and breadth and also become more attractive for foreign investors. With buoyant market conditions where prices stand at a significant premium to book values, it might also be easier to persuade family owned companies to issue stocks although this advantage has to be weighted against the loss of management autonomy and the implications on taxable income.

While it is by means of an issue in the primary market that firms raise capital, the development of the secondary market is of equal importance. The greater the liquidity in the secondary market and the greater the information to participants, the more efficient will be the price discovery process in that market for claims in a firm. A liquid secondary market also increases the range of potential primary market investors by improving the maturity transformation role of the market.

Domestic institutional investors can and do play a very important role in capital market development by making information available, increasing market liquidity, lowering transactions costs, facilitating market participation by the general public, helping businesses raising capital, making privatisation possible, playing a role in corporate monitoring and attracting foreign investors. They thus fill the gap in the supply of long-term finance that exists in most developing countries, as well as facilitating the privatisation of state-owned enterprises and promoting greater dispersion of corporate ownership. The gradual accumulation of privately-managed pension funds does encourage the development of capital markets and its required regulatory framework.

Notes

1. The authors gratefully acknowledge the research assistance of Guillermo Larraín. Bernhard Fischer is Director, Department for Development Economics, at the HWWA Institute in Hamburg; Helmut Reisen is Head of Research Programme at the OECD Development Centre. This Policy Brief partly draws on Reisen (1994).
2. The switch from PAYG to funded pensions entails a rise in long-term institutional savings and further beneficial, but more controversial effects, such as a strengthening of domestic securities markets, improved capital allocation, non-inflationary and long-maturity finance for investment, lower returns on equity and lower interest rates (Davis, 1993 and Kessler, 1993).
3. This estimate is in line with a recent (unspecified) estimation by InterSec Research Corp., a US pension consultancy, which predicts rich-world pension assets to grow to US\$9 800 billion by the year 1998 (see Herald Tribune, September 24-25, 1994).
4. In Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela; in Asia: China, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand; in Europe/Mideast/Africa: Greece, Hungary, Jordan, Nigeria, Poland, Portugal, Turkey, Zimbabwe.
5. Two disadvantages of foreign depository receipts have to be borne in mind, however. First, from the perspective of a global investor, investing into depository receipts is less attractive than direct investment on emerging stock markets to the extent that the former display a higher correlation of returns with OECD stock markets. Second, foreign depository receipts do not directly contribute to the development of emerging stock markets.
6. Preliminary evidence for 1993, however, suggests that pension funds have crossed borders at an unheard of rate, for example raising the foreign share of US pension assets from 4.6 to 8.0 per cent in that year alone.
7. The regulatory constraints imposed on life-insurance companies are generally quite similar (in some countries even tighter) to those displayed for pension funds in Table 3.
8. To be sure, international diversification should cover both stocks and bonds. Efficient portfolios made up of only equities display a higher risk for the same level of return than efficient portfolios made up of both stocks and bonds (Solnik and Noetzlin, 1982).

References

- AHMED, M. and S. GOOPTU (1993), "Portfolio Investment Flows to Developing Countries", *Finance and Development*, March, pp. 9-12.
- CHUHAN, P. (1994), "Are Institutional Investors an Important Source of Portfolio Investment in Emerging Markets?", *World Bank Policy Research Working Paper*, No. 1243, Washington, D.C.
- CLAESSENS, S. and M.W. RHEE (1994), "The Effects of Barriers on Equity Investment in Developing Countries", *World Bank Policy Research Working Paper*, No. 1263, Washington, D.C.
- COOTE, R. (1993), "Self-Regulation of Foreign Investment by Institutional Investors", OECD/DAFFE/INV(93)18, mimeo.
- CORNELIUS, P. (1993), "A Note on the Informational Efficiency of Emerging Stock Markets", *Weltwirtschaftliches Archiv*, Vol. 129, No. 4, pp. 820-828.
- DAVANZO, L. and L.B. KAUTZ (1992), "Toward a Global Pension Market", *The Journal of Portfolio Management*, Summer, pp. 77-85.
- DAVIS, E.P. (1993), "The Structure, Regulation, and Performance of Pension Funds in Nine Industrial Countries", *World Bank Policy Research Working Paper*, No. 1229, Washington, D.C.
- DIVECHA, A., J. DRACH and D. STEFEK (1992), "Emerging Markets: A Quantitative Perspective", *The Journal of Portfolio Management*, Autumn, pp. 41-50.
- FISCHER, B. and H. REISEN (1993), *Liberalising Capital Flows in Developing Countries: Pitfalls, Prerequisites and Perspectives*, OECD Development Centre Studies, Paris.
- FISCHER, B. and H. REISEN (1994), "Financial Opening. Why, How, When", *Occasional Papers*, No. 55, International Center for Economic Growth, San Francisco.
- GOOPTU, S. (1993), "Portfolio Investment Flows to Emerging Markets", WPS 1117, The World Bank, Washington, D.C.
- HAGEMANN, R.P. and G. NICOLETTI (1989), "Population Ageing: Economic Effects and Some Policy Implications for Financing Public Pensions", *OECD Economic Studies*, No. 12, Spring, pp. 51-96.
- INTERNATIONAL FINANCE CORPORATION (IFC) (1994), *Emerging Stock Markets Factbook 1994*, Washington, D.C.
- KESSLER, D. (1993), « Retraites en Europe : quel avenir ? », *Risques*, No. 15, juillet-septembre, Paris.

- MAYER, C. (1989), "Financial Systems, Corporate Finance and Economic Development", in R. Glenn Hubbard (ed.), *Asymmetric Information, Corporate Finance and Investment*, Chicago.
- MORTENSEN, J. (1993), "Financing Retirement in Europe", *CEPS Working Party Report*, No. 9, Brussels.
- MULLIN, J. (1993), "Emerging Equity Markets in the Global Economy", *Quarterly Review*, Federal Reserve Bank of New York, Summer, pp. 54-83.
- OECD (1994), *The OECD Jobs Study: Facts, Analysis, Strategies*, OECD, Paris.
- PAGANO, M. (1989), "Endogenous Market Thinness and Stock Price Volatility", in *Review of Economic Studies*, Vol. 56, pp. 613-622.
- REISEN, H. (1994), "On the Wealth of Nations and Retirees", in R. O'Brien (ed.), *Finance and the International Economy: 8*, The AMEX Bank Review Prize Essays, Oxford University Press, Oxford, pp. 86-107.
- REISEN, H. and J. WILLIAMSON (1994), *Pension Funds, Capital Controls, and Macroeconomic Stability*, OECD Development Centre Technical Paper No. 98, Paris.
- SINGH, A. and J. HAMID (1992), "Corporate Financial Structures in Developing Countries", *IFC Technical Paper*, No. 1, Washington, D.C.
- SOLNIK, B. and B. NOETZLIN (1982), "Optimal Asset Allocation", *Journal of Portfolio Management*, Autumn, pp. 11-21.
- STURM, P. (1992), "Population Ageing and Old-Age Income Maintenance: Basic Facts and Problems", in J. Mortensen (ed.), *The Future of Pensions in the European Community*, Centre for European Policy Studies, Brussels.
- TESAR, L. and I. WERNER (1992), "Home Bias and the Globalisation of Securities Markets", *NBER Working Paper* No. 4218, Cambridge, Ma.
- UNCTAD (1993), *Foreign Portfolio Equity Investment and New Financing Mechanisms in Developing Countries: Current Issues and Prospects*, Report by the UNCTAD Secretariat (TD/B/WG.1/11), Geneva.
- VAN DEN NOORD, P. and R. HERD (1993), *Pension Liabilities in the Seven Major Economies*, OECD Economics Department Working Papers No. 142, OECD, Paris.
- WALTER, I. (1993), "Emerging Equity Markets. Tapping into Global Investment Flows", in *ASEAN Economic Bulletin*, Vol. 10, No. 1, pp. 1-18.
- WORLD BANK (1994), *Averting the Old Age Crisis: Policy Options for a Greying World*, A World Bank Policy Research Report, Washington, D.C.