

Guarantees

Counting the cost of guaranteeing defined contribution pensions

Different types of pension involve different kinds of uncertainty. For example, public-sector pension schemes involve a 'policy risk', that the scheme might be reformed in the future so that benefits turn out differently than expected. Private pension schemes are less subject to this policy risk, because governments are unlikely to confiscate private property. But defined-contribution pensions do involve capital-market risk during the accumulation phase, when contributions and investment returns build up in the fund. The risk is that the pension fund's performance is insufficient to give an individual member an adequate retirement income.

Governments, in their role as regulator, can do much to mitigate capital-market risk. They can enforce prudential investment rules and allow funds to diversify their portfolios. They can promote competition by requiring standardized reporting and disclosure. They can also indirectly influence the performance of the funds through parallel improvements in the efficiency of domestic capital markets.

But many governments have gone further, and provided explicit guarantees of fund performance.

Types of guarantee

There are at least four potential types of guarantee:

- Absolute rate of return, that the fund delivers a pre-specified return

- Absolute benefit level, which implies that the fund must generate a certain rate of return
- Relative rate of return to sector, that the fund delivers a return close to the average for all funds
- Relative rate of return to benchmark, that the fund delivers a return close to the return on a chosen synthetic portfolio

Countries offer the whole range of these different guarantees in practice.

Absolute rate of return guarantees

We begin with countries that offer an absolute guarantee, shown in Figure 1.

The provident funds of Malaysia and Singapore offer a minimum nominal return of 2½ per cent a year. (These are not private funds, but they are mandatory and are based on individual defined contribution accounts.) The government makes up the difference if investment returns fall short of the target.

In Switzerland, employer-based pension funds are required to provide annual returns on members' defined contribution accounts of at least 4 per cent in nominal terms. Each fund must make up any shortfall. The result is that many Swiss schemes pay 4 per cent a year regardless of the return on the underlying investment.

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Note that these first three countries all specify a minimum nominal return, which means the value of the guarantee is vulnerable to inflation.

Absolute guarantees

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Country	Guarantee
Argentina	Bank savings deposit rate
Hungary	25 per cent of public scheme benefit
Malaysia	2.5 per cent nominal
Mexico	100 per cent of old public scheme benefit
Singapore	2.5 per cent nominal
Switzerland	4 per cent nominal
Uruguay	2 per cent real

Setting minimum rates of return in advance makes these ostensibly defined contribution plans more like a defined benefit scheme. This might be consistent with a public policy objective that focused on target replacement rates. As in a defined benefit scheme, this creates a liability that depends on the difference between minimum and actual rates of return. This liability requires a sponsor to underwrite the cost.

A number of countries offer a more complicated kind of absolute guarantee. Hungarians that chose to move to a new, public-private mixed system were promised that the annuity generated by the private, funded component would be at least 25 per cent of their public benefit. The guarantee is only available to people who contribute to the funded scheme for at least 15 years.

Mexico transferred all workers to the new private scheme. The guarantee is that the government will make up the difference if the annuity provided by the private scheme is lower than the benefit that they would have received under the old regime. Indeed, most people nearing retirement are virtually certain to trigger the guarantee.

Because they are tied to the outcomes in a defined benefit scheme, the value of guarantees in Hungary and Mexico is both specific to the individual and a function of the relative performance of the public and private schemes. This is consistent with a perceived need to bolster support for pen-

sion reform, but is complex to administer and potentially very costly.

Finally, Argentina and Uruguay established public schemes with a guaranteed absolute rate of return. In Uruguay it is 2 per cent real, while in Argentina it is equivalent to the prevailing rate on bank deposits. This guarantee does not apply to members of the private pension schemes that are part of the same system.

Relative rate of return guarantees

Rate of return guarantees relative to the average for other pension funds are common in Latin America, as shown in Figure 2.

Chile, El Salvador and Peru require pension funds to earn a real return either 50 per cent of the system average or two percentage points below the system average, whichever is the smaller.

Relative guarantees

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Country	Guarantee
Argentina	smaller of: 70% of funds' average nominal return, and average nominal return minus 2%
Chile	smaller of: 50% of funds' average real return, and funds' average real return minus 2%
Colombia	minimum based on both average of funds' performance, and return on benchmark portfolio
Hungary	15% less than the yield on a government bond index
Peru	smaller of: 50% of funds' average real return, and funds' average real return minus 2%
Poland	smaller of: 50% of funds' average nominal return, and average nominal return minus 4%
Uruguay	smaller of 2% real, and fund's average nominal return minus 2%

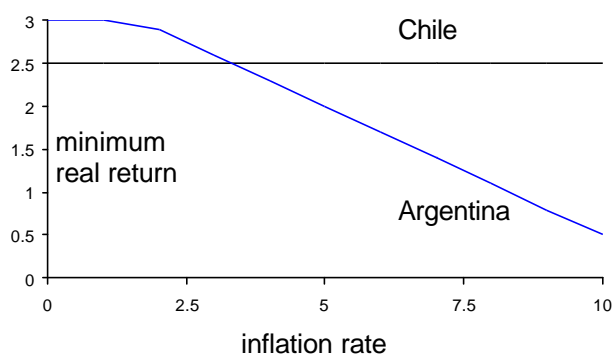
Private pension funds in Argentina are required to pay a minimum relative to nominal returns. The guarantee is 70 per cent of the system average or two percentage points below the average, whichever is the smaller. The guarantee in Poland is also

set relative to nominal returns, but funds can fall short of the average by a greater margin.

These two guarantees have very different effects at different real returns and inflation rates. Figure 3 looks at the effect of inflation, holding the real return constant at 5 per cent. In Chile, the guarantee is 50 per cent of the real return—or 2.5 per cent—whatever the rate of inflation. In Argentina, the picture is more complex. At low levels of inflation, the guarantee is capped at two percentage points below the nominal return. But as inflation increases, the guaranteed minimum return declines. At 10 per cent inflation, for example, the minimum return is 70 per cent of the nominal return of 15.5 per cent, or 10.85 per cent nominal. This is equivalent to a real return of 0.7 per cent.

Guarantees and inflation

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Other countries' formulae for the minimum return include an element guaranteeing returns relative to market benchmarks as well as or instead of guarantees relative to the average for pension funds. In Colombia, half of the minimum return is set as 90 per cent of the average of private pension funds. The other half of the minimum depends on the return on a benchmark portfolio, some of which depends on the actual asset distribution of the pension funds.

Hungary offers a return guarantee relative to a benchmark as well as a minimum pension benefit. Pension funds must make up any shortfall in individual returns if investment performance is below the returns on a government bond index by more than 15 per cent. Investment income that

exceeds bond returns by more than 40 per cent must be put aside as reserves.

Financing guarantees

There are several different ways of financing guarantees

- from resources within the pension fund
- from the capital of the pension fund manager
- from a central guarantee fund
- from the government

In practice, if yields fall below the minimum, the difference is made up sequentially from a range of these potential sources.

In Latin America, the first source of funds to meet guarantees is from a reserve established within the pension fund. In Argentina and Chile, for example, the guarantee is symmetric. Any returns 30 and 50 per cent above the system average must be paid into a yield fluctuation reserve. Secondly, fund managers must maintain a separate account from own resources. In Argentina, for example, the asset manager must put aside the larger of \$3m or 2 per cent of assets.

A shortfall in return is made up, first, from the yield fluctuation reserve; secondly, from the managers' cash reserve; and, finally, from the private capital of the fund manager. If this is insufficient, then the fund is wound up and the shortfall made up by the government. The financing of guarantees works in a similar way in other Latin American countries.

Unlike Latin America, Hungary and Poland each have established a central pension guarantee fund. Hungarian funds must pay between 0.3 and 0.5 per cent of contributions into the fund, which aims to hold between 0.3 and 1.5 per cent of total assets in the funded pension system. Poland's fund targets 0.1 per cent of total assets. Again, any shortfall is made up sequentially. Hungarian funds maintain a yield fluctuation reserve within the fund, depositing a proportion of any return that exceeds the maximum. Polish funds are required to keep between three and five per cent of assets aside to meet any shortfalls. The central guarantee fund steps in when these reserves have been exhausted.

In the event that the central guarantee fund is insufficient, the government steps in.

Dangers in offering guarantees

All forms of investment protection, such as deposit protection, generate the problem of 'moral hazard': once the losses from a particular risk are insured, people will take less care to avoid the events that trigger guarantees. Pension fund managers, for example, may choose high-risk assets with the potential for high rewards, knowing that returns will be protected if the investment does not pay off.

Regulators can attempt to avoid moral hazard in a number of ways. First, guarantees should at least part financed by self-insurance on the fund's resources or those of the fund managers. In the worst case when government guarantees may be triggered, the cost to the fund managers should be a high one, namely, winding up the fund.

Secondly, regulators can restrict the portfolios of fund managers to avoid excessive investment in risky assets. But these restrictions can have a high economic cost by preventing competition and reducing the extent of diversification.

The result of the combination of rate-of-return guarantees and portfolio restrictions in a number of countries has been 'herding' of fund managers. To avoid being an outlier in the distribution of returns (or relative to a benchmark) and so triggering guarantees that may impose a cost on the fund-management company, fund managers regress towards the same portfolio. For example, Chile's pension funds hold an average of around 30 per cent of assets in equities, with a standard deviation of this weighting of just 1.6 per cent..

The herding effect is reinforced by the relatively short period over which rate-of-returns are often assessed. This encourages fund managers to reject potentially rewarding, but volatile investments. This short investment horizon is inappropriate since pensions are long-term investments. Chile has shifted from annual to three-year returns, while Poland opted for two-year averaging from the start.

Perhaps the greatest danger with guarantees is that their costs, both on pension members and the potential liability to the government, are not transparent. This lack of transparency encourages governments to offer or impose larger guarantees than would be chosen if the costs to fund members and the government budget were clearer. This is especially true for absolute guarantees.

Option-pricing models of the type used in derivatives markets can estimate the cost of providing different types of guarantees. For a reasonable set of assumptions, the cost of the minimum absolute and relative rate-of-return guarantees is of the order of 4-7 per cent of total assets per year.

Further reading

Pennachi, G.G. (1998), 'Government guarantees on funded pension returns', Social Protection Discussion Paper no. 9806, World Bank.

Turner, J.A. and Rajnes, D.M. (2000), 'Limiting worker financial risk through risk sharing: minimum rate of return guarantees for mandatory defined contribution plans', International Labor Office, Geneva.

World Bank (2000), 'Portfolio limits: pension investment restrictions compromise fund performance', Pension Reform Primer briefing.

Conclusions and recommendations

- Guarantees of the returns from funded pensions can gain support for reform
- But poorly designed guarantees can undermine it and create large liabilities
- The cost of guarantees should be made as transparent as possible
- Option-pricing models can be used to illustrate the cost of guarantees, to inform the decision to offer guarantees, the type of guarantee and how large it should be
- Transparent financing of guarantees is best served by forcing funds to put aside their own assets; this also provides better incentives for fund managers

- Relative return guarantees should be based on long periods and appropriate benchmarks