Ignazio Visco: Retirement saving and the payout phase – how to get there and how to get the most out of it

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The implications of population ageing for financial markets have long been a subject of discussion for public authorities, financial intermediaries and academics. Over time we have become aware that ageing has a deep impact on the structure of financial markets and, at the same time, that this structure strongly affects the way in which demographic trends spread through the real economy. A leading role in this process has been played by the OECD.

1. Times are changing for pension funds

Retirement – related saving schemes offered by pension funds and other intermediaries have developed considerably during the 1990s, as workers have relied increasingly on capital markets to sustain their consumption in old age. By the early years of the current decade some issues had reached the forefront of the policy debate, notably the importance of aggregate longevity risk, the transfer of risk from governments and corporations to households, the impact on financial markets of current and prospective reallocations of pension fund portfolios, and the ability of the regulatory and supervisory framework to adapt to the rapid changes in the supply of retirement saving schemes. These issues were comprehensively analysed in a G10 Report on the implications of pension system reform for financial markets, published in 2005.[1] A wide range of policy options were drawn, along the three directions of strengthening the risk management practices of providers of retirement saving, promoting the supply of suitable financial instruments, and raising the standards of investor protection and financial education.

Today, those policy conclusions are all the more significant. If anything, the current financial crisis reinforces the need to develop effective ways of protecting retirement saving. However, it may make it harder to adopt appropriate instruments to hedge the risks that may in the long term affect the payout of pension benefits.

The severity of recent financial market developments certainly justifies the tendency to concentrate on the short term. The crisis is especially costly for senior workers, whose pension wealth, both inside and outside pension plans, has been dented by the sharp decrease in asset prices. As in previous financial markets downturns, some of these workers may react by postponing retirement. In certain cases this might not be enough, and an argument could be made for public intervention (for instance, in the case of workers near to retirement whose pension benefits would mostly derive from mandatory private pension schemes). This situation also calls, however, for measures to improve the future working of pension systems. The current crisis has only highlighted the urgent need for better-functioning markets and better retirement products, if future retirees are to be guaranteed adequate living standards.

[1] See Group of Ten (2005).

We cannot regard the current events as just one more protracted period of high financial market volatility, to be followed sooner or later by a return of investors' expectations and risk premia to more comfortable levels. The financial crisis has already proved to be a watershed for the international financial system and it is changing the attitude of public authorities towards banking and capital market regulation. It might also deeply affect the propensity of private investors to take risks. It will not be business as usual anymore.

The pension fund industry has already been hit very badly by the crisis. In the four quarters ending in June 2008, in the United States the pool of assets managed by funded private and public pension schemes has declined by more than 9 percentage points, or almost 900 billion dollars. Since then losses have probably doubled, given the collapse of bond and stock prices. Pension funds have also invested a huge amount of resources in troubled assets: according to IMF estimates, potential write downs on US loans and securities range between 125 and 250 billion dollars.[2]

The current financial crisis raises several questions about the established practices of the retirement saving industry. Consider, for instance, the major changes concerning credit rating systems, which play a key role in the portfolio management of pension funds in every country; or the uncertain perspectives of the investment banking industry, which provides companies and investors with such essential services as securities underwriting and trading, asset management, and M&A advice; or again the upsurge of counterparty risk on OTC derivatives, which pension fund managers have used increasingly to try to improve portfolio risk management. It is now difficult to figure out how financial intermediaries and markets will adjust to these structural changes.

More importantly, the global banking crisis that still engulfs intermediaries and markets threatens to cast a shadow on the very notion that financial markets could be a reliable source of retirement income. More than the never-ending dispute of the pros and cons of equities versus bonds, the focus is increasingly on the ability of financial markets to assure workers a sufficient level of retirement income even over long-term investment periods. Beyond the unresolved issue of aggregate longevity risk, we need to think whether workers should be left alone to deal with financial markets tail risks (i.e. the fact that extreme losses tend to be more frequent than it would be by chance in normal conditions).

Even the decision to join a pension fund (where private pension plans are not mandatory) is likely to be seriously affected by the crisis. Investors' confidence in the soundness of financial intermediaries and markets has been shaken and this may well spread disaffection among workers, notably with respect to pension funds' defined contribution (DC) schemes. Workers may feel less able than in the past to make difficult decisions about the appropriate level of contributions and dependable asset allocation.

The phases of accumulation and decumulation are closely intertwined: the optimal design of the former strongly depends on the latter and vice-versa. I will start from the accumulation phase, because before dealing with the issues posed by the payment of pensions, we have to be sure that workers will actually have something to decumulate when they retire.

2. The importance of pension funds has continued to grow

In this decade the pension fund industry has continued to expand relative to the size of the economy, although at a slower pace than in the 1990s (Table 1). At the end of 2006 total OECD funded pension assets (including occupational and personal arrangements) amounted to about 24.6 trillion dollars, or 76 percent of GDP. Asset growth has differed considerably

[2] Table 1.1 in IMF (2008).

across OECD countries, being stronger in those economies where pension funds are well-developed (Figure 1).

There has also been a further move from defined benefit (DB) to DC schemes. Generally, the latter have been adopted in countries where private pension schemes have been introduced to complement and compensate the prospective downsizing of public pension systems. However, available data also show that, in countries where DB and DC schemes coexist, the latter have increased further as a share of total assets (Table 2).[3] In particular, DB occupational plans have continued to lose ground in the United States, where they have a long tradition. According to the Employee Benefits Survey of the Department of Labor, the percentage of private industry workers participating in defined contribution plans has increased from 36 percent in 2000 to 43 percent in 2006. In the United Kingdom, too, there is evidence of a further shift from DB to DC schemes, in line with the findings of the Turner Report.[4]

Underlying these trends there are well-known structural factors, such as those reviewed in the G10 Report. Ageing populations and the shrinking coverage provided by public pension systems call for an increase in the pool of resources channelled to capital markets to provide for retirement. In several countries changes in labour markets and concerns about future pension liabilities are prompting employers to close DB plans and offer DC plans instead.

These profound structural changes in pension systems imply that the sources of retirement income in the future will differ considerably from those of current retirees. This is highlighted by a recent survey of US working-age and retired citizens (Table 3). While only one third of retirees report that they also depend on some kind of retirement savings plan, workers' expectations regarding the future sources of retirement income show a much greater role of both funded pension schemes (such as 401(k) plans and Individual Retirement Accounts) and other forms of personal saving. This evidence provides further indication that future retirees will depend heavily on savings as a source of retirement income, and specifically on DC pension schemes.

3. Retirement saving should increase further

The present crisis creates problems for DB pension plan sponsors (which are the residual risk bearers of the plan) as falling asset prices reduce asset/liability ratios and might ultimately require higher contributions. Partial relief is provided by the increase in yields on corporate bonds, which are used in several countries to discount pension fund liabilities. Several observers have raised concerns about the generalized adoption of market-based, fair value accounting principles. The new accounting standards undoubtedly improve balance sheet transparency and comparability by limiting sponsor companies' discretion in pension fund accounting practices. However, this may well have intensified the pro-cyclicality of financial market trends, given the importance of pension funds in many countries and their unique role as long-term investors, and may have encouraged pension fund managers to focus on short-term trading.[5]

Even more importantly, the crisis may make DC plan members less confident about taking complex decisions. DC plans require workers to make a number of difficult choices, such as whether or not to enrol, how much money to contribute, how to invest it and when to rebalance the portfolio. A serious risk that DC plan members face is not saving enough for

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[3] This indicator may be partly affected by the higher incidence of risky assets in DC schemes, mainly targeted at young workers.

[4] See Pensions Commission (2005) and OECD (2007).

[5] See also Annex II.1 in Group of Ten (2005).

their old age. Contributions to DC plans tend to be low.[6] Many factors may account for workers' tendency to under-save:

- Left alone to decide how much to contribute, people seem short-sighted and may lack willpower. Recent survey evidence on a representative sample of 51-years old or older US citizens has shown that almost 30 percent of respondents have never thought about a saving plan for retirement. Moreover, only 60 percent of the "planners" were able to stick to the plan.[7]
- Workers are also very poorly aware of the degree of coverage provided by their retirement income sources. In Italy, for instance, ten years after three reforms that dramatically reduced the prospective replacement rates of public pension (i.e. the ratio between pension benefit and last pay at retirement) for many workers, adjustment to the new conditions is far from complete and is proving slower for the cohorts and employment groups most affected by the reforms. For example, middle-aged and young self-employed workers expect a replacement rate of about 60 percent, which is 20 percentage points higher than the rate consistent with current legislation.[8] This is also true for the funded component of pension wealth, as US surveys tend to find that employees are very poorly aware of the characteristics of the plan they are enrolled in (e.g. whether it is DB, DC, or mixed).[9]
- What is worse is the fact that DC plan members are likely not even to consider the problem of setting a target replacement rate for their accumulation plan. This is especially worrying as decisions about contribution rates and asset allocation depend very much on key forward-looking parameters, such as the foreseeable trend of labour income, the planned retirement date, the target pattern of retirement income, and the intensity of the bequest motive. Without a target replacement rate, workers might become aware they have saved too little only when they retire and are no longer in a position to increase the pool of assets available to fund their consumption in old age. The lack of retirement goals may also reflect the poor incentives of selling agents, who have no contractual obligation to deliver any particular fund size on the retirement date[10]: in order to persuade workers to enrol they may allow them to choose contribution rates that are too low.
- Finally, it is often argued that another reason why the risk of inadequate savings is serious is that DC plan members tend to choose a fairly conservative asset allocation. In order to accumulate a sufficient pool of funds, they should save relatively more compared with more equity-oriented long-term investors.[11] At the same time equity-oriented portfolios may expose investors to huge investment risks (see below).

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6 See, for instance, Choi et al (2004), Pensions Commission (2005), Olsen and Whitman (2007) and Blake, Cairns and Dowd (2008).

7 Lusardi and Mitchell (2006).

8 The level of awareness about public pension provision is low, especially among the self-employed, public sector employees, and younger workers. Presumably this information shortfall also reflects the general uncertainty caused by the protracted reform process, which has made more difficult and burdensome for savers to obtain information on how the new pension system works. See Cesari, Grande and Panetta (2008), updating the estimates in Bottazzi, Jappelli and Padula (2006).

9 Gustman and Steinmeier (2004).

10 Blake, Cairns and Dowd (2008).

11 Choi et al (2004).

Two widely used instruments to increase pension fund enrolments and contributions are fiscal incentives and employer-matching contributions. Both are effective means of boosting pension fund returns and greatly increase the convenience of joining a funded retirement scheme.[12] Both have drawbacks, however. Fiscal incentives are usually expensive, regressive, and possibly prone to time inconsistency, especially when tax advantages apply to the payout phase. Employers' contributions might be offset by a reduction in net wages and not necessarily produce an increase in the worker's total wealth. Moreover, as they are typically the result of agreements between employers and trade unions, their portability across different retirement schemes may be far from seamless. In any case, workers seem to exploit fiscal incentives and employers' contributions only partially. For example, a recent study of a sample of DC plan members in the United States finds that each year between 20 and 60 percent of these workers contribute below the threshold (even if they could make penalty-free withdrawals), losing as much as 6 percent of their annual pay – a free lunch left on the table.[13]

A factor discouraging workers from increasing pension fund contributions is the relative illiquidity of their net equity in pension funds. DC pension schemes usually grant workers the possibility to withdraw their balances some time before they retire only under special circumstances. Any option to grant higher flexibility of early withdrawals (maybe to those categories of workers, such as young and low-paid workers, that are more likely to be liquidity-constrained) has to be carefully weighted against the risk that short-sighted and time-inconsistent workers might withdraw too much too early, against their own long-term interest.

This naturally leads us to underline the importance of providing DC plan members with good investment returns, as this would be the main way to alleviate the relative illiquidity of investments in pension funds and improve the trade-off between liquidity and pension fund returns. In this respect, it is essential to keep total costs to savers low; otherwise, the advantages of pension funds (investing retirement saving in financial instruments as well as enjoying employer contributions and tax incentives) will be seen mainly in the financial accounts of the intermediaries running the funds, rather than in better living standards for pensioners. Indeed, charges may have a major impact on the final balance accrued to workers over an extended period of time.[14] The importance of keeping pension funds' total costs low has been emphasized, among others, by the Turner Report, which argues that, against reasonable expectations of long-term returns, annual charges of 1.5 percent (not at all uncommon in many countries) are high enough to represent a rational disincentive to

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[12] According to simulations carried out by Cesari, Grande and Panetta (2008) for Italian DC pension funds, the benefit of the employer's contribution provided by the recent pension fund law is substantial: over a 30-year accumulation period, even on the most unfavourable assumptions, the return obtained by a pension fund member each year is at least 0.6 percentage pointshigher, and his final accrued balance more than 6 percent higher, than that obtained by a non-member. Tax advantages are also very large: after 30 contribution years the final balance accrued to a younger worker joining a pension fund would be almost 24 percent greater than that accrued to a worker who invests directly in financial assets; more than half of the advantage would be due to the deductibility of contributions and another third to the preferential taxation of benefits.

[13] Choi, Laibson and Madrian (2005).

[14] Even small variations in charges lead to big difference in the final balance assigned to workers on retirement. After 30 years, workers who can invest at an annual cost of 0.5 percent per annum could, for the same savings level, enjoy a final accrued balance more than 30 percent higher than that enjoyed by workers facing an annual cost of 1.5 percent. For a detailed analysis of the impact of pension fund costs on workers' gains from joining a pension fund (based on the parameters of the Italian DC pension funds), see Cesari, Grande and Panetta (2008).

voluntary private savings and undermine the case for providing earnings-related pensions in a funded rather than a PAYG form.[15]

Cost reductions can come not only from increasing the volume of assets under management, with consequent economies of scale, but also from stimulating competition among pension schemes. This may call for several measures including educating consumers about the effect of charges on pension fund returns; assuring a high degree of transparency and comparability of charges between different schemes; easing the transferability of employer contributions across different schemes, especially for people with term jobs and interrupted careers; and intensifying competition among intermediaries offering pension fund asset management services.

Moreover, in all countries public authorities have a powerful (and relatively inexpensive) instrument for boosting pension fund contributions – namely, the provision of information. The better workers are informed, the quicker they revise their expectations and adjust their saving patterns.[16] Workers should be given systematic, timely and clear information to help them make reliable estimates of replacement ratios, taking into account both mandatory retirement programmes and supplementary pension plans. Specifically, for funded defined contribution schemes, either the public authorities or the plan sponsors and financial intermediaries could provide workers with an estimate of the pension scheme's net benefits, based on reasonable, transparent and standardized assumptions regarding contributions rates, the growth rate of earnings for groups of workers, the growth rate of benefits, the probability of survival, and the expected returns on pension fund assets. Regular assessments should provide an indication of the contribution rates that would be consistent with the updated scenario. The same should be done on a regular basis by the Social Security Department, for the first-pillar pension wealth (as happens, for example, in Sweden).

Another powerful instrument in the hands of both employers and policymakers is the design of retirement plans in terms of enrolment, contribution, investment and withdrawal options. In defining default options, there seems to be consensus on a few general criteria such as[17] avoiding opt-in clauses (which imply that the worker is not enrolled unless he or she asks) and relying instead on opt-out clauses or some kind of more active decision-making; offering only a small number of basic investment choices, while being ready to offer a wider choice to those workers that ask for it; and setting employee contribution rates that rise slowly over time. All these solutions are meant to encourage long-lasting changes in behaviour and to overcome inconsistencies in individual decision-making arising due to short-sightedness, inertia, procrastination or lack of willpower.

4. Should we move from unprotected to protected DC schemes?

A cursory look at financial market data (Figure 2) shows that over long periods of accumulation higher risks have on average been associated with higher returns. Accumulated returns are lowest for investment strategies that merely track consumer prices, highest for equities, and somewhere in-between for nominal government bond portfolios. However, as we move from the least to most rewarding investment strategy, return variability

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[15] See the discussion and the international evidence reported in Chapters 1.2, 1.5 and 10.10 by the Pensions Commission (2005). For international evidence on charges as well as policy options, see also Whitehouse (2005).

[16] Analysing the effects on household net (real and financial) wealth of the cuts in public pension benefits in Italy, Bottazzi, Jappelli and Padula (2006) find that the impact of pension benefit expectations on saving choices is huge. While for informed workers the offset between private wealth and expected public pension wealth is between -0.4 and -0.8, for poorly informed workers it is much lower, ranging between -0.2 and -0.4.

[17] See, for instance, Choi et al (2004), Olsen and Whitman (2007), and references therein.

escalates as well, and in certain periods a pure equity strategy may be overtaken by a bond strategy. Moreover, holding period returns clearly indicate that even over long-term accumulation periods the returns from a pure equity strategy may be subject to large drops, as may happen when the holding period includes the first ten months of 2008. This bird's eye view of financial market returns also shows that by holding a balanced portfolio of stocks and fixed-income instruments, long-term investors may try to increase expected portfolio returns, while keeping return volatility moderate.

What I would like to emphasize, however, is that basing asset allocation on the past properties of asset returns may still leave the investor considerably exposed to investment risk, for at least two reasons:

- First, past realizations may come from different underlying economic regimes or conceal structural breaks, so that care should be taken when using observed returns to estimate expected returns.[18] It is generally agreed, for example, that around the turn of the century the equity premium declined somewhat; the term premia on long-term interest rates may also have recorded a lasting decrease in this decade. This may again reverse in the near future.
- Second, even if expected returns on equities are higher than those on bonds in the long term, actual returns on equities may turn out to be sharply negative. The probability of large drops in asset prices may be substantially higher than it is assumed in standard mean-variance frameworks. Indeed, there is evidence that the distribution of many asset prices has fatter tails than the normal distribution (possibly signalling the unexpected occurrence of very large shocks that may be at odds with standard applications of the central limit theorem).

The investment risk can be dealt with, to some extent, by relying on market-based instruments. DC plan members could invest a large share of their funds in risky assets at the beginning of their accumulation period and gradually increase the percentage of cash and government bonds as they approach retirement[19]. One difficulty of this life-cycle investment strategy is that individuals may find it a daunting task to change the asset allocation as they age (as well as to anticipate trends in the prices of risky assets). A solution is provided by accumulation schemes that automatically adjust risk as an investor ages ("life-cycle funds"). This kind of solution has been increasingly adopted for DC pension plans in a number of countries.

Financial markets also offer strategies that drastically reduce the exposure to investment risk. One possibility is to restrict portfolio choices to fixed-income instruments, especially index-linked bonds, or to use options. Then there is recourse to rate-of-return guarantees provided by third parties (an insurance company, the sponsor or a central reserve fund). A DC pension fund may also maintain a reserve to smooth returns over time: in good investment years part of the fund's returns are placed in the reserve, which can be drawn on when they fall below a certain threshold.

While financial markets offer different ways of introducing minimum return guarantees, it is clear that the hedging of financial market risks does not come without cost. A higher incidence of fixed-income instruments may take its toll on portfolio returns; the use of derivatives or third-parties guarantees implies the payment of fees. With intertemporal smoothing of returns, good investment years subsidize bad investment periods, with a

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[18] The very hypothesis of ergodicity of most economic and financial time series has been questioned from time to time (se, for example, Davidson, 1991) and becomes hard to believe in crisis periods.

[19] For the long-standing debate on the pros and cons of equities compared with bonds and the asset allocation of long-term investors, see Campbell and Viceira (2002), Siegel (2002), Bodie and Clowes (2003), Merton (2006) and Blake, Cairns and Dowd (2008).

potential redistribution of investment income across plan members. Therefore, all these forms of protection from investment risks may result in lower net-of-fees returns. If these are not offset by higher contributions during the accumulation phase, they lead to a lower pension during the decumulation stage – i.e. lower returns imply lower consumption, either during working age or in retirement or both.

More importantly, market-based solutions cannot protect investors from strong aggregate shocks hitting several asset classes and economic sectors at the same time. In such an event, aggregate wealth is not only redistributed across individuals and sectors, but it is also destroyed.

One might argue that in such exceptional circumstances there is a straightforward solution: a public rescue of pension funds by the government (especially when enrolment is mandatory rather than voluntary). A bail-out of pension fund members would always be an available policy option, provided that it were limited to workers who are close to retirement and unable to take advantage of a possible recovery of asset prices over medium- to long-term horizons. However, a bail-out of pension fund members should always remain the last option for two well-known reasons: it is costly to taxpayers and it may encourage opportunistic behaviour by pension funds in the future.

A more sustainable and efficient form of protection could come from some kind of collective inter-generational arrangement. One possibility is that of hybrid pension plans, such as those previously mentioned, in which participants transform their risky claims into guaranteed claims as they become older.[20] In practice, younger workers would partly insure the pension rights of older workers, by accepting to pay higher contributions in periods of adverse financial market shocks. In some countries (for example the Netherlands) these investment vehicles already exist.

Another possibility would be a more active role of the State in providing insurance against grave systemic risks. Tail risk in financial markets is similar to what is called aggregate longevity risk, i.e. the risk of a whole cohort living longer than expected. Aggregate longevity risk must be kept distinct from idiosyncratic longevity risk, i.e. the risk of an individual living longer than his or her cohort's average (a risk that the market can easily insure away). I will elaborate on these risks in the next section.

Of course, providing insurance against catastrophic events destroying financial wealth was the reason why PAYG social security systems were introduced, most of them in the aftermath of the Great Depression and of the hyper-inflation following WWII.[21] However, social security systems came under strain in most developed countries for several well-known reasons. In particular, the sizeable (and largely unexpected) increases in longevity, coupled with a substantial fall in fertility rates, put the financial sustainability of traditional PAYG schemes under question in many countries, unless substantial cuts in benefits and increases in payroll contributions were introduced (and the effective retirement age increased).

Yet, there are other ways to provide workers with a collective protection against financial market risks. One example, is the plan put forward by Franco Modigliani and co-authors in various contributions.[22] While it is similar in spirit to inter-generational arrangements, it includes the whole national community in the risk-sharing scheme. Basically, the proposal is to introduce a single funded DC pension scheme which would enter in a swap arrangement

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[20] See, for example, Boeri et al (2006).

[21] Originally, most social security systems were funded. The abrupt destruction of financial wealth due to post-WWI and WWII hyper-inflation and asset price collapse led many countries to switch from funded to PAYG schemes (Perotti and Schwienbacher, 2007).

[22] See for example Modigliani, Muralidhar and Ceprini (2000), and Modigliani and Muralidhar (2004).

with the Treasury each year so that the risky pension fund returns are exchanged with a guaranteed rate of return.

With respect to the original proposal, the swap arrangements may involve more than one pension fund, and the swap guarantee may be partial, at a price that in normal times should compensate the Treasury for the risks it undertakes. In this case, it would be especially important to keep pension fund fees and other expenses low, as mentioned earlier.

One merit of the Modigliani proposal is that workers with similar characteristics would be granted similar rates of return on their savings. On fairness grounds, it seems disputable that workers with equal pension contributions and in equal in all other relevant respects should end up with very different retirement wealth, due to the evolution of financial markets.

Finally, while the feasibility of such a scheme needs to be studied in relation to the various existing national pension systems, it is worth noting not only that it might provide the needed smoothing of pension funds returns, but, more importantly, that the scheme would also put the burden of aggregate financial risks due to events that cannot be hedged at a cohort level within a truly intergenerational exchange framework. Obviously, this would call for the introduction of measures to limit the burden on future generations caused by high and rising levels of public debt.

5. We need cheaper and safer pay-out products

An adequate level of pension wealth at retirement is necessary but not sufficient to guarantee adequate living standards during the retirement years. Indeed, it is important to ensure that such wealth is properly decumulated. Therefore, the most important choice is the extent of annuitization.

It is difficult not to agree that annuitization of a significant fraction of private pension wealth is highly advisable. It is indeed advisable both for the individual and for the government:

- At retirement, workers have to choose the level of consumption for the subsequent years, given the wealth accumulated over their working lives. Without annuities, they would be exposed to longevity risk: if they live longer than expected, they could outlive their resources; if on the contrary their lifespan turns out to be shorter than expected, a fraction of resources would be wasted. By buying an annuity, both risks would be shifted onto the insurance company.
- As companies have a wide pool of clients, they can diversify away the idiosyncratic component of the longevity risk. Therefore, they can offer annuities at convenient prices for the investors. However, companies have to bear the aggregate component of the longevity risk, i.e. the risk of unpredicted changes in the average lifespan. To cover this risk, they could ask for a premium that may substantially raise the overall cost of the annuity scheme.
- A high degree of annuitization would also work to protect public finances from opportunistic behaviour: individuals may indeed have an incentive to consume resources early after retirement, and to rely on the publicly-financed safety net in the following years.

At the moment, annuity markets around the world are rather thin, except in a handful of countries in which private pensions are more developed (such as in the United Kingdom, Switzerland and Chile). This may be due to a wide range of demand and supply factors, such as opaque and inefficient pricing policies by insurance companies, a lack of products which meet the tastes and needs of investors, and the presence of still substantial annuitized

benefits provided by public PAYG schemes.[23] However, in a few years' time the number of pensioners for which annuities or annuity-like products will provide a significant fraction of retirement income is most likely to increase. This is due both to the increased importance of private pensions and to the fact that, in many countries, the law now mandates that a minimum portion of a worker's pension fund capital should be annuitized at retirement (or it provides strong tax incentives to do so).

As the demand for annuity products takes off, an efficient and well-functioning annuity market will become soon a policy priority. Policy action in this field should target two broad goals. First, in order to reduce annuity prices, three main determinants should be addressed: adverse selection costs, which are quite significant according to most existing studies;[24] the premium for the aggregate longevity risk; and a possibly insufficient degree of competition. Second, pay-out products which protect at least in part against the risks which materialize during the decumulation phase should be made more widely available. At the moment, for example, in most countries annuity payments are not indexed to prices. This induces a progressive deterioration of the relative position of pensioners with respect to the rest of the population (as well as an absolute reduction in purchasing power over time).

I will now briefly discuss how we can try to achieve these goals.

To keep the price of annuities as low as possible, governments and regulators should first of all promote the timely release of accurate mortality tables, as this would help to reduce the aggregate longevity risk. The remarkable increase in life expectancy at older ages that has occurred in the last half a century in industrial countries seems in fact to have been systematically under-predicted by national statistical agencies. The adoption of new and more sophisticated methods might have produced significant improvements in projection but prospective life expectancy gains may still be somewhat under-predicted. Furthermore, lags occur in the production, adoption and disclosure of mortality tables and cross-country variations in mortality assumptions used by company pension schemes appear at times far larger than warranted by their members' profiles.[25]

Moreover, tables for different subgroups in the population should also be made available. This would make it possible to discriminate between annuity buyers, reducing adverse selection costs. In particular, lower prices could be offered to disadvantaged people, with shorter-than-average expected life spans. As good mortality tables are to some extent a "public good", the role of governments here is significant.

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[23] See, among others, the contributions in Brown et al (2001) and Fornero and Luciano (2004).

[24] Most of the literature measures these costs using the so-called "money's worth ratio", defined as the ratio between the net present value of the expected stream of benefits and the amount of money given by the retiree to the insurer (a synthetic indicator of the cost of the annuity). The numerator of the money's worth ratio can be computed either using survival probabilities for the whole population or probabilities for the sub-group of the annuity purchasers. In the latter case the ratio would turn out to be bigger, as annuitants would on average receive benefits for a longer period. The difference between the two money's worth ratios is typically considered the most reliable proxy for adverse selection costs. For example, Mitchell et al (1999) provide estimates for the United States respectively equal to 81 and 92 percent. Comparable estimates for Italy are 77 and 87 percent (Guazzarotti and Tommasino, 2008). Of course, these estimates must be taken with caution, as they rely on several assumptions concerning, for example, the future evolution of interest rates.

[25] On these issues see the discussion in Visco (2007). With respect to projection methods, particularly popular is the model proposed by Lee and Carter (1992), where the possibility of age-specific patterns in mortality estimates is specifically taken into account. Using this method Tuljapurkar, Li and Boe (2000) produced estimates that show average life expectancy gains for G7 countries by the year 2050 of about 7 years, twice as large as the average gains in official projections. Even this might be a conservative estimate, as it assumes a constant rate of decline in mortality. If the rate of increase in life expectancy registered in the post-war period were to be confirmed for future decades, it would rise by 2050 by more than 10 years. On cross-country variations in mortality assumptions, see Cass Business School (2005).

Furthermore, in order to foster competition and keep profit margins low, product prices and characteristics should be as transparent and comparable as possible. To guarantee a higher degree of transparency, both about prices and about product characteristics, it would be advisable to follow the path of countries such as the United Kingdom, where the FSA hosts a web platform in which the different products are compared, or Chile, which has recently adopted a similar system.

With reference to the inadequate range of available instruments, governments should first of all remove the obstacles that prevent companies from offering inflation-indexed annuity products. In particular, they could consider providing more inflation-indexed and ultra long-term bonds. The Chilean experience, in which these bonds are issued both by the government and by the corporate sector, is indicative. It also points to the fact that financial innovation and the development of annuity markets are two mutually reinforcing processes. Finally, longevity risk premia could be reduced if companies had access to longevity (or mortality) bonds, allowing better asset-liability management. The issuance of such bonds should then be definitely encouraged, recent failures notwithstanding.[26]

The market for reverse mortgages should also be promoted. Reverse mortgages and similar products transform into an annuitized stream of payments a component of the wealth of elderly people which is already significant in many countries where private pension wealth is still small. There is a risk that the crisis, and the sharp drop in house prices, will give a hard blow to these products, which grew significantly in the years of the housing boom (see Figure 3). Better-designed arrangements, in which the risk is shared more equally between the homeowner and the intermediary will also help.

The main reason why there is an inadequate supply of instruments for hedging against the risks incurred in annuity provision (longevity risk, inflation risk, financial market risk) is of course the lack of natural issuers, at least in the private sector. Due to their extended time-horizon, governments are a natural candidate to re-insure these risks.

However, it is not clear to what extent they could take those risks onto their balance sheets. After all, social security systems are being reformed mainly to spare future workers at least part of the expected costs of population ageing (a concern that is also behind the introduction in several countries of the so-called notional defined contribution schemes for public pensions). One might argue, however, in favour of some limited form of guarantee to annuity providers, to cover only the risk of a “catastrophic” tail event. The use of public resources to provide an insurance against the collective component of longevity risk should then be matched by a more balanced composition of pension pillars that would limit the exposure of the government to the idiosyncratic component of this risk and encourage financial markets, to play a larger role for its insurance, even if with a possible smoothing role by the State along the lines discussed in the previous section.

The State could even intervene directly as an annuity provider. This would be likely to reduce administrative costs (thanks to economies of scale) and adverse selection costs (due to a wider pool of clients), and correspondingly reduce prices (mainly because profit mark-ups could be kept to zero). The Swedish experience, in which the government is the monopoly provider of annuities both for individual investors and for pension funds, seems encouraging in this respect, and deserves further attention.

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[26] See, among others, Group of Ten (2005), Visco (2007), Antolin and Blommestein (2007). I will leave aside the problems connected to the management of duration risk, due to the fact that there might be a mismatch between the duration of companies’ assets and liabilities. Of course, compensation for this risk is also a part of the annuity price. Duration risk seems however more important for DB funds, which provide accumulation vehicles and also pay pensions, than for specialized annuity providers.

6. Conclusions

We need to acknowledge that the road to an adequate and stable retirement income is strewn with difficulties and hazards. Many things can go wrong: inadequate contributions and disappointing returns during the accumulation phase could lead to an insufficient amount of resources at the moment of retirement; the lack of inexpensive and safe ways to transform pension wealth into a stream of benefits could lead to insufficient income during the old age, if not immediately, after a certain number of years.

The main point of my discussion has been that leaving individuals alone to cope with these risks is inefficient from an economic point of view, given that at least some of them are of a systemic nature. It is not a matter of redistributing a given amount of resources among individuals or across cohorts, but of adverse shocks that reduce the growth potential of the economy (for example in the case of population ageing) or destroy its stock of wealth (as in the case of a disorderly financial market crisis). The solutions that financial markets currently offer cannot effectively address these risks: they should be integrated with collective arrangements involving present and future generations.

I believe that it is worth exploring whether such arrangements could take the form of transparent, minimal guarantees provided by the government to pension funds and to annuity providers at prices and with other conditions that compensate the risks.

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Table 1. Pension fund assets in percent of GDP (1)

(percent)

	1990	2000	2003	2006
Belgium	2	6	4	4
Canada	29	48	47	54
France			1	1
Germany	3	3	4	4
Italy	1	3	2	3
Japan (2)	12	19	14	22
Netherlands	72	114	101	127
Sweden	2	3	8	9
Switzerland	56	105	104	123
United Kingdom	50	79	65	84
United States	42	69	73	75

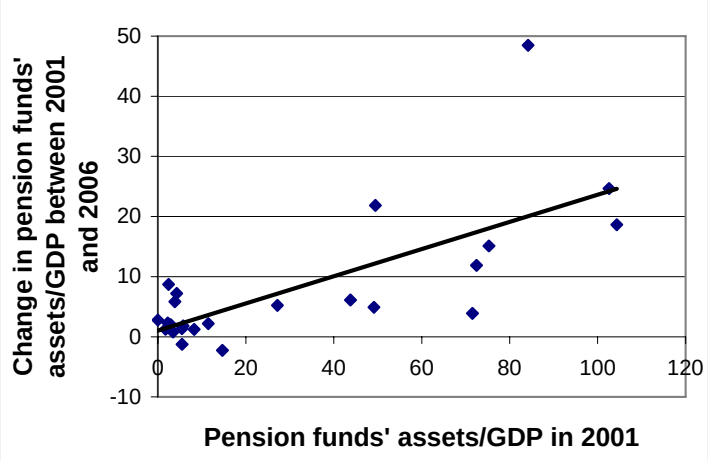
Source: Group of Ten (2005) and OECD (Global Pension Statistics).

(1) Reported assets refer to the category “autonomous pension funds”. They may not include all forms of retirement savings plans, in particular those provided by insurance companies.

(2) Data for 2003 and 2006 are estimated.

Figure 1

Pension funds' assets/GDP across OECD countries
(percent)



Sources: OECD (Global Pension Statistics).

Table 2. Proportion of DC pension plans in selected countries
(% share of DC pension plans in autonomous pension funds' total assets)

	2001	2002	2003	2004	2005	2006
Canada				7		9.5
Italy			80.9	70.5	83.8	85.3
Japan	2.4	0.2	4.4	8.2	14.2	
United States	46.4	47.2	48.0	48.9	50.2	51.7

Sources: OECD (Global Pension Statistics); OECD, *Pension Markets in Focus*.

Table 3. Current and expected sources of income in retirement

(percent)

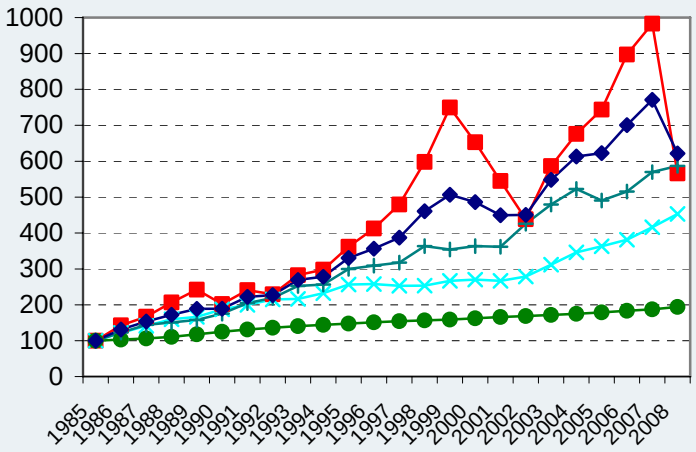
	Workers (Expected)	Retirees (Reported)
Social Security	80	94
An employer-sponsored retirement savings plan, such as a 401 (k)	74	36
Other personal savings or investments	73	48
An individual retirement account or IRA	69	34
An employer-provided traditional pension or cash balance plan	59	53

Source: Employee Benefit Research Institute and Mathew Greenwald & Associates, Inc., 2008 Retirement Confidence Survey.

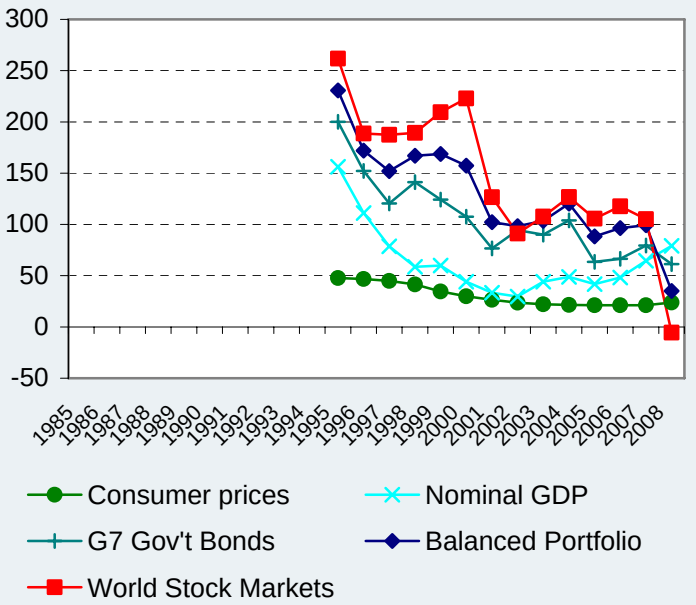
Figure 2

Returns on financial assets: long-term indicators

(i) Indexes: 1985=100 (1)



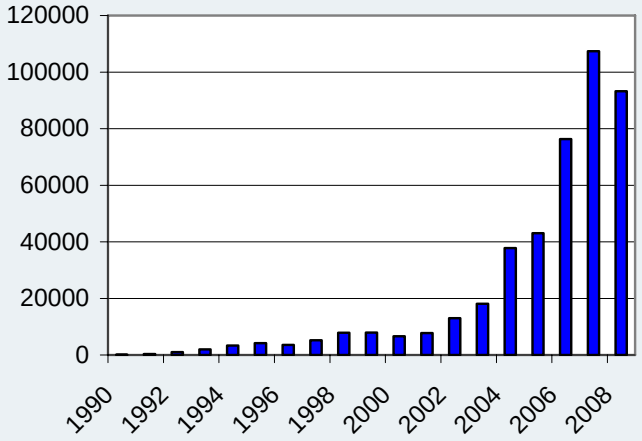
(ii) 10-year percentage changes (2)



Sources: IMF, Federal Reserve and Thomson Financial Datastream.
(1) Annual data. Consumer prices and nominal GDP relate to advanced economies. The government bond index (Merrill Lynch) and the stock market index (MSCI) also take into account coupons and dividends. "Balanced portfolio" means the index of the weighted portfolio of the stock market and bond indexes, where the stock market weight is equal to the share of corporate equities to total financial assets of the US private pension funds at the end of the previous year. - (2) Percentage change over 10 years of the variables described in the previous footnote.

Figure 3

Reverse mortgages in the United States
(number of federally-insured reverse mortgage loans, fiscal years)



Sources: U.S. Department of Housing and Urban Development; U.S. Mortgage Bankers Association.