# PROTECTING RETIREMENT INCOME:
# IMPROVING THE DESIGN OF DC PENSION PLANS
# SESSION 5 BACKGROUND DOCUMENT

**OECD/IOPS Global Forum on Private Pensions**

**2-3 November 2010**
**Sydney, Australia**

INTERNATIONAL ORGANISATION OF PENSION SUPERVISORS

**OECD/IOPS GLOBAL FORUM ON PRIVATE PENSIONS:**
**SESSION 5**

# PROTECTING RETIREMENT INCOME:
# IMPROVING THE DESIGN OF DC PENSION PLANS

The design of defined contribution (DC) pension plans needs to improve. The financial and economic crisis has highlighted the need to improve their design. People with DC pension plans saw their accumulated pension saving disappear as they were heavily exposed to risky assets. Unfortunately, even people very close to retirement had exposures to equities. Moreover, these plans are becoming more prevalent in OECD countries as a means to finance retirement. They are already the main source to finance retirement in many OECD countries (e.g. Australia, Chile, Hungary, Poland), and they may become in the near future the main source in some other OECD countries (e.g. Canada, the UK and the US).

There is a wide range of issues to consider when improving the design of DC pension plans. First, one needs to assess the nature of the parameters affecting retirement income, as some of them are uncertain. Secondly, default investment strategies and guarantees can play a role in partially offsetting the negative impact of this uncertainty. The issue then becomes which is an appropriate default investment strategy. As regard guarantees, such as minimum return guarantees, one has to consider than these guarantees may be costly. Finally, when designing DC pension plans, one needs to look at the payout phase as well as the accumulation or saving. In particular, the role of annuities and how to reach a balance between providing protection from longevity risk, on one side, and flexibility and liquidity, on the other side. What follows will focus on each of these three issues including related OECD work.

**Choice pension parameters**

Regulators, policy makers and individuals do have some control over some of the parameters affecting retirement income from DC pension plans. They can, for example, decide the amount to save by setting the contribution rate; they can decide when people retire, by determining the length of the contribution and accumulation period; and they can decide how assets accumulated at retirement are allocated in order to finance retirement, by setting the structure of the payout phase (e.g. annuities, programmed withdrawals). The OECD work on those choice variables has produced some interesting recommendations.[1]

Firstly, people need to save between 5% and 15% of wages during their working life to achieve a level of retirement income between 25% and 70% of final wages. The choice of this replacement rate depends on the overall structure of the pension system in each country, and, in particular, on the weight of PAYG public pensions. In countries where PAYG public pension already provide a significant level of replacement to final wages (e.g. 50%), the replacement rate of DC pension plans may aim to 25%. In countries where benefits from DC pension plans is the main source to finance retirement, the replacement rate from DC pension plans may aim to a number closer to 70%.

Secondly, the more efficient way approach to increase the contribution period is to postpone retirement. It is more efficient in the sense that the contribution effort (i.e., the increase in contribution needed to keep pension benefits constant relative to wages) is lower than any other alternative. The contribution effort increases with life expectancy but at a decreasing rate. Hence, future increases in life expectancy will require smaller contribution efforts to offset them.

**Uncertain pension parameters and default investment strategies**

Many of the parameters affecting pension benefits from DC plans are uncertain.[2] Future realizations of several pension parameters are unknown. Indeed, returns on different asset classes, returns and yields on government bonds, and inflation are unknown. Similarly, the career wage growth path across different individuals as well as whether they may suffer unemployment spells during their careers are also unknown.

[1] See http://www.oecd.org/dataoecd/37/14/44628862.pdf

[2] See attached confidential document from the OECD Working Party on Private Pensions.

Additionally, how long people may expect to live is also undetermined. As a result of these financial, labour market and demographic risks the process of saving for retirement entails risks. One of the main implications of those risks is that pension benefits from DC pension plans are uncertain and highly volatile. Using stochastic modelling, OECD work assesses the impact of this uncertainty on pension benefits reaching several interesting conclusions.

Firstly, there is a large potential shortfall in retirement income as a result of this uncertainty. The likelihood of being below the average pension benefits as a result of uncertainty is just over 50%. The impact of unemployment and different career wage growth paths (i.e. human capital risk) is quite large. Human capital risk as well as investment returns and inflation are the main drivers of uncertainty surrounding retirement income from DC plans. Yet, life expectancy and interest rates play an important role as well.

Secondly, the volatility resulting from financial market risk was brought into stark contrast by the recent crisis. Calculations of replacement rates from hypothetical DC plans for different cohorts of individuals retiring at age 65 after 40 years of contributions starting from 1940 to 2008, who contributed 5% of wages to their DC plan, with 50% invested in equities and 50% in government bonds, given historical returns and inflation, show how large the volatility of pension benefits resulting from different market conditions can be. For example, a person who retired at age 65 in the US in 1999 -- at the height of the dotcom boom -- would have accumulated pension benefits equal to 52% of final wages, while an otherwise equivalent person retiring in 2001 -- after the burst of the dotcom bubble -- would have accumulated only a 29% replacement rate, after the financial crisis of 2008, the rate drops even further to 20%. All three individuals have the same labour history and the same life expectancy; the only difference is the market conditions.[3]

Thirdly, it is possible to offset the impact of this uncertainty, at least partially, by introducing default investment strategies.[4] They are ideal for people who are unwilling or unable to actively manage their own portfolio investments. Moreover, as default investment strategies can be designed to minimize the impact of market conditions, they are useful in protecting pension benefits from market swings, in particular for people close to retirement. Obviously, risk and reward go hand-in-hand, so ensuring protection from negative market outcomes means lower potential gains during market upswings. However, we need to choose among the many existing investment strategies.

Fourthly, investment strategies based on the life-cycle approach are appropriate default investment strategies.[5] This approach states that the amount of assets accumulated to finance retirement allocated to risky assets (e.g. equities) should fall as people get closer to retirement. The OECD work shows that life-cycle strategies provide protection for those close to retirement in the case of a negative shock to the stock market just before retirement, in particular for individuals who have medium to low growth in income, and who experience unemployment. They are relatively more easily understood by the public than other investment strategies such as dynamic strategies. Moreover, life-cycle strategies also provide protection when contribution periods are short.

However, the OECD work also stresses that life-cycle investment strategies are not a panacea. They do not, for example, address the problem of volatility of retirement income resulting from market fluctuations or the problem of adequate or low pensions.

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[3] http://www.oecd.org/dataoecd/37/14/44628862.pdf provides these calculations.

[4] OECD work on default investment strategies is in http://www.oecd.org/dataoecd/19/25/46010869.pdf; http://www.oecd.org/dataoecd/38/15/43347646.pdf

[5] See http://www.oecd.org/dataoecd/19/25/46010869.pdf and the attached confidential OECD WPPP document.

Fifthly, life-cycle strategies differ on their glide paths. The OECD work suggests that life-cycle strategies with a constant exposure to equities during most of the accumulation period that subsequently is reduced to close to zero during the last 10 years before retirement seem to offer the best protection from a negative shock to the stock market.

Finally, life-cycle strategies can be organised around a single fund or around several funds. The former are target date funds (US) in which the allocation to risky assets falls with age. In multi-funds or a life-styling funds system (Chile), each fund has different allocations to risky assets, with an upper and a lower limit to equity exposure, with the middle of the bracket as a default. Individuals are moved from one fund to the next according to their age. Multi-funds provide flexibility as people in each fund can have different exposures to risk depending on their risk tolerance parameter. Additionally, after a negative equity shock the multi-fund system with upper and lower limits allows for the exposure to equities to be increased and thus take advantage of a possible market rebound. Although this flexibility sounds good, the rationale behind a default strategy is exactly to avoid having people make those kinds of active management decisions that they are not prepared or willing to do.

**The payout phase**[6]

Retirement income from DC pension plans needs to be partially annuitized. As one of the main objectives of pension provision is to protect people from outliving their own resources – that is, to insure them against longevity risk – the design of the payout phase should consider whether retirement income is sufficiently annuitized. In this context, the design needs to be coherent and needs to strike a balance between protection from longevity risk and flexibility.

The design of the payout phase needs to be coherent with the overall pension system and between the accumulation and the payout phases. For example, when a significant level of retirement income is already annuitized through public pensions, the payout phase of DC pensions should allow for more choice and flexibility in permitting people allocating their DC balances. It makes sense to have a flexible payout phase when the accumulation phase is flexible (*e.g.* voluntary, the choice of asset allocations is flexible) then it may make sense to have flexibility in the payout phase.

The design of the payout phase needs to strike a balance between protection from longevity risk on one side and providing liquidity and flexibility on the other side. The payout phase can be structured around lump-sums, program withdrawals, life annuities or any combination. Life annuities provide protection from longevity risk. However, they are illiquid and provide very little flexibility to face contingencies. Lump-sums, and in particular program withdrawals, on the other hand, provide liquidity and flexibility but do not protect against longevity risk. Combining program withdrawals with deferred life annuities bough at the time of retirement that begin paying pension at late ages (e.g. at age 85) may be a good compromise to reach this balance.

The design of the payout phase requires annuities and in turn annuity providers. There are many institutions that can provide annuities. Moreover, potential providers of annuities face several risks that they may need to hedge to provide annuities, in particular longevity risk. Therefore, the focus should be on the conditions for providers to enter the market and on the existence of financial instruments to hedge risk inherent in providing annuities.

[6] OECD work on the payout phase can be found at http://www.oecd.org/dataoecd/39/2/41407986.pdf; http://www.oecd.org/dataoecd/48/54/41935201.pdf ; http://www.oecd.org/dataoecd/39/4/41408028.pdf; http://www.oecd.org/dataoecd/43/36/41237210.pdf

The main recommendation is to allow any provider of annuities as long as they are sufficiently regulated and fair competition is guaranteed. In practical terms, life insurance companies are better prepared to offer life annuities as they have the technical capabilities, the expertise and, in theory, may be naturally hedged as they may operate in both sides of the market (life expectancy and mortality). However, in some cases, life insurers may face problems in participating in the market for life annuities, which has the effect of reducing competition and increasing costs. One of the main arguments to explain this lack of participation relates to the problems in dealing with longevity risk, in particular, the lack of financial instruments to hedge against longevity risk and the need to use well defined mortality tables, so that provision and capital put aside can be adequate. There are several possible alternative providers to insurance companies:

- Pension funds, though, care should be taken about capital adequacy requirements. Countries that decide for pension funds providing annuities should make sure that appropriate prudential regulation is in place to protect retirement income.

- Separate financial institutions: though, these may lack the broad-based business

- A single entity or state annuity fund. This alternative is attracting interest among policy makers, though the issue of how to combine a state annuity fund and life insurance companies competing in the same market may need to be considered further. In this sense, a state annuity fund should not crowd out private financial institutions and it should avoid reducing incentives to develop private markets. Countries with small or non-existent annuity markets could institute a centralised annuity provider, but should allow insurance companies and other providers to enter the market, guarantee full equal competition, and the role of the centralise annuity provider should dwindle down as market develops.

To conclude, the ultimate goal of improving the design of DC pension plans is to protect retirement income derived from DC pension plans in a world of uncertainty. In order to achieve this, the main policy recommendations to policymakers and regulators are: first, set up your target replacement rate from your DC pension given the overall structure of the pension system in your country. Then set contributions and the length of the contribution period accordingly keeping in mind that to reach adequate replacement rates people needs to "*contribute and contribute for long periods*". Afterwards, focus on asset allocation strategies. In particular, if contribution periods are short or intermittent, or concerns about replacement rates falling sharply for people close to retirement when a negative stock market occurs is a main policy issue, establish default life-cycle investment strategies that reduce exposure to equities in the last decade before retirement.

www.oecd.org/daf/pensions
www.iopsweb.org