

Agenda

Advancing economics in business

Balancing act: pension investment and the financial crisis

The financial crisis and fall in asset prices has significantly affected the retirement savings of members of defined-contribution pension schemes. The recent experience has triggered much public reaction and calls for policy measures that may pose a longer-term threat to private pension provision. Is there a greater need to balance concerns about short-term investment risk against long-term pension objectives?

Private pensions have been badly hit by the financial crisis. A recent issue of *Agenda* discussed how the fall in asset prices has resulted in a deterioration in the financial position of defined-benefit (DB) schemes, with significant consequences for the corporate sponsors of these pension plans.¹ This article focuses on defined-contribution (DC) pension schemes.

DC pension schemes have grown significantly across Europe over the last decade. In such schemes, plan sponsors make a fixed contribution to the members' individual accounts, but the retirement wealth accumulating in the account depends on the performance of the investment portfolio. As a result, in DC schemes, it is the members rather than the plan sponsors who bear the investment risk and who are directly affected by periods of market downturn.²

Given the investment risk exposure of individuals in DC pension schemes, the financial crisis has triggered significant public and political reaction in some countries. This includes countries in Central and Eastern Europe (CEE), where virtually all private pensions are of DC-type and participation in the DC schemes is often mandatory. Measures have been taken, or are being discussed, that could pose a longer-term threat to private pension provision in several CEE countries.

This article examines DC pension investment in the context of the financial crisis and evaluates the appropriateness of some of the main policy responses proposed. It draws from an Oxera presentation at the CEE Life Insurance and Pension Funds 2010 conference in Warsaw in January,³ and focuses on the pension accumulation phase, leaving aside the additional challenges for policy design of the payout phase.

A fair outcome? Illustration of the issue

Consider as an example two individuals who make regular contributions into the same DC pension scheme. Suppose the scheme is 100% invested in UK equities over the assumed 30-year period over which contributions are paid into the plan and invested on behalf of the individuals. For both individuals, pension contributions start at £1,000 in the first year and grow at a rate of 2% (in real terms, adjusted for inflation) over the 30-year period. One individual retires at the end of 2006, and the other retires two years later at the height of the crisis. Table 1 shows the accumulated levels of retirement wealth, based on the actual real rates of return for UK equities (and assuming away any taxes and investment management fees).

Despite saving exactly the same amount for retirement and making the same pension investment choices, Individual B, who happened to retire at the height of the crisis, finds that their retirement wealth is 42% lower than that of Individual A, who retired before the market downturn started.

Table 1 Illustration of retirement wealth accumulated after 30 years

	Retirement date	Accumulated retirement wealth (£)
Individual A	End 2006	160,035
Individual B	End 2008	92,598

Notes: Based on actual (real) returns on UK equities. The individuals contribute £1,000 in the first year and contributions then grow at a rate of 2% (real) over 30 years.
Source: Oxera calculations, based on equity return data from Barclays Equity Gilt Study (up to 2008).

One of the main questions that has been asked, and which has particular resonance in the political sphere, is whether this difference in outcomes is 'fair'. What is fair and what is not is largely a political issue. From the economic perspective, the more relevant question relates to the alternatives that A and B could have adopted. In particular, what realistically could the individuals have done differently *in the absence of hindsight*? And what options are available for policy-makers to change the outcomes?

The impact of alternative investment strategies

With the benefit of hindsight, the unlucky individual in the example in Table 1 (Individual B) should have moved out of equity into, say, government bonds or cash before the market downturn started. However, in reality, individual investors cannot be expected to consistently beat the market or base their pension investment on an ability to time market movements.⁴

What is needed is a pension investment strategy that is pre-defined, consistent and sustainable over the long term. Even if shifting the pension portfolio into government bonds would have avoided much of the fall in pension assets between end 2006 and end 2008, as illustrated in the above example, it does not necessarily follow that the optimal pension investment strategy is one that involves investing the portfolio mainly or exclusively in assets with low short-term volatility.

Instead, while equity investments may display significant short-term volatility, they can increase retirement wealth at comparatively low risk over the long period of time that tends to characterise pension investment. The following illustrates these points using analysis of equities and bonds returns data in a pension investment setting. The returns data generally covers the period 1950 to end 2009; it relates to the UK, but the results are intended to be illustrative and can be applied to other settings.

Table 2 shows the results of simulations to model asset accumulation for DC pension plans under different investment strategies, considering the retirement wealth accumulated if the portfolio is invested 100% in equity compared with a 100% investment in government bonds. The model makes specific assumptions about, for example, contribution rates to the pension plan and the time period for making contributions and investing. Holding these assumptions constant, for each pension investment strategy, the model then simulates the retirement outcomes for 10,000 individuals, using the relevant

Table 2 Simulations of impact on retirement wealth (30 years)

Percentile	100% equity	100% bonds
10th	44,171	31,443
25th	70,176	39,287
50th (median)	120,640	50,383
75th	222,242	65,961
90th	389,224	84,313

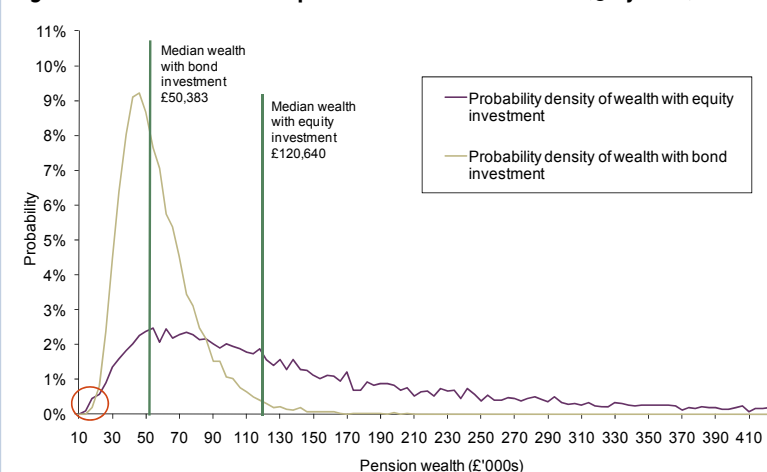
Notes: Simulations for 10,000 individual accounts, based on historical risk–return parameters for real government bond and equity returns for the UK from 1950 to November 2009 (1950 to 2008 data obtained from Barclays Equity Gilt Study 2009; 2009 data obtained from Datastream). The individual contributes £1,000 in the first year, and contributions then grow at a rate of 2% (real) over 30 years. No tax and management fee.
Source: Oxera modelling.

historical average risk–return parameters for UK equities and government bonds.⁵

The results presented in Table 2 assume a contribution and investment period of 30 years. On average, over such a long time horizon, a substantially higher level of retirement wealth is accumulated if the portfolio is held in equity rather than government bonds. This is illustrated by the median accumulated wealth, as well as the other percentiles of the wealth distribution shown in Table 2, which are higher for the 100% equity investment than for the 100% bond investment.

More importantly, the simulations give a picture of the distribution of retirement wealth outcomes under different investment strategies (Figure 1). This allows not only a comparison of average wealth accumulated, but it also allows a comparison of the variability of outcomes, including an analysis of the worst outcomes.

Figure 1 Simulations of impact on retirement wealth (30 years)



Notes: See notes to Table 2.
Source: Oxera modelling.

In these simulations, the bonds-only investment strategy delivers a lower dispersion of outcomes, but it also generates outcomes that cluster around much lower levels of retirement wealth. By contrast, looking at the probability distribution for equity, investing in equity generates retirement wealth that is higher on average. Moreover, most of the worst outcomes under the equity-only strategy are better than the worst outcomes under the bonds-only strategy.

As is highlighted in Figure 1 with the red circle on the left-hand side of the wealth distributions, the probability of a worse outcome when investing in equity is indeed very low over the assumed 30-year pension accumulation period.

These results are based on historical risk–return parameters (estimated using 1950 to 2009 data) and, it could be argued, the future may not necessarily look the same as the past. Nonetheless, the results suggest that investing in equity can deliver higher returns at comparatively low risk, given the longer time horizon that applies to pension investment. Or put differently, over these long time horizons, there can be significant costs of having a portfolio that is invested very conservatively and that delivers more predictable or guaranteed returns but at a much lower average return.

The impact of the market downturn

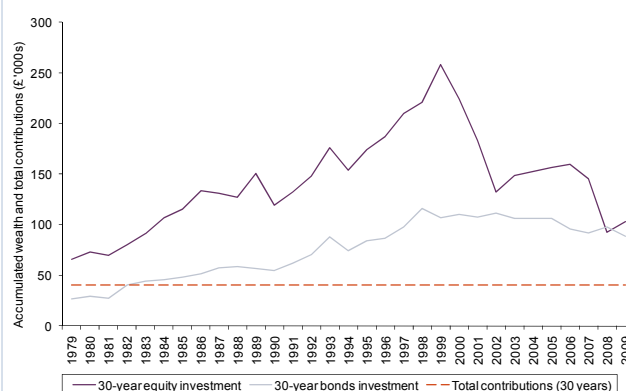
Market downturns clearly have an immediate negative impact on pension savings. While young people have time on their side to recover from the decline in stock markets, a problem arises for people close to retirement—ie, when the market downturn coincides with the end of the pension accumulation phase of an individual.

Thus, timing matters. To illustrate this, Figure 2 shows the results of a simple illustrative data analysis, again based on historical real returns on equities and bonds from 1950 until the end of 2009. This analysis considers different hypothetical groups of individuals who make exactly the same contributions to a DC pension scheme in the last 30 years of their working lives, but who retire in different years—the last year being 2009.

Figure 2 shows the accumulated pension wealth for equity and bonds investment, as well as the total contributions paid, for each of the investor groups retiring in different years. Here, a contribution and investment period of 30 years is again assumed.

Clearly, individuals who invested everything in the stock market and who retired in 2008 would be significantly worse off than individuals retiring in 2006, for example (and much worse off than someone retiring

Figure 2 Illustration of retirement wealth by year of retirement (30-year investment period, historical returns)



Notes: Figure 2 shows accumulated wealth, at the end of a 30-year period ending in the year shown on the horizontal axis, based on actual historical UK equity and gilt real returns, and assuming the same contribution pattern as described in the notes to Table 2. Source: Oxera calculations, based on the same data as Table 1.

in 1999). Equity markets picked up again in 2009, so someone retiring at the end of 2009 would be better off than someone retiring at the height of the recent crisis.

While it is not known what will happen going forward, these results nonetheless show that for retirees in all years before the crisis, equity investment would have delivered much more in terms of accumulated retirement wealth than if the investment had been in only government bonds over the long accumulation period.

Relating this back to the example provided in Table 1 above, if, in the absence of hindsight, the two individuals invest their pension contributions in bonds rather than equities—to avoid the type of ‘unfair’ outcome observed in Table 1—in every year except 2008 they would have been worse off. In most years of retirement, they would have been substantially better off picking the equity investment strategy.

These are clearly stylised empirical illustrations, but they emphasise the key point that even at times of market turmoil and stock market downturn, it is important to not lose sight of the longer term and to strike the right balance between short-term risk (including the impact on issues like the apparent unfairness of the results) and the long-term pension objectives.

What about the policy response?

A market downturn implies a significant reduction of wealth accumulating in a DC pension scheme where those assets are held as equities, and individuals retiring during a downturn might well be significantly worse off than those retiring during a boom. This outcome may be perceived as unfair, and policy-

makers can seek to intervene. However, the question is: what are viable alternatives?

The following briefly considers two types of policy response—both are observed, for example, in the case of the mandatory DC pension systems in parts of CEE.

- The first policy response is to simply move away from funded DC pensions and back to a system of pay-as-you-go, tax-financed public pension provision.
- The second response is to impose investment restrictions or minimum return guarantees.

Both types of response imply a reduction of volatility and lower investment risk for individual scheme members, but both come at a cost in the long term.

As regards the first response, in several CEE countries there have been policy developments that imply a policy reversal away from the private funded pensions. This shift takes different forms:

- reductions in the contribution rates to private pension schemes or lower-than-planned increases in those contribution rates (eg, in Latvia and Lithuania);
- allowing, or indeed incentivising, individuals to switch from the private DC system back to the public pension system (eg, in Hungary and Slovakia).

These policy changes usually have the objective of addressing the short-term budgetary concerns of governments—ie, instead of directing social security contributions to the private pension sector, the funds can be counted as part of the government budget. However, such a response constitutes a short-term political reaction that may well be based on flawed economic reasoning. There is no ‘free money’ in the system, and any short-term benefits to the budgetary situation will come at a cost to future generations. By reversing some of the structural reforms that led to the introduction of the private pension system, such policies also risk unsustainable public finances going forward. While they may help in addressing some of the perceived ‘unfairness’ of current pension outcomes, they raise questions about inter-generational ‘fairness’.

The second response available for policy-makers who want to reduce investment risk exposures for individuals is simply to impose investment restrictions that result in a more conservative investment strategy (eg, requiring the pension portfolio to be predominantly invested in government bonds), or to impose minimum return guarantees. Several of the mandatory pension funds in CEE are already subject to tight investment

restrictions and return guarantees, and there have been signs of political pressure to further tighten those rules. The problem is that such regulation results in pension investment that can be excessively conservative or inappropriate given the long-term horizon that characterises pension investment. The cost of reducing the year-to-year volatility of accumulated retirement wealth can be the significantly lower average size of that pension pot. The number of times that retirees will be absolutely better off as a result of these types of restrictions may be very small, but the group of retirees taken as a whole can be considerably worse off. Put differently, to achieve the same average pension pot, retirees may have to contribute considerably more of their earnings prior to retirement.

In addition, some investment restrictions—including cross-border restrictions—are likely to be inappropriate for countries with relatively small national capital markets. They prevent efficient portfolio diversification and can result in more costly pension provision in the long term.⁶

Concluding remarks

Downturns in capital markets can have damaging effects on private pension funds and retirement wealth, and the recent crisis certainly has had severe consequences in this regard. However, pensions are for the long term, so it is important to strike the right balance between short-term risk and long-term pension objectives, and to avoid short-term policy reactions that are overly costly in the long term.

If it is accepted that, overall, pension policy cannot be based on the benefit of hindsight and the ability to time the market, the critical issue is the performance of long-term investment strategies and not the impact of short-term volatility in any one time period.

Policy-makers may be tempted to impose rules that limit short-term volatility and investment risk. However, quantitative investment restrictions and minimum return guarantees come at a cost, and there are corresponding benefits of a pension investment framework that is instead based on prudent-person principles.

More fundamentally, a shift away from funded private pensions back to a system of public pay-as-you-go pensions cannot be the economic answer to effective retirement provision for the long term. The challenge, including for pension providers, is to help restore the confidence of consumers in capital markets and in private pensions.

¹ Oxera (2009), 'Defined-benefit Pension Plans: Defining the Cost', *Agenda*, December. Available at www.oxera.com.

² For a discussion on risks in DC schemes, see Oxera (2008), 'Defined-contribution Pension Schemes: Risks and Advantages for Occupational Retirement Provision', prepared for the European Fund and Asset Management Association. Available at www.oxera.com.

³ The article extends and updates two previous *Agenda* articles: Oxera (2008), 'Time and Timing in Capital Markets: Implications for Pensions Investment', *Agenda*, October, and Oxera (2008), 'The Shift towards Defined-contribution Pensions: Are the Risks Overstated?', *Agenda*, February. Available at www.oxera.com.

⁴ See also Oxera (2008), 'Time and Timing in Capital Markets: Implications for Pensions Investment', *Agenda*, October. Available at www.oxera.com.

⁵ For a full description of the simulation approach, see Oxera (2008), 'Defined-contribution Pension Schemes: Risks and Advantages for Occupational Retirement Provision', prepared for the European Fund and Asset Management Association. This model has been updated to include 2008 and 2009 data.

⁶ For a detailed discussion of the impact of pension investment restrictions, see Oxera (2007), 'The Effect of Cross-border Investment Restrictions on Certain Pension Schemes', prepared for the European Commission (DG Internal Market and Services). Available at www.oxera.com.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email g_niels@oxera.com

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