



## IMPROVING PENSION PLAN DESIGN:

### RETHINKING RISK-SHARING

*“The added value of risk-sharing among generations in pension funds has been systematically overestimated.....”.*

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#### The Failure of Risk-Sharing across Generations

The quote above comes from an IPE article on a new study from the Dutch pensions think-tank *Netspar*, conducted by academics Bonenkamp, Broer, and Westerhout. Their paper is currently only available in Dutch, but will hopefully be soon translated into English.<sup>1</sup> Here are the essential messages in the paper:

- The historical literature suggests the value-added of intergenerational risk-sharing in pension arrangements in the 5%-20% range by providing insurance against financial markets ‘draw-down’ or ‘sequencing’ risk, compared to arrangements without this feature (e.g., plain-vanilla DC plans).
- However, these prior studies made a series of unrealistic assumptions about the dynamics of financial markets, about the mechanics of intergenerational risk-sharing arrangements, and about the DC plan alternatives.
- When more realistic assumptions about financial market dynamics, about risk-sharing protocols, and about using smart DC (rather than plain-vanilla) plan alternatives are made, the theoretical value-added potential of intergenerational risk-sharing effectively disappears.

Readers of this publication know that we have long been skeptical about the value-adding

prospects of intergenerational risk-sharing in workplace pension plans. The reasons have had the same basis as that of the *Netspar* researchers: while there may be theoretical conditions under which intergenerational risk-sharing is value-adding, those conditions are impossible to achieve in the real world of workplace pension plans.

However, rather than employing the mathematical approach of the *Netspar* researchers to assess the value-adding prospects of intergenerational risk-sharing, our own skepticism has been based on the logic of game theory. Simply put, in pension bargaining situations where one group of bargaining participants is not at the table (i.e., future generations of workers and taxpayers), any bargain struck is likely to short-change those absent groups.

The first decade of the 20th Century offered a good testing ground for the ‘no value-added’ hypothesis of intergenerational risk-sharing. At its start (i.e., in 2000), DB plans sported healthy balance sheet surpluses after two decades of extraordinary equity market returns. By the end of the decade (i.e., in 2010), those balance sheets surpluses had become deficits. How did this happen? Because those responsible for the financial management of DB plans convinced themselves in 2000 that we had entered a new world of permanently high returns, and that we could spend the accumulated surpluses on increased pension benefits and lower contribution rates. And so it was done.

As a result, when the successive blows of the Dot.Com Bust (DCB) and the Global Financial Crisis (GFC) struck, the 'rainy day' surpluses that could have protected future generations of workers and taxpayers from lower benefits and higher contribution rates were no longer there. Not surprisingly, the now-required decisions to lower benefits and/or raise contribution rates are largely being left for future generations to sort out.

### **The Merits of Risk-Sharing within Generations**

While risk-sharing across generations is fraught with theoretical and practical difficulties, this is much less the case with risk-sharing within generations. As we have pointed out in previous *Letters*, the obvious example is longevity risk. Imagine a large group of 65-year-olds with an average life-expectancy of 20 years. However, around that 'target' life-expectancy to age 85, some of these 65-year-olds will die after only a few years while others will live well into their 90s. This reality is the basis for a logical insurance arrangement, assuming the distributions of key mortality rate factors (e.g., age, gender, health) for the group are known.

Consider the following simplified example involving three 65-year-olds. Their average life-expectancy is 20 years, but one is going to die at age 75, one at age 85, and one at age 95. The problem is that at age 65, they don't know which of the three is going to live 10 years, 20 years, and 30 years. How should they have planned for financing their retirement? Without risk-sharing and being rational, each should assume s/he is going to be the person living 30 years, and save accordingly. As a consequence, they collectively save too much (i.e., only one of the three needs to save for 30 years of living, the other two for only 20 and 10 years respectively).

How to solve their over-saving problem? By pooling their longevity risk. Now they draw up a contract that all three will contribute enough money in a collective pot to support 20 years of living, and that whoever dies at age 75 has no recourse to the money remaining in the pot. It is this 'extra' money that will support the longest survivor in the group from age 86 to age 95. Putting some numbers to this simplified example, assume the three will receive \$20K/yr. from a

universal government Pillar 1 pension arrangement, and that they need an additional \$20K/yr. to maintain their standard of living. In a zero inflation/zero return environment and without longevity risk-pooling, each would have to save \$600K on their own over the course of their working lives (i.e.,  $30 \times \$20K$ ). With longevity risk-pooling, the savings target reduces to \$400K (i.e.,  $20 \times \$20K$ ), a 1/3rd reduction. This is surely an attractive proposition for retirement savers!<sup>ii</sup>

### **Implications for Pillar 2 Plan Design**

Let us return for a moment to the earlier intergenerational risk-sharing topic, and its goal of mitigating the impact of price volatility in financial markets. Draw-down (or 'sequencing') risk in financial markets is a very real phenomenon. Nobody wants to be selling while financial market prices are falling precipitously. If intergenerational risk-sharing in Pillar 2 pension plans is not the right strategy to mitigate the reality that market prices do occasionally fall precipitously (e.g., witness the DCB and the GFC of the previous decade), are there alternatives? Three mutually-supporting strategies come to mind.

All three are based on the implication of Pillar 2 pension plans having two goals: 1. Supplemental (to Pillar 1) pensions at affordable contribution rates by compounding high rates of return over long periods of time, and 2. Lifetime post-work income with reasonable predictability. Invoking the Tinbergen Principle, the implication is that achieving these two goals efficiently will require two instruments: one that focuses on long-term return generation, and another that focuses on lifetime post-work income generation. Invoking the Samuelson-Merton Life-cycle Model of personal finance, people accumulate retirement savings at the highest possible return while they work, and decumulate them with the highest possible degree of safety in the post-work period of their lives.

In this context, three strategies to mitigate draw-down (or 'sequencing') risk are:

1. Control the price volatility of the LT Return-Generation Portfolio: other things being equal, low volatility stocks should be favored over high-volatility stocks, and higher-yielding real estate and infrastructure investments should be

avored over lower-yielding ones; factor-based diversification strategies should be used in addition to geographic- and asset class-based ones.<sup>iii</sup>

2. Design a gradual exposure transition from the LT Return-Generation Portfolio to the Lifetime Income Portfolio: for example, the default design of the transition mechanism for plan participants could gradually shift exposure from the LT Return-Generation Portfolio to the Lifetime Income Portfolio over a 20-year period (e.g. between ages 50-70). By design, this strategy naturally mitigates against concentrated draw-down risk.
3. Dynamic asset allocation: adjusting the default design of the transition mechanism from the LT Return-Generation Portfolio to the Lifetime Income Portfolio based on financial markets pricing judgements. For example, simple arithmetic showed that the late-1990s was a good period to accelerate the transition process from equities to bonds. Similarly, the last few years has been a good period to slow the transition process from equities to bonds. Stating the obvious, managing these kinds of adjustment processes require steady nerves, great communication skills, and a high level of member trust.

Is the global pension ‘industry’ ready for this kind of rethinking of pension design and management? That is the question addressed next.

### **Innovation Evidence from around the World**

Australia’s Pillar 2 superannuation system offers an important case study on the ‘rethinking pension design and management’ question. Since its inception in the early 1990s, it has essentially been a DC system, with members receiving the accumulated lump sum of ‘super’ savings upon retirement. This practice is now under review, with the longevity risk question foremost in mind. We noted in our June 2014 *Letter* that the *QSuper* organization has been one of the thought-leaders in this review.

Historically, like other Australian super funds, *QSuper* managed its DC plan assets with a standard equity-bond asset mix, into which 90% of plan participants defaulted. Some years ago, *QSuper* came to the view that this approach fell short of a 21st Century interpretation of its

fiduciary obligation to members. A multi-year transition plan was developed with the following five key elements:

1. Move away from the traditional ‘one size fits all’ delivery model to one which recognizes differences in individual member needs based on such factors as age and account balance size. These factors can be combined into changing risk appetites and exposures over time.
2. Move towards providing members with pension targets and regular progress reports on where they stand in the accumulation phase of their journey towards a pre-set post-work pension target. Offer members tools and advice that guides them towards achieving their target.
3. Upgrade the choices in the decumulation phase of the lifecycle journey by including a longevity protection purchase option.
4. Dynamically adjust the pension design default settings based on the organization’s best professional assessment of asset pricing conditions and other relevant socio-economic considerations over time.
5. Reset the asset management program to focus on long-horizon wealth-creation in both public and private markets. Signal this intent by dropping out of participation in short-horizon performance ‘league tables’ competition set up in super fund space.

Taken together, these five *QSuper* initiatives are very much in line with the logic set out in this *Letter*.

The UK’s National Employment Savings Trust (*NEST*) offers yet another important case study on the ‘rethinking pension design and management’ question. The goal of the organization is to provide UK workers without a Pillar 2 pension plan an opportunity to join one. The lever is to require employers not offering their own Pillar 2 pension plan to enrol their employees in *NEST*. Employees can choose to opt out if they wish. After some three years of experience, some 92% of enrollees have chosen to stay in the plan.

Meanwhile, *NEST*’s plan design continues to evolve. Priority #1 was to create a LT Return Generation Portfolio for the accumulation phase

along the lines set out in this *Letter*. Design attention has now shifted to the decumulation phase. What features did participants want built into the design of the decumulation phase of the program? Interactive communications with newly-enrolled participants produced the following wish-list: longevity risk protection, inflation protection, and a lump sum component for personal use while alive and leaving bequests after death. The *NEST* organization is now busy converting this wish-list into a Lifetime Income Portfolio design.

Governments in Canada and the USA have begun to see the lack of Pillar 2 plan coverage in their private sector workforces as a public policy issue as well. So, for example, the Province of Ontario has launched the Ontario Retirement Pension Plan (*ORPP*) initiative. A number of state governments in the USA have launched their own versions. These initiatives can learn much from the *NEST* experience.

### The Special Case of the Netherlands

The national Pillar 2 pension design challenge in the Netherlands is not the Australian case of adding a design feature (i.e., longevity risk pooling), but of dropping one (i.e., intergenerational investment risk pooling). Psychologically, it is far easier to add a design feature than to drop one, especially one that appeared to symbolize the proud Dutch cultural trait of ‘solidarity’.

However, the case against enforced intergenerational risk-sharing in the oxymoronic Dutch Collective Defined Contribution (CDC) plans continues to build. It started in earnest when the 2008/9 GFC punched serious holes in the balance sheets of many CDC plans. What to do in a situation where there is not enough money to meet the accrued pension promises, and where contribution rates are pre-defined? The hard answer was never clearly communicated to plan participants: benefits have to be cut and balance

sheet risk has to be reduced, which in turn reduces future return prospects. These difficult decisions continue to reverberate through the Dutch national psyche.

At the same time as these events were unfolding, the Dutch academic and professional communities have been reaching consensus that while intergenerational risk-sharing might work in theory, it does not work in practice.<sup>iv</sup> The new research findings cited in this *Letter* by Bonenkamp, Broer, and Westerhout hammer yet another nail in the intergenerational risk-sharing coffin. Thus the debate in the Netherlands has largely shifted to how to move from the dysfunctional CDC pension model to new designs with separate LT Return Generation and Lifetime Income components.

Will the Dutch continue to be the lead innovators towards sustainable, 21st Century pension models?<sup>v</sup> Likely, next year will tell the tale.



#### Endnotes

- i. For readers with a sense of humour, ask Google for an electronic English translation of the paper “Intergenerationele Risicodeling in Collectieve en Individuele Pensioencontracten”. The result is funny, but sadly, also mostly nonsensical.
- ii. To explain the essential basis of within-generation risk-sharing, we used a simplified three-person model where all three had the same life-expectancy. Designing and managing a ‘real world’ version of such a model raises a number of additional important issues that would need to be addressed. For example, we know that, on average, women live longer than men and that high-income/high education earners live longer than low-income/low education earners. Arguably, such factors should be taken into account in pricing the life annuities in the risk-sharing pool if cross-subsidies are to be avoided.
- iii. See a new position paper titled “QSuper Investment Philosophy and Strategy” for an elaboration on these ideas.
- iv. Even the regulator DNB has joined in. See *DNBulletin* dated 15 Jan. 2015.
- v. See Ambachtsheer (2014), “Taking the Dutch Pension System to the Next Level: A View from the Outside” for more on this.

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