

Are Defined Contribution Pension Plans Fit For Purpose In Retirement?

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I. INTRODUCTION

The Australian superannuation system¹ has primarily had a “lump sum” approach to retirement, as distinct from a “replacement rate” or lifetime income stream approach.² After all, superannuation in Australia is primarily a defined contribution (DC) system under which the retirement benefit payable on retirement is a factor purely of the employee’s own contributions (and those made by employers on the employee’s behalf) as increased by the net investment returns attributable to the employee, less tax. Like the United States, Australia is now realizing the limitations of a DC retirement system insofar as it relates the provision of reliable retirement income for a population with increasing life expectancy.

In Australia, the core DC retirement plan product is called an account-based pension. This is a bit of a misnomer because it is only a “pension” because the legislators decided to give it that name. It is really just a mutual fund account that allows retirees to draw out, usually via a regular payment, their retirement savings to live on. Withdrawals are tax-free. Like in the United States, there is a minimum amount that must be drawn out each year to prevent perpetual exclusion of the balance from

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1. The superannuation system is Australia’s “second pillar” retirement plan or private pension system.

2. The lump-sum approach was adopted despite recommendations in the *Final Report of the National Superannuation Committee of Inquiry (Hancock Report)* in 1976 that there be a compulsory National Superannuation Scheme that would involve a purchased pension. The *Hancock Report* recommended weekly payments available upon reaching age sixty-five based on a multiple of paid-in contributions. The report was rejected by the Fraser government in 1979. A task force was then formed to examine occupational superannuation and participation by the union movement. In 1983, the Commonwealth Task Force on Occupational Superannuation recommended a regulatory framework for the superannuation industry, proposals for vesting and preservation requirements, and proposals to encourage annuity purchase. COMMONWEALTH TASKFORCE ON OCCUPATIONAL SUPERANNUATION (AUSTRALIA), FINAL REPORT OF THE COMMONWEALTH TASK FORCE ON OCCUPATIONAL SUPERANNUATION, JANUARY 1983 (1982).

the taxation system. Unlike the United Kingdom, there is no limit to the amount that can be drawn out and hence no guarantee that the money will last.

Unlike DC plans, defined benefit (DB) plans provide a benefit based typically on time served and a predetermined proportion of either career average or final salary.

Towers Watson's 2013 *Global Pension Assets Study* shows that DC assets represent about 45% of total pension assets globally but are growing at an annual rate of about 8%, compared to a 6.6% growth rate for DB assets.³ In Australia, DC assets represent over 80% of pension assets.⁴

So what is wrong with DC retirement plans? First and principally, the problem is that DC plans are not designed to produce a particular level of income in retirement, but just a terminal capital sum the size of which is subject to a range of uncertainties. Second, DC plans expose members to a much higher degree of risk than DB plans. Lastly, their individualized, rather than pooled, design can lead to a range of inefficiencies. The result is that DC plan contributors often fall short of their financial goals in retirement. According to the Organization for Economic Co-operation and Development (OECD), workers contributing a total of 10% to DC pension plans for 40 years only have a 53% chance of targeting 70% of their final salary.⁵ At a 5% contribution rate, only 14% of retirees reach that target.

DC plans often lack a clearly stated goal that allows contributors to measure their progress toward a secure retirement. There is a tendency for DC plans, particularly in compulsory systems, to set a goal of building up a lump sum. For most retirees, their lump sum is not inherently suited to ensuring financial security in retirement. Retirees find it difficult to estimate how much they can spend each year to fund a retirement of an indeterminate length. The Australian system makes sense of this difficulty by using averages: average length of retirement, average investment returns, and average rate of consumption. The trouble is that almost nobody has an "average" retirement. It is a highly individualized experience.

3. *Global Pensions Assets Study 2013*, TOWERS WATSON, 37 (Jan. 31, 2013), <http://www.towerswatson.com/en-ZA/Insights/IC-Types/Survey-Research-Results/2013/01/Global-Pensions-Asset-Study-2013>.

4. *Id.*

5. OECD, DESIGN AND DELIVERY OF DEFINED CONTRIBUTION (DC) PENSION SCHEMES—POLICY CHALLENGES AND RECOMMENDATIONS 7 (2013) (U.K.), available at <http://www.oecd.org/da/fin/private-pensions/DCPensionDesignHighlights.pdf>.

Retirees face financial risks that are difficult to manage without specialized and sophisticated products. Central to the idea of a DC retirement plan is the idea that asset allocation can address all of the needs of the retiree.⁶ In reality, there are risks facing retirees that are very difficult to ameliorate without using products that are specifically designed to deal with them. Such specialized products include a guarantee to protect against loss of capital or income, an indexed income stream to deal expressly with inflation, and a lifetime annuity to deal with longevity risk. All of these products involve some form of absorption of risk by intermediaries external to the DC plan itself or by the plan sponsor using its own balance sheet.

DC plans rest on a theory of consumer sovereignty. Success in a DC plan depends on the contributor making informed choices and demonstrating rational behavior. In the real world, information asymmetry, issues with financial literacy, and innate behavioral biases, often make it hard for the consumer to achieve any degree of “sovereignty.” The result is a system heavily reliant on (potentially conflicted) agents.

DC plans also tend to be more expensive to run than DB plans. The individualization that is central to the operation of DC plans means that they cannot easily pool risk. DC plans, therefore, typically accept less risk and hence receive lower average returns, particularly after investment and administration expenses.⁷

Lastly, in Australia there is no insurance scheme or government guarantee protecting DC plan members in the event of failure, except in the case of fraud where the government has discretion to compensate a plan to restore loss if it is in the public interest.⁸

A successful and sustainable DC system must address the shortcomings of DC plans. A properly integrated retirement plan should seek to protect contributors from three key financial risks: inflation, deviation from expected outcome, and longevity. This Article considers the historical basis for the shift from DB to DC plans, the structural and practical shortcomings of DC plans, alternate pension models, and adjustments to existing retirement plan models that may offer a degree of protection to plan contributors.

6. Following the famous modern portfolio theory and related concepts first outlined by Harry Markowitz in 1952. See Harry M. Markowitz, *Portfolio Selection*, 7 J. FIN. 77 (1952).

7. Beth Almeida & William B. Fornia, *A Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Pension Plans*, NAT'L INST. ON RETIREMENT SECURITY, 12 (Aug. 2008), <http://www.nirsonline.org/storage/nirs/documents/Bang%20for%20the%20Buck%20Report.pdf>.

8. *Superannuation Industry (Supervision) Act 1993* (Cth) pt 23 (Austl.).

II. HISTORY OF DEVELOPMENT OF DC PLANS

How did DC plans become such a large part of the global pension system? DB plans were once widespread; employers contracted to provide a set amount (the “defined benefit”) for the duration of the employee’s retirement. However, governments and corporations around the world realized that retirement is expensive and making concrete promises about paying people in retirement is even more expensive. There are countless examples where the corporate pension plan became the core business—or brought down the business altogether—due to problems with funding liabilities.⁹ Many governments had the same experience, with Greece being the latest example. Systematically, it became obvious that taking on market, inflation, and longevity risk for people in retirement was simply too risky other than for specialist asset managers.

In the face of failing DB plans, DC seemed like the perfect solution. The risks inherent to retirement planning can be made to look like they are not even present in a DC plan. Because the typical DC plan does not aim to provide the retiree with a particular level of income, there is no target from which there can be a shortfall.¹⁰

DC plans also allowed providers to transfer longevity risk¹¹ to plan participants. While DB plans pool longevity risk, DC plans leave it to individual participants to deal with. This forces each contributor to self-fund his retirement income. Contributors can be thought of as small insurance companies taking on their own longevity risk without the capital or the skills to do so.

III. COMPARISON TO DB PLANS

Amid the global trend of transitioning from DB to DC plans, there are many vocal proponents of one system over the other. Proponents of each system base their conclusions on different measures of success. The reality is that each system has its own advantages and disadvantages. Keith Ambachtsheer, a leading pension expert from Canada, made the point that both structures are flawed, and in his view, there is a desperate need for a fresh design for approaches within the pension sector.¹² While

9. See Ashby H. B. Monk & Gordon L. Clark, *The “Crisis” in Defined Benefit Corporate Pension Liabilities: Current Solutions and Future Prospects*, UNIV. OXFORD, 6 (June 8, 2006), <http://economics.ouls.ox.ac.uk/13760/1/wpg06-10.pdf>.

10. This is, of course, a fiction because the present value of a person’s future cash flow needs in retirement, for a given standard of living, can be worked out to a reasonable degree of certainty using various assumptions.

11. Longevity risk is the financial risk of outliving your savings.

12. Keith Ambachtsheer, *The Dysfunctional “DB vs. DC” Pensions Debate: Why and How to Move Beyond It*, ROTMAN INT’L J. PENSION MGMT., Spring 2012, at 36.

the economy may not be able to afford the promises made through a DB system, neither can the members of a DC plan take any real comfort from the building of assets without a specific goal for those assets.

In considering whether or not DC plans are suitable for retirement income purposes, it is important to remember that both DB and DC systems are flawed. We should not be asking whether or not DC plans can replicate DB plan outcomes; rather, we should ask whether DC plans can deliver what their members require. That is, can DC plans deliver a reliable stream of income in retirement to meet the needs of entire cohorts of retirees?

Part of the problem with DC plans can be traced to the transition from DB to DC plans. The conversion from DB to DC required a calculation of a lump-sum amount that was the present-day equivalent of the future benefits that had already been accrued by the member. The method used to convert DB plan members to a DC plan has become the (default) objective of the DC plan. While the DB was focused on the benefit (the ultimate income payments), the DC metric now focuses on the dollar balance that is accrued. In general, DC plans focus on this target balance at retirement. Even in Australia, where the contribution rate is currently mandated as 9.25% of a salary, increasing to 12% by fiscal year 2022, the focus of the system is the balance at retirement, not what level of income the retiree is going to need in retirement or how much reliable annual income that balance can produce. The problem is that meeting this target balance at retirement does not in itself guarantee the retiree an adequate income stream. A recent survey in the United States found that only 46% of workers have tried to calculate how much money they will need to have saved by the time they retire.¹³

IV. RETIREMENT

A discussion of appropriate goals for a retirement income system must consider the evolution of the concept of retirement. Since Bismarck first introduced the idea of a pension for workers in the 1880s, conditions and expectations have changed. While the original pensions were intended as a reward for surviving military service, Bismarck introduced the concept that workers could still get paid if they stopped working due to old age. Workers became eligible for a pension at an initial age of seven-

13. Ruth Helman et al., *The 2013 Retirement Confidence Survey: Perceived Savings Needs Outpace Reality for Many*, EMP. BENEFIT RESEARCH INST. (Issue Brief No. 324, Washington D.C.), Mar. 2013, available at http://www.ebri.org/pdf/briefspdf/EBRI_IB_03-13.No384.RCS.pdf.

ty years. Given the likely life expectancy¹⁴ of the era, Bismarck's pension plan covered only a small proportion of the population. Improvements in health, leading to increased longevity, have changed the concept of retirement. It is no longer a lucky few that will finish their life at leisure, but it is the majority who expect to have a period of their lives in retirement where they will still be healthy and active.

It is this expectation of a healthy, active period of leisure that a DC plan is required to meet. Central to the modern-day concept of retirement is the need for a regular income that covers the expenses of the active, passive, and frail stages of a retiree's life.¹⁵ After referring to those differing requirements in a speech to the Association of Superannuation Funds of Australia annual conference in 2012,¹⁶ former Australian Prime Minister, the Hon. Paul Keating, made the point that Australia's superannuation system, like many DC plans, was never designed to create income in retirement, but instead was intended to provide a supplement for retirees. Given modern-day circumstances and expectations, the appropriate goal of a DC retirement plan should be the provision of an adequate level of income, in conjunction with whatever social security is available, across the different stages of retirement.

Considering the shortcomings of Australia's current DC system, Keating posited an alternative where the public sector takes control of the longevity phase by running a funded DB scheme for the provision of a deferred lifetime annuity or something similar. With the government wearing the residual longevity risk of such a scheme, it does not sound like a real solution to the problem. Instead, adjustments to superannuation should be considered so that it can retain its DC nature and yet deliver the required retirement income. Any approach to guarantee a person against a specific risk, or in this case the combination of longevity and inflation risks, will have a cost. One way to ensure that the cost can be managed sustainably is to use a price mechanism around the cost of that guarantee. This is a potential development in the DC framework that is explored further below. Before considering alternatives, however, it is

14. By way of example, Australian life expectancies at birth in 1889 were 47.2 years for males. *Australian Historical Population Statistics, Table 7.1: Life Expectancy at Birth by Sex, States and Territories, 1881 Onwards*, AUSTL. BUREAU STAT. (Aug. 5, 2008), <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3105.0.65.0012008?OpenDocument> (download data cube 7 labeled "Life Tables").

15. Tim Higgins & Steven Roberts, *Financial Wellbeing Actions and Concerns—Preliminary Findings from a Survey of Elderly Australians*, INST. ACTUARIES AUSTRALIA (Apr. 2011), <http://www.actuaries.asn.au/library/events/Conventions/2011/FinancialWellbeing-Paper.pdf>.

16. See Paul J. Keating, *We're Living Longer and So Should Our Superannuation*, CUFFLINKS (Feb. 23, 2013), <http://cufflinks.com.au/for-four-score-years-and-more-a-government-run-annuity-scheme/>.

necessary to consider traits of successful pension plans as well as the structural and practical flaws in the current DC system.

V. GLOBAL APPROACHES

To meet the objective of providing an adequate level of income across the various stages of retirement, DC plans must integrate several strategies. In June 2012, the OECD Working Party on Private Pensions issued a ten-point roadmap for the good design of DC pension plans, summarized as follows:

1. Ensure the design of DC pension plans is internally coherent between the accumulation and payout phases, and with the overall pension system.
2. Encourage people to enroll, to contribute, and contribute for long periods.
3. Improve the design of incentives to save for retirement, particularly where participation and contributions to DC pension plans are voluntary.
4. Promote low-cost retirement savings instruments.
5. Establish appropriate default investment strategies while also providing choice between investment options with different risk profiles and investment horizons.
6. Consider establishing default life-cycle investment strategies as a default option to protect people close to retirement against extreme negative outcomes.
7. For the payout phase, encourage annuitization as a protection against longevity risk.
8. Promote the supply of annuities and cost-efficient competition in the annuity market.
9. Develop appropriate information and risk-hedging instruments to facilitate dealing with longevity risk.
10. Ensure effective communication and address financial illiteracy and lack of awareness.¹⁷

Australia scores about six or seven out of ten on these measures, with the key deficiencies being in the payout phase. This does not mean that the Australian system is broken, just that it has a way to go in its evolution. Australia, like other countries that rely heavily on DC plans, is

17. OECD, *PENSIONS OUTLOOK* (2012).

partway down the track of turning a lump-sum DC savings system into a retirement income system.

VI. SIMILAR SITUATION IN THE UNITED STATES

In the United States, as in Australia, DC plans are widely used and are often inadequate for the needs of retirees. 401(k) plans, popular DC plans that have been operating in the United States since the early 1980s, were only ever intended as a lump sum supplement, not to provide retirement income streams.¹⁸ The contribution cap, currently \$17,500 per annum, and lack of compulsion—employee participation is voluntary—mean 401(k)s are generally incapable of providing the main source of retirement income. A typical household where the head was aged fifty-five to sixty-four had only \$42,000 in a 401(k)-like plan in 2010, according to a recent report.¹⁹

As in Australia, some critics of DC plans in the United States propose an increased government role. Teresa Ghilarducci,²⁰ a U.S. academic, describes 401(k) plans as a “failed experiment”²¹ and advocates a government scheme that would guarantee a rate of inflation, plus 3% in retirement.²² However, a rosier picture is painted by the mutual fund industry; the Investment Company Institute titled its 2012 report *The Success of the U.S. Retirement System*.²³

Despite conflicting views of the 401(k) system in general, some DC plans in the United States are highly evolved. The Thrift Savings Plan (TSP) is a DC plan for civilians who are, or were, employed by the government and for members of the uniformed services. The TSP has around \$300 billion in net assets, with approximately 4.5 million members. TSP uses a passive management strategy (currently using BlackRock as asset manager) by investing in various U.S. and global equity indices and in

18. The common way of describing popular, but non-mandatory, tax-deferred workplace DC pension plan accounts.

19. Alicia H. Munnell, *401(k) Plans in 2010: An Update from the SCF*, CTR. RETIREMENT RES. BOSTON COLL., July 2012, at 1, available at http://crr.bc.edu/wp-content/uploads/2012/07/IB_12-13-508.pdf.

20. Teresa Ghilarducci is the Irene and Bernard L. Schwartz Chair of Economic Policy in the Department of Economics at The New School for Social Research in New York.

21. Teresa Ghilarducci, *Why the 401(k) Is a “Failed Experiment,”* PBS FRONTLINE (Apr. 23, 2013), <http://www.pbs.org/wgbh/pages/frontline/business-economy-financial-crisis/retirement-gamble/teresa-ghilarducci-why-the-401k-is-a-failed-experiment/>.

22. *Guaranteeing Retirement Income*, SCHWARTZ CTR. ECON. POL’Y ANALYSIS BLOG (Oct. 6, 2013, 3:53 PM), <http://www.economicpolicyresearch.org/index.php/guaranteeing-retirement-income>.

23. PETER BRADY, KIMBERLY BURHAM & SARAH HOLDEN, INV. CO. INST., *THE SUCCESS OF THE U.S. RETIREMENT SYSTEM* (2012), available at http://www.ici.org/pdf/ppr_12_success_retirement.pdf.

fixed interest. The TSP charges ultra-low fees to its members, being around 2.5 basis points (i.e., 0.025%) a year.

Even with these strengths, the TSP falls down where most DC funds do in that it does not provide a pension in retirement, but only a lump sum that either has to be judiciously drawn down for consumption or separately transformed into a lifetime income stream via an intermediation with a third party (e.g., a life insurance company). In other words, the TSP suffers from the existential criticism of DC plans: it is a savings plan, as its name suggests, and not a retirement plan.

VII. “WEALTH MANAGEMENT” CONCEPTION OF THE RETIREMENT CHALLENGE

Another way of approaching the problem with DC plans is to say that they essentially flow from a conception of the retirement challenge as one of “wealth management.” The justification for the wealth management approach is that the average person will spend a long time in retirement and thus needs exposure to growth assets. Retirement, however, is about creating spendable income and managing some specific risks that are more acute in retirement: inflation, longevity risk, and market risk. Wealth management ignores the impact of volatility in retirement. A 7.5% return with a standard deviation of 20% a year gives a retiree the same outcome as a constant return of 5.9%. DC plans spend too much time chasing the more volatile return in retirement. Interestingly, this is not what retirees actually want. Recent research carried out by National Seniors Australia suggests that retirees want much lower levels of risk in retirement.²⁴

Steering the financial services industry in Australia and elsewhere away from this wealth management paradigm will involve a big change in attitude. Using the idea often attributed to Peter Drucker that “what is measured improves,”²⁵ the DC industry does not know how to measure success in retirement. Despite retirees’ desire for low risk, the industry is still using league tables of the highest (non-risk adjusted) investment returns to measure a good retirement plan. Following Drucker’s logic, we must work out a better way of measuring a good outcome in retirement, and then we can start managing for those outcomes.

24. NAT’L SENIORS AUSTRALIA & CHALLENGER, RETIREES’ NEEDS AND THEIR (IN)TOLERANCE FOR RISK (2013), available at http://nationalseniors.com.au/sites/default/files/Retirees_Needs_Tolerance_For_Risk.pdf.

25. Peter F. Drucker (1909–2005) was an Austrian-born management consultant.

VIII. SUCCESS AND FAILURE

The traditional goal of a DC plan is to accumulate as many assets as possible, with minimal outgoings and an optimal level of volatility, to create the largest possible pool of savings. This provides a clear success measure—the investment return performance league table—and also clear options to improve the ultimate outcome, including asset allocation, saving more, reducing fees, minimizing taxes, and contributing (working) for longer, right down to the typical competition to get better investment returns. The financial services industry is well accustomed to working in this paradigm.²⁶

The goal for retirees, however, is not to accumulate the largest pool of savings at retirement, but to have income that meets their needs during retirement. In retirement, typically, there are four forms of expenditure to plan for:

1. Everyday living costs, which require predictable and regular cash flows;
2. Discretionary, emergency or otherwise, “lumpy” expenditures;
3. Expenditure beyond life expectancy, which itself is only an expectation based on averages; and
4. Bequests to the next generation.

In addition, during retirement there are increasing needs around the liquidity and security of the investments to address both increased loss aversion and also the fact that the retiree is living off the portfolio. From the point of view of the investor, success involves meeting all of these objectives.²⁷

Measuring success in DC plans is more complicated than simply measuring the sum accumulated at retirement. Sequencing risk²⁸ will produce some situations where higher investment returns fail to deliver the objectives, while lower returns deliver a financially successful retirement because losses are avoided and compounding of capital contin-

26. See Jason S. Stock, William F. Sharpe & John G. Watson, *The 4% Rule—At What Price?*, 7 J. INVESTMENT MGMT. 31 (2009) (discussing the different costs associated with failure and the surplus with success for a retiree following a simple plan).

27. A discussion of some of these objectives in an Australian context can be found in Russell Investments, *Retirement Solutions I: Gaps in the State of the Art*, RUSSELL (Apr. 2012), <http://www.russell.com/AU/institutions/our-research/russell-research/video.asp?height=470&width=640>.

28. Sequencing risk arises because accumulating savings is path dependent. The path or sequence of investment returns can have a dramatic effect on the eventual amount saved. For this reason, two retirees making exactly the same contributions can have had the same overall average investment returns over their lifetime, but end up with very different balances.

ues to occur.²⁹ The complexity of measuring success in DC plans may be a key factor in the difficulty the Australian super industry is experiencing in meeting the challenges presented.

IX. RETIREE BEHAVIOR

A further challenge to DC plans is that their success is dependent upon retirees making sound financial choices. When people consider an immediate good (e.g., more spending) against a potential future negative (e.g., running out of money), all the evidence points to poor choices being made because of people's internal framing mechanisms. People tend to apply far too high a discount rate to the value of future income.

Additionally, DC retirement plans demand that retirees make complex financial decisions that they are often poorly prepared to make. It is a curious feature of Australia's superannuation system that a person can spend her working life in a default retirement plan and then, at retirement, be required to make complex decisions about the sustainability of savings, inflation and the future value of money, investment risk, and budgeting without a regular wage.³⁰

The complexity of the decisions that retirees must make, along with other behavioral issues that people exhibit when dealing with the financial aspects of retirement,³¹ highlights the need to have a more rigorous approach either to the design of retirement products into which DC plan savings are invested or to advice about those products.

X. PRODUCT SHORTCOMINGS: ADDITIONAL BURDEN ON THE SYSTEM

Just as the pure DC model—where there is no intermediation or insurance of risks in retirement—places an undue burden on plan contributors, it also places a disproportionate burden on plans and advisers. In the pure DC model, advisers must make difficult and complex assessments about the durability of retirees' savings and the ultimate outcomes they are likely to experience. How long a retiree's savings might last depends on assumptions about market returns, longevity, and the spending budg-

29. Stock, Sharpe & Watson, *supra* note 26, at 39 fig.1 (providing a graphical representation).

30. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-11-400, SPECIAL COMMITTEE ON AGING: ENSURING INCOME THROUGHOUT RETIREMENT REQUIRES DIFFICULT CHOICES (2011), available at <http://www.gao.gov/assets/320/319385.pdf>.

31. See Olivia Mitchell & Stephen Utkus, *Lesson from Behavioural Finance for Retirement Plan Design*, (Pension Research Council Working Paper No. 2003-6, 2003), available at <http://fic.wharton.upenn.edu/fic/papers/03/0334.pdf> (providing background to some of the issues); see also Shlomo Benartzi, *Behavioral Finance and the Post-Retirement Crisis*, ALLIANZ AMERICA (Apr. 29, 2010), <http://befi.allianzgi.com/en/Publications/Documents/allianz-dol-rfi-response.pdf>.

eted for in the retirement plan. These are complex matters and require very individualized attention.

Recent reforms to the superannuation system in Australia, i.e., FOFA and Stronger Super,³² do not include any changes that are directed towards the retirement phase. Despite being an almost universal retirement product in Australia, the account-based pension fails to deal with the three key risks facing retirees: (1) inflation; (2) longevity risk; and (3) market risk, including sequencing risk. Typically, the superannuation system exposes retirees to excessive volatility and uncertainty about the durability of their savings and how much sustainable spending cash flow they can expect in retirement. It therefore remains the case that advisers are often unwittingly “carrying the can” for poor retirement product design. Additionally, advisers today typically undertake a risk-profiling process rather than a goals-based approach.³³ The limitations inherent in the risk-profiling process compound the burden on plans and advisers.

So long as the Australian regulatory system leaves it up to the market to design financial products and relies on disclosure alone to regulate them, a great deal of additional pressure will continue to be placed on the system to ensure that retirees understand the risks they face in retirement. As the so-called “shadow shop” survey into retirement advice conducted by the Australian Securities and Investments Commission (ASIC) in 2012 showed,³⁴ the fallout from this policy setting is felt by a significant proportion of clients (44%) who, according to the survey results, were not advised about how long their retirement savings were going to last.³⁵ The lack of information among clients should be taken not so much as a

32. *Corporations Amendment (Future of Financial Advice) Act 2012* (Cth) (Austl.); *Corporations Amendment (Further Future of Financial Advice Measures) Act 2012* (Cth) (Austl.); see also *Super System Review*, AUSTRALIAN GOV., <http://www.supersystemreview.gov.au/> (last visited Oct. 16, 2013) (package of measures arising out of the Super System Review of 2010); *Stronger Support*, TREASURY, <http://strongersuper.treasury.gov.au/content/Content.aspx?doc=home.htm> (last visited Oct. 16, 2013) (Austl.) (Australian government responding with its Stronger Super reforms as a result of package of measures arising out of the Super System Review of 2010).

33. “Risk profiling” is a process where investors are asked a series of questions to gauge their appetite for investment risk.

34. AUSTL. SEC. & INVS. COMM’N, REPORT 279: SHADOW SHOPPING STUDY OF RETIREMENT ADVICE (2012), available at [https://www.asic.gov.au/asic/pdf/lib.nsf/lookupByFileName/rep279-published-27-March-2012.pdf/\\$file/rep279-published-27-March-2012.pdf](https://www.asic.gov.au/asic/pdf/lib.nsf/lookupByFileName/rep279-published-27-March-2012.pdf/$file/rep279-published-27-March-2012.pdf).

35. *12-55MR ASIC Releases Full Report on Retirement Advice Shadow Shopping Research*, AUSTRALIAN SEC. & INVESTMENTS COMMISSION (Mar. 27, 2012), <https://www.asic.gov.au/asic/asic.nsf/byheadline/12-55MR+ASIC+releases+full+report+on+retirement+advice+shadow+shopping+research?openDocument>.

criticism of advisers, but rather as a criticism of the design of the products themselves.³⁶

XI. MODERN PORTFOLIO THEORY HAS A TIME FRAME LONGER THAN RETIREMENT

Although the design of DC plans is based largely on the concepts of Modern Portfolio Theory (MPT), the use of MPT creates difficulties when dealing with retirement. The investment techniques studied and practised by managers of DC assets have their roots in MPT, which was developed primarily by Markowitz³⁷ and Sharpe³⁸ in the 1950–60s. The results of MPT require a long-horizon investor that does not require any cash flows in the near term, unlike a retiree in the spending phase. Markowitz himself acknowledged this caveat in 1991 when he noted that there is a difference between institutional investing and investing by an individual person.³⁹

Generating a sustainable retirement income stream requires attention to three phases of financial planning, but MPT addresses only one. MPT deals only with the middle *investment* phase. The first stage is that of *saving*, which in Australia is targeted through the compulsory nature of superannuation contributions. The third stage is that of *spending* in retirement. The spending stage should be about determining a suitable drawdown strategy that will provide the cash flow that is expected after years of saving and investing. The spending stage is not about investing to access long-term average returns of various asset classes, as required by MPT. Reaping long-term average returns is largely the privilege of accumulators, even though retirees are in retirement for a long time. Because of their cash flow needs and their inability to recover from losses, most retirees have shorter time horizons for their retirement savings than those posited by MPT.

XII. THE ROLE OF FINANCIAL LITERACY AND EDUCATION

Additional financial literacy, while useful, is not the solution to the shortcomings in DC plans. Most Western democracies devote some level

36. How long retirement capital will last at an assumed spending rate is a very difficult question. See Michael S. Finke, Wade D. Pfau & David Blanchett, *The 4 Percent Rule Is Not Safe in a Low-Yield World*, J. FIN. PLANNING, June 2013, at 44, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2201323.

37. See Harry M. Markowitz, *Portfolio Selection*, 7 J. FIN. 77 (1952).

38. See William F. Sharpe, *Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk*, 19 J. FIN. 425 (1964).

39. Harry M. Markowitz, *Individual Versus Institutional Investing*, 1 FIN. SERVS. REV. 1, 1–8 (1991).

of resources to fostering financial literacy. They are forced to do this because so many complex financial decisions have been devolved to the general populace. Australian consumers struggle with opaque and complex mobile phone plans; analyzing the comparative cost of their utilities; complex financial products; and later in life, the complexities of health care, social security, and aged care rules.

The National Financial Literacy Strategy was launched in 2011 to improve the financial literacy of Australians.⁴⁰ Likewise, ASIC established a MoneySmart website in 2011 to provide people with guidance on how best to handle their finances.⁴¹ The site offers tips on how to deal financially with major life events like losing a job, having a baby, buying a home, or retiring. Other government agencies, major financial institutions, and not-for-profit organizations also make efforts in financial literacy.

While all of these services are well intentioned and, some would say, essential in a first world economy like Australia, they all suffer from the same fundamental problems: the sheer scale of the information asymmetries involved, investor behavior flaws, and generally low levels of literacy and numeracy in the community.⁴² A leading Australian survey into adult literacy and life skills showed that around half the adult population lacked functional literacy and numeracy skills to the point where they were unable to participate in a knowledge-based economy.⁴³ These are major impediments to the worthy aim of having the entire population fully financially literate.

Lauren Willis from the University of Pennsylvania sums up the issue of financial literacy neatly in her paper *Against Financial-Literacy Education*.⁴⁴ She advocates introducing policies that support good financial outcomes for consumers rather than increasing the financial education of a generally disengaged general public—a task she views as impossible.

40. AUSTRAL. SEC. & INVS. COMM'N, REPORT 229: NATIONAL FINANCIAL LITERACY STRATEGY (2011), available at <http://www.financialliteracy.gov.au/media/218312/national-financial-literacy-strategy.pdf>.

41. MONEYSMART, <https://www.moneysmart.gov.au/> (last visited Oct. 16, 2013).

42. AUSTRAL. SEC. & INVS. COMM'N, REPORT 230: FINANCIAL LITERACY AND BEHAVIOURAL CHANGE (2011), available at <http://www.financialliteracy.gov.au/media/218309/financial-literacy-and-behavioural-change.pdf>.

43. AUSTRAL. BUREAU OF STATISTICS, ADULT LITERACY AND LIFE SKILLS SURVEY, SUMMARY RESULTS (2006), available at [http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/4228.0Main%20Features22006%20\(Reissue\)?opendocument&tabname=Summary&prodno=4228.0&issue=2006%20\(Reissue\)&num=&view=](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/4228.0Main%20Features22006%20(Reissue)?opendocument&tabname=Summary&prodno=4228.0&issue=2006%20(Reissue)&num=&view=).

44. Lauren E. Willis, *Against Financial-Literacy Education*, 94 IOWA L. REV. 197 (2008), available at <http://www.law.uiowa.edu/documents/ilr/willis.pdf>.

The DC model pushes risk and decision making down to the individual level. As a result, in a compulsory system like Australia's, there is a high degree of cognitive and other inefficiencies involved. Take driving cars as an example. Because automobiles provide individualized transport, we all need to be trained and licensed to operate one. This is not so of pensions. Who thought it was a good idea to make an entire population become investment experts? Global pension expert Don Ezra explains the flaw in this approach in a 2009 article:

There is zero chance of making the average person an investment expert. This is simply common sense, as we don't launch healthcare plans intending to educate employees to be their own doctors or surgeons. We use qualified experts. If we need to fly from point A to point B, we don't learn to fly our own planes. We use qualified experts. The average person will never become a doctor, surgeon, pilot[,] or engineer by reading pamphlets. Just as the average person will also never become an investment expert that way.⁴⁵

While increasing financial literacy and engagement with compulsory superannuation are worthy aims, policies that rely on either of these as a pre-condition to some other outcome are highly unlikely to be successful. Calls for greater levels of financial literacy so that ordinary people will be able to cope with ever-increasing levels of financial complexity should be resisted.

XIII. OTHER MODELS

In several countries (notably Denmark, the Netherlands, the United Kingdom, and the United States), there has been quite a bit of recent thought about modifying the pure DC model so that DC looks more like DB. What the new model actually looks like can depend on whether it is a DC plan morphing or already a DB plan looking to become more sustainable. Three emerging models are the collective DC plan, the "defined ambition" plan, and the "target date" (or "lifecycle") plan.

A. Collective DC Plans

Under collective DC (CDC) plans found in Denmark and the Netherlands, the employer pays a fixed rate of contributions and the risks are shared between members. There is an expected or target benefit, but it is not guaranteed. Investing is done on a "with profits" basis, smoothing

45. Don Ezra, *Three Certainties and a Speculation: Reflections of a Pension Professional*, 2 ROTMAN INT'L J. PENSION MGMT., Spring 2009, at 52, 53 (emphasis removed), available at http://papers.ssm.com/sol3/papers.cfm?abstract_id=1408698&download=yes.

outcomes across all members. The actual pension benefit paid depends on the funding level of the plan at the relevant time. Changing the rate of indexation of pensions year-on-year is often used as a risk-sharing lever if the plan suffers poor investment returns. Importantly, this model overcomes a lot of the negatives of the individualization of DC. Investment risk is pooled across the plan so it can stay invested in higher risk assets and earn an illiquidity premium, even in respect of members approaching retirement. Also, there are greater economies of scale and efficiencies available under the CDC model.

The weakness of CDC plans lies in their ambiguity (what is the promise exactly?) and intergenerational equity issues (is one generation funding another?). In addition, the CDC model depends for its success on cultural norms of solidarity and collectivism that are not sufficiently embedded in most Western societies.

B. Defined Ambition

The Netherlands has decided that the DB system is no longer sustainable⁴⁶ and is instead implementing defined ambition (DA) pension plans from 2015. DA plans are also being discussed in the United Kingdom. The central idea with DA is to replace the guarantee inherent in DB with so-called “soft real rights” that are adjusted annually for achieved real investment returns and longevity experience.

DA aims to combine two competing needs: employers want predictable pension costs, and members want predictable outcomes. There are various DA models under consideration. A typical DA plan involves sharing longevity risk and investment risk between employers, members, and insurers. Market shocks are smoothed over a long period (e.g., ten years) before they actually hit pension income.

A key reason for choosing a DA model over a DC model is the Dutch concern for intergenerational risk sharing and notion of “solidarity.” The Netherlands also found the lack of a retirement income target in pure DC to be inadequate.

In moving from the pure DB model towards a DA model, the Dutch are trading off the nominal guarantee in favor of an indexed (i.e., real) pension, but conditional on investment performance. The target pension is indexed each year and adjusted up or down based on realized invest-

46. Kees Pieter Goudswaard, Roel Maria Wilhelmus Jozef Beetsma, Theo E. Nijman & Paul Schnabel, *Report of the Committee Sustainability Supplementary Pension Contracts (Toekomstbestendigheid Aanvullende Pensioenregelingen)*, LIEDEN UNIV. (Jan. 20, 2010), <http://media.leidenuniv.nl/legacy/kpg-2010-02.pdf> (Neth.).

ment returns. Longevity experience is also tested each year, and any necessary adjustments made.

There are other variations in DA models, depending on the direction in which a plan is moving (i.e., from DB to DA or vice versa):

- DB to DA perspective

The first step away from a pure DB plan is to soften the promise. By changing the rules so that when employees leave they do not remain as inactive members, the “pot” crystallizes to DC, which is portable. Then, there is no longevity risk for the plan in relation to the departed employee.

- DC to DA perspective

A shift from a DC model to a DA model can sometimes mean CDC. Other options are a simple “money-back” guarantee added to a DC plan, bulk-purchased annuities, or smoothing. These ideas are sometimes described as “DC Plus.”

C. Target Date/Lifecycle Funds

Much has been written on the subject of target date, or lifecycle, funds, both positive and negative. A fund that takes over the asset allocation decisions, aims to tailor an asset allocation based on the age of the member (and possibly other factors), and has the aim of delivering a better retirement outcome certainly sounds like a worthy idea. The key challenge in this approach has been to find a solution that can be implemented en masse. Products popularized in the United States have had some success in reducing exposure to market risk near retirement. On the other hand, it has been argued that there is an arbitrary reduction in exposure to the market that actually increases the risk of income failing to meet the needs of investors in these products.⁴⁷

There is a need to extend the factors beyond simply age or investment horizon to better target the desired outcome. The typical funds fall into the same trap as other DC approaches by focusing on the balance at a particular retirement date instead of delivering the required stream of income over a whole retirement.

47. See Anup Basu, Alistair Byrnes & Michael E. Drew, *Dynamic Lifecycle Strategies for Target Date Retirement Funds*, (Griffith Bus. Sch., Working Paper No. 2009-02, 2009), available at <http://equella.rcs.griffith.edu.au/research/file/239b5535-4e45-804c-5b7c-0535764151bf/1/2009-02-dynamic-lifecycle-strategies-for-target-date-retirement-funds.pdf>.

XIV. ADJUSTMENTS TO EXISTING SETTINGS

Rather than seek entirely new models, several proposed adjustments to existing pension settings appear promising. Potential adjustments include partial re-intermediation; system-wide guarantees; higher levels of financial literacy and engagement; annuity outcome targeting; and mass-scale individualized DC plans.

A. Partial Re-Intermediation—the “DB-ization” of DC

Not every DB plan that ever existed has failed. That is, there are DB plans that have been, and still are, run effectively to deliver the income that is required for their retired members.⁴⁸ This demonstrates that it is possible for a well managed plan to provide a defined benefit outcome. An alternative for the evolution of DC plans is to recognize the skills used in successfully managing DB plans and have third parties utilize these skills to deliver a guaranteed income for DC plan retirees.

This partial “re-intermediation” would not be without risk altogether, but it should be possible to have experts in the management of balance sheets (i.e., life insurance companies) provide the guaranteed income as an adjunct to the DC-based accumulation model. The use of expert managers stands in contrast to traditional corporate DB plans where every employer needs to have skills in managing assets and liabilities in order to deliver the DB outcomes. The twist is that the benefit would be defined towards the end of the DC accumulation phase, rather than at the start.

The partial re-intermediation approach would take the risk away from the employer who, as sponsor of the traditional DB plan, was responsible for managing some or all of the investment risks of the pension plan, depending on the strength of the promise. For employees, the partial re-intermediation approach puts a third party in charge of managing their risks. For some, this will be an advantage, but for most there will be additional costs to ensure that the promise can be delivered. Additional costs would include the cost of the capital that would be required to back the payment of any promises.

B. A Role for More Universal Guarantees?

Another potential adjustment to existing settings is a system-wide guarantee. For example, Swiss and German funds incorporate system-wide guarantees of various types to support them. Switzerland currently has a 2% minimum investment return guarantee. In the future, it is pro-

48. The large Canadian plans (e.g., OTPP) would be examples, but there are numerous others.

posed that the rate be linked to the average market yield on seven-year Swiss government debt. German funds must offer a guarantee that, in nominal terms, members will have their contributions available at retirement. In other words, the nominal capital of contributors is protected.

System-wide guarantees are also under consideration in the United Kingdom. In 2012, the U.K. Pensions Minister, Steve Webb, started a conversation about so-called “money-safe” pensions where members of workplace DC plans could pay for the security of at least getting their contributions back when they retire. This was a forerunner to the release of a November 2012 green paper titled *Reinvigorating Workplace Pensions*.⁴⁹

The OECD, in a recent paper, estimated that the median discounted sum of fees payable for a nominal guarantee of capital would equal a total of 1.28% of an average retirement lump sum at age sixty-five. The Swiss-style guarantee would involve a median discounted sum of fees payable of 4.98%, and a real, as opposed to nominal, guarantee of capital would cost 5.49%.⁵⁰ These seem like quite reasonable amounts and might be attractive to some members.

C. Annuity Outcome Targeting

1. National Employment Savings Trust

The United Kingdom recently established the National Employment Savings Trust (NEST), a default DC plan. Under NEST, when members near retirement age, they move into what is known as the consolidation phase, progressively moving out of return-seeking assets. Their asset allocation shifts into a combination of annuity-tracking assets and money market investments preparing them for retirement, aiming primarily to manage “pension conversion risk.” This is the risk that pure DC plans leave unhedged: the risk that the lump sum accumulated cannot be converted into a satisfactory retirement income stream. This is primarily an interest rate risk, being that if prevailing interest rates are low at the time of retirement, the discounted value of the future cash flows necessary to live at a particular standard of living for the rest of retirement is much higher than the accumulated lump sum. In this paper, this sort of ap-

49. DEPARTMENT FOR WORK AND PENSIONS, REINVIGORATING WORKPLACE PENSIONS, 2012, Cm. 8478 (U.K.), available at <http://www.dwp.gov.uk/docs/reinvigorating-workplace-pensions.pdf>.

50. Pablo Antolín, Stéphanie Payet, Edward Whitehouse & Juan Yermo, *The Role of Guarantees in Defined Contribution Pensions*, 18 (OECD Working Papers on Finance, Insurance, and Private Pensions, No. 11, 2011), available at <http://develop.fao.no/files/news/12120/6%20The%20Role%20of%20Guarantees%20in%20Defined%20Contribution%20Pensions.pdf>.

proach for the final stage of the accumulation phase of a DC plan is referred to as “annuity outcome targeting.”

2. Switzerland

In Switzerland, they go one step further. Swiss DC plans compel retirees to convert their lump sums into income streams at a guaranteed rate, which is 7% for males and 6.95% for females. These are, most likely, unsustainable rates, and there have been many debates about their reduction.

3. Managed DC—Dimensional

The approach taken by Dimensional Fund Advisors (Dimensional) and Professor Robert Merton is to target an appropriate level of income in retirement.⁵¹ Using a mathematical framework, Merton and Dimensional set about maximizing the probability of being able to afford an annuity at retirement that provides a retiree with her desired level of spending.⁵² The critical focus of this approach is to target the cost of purchasing an annuity at retirement that would provide the cash flows to meet the desired spending needs through retirement. The “managed” element of the process is the way in which outcomes that exceed the target are traded against a higher probability of achieving the target outcome.

D. Mass-Scale Individualized DC Retirement Plans

In Australia, QSuper is pioneering another approach. QSuper is pursuing the idea that a large DC plan can engage in a certain amount of mass customization by identifying defaults designed to suit most members. Those not wanting to participate have the opportunity to opt out. Given the amount of personal information a plan is able to gather, increasingly customized options can be tailored for members based first on age and account balance and, over time, other characteristics. The end result could be an increasingly tailored “default” experience as opposed to current arrangements that depend on the member making the decisions with or without an adviser.

XV. PRIVATE SECTOR CAPACITY TO MANAGE LONGEVITY RISK

One of the reasons that DB plans have been dismantled over the years has been the desire of private sector firms (and some public sector

51. *Dimensional Managed DC*, DIMENSIONAL, <http://www.dfaus.com/service/dimensional-managed-dc.html> (last visited Oct. 16, 2013).

52. *Id.*

groups) to avoid the problems of managing exposure to longevity risk, i.e., the financial consequences of outliving your savings. It is reasonable, therefore, to question whether the private sector actually has the capacity to manage this risk.

The key to the longevity risk capacity is simply the ability to earn a sufficient return on capital. Although pooling longevity risk diversifies a lot of the risk away, it does not guarantee an outcome for any individual member. What is required is the capital of a third party, typically a life insurer, to ensure that the promised payments are made. It is the responsibility of that insurer and its regulators or supervisors to ensure the following:

- It has enough capital to cope with extreme events (based on robust stress testing of asset values);
- It projects average longevity accurately; and
- The asset pool earns a sufficient return to pay a yield on the capital commensurate with the risk.

Like most markets, the overall supply and demand for longevity risk protection will determine a suitable price. The market will be cleared as long as there is sufficient available capital for a reasonable supply of the protection. A model with low premiums and consistently high returns is one that is doomed to fail.

The U.K. market has demonstrated that the private sector is prepared to provide the capital to manage these products.⁵³ In other markets, the key is to consider the cost of unexpected mortality improvements. Expected improvements should be reflected in the price in the same way that a life insurer without a compulsory market will adjust its pricing for the adverse selection effect. A life insurer will expect that customers who think they have a shorter than average life expectancy will not buy annuities, so the longevity pool is distorted. The same is true of mortality improvements over time.

XVI. CONCLUSION

Compulsory DC super is an effective piece of public policy because it forces people to save. But it is a blunt tool that does not adequately meet the retirement needs of a majority of plan contributors.

53. Total sales of annuities in the U.K. market are currently around £12 billion a year. NAT'L ASS'N OF PENSION FUNDS & PENSIONS INST., *TREATING DC SCHEME MEMBERS FAIRLY IN RETIREMENT?* (2012) (U.K.), available at <http://pensions-institute.org/reports/TreatingDCMembersFairly.pdf>.

The arbitrary selection of 9% or 12% of wages does not necessarily lead to the right amount or shape of sustainable cash flows in retirement. DC plans, like the Australian superannuation system, focus on the sum accumulated at retirement, not on the income stream necessary to meet the needs of retirees during a potentially long period of active, passive, and frail retirement. DC plans also place the burden of managing inflation, market risk, and longevity risk on individual contributors regardless of the level of expertise contributors possess in financial matters.

Plan trustees need to do more to get members focused on the real game: targeting a replacement rate of income and a guaranteed floor of inflation-adjusted income in retirement. Trustees need to work towards a properly integrated retirement income solution that hedges those three key risks. Several potential modifications, including partial re-intermediation of DC plans via the use of life company balance sheets, annuity outcome targeting, and system-wide guarantees could improve the outcomes of DC super for the benefit of future generations of retirees.