

Finding the Optimal Pension Plan for Canadians:

A DV/DC HYBRID

Authors

Robert L. Brown, *PhD, FCIA, FSA, ACAS* and
Stephen A. Eadie, *FCIA, FSA*



GLOBAL
RISK
INSTITUTE

INTRODUCTION

Workers have increasing difficulty achieving retirement income security for several reasons.

Many employers have stopped sponsoring Defined Benefit (DB) Pensions. They find that increased longevity, low rates of investment return and mark-to-market accounting, have made these plans extremely costly and volatile. Marketplace volatility has exacerbated the problem.

At the same time, the financial crisis of 2008/9 has shown the frailty of achieving retirement income security through DC plans.

This paper attempts to find a new retirement income model that minimizes the risks for both sponsors and workers and maintains most of the strengths of both DB and DC pensions.

WHERE'S THE RISK: DB VS. DC?

I) DEFINED BENEFIT (DB)

In a traditional DB plan, almost all of the pension risks are carried by the plan sponsor. These risks are:

1. *Investment risk*
2. *Expense risk*
3. *Inflation risk (if the benefit is indexed)*
4. *Interest rate risk (if the payout is annuitized)*
5. *Longevity risk (if the payout is not annuitized)*

During the 1990's, sponsors were able to pay large retirement benefits through very high investment returns. But, since 1999, we have experienced two market melt-downs leading to much higher actual pension contributions and higher volatility. This has been exacerbated by ever increasing life expectancy and the

continuing maturity of pension systems (a rising ratio of retirees to contributors).

II) DEFINED CONTRIBUTION (DC)

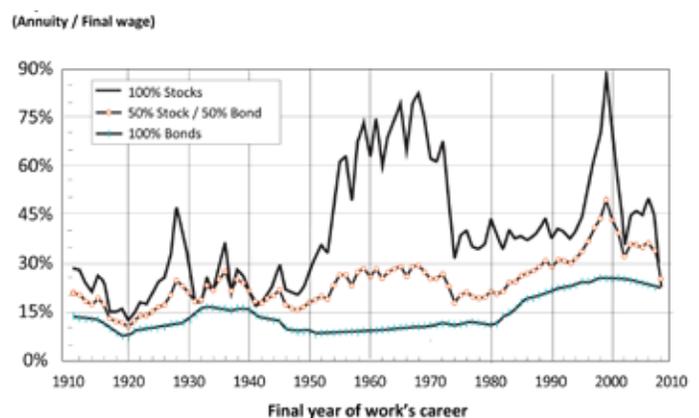
This section includes both Employer-sponsored DC pension plans and Individual Account systems (eg., RRSPs).

Under a traditional DC Plan, the worker carries all of the pension risks listed. If experience is bad, the member must accept a lower retirement benefit. The employer is not required to fill the gap. Clearly, an individual worker is not capable of managing these risks. While many can be mitigated to some extent, most cannot be totally avoided or avoided only at an unreasonable cost.

The investment risk is illustrated in the following graph. Clearly, the worker can decrease portfolio risk by choosing less volatile investments such as government bonds. While volatility decreases markedly, so too do the replacement rates.

Figure 1

Replacement rate obtained from personal account savings of workers who invested in alternative portfolios and contribute 4% of annual salary over a 40-year career



Source: Burtless, 2009, p 26

The investment risk can be mitigated. The sponsor may suggest a number of investment options. Or, the worker can hire an investment advisor. However, this only shifts the investment risk to an expense risk. Advice can cost 3% of the gross rate of return (the management expense ratio or MER). If funds earn 5% and inflation runs close to 2% then that worker is actually receiving no real of return at all.

Workers also tend not to shift their investments as they approach retirement--out of equities into fixed-income securities, called life-cycle investing (Munnell et al 2013). Thus, many (most) individual account holders lost 20 to 30% of their equity values in the 2008/2009 crisis. Work by the OECD (Antolin, 2009) indicated that this market crash could have led to a drop in replacement ratios of almost 10 percentage points.

A second major risk for a DC participant is longevity. Workers who do not buy an annuity must determine an optimal program of income withdrawal. Depending on their desire to leave a bequest, they will want to take out the maximum income possible without outliving their assets--a lot to ask. Who knows one's life expectancy? So, to be sure they will not outlive their assets, they make conservative withdrawals and live at a lower standard of living than necessary. Taking more aggressive withdrawals increases the probability of outliving their assets thus becoming dependent on friends and family, or on government programs. This should also be a concern to taxpayers who pay those welfare benefits.

Large DB plans are more effective and efficient since they need only accumulate enough funds to cover the average life expectancy of all plan participants. The fund can also invest in less liquid (and higher yielding) assets since that average life expectancy is known. Further, there should be no sudden forced asset sales.

The DC worker can mitigate the longevity risk by buying a life annuity. This again raises the expense risk as insurers must operate at a profit. Further, many workers cannot get a true market-value annuity. That is because insurers price annuities by assuming that a voluntary applicant for an annuity has five-star health. Few workers actually do, but they get painted with the "one-size-fits-all" brush. Annuities can be cost-effective for mitigating longevity risk, but not for everyone. Purchasing an annuity also creates interest-rate risk on the day of purchase.

Finally, it is very difficult for an annuity to provide inflation protection, a worthy social goal that DC plans cannot cost-effectively achieve. Large DB plans can provide some inflation protection even if such protection is contingent on healthy plan funding.

In total, the Individual Account, DC option, creates more problems than solutions. You cannot guarantee retirement income security just by saving for retirement.

III) POOLING OF ASSETS MATTERS

One of the problems with Individual Accounts is mitigating risk as one individual. Many advantages come from having a larger asset and longevity pool, either by being part of a very large employment group or by allowing smaller pension funds (including individual accounts) to commingle their assets. Not only can you achieve savings in the expense of administration and management, large funds also have investment opportunities that smaller funds do not (e.g., private placements). Further, if the commingled fund pays out the retirement income, then this large collective plan gains from pooling the longevity risk.

Munnell et al (2013) found that:

"fees have a significant effect on how much an individual will have at retirement. An additional 100 basis points over a 40-year period reduces final assets by about one fifth."

DB plans, when professionally managed, are more efficient and effective than small or individual DC plans and can deliver a given benefit at lower cost. For large DB plans, 75 per cent of every benefit dollar comes from investment returns—a testament to the sound funding and best in-class investing of these funds (i.e., only 25 per cent of benefits come from contributions) (Brown and McInnes, 2014).

Robertson Eadie & Associates conducted an independent study in Canada that compared investment returns obtained by individual investors in a DC plan which provided the members with investment choice against those obtained by a pension committee that collectively managed the investment process on behalf of all of its DC plan members using the same investment techniques

and mandate as were used for an existing DB plan. The collective plan obtained a 96th percentile rating. That is, only 4% of the individual DC plan investors beat the collective result. Further, when investment expenses were deducted the collective result was better than all individual results studied.

In a study for New York City workers DB plan, Almeida and Fortia (2008) found cost savings in three component parts:

- longevity risk pooling (knowing the average longevity) in a DB plan saves 15%,
- maintenance of a balanced highly diversified portfolio in a DB plan saves 5%, and
- a DB plan's superior investment returns, after expenses, save 26% as compared with a typical Individual Account DC Plan.

Brown and McInnes (2014) looked at the impact of these 46% savings on a model DB plan. Starting with an assumption that the plan earns 6.5% gross, they modeled a small plan earning 3.5% (46% less). The model DB plan was a fairly typical Public Sector Plan with sponsor contributions of 12.5% matched by 12.5% participant contributions. If investment returns dropped from 6.5% to 3.5%, these matched contribution rates would rise to 22.5% (a 77% increase) to provide equal benefits. Instead of investment returns paying 75% of the benefits, they would only pay 55%. A large 'best-practices' pooled DC plan (e.g., the U.S. Thrift Savings Plans for federal civil servants and uniformed services) would lie somewhere in between.

Even if a DC plan could achieve size, there are still residual advantages to the DB model. DB plans provide a benefit that has true meaning and can be understood by plan participants. Benefits are a given percentage of salary or a defined number of dollars per year of service. Knowing this, workers can decide how much more they need to save to guarantee retirement security.

IV) SEARCHING FOR THE PENSION HOLY GRAIL

Our new pension paradigm lowers overall pension risks for both traditional DB and DC plans. Our Pooled Target Benefit Pension Plans are meant to move beyond hope, but not as far as full guarantees—toward

a high probability benefit expectation. The 'Pooled' characteristic means that plan assets for many plans are commingled to reap the benefits of 'size'. The aim is a minimum asset portfolio of \$10B. Total management expenses would be capped at, for example, 40 basis points. It would be possible for individuals to commingle their pension assets (e.g., RRSPs) into these pools.

The Plan would be governed and administered by an independent third-party. The Board for this third-party would have appropriate representation from all stakeholders, and in particular, from sponsoring employers, covered employees and pensioners. The Board would encourage all stakeholders to select individuals with pension expertise. As a result, most of the representatives would be experts in pension governance, administration or investments. This will ensure that the administration is streamlined and that both the member benefits and investments are coordinated well. The Board will be the Management Board. It will make major decisions as to the governance of the fund and will liaise with the investment manager(s). It will also decide on any adjustment of benefits. The Board must be independent of plan sponsors, employees, pensioners, internal and external service providers, government and investment managers.

For the plan sponsor, this new PTBPP is a DC Plan thus releasing them from a huge amount of risk inherent in a DB plan.

The initial target benefit could be based on some agreed-upon earnings replacement objective. The required contribution rate would be set accordingly, assuming, for example, 35 years of contributions but using slightly conservative actuarial assumptions, e.g., no recognition of the equity-risk premium.

Plan participants would receive regular updates on their expected retirement benefits. These updates will also remind participants that benefits are not guaranteed.

Given that required contribution would be determined using slightly conservative assumptions, these plans could mitigate the inflation risk. Pre-retirement, one could upgrade the participant's earnings profile and move from a Career Average plan closer to a Final Average plan. Post-retirement, any gains would be used for cost of living adjustments. While, there is no guarantee that true CPI-indexation will result this would move indexation from a hope to an expectation.

None of these plans will have low employer/employee contributions (e.g., < 5% of pay). Antolin (2009) indicates that a contribution rate of 5% would provide a replacement ratio of 25.3%, while a contribution rate of 10% would double that to 50.7%.

This new plan will result in huge improvements for DC plan participants. No longer will they have the responsibility for investing their funds. This will be done by the arms-length independent investment manager(s) operating at very low expenses.

Asset values will go up and down, but should not have a full or immediate impact on the benefit schedule. (This is now true for Canadian MEPPs.) However, benefit reductions are possible. A Variable Annuity approach with sound investment strategies will help manage this process.

The plan can also manage the payout of benefits using a more collective approach similar to the TIAA-CREF plans in the U.S. If independent insurance for a particular payout scheme is required, the plan will be able to obtain that insurance at better rates than those available to individuals.

V) CONCLUSION

Retirement income security requires a collective approach to mitigation of risk.

This paper has outlined a new ‘collective’ pension paradigm that lies between the traditional DB and DC models called a Pooled Target Benefit Pension Plan (PTBPP). The PTBPP attempts to minimize the risks than now exist in traditional DB or DC plans while retaining the advantages of both traditional delivery mechanisms.



This article is a summary report. Use the link above to access the complete report.



Robert Brown

Rob retired from the University of Waterloo in 2010 after 39 years of teaching and research in the area of Actuarial Science. In that time, Rob wrote seven books and over fifty refereed papers. His research focus is the design of financial security programs in times of rapidly shifting demographics.

Rob was President of the Canadian Institute of Actuaries in 1990/91, President of the Society of Actuaries in 2000/01 and President of the International Actuarial Association in 2014. Rob was also Research Chair for the Ontario Expert Commission on Pensions in 2007-08.



Stephen A. Eadie

Stephen is a founding partner of Robertson, Eadie & Associates, a pension consulting firm in Toronto, Canada. He provides complete pension consulting advice and services to his clients across Canada. He is a past General Chair of the Society of Actuaries’ Education Committee. He is vice-chair on the Canadian Institute of Actuaries Committee on Professional Conduct. He has been an education Review Panelist for the Global CERA initiative since its inception in 2010. He is co-vice chair of the Education Committee of the International Association of Actuaries.

BIBLIOGRAPHY

Almeida, B. and W. B. Fornia (2008) A Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Pension Plans. National Institute on Retirement Security

Antolin, P. (2009). Private Pensions and the Financial Crisis: How to Ensure Adequate Retirement Income from DC Pension Plans. OECD Journal: Financial Market Trends 2009 (2).

Brown, R. and C. McInnes (2014). Shifting Public Sector DB Plans to DC: The experience so far and implications for Canada.

Burtless, G. (2009). Lessons of the Financial Crisis for the Design of National Pension Systems. CESIFO Working Paper No. 2735, July.

Fornia, William B. (2011) A Better Bang for NYC's Buck; A Efficiency Comparison Of Defined Benefit and Defined Contribution Retirement Savings Plans. New York: New York City Comptroller's Office, Budget and Policy Bureau.

Munnell, A.H., A. Webb, & F. M. Vitagliano (2013). Will regulations to reduce IRA fees work? Boston College: Center for Retirement Research, IB#13-2.

Munnell, A. H., J. P. Aubry and C. V. Crawford (2015). "Investment Returns: Defined Benefit vs. Defined Contribution Plans". Boston College: Center for Retirement Research. IB#15-21.