

Reshaping the Canadian Retirement System

Part 1: Motivation for Change

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Economic conditions, longevity and other risks related to defined benefit (DB) pension arrangements have left many private sector plan sponsors questioning the sustainability of the traditional DB model. Defined contribution (DC) arrangements have seen tremendous growth as a result, but they too have serious flaws. As a response, many jurisdictions in Canada are considering new pension structures aimed at combining and maintaining the attractive features of DB and DC while mitigating many of the flaws inherent in each. In Part 2, we explain the “design, construct, manage” process we deploy to build multi-asset strategies for SRPs and TBPs, and the investment outcomes we strive for, to help investors achieve their goals.

Improving benefit security

The inspiration underpinning plan design changes across Canada stems from a common goal to deliver ‘target’ (as opposed to ‘defined’) income streams. Commonly described as Shared Risk Plans (SRPs) or Target Benefit Plans (TBPs), these designs are appealing because they have the potential to deliver a combination of valued characteristics such as: target benefits with adequate income replacement ratios upon retirement; the flexibility to adjust benefits and/or contributions (i.e., to avoid intergenerational inequity); fair and efficient pooling of risk; and, the ability to preserve valuable workforce management controls.

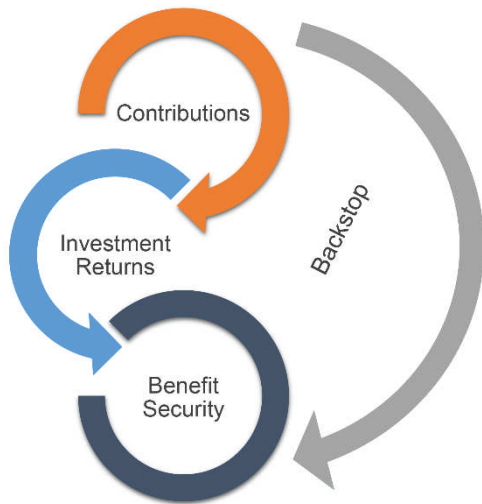
A brief history of benefit design: securing the pension promise

Although DB and DC systems may be structured differently, the principles are largely the same. The underlying difference lies in where the risks fall. In the case of the traditional DB model, the sponsor controls the investment decision and, provided they have the ability, acts as the backstop to ensure ultimate benefit security. In the case of the DC model, the individual stakeholders take on this role. In either case, if economic and demographic conditions turn out worse than expected, additional funds are required. If conditions are better, contributions can be reduced.

New innovation in pension plan design is reshaping the way Canadians think about saving and planning for retirement.

See: Don Ezra, Sorca Kelly-Scholte. “A Fiduciary Handbook Part One: A Step by Step Guide to Pension Fund Investment Strategy.” Russell Investments, April, 2014

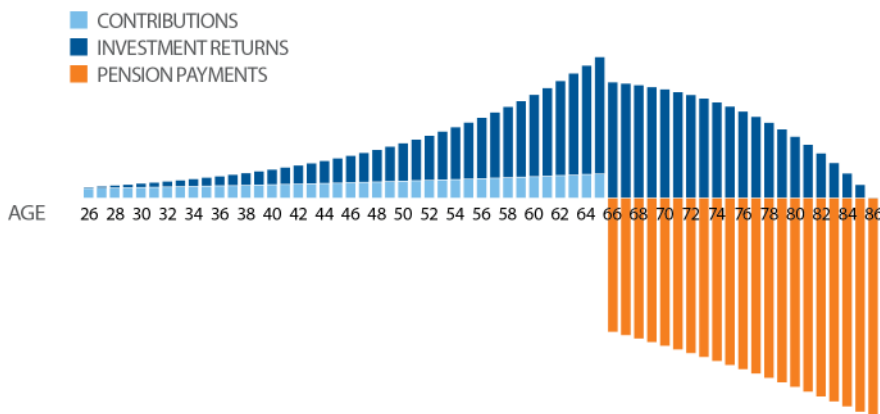
Throughout the life of either the DB or DC participant, benefit security rests on three interconnected areas¹:



1. The contributions we set aside;
2. The investment returns earned by the assets; and,
3. The ability of sponsors and/or stakeholders to provide a backstop if things don't turn out as expected.

Illustrative example: benefit security in an ideal world

To reduce this concept to its simplest form, let's consider a hypothetical example of one member's journey through her career and subsequent retirement. Our member, Rose, joins the plan at age 25, retires at age 65 and hopes to achieve an annual payment equal to 2/3 of her salary, adjusted for inflation, upon retirement until death. In a perfectly predictable world, Rose's investments would achieve a 6% rate of return each year, and she would not incur unfavourable demographic surprises throughout her lifetime. Rose would also agree to die at exactly age 85. In this world, the contributions and investment returns (areas in blue) would add up to the pension payments (areas in orange).



Hypothetical analysis provided for illustration purposes only.

Then, assuming there are no surprises, for every \$100 of annual pension paid to Rose in retirement, roughly \$20 would be paid by contributions and \$80 would be funded through investment returns. If returns only turn out to be 4% per year, the breakdown of contributions to investment returns in our example will be closer to 30:70. If returns turn out to be 2% per year, the breakdown is roughly 60:40, and more than half the pension payments are funded through contributions. All else equal, lower (higher) investment returns lead to higher (lower) contributions. However, despite this basic relationship, the outcome is far from certain. In fact, the only thing we can be certain of is this: over the course of time we will have

Lower (higher) investment returns lead to greater (lower) contributions. However, the actual outcome is far from certain.

The only thing we can be certain of is this: over the course of time we will have demographic surprises and experience volatility in investment returns.

¹ See: Collie, Bob. "A perspective on retirement security: Who stands behind America's pensions?" Russell Research, October, 2012

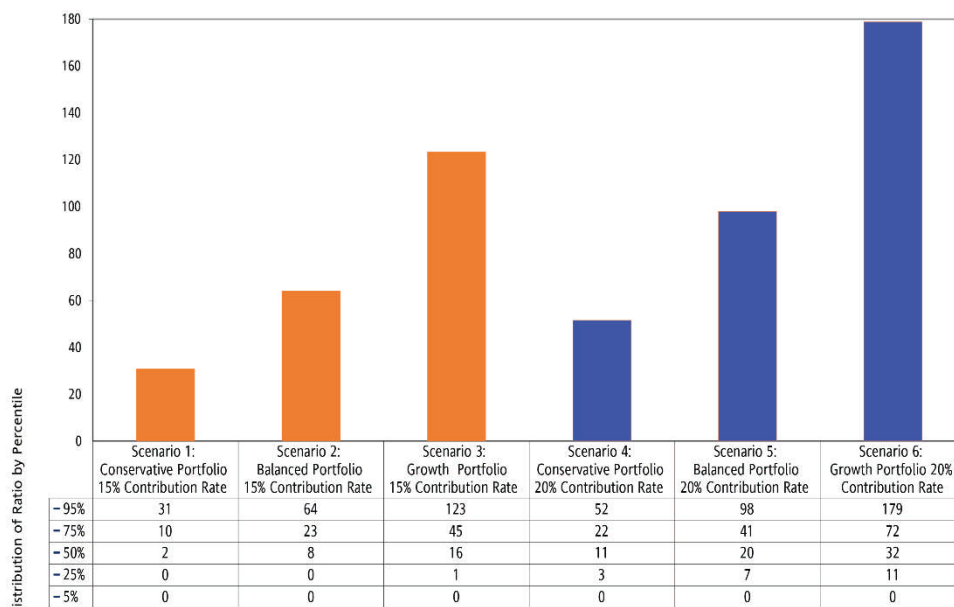
demographic surprises, future investment returns are not known, and financial markets will experience volatility.

Illustrative example: benefit security when the future is unknown

The uncomfortable reality of the previous example is its sole focus on assumptions and its failure to consider a range of potential outcomes. To illustrate this distinction, we've run a series of Monte Carlo simulations to determine the likely values and distribution of portfolio values for Rose throughout her working lifetime and retirement.² The importance of this analysis is that, in addition to considering expected values, it shows a range of possible outcomes as well as the probability that Rose could run out of capital.

Chart 1 shows the distribution of Rose's retirement savings (5th percentile to 95th percentile) at the end of a 60-year horizon (age 25 through 85) for each of our six simulations. The figures (ratio of asset base to annual pension) represent a proxy for the number of additional pension years that Rose's capital should last beyond her death, at age 85. So, in the case of scenario 2 (i.e., a 15% savings rate alongside a balanced portfolio allocation), we would expect Rose to have enough capital for roughly eight years' worth of pension payments after her death (this is the median or 50th percentile path). In simple terms, she is likely to have a comfortable safety reserve. However, the same simulation also indicates at least a 25% probability that she will outlive her capital.³ So, at least 25% of the paths (250 of 1000 paths in this case) in Scenario 2 ended with zero savings at the age of 85.

Chart 1: Comparison of Distributions. Ratio of Asset Base to Annual Pension at Age 85.⁴



Source: Russell Investments

The above analysis is calculated using Russell Investments Capital Markets Assumptions (June 2015) and other assumptions as described in the appendix. Forecasting represents predictions of market prices and/or volume patterns utilizing varying analytical data. It is not representative of a projection of the stock market, or of any specific investment. There is no guarantee that the stated results will occur.

² Our analysis has been separated into six distinct simulations across a range of potential market outcomes: two contribution/savings rates (15% for Scenarios 1 to 3 and 20% for scenarios 4 to 6) and, for each, three separate portfolios (conservative, balanced and growth – described in further detail in the appendix). Note that the combination of savings rates and portfolios is limitless and could have been incorporated with path dependency (for example, contribution rates would increase (decrease) when asset returns fall below (above) expectations). We have intentionally kept our analysis simple for illustrative purposes.

³ At the 25th percentile of scenario 2, the value (ratio of asset base to annual pension) is “0” in the chart.

⁴ Refer to Table 4 in the appendix section for a more detailed description of portfolio construction.

Looking across all scenarios the analysis shows that to maintain an 85% probability (or a confidence level of 85%)⁵ of not outliving her capital, Rose would need to contribute 20% of her salary throughout her working lifetime (age 25 through 65). Moreover, the probability that Rose will run out of assets before death is at least 5%. Interestingly, the distribution of possible outcomes varies considerably, highlighting the impact uncertainty in capital markets can have on long-term planning and future benefit security.⁶

What went wrong with the traditional DB model?

The pricing level of DB pension entitlements (for funding, negotiating benefit levels and in some cases financial reporting purposes) is typically determined by discounting expected future benefits at the expected long-term return on the investment portfolio. However, the level of uncertainty surrounding the return assumption is widely ignored. So essentially, the common practice of discounting benefits with a return assumption⁸ ahead of the associated risk creates the illusion of benefit security where it is lacking. Tying in with our previous example, this concept is analogous to setting Rose's contribution rate (at the beginning of her working lifetime) to correspond with the 50th percentile or average path, notwithstanding the associated level of uncertainty.

Around the globe, many traditional DB pension systems are in decline. So what went wrong? If you think about DB pension arrangements in terms of our example above, it's fairly obvious in hindsight. At the design stage actuaries took the baseline view: assuming investment returns, economic conditions and demographic outcomes would on average, and over the long term, evolve as expected. Although DB architects accounted for a range of possible outcomes, they made three critical assumptions:

1. Having enough time and enough plan participants, the laws of large numbers would reduce a great deal of potential uncertainty;
2. To the extent that uncertainty remained, sponsors would have available resources to cover additional contributions;
3. In the case of more favorable outcomes, sponsors would benefit from contribution holidays.

All things considered, the cost-benefit tradeoff would be beneficial to all stakeholders. Had investment portfolios provided returns as expected and had these plans not been exposed to behavioural pitfalls throughout their evolution, the theoretical foundation of the DB model may have been reasonable.

In reality, the volatility of capital markets and other types of uncertainty provide an ideal environment for behavioural complications in the traditional DB model to develop. Here's why: in periods of strong returns and positive demographic experience there will always be a desire among beneficiaries (and even a willingness among sponsors) to increase benefits. However, in periods of poor plan performance, sponsors will rarely have the flexibility to reduce benefits. Compounding an already difficult journey through time, beneficiaries typically have the option to remove the current market value of their benefit earned to date from

Traditional DB plans "socialize risk bearing without clarity about how, and by whom, the very material risks embedded in DB arrangements are borne".⁷

⁵ Refer to Table 1 in the appendix section for more detailed results.

⁶ Note that this analysis considers variability in capital market conditions but does not consider other idiosyncratic risks such as longevity, rising healthcare costs and the pitfalls inherent in the behavioural decision making process, to name a few.

⁷ See Bader, Lawrence N. "How Public Pension Plans Can (and Why They Shouldn't) Ignore Financial Economics." Financial Analyst Journal, Volume 71, Number 5, September/October 2015

⁸ In Canada this is analogous to the Going-Concern discount rate. It is used to determine liability values for funding purposes in most jurisdictions across Canada. See: Kaake, Kendra. "Evaluating the Process for Determining the Going Concern Discount Rate" Russell Research, March 2013

their plan. In periods of low interest rates, these ‘options’ can put a wrench in the long-term functionality of DB models.⁹

So, when considering the human component alongside uncertainty in capital markets, there’s an inherent behavioral asymmetry embedded in the mechanism over time. Actuaries and financial analysts refer to this as intergenerational inequity and it can be explained, at least in part, by the ongoing struggle between conflict and cooperation among decision makers. Adding further confusion, actuaries and investment professionals do not always speak the same language.

The DC solution isn’t the answer

In a DC arrangement, the sponsor agrees to make contributions of a specified/fixed amount, based on a contractual agreement, on behalf of employees as they are earned. This is in contrast to the traditional DB arrangement where the benefits, rather than the contributions, are fixed. In a DC structure, the employee assumes investment and longevity risk (risk of outliving available funds) and at retirement the income stream is not guaranteed. Unlike DB structures, DC plans are not exposed to intergenerational inequity. But they too have flaws. In the case of participant-directed DC plans (where employees make the investment decisions) research has shown that individuals are prone to both emotional and cognitive biases in decision making, and sub-optimal planning.

Although modern DC arrangements have improved some of the behavioural issues inherent in these plans (through target date default options, “locking-in” amendments/regulations, etc.), many problems remain. In the case of employer directed DC plans (where, ideally, decisions are largely rational and follow regimented guidelines) individual accounts may still equate to grossly inadequate income replacement ratios in retirement. There are a number of key reasons for this:

- fees are typically higher than the equivalent DB structure (significantly reducing the impact of compound returns over time);
- the pooling of risks in such a way that participants receive “premium-free longevity insurance”¹⁰ cannot exist the way it does in a DB plan;
- participants often have the option to take cash advances against and/or remove entitlements from the plan prior to retirement;
- the sponsor, who is in an arguably better position to absorb volatility, is not in a position to cover losses or absorb gains; and,
- contribution rates tend to be ‘sticky’ and are difficult to set in advance.

Combining these factors with the lack of guarantee that investments will produce returns consistent with long-term expectations creates a considerable challenge for the DC plan participant.

Although DC arrangements resolve most of the ambiguity common to traditional DB plans (surrounding risk bearing and asset ownership), research indicates that the typical DC plan has notable flaws of its own.

⁹ The actual market price of a bond, or future income stream from a DB plan, depends on a number of factors. However, long duration bonds (income streams) are the most sensitive to the general interest rate environment at the time of pricing.

¹⁰ Premium is an amount paid periodically to an insurer by the insured for covering her risk. Participants in a DB plan pool their risks and therefore do not pay premiums for pooling risk. The term insurance in this context refers to the pooling of risks in a DB pension plan.

TBPs and SRPs gaining popularity across Canada

In their basic form, these plans are structured so that neither the benefit nor the contributions are fixed, but vary according to plan experience. The hope is that SRPs will pool longevity and investment risk, promote scale-based fee advantages and provide greater cost certainty. If managed prudently and efficiently, with rules-based rather than behaviourally-based policies (to adjust contribution rates, benefits and the strategic investment policy), these hybrid designs could provide the innovation required to deliver an effective and transparent solution for all stakeholders. However, as we outlined in our analysis for Rose, the actual cost of benefit streams far into the future is far from certain. If contribution rates as estimated at the outset prove to be inadequate, it's important to have a governance system in place to protect future generations – in contrast to the traditional DB structure where younger workers typically over-contribute to cover the shortfall from previous generations.

Although forms of the multi-employer shared risk design have existed across Canada for decades, jurisdictions have only recently begun to accommodate the blueprint for single-employer sponsored plans. In 2014 New Brunswick took the lead among jurisdictions in Canada to introduce a regulatory framework for TBPs. Alberta followed suit later that year, Saskatchewan has taken the position that these arrangements are already permissible and several other jurisdictions are in various stages of accommodation. Perhaps one of the biggest hurdles to TBPs/SRPs is the treatment they receive under Canada's Income Tax Act (ITA). Tax treatment that is specific to these plans has yet to be implemented. The lack of specification arguably creates significant disadvantage, at a time when the need has become critically necessary.¹¹

Other solutions that could reshape the Canadian retirement system

Single-employer shared risk arrangements are among many other retirement savings proposals currently being considered across Canada. Mandatory savings in the form of increases to the Canada Pension Plan (CPP) and/or the creation of provincially regulated DB arrangements such as the Ontario Retirement Pension Plan (ORPP) are a topic of heated debate. Other suggestions have included the creation of provincially regulated SRPs or DC arrangements that would allow employers to participate in a plan without sponsoring or running it. Quebec has recently amended their pension legislation to eliminate solvency-basis funding requirements (while adding a stabilization provision on a going concern basis) for private sector pension plans.¹² Although the change may help to maintain and even revitalize the current DB system in Quebec, in reality the move is likely to reduce employer contribution commitments in the short term at a cost of increased risk over the longer term.

All said, it has been widely documented that Canadians are not saving enough for retirement. However, given the amount of uncertainty surrounding costs and the eventual size of benefits, exercising caution before committing to any one solution is of fundamental importance.

If broad workforce coverage with either traditional DB or DC plans isn't the best cure for Canada's retirement system failures, TBPs and SRPs may be the solution we're looking for.

¹¹ See Barry Gros, Karen Hall, Ian McSweeney and Jana Steele. "The Taxation of Single-Employer Target Benefit Plans – Where We Are and Where We Ought To Be." C.D. Howe Institute, March, 2015

¹² See "Bill 57: An Act to amend the Supplemental Pension Plans Act mainly with respect to the funding of defined benefit pension plans." Provisions take effect on January 1, 2016. Note that the regulation has not yet been issued; it must still be issued and finalized. <http://www.assnat.qc.ca/en/travaux-parlementaires/projets-loi/projet-loi-57-41-1.html>

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Appendix

Table 1: Probability of running out of savings for ages 75 through 85, where lifetime contribution rate is 20% of salary

| Portfolio/Age | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 |
|---------------|----|----|----|----|----|----|----|----|----|-----|-----|
| Conservative | 0% | 0% | 0% | 1% | 2% | 3% | 5% | 7% | 9% | 11% | 15% |
| Balanced | 0% | 1% | 1% | 2% | 2% | 3% | 5% | 6% | 7% | 9% | 11% |
| Growth | 1% | 1% | 2% | 2% | 3% | 4% | 6% | 7% | 8% | 9% | 10% |

Table 2: Probability of running out of savings for ages 75 through 85, where lifetime contribution rate is 15% of salary

| Portfolio/Age | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 |
|---------------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| Conservative | 0% | 1% | 3% | 6% | 9% | 13% | 18% | 23% | 29% | 35% | 39% |
| Balanced | 2% | 4% | 5% | 8% | 11% | 13% | 16% | 19% | 23% | 26% | 28% |
| Growth | 3% | 5% | 6% | 8% | 10% | 12% | 14% | 16% | 18% | 20% | 22% |

Table 3: Probability of running out of savings for ages 75 through 85, where lifetime contribution rate is 10% of salary

| Portfolio/Age | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Conservative | 23% | 33% | 41% | 50% | 57% | 63% | 68% | 73% | 78% | 81% | 83% |
| Balanced | 17% | 22% | 28% | 34% | 39% | 44% | 49% | 54% | 58% | 60% | 64% |
| Growth | 14% | 18% | 23% | 26% | 30% | 33% | 37% | 40% | 44% | 47% | 49% |

Table 4: Conservative, Balanced and Growth portfolio allocations by asset class

| Asset Class | Conservative Portfolio | Balanced Portfolio | Growth Portfolio |
|----------------|------------------------|--------------------|------------------|
| Canada Equity | 16.7% | 25.0% | 33.3% |
| Global Equity | 16.7% | 25.0% | 33.3% |
| Canadian Bonds | 60.0% | 40.0% | 20.0% |
| Other Assets | 6.7% | 10.0% | 13.3% |

Note that "other assets" are a blend of Canadian Real Estate, Global Listed Real Estate and Global High Yield Debt. Actual figures do not include rounding.

| Assumptions for Rose | |
|--|--|
| Salary Growth | Inflation Adjusted |
| Inflation | See Russell Investments Capital Market Assumptions (June 2015) |
| Pension | 2/3 Salary at Retirement, Inflation Adjusted Annually |
| Working Lifetime | Ages 25 through 65 |
| Age at Retirement | 65 |
| Retirement Period | 20 Years |
| Contribution rates (as a % of Salary)* | 10%, 15% and 20% |

*Monte Carlo Simulation (Chart 1, Appendix Tables 1, 2 and 3)
The above analysis is calculated using Russell Investments Capital Markets Assumptions (June 2015).

Russell Investments Capital Markets Assumptions (June 2015)

| | Canada Equity | Global Equity | Canada Universe Bonds | Global High Yield Debt | Canada Real Estate | Global Listed Real Estate | Canada Inflation |
|-------------------------------|---------------|---------------|-----------------------|------------------------|--------------------|---------------------------|------------------|
| 5 Year Expected Return | 5.4% | 6.2% | 1.3% | 4.9% | 4.4% | 5.5% | 1.9% |
| 5 Year Annualized Volatility | 18.2% | 15.8% | 2.3% | 15.7% | 9.3% | 18.1% | 1.8% |
| 10 Year Expected Return | 6.3% | 6.9% | 2.5% | 5.7% | 5.1% | 6.4% | 2.4% |
| 10 Year Annualized Volatility | 18.1% | 16.1% | 1.8% | 14.8% | 11.3% | 18.7% | 3.2% |
| 20 Year Expected Return | 7.0% | 7.5% | 3.1% | 6.2% | 5.6% | 7.0% | 2.8% |
| 20 Year Annualized Volatility | 18.3% | 16.8% | 2.7% | 15.0% | 12.4% | 19.6% | 5.8% |
| | Canada Equity | Global Equity | Canada Universe Bonds | Global High Yield Debt | Canada Real Estate | Global Listed Real Estate | Canada Inflation |
| 10 Year Correlation | | | | | | | |
| Canada Equity | 1.00 | 0.72 | 0.20 | 0.04 | 0.43 | 0.53 | 0.05 |
| Global Equity | 0.72 | 1.00 | 0.25 | 0.20 | 0.39 | 0.69 | 0.00 |
| Canada Universe Bonds | 0.20 | 0.25 | 1.00 | 0.30 | 0.11 | 0.19 | 0.01 |
| Global High Yield Debt | 0.04 | 0.20 | 0.30 | 1.00 | 0.03 | 0.15 | 0.02 |
| Canada Real Estate | 0.43 | 0.39 | 0.11 | 0.03 | 1.00 | 0.56 | 0.05 |
| Global Listed Real Estate | 0.53 | 0.69 | 0.19 | 0.15 | 0.56 | 1.00 | 0.02 |
| Canada Inflation | 0.05 | 0.00 | 0.01 | 0.02 | 0.05 | 0.02 | 1.00 |

Please note all information shown is based on assumptions. Expected returns employ proprietary projections of the returns of each asset class. We estimate the performance of an asset class or strategy by analyzing current economic and market conditions and historical market trends. It is likely that actual returns will vary considerably from these assumptions, even for a number of years. References to future returns for either asset allocation strategies or asset classes are not promises or even estimates of actual returns a client portfolio may achieve. The assumptions do not take fees into consideration and all returns are assumed gross of fees. Asset classes are broad general categories which may or may not correspond well to specific products. Additional information regarding Russell Investments' basis for these assumptions is available upon request.

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Reshaping the Canadian Retirement System

Part 2: Investing Strategically

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As highlighted in Part 1: Motivation for Change, many jurisdictions in Canada are considering arrangements that combine and maintain the attractive features of defined benefit (DB) and defined contribution (DC) pension plans and mitigate many of the flaws inherent in each. *This new innovation in Canadian pension plan design will force stakeholders to reassess the long-term investment decision.*

Not unlike traditional DB and DC arrangements, investment returns will play an important role in determining actual outcomes for newly designed structures, such as Target Benefit Plans (TBPs) and Shared Risk Plans (SRPs).¹ Moreover, the Strategic Asset Allocation (SAA) will be a key determinant behind the success of those returns over the longer term.² The challenge is that investors often need to take on more risk than they're comfortable with to achieve their objectives.

We believe every investor has unique circumstances which, if not properly considered, can lead to additional downside risks without the expectation of positive return - or, more simply put, uncompensated risk. The reality is that there's no single solution. But there's good news. Thankfully, risk is one of the variables investors can manage in their efforts to achieve desired outcomes. A reasoned, disciplined, customized approach will go a long way to ensuring all stakeholders achieve outcomes aligned with their specific circumstances and long-term strategic aspirations.

In this paper we explain the "design, construct, manage" process we deploy to build multi-asset strategies for SRPs and TBPs, and the investment outcomes we strive for, to help investors achieve their goals.

¹ TBPs and SRPs are used interchangeably throughout this piece, given they are conceptually the same in this context.

² See Ibbotson, Roger G. Kaplan, Paul D. "Does Asset Allocation Policy Explain 40, 90, or 100 Percent of Performance?" Association for Investment Management and Research, January/February 2000



Develop clear objectives

In the design phase of our investment process, we work with investors to fully understand their specific circumstances, beliefs, expectations and constraints. From there, we then help clients determine clear objectives and develop their SAA.³

For SRPs there are three key objectives to consider: return, risk and surplus. The dual objective of return relative to risk is fairly straight-forward, but moving toward a third objective of surplus management (difference between the assets and the calculated liability) can introduce additional complexity. Although the concept of surplus management is not new to most plan sponsors, it will continue to be essential to an effective governance framework for shared-risk plan designs.⁴

Assigning asset roles helps to align the portfolio with stated objectives. As part of the design process, there are three broad roles of asset allocation to consider:

- i. The first role is growth or return seeking: this is the growth engine of the portfolio and includes equity-orientated assets (public and private), real assets (listed and unlisted), hedge funds, and return-seeking fixed income (e.g., high yield and emerging market debt); expect equity-like return and risk characteristics.
- ii. Second is liability-matching or liability aware: The purpose of liability-driven assets is to mirror liability movement, thus helping to reduce surplus volatility. The composition of these assets will depend heavily on benefit targets and how liabilities are measured, which can vary widely across plan type and jurisdiction. Generally, expect lower returns with lower risk than you would expect from the growth allocation.
- iii. Third is surplus risk reduction and diversification: because the total portfolio design is more than just a sum of the growth portfolio, the liability-matching portfolio and the rebalancing policy. The total design should include strategies that provide diversification to growth assets while managing the overlap of and interaction between the liabilities, the liability-matching portfolio and the growth portfolio. Consideration should also be given to limit unintended risks to stakeholders beyond the portfolio level.

Incorporate strategic beliefs

Setting a long-term strategic asset mix begins with determining which broad asset classes are appropriate for the plan, and in what proportion. Deciding which markets to invest in should begin with a few key principles:

1. Balance the risk-sharing needs of today with the growth potential for tomorrow.

For most plans this will play a key role in the split between liability-driven and return-enhancing (growth) assets. Understanding the liability benchmark is a critical component when managing risk and determining an appropriate mix. The decision of how to split these two broad categories should be heavily influenced by the plan's status*, risk tolerance, shared appetite for growth as well as the governance process in place for varying contributions and benefit payments. Importantly, this decision is likely to have a larger impact on surplus volatility and long-term outcomes than any other strategic decision. Given the nature of the SRP design, this broad split will also be a key consideration when assessing intergenerational risk sharing, contribution volatility and/or benefit levels.

³ SAA is a direct reflection of risk tolerance and is therefore unique to each investor. While investment managers are often given some discretion around SAA, especially in the case of OCIO mandates, clients should ultimately retain decision making authority over the broad SAA.

⁴ "Surplus at risk is the amount by which the policy's asset allocation might outperform its pension liabilities." See Kaake, Kendra. "Asset Allocation and Risk Management for Defined Benefit Plans: A Canadian Perspective" Russell Research, September, 2012

*DB plans typically vary widely with respect to demographic characteristics, maturity level (i.e., average participant age and composition of membership cohorts) and plan status. Status in this context refers to whether a plan is open and on-going, closed to new members (existing members continue to accrue benefits) or 'closed and frozen' to all future service accruals.

2. Diversify across multiple investments.

Diversification helps provide a variety of potential return sources and avoids some of the risks associated with concentrated positions. Importantly, investors should keep in mind that the dispersion in returns tends to vary across asset classes even when correlations converge. Historically, diversification has not been as effective during periods of high risk (such as the Global Financial Crisis) because correlations between asset classes tended to increase. However, although diversification cannot guarantee positive returns, it can certainly ease the pain during periods of heightened risk. Consideration should be applied at the surplus level, total portfolio level, asset class level, manager level and individual factor/exposure level. For open and ongoing plans, growth assets should be included to improve diversification and enhance return.

3. Maintain awareness of the risks of over-reaching for return.

Understanding in advance and defining the downside risks associated with the portfolio (in asset-only and surplus space) for all stakeholders will go a long way to minimizing the impact of unexpected events.⁵ The current challenge is that many investors seek more certainty than they can afford and are often forced to take on more risk than they're comfortable with in order to meet their objectives.⁶



The next step in the process is to construct an investable portfolio in line with the SAA, where each component contains the most efficient sources of return available.

When constructing the return-enhancing (growth) and liability-matching (risk-reducing) portions of the portfolio it's important to consider:

- the stated objectives, ensuring they're aligned with the goals of the portfolio;
- the key drivers of return, ensuring they're aligned with investment beliefs;
- how interest rates and inflation exposure interact with the liabilities; and
- the stability of the investment approach over time - for example, if an asset manager is highly opportunistic can the plan tolerate possible extreme exposures?

Diversifying across good managers should not compromise expected added value. Manager selection and fee negotiations are the most obvious examples. Other considerations include tactical tilts around the SAA, dynamic use of both active and passive management and daily risk management.

Diversified Growth Portfolio

Choose strategies that are designed to enhance return beyond the design phase

One of the most overlooked areas of portfolio construction is possibly in the form of unintended, often plan-specific, exposures which increase risk but not expected return. A simple example might be a plan that holds significant home-country bias within the portfolio without regard to the interaction between that exposure and the organization's sensitivity to local economic conditions - i.e., the ability to make cash contributions at a time when the portfolio is stressed. Reducing home country bias may be a simple way to reduce risk without reducing long-term return expectations.

⁵ Stakeholders range from the individual plan member to the total sponsoring enterprise to less obvious participants such as tax payers.

⁶ See Curwood, Bruce and Myers, Heather. "Risk Management is the Cornerstone of Investing" Russell Research, September, 2012

Risk-reducing Portfolio

Integrate plan specific circumstances and limit uncompensated risk

Asset-liability mismatch is a risk that many plans unknowingly take on without a corresponding expectation for additional return. Managing the composition and duration of high quality fixed-income (liability-driven) assets in the portfolio can help determine the extent to which interest-rate risk is hedged, uncertainty is limited and uncompensated risk reduced. Shared risk plans attempting to minimize intergenerational inequity may find it useful to link contributions with the market value of benefits.



Adapt to risks and opportunities in the market

Because markets, managers and pension plans constantly change, the manage phase of the process is about ongoing, dynamic portfolio management. Change opens up new opportunities and old opportunities fade. The pace of change is increasing so investors need to adapt quickly to capture new opportunities and exit the old. Many pension plan sponsors identify the ability to respond to rapidly changing markets as a key issue.

Multi-asset investment strategies give the investment manager the flexibility to tailor portfolios to meet client-specific objectives. Interactions between asset classes, liabilities and the broader organization can be difficult to manage at the individual asset class level. The process of dynamically managing these interactions at the total portfolio level allows for improved diversification across liability-matching and growth portions of the portfolio as well as a real-world portfolio of strategies and exposures aligned to execute client-directed objectives. Once the constraints of a stated SAA are determined, a re-alignment within broad roles (i.e., growth and liability-matching) and among exposures may be periodically recommended to optimize the risk/reward trade-off, optimize fees/performance and improve liquidity at the total portfolio level.

Responding to market changes begins with **manager research**. Based on decades of capital market research and investment experience, we believe there are opportunities over the course of market cycles to achieve higher returns than the broad market. A disciplined, dynamic, approach to evaluating investment managers and strategies as they evolve can help identify and align managers to outperform benchmarks, after fees, in almost all active investment universes.⁷

Liabilities are never certain, estimates are updated regularly and seeking the best liability-hedging instrument can change over time.⁸ Dynamic strategies such as **liability responsive asset allocation**⁹ can help when changes in plan funding levels determine the strategic split between growth and liability-matching assets.

⁷ In an effort to ensure our clients' portfolios reflect our best thinking at all times, our portfolio managers (along with our global team of more than 60 research analysts) select investment managers from a broad set of candidates. We then use positioning strategies to precisely manage exposures across managers, asset classes and at the total portfolio level.

⁸ Plans that price and fund benefits at market value are sensitive to short-term fluctuations in interest rates.

⁹ See: Gannon, James and Collie, Bob. "Liability-Responsive Asset Allocation" Russell Research, April 2009. LRAA is often referred to as the glide-path approach.

In the case of ongoing SRPs seeking to limit intergenerational inequity, there may be a need to invest a higher proportion of the overall allocation into liability-hedging assets (typically, high quality Canadian bonds with a long duration) than is desirable or consistent with longer-term objectives. So, rather than relying solely on physical assets to hedge interest rate risk, **overlay services** (such as futures contracts, swap agreements and other derivatives) can be used to hedge market exposure without significantly changing the long-term strategic mix.¹⁰

Canadian Perspectives

From a Canadian-based investor perspective, we believe some important opportunities continue to be overlooked.

Defensive Equity: The use of market-relative benchmarking for mutual funds and institutional investment accounts has historically supported a preference for dynamic equity exposure even though the end investor would have found defensive strategies more attractive. Although history cannot guide us in the future, this practice is still widespread and seems unlikely to change in the short term.¹¹ For Canadian investors, often with a significant overweight to domestic holdings, there is evidence to support the opportunity for enhanced risk-adjusted returns through defensive strategies. Our research has revealed that the magnitude of this advantage is greater in Canada than in other global regions.¹²

Currency: Our research has shown that Canadian-based investors who believe the Canadian dollar will continue to exhibit pro-cyclical behavior can reduce equity volatility by retaining foreign currency exposure, especially to the U.S. dollar. In addition, investors who believe that currencies mean-revert to purchasing power parity (PPP) over the long term can follow a simple dynamic rule to enhance return.¹³ In practice, exchange rates exhibit both short- and long-term deviations from purchasing power parity, and as such the interaction between the total portfolio, liabilities and currency exposure may require ongoing management.

Home Country Bias: Canadian equity, with high sector concentrations and limited stock selection opportunities, contributes roughly 3.5% to global market cap. Despite this, most investors in Canada hold a significant overweight to Canadian equity. Increasing exposure to global mandates can improve diversification opportunities, add value from cross-border stock selection and create opportunity to capitalize on globally integrated markets.

Socially Responsible Investing¹⁴: Recent regulatory changes in some jurisdictions across Canada now require the disclosure of Environmental, Social and Governance (ESG) factors within the Statement of Investment Policies and Procedures (SIPP). Although the changes have only forced sponsors to disclose their ESG process (or lack thereof if they do not have one) many are reexamining their SAA and considering a more formal integration of ESG into the investment analysis and decision-making framework. There are many approaches, and customized solutions will depend *“on a multitude of factors, including where an investor sits on the value vs. value spectrum, stakeholder influence, potential risks and costs of implementing a solution as well as the primary motivation of doing so.”*¹⁵

¹⁰ The good news for Canadian investors, especially given how much importance we put on the permanence of leverage, is that the long end of the Canadian swap market tends to be an attractive market for LDI transactions. Pension funds often pick up yield while locking in long-term financing.

¹¹ See Collie, Bob and Osborn, John “Defensive Equity: Is the market mispricing risk?”, Russell Research, June 2011

¹² See Adam Hornung “Defensive Equity: A defensive Strategy to Canadian equity investing”

¹³ See Osborn, John and Kaake, Kendra “A forward looking approach to strategic currency hedging: A Canadian-based investor perspective” Russell Research, June, July 2013

¹⁴ Sustainable investing or responsible investing are umbrella terms often used to encompass a variety of implementation options. Among these are excluding companies involved in controversial industries, supporting the most sustainable companies, focusing on ESG exposures and/or using ownership to engage with companies. See: Myers, Heather and Kathuria, Manisha “Evolution of Sustainable Investing”, Russell Research, January 2016

¹⁵ Myers, Heather and Kathuria, Manisha “Evolution of Sustainable Investing”, Russell Research, January 2016

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