Pension Risk Transfer in Canada and the U.S.

Brent Simmons, FSA, FCIA
Head Defined Benefit Solutions
Sun Life

February 2022

This report was prepared to provide an overview of pension risk transfer for use in the educational curriculum of the Society of Actuaries. It presents general principles and highlights major differences between Canada and the U.S. from a life insurer's perspective. The focus is on group annuities, which are the most common solution for pension risk transfer. Note that pension risk transfer includes other solutions (e.g., longevity insurance in Canada), but these solutions are outside the scope of this report.

The researcher's gratitude goes to those without whose efforts this project could not have come to fruition: the Individual Life and Annuity Track curriculum committee and others for their input and diligent work reviewing and editing this report for accuracy and relevance.

For the SOA Individual Life and Annuity Track curriculum committee:

Dana Lipperman, FSA, MAAA

Maambo Mujala, FSA, MAAA

Ben Slutsker, FSA, MAAA

Reviewers:

Kristin Gustafson, FSA, MAAA

At the Society of Actuaries Research Institute:

Doug Chandler, FSA, FCIA, Canadian retirement research actuary

Dale Hall, FSA, CERA, CFA, MAAA, SOA managing director of research

At Sun Life

Jonathan Morin, FSA, FCIA

Eric Soehner, FSA, FCIA

CONTENTS

1. Client Need

Plan sponsors of defined benefit (DB) pension plans promise plan members a lifetime pension at retirement. Pension actuaries perform regular valuations of the promised pensions and determine the amount of money that needs to be set aside in the pension fund to meet these promises. Pension actuaries also calculate the impact of the promised pensions on the plan sponsor's accounting statements.

In a traditional DB plan, the risk of providing these pensions is borne by the plan sponsor. For example, if members live longer than expected or investments perform worse than expected, the plan sponsor needs to contribute additional amounts to the pension fund.

Plan sponsors historically did not invest pension fund assets in a manner that matched their pension promises. This exposed them to market volatility and resulted in unexpected cash contributions to the pension fund and unexpected accounting impacts. An increasing number of plan sponsors are interested in reducing these surprises, which can mean better matching their pension fund assets with their pension promises and/or purchasing group annuities.

There are two types of group annuities: buy-out and buy-in. For a buy-out annuity, the life insurer makes monthly pension payments to the covered plan members directly. For a buy-in annuity, the life insurer makes a monthly bulk pension payment to the pension fund which continues to pay plan members directly. A buy-in annuity avoids some of the cash and accounting impacts that may be triggered by a buy-out annuity for the plan sponsor. It may be later converted to a buy-out annuity.

Both types of annuities transfer the risks associated with paying the covered plan members to the life insurer. However, for a buy-in annuity the plan sponsor still retains the operational risk associated with paying the plan members directly.

The purchase of group annuities is generally a positive outcome for all stakeholders. Plan sponsors reduce the volatility of their cash contributions and accounting impacts. Plan members have their pensions paid by well-regulated life insurers. Pension regulators oversee less risky pension plans.

An additional benefit for U.S. plan sponsors is no longer having to pay costly Pension Benefit Guarantee Corporation (PBGC) premiums for the plan members included in a buy-out annuity purchase. As a result, buy-out annuities are more common than buy-in annuities in the U.S.

2. Group Annuity Market

Market growth in both the Canadian and the U.S. group annuity markets has been impressive. The Canadian market has grown from $2.7 billion in 2016 to $7.7 billion in 2021. The U.S. market has grown from $14.1 billion in 2016 to $38.1 billion in 2021. The majority of these annuity purchases are made as a de-risking decision by on-going pension plans (called lift-outs in the U.S.) as opposed to winding-up pension plans.

As of early 2022, there were 8 life insurers active in the Canadian group annuity market and 19 life insurers active in the U.S. group annuity market. Many of these insurers are relatively new to the group annuity market, having entered in the last ten years.

Different life insurers may specialize in different segments of the group annuity market. For example, an insurer may have a preference for buy-out or buy-in annuities, small or large transactions, retired or deferred annuitants, CPI-linked or nominal benefits or certain longevity profiles.

When a plan sponsor decides to purchase a group annuity they usually engage the services of an actuarial consultant to run a competitive bidding process. The consultant prepares a request for quotation specifying (among other things) the plan members to be covered, the type of annuity (buy-out or buy-in) needed, the tranching structure (more common in Canada than the U.S.), the date that quotations are due, the date that the premium will be paid and the date that the life insurer will make the first pension payment.

Life insurers then submit their quotations and the plan sponsor chooses the winning insurer for each tranche. There can one or more rounds of feedback and opportunities for insurers to refresh their price. Price is important, but a plan sponsor typically also has a fiduciary responsibility to plan members and would consider other factors such as insurer credit ratings, insurer experience or existing business relationships. In the U.S., the Department of Labor's Interpretive Bulletin 95-1 provides guidance on the fiduciary standards that a plan sponsor should consider.

The time between when an insurer is notified that they've won a group annuity quotation and when they're paid the premium can be several weeks. This exposes the insurer to market movements as it's sometimes challenging to fully hedge the associated liability before receiving the premium. As such, a mechanism for adjusting the price between the quote date and the premium payment date is sometimes used when the premium is paid in cash. This adjusts the premium for market movements and ensures that the insurer will receive enough assets to properly hedge its liabilities. The importance of this mechanism is reduced if the premium is being paid as an in-kind transfer of assets similar to those that the insurer will use to back its liabilities.

3. The Policy / Contract

There are many differences between a group annuity policy and an individual annuity policy. One important difference is that the policy is between the insurer and the plan sponsor. For buy-out annuities, each annuitant is sent a certificate documenting their benefit entitlement.

Another difference is the benefits provided. A buy-out annuity mirrors the benefits provided by the pension plan. As such, there may be benefits that are linked to CPI, that are temporary or that are integrated with government-provided retirement benefits. A buy-in annuity usually mirrors the benefits provided by the pension plan, but could be purchased to provide lower benefits. For example, a plan sponsor could choose to exclude CPI-linked increases from the buy-in annuity and continue to bear the responsibility and risk of providing these increases.

If the group annuity includes deferred annuitants then the policy needs to outline these annuitants' options such as whether they can commute their pension, when they can retire, the penalty for retiring early and the forms of pension that they can choose at retirement.

Buy-in annuity policies allow cash outs in specific circumstances in order to satisfy certain pension regulations.

4. Pricing Considerations

The main assumptions required to price a group annuity include:

- expected asset return
- expected asset defaults
- longevity base table and longevity improvement scale
- acquisition and maintenance expenses
- annuitant behavior
- provisions for adverse deviation
- profitability level

The pricing for each quotation is highly customized and can be thought of as a mini-M&A transaction. In some cases, premiums of hundreds of millions or even billions of dollars are changing hands. A small pricing mistake can be costly to an insurer – either by making their premium too high and preventing them from winning business or by making their premium too low and leading to future losses.

A detailed discussion of pricing considerations is beyond the scope of this study note, but here are a few basic considerations:

- Assets: Pricing is very dependent upon the assets that each insurer has available, which can change daily. Group annuity cash flows are mostly illiquid so insurers often use illiquid assets in their group annuity portfolios.
- Longevity: This assumption can vary widely between insurers as each insurer relies on their own underwriting framework. The software underlying these frameworks can be created in-house or purchased from third parties and can be based on any combination of proprietary, purchased and publicly available data. Pricing also depends upon when longevity risk transfers from the plan sponsor to the insurer (e.g., date of annuity purchase, date of first payment, etc.).

  For the base table assumption, insurers often compare multiple data points in their underwriting framework. For example, an insurer might consider postal or ZIP code analysis, job types and experience data. Consistency among the data points allows an insurer to have more conviction and potentially choose a more aggressive assumption. For the improvement scale assumption, insurers often rely on industry tables derived from population level data.
- Liquidity requirements: Deferred annuitants sometimes have the option to commute their pensions in certain circumstances. If so, pricing needs to reflect the proportion of deferred annuitants expected to choose a pension vs. a lump sum commuted value. The asset portfolio should contain enough liquid assets to meet these lump sum payments.
- Market risk margins: Pricing may need to reflect a margin for market movements between the time the quote is submitted and the time the plan sponsor notifies the insurer that they've won. A premium roll forward mechanism or an in-kind asset transfer can reduce or eliminate the need for this margin.
- Data risk margins: Pricing should reflect the level of data risk that the insurer is assuming. For example, is the insurer able to adjust its premium for data errors that are discovered when the group annuity is being implemented? Is the insurer able to reprice its premium in the event of material data errors?
- Annuitant behavior: Deferred annuitants are able to choose their retirement date and form of pension. If these options are subsidized (as opposed to being actuarial equivalent) then pricing needs to reflect an assumed retirement date and pension form for each deferred annuitant.
- Commissions: The fees charged by the plan sponsor's actuarial consultant and other advisors are usually paid by the plan sponsor or pension fund. Occasionally the plan sponsor will request that a commission be incorporated into the group annuity pricing with appropriate disclosure.
- Other: Pricing needs to reflect the impact of reinsurance and any offshore structures being used by the insurer.

5. Risk Considerations

The main risks associated with a group annuity mirror the assumptions being made:

- investment (credit and/or market)
- interest rate
- longevity

- annuitant behavior
- operational

There are a number of approaches to mitigating these risks:

- Investment: This risk can be mitigated by careful credit underwriting, using higher credit quality fixed income assets and limiting the amount of non-fixed income assets in the portfolio.
- Interest rate: This risk can be mitigated by closely matching the duration of the insurer's asset portfolio with the duration of the group annuity cash flows at several key rate durations.
- Longevity: Longevity is especially challenging to predict given all the factors that can impact current and future life expectancy (e.g., lifestyle, environment, precision medicine, regenerative medicine, pandemics, etc.) As such, most insurers assume their longevity assumption will be wrong and focus on reducing the financial impact when this happens.

  For example:

  - An insurer may limit the number of deferred annuitants that it is willing to assume each year as deferred annuitants are younger and their life expectancies are more uncertain.
  - An insurer may choose to use a more conservative longevity assumption if the data points in its underwriting framework don't align.
  - An insurer can manage its life insurance and annuity businesses to create a natural risk hedge, keeping in mind that mortality/longevity impacts differ for different age groups.
  - Finally, an insurer can rely on reinsurance to reduce its longevity risk.
- Annuitant behavior: This risk can be mitigated by being conservative when choosing the assumed retirement date and form of pension for deferred annuitants.
- Operational: This risk includes making incorrect payments to annuitants and paying annuitants that have passed away. This second risk can be mitigated by regularly verifying that annuitants are still alive – either directly (for a buy-out annuity) or through the plan sponsor (for a buy-in annuity).

About The Society of Actuaries Research Institute

Serving as the research arm of the Society of Actuaries (SOA), the SOA Research Institute provides objective, data-driven research bringing together tried and true practices and future-focused approaches to address societal challenges and your business needs. The Institute provides trusted knowledge, extensive experience and new technologies to help effectively identify, predict and manage risks.

Representing the thousands of actuaries who help conduct critical research, the SOA Research Institute provides clarity and solutions on risks and societal challenges. The Institute connects actuaries, academics, employers, the insurance industry, regulators, research partners, foundations and research institutions, sponsors and non-governmental organizations, building an effective network which provides support, knowledge and expertise regarding the management of risk to benefit the industry and the public.

Managed by experienced actuaries and research experts from a broad range of industries, the SOA Research Institute creates, funds, develops and distributes research to elevate actuaries as leaders in measuring and managing risk. These efforts include studies, essay collections, webcasts, research papers, survey reports, and original research on topics impacting society.

Harnessing its peer-reviewed research, leading-edge technologies, new data tools and innovative practices, the Institute seeks to understand the underlying causes of risk and the possible outcomes. The Institute develops objective research spanning a variety of topics with its strategic research programs: aging and retirement; actuarial innovation and technology; mortality and longevity; diversity, equity and inclusion; health care cost trends; and catastrophe and climate risk. The Institute has a large volume of topical research available, including an expanding collection of international and market-specific research, experience studies, models and timely research.

Society of Actuaries Research Institute
475 N. Martingale Road, Suite 600
Schaumburg, Illinois 60173
www.SOA.org