ECKLER

PENSION RISK TRANSFER REPORT

MARCH 2019

INTRODUCTION

In this, our second Canadian Pension Risk Transfer (PRT) Report, we have assembled four thought pieces based on our discussions and interviews with each of the insurers active in the Canadian PRT market – our own insights on our expertise gained through risk transfer consulting.

1. **Market overview**
   A summary of recent growth and performance, and a recap on the risk takers active in the market

2. **PRT market trends**
   A discussion on the trends and factors that may shape the future

3. **Preparing for success: the realities of PRT transactions**
   Given the complexity of the risk transfer decision, we explore the ways in which plan sponsors can ensure a rewarding PRT experience

4. **Measuring longevity better**
   A summary of an in-depth investigation of the factors that best explain why different types of pensioners live to different ages

To keep you up to date on the various PRT market players and decipher the PRT lexicon, the Appendices at the end of the report include:

- **Insurer fact sheets** – Your quick reference guide to the insurers currently active in the Canadian PRT market
- **A PRT glossary** – Definitions of key terms, from buy-outs to buy-ins to boomerang risk

Regardless of where you are on the de-risking journey – whether it be education, investigation or implementation – this second annual report continues to offer key insights, knowledge and resources to support you in the achievement of your risk transfer goals.

1

MARKET OVERVIEW

The Canadian PRT market has continued to experience considerable growth and change. In this section, we provide an overview of the market and the key players in it.

Another record-breaking year

In 2018, buy-in and buy-out annuity sales in Canada reached their highest level yet, closing out the year at $4.5 billion, increasing by $0.8 billion over 2017. This 20% increase in the volume of group annuities bought by Canadian pension plans continues the trend of stellar growth observed in 2017, where sales increased by more than a third over 2016.

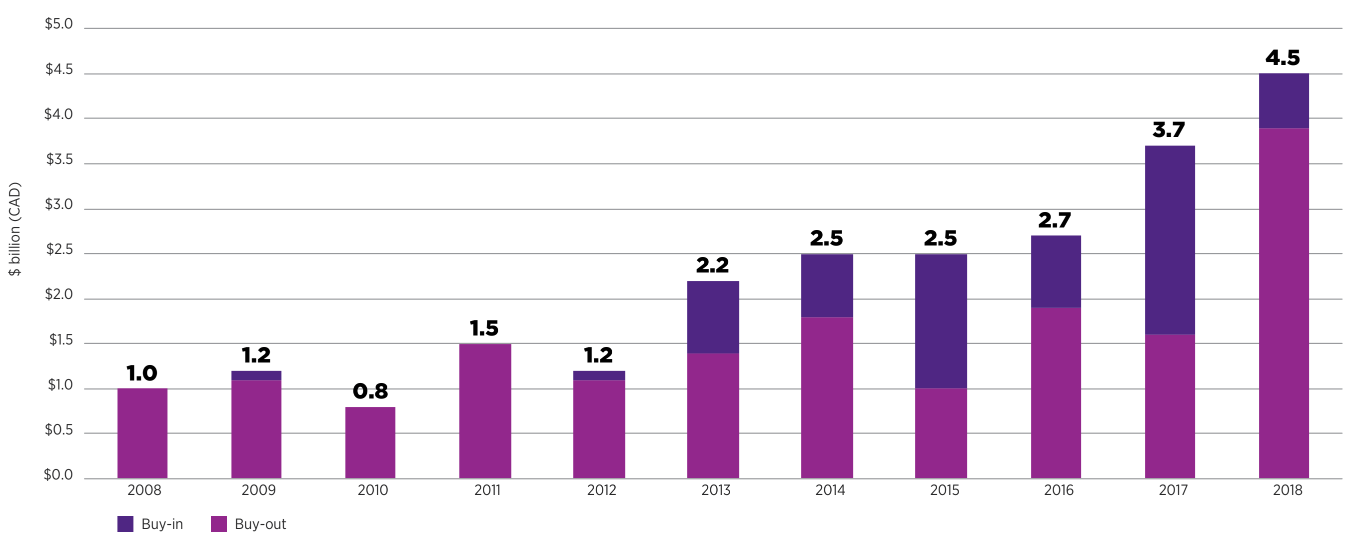
Breaking the $4 billion sales threshold marks a significant milestone for the Canadian PRT market. In 2008, the annual amount annuitized in Canada sat at approximately $1 billion. Since then, annual risk transfer premiums have increased steadily, driven by larger transaction sizes and increased innovation.

Buy-in annuities, which were a relatively new and innovative form of risk transfer in Canada less than a decade ago, are now a standard offering of eight of the nine insurers we surveyed in the preparation of this report. In fact, in 2017 buy-in annuities made up more than 50% of the pension risk transfer market, demonstrative of their status as a strategic investment of choice.

However, through 2018, the market saw the proportion of total group annuity sales represented by buy-in annuities fall to below 15%. In 2018, perhaps driven by strong equity market returns and modestly increasing bond yields through the first part of the year, buy-out annuities for ongoing plans dominated the PRT market, representing $3.0 billion of the total $4.5 billion transferred.

Larger transaction sizes also continue to be observed in the Canadian market. In 2016, the average annuity transaction was approximately $29 million; in 2018, that figure had increased to $40 million. "Jumbo" transactions are also becoming more commonplace: in 2018, BMO Insurance completed its largest single annuity transaction to date, a deal worth $322 million with an undisclosed company. 2018 also saw the completion of a $700 million buy-out annuity undertaken by Alcoa Corporation with three insurers[1].

Annual Canadian Group Annuity Transactions*



* Historical data includes revisions provided by insurers

[1] *Sun Life Assurance Company of Canada, Desjardins Insurance, Industrial Alliance and Financial Services Inc.*

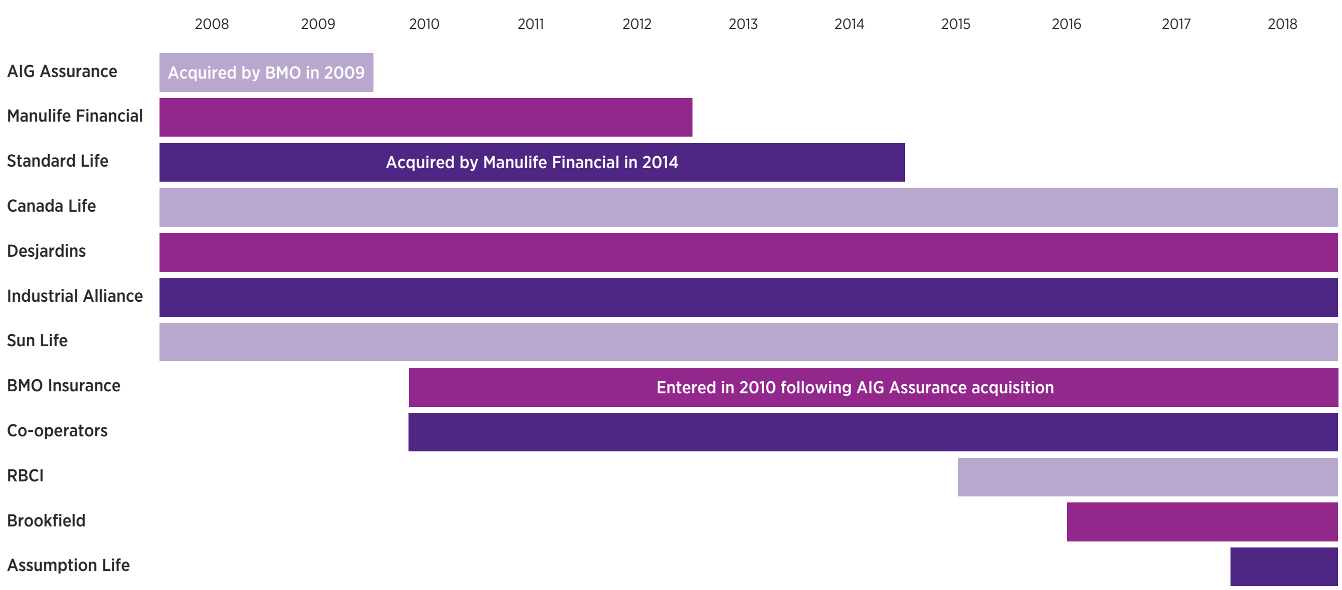
The risk takers

The Canadian PRT market has seen continued evolution in its participating players. Our report covers nine insurers currently offering pension risk transfer solutions.

While we have seen insurers exit the Canadian PRT market over the last decade (Manulife Financial in 2012, and Standard Life Insurance Company in 2014 following its acquisition by Manulife Financial), entrants to the market have outnumbered departures. The most recent addition to the market, Assumption Life, extended its group annuity service offering to new clients in 2018. At the end of 2018, there were nine insurers actively quoting on group annuities:

- The Canada Life Assurance Company of Canada (Canada Life)
- Desjardins Insurance (Desjardins)
- Industrial Alliance and Financial Services Inc. (Industrial Alliance or iA)
- Sun Life Assurance Company of Canada (Sun Life)
- BMO Insurance
- Co-operators Life Insurance (Co-operators)
- RBC Life Insurance Company (RBCI)
- Brookfield Annuity Company (Brookfield)
- Assumption Life

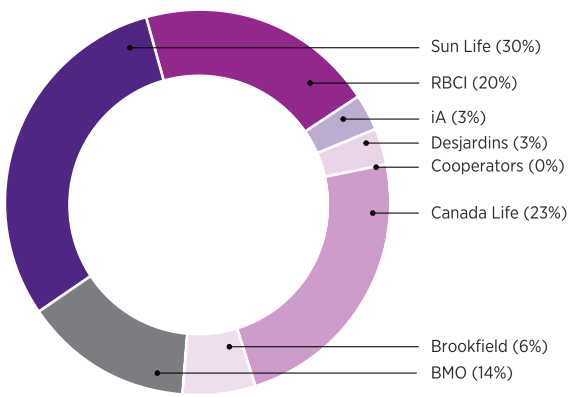
Evolution of Insurers Participating in the Canadian PRT Market



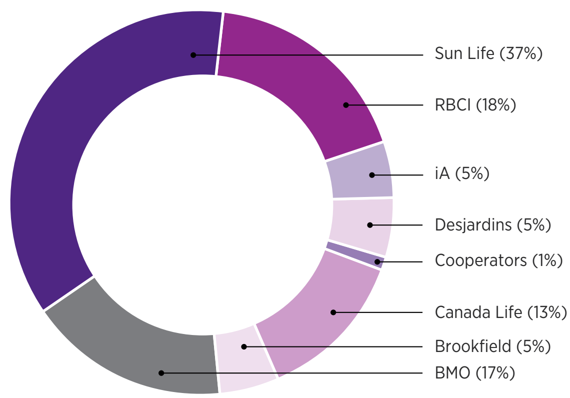
With respect to group annuity sales, 2018 saw notable performance by Brookfield which maintained market share at 5% after entering the market with a share of 6% in 2017, its first full calendar year as a player in the Canadian PRT market. RBCI also saw sustained market share at 18% in 2018, following a substantial increase from 7% in 2016 to 20% in 2017. Finally, Sun Life's market share increased by 7%, to 37% in 2018 from 30% in 2017.

While insurer market share may fluctuate from year to year, Sun Life has consistently held the largest share of the market since 2008. Based on group annuity transactions since 2014, Sun Life holds the largest market share at 39%, followed by Canada Life at 19%, BMO Insurance at 14% and RBCI at 13%.

Group Annuity Market Share by Insurer 2017



Group Annuity Market Share by Insurer 2018



Figures may not sum to 100% due to rounding

The Canadian PRT market continues to thrive, as evidenced by increasing sales, and a competitive insurance market with continued interest from new risk takers.

2

PRT MARKET TRENDS

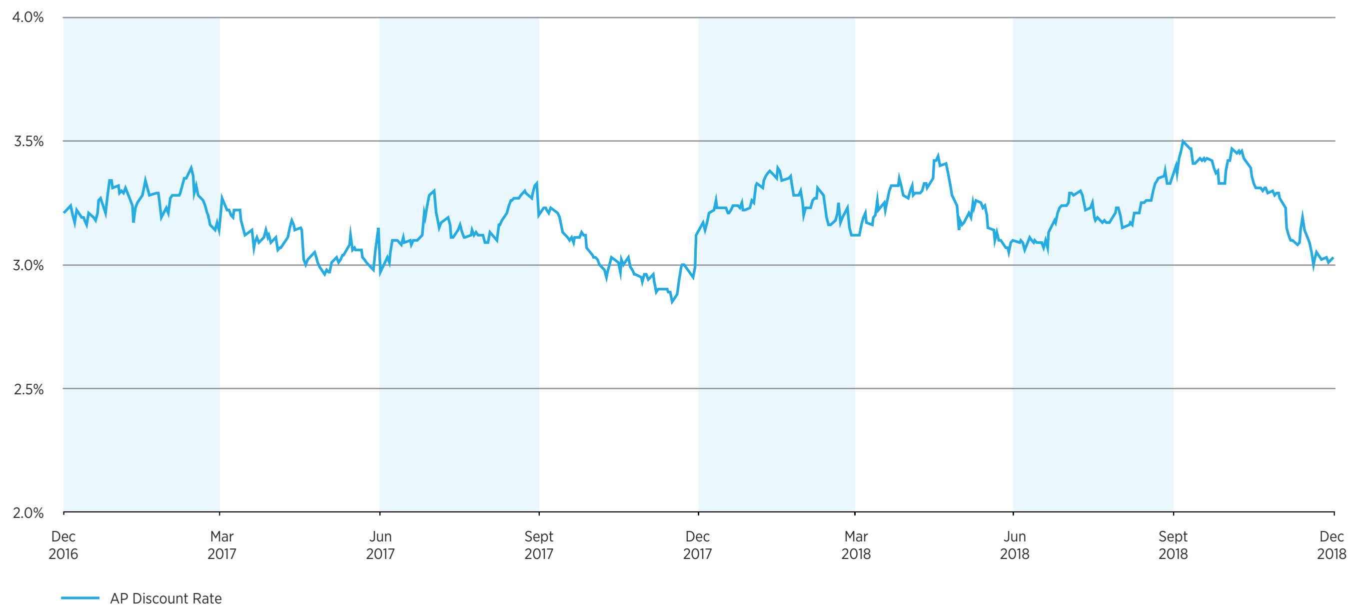
The consensus among insurers we interviewed was one of optimism with respect to the outlook for growth in the Canadian PRT market. Looking forward, we see the key factors that may influence the growth in the risk transfer market as capital market volatility, increasing transaction size, insurer capital requirements, and longevity risk transfer.

Capital market volatility

The annuity purchase proxy rate is a benchmark discount rate estimated by the Canadian Institute of Actuaries to be indicative of the relative cost of annuitization.

The table below shows the annuity purchase proxy discount rate through December 2018.

Annuity Purchase Discount Rate*



* Rates shown are those based on the highest duration category, incorporating quarterly guidance from the Canadian Institute of Actuaries up until December 30, 2018

Through 2017 and the first three quarters of 2018, given strong equity market returns and despite volatile annuity purchase rates, many plan sponsors saw improvements in pension plan funded levels. However, sharp declines in rates and losses in equity markets during the fourth quarter of 2018 may have caused some plans to lose some of their earned gains in funded ratios. Looking forward, many economists predict rising interest rates and continued volatility in equity markets.

Notwithstanding losses in the fourth quarter of 2018, many pension plans that implemented de-risking journey paths toward eventual wind-up may be well-positioned to execute on planned risk transfer. And for those pension plans that had seen funded ratios improve, but had not implemented de-risking plans, risk transfer may now be front-of-mind in an effort to “lock in” current funded positions, or to closely monitor funded positions in order to act quickly once funded positions recover, and to avoid future volatility. Given these factors, we expect market volatility to have a positive impact on PRT market expectations.

Bigger deals

As the PRT market has matured, the prevalence of large annuity transactions has also increased, with many larger plans considering insurance as a strategic choice. The largest group annuity purchases typically involve more than one insurer. By splitting the plan's liabilities into tranches of a size that are desirable to several insurers, plans can make the most of a competitive market.

Examples of this trend include the $350 million inflation-linked annuity purchased by Loblaw Companies Limited and split between two insurers (Sun Life and BMO Insurance); the $900 million buy-in transaction announced in the second quarter of 2017 for an undisclosed company which was split between three insurers (Sun Life, Canada Life and RBCI); and the $700 million buy-out annuity purchased by Alcoa Corporation in April 2018 with three insurers (Sun Life, Desjardins and iA). Notably, in the third quarter of 2018, BMO Insurance completed its largest single-annuity transaction to date: a deal worth $322 million with an undisclosed company.

While large transactions require increased customization, negotiation and planning, solutions can often be tailored to suit the plan sponsor's specific needs. While not all insurers may be willing to quote on extremely large deals, the number that will is steadily increasing, reflecting increasing market capacity and competitiveness.

In our view, the Canadian market will continue to see increasing risk transfer deal sizes, naturally having a positive impact on the overall size of the market.

Reinsurance

Splitting a transaction into multiple tranches allows each insurer to improve pricing by limiting their exposure to a single pension plan, avoiding the need for reinsurance.

However, in our view, it is only a matter of time before reinsurance becomes an integral part of the PRT market in Canada. In fact, we have seen two recent examples of the use of reinsurance in Canada. In 2018, Brookfield entered into a reinsurance agreement with Legal & General Reinsurance to coinsure a portion of transactions greater than $100 million. It was also announced in February 2019 that RGA Life Reinsurance Company of Canada (RGA Canada) completed a transaction to reinsure the longevity risk associated with approximately 45,000 annuitants for Manulife.

To date, some Canadian insurers have been able to view pension risks, which cost more if people live longer, as a natural offset to their existing book of life assurance, which costs the insurer less if people live longer. Thus, the reinsurance arrangement noted for Brookfield is a natural risk management strategy, given their position in the market as a risk transfer specialist insurer without other lines of business. For Manulife, which no longer actively quotes on annuity business in Canada, the move offers a solution for hedging longevity risk associated with an in-force block of group annuities.

The days of minimal use of reinsurance in the Canadian PRT market may soon be behind us, due to the rapid growth in the PRT market as well as differences in the populations of insured lives and pensioners that make for a less-than-perfect offset. This may increase the pressure on insurers to reinsure longevity risk.

New insurance capital requirements

In 2018, the new Life Insurance Capital Adequacy Test (LICAT) guidelines were introduced. Federally regulated insurers must follow these guidelines to determine how much money they need to hold to back the business they have written.

Although this was a major change for the Canadian insurance industry, and the impact of the implementation of these guidelines varied among insurers, the insurers we surveyed generally viewed the overall impact on PRT pricing as neutral.

The fact sheets included in Appendix A of this report show a capital ratio for each insurer; in other words, how much capital they actually held versus the minimum required under LICAT.

The ratios are lower than we showed in our last report, but this is mainly because the target has moved as LICAT replaced the previous requirement (Minimum Continuing Capital and Surplus Requirements or “MCCSR”). In practice, insurers are holding a very similar level of capital to back their pension business, and this is substantially more than any Canadian pension plan would hold in assets.

Longevity risk transfer

Buy-in and buy-out annuities transfer three key risks from the plan sponsor to an insurer: investment risk, interest rate risk and longevity risk.

Longevity-only insurance, such as the $5 billion transaction agreed to between BCE Inc. and Sun Life Financial in 2015, and the $35 million transaction between Canada Bank Note Company and Canada Life, transfers only longevity risk. These transactions may appeal to plan sponsors who wish to target longevity risk specifically, and address other risks such as interest rate and investment risk through alternate means.

The two longevity-only insurance transactions that have occurred in Canada in the last 5 years mark significant first steps in the development of the Canadian longevity risk transfer market, and show accessibility to this form of risk transfer to both large and small pension plans.

While we believe that longevity risk may not be getting the attention it deserves in the Canadian market, the use of longevity-only insurance may remain sporadic unless pension plans' mortality improvement assumptions converge with the more cautious assumptions taken by insurers and reinsurers.

The Canadian PRT market continues to show clear signs of being primed for growth and development.

3

PREPARING FOR SUCCESS

The last few years have seen enormous growth in the Canadian PRT market, and all signs indicate this trend will continue. For plan sponsors considering risk transfer, focusing attention on the three key areas - planning, engagement and data – can significantly improve the process and outcomes.

The considerations outlined below have been prepared with smaller PRT transactions in mind – in the magnitude of less than $100 million. Larger transactions often require additional and/or different considerations.

Planning

LAY THE GROUNDWORK

Any transfer of pension risk to an insurance company involves a substantial amount of time and resources, and it is important to put in place the right processes and controls from the beginning. These should include:

- **Identifying clear objectives** up front, so you know when the price is right. For example, there may be a desired threshold on any required cash top-up, or on the financial reporting impacts. Investigating these factors prior to requesting an annuity quote improves the likelihood of a successful risk transfer exercise. However, by setting clear objectives early in the process, the decision-making process should be clear.

- **Making sure all the decision-makers are ready** on "deal day." It can be a challenge to ensure senior management is fully briefed, and with time set aside to complete the transaction at the date and time agreed with your chosen insurer. Deadlines are typically strict, however, and a deal may fall through if approvals cannot be completed on time.

- **Setting realistic timelines** for each step in the process.
    - It's important to ensure the appropriate amount of time is given to insurers to respond to a quote request. A reasonable turnaround time will depend on several factors, including:
        - Whether or not illustrative quotes have already been prepared;
        - How many other quotes are coming to the market at the same time; and
        - The complexity of plan provisions and quality of data.
    - Generally, at least three weeks should be given for a new quote. However, as size and complexity increase, four weeks may be preferred. Shorter periods potentially result in insurers adding margins due to insufficient time to underwrite appropriately.
    - If the implementation date for the start of insurer payments to annuitants is aggressive, and is placed too close to the premium transfer date, the execution of a successful implementation may be put at risk. Sufficient time is invaluable to ensure timely member communication and that initial payments to annuitants are processed smoothly.

- **Structuring and tranching the quote appropriately.**
    - Larger transactions introduce additional complexities, so many plan sponsors opt for breaking a PRT transaction into smaller pieces in hopes of attracting more potential insurers (i.e., more competition may lead to more competitive pricing). While tranching can improve competition and pricing, there are some pitfalls to watch out for, including:
        - Heterogeneous versus homogeneous tranches – When discussing dividing larger plans into tranches, insurers have varying preferences for how the tranches are structured. Some insurers wish to avoid concentration risk (i.e., where each tranche contains a similar type of retiree, such as all hourly, all salaried or all executive) and prefer that the tranches be heterogeneous. On the other hand, some insurers may have more competitive pricing for certain mixes of members (i.e., blue collar versus white collar), and prefer that the tranches be homogenous. It's important to engage the insurers to clearly understand how the particular group of annuitants may be viewed by the insurer.

- Too many tranches – Given the various insurer preferences, it may be favourable to have insurers quote on different approaches to tranching. However, if insurers are underwriting each tranche, this will increase their underwriting costs. If the additional required effort can't be met because of resource constraints, insurers may price more conservatively.
- Tranching to maximize Assuris coverage – It is quite common to create tranches to maximize how much of pension benefits are covered by Assuris.

However, it's vital to carefully weigh the implications of this. In some cases, this will create a tranche made up of a small number of pensioners with very large pensions. Insurers may price these more conservatively than if they where included with a mix of other pensioners. Plan sponsors should consider whether the benefit gained from an extra layer of Assuris coverage is justified by the additional cost and complexity of benefit administration (for example, this often results in pensioners having their annuities paid from more than one insurer).

Engagement

SHOW YOUR HAND

It is human nature to be cautious when seeking a quotation for any type of insurance, but **holding your cards too close to your chest can be a mistake**. Why is this? Insurers are cautious too, and unlike pension plan actuaries, they only get one shot at estimating how much it will cost to pay members' pensions for the rest of their lives. If the insurer does not have a clear picture of the plan's membership profile, they will include extra margins in their premium in case, for example, members live longer than expected.

Even if your plan members are expected to live longer than average, you can reduce pricing margins by giving the insurer enough historical data to work with, as well as sharing a clear description of the plan's membership and how it may have changed over time. **An open and collaborative process can be a win-win** for the plan sponsor and the insurer.

TIMING IS EVERYTHING

The influence of market conditions will greatly depend on the plan's investment strategy. By monitoring the impact of market conditions on pre-defined PRT transaction objectives, plan sponsors can better determine the optimal time to request a live quote. Having a robust monitoring framework minimizes the chances of a formal quote process failing to achieve its objectives.

We also help our clients achieve the best possible deal by maintaining an open dialogue with insurers about their business volumes and pipeline. This often boils down to simple supply and demand.

From an insurer's supply perspective, insurers are always on the lookout for high-yielding but relatively safe assets to invest in to support pension risk transfers. When an insurer purchases the right assets, there is an opportunity for attractive pricing, provided the plan sponsor is prepared to act quickly.

From a demand perspective, sometimes insurers are asked to quote on several large risk transfers at the same time. As a plan sponsor, it can be beneficial to wait a little or time your quote to when the insurer is able to provide their full attention, and to when you may be facing less competition from other pension plans to secure insurance at the best price.

Data

MIND THE MESS

The cleaner the pension plan data, the better the price of insurance. Insurers will build margins into their quotes if there are gaps or inconsistencies in data, so it is often worth spending some time and money up front for an overall saving.

The data-cleaning process usually includes:

- Identifying and removing the records of any pensioners who have died. Identifying any pensioners' spouses who may have died since the member retired can also reduce costs if the plan was expecting to pay that spouse a pension.

- Attempting to locate deferred members who are eligible to take a lump-sum payout instead of a future pension that would be insured. Many plans have many deferred members with small pension entitlements, and the cost of continuing to administer these benefits can be disproportionately high.

- Providing insurers with information about the key factors that affect members' life expectancies, including postal codes, job/collar types and earnings history. (Refer to section 4 of this report - Measuring Longevity Better.)

Clearly, PRT transactions are not only viable, but also appealing. Determining a risk transfer strategy is a complex decision, but as insurers and plan sponsors work together to create innovative solutions, plan sponsors will be well positioned for a rewarding PRT experience.

REVIEW PLAN BENEFITS

As well as data on individual members, it is important to review the plan benefits that are being insured, to get the best value for the money.

- Plan provisions that give members options are difficult for insurers to match with their investment strategy, particularly if those options are provided over a long deferral period. This introduces extra risk for the insurer, which means a higher cost for the plan. Once members retire, however, the impact of plan provisions generally diminishes greatly as pension benefits have been set.

- Provisions related to a pensioner's spouse are also important (e.g., a pop-up upon the death of the spouse, or the ability to remarry and designate a new survivor).

- Pension increases that are linked to inflation can be particularly expensive to insure, although this area of the market is growing. For plans with these provisions, it can be in everyone's best interests to engage in dialogue with insurers to explore the benefits of annuitizing those benefits in their existing form, or converting to fixed increases.

In an increasingly crowded marketplace, taking these steps and considering these factors will help ensure the best deal for both the plan members and the plan sponsor.

4

MEASURING LONGEVITY BETTER

As Canadian pensioners continue to live longer, Canadian pension plan sponsors' recognition of the importance of longevity has grown.

Longevity is the key factor influencing how long pension plans pay their pensioners and uncertainty around this factor has, until recently, been an under-appreciated source of risk.

One recent contribution to a better understanding of Canadian longevity and longevity risk is a paper released by the Canadian Institute of Actuaries in May 2018, which was authored by Seyed Saeed Ahmadi and Richard Brown of Club Vita Canada Inc., Eckler's longevity analytics subsidiary launched in 2015.

The paper entitled Key Factors for Explaining Differences in Canadian Pensioner Baseline Mortality presents an in-depth investigation of what factors best explain why different types of pensioners live to different ages. The paper explored many technical aspects, including generalized linear modeling, postal code-based geodemographics and clustering analysis.

We've provided a brief overview of the paper's key findings. Given the importance of longevity in the pricing of pension risk transfer transactions, it's sensible for not only the insurers assuming risk to understand the longevity profile of the specific group being assessed, but also the pension plan sponsors transferring risk.

Reducing longevity measurement risk

The main focus of the research was to understand the key drivers of differences in longevity, in order to enable the reduction of measurement risk when assessing longevity expectations for defined benefit pensioners. That is, to reduce the risk that a pension plan uses a baseline mortality assumption that isn't reflective of the mortality characteristics of the underlying members.

Baseline mortality assumption: the expectation of how long people are currently living today.

The paper outlined how this was achieved by creating models that were able to explain almost a nine-year range in life expectancies for a 65-year-old man, and almost an eight-year range for a 65-year-old woman.

To quantify this in terms of dollars, a one-year change in life expectancy roughly equates to a 3% change in a plan's liabilities. Therefore, accounting for the mortality characteristics of a pension plan's specific membership could lead to a very different liability than when the plan member's unique characteristics haven't been accounted for, which is the current common practice in Canada.

Identifying the key factors

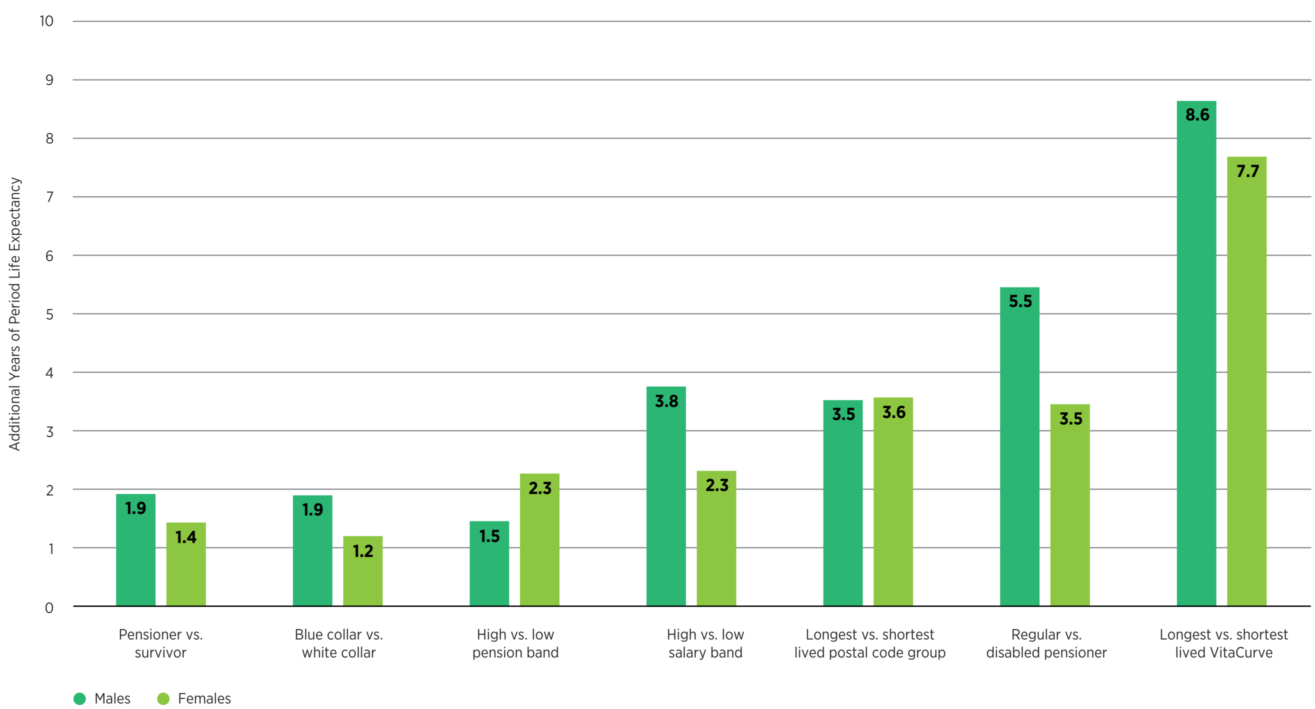
The paper investigated several potential longevity factors that are available in pension plan administration systems, with the factors being selected based on evidence of their influence on longevity (from existing research or observed data).

In total, fifteen factors were tested, with the following eight factors identified as the best for explaining differences in Canadian pensioner longevity:

1. Age
2. Gender
3. Pensioner type (i.e., pensioner versus surviving spouse)
4. Occupation type (i.e., blue versus white collar)
5. Pension amount
6. Pre-retirement earnings
7. Socioeconomic status (proxied via postal codes)
8. Health at retirement (i.e., disabled pensioners versus regular pensioners)

The chart below highlights the range in life expectancies explained by each of the factors, other than age and gender, individually and for all factors combined.

Differences in Period Life Expectancy at Age 65



Comparing to other approaches

The most common approach currently utilized to assess plan member longevity is to use one of three baseline mortality tables published by the Canadian Institute of Actuaries as part of the Canadian Pensioners' Mortality (CPM) study. That is, the CPM Public Sector, CPM Private Sector or CPM Combined (i.e., public and private sector combined). In contrast to the CPM study, the paper concluded that there was minimal difference in the mortality experience for public- versus private-sector pension plans, at an aggregate level, which helps explain why the public/private sector was not found to be one of the best factors.

Here is a brief comparison between the two studies:

	CPM Study (2014)	Club Vita Key Factors Paper (2018)
Membership group	Pensioners only	Pensioners and survivors
Mortality experience period	10 years (1999-2008)	3 years (2012-2014)
Factors to explain longevity differences (other than age and gender)	Sector and pension amount	Pensioner type, occupation type, pension amount, pre-retirement earnings, postal code, retirement health
Explained range of period life expectancy for a 65-year-old	3.9 years for males 1.6 years for females	8.6 years for males 7.6 years for females

What it means for your plan

The paper found that by capturing the baseline mortality characteristics of individual plan members based on a wide range of available longevity factors, plans could develop more accurate baseline mortality assumptions. This allows pension plans to reduce their longevity measurement risk by accurately reflecting the longevity risk profile of their plan members.

For plans looking to de-risk in the pension risk transfer market, it is important to note that the approach presented in the paper aligns closely with how insurers conduct their longevity analysis. That is, insurers try to capture all available information to help them determine a best-estimate longevity assumption for each pension risk transfer transaction. Therefore, the paper lays the groundwork for pension plans to adopt approaches that are much better aligned with how insurers look at longevity, which should enable better understanding and assessment of pension risk transactions, resulting in more efficient transfer of longevity risk.

APPENDIX A: INSURER FACT SHEETS

Your quick reference guide to the insurers currently active in the Canadian PRT market.

Fact sheets present information provided to us by each individual insurance company from which we requested comparable data, and includes commentary based on the data submitted. Eckler Ltd. has not independently verified the information received.

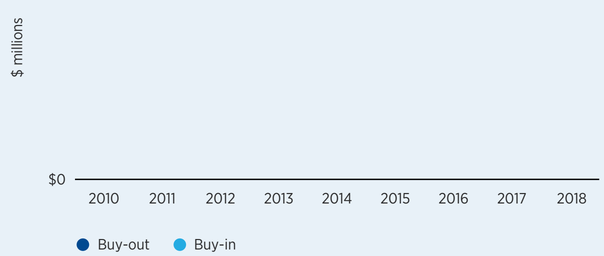
ASSUMPTION MUTUAL LIFE INSURANCE COMPANY

COMMENTARY

Assumption Life is a new addition to our 2018 PRT Report. Based in New Brunswick, Assumption Life has been providing individual and group annuity quotations to existing clients, but is now extending its service offering to new group clients.

Assumption Life prefers transactions $20 million or under. They don't consider themselves as a "high-volume" annuity provider, but rather, one who may provide an alternative that might fit certain situations.

Annual Buy-out and Buy-in Transactions



Notes: Credit ratings shown are those provided by the insurer.

GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**n/a**
Number of transactions	**n/a**
Average transaction size	**n/a**

YTD 2018

Market share	**0%**
Value of transactions	**$0m**
Average transaction size	**n/a**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**n/a**
Moody's	**n/a**
AM Best	**A-**
Fitch	**n/a**
DBRS	**n/a**

PROTECTION OF BENEFITS

LICAT ratio (September 30, 2018)	**135%**
Assuris	**1**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group + Individual
Membership data	
Number of pensioners	**3k**
Monthly pension payments	**$5m**
Actuarial reserves	**$200m**

ADMINISTRATION (Annuitant services staff)

Staff size	**6**
Location	**Moncton, NB**
Language spoken	**English, French**

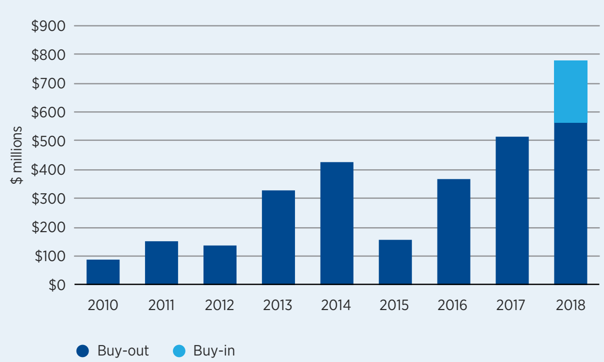
BMO INSURANCE

COMMENTARY

BMO Insurance has been active in the PRT market for over a decade, and with the third-largest share of the market during 2018, continues to demonstrate its commitment to being a strong player. Buy-in annuities are now part of the group annuity offering, and in 2018 BMO Insurance completed its first two transactions of this kind. On the administrative side, BMO rolled out a new member portal early this year in order to increase and enhance communications with annuitants.

For the 2018 calendar year, BMO Insurance's average transaction size was approximately $156 million, compared to the average of $86 million for 2017. This increase was driven by the completion of BMO Insurance's largest single-annuity transaction to date in the third quarter of 2018: a deal worth $322 million with an undisclosed company. This demonstrates BMO Insurance's willingness and ability to participate in large annuity transactions.

Annual Buy-out and Buy-in Transactions



Notes: While BMO has only pursued ratings with AM Best, BMO Financial Group is rated by other rating agencies. Two layers of Assuris coverage can be provided, one through BMO Life Assurance and the other through BMO Life Insurance.

GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**17%**
Number of transactions	**5**
Average transaction size	**$156m**

GROUP ANNUITY ACTIVITY FROM 2014 TO 2018

Market share	**14%**
Value of transactions	**$2.2b**
Average transaction size (since 2015)	**$57m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**n/a**
Moody's	**n/a**
AM Best	**A**
Fitch	**n/a**
DBRS	**n/a**

PROTECTION OF BENEFITS

LICAT ratio (October 31, 2018)	**117%**
Assuris	**2x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group	Individual
Membership data		
Number of pensioners	**22k**	**n/a**
Monthly pension payments	**$20m**	**n/a**
Actuarial reserves	**$2.7b**	**$3.4b**

ADMINISTRATION (Annuitant services staff)

Staff size	**10**
Location	**Toronto, ON**
Language spoken	**English, French**

BROOKFIELD ANNUITY COMPANY

COMMENTARY

Launched under the leadership of Paul Forestell, Brookfield Annuity Company began to write pension risk transfer business in late 2016, and completed its first two transactions in the first quarter of 2017. Brookfield ended 2018 with sales of over $200 million, consistent with the value of transactions completed in 2017. As of August 2018, Brookfield was awarded a credit rating of B++ by AM Best.

Brookfield has demonstrated its ability to hold its own in the PRT market, achieving 5% market share since their inception. In late 2018, Brookfield entered into its largest transaction to date at $133 million, a transaction that will post in 2019 given the date of premium payment. Brookfield is open to large transactions and during 2018, it entered into a reinsurance agreement with Legal & General Reinsurance to coinsure a portion of transactions greater than $100 million, further reinforcing their position as a risk transfer specialist insurer.

Annual Buy-out and Buy-in Transactions

GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**5%**
Number of transactions	**11**
Average transaction size	**$19m**

GROUP ANNUITY ACTIVITY FOR 2017 TO 2018

Market share	**5%**
Value of transactions	**$421m**
Average transaction size	**$16m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**n/a**
Moody's	**n/a**
AM Best	**B++**
Fitch	**n/a**
DBRS	**n/a**

PROTECTION OF BENEFITS

LICAT ratio (December 31, 2018)	**202%**
Assuris	**1x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group
Membership data	
Number of pensioners	**2k**
Monthly pension payments	**$1.8m**
Actuarial reserves	**$400m**

ADMINISTRATION (Annuitant services staff)

Staff size	**144**
Location	**Toronto, ON**
Language spoken	**English, French**

Notes: Annuitant services outsourced to Buck.

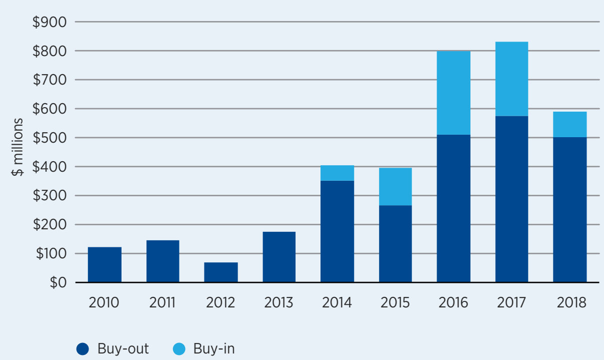
THE CANADA LIFE ASSURANCE COMPANY

COMMENTARY

The Canada Life Assurance Company (Canada Life) is a subsidiary of The Great-West Life Assurance Company and has been participating in the Canadian PRT market for over a decade. Canada Life's transaction volumes grew substantially in 2016 and 2017, with annual sales in each of those years approximately double the sales in each of 2014 and 2015. Although sales for 2018 were lower than the two previous years, Canada Life remains one of the top players, with a 13% share of the Canadian PRT market.

In 2016, Canada Life completed the second ever longevity insurance transaction in Canada, notable for its streamlined approach and absence of collateral requirements. This type of deal has set the stage for future longevity insurance transactions which have typically been perceived as accessible only to very large pension plans.

Annual Buy-out and Buy-in Transactions



Notes: DBRS credit rating represents ability to pay claims. Additional level of Assuris coverage provided through The Great-West Life Assurance Company.

GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**13%**
Number of transactions	**23**
Average transaction size	**$26m**

GROUP ANNUITY ACTIVITY FOR 2014 TO 2018

Market share	**19%**
Value of transactions	**$3.0b**
Average transaction size (since 2016)	**$23m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**AA**
Moody's	**Aa3**
AM Best	**A+**
Fitch	**AA**
DBRS	**AA**

PROTECTION OF BENEFITS

LICAT ratio (December 31, 2018)	**140%**
Assuris	**2x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group	Individual
Membership data		
Number of pensioners	**89k**	**56k**
Monthly pension payments	**$41m**	**$33m**
Actuarial reserves	**$5.8b**	**$4.0b**

ADMINISTRATION (Annuitant services staff)

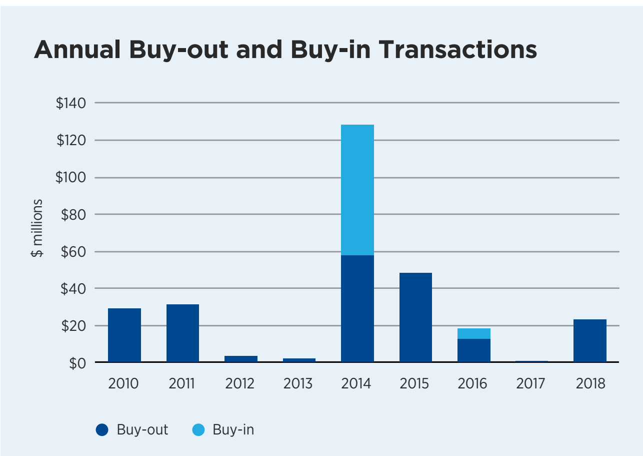
Staff size	**15**
Location	**London, ON**
Language spoken	**English, French**

CO-OPERATORS LIFE INSURANCE

COMMENTARY

The Co-operators Life Insurance Company (Co-operators) entered the Canadian PRT market in 2010 and has tended to have a relatively small share of the market.

While other insurers may look to transact on large deals, Co-operators prioritizes smaller transactions, with their average group annuity size falling at approximately $9 million since 2014.



GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share **1%**

Number of transactions **8**

Average transaction size **$3m**

GROUP ANNUITY ACTIVITY FOR 2014 TO 2018

Market share **1%**

Value of transactions **$0.2b**

Average transaction size **$9m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P .... **A-**

Moody's .... **n/a**

AM Best .... **A**

Fitch .... **n/a**

DBRS .... **n/a**

PROTECTION OF BENEFITS

LICAT ratio (September 30, 2018) **148%**

Assuris **2x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group	Individual
Membership data		
Number of pensioners	**2k**	**4k**
Monthly pension payments	**$1m**	**$2m**
Actuarial reserves	**$300m**	**$400m**

ADMINISTRATION (Annuitant services staff)

Staff size **6**

Location .... **Regina, SK**

Language spoken .... **English, French**

Notes: Additional level of Assuris coverage provided through CUMIS Life Insurance Company.

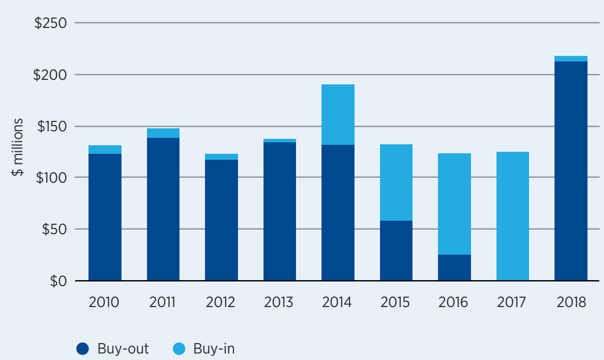
DESJARDINS INSURANCE

COMMENTARY

Desjardins Insurance (Desjardins) is a long-time participant in the Canadian PRT market. Their annual sales volumes have been stable and consistent, averaging almost $150 million per year since 2010. 2018 has proven to be a strong year for Desjardins, with sales exceeding $200 million.

Willing to quote on transaction sizes of up to $200 million, Desjardins was one of the three insurers involved in the largest annuity purchase of 2018 - the $700 million deal with Alcoa. Desjardins' single largest transaction for 2018 was valued at $76 million and involved more than 400 participants.

Annual Buy-out and Buy-in Transactions



GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**5%**
Number of transactions	**16**
Average transaction size	**$14m**

GROUP ANNUITY ACTIVITY FOR 2014 TO 2018

Market share	**5%**
Value of transactions	**$0.8b**
Average transaction size	**$14m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**A+**
Moody's	**Aa2**
AM Best	**n/a**
Fitch	**AA-**
DBRS	**AA**

PROTECTION OF BENEFITS

LICAT ratio (September 30, 2018)	**146%**
Assuris	**1x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group	Individual
Membership data		
Number of pensioners	**28k**	**14k**
Monthly pension payments	**$16m**	**$7m**
Actuarial reserves	**$2.6b**	**$0.8b**

ADMINISTRATION (Annuitant services staff)

Staff size	**75**
Location	**Québec City, QC**
Language spoken	**English, French**

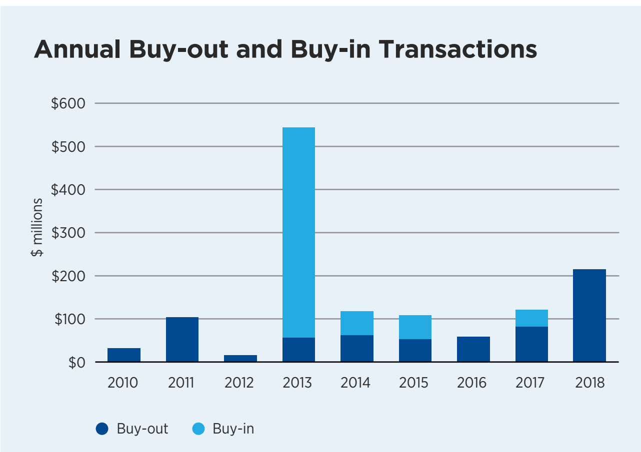
Notes: Credit ratings are those of medium- and long-term debt securities issued for Caisse centrale Desjardins. Annuitant services staff service both group and individual annuity products.

INDUSTRIAL ALLIANCE INSURANCE AND FINANCIAL SERVICES INC.

COMMENTARY

As a long-time player in the PRT market, Industrial Alliance Insurance and Financial Services Inc. (iA) has had an annual PRT market share of around 5% for most years since 2010. Notably, their sales for 2018 increased by around 75% compared to sales for the 2017 calendar year.

iA was one of the three insurers involved in the largest annuity purchase of 2018 - the $700 million deal with Alcoa.



GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**5%**
Number of transactions	**8**
Average transaction size	**$27m**

GROUP ANNUITY ACTIVITY FROM 2014 TO 2018

Market share	**4%**
Value of transactions	**$0.6b**
Average transaction size	**$10m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**A+**
Moody's	**n/a**
AM Best	**A+**
Fitch	**n/a**
DBRS	**A**

PROTECTION OF BENEFITS

LICAT ratio (December 31, 2018)	**126%**
Assuris	**1x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group	Individual
Membership data		
Number of pensioners	**47k**	**11k**
Monthly pension payments	**$20m**	**$4m**
Actuarial reserves	**$3.2b**	**$0.4b**

ADMINISTRATION (Annuitant services staff)

Staff size	**8**
Location	**Québec City, QC**
Language spoken	**English, French**

Notes: Credit ratings shown are those provided by the insurer.

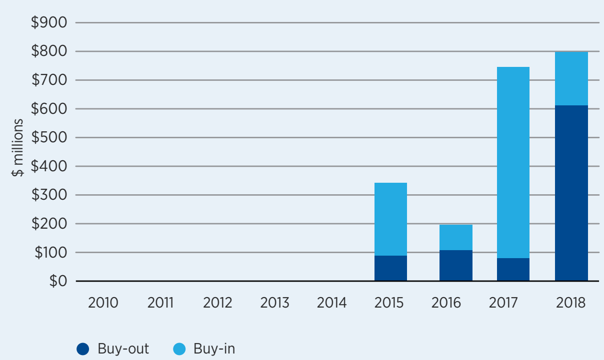
RBC LIFE INSURANCE COMPANY

COMMENTARY

RBC Life Insurance Company (RBCI) entered the PRT market in 2015 and has experienced strong performance since that time. Although newer in the Canadian market, RBCI's UK longevity swap team has been participating in the UK PRT market for over a decade. RBCI leverages both their UK PRT experience as well as internal pension administration capabilities supporting RBC's pension plans.

With a strong focus on risk management, RBCI's 2017 sales were more than triple that of 2016. In 2018, RBCI continued to increase its market share, capturing 18% of the market (the second highest among all insurers) for the year.

Annual Buy-out and Buy-in Transactions



GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**18%**
Number of transactions	**17**
Average transaction size	**$47m**

GROUP ANNUITY ACTIVITY FOR 2015 TO 2018

Market share	**16%**
Value of transactions	**$2.1b**
Average transaction size	**$48m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**AA-**
Moody's	**Aa2**
AM Best	**A+**
Fitch	**AA**
DBRS	**AA**

PROTECTION OF BENEFITS

LICAT ratio (October 31, 2018)	**129%**
Assuris	**1x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group	Individual
Membership data		
Number of pensioners	**10k**	**n/a**
Monthly pension payments	**$9m**	**n/a**
Actuarial reserves	**n/a**	**n/a**

ADMINISTRATION (Annuitant services staff)

Staff size	**121**
Location	**Mississauga, ON**
Language spoken	**English, French**

Notes: Credit ratings relate to senior debt. Number of pensioners includes deferred vested annuitants. Annuitant services staff also support RBC's Pension Plans.

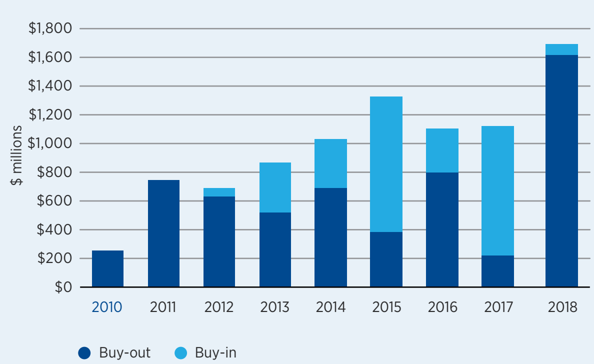
SUN LIFE ASSURANCE COMPANY OF CANADA

COMMENTARY

With its Defined Benefit Solutions department celebrating its 10th year in 2018, Sun Life Assurance Company of Canada (Sun Life) remains a primary player in the Canadian PRT market. Sun Life achieved record sales of $1.7 billion for 2018 (an increase of approximately 50% compared to the prior year). With 37% of the $4.5 billion Canadian PRT market for 2018, Sun Life continues to be the market leader.

Sun Life describes itself as innovation oriented - working with clients to develop customized solutions for their pension plan de-risking needs. Sun Life has historically been involved in many notable transactions, and this trend continued in 2018 as it was one of the three insurers involved in the largest annuity purchase transaction of 2018 - the deal with Alcoa worth more than $700 million.

Annual Buy-out and Buy-in Transactions



Notes: Additionally, over 190 languages are available through annuitant services via live translation services. Credit ratings applicable to Sun Life Assurance Company of Canada.

GROUP ANNUITY ACTIVITY FOR CALENDAR YEAR 2018

Market share	**37%**
Number of transactions	**24**
Average transaction size	**$70m**

GROUP ANNUITY ACTIVITY FROM 2014 TO 2018

Market share	**39%**
Value of transactions	**$6.3b**
Average transaction size	**$60m**

MOST RECENT FINANCIAL STRENGTH RATINGS

S&P	**AA-**
Moody's	**Aa3**
AM Best	**A+**
Fitch	**n/a**
DBRS	**AA**

PROTECTION OF BENEFITS

LICAT ratio (December 31, 2018)	**131%**
Assuris	**1x**

SIZE OF EXISTING CANADIAN ANNUITY BUSINESS

	Group	Individual
Membership data		
Number of pensioners	**157k**	**n/a**
Monthly pension payments	**$67m**	**n/a**
Actuarial reserves	**$9.5b**	**$4.0b**

ADMINISTRATION (Annuitant services staff)

Staff size	**26**
Location	**Montréal, QC**
Language spoken	**English, French**

APPENDIX B: PENSION RISK TRANSFER GLOSSARY

ANNUITY PURCHASE PROXY

Unlike stocks and bonds, plan sponsors do not have access to a public market that can assess the price of transferring risk to an insurer. Currently, the only way to determine the true cost of transferring risk is to request a quote from insurers. However, plans subject to solvency funding require a means of estimating the cost of fully settling their plan; this process involves annuitizing at least a portion of their plan. Therefore, the Canadian Institute of Actuaries publishes the annuity purchase proxy quarterly to allow the calculation of solvency liabilities. The annuity purchase proxy is determined through a combination of hypothetical annuity quotes as of the end of the quarter and actual live quotes that occurred throughout the quarter.

ASSURIS

Assuris is a Canadian organization funded by life insurers to protect policyholders if an insurer becomes insolvent. Assuris' role is to facilitate the transfer of policies from an insolvent insurer to a solvent insurer or insurers. Assuris provides protection up to specific limits based on the type of insurance product. In the case of buy-out annuities, Assuris guarantees that annuitants will receive their full pension income if the amount is less than $2,000 per month; otherwise, they receive the greater of $2,000 per month and 85% of the monthly pension income promised by the insolvent insurer. For buy-in annuities, only the 85% coverage generally applies. However, it's important to note that these are guaranteed minimum levels, and the liquidation of the insolvent insurer may therefore result in higher benefits being provided. Finally, when two life insurance entities exist within one larger organization, some insurers provide two levels of Assuris coverage. Please refer to the Assuris website for more information.

BOOMERANG RISK

Boomerang risk refers to the risk that some of the obligations previously transferred to an insurer through a buy-out or buy-in annuity may revert to the plan sponsor if the insurer becomes insolvent (i.e., the pension income that is not transferred to a solvency insurer(s) through Assuris). British Columbia, Quebec and Ontario have introduced legislation to eliminate boomerang risk for buy-out annuities, with other jurisdictions looking at this as well.

BUY-IN ANNUITIES

Similar to a buy-out annuity, under a buy-in the plan pays a single premium to the insurer. In return, the insurer becomes responsible for paying the members' pensions and assumes all related risks. However, in contrast to a buy-out, the pension plan continues to administer the benefits. Instead of the insurer paying the members' pensions, the insurer makes the payments to the plan; in turn, the plan pays the members. Thus, there is no change from a plan member perspective. A buy-in is generally viewed as an investment decision, whereas a buy-out is a settlement of obligations. This difference is a key distinction when it comes to the funding and accounting implications of buy-ins versus buy-outs.

BUY-OUT ANNUITIES

Under a buy-out annuity, the plan sponsor pays a single premium to the insurer. The insurer then assumes all obligations for the insured members, including the payment and administration of benefits. Each member receives an individual annuitant certificate that outlines their benefits, and receives pension benefits from the insurer instead of their pension plan. Sometimes referred to as a "traditional group annuity," a buy-out annuity is what is purchased when a plan is winding up, but it is increasingly being used by ongoing plans.

INFLATION-LINKED ANNUITIES

Inflation-linked annuities are buy-out or buy-in annuities in which pension benefits are subject to contractual pension increases over time, where the increases are linked with inflation.

IN-KIND ASSET TRANSFER

Under an in-kind asset transfer, instead of the buy-out or buy-in premium being paid in cash, the premium is paid to the insurer through a transfer of securities, which may also include a cash portion. The plan saves on transaction costs due to not having to liquidate securities, and there may be additional pricing benefits to the extent that the insurer can use the securities within their own assets.

LONGEVITY IMPROVEMENTS

Longevity improvements refers to changes in how long people will live in the future relative to how long they are currently living.

LONGEVITY INSURANCE

Under a longevity insurance contract, the pension plan agrees to a pre-determined series of fixed future premium payments to an insurer based on agreed-upon longevity assumptions and additional charges. In return, the insurer provides the pension plan with the actual pension payments payable to the plan members covered by the transaction. Therefore, the pension plan's future payments are certain and won't increase (decrease) if plan members live longer (shorter) than expected.

QUOTE

A quote refers to the process of obtaining pricing and other information from insurers for the purchase of a buy-out or buy-in annuity. The process begins with a request for quotation, or RFQ, being sent to insurers. It ends with insurers providing responses to the RFQ, including pricing information that is typically valid only until the afternoon of the day the quote is received.

REINSURANCE

Reinsurance is effectively insurance purchased by an insurance company for specific risks. For example, an insurer may reinsure all or a portion of the longevity risk for a particular PRT transaction with a reinsurer.

TOP-SLICING

Top-slicing is a buy-out or buy-in annuity that covers a subset of plan members with large pension amounts. These members are targeted because they make up a disproportionate share of liabilities. This creates concentration risk, which can magnify longevity risk, especially since these members tend to have the longest longevity expectations as a result of their high affluence.

TRANCHING AND TRANCHES

Tranching refers to dividing a larger transaction into smaller pieces, with the resulting smaller pieces referred to as tranches that may go to different insurers.

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