Institutional Solutions – September 2019
White paper

Key Decisions for De-Risking Your Pension Plan

Why partnering with a life insurer to take on your pension risk is good for both you and your employees.

Massachusetts Mutual Life Insurance Co. (MassMutual®)

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https://institutional.MassMutual.com/solutions/institutional-longevity

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An Ancient Concept with Modern Applications

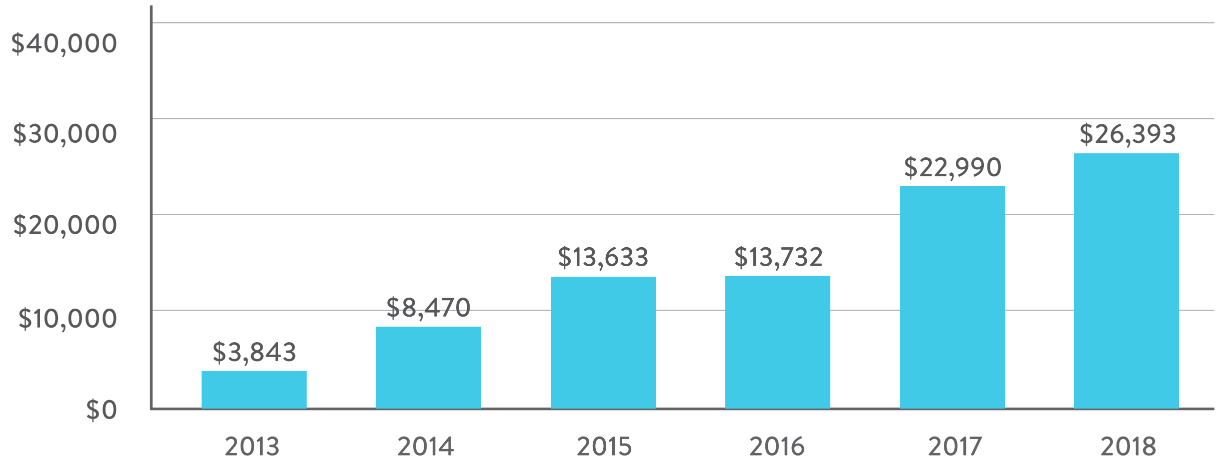
As the popularity of pension risk transfers (PRT) has accelerated, the use of annuities to settle defined benefit (DB) pensions that provide long-term financial security to retirees has flourished, according to the LIMRA Secure Retirement Institute[1], a research firm that supports the life insurance and financial services industries. However, some DB plan sponsors as well as participants are unfamiliar with the products, their availability as a means to transfer the plan's retirement income obligations, or the expertise, financial strength and capabilities of the providers of annuities: America's life insurance companies.

The concept of relying upon an annuity for long-term income and security has roots in the ancient world. While annuities have become increasingly popular in the past few decades, the underlying principle dates back to the Roman Empire. The word, "annuity" comes from the Latin word, "annua," which was defined as an annual stipend or payment. Roman soldiers, for example, were compensated for their service through annuities.

Although different forms of annuities have been introduced over time and continue to evolve today, the basic concept remains the same: a secure stream of income that is paid to an annuitant typically for a fixed period or for life.

As America's population ages and matures, Americans worry about maintaining financial security throughout their increasingly longer lifespans in retirement. They are embracing annuities as a vehicle to accomplish their financial goals. Sales of individual annuities reached $233.7 billion in 2018, an increase of 15% from the previous year, according to LIMRA[2]. In the institutional market, LIMRA reports, sales of group annuities reached $26 billion in 2018[1] compared to $13.7 billion in 2016[3], as employers that sponsor defined benefit pension plans increasingly shifted their risks to life insurance companies. This shift provides annuities for retirees and plan participants who have not commenced their vested retirement benefits (typically referred to as "deferred annuitants" or "deferreds" in an annuity transaction).

Pension Buy-out Industry Sales (billions)



Based on 16 companies that provided single premium buy-out sales.
Source: Group Annuity Risk Transfer Survey (2018, 4th Quarter), LIMRA Secure Retirement Institute.

Rising PBGC Premiums

Employers that sponsor defined benefit plans are increasingly recognizing the value of PRT annuities as they look to accomplish multiple goals: shifting risk off their balance sheets, reducing their long-term financial liabilities and costs, and providing long-term financial security to plan participants.

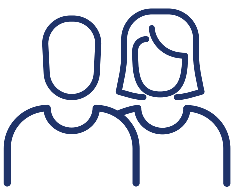
External factors are creating tail winds. The Pension Benefit Guarantee Corp. (PBGC), the federal agency backstopping the pensions of American workers, is passing on higher costs to guarantee pension payments. Premiums have risen dramatically in the past decade, more than doubling since 2009[4].

The latest federal budget proposal calls for PBGC premiums for collectively bargained retirement plans to rise by $18 billion over the next 10 years. Whether those figures become reality or not, it's unlikely that premiums will decline anytime soon.

(Rising PBGC Premiums, continued)

Plan sponsors must continue to pay what has been, and is anticipated to continue to be, the escalating premiums from the PBGC for their pension plan. The PBGC per-participant flat premium rate for plan years beginning in 2019 is $80 for single-employer plans (up from $33 in 2008) and $29 for multiemployer plans (up from $8 in 2007)[5].

Meanwhile, the variable-rate premium (VRP) for single-employer plans is $43 per $1,000 of unfunded vested benefits (UVBs) for plan years beginning in 2019, up from a 2018 rate of $9.

Americans age 65 

are expected to live another 19.5 years

PBGC PREMIUMS INCREASE

Plan Years Beginning In	Single-Employer Plans	Multi-Employer Plans
2019	$80	$29
2018	$74	$28
2017	$69	$28
2016	$64	$27
2015	$57	$26
2014	$49	$12
2013	$42	$12
2012	$35	$9
2011	$35	$9
2010	$35	$9
2009	$34	$9
2008	$33	$9
2007	$31	$8

Source: Pension Benefit Guarantee Corp. (PBGC), Premium Rates[7]

Longevity, while a blessing for many people, puts more stress on pension funding as pensioners live longer, necessitating payments for additional years and greater funding of defined benefit plans. Americans who are age 65 now are expected on average to live another 19.5 years, according to the National Center for Health Statistics[6], significantly longer than a century ago. Life expectancy at age 65 is 20.6 years for women and 18.1 years for men.

Managing Pension Risks

Meanwhile, the rising cost of employee benefits has strained many employers' finances and capabilities, making the longer-term obligations of pension plans challenging.

Plan sponsors are looking for strategies to manage pension risks as they employ a range of approaches, including freezing plans to new entrants, re-allocating investment assets or shifting pension obligations to a life insurer.

As the management of pensions becomes more complex, employers are concluding that they and their employees would be better served by shifting defined benefit obligations, liabilities and risks to life insurers, which focus on risk management as their primary purpose. Insurers are also well-equipped to offer administrative services to plan participants. Many companies have considerable experience administering annuities for pension plans that have previously purchased annuities as well as other insurance-oriented lines of business that are similar to pensions.

Life insurers, with their experience managing tail risks that can extend decades, are professional risk managers and are therefore best equipped to handle such risks. **This white paper examines the relative merits of different pension management strategies, including the reliance upon life insurers to take on the assignment through the use of annuities.** While annuities may be an ancient financial solution, they continue to evolve and remain ever relevant in meeting modern financial needs.

In Summary

1. Group annuities continue to be strong, viable options when considering a PRT for pension plans
2. The PRT Market continues to evolve as companies consider de-risking their pension plans
3. The business of managing risk is a specialty and may not be considered a core competency of most companies sponsoring a Defined Benefit plan
4. Important considerations should continue to be made for:
   - Federal vs. State Oversight
   - PBGC Costs
   - Interpretive Bulletin 95-1

Strategies for Managing Pension Risk

Complexity often yields specialization. Nowhere is that more evident than in business and commerce.

At one time, some of America's best-known and successful companies were huge conglomerates that, over time, acquired and managed dozens of firms in a myriad of industries. ITT Corporation, established as International Telephone & Telegraph, once served as the domain of businesses as diverse as manufacturing, insurance, vocational training, gaming, hospitality and many others. The prevailing wisdom of the day held that professional managers were best able to successfully guide companies, no matter the industry, by applying sound business principles and executing on long-term plans.

Today, many of the biggest conglomerates have since spun off some or even large parts of their businesses, creating new companies and consolidating others. Witness General Electric, a manufacturing, technology, energy, entertainment and financial services colossus that has recently been steadily divesting assets to focus on infrastructure and technology, with a smaller financial services division. [7]

Companies are focusing on what they do best. That is prompting senior leaders to conclude that managing the risks, liabilities and obligations of defined benefit pension plans are a distraction and outside their core expertise. Businesses involved in manufacturing, retail, food services or others not in the financial services arena, typically lack the expertise and experience to manage large, long-term financial risks. It's simply not what they do. Business leaders, therefore, are increasingly looking to shift their pension obligations to professional risk managers such as life insurers.

Life insurers, the largest of which have experience managing risks for a century or more, often provide defined benefit plans as well as pension risk transfer annuities. That experience and expertise enables life insurers to not only better manage the risks associated with retirement income but to service the needs of retirees and employees covered by pensions who have yet to retire. Life insurers often compete on the basis of their service capabilities and have the resources to handle thousands of annuity customers, otherwise known as annuitants.

Another important benefit is that employers extinguish their liability and obligations for pension payments by shifting them to a life insurer. A pension risk transfer offers the only way to eliminate those obligations under current law.

"Hibernating" Risks

One approach to "de-risking" a defined benefit plan is to close the plan to any new entrants and to stop accruals ("freezing" the plan) for participants who are still accruing benefits. While freezing the plan protects against the risk of unanticipated benefits increases, plans are still exposed to many other risks, especially interest-rate risk.

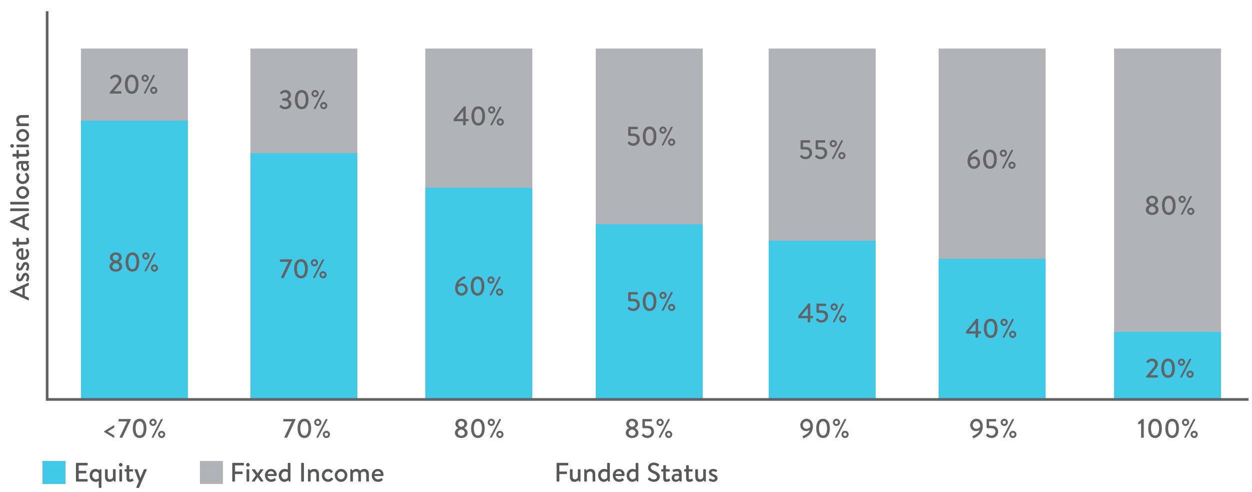
Plan sponsors looking to de-risk their pension plan without a full plan termination can elect to pursue a hibernation strategy. The goal of a hibernation strategy is to limit the financial risks of the plan while the sponsor continues to manage the plan.

A plan targeting a hibernation strategy will typically establish a "glide path" in which investments are increasingly allocated toward fixed income as the plan's funded status improves. This is done for two reasons:

1) Assets can't revert to the plan sponsor, so as a plan approaches 100% funded, the risk/reward trade-off associated with equities starts to diminish.
2) Fixed income assets (bonds) offer a hedging effect on pension liabilities; because interest rates effect fixed income assets and pension liabilities in a similar manner.

The chart below illustrates what a sample glide path might look like. In this example, the plan would be targeting a fixed income allocation of 40% when the plan is 80% funded. Once the plan becomes 85% funded, 10% of the total assets would be reallocated from equities to fixed income to bring the fixed income allocation up to 50%.

Traditional Glide Path Strategy



For illustrative purposes only.

Advocates of hibernation promote the tactic as a way to save money and reduce risks over a period of time before eventually executing a pension buyout, pension risk transfer or combination of both. However, hibernation may not be a panacea for every pension plan or pension risk management objective.

Once in hibernation, the pension must continue to be managed to some degree and therefore continues to incur costs, including investment management expenses. Other costs continue such as actuarial consulting, recordkeeping and reporting, not to mention the consumption of time from management.

HIBERNATION CONSIDERATIONS

Pros	Cons
Reduces some of the plan's risks	Plan still exposed to many risks
Lower initial cost (relative to annuities)	Maintains ongoing cost (expenses, PBGC premiums, etc.)
Allows plan sponsor to maintain administrative relationship with retirees	Requires ongoing support (administration, actuarial, investment, etc.)
Retains existing employees by providing a meaningful retirement benefit	Bars new employees from participating

Hedging Risks

The fixed income assets that a plan invests in can be selected in a way to match the liability's sensitivity to interest rate movements (called "duration") to offset changes in the plan's liabilities. When interest rates decrease, the asset portfolio will increase in value in an amount close to the increase in liabilities.

This hedging strategy that is typically pursued in a plan that has progressed along its glide path can work well in reducing the investment risks associated with pension plans but does not eliminate the risk. It's impossible to eliminate every risk and therefore some market risk remains, albeit lower and less volatile than an investment strategy with no hedging. Even interest rate risk isn't fully hedged in a fixed income investment strategy that matches the plan's asset and liability durations.

Interest rates on assets (referred to as yields) aren't all created equal. The yield on assets can vary significantly due to two main components: The term of the asset (1-30 years) and the market's view of the creditworthiness of the bond issuer (more risky bond issuers have higher yields than less risky bond issuers, all else being equal).

The duration of a plan's liability indicates its relative sensitivity to interest rate risk assuming all interest rates move by the same amount. In reality, that rarely happens; rates at different terms and credit ratings tend to move differently. This means that even a "fully hedged" (assuming 100% fixed income with an asset duration matching that of the plan's liabilities) plan is still exposed to interest rate risk. This can be managed through more sophisticated hedging strategies but those become much more difficult (and possibly more expensive in terms of investment fees) to execute as a plan sponsor.

Meanwhile, the assets and liabilities of the DB plan remain on the sponsor's balance sheet. The goal of many pension risk transfers is in part to extinguish the long-term financial obligations and potential impact from a company's profit-and-loss statement.

The management of interest rate risk (and other risks), administration of pension-like liabilities, and development and execution of investment strategies that appropriately back those liabilities are all strengths of insurance companies. Those aspects are part of their core business as they have not only executed them through pension annuities, but through other products such as life insurance and individual annuities as well.

Annuitize the Plan

As part of a PRT, pension sponsors typically purchase group annuities to provide retirement income for employees and eliminate risks, especially the risk of longevity that cannot be easily managed through a hedging strategy. PRT annuities are designed to replicate the benefits available through a pension, removing an employer's obligations to provide guaranteed income, death benefits, inflation protection and others. While not every pension plan has all of these features, some examples include:

- **Income for Life** — Annuities issued by life insurers are the only product available that can guarantee an income for life. Like pension payments, income from an annuity lasts as long as the annuitant lives, ensuring a predicable source of income.
- **Fixed benefit** — Income from an annuity issued as part of a PRT is both fixed and guaranteed, meaning it will not vary due to fluctuations in the stock or bond markets. The life insurer guarantees the payments, which underscores the advantage of working with an insurer that has secured among the highest ratings from independent rating agencies for financial strength and stability.
- **Inflation protection** — In some instances, the income from an annuity can increase over time to help the annuitant keep up with inflation. However, inflation protection is not offered as part of all annuities and is a feature that must be purchased by the plan sponsor, typically when a defined benefit plan provides such benefits.
- **Deferred Distributions** — The annuitant can decide when to begin taking payments depending upon his or her plans for retirement. In some instances, the payments from an annuity will increase if the annuitant chooses to defer taking income past his or her full retirement age. Early retirement will typically reduce payments from an annuity.
- **Death Benefits** — When deciding to take income for retirement, annuitants typically have the option to select from several available death benefits that can provide income for a single life or pay a preselected death benefit to cover a spouse or significant other. Typical death benefits pay 100 percent, 75 percent or 50 percent of the initial annuity payment. The higher the death benefit percentage, the lower the initial income payment at the start of the annuitant's retirement. The actual death benefit available from an annuity secured through a PRT can vary from plan to plan.

Kicking the Tires

While insurers evaluate an employer's pension from many angles, the employer needs to perform due diligence on the insurers before the process begins. The selection of an insurer for a pension transfer is a fiduciary act and with it comes specific responsibilities.

Department of Labor Interpretive Bulletin 95-1 (DOL 95-1) requires plan sponsors "to obtain the safest annuity available" unless under the circumstances it would be in the interest of participants and beneficiaries to do otherwise.

A fiduciary must evaluate a number of factors relating to a potential annuity provider's claims-paying ability and creditworthiness. Reliance solely on ratings provided by insurance rating agencies would not be sufficient to meet this requirement. The bulletin also outlines the following aspects that should be considered when selecting an annuity provider:

1) The quality and diversification of their investment portfolio
2) The size of the insurer relative to the annuity purchase
3) The level of capital and surplus held by the insurer
4) The insurers other lines of business and liabilities that they are exposed to
5) The structure and terms of the annuity contract

It can be challenging for a plan sponsor to differentiate between insurers based on these criteria. Also, the process for soliciting quotes for annuity purchases can be complicated. For these two reasons, it is usually best to seek the help of an intermediary who will help facilitate engagement with insurance companies as well as aid in determining a safest available annuity provider.

Financial Ratings, Focus, and Mutuality

MassMutual earns among the highest financial ratings in the industry and has followed a prudent investment strategy for more than 160 years. This approach has given our policy owners confidence that we'll deliver on our long-term commitments to them. Our strength and stability is recognized by the following ratings:

- **A.M. Best Company: A++**
  (Superior; top category of 15)
- **Fitch Ratings: AA+**
  (Very Strong; second category of 21)
- **Moody's Investors Service: Aa3**
  (High Quality; fourth category of 21)
- **Standard & Poor's: AA+**
  (Very Strong, second category of 21)

Ratings apply to Massachusetts Mutual Life Insurance Company and its subsidiaries, C.M. Life Insurance Company and MML Bay State Life Insurance Company. Ratings are as of 05/28/2019 and are subject to change.

Focused Solutions That Support Individuals and Annuitants

As a provider of life insurance and other financial products, MassMutual develops solutions that help our customers secure their futures and protect the ones they love, including DB plan participants and PRT annuitants.

Recently, MassMutual enhanced its website to better serve PRT annuitants by improving navigation, providing more self-service features and information, as well as offering mobile access. Both retirees (who are receiving annuity payments) as well as deferred annuitants (those who have not yet elected to receive payments) can go to MassMutual's website to access information about their annuity, as well as update their records.

Annuitants are able to view information about their annuity payments, tax withholding, tax reports, history and beneficiaries. In addition, annuitants can go to the site to enroll in direct deposit, access online forms and update their mailing address. The website is fully compatible with mobile devices.

Mutuality

As a mutual company, MassMutual operates for the benefit of its members and participating policy owners. MassMutual is managed with a focus on policy owners' long-term interests and are not subject to the expectations of Wall Street analysts or stockholders. Throughout its history, this focus on the long-term has helped MassMutual provide financial and retirement security to millions of people.

[1] LIMRA Secure Retirement Institute: Fourth Quarter 2018 U.S. Single Premium Pension Buy-out Sales Near Record Levels Set in 2017, https://www.limra.com/en/newsroom/news-releases/2019/limra-secure-retirement-institute-fourth-quarter-2018-u.s.-single-premium-pension-buy-out-sales-near-record-levels-set-in-2017/

[2] LIMRA Secure Retirement Institute: Total Annuity Sales Have Best Quarter in Nearly 10 Years, https://www.limra.com/Posts/PR/News_Releases/UPDATED__LIMRA_Secure_Retirement_Institute__Total_Annuity_Sales_Have_Best_Quarter_in_Nearly_10_Years.aspx

[3] LIMRA Secure Retirement Institute Reports, U.S. Single Premium Pension Buy-out Sales Top $13.7 Billion in 2016, https://www.limra.com/en/newsroom/news-releases/2017/u.s.-single-premium-pension-buy-out-sales-top-$13.7-billion-in-2016-limra-secure-retirement-institute-reports/

[4] Pension Benefit Guarantee Corp., 2019 Premium Rates, Source: Pension Benefit Guarantee Corp. (PBGC), Premium Rates, https://www.pbgc.gov/prac/prem/premium-rates

[5] Pension Benefit Guarantee Corp., 2019 Maximum Monthly Guarantee Tables, https://www.pbgc.gov/wr/benefits/guaranteed-benefits/maximum-guarantee

[6] Fast Facts, Centers for Disease Control and Prevention, National Center for Health Statistics, https://www.cdc.gov/nchs/fastats/life-expectancy.htm

[7] General Electric, Our Strategy, https://www.ge.com/sites/default/files/Strategy_Page_121714.pdf

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