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PENSION PLAN DE-RISKING NORTH AMERICA 2021

Improving funding levels and managing risks through the global recovery

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Clear Path Analysis is a media company that specializes in the publishing of high quality reports, events, and online trade media and market intelligence websites in the financial services and investments sector.

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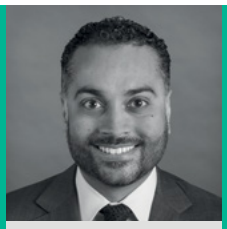
0.1 FOREWORD

The storm may be clearing but clouds remain on the horizon for DB pension plans



Sean Kurian, Managing Director and Head of Institutional Solutions, **Conning**

What a difference 12 months makes! At this time last year, we were in the early stages of a once-in-a-century public health crisis and the resulting market fallout had everyone on edge.

Markets have since rallied and are now on a more even keel, but to call it a "comeback" may be ignoring storm clouds that remain on the horizon, hidden in part by the unprecedented degree of government support and intervention. Plus, the question remains: are we truly out of the woods regarding the pandemic?

For defined benefit (DB) pension plan investors, these uncertainties may be more acute than they are for other types of investors and the associated implications and responses could be more stressful than they imagine.

As you will see in this report, the manifest uncertainty faced by plan sponsors is leading to some tough choices on the futures of their DB pension plans. There is ample coverage of the new (post-Covid) investment paradigm, how portfolios should evolve as a consequence and non-investment actions, such as buy-out, to improve the positions of both pension plans' members and their sponsors.

Observers have been fixated on the pandemic, its impact on the elderly, and what it means for DB pension plan participants. Not all of the more than 500,000 Americans who have tragically passed away from Covid-19 were DB pension plan members, but it is likely a sizable portion were. Theoretically, this would help improve plan funding positions. However, public health officials note that populations affected by adverse systemic shocks may become more resilient post shock, so initial spikes in morbidity and mortality may turn into improved longevity going forward. If this occurs, then any DB pension plan funding position gains from reduced membership could potentially be more than reversed in subsequent years.

On the investment front, the largest elephant in the room, after market volatility and the risk of a pronounced bear market, is inflation. Unlike their European counterparts, U.S. DB pension plan liabilities are rarely directly linked to inflation. However, both assets and liabilities are affected by inflation expectations insofar as they help determine nominal yields, used to value both DB pension plan liabilities and fixed income asset portfolios.

Rising yields lead to declines in both liabilities and the value of fixed income portfolios. A fully hedged DB pension plan would expect to see liabilities fall as yields rise, and the decline would be offset by an equivalent decrease in its fixed income LDI portfolio. However, most DB pension plans are not fully hedged (many remain far from it) and climbing yields invariably lead to an improvement in funding levels. For DB pension plan sponsors, the goal is to effectively capture these gains in a risk-controlled manner.

Many DB pension plans are turning to customized glide paths to take risk off the table and bank gains as funding improves. These funding improvements can be due to either rising yields (for an unhedged or partially hedged pension plan) or broader asset portfolio outperformance versus liabilities. Further, sophisticated DB plan sponsors understand that their plans generally have greater downside risk than upside potential from investment returns and would prefer to be seen by shareholders as taking core business risk (as opposed to investment risk in the pension plan) to deliver shareholder value.

Once a glide path has been created, the next issue to address is implementation, i.e., monitoring and maintaining its progress through time. Recent technology improvements can provide real-time monitoring of pension plan funding levels, asset allocation and glide-path progression. This allows plans to dynamically capture opportunities as they arise and improve governance by shortening the time for sponsors to make decisions.

Amid this post-pandemic uncertainty, a glide path-based approach may well help improve outcomes for pension plans by offering tools that help them better understand how and when to act in the pursuit of optimal outcomes.

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SECTION 1

A NEW LANDSCAPE TO NAVIGATE

1.1 INTERVIEW

The new era of credit investing: More Fed, less certainty

Interviewer

David Grana,
Head of North America Media, Clear Path Analysis

Interviewee

Leighton Shantz,
Senior Managing Director, Employees' Retirement System of Texas

SUMMARY

- *The Fed's market intervention has treated some downgraded companies as investment grade*
- *Leverage has increased and so much of the economy is based on stimulus*
- *There are more indebted companies now than before the health crisis*
- *Investors will be closely watching growth, earnings, political risks and the ability of the Federal Government to continue funding itself*

David Grana: How are fiscal stimulus and central bank intervention impacting credit investments?

Leighton Shantz: Given the speed and magnitude of their actions it's significant. In fact, I believe they likely prevented a depression and stopped a credit cycle from occurring. I doubt I fully really grasp all the ramifications. How are they going to walk this back or are they? For example, the Fed directly supported companies, some which were downgraded and were still treated as investment grade. What happens if one ends up filing for bankruptcy and has the Fed as a creditor?

David: The short consensus is that we have staved off a disaster for the moment, but we just don't know if another disaster will come or what the outcome really is?

Leighton: Yes, there is a saying that financial crises never repeat but they always rhyme. I have no doubt that there will someday be another crisis and it will be radically different in the way that it plays out because of the actions taken in this one, but the underlying problem of making debt payments will be the same. Governments and central banks reacted forcefully and were highly effective in pausing any kind of credit cycle for at least a couple of years, but that probably created even more over-levered companies.

In typical fashion, market participants used this as an opportunity borrow more and leverage is generally up all across the board. So much of the economy is now based on stimulus and there is still uncertainty how that ends. I don't see any immediate threats on with the cost of borrowing money being as close to free as it's ever been during my career, but that condition doesn't last forever.

David: Is the continual discussion around the market of inflation warranted and an actual threat to credit investments?

Leighton: The short answer is "yes", but it's always a threat to some degree. I don't perceive it being immediate one, but I suspect it is coming. The Federal government is quite literally giving away money and the Fed is buying the debt issued by the Treasury, thus currency is being created out of static electricity. Money works because it is a store of value and a medium of exchange. The growth in the supply of money is now so much faster than the creation of goods and services it can buy that I think it has a lot to do with asset prices increasing so quickly. There was nowhere else to put it.

When those assets are liquidated and it begins purchasing things in the real economy too quickly it poses the risk of generating inflation. A potential catalyst for selling could just be another market correction frightening people. Generally inflation spikes when demand exceeds supply, and there are lots of reasons people may decide that they want or need to spend their money now. The last time the Fed had legitimate inflation concerns was 1990, and I don't think most people remember what that was like.

David: Are there pockets of the credit space that are becoming riskier as rates continue to rise as a result of market movements?

Leighton: Our preferred habitat is below investment grade so it's difficult for me to comment on higher rated issues. At the moment, the yield on the U.S. corporate portion of the aggregate index is around 225 basis points and the duration is 8.5 modified duration years, so roughly a 25 basis points of yield increase will turn an investment grade corporate bond portfolio negative for a year. This isn't very much.

David: What are investors doing to protect their exposure?

Leighton: There are different ways of doing so. The obvious one is to shorten duration. You could simple just shorten, or high yield generally has less duration than investment grade, so you could go down in quality but reduce your exposure and keep the same level of income.

David: Is this shift a result of precaution over the long term picture for rates?

Leighton: I feel confident in saying that there was a shift, at least at the margin, for floating rate over fixed rate credit. For example, CLO and loan issuance has almost completely recovered from where it was before the crisis. I would deduce that's a big part of why.

Since the beginning of this crisis a significant amount of GDP was wiped out and now we have even more indebted companies. Based on just that spreads should be wider, but instead, they are tighter.

I think the difference is the Fed and the Federal government stimulus backstopped the economy and prevented the depression scenario, but you simply cannot shut down an entire economy without it having a material impact on credit cycles and defaults. I suspect we're under-appreciating the difficulty in paying back all that we borrowed.

> Everyone is going to be watching growth and earnings in the near term

The higher in credit quality you go, not only do you typically get less yield, but you are also going to get more duration dollars of exposure.

If you are in the below investment grade space you could shift exposure to leveraged loans, which are floating rate securities. That takes some interest rate risk off the table.

David: Are you then taking on more credit risk in this case?

Leighton: Loans have traditionally been senior secured and high yield is senior unsecured. Pivoting from high yield to senior secured in the same issuer would typically increase your credit quality and give up yield. Over the past decade or so, these have become almost two completely different markets in terms of issuers. Not a lot of issuers in both leverage loan and have high yield bond. I do not think on average credit quality of the loan issuers has improved as a result of this shift and it they'll have higher losses in a default.

Unitranche loans are a perfect example. It effectively combines the debt stack into one segment, but the removal of the subordination almost necessarily means that the loss severity on it are worse.

There was also a noticeable shift into shorter duration versions of high yield ETFs and more demand for shorter duration secondary paper. The primary CLO market as also surged back, which by itself would be puzzling since so many loans are now trading above par.

David: What are the major indicators that you feel credit investors will be keeping tabs on through the remainder of the year in order to navigate these markets?

Leighton: Everyone is going to be watching growth and earnings in the near term. I think everyone also considers political risks to be elevated too. I don't perceive anyone believing there is a significant threat of stagflation which would be the most problematic scenario. I guess that's rational since we haven't had it since the 1970s and few remember what it was like to invest through it. Frankly, I don't see anything on the immediate horizon that is a catalyst for a next credit cycle, but I don't many accurately them coming far in advance.

Ultimately, what I haven't figured out in how the government is going to continue to finance itself. We have $70 trillion in unfunded liabilities for entitlements, legitimate geopolitical rival in China, meaning defense budgets can't decline anytime soon, and national debt levels not seen since World War II. Unlike the end of WWII there is no ability to collapsing it since people are dependent on the entitlements now. I truly don't know how to solve this and suspect they don't know either.

David: Thank you for sharing your thoughts on this topic.

1.2 INTERVIEW

How are pension plan sponsors navigating the challenges of today's markets?

Interviewer

David Grana,
Head of North America Media, Clear Path Analysis

Interviewee

Harshal Chaudhari,
Chief Investment Officer - Global Pension, General Electric

SUMMARY

- *The GE Pension Plan looks at risk through four distinct strategies: design, settlements, funding and investments*
- *Over the last three years, GE has put $8.5 billion into the plan - $6 billion in 2018 and $2.5 billion in 2020*
- *Plan sponsors have different motivations and goals when considering a buy-out it is not a one-size-fits-all solution*
- *Inflation and the rising yields are generally good for lifting discount rates, thereby reducing the present value of liabilities*

David: What is GE's strategy in managing pension risk?

Harshal Chaudhari: Managing pension risk is one of the critical aspects of our broad financial management strategy. We look at this through four distinct strategies: design, settlements, funding and investments. From a design perspective, we look at how we can ensure that the benefit design is in line with the marketplace and manage the future growth of our liabilities. We closed our principal US Defined Benefit ("DB") pension plans to new participants about a decade ago, and recently froze those benefits for salaried employees. This has allowed us to reduce liability exposure as we have migrated towards a Defined Contribution ("DC") structure. We have taken actions on the settlement side under our principal qualified pension plan by offering a lump sum window, and by signing a buyout agreement in December 2020 for $1.7 billion in liabilities.

From a funding perspective, it is all about proactively de-risking by funding the plan. Over the last three years, we have put $8.5 billion into the plan - $6 billion in 2018 and $2.5 billion in 2020.

Lastly, actively managing our investment portfolio in a prudent risk/return framework is critical. Given the nature of the liabilities, we invest for the long-term in a liability-aware framework with the goal of steadily reaching our funded status, while protecting the balance sheet from volatility and contribution risk. We have been hiring talent and building strong investment capabilities to do just that.

David: Under what circumstances would a pension plan sponsor consider taking the buyout route? What are the factors for determining which pension fund members will be considered for a buyout?

Harshal: It is not a one size fits all solution. Plan sponsors have different motivations when considering a buy-out. There are a variety of goals as well as risk appetites. The key factors generally include a desire to reduce obligations and the related costs associated with those obligations. One must be mindful of the funded ratio and future contribution impact from a buyout transaction, as essentially you are fully funding the liability that you are buying out. There could also be substantial earnings impact. All these considerations taken together drive the size of the transaction and which cohort of pension fund members' benefits are going to be involved.

David: How lengthy is the process and what are some of the key steps that plan sponsors can expect throughout the process?

Harshal: It depends on the specifics of the particular transaction, but generally the process can take 6-8 months.

> THIS IS THE TIME WHEN DIVERSIFYING STRATEGIES COULD PLAY A STABILIZING ROLE IN THE PORTFOLIO

The key steps involve the data. The pricing you are going to get is as good as the data that you are going to provide to the insurance company.

Also, you want to establish a good governance structure. There are decisions to be made from a settlor and fiduciary perspective, and you must have a clear demarcation of who are the decision makers for each. You may want to consider hiring an independent fiduciary.

The fiduciaries conduct due diligence on the insurance companies. As a fiduciary, you are acting in the best interests of the participants and you want to ensure that the companies you are working with are highly rated and have the financial strength to pay the retirement benefits of the participants going forward.

From an investment perspective, you must decide how you are going to pay for the transaction. You can opt to pay the insurance premium with cash or in-kind assets.

Lastly, once an insurance company has been selected, it is usually followed by a communication to the affected plan participants. It is crucial that they understand the transition process.

David: Do inflation and rising interest rates pose pressure in the near-term for pension funds?

Harshal: Inflation and the rising yields are generally good for pension plans, at least on the liability side. Most of the corporate pension plans in the US are not indexed to inflation, so it does not increase future benefits. The increase in interest rates lifts the discount rates thereby reducing the present value of liabilities.

Of course, asset valuations could see headwinds if interest rates were to rise, but thus far, equity markets have remained very resilient despite a sharp increase in rates in a short period of time. We may start seeing some cracks if the yields continue their ascent. This is the time when diversifying strategies could play a stabilizing role in the portfolio. From a pension perspective, though, the tailwind on the liability side will probably dominate the headwind on the asset side, resulting in improving funding ratios and reducing the size of the deficits.

David: Thank you for sharing your thoughts on this topic.

1.3 ROUNDTABLE DEBATE

Incorporating ESG into pension investment strategies

Moderator

David Grana,
Head of North America Media, Clear Path Analysis

Panellists

Jennifer Sireklove,
Equity Investment Strategy, Parametric

Brian Barney,
Institutional Portfolio Management, Parametric

POINTS OF DISCUSSION

- *A nice solution for unwanted equity beta from natural resource stock-based portfolios is a diversified, fully collateralized derivatives portfolio*
- *Investors are seeking a more holistic approach across their core equity and fixed income holdings when it comes to ESG*
- *Investors are directing more attention towards the social aspect of ESG, with the global conversation broadening to include areas such as modern slavery, the pandemic and labor practices during the health crisis*

David Grana: What are the biggest market challenges that your clients are sharing with you?

Brian Barney: Interest rates have been extremely low for the past two years and income investors have been uninspired, lowering return forecasts, and allocating away from fixed income. It's a relief to see rates rising recently, along with inflation expectations. The rise in real rates is typically viewed as a positive for institutional investors, whether they are looking to allocate capital to investment grade securities, high yield, or other credit-type investments.

Jennifer Sireklove: Two items that are getting a lot of attention right now are the potential for inflation, as Brian mentioned, and growing awareness about the consequential role index providers play in shaping investors' portfolios.

When it comes to inflation, many investors are trying to figure out how to prepare themselves fully for this possibility. It's hard to know exactly which commodities will be affected most and natural resource stock based portfolios exposes investors to unwanted equity beta. A nice solve for both of these is a diversified, fully collateralized derivatives portfolio. We're seeing more interest in that than we've seen in years.

Another common challenge we're hearing from clients in their core equity allocation is a mismatch between their own on definition of broad market exposure and that of the index providers. Popular indexes have been great for investors who want to "be the market" instead of try to "beat the market". But examples such as the about turns with regard to whether or not to include Tesla in the S&P 500 or effect of Gamestop's surge in small cap indexes or the growing concentration of tech names across many indexes has opened a conversation about creating alternatives so investors they can "be like the market" but with some fine-tuning that lets them control the portfolio constituents more directly.

> WHEN IT COMES TO INFLATION, MANY INVESTORS ARE TRYING TO FIGURE OUT HOW TO PREPARE THEMSELVES FULLY FOR THIS POSSIBILITY

David: What have your clients expressed in terms of desire to allocate capital to assets within an ESG framework?

Jennifer: Most of the clients that we are working with at this point are trying to take a holistic, total portfolio approach to ESG. Some years back, it wasn't all uncommon to find investors who wanted to incorporate ESG into just one slice of their portfolio, typically just in the equity allocation. This was an accessible way for many to start the ESG incorporation process. In some cases that is as far as some went, but it seems far more common now for clients to have a total portfolio approach. In this case they have identified a comprehensive set of priorities reflecting their risk return priorities and mission alignment, if applicable. Within the actual investments in the asset allocation, this set of priorities can then help determine where the investor actually allocates the capital.

So for example, let's take an investor focused on climate, particularly carbon emissions. In their public equity portfolio they may choose to own certain high emitters in order to vote and engage in a way that will encourage them to improve their emissions profile. But they might overweight some of the lowest emitters because they want exposure to more of those kinds of companies. And then in their private equity portfolio they might be looking to fund break-through alternative energy or carbon mitigation technologies.

Brian: I agree with Jennifer. There is certainly a shift to a more holistic approach as clients seek to understand the capabilities in offering ESG across their core equity and fixed income holdings. The more common approach is to screen or tilt according to preferences with some consultation that our responsible investing team can provide. More recently, we have been discussing an approach to incorporate municipals and corporates into portfolios as a way to invest alongside positive and impactful projects in the community, as opposed to screening of corporations based on their carbon footprint or revenue streams not aligning with social values for example.

David: How does a desire for increased exposure to ESG work against a backdrop of increased market volatility, rising interest rates, inflationary pressures and the effects of the current health crisis?

Brian: One specific issue that I can address for our fixed income ESG strategy is this shift towards taxable municipal bond issuance and how the current health crisis has augmented the asset class for institutional investors.

We are seeing increased opportunity to invest in public debt projects which are addressing some of the major health issues – including poverty and mental health, access to quality healthcare, and affordable housing. There are many specific debt deals where the use of the proceeds are addressing societal issues that have really come to the forefront. This is a growing trend.

Jennifer: I've been quite interested in how the ESG conversation has created more information for investors that we didn't have previously. It can be a way to start to tease out information that isn't required in an SEC filing and can be considered a valid way to evaluate securities. Today, we take it for granted, but 5-7 years ago, we didn't have anywhere near the amount of information on carbon emissions, labor practices, human rights, that we have today. But because of ESG practices, we have gained new information sets that can help investors make more informed decisions about companies. The current pandemic and heightened awareness about racial inequity are fresh examples of how this continues to push companies to become more open to disclose information or have conversations that they weren't previously having.

Having this information set allows investors to be more dynamic around observing opportunities and risk that would otherwise be opaque. Investors are going to have different decisions around how to use the information, but the value that we all get out of the

> THE MUNI MARKET HAS POSITIVE ESG CHARACTERISTICS ALREADY SO THE WATER IS WARM

ESG conversation is hopefully that the true state of the investment landscape becomes more clear

David: How are you addressing specific client objectives as it relates to ESG? Are there customizable portfolio solutions that you are able to construct for them?

Jennifer: This is our bread and butter. The first step in that is to figure out the client's desired exposure without any ESG incorporation. This could be a standard index or an actively managed strategy. The second step is to figure out which data to incorporate. For example, carbon emissions or labor rights or both, and how exactly to measure each. The last step is to figure out if those metrics should be used to reweight the portfolio constituents or used to screen the portfolio. Although reweighting can be appealing because it doesn't necessarily omit any securities from the portfolio – most investors we work with prefer screening because it gives them greater control on the results and is a very efficient way to ensure they own only the "good" companies by their own definition if that is important. Of course, before doing any of this we typically have a conversation in order to understand the client's holistic portfolio plan and make sure what we're doing in our part of the portfolio is aligned to that.

Brian: I agree entirely. Customization is our business. We are often creating individual portfolios that achieve specific exposures based on return goals and risk tolerances. That could be a certain slice of the yield curve or a preference on credit quality, or to track a broad aggregate index. The ESG customization is simply another layer on top of what we already offer.

David: You mentioned earlier an increased institutional investor interest in municipal bonds; is there any way in which that can serve ESG goals for investors?

Brian: The muni market has positive ESG characteristics already so the water is warm. Governments and non-profits exist to provide social benefits and services. In addition, state and local governments help to finance roughly three quarters of all US infrastructure spend annually. Issuance should continue to grow as the revitalization of American infrastructure becomes the biggest bipartisan issue in the country.

At Parametric, we identify a handful of key impact categories, including clean water, water conservation, education, affordable housing, connectivity and clean energy. We have our own robust proprietary scoring system where we conduct a fundamental issuer review to start and then assign an ESG score based on a number of factors, including the use of proceeds. Our final step in this process is to determine the overall impact. A recent example is a Massachusetts school building authority social bond, where proceeds are being used to improve social outcomes and education in the state's public school system. Another is a wind turbine project in Washington State which generates clean energy for residents in Northern California.

The bottom line is that our infrastructure is old and ageing, and the muni market is going to be a big part of its revitalization.

David: In that same breath, these bonds are going to be issued and going to be financing these projects, as they relate to infrastructure, transportation and creating more socially and climate friendly environments. Is there an outlook for certain industrial sectors within equities or publicly traded companies that benefit from this?

Jennifer: We do have clients who are thinking about the ways that they can invest in areas such as clean energy and infrastructure. However, some of the challenges in the kinds of liquid, larger cap equity portfolios we're building for investors are the lack of pure play opportunities. For example, if a company produces wind turbines, but it is a relatively small piece of a diversified company, to what extent are

you specifically picking up on that opportunity? Clean energy tends to be the most common topic that comes up in this area and the one that we work closely in with our clients.

David: Do you have any further thoughts on this topic?

Jennifer: ESG has gotten a lot of strong focus and there has been a lot of advancement into how it gets incorporated into investment portfolios. Part of that advancement has included investors directing more attention recently towards the social aspect of ESG, as the global conversation has broadened to include areas such as modern slavery, the pandemic and labor practices during the health crisis. The type of information that can be obtained from companies around these matters is still in its early stages, but these are emerging issues, and potential investment opportunities or risk mitigation tactics, especially in a pandemic world.

Brian: The fixed income side of this conversation in the past has been very much around green bonds, and environmental sustainability. This will continue to be a growing portion of the debt market, with over $1 trillion in green bonds issued globally. However, just last year, we've had about $150 billion of social bonds issued and it is growing, allowing dollars to flow to people in need.

David: Thank you both for sharing your thoughts on this topic.

"ESG HAS GOTTEN A LOT OF STRONG FOCUS AND THERE HAS BEEN A LOT OF ADVANCEMENT INTO HOW IT GETS INCORPORATED INTO INVESTMENT PORTFOLIOS"

1.4 INVESTOR INSIGHTS

Does liability-centric portfolio management still work in today's market environment?

Interviewer

David Grana,
Head of North America Media, Clear Path Analysis

Interviewees

Charles Van Vleet,
Chief Investment Officer, Textron Inc.

Q&A answers given in a recent investor panel

Kevin McLaughlin,
Head of Liability Risk Management, North America, Insight Investment

POINTS OF DISCUSSION

- *Pension cash flows are fundamentally bond-like in nature*
- *The greatest challenge to matching liabilities and assets is estimating participant longevity*
- *With market dynamics today different from the post-GFC era, it makes sense to hold a more diversified set of credit risks*
- *Fallen Angels could offer investment opportunities*

David Grana: In your estimation and experience, why is it difficult to match liabilities with a pension portfolio?

Charles Van Vleet: The greatest challenge to matching liabilities and assets is estimating participant longevity. COVID19 has resulted in an unexpected decrease in longevity. In the future, perhaps continued scientific breakthroughs of mRNA will result in equal, or greater, increases in longevity; but we will have to wait and see.

Inflation presents another challenge. Inflation can pay havoc on future wages/benefits for your active participants and COLA increases for your retirees. A distant third-place challenge are unknowable increases in PBGC expenses, both participant and variable. To my eye, small sources of asset/liability tracking error compared to the others.

Kevin McLaughlin: We do not believe it is inherently difficult to match the financial characteristics of pension plan liabilities with a fixed income asset and interest rate hedging portfolio. This is because pension cash flows are fundamentally bond-like in nature. The key financial risks of liabilities can therefore be well understood and hedged from a cash flow timing and interest rate volatility perspective.

Of course, pension plan cash flows are also based on demographic assumptions which remain subject to future revision. However, demographic risk is subject to the "law of large numbers" and is therefore smaller in magnitude and scale, particularly for a large pension plan. Also, while not yet common in the US, many UK pension plans have taken action to hedge longevity risk.

Lastly, many pension plans remain open to future accrual, meaning that new liabilities are being added all the time. As such, it is important to avoid false precision in liability matching strategies, but it remains possible to achieve a close match with low tracking error. In fact, this is what life insurance companies have been successfully doing since the 1700s!

> THE ECONOMIC VALUE OF A PENSION PROMISE TO A PARTICIPANT SHOULD, IN THEORY, REFLECT THE CREDIT QUALITY OF THE COLLATERAL ASSETS HELD BY THE PLAN AS WELL AS THE FUTURE RISK OF DEFAULT OF THE PLAN SPONSOR

David: Do you feel that the discount rate used across the industry is flawed?

Charles: The discount rate is not flawed; but as a reference rate, used for discounting future liabilities, it is highly volatile and unpredictable. The discount rate approach was put together by the Treasury Department in 2005/2006. The process, outlined at that time, requires using AA or better rated corporate bonds -duration matched to your expected pension liabilities- as your liability discount rate. By definition, it has significant "survivorship bias". While downgraded AA rated issuers drop out of your discount rate calculation, they do not drop out of your portfolio. This point bares distinction. The LDI objective should be to match the characteristics of the discount rate – not the specific issuers or issues in the discount rate. While USTs are your best source to match rate exposure, credit spread can be found in many shapes and forms. Specifically, corporate spread beta can be found throughout the rating spectrum: single B to AAA rated. Credit spread proxies can also be found in the equity market, convertible bonds, and derivative synthetics.

The conversation around credit spreads reminds me of a 2006 story. At that time, I was working for Robin Diamonte at UTC. I recall a meeting with the U.S. Treasury Department in Washington DC to (softly) suggest they allow us to include BBB or better rated bonds in the discount rate calculation. Logic being that many/most of the pension sponsors were BBB rated; therefore, the discount rate would more closely match the credit rating of the sponsoring company. The Treasury team officials rolled their eyes and in polite, gravel-tone voice said they considered AA to already be "overly generous". "How about we just use UST rates instead?" they suggested. "No thank you", I demurred. Point-taken, I quickly departed.

Kevin: I do not believe that discount rates are flawed if used for their correct purpose in arriving at a net present value of a future stream of cash flows. The confusion for corporate pension plans can arise, however, when some industry practitioners confuse the calculation of an NPV with an optimal investment approach or the required characteristics of a liability hedging strategy. Charles has covered some of the issues and considerations quite well.

Let me add that, from a GAAP accounting purpose, the discount rate is intended to reflect the rate at which obligations could effectively be settled, i.e. an economic measure. For practical purposes, this is often interpreted (or mandated by auditors) as being equivalent to the use of a discount curve of "AA" credit quality. However, this interpretation is a "one size fits all" approach and may not be correct in any one case or in different market conditions, etc. Additionally, there are many ways to derive a bond curve – some methods are better than others – but this does not itself mean that discounting is flawed.

The use of credit spreads in discounting cash flows is the more controversial aspect. This is because the spread is the compensation an investor demands or expects to receive for assuming the default-risk of a bond and any additional premium for illiquidity. This is a very different consideration to what is the most appropriate discount rate to ensure participant security, e.g. participants, the Treasury and the PBGC may expect it to be default free! Similarly, the economic value of a pension promise to a participant should, in theory, reflect the credit quality of the collateral assets held by the plan as well as the future risk

of default of the plan sponsor. Clearly, such a calculation is complicated and hence why more practical approaches are necessary.

David: What methodologies outside of traditional exposure to investment grade bonds are you utilizing to get a more favorable risk/return than your industry peers?

Charles: Like most of my peers I separate asset/liability hedging analysis into two parts: rate-hedge and spread-hedge. In my rate hedge I only include rate-product with effective/empirical duration -not just- measured duration. The difference is important. For example, Convertible Bonds might have a measured duration but it is all spread & equity duration; not rates. Same for First Lien loans. In short, I look at how things trade; not what they are called. I know that my Covertible Bonds and First Lien Loans might be bonds, but I treat them as equity/spread proxies.

In my rate-hedge ratio I include UST's and agency mortgages. In my credit-spread ratio I include fixed income and non-fixed income spread product including HY, First Lien loans, BDCs, CLO equity, and public equities. While I have a fair allocation of investment-grade fixed income spread product, I appreciate the added diversification benefit of owning other things / broader products that provide diversification and often – better drawdown characteristics.

The objective is to get away from highly concentrated allocations of IG (investment grade) spread-risk. Own the same name but in a junior position (equity, loans?). Or here is an idea, for part of your book, get rid of name-specific idiosyncratic risk completely. Replace a part your IG portfolio with a combination of USTs + S&P bull put-spreads. Same income (yield), same beta characteristics, better liquidity and improved down-side capture.

In turn, to optimize risk and return, two observations become obvious, both of which are well supported in financial academia:

1. Sources of return should be diversified
2. Interest rate risk is uncompensated and therefore should be hedged

I believe that many pension plans invest in long duration investment grade (IG) bonds as they are told that this best reflects their liability. This is not strictly true, but often goes unchallenged. A more accurate statement is that holding liability matching IG bonds can minimize the short-term tracking-error of the asset portfolio to the NPV of the GAAP accounting liability. However, this is not the same thing as holding an optimal risk-adjusted portfolio and/or in optimizing an investment approach to defease the future obligations.

Many plans first moved into IG bonds post-GFC when the spreads available were very attractive relative to other asset classes, their longer-term history and the inherent default risk being assumed. Long duration IG has subsequently performed well and rewarded investors handsomely. However, the market dynamics are very different today and it therefore makes sense to consider the benefits of holding a more diversified set of credit risks. This can bring new challenges such as managing illiquidity risk, particularly as liabilities decumulate.

David: Why are other plan sponsors not taking this approach?

Charles: All of us, including me, are often seduced by the John Maynard Keynes meme "sometimes it is better for reputation to fail conventionally than to succeed unconventionally." There is a lot of truth to this, at least when it comes to the world of investing.

> "the market dynamics are very different today and it therefore makes sense to consider the benefits of holding a more diversified set of credit risks"

Kevin: Our goal is to develop economic solutions which can best address the specific risk, return and hedging goals of a plan fiduciary. In our view, this should involve consideration of many sources or risk-premia, regardless of how a pension liability is defined for regulatory/GAAP purposes and/or how it is discounted.

Taking a step back: from an investment first principles perspective, pension obligations are best viewed as a set of future undiscounted cash flows, regardless of the discounting approaches used for GAAP, PPA or other purposes. The investment goal then becomes to earn the rate of return required to pay for the future liability outflows considering the current level of assets, future company contributions and any funding buffer desired.

Kevin: I like the quote by Warren Buffett when he said that "what the many do in the beginning for all the right reasons, the many do in the end for all the wrong reasons". This can be applied to the conventional thinking that somehow investing only in long duration credit bonds are the only (or best) way to manage the cost and risk of future pension obligations.

David: What are "fallen angels" and what are the opportunities for fixed income investors?

Charles: The relationship of a bonds' price relative to its rating is not linear. A particular non-linearity occurs when a bond rating "crosses the Rubicon" between BBB and BB. Crossing from BBB

> A LIABILITY-CENTRIC PORTFOLIO IS THE MOST APPROPRIATE GOVERNANCE FRAMEWORK, INDEPENDENT OF THE MARKET ENVIRONMENT

to BB is simply an artificial line-in-the-sand; however, it results in a disproportionate impact on price. Crossing that line suddenly drops an issuer into neighborhood of "high yield", "junk" and, "fallen angel" issuers. Why was that artificial line drawn at BBB instead of BB? Who knows; no matter however, as the same downgrade curse would probably still apply.

In short, the Fallen Angel line in the sand has become the definition of choice for designing mutual funds, ETFs, bank portfolios and institutional "investment grade" bond portfolios. Crossing that line results in forced selling as portfolios are required to "cure" the miscreant issuer. But to my way of thinking there is an opportunity to invest in Fallen Angels. If a bond issuer suffers a series of downgrades -resulting in forced selling and non-linear price change- I am glad to be the guy on the other end of the trade buying those oversold, beaten-up bond issues. The proverb that one man's trash will be another man's treasure, will always be true.

Kevin: Long-term studies show that holding onto fallen angels and avoiding forced-selling would result in superior returns. It is therefore better to give your active credit manager some latitude to manage the sale of any bond that crosses the Rubicon into high yield. It is also important to note that most of the value may be lost before the bond gets downgraded as a pending downgrade is often priced in before agencies alter the rating.

David: Why do you believe that a Liability Centric Portfolio works in todays' environment? What else is important?

Kevin: A liability-centric portfolio is the most appropriate governance framework, independent of the market environment. This is because the primary purpose of saving and investing the assets is to be available to meet the liabilities as they fall due. In turn, the key risk a pension plan faces is the failure to meet its obligations and this should form the foundation for investment decision making. However, this does not imply that there is only one way to invest, as this depends on many factors as discussed above.

Today's investment environment is characterized by significant central bank intervention, ongoing financial repression and historically high valuations in many asset classes. Uncertainty is high as the inflation versus deflation debate rages on more than 12 years from the Great Financial Crises. None of us have a crystal ball, and so being prudent while using wisdom and experience are important behavioral characteristics for a pension CIO and risk manager.

Lastly, from the liability side, plans are becoming more mature and are decumulating fast. This introduces new investment risks and means that paying attention to liability cash flows is more important than ever. This is because there will simply be less room to make up any underperformance as the asset base shrinks.

David: Thank you both for sharing your thoughts on this topic.

SECTION 2

PORTFOLIO STRATEGIES

2.1 WHITEPAPER

What interest rate management can and can't do: Three considerations for plan sponsors

David Phillips,
Director, Liability-Driven Investment Strategies, Parametric

As liability-driven investing (LDI) has become mainstream over the past 10 years, many pension plans have started their LDI initiatives by first setting up a program to manage interest rates. These programs seek to diminish or eliminate the impact of changes in interest rates on their plan's surplus. Typically the plan's assets and liabilities are examined, and any duration gaps are filled using a customized portfolio of physical cash bonds or interest rate derivatives.

When talking to investors about such programs, we've noted a number of frequent misconceptions about what exactly this kind of LDI program can achieve—and, just as importantly, what it can't. In this paper we discuss our top items for consideration by clients considering an interest rate management program.

Interest rate derivatives allow plans to mimic bond durations while freeing capital

Many plan sponsors are aware of the mismatch between the interest rate exposures in their assets and liabilities. However, this mismatch isn't necessarily representative of an intentional interest rate bet, meaning sponsors don't have a strong view on the future direction of interest rates. Instead sponsors are reluctant to reduce this mismatch by investing in bonds, since this would require allocating capital to low-return fixed income strategies. Plan sponsors can try to meet their required return targets by investing in growth assets, but they may simply not have enough assets remaining to cover their interest rate hedging needs.

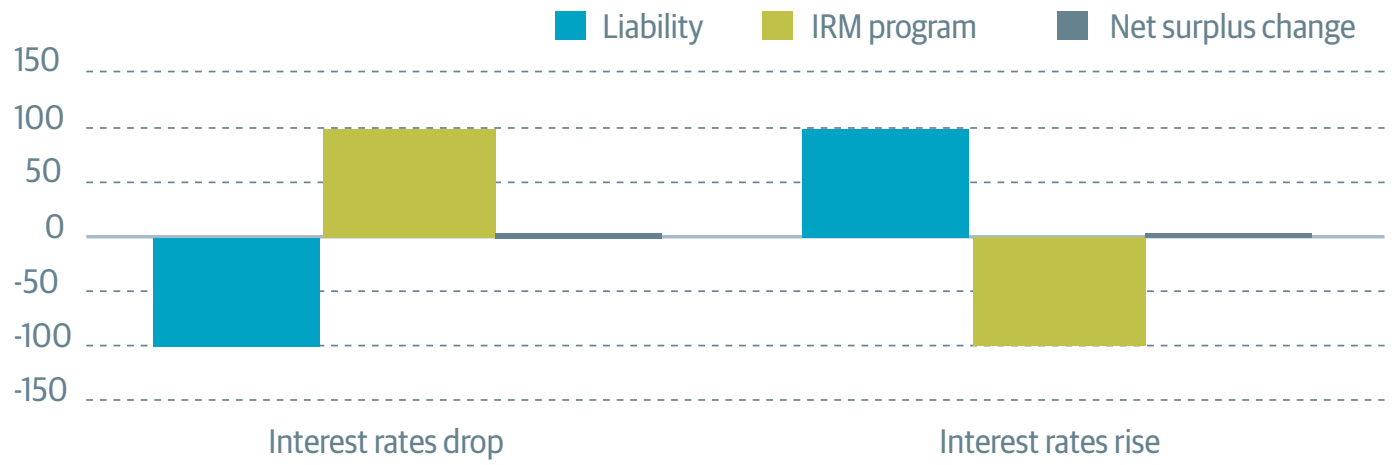
An LDI overlay may be productive in this situation, since interest rate derivatives can mimic the key-rate duration profile of a bond portfolio while only consuming a fraction of the capital—as little as 10% of the corresponding amount needs to be invested in bonds in many cases. By starting an LDI program focused on derivatives, plans can reduce the impact of interest rate movements on their funded status while not negatively impacting the expected return on assets. Taken further, using an LDI overlay to address interest rate exposure can free capital to be invested in strategies where risk is expected to be better rewarded and expected returns are increased.

Note: Investing in a derivatives strategy involves risk and there is no assurance that an LDI overlay investor can achieve positive results and/or avoid incurring losses.

Interest rate management is a form of hedging, not a source of return

Interest rate management requires pensions to change their focus from the total return of their assets to the changes in value of their assets and liabilities in tandem. A program's success or failure can't be measured by how well it performed versus a return target or published benchmark. Instead the client must keep in mind that the goal for these programs is to offset the impact of interest rate exposures in the plan's liabilities. To the extent that a plan's liabilities increase due to falling interest rates, the program should produce a countervailing profit: If one adds the loss from the increase in a plan's liabilities to the gains from the program, the net gain or loss should be minor. However, the opposite scenario is also possible: If rising interest rates cause a plan's liabilities to drop, the program should be expected to produce a countervailing loss, and the net gain or loss from the combination of these movements should offset. The situation is diagrammed in figure 1.

Figure 1: Effects of interest rate movements



Source: Parametric, 12/31/2020. For illustrative purposes only.

The LDI strategy worked as intended in both scenarios. But all too often the first scenario is considered a success, since it produced an asset profit, while the second scenario is considered a failure, since it produced an asset loss. This simply demonstrates that an LDI program should not be judged by its standalone performance. Its relative performance versus other asset classes in the portfolio will vary over time, and at times it'll seem either foolish or genius on the surface. Instead it should be evaluated on how well it narrowed the range of outcomes of the plan by taking a large source of volatility off the table.

An LDI program doesn't lock in funded status

One last misconception is that a plan's funded status can in some ways be frozen in place or even improved by initiating a plan to manage interest rate exposure. This isn't the case; an interest rate management program's solitary goal is to diminish or remove the impact of interest rates on a plan's funded status going forward. If a plan was underfunded the day prior to the initiation of an interest rate management program, it would remain underfunded the day after as well. The existing funding deficit would have to be made up by techniques outside the scope of the program, be it from performance from the underlying assets or further contributions by the plan sponsor.

The plan's funded status will continue be impacted by a whole host of factors as time passes. These include the relative performance of the plan's growth assets versus the required rate of return, the reduction of assets via the payment of benefits to retirees, and the impact of

interest rates on liability valuations. Entering into an interest rate management program can only help solve the last item on this list. For this reason, it should be plain why such a program doesn't make the plan's funded status fixed. Its benefit is strictly limited to reducing one of the primary sources of the plan's volatility.[1]

Conclusion

An organization typically pursues a program to manage interest rates as the first step toward a more liability-aware viewpoint of their investment portfolio. As plans consider taking this first step, several key points are worth highlighting to all stakeholders. First, by using capital-efficient interest rate derivatives, an LDI overlay may reduce interest rate risk while having only a small impact on the amount invested in growth assets. Second, a program to manage interest rates needs to be assessed on its reduction of surplus volatility and not on its absolute performance. Finally, such a program can't freeze a plan's surplus, since many factors aside from interest rates impact surplus status. Agreeing and educating all stakeholders on these points prior to launch will prove helpful for any plan considering an interest rate management program.

[1] *David Phillips, "Defining Two Varieties of Volatility in Corporate Pension Plans," Parametric, June 29, 2020, https://www.parametricportfolio. com/blog/defining-two-varieties-ofvolatility-in-corporate-pension-plans.*

2.2 INTERVIEW

Capturing returns during times of market volatility

Interviewer

David Grana,
Head of North America Media, Clear Path Analysis

Interviewee

Michael Trotsky,
Chief Investment Officer, Massachusetts Pensions Reserves Investment Board (MassPRIM)

SUMMARY

- *The portfolio completion strategies asset class identifies diversifying assets in areas where the fund has little or no exposure and where there is little or no correlation to the primary risk factor*
- *Mass PRIM has a dual mandate of an actuarial rate of return of 7.15% and a drawdown of no more than 20% over three years*
- *The fund does not engage in short-term, tactical asset allocation or short-term trading*
- *Investors are best served by engineering a portfolio with components that will perform well in a variety of different market conditions*

David Grana: With market volatility appearing to be on the rise and many asset classes facing overcrowding, how important is it to broaden exposure to different segments of the market?

Michael Trotsky: I agree with your premise that many asset classes are facing some overcrowding, and we pay attention to that. It is critically important to diversify into other segments of the market, which has been the focus of our work over many years.

Approximately six years ago, we introduced an asset class that we called portfolio completion strategies. This is the primary source of identifying diversifying assets in areas where we have little or no exposure and that have little or no correlation to our primary risk factor. In our case, and in the case of many pension funds, this is equity risk. By definition, we need a large portion of equity to achieve our mandate to earn our required rate of return, 7.15%, over the long term.

Our oldest diversifying asset class and portfolio completion strategy is timberland, and we are one of the world's largest owners. We like its characteristics of diversification and non-correlation. More recently, we moved into permanent crops and non-correlated hedge funds that have limited equity exposure. We are also involved in aggregate businesses, such as basic raw materials (such as sand, gravel, and stone) and airplane and rail car leasing.

Our entire manager selection process is designed to determine whether a particular strategy is additive to the current mix of assets that we own from a diversification standpoint. To this end, we developed a statistically-driven process, coined the Alternative Beta and Appraisal Ratio Analysis. This helps us to achieve our dual mandate of an actuarial rate of return of 7.15% and a drawdown of no more than 20% over three years.

David: Are we in an environment where even long-term investors such as pension funds have to consider the benefits of short-term gains from asset classes outside of their traditional exposure?

Michael: I have been in the investment business for more than 30 years, starting as an equity analyst and moving on to become an equity portfolio manager later. That was followed by a 13-year career as a hedge fund manager at two prominent funds. As a result, I have a very strong philosophical belief that no one can predict the future and nobody can predict the stock market, which is a fundamental philosophy we adhere to here at PRIM. Instead, we engineer a portfolio that we hope will perform well in a variety of different market environments.

In my career, I have seen people successfully time the markets once, twice, and maybe even three or four times, like George Soros has over his long career. However, I believe eventually they are always wrong at least one costly time; and when they are wrong, it can be very painful. We do not believe that it is fruitful to try and time the markets, nor do we believe in short-term, tactical asset allocation or short-term trading.

> ENGINEER A PORTFOLIO WITH COMPONENTS THAT WILL PERFORM WELL IN A VARIETY OF DIFFERENT MARKET CONDITIONS

David: Are there any overlay type positions that are taken by the pension funds and are they done to hedge against certain risks as they may be appearing in the markets?

Michael: We do have an overlay strategy using options and derivatives, but it is limited in scope. On any given day, we can have more than a billion dollars in idle cash held in total at our many investment managers. We don't have a cash allocation, but our managers sometimes hold cash for various reasons. This billion dollars does not earn a market return, therefore, we use an overlay strategy to gain market exposure with that idle cash. However, to be clear, we do not use any overlay strategies as a means to express a short-term view.

David: What are the pros and cons of going with an overlay as opposed to betting on the manager and breaking into a different asset class and strategy?

Michael: In our case, the major advantage is that our overlay strategy is used to mimic the overall performance of the entire fund, as opposed to one asset class. Through this process, we are not taking any additional risk in any one asset class. A secondary advantage of our strategy is that it is highly liquid, which allows us to change quickly based on our cash levels and needs. We try to reduce the tracking error introduced by owning an asset that in this case is cash, which has no place in the portfolio.

David: At any stage would the fund consider keeping cash on hand just to be able to enter into any types of new asset classes that would be favorable to the fund?

Michael: We have plenty of liquidity to make just about any kind of investment whenever we want, so liquidity is not an issue at PRIM. We are in no way impeded from investing in new ideas and raising cash. And to reiterate, when we decide to invest in a new idea, it is not a short-term trade.

David: How is the rebalancing of short-term positions properly coordinated so that investors are not overexposed to high-risk positions over an unwanted length of time?

Michael: We do not think of our asset allocation targets as a fixed midpoint, but rather as a range. We believe that anything within the approved bands is an acceptable allocation. This is proven by risk analysis, which shows that when the portfolio is within our asset allocation policy bands, the risk characteristics of the portfolio are acceptable. It is important to manage within bands rather than to a midpoint, especially if a portfolio with a large allocation to illiquid assets, such as private equity, real estate, and timberland. We rebalance monthly, but focus only on asset classes that are breaching their approved ranges.

David: What advice would you give your peers investing in today's market? What are some of the risk factors that you are looking out for and keeping an eye on that you feel other pension funds and the industry as a whole should be keeping their fingers on the pulse on?

Michael: My advice would be to realize that no one is consistently good at timing the market. I believe that it is a losing strategy, so don't try it. Instead, engineer a portfolio with components that will perform well in a variety of different market conditions.

As a result of this strong and fundamental philosophy, Mass PRIM has made asset allocation decisions that are good for the long haul. We review our allocation policy once a year in a very statistically-orientated process to maximize the probability of meeting our dual mandate. We focus on doing this in a very deliberate fashion rather than based on views of the market or the economy.

David: Thank you for sharing your thoughts on this topic.

2.3 INTERVIEW

Will market headwinds slow down the momentum of pension risk transfers?

Interviewer

David Grana,
Head of North America Media, Clear Path Analysis

Interviewee

Mary Leong,
Consulting Actuary, Milliman

SUMMARY

- *Pension risk transfers were up 24% in Q4 2020 compared to Q4 2019, bringing 2020 sales down only 10% for the year*
- *It appears that the pension risk transfer market will likely continue its growth trend*
- *The funded status of the 100 largest corporate defined benefit pension plans has improved through the end of 2020 and continued to improve through February 2021*
- *A significant rise in inflation could result in a decline in bond prices and liabilities for those plans using LDI strategies*

David Grana: How did the pension risk transfer market perform in 2020, relative to 2019, in terms of volume and activity?

Mary Leong: According to the LIMRA Secure Retirement Institute's most recent survey of the 18 insurers that make up the U.S. pension risk transfer market, year-to-date sales of single premium contracts (buy-ins and buy-outs) through third quarter 2020 was down 34%. However, the year ended strong with fourth quarter 2020 sales up 24% compared to Q4 2019, bringing 2020 sales down only 10% for the year. Q4 2020 was the second highest quarter for sales on record.

There were likely many contributing factors to plan sponsors hesitating or delaying transactions for most of 2020 – the global pandemic, economic uncertainty and interest rate volatility to name a few. Heading into the end of the year, plan sponsors may have experienced strong asset performance to move forward with pension risk transfer, as well as opportunities to take advantage of possible Pension Benefit Guaranty Corporation (PBGC) premium savings for the next plan year.

And lastly, new insurers continued to enter the market which added to an ever growing competitive market space for pension risk transfer.

David: Is the market projected to grow in 2021?

Mary: Although historical trends and experience are not indicative of future activity, it appears the pension risk transfer market will likely continue its trend of growth. For plan sponsors that decide to move from a defined benefit to a defined contribution plan, we could see a continued need to freeze and terminate these DB pension plans. Plan termination growth will lend itself to growth in the pension risk transfer market.

There has also been an appetite for plan sponsors to de-risk their plans over time. This has resulted in pension risk transfers of a subset of participants, particularly retirees in payment status, where the plan sponsor may monitor the market for an opportunity to minimize the cost of these premiums and offload the liability without a loss of funded status.

More recently, the idea of a single premium buy-in has gained some traction in the U.S. market. According to the LIMRA survey, Q4 2020 buy-in sales hit an all time high of $1.6 billion ending the year at $1.8 billion total, just shy of total buy-in sales for 2019 of $1.9 billion. Activity prior to Q4 2018 was nominal in the U.S market. This concept is popular in the U.K. but has not been as advantageous in the U.S. given many of the de-risking strategies are centered around PBGC savings. However, there may be opportunities for growth as strategies are developed to take advantage of locking in premium prices through buy-ins that later convert to buy-outs.

> PLAN SPONSORS MAY LOOK AT THE IMPROVED FUNDED STATUS AS A SIGNAL TO BEGIN PLAN TERMINATION AS THE GAP NARROWS

David: Have the financial markets helped or hurt the funding levels of plan sponsors? In some cases, have strong returns made plan sponsors consider staying in the pension fund management game longer?

Mary: According to the Milliman 100 Pension Funding Index, the funded status of the 100 largest corporate defined benefit pension plans has improved through the end of 2020 and continued to improve through February 2021. While asset returns headed north, interest (or discount) rates headed south for much of 2020. While this is a common relationship in the market, to improve a plan's funded status, the asset return must be greater than the liability return to improve the plan's funded status, unless contributions and/or actuarial gains provide some aid.

Plan sponsors may look at the improved funded status as a signal to begin plan termination as the gap narrows. However, with interest rates still at historic lows, plan sponsors may be hesitant to purchase annuities as this time. Likewise, plan sponsors may be hesitant to allocate additional assets towards fixed income investments and potentially miss out on liability reduction opportunities, if and when interest rates rise again. The ultimate decision would be guided by a plan sponsor's risk tolerance. Some plan sponsors may look at the improved status as the right time to fully immunize the plan with a liability driven investment (LDI) strategy that links their investment strategy to their liability using duration and cash flows as a means to invest in bonds or other investments that mirror the liability movement. With an LDI strategy, the plan sponsor may wish to extend the time horizon of the plan and delay the complexities of plan termination. The extension of pension fund management may be further amplified by the cash flow flexibility and reductions in minimum funding requirements, at least over the next six years, afforded in the American Rescue Plan Act of 2021, signed into law on March 11th.

David: There has been some noticeable upward movement in bond yields as of late. If this trend continues, what impact could this have on pension funds and the risk transfer market as a whole?

Mary: Milliman's Pension Buyout Index tracks the movement of the FTSE Above Median AA Curve with the annuity purchase rates provided by eight insurers on a monthly basis. In general, the movement of the bond yields, pension liability and annuity rates move in tandem, so as bond yields increase, so will the rates used to measure pension liability and the rates used to price annuities. However, the relationship is not necessarily one to one. Since each is measured using different bond yields and curves, the impact could vary.

Q4 2020 was the second highest quarter for pension risk transfer activity, while bond yields were at historic lows. The increase in activity was partly due to strategies to reduce plan liability through annuity purchase. For these plan sponsors, 2021 PBGC premiums would likely be significantly higher without de-risking some of the plan. In addition, plan terminations also contributed to the increase in Q4 activity.

While many plan sponsors may look at higher rates as a signal to act, there can be opportunities even when the bond yields are low.

David: There has also been a great deal of speculation over inflationary pressure on investment portfolios. If we see a significant rise in inflation, what impact could this have on pension funds and, therefore, their ability to de-risk?

Mary: Inflation obviously has a direct impact on bond yields and other investments. Many investment portfolios include strategies to hedge against inflation but allocations to these strategies are often reduced as funded status approaches 100%. A significant rise in inflation could result in a decline in bond prices and liabilities for those plans using LDI strategies. In many respects this is a neutral event. However, for plans employing more traditional equity-based strategies including inflation hedged investments, a significant rise in inflation may increase funded status over time as equities adjust to inflation rates and declines in bond prices are not as deeply felt in the portfolio as they are in the liabilities. For these plans, the effects of inflation may provide more opportunities to de-risk. It is important for plan sponsors of defined benefit plans to consider their assets and liabilities when developing strategies on how to effectively manage their pension risk. The ability to de-risk is greatly impacted by a strategy that monitors the relationship between the assets and liabilities.

Inflation can also play a part in pension benefits, such as cost of living increases and other benefits linked to inflation. However, many plan sponsors have removed these features from their plans to reduce cost.

David: Thank you for sharing your thoughts on this topic.

> “A SIGNIFICANT RISE IN INFLATION COULD RESULT IN A DECLINE IN BOND PRICES AND LIABILITIES FOR THOSE PLANS USING LDI STRATEGIES”

2.4 WHITEPAPER

Is 'hibernation' finally on the horizon?

Kevin McLaughlin,
Head of Liability Risk Management, North America, Insight Investment

Many corporate defined benefit plans have seen a strong pick-up in funded status in recent months with the Milliman Top 100 Plan funding index reaching almost 93% funded at the end of February 2021, the highest level since late 2018.

With many plan sponsors increasingly managing plans which are ***closed*** to new joiners and/or fully ***frozen*** to all future benefit accruals (a so-called 'plan freeze'), this means is that reaching full funding and implementing a self-managed end-state portfolio or 'hibernation strategy' can become a more realistic near-term goal for a growing number of plans.

'Hibernation' as an endgame alternative to buyouts

A ***full plan insurance buyout*** is a strategy that has received a lot of attention in recent years and has the attraction of removing pension obligations completely 'off-balance sheet'. However, due to the premium level required, it remains unaffordable for most plans while transaction-related issues (such as accounting charges) can make it unattractive. It therefore often remains a longer-term ambition.

A ***hibernation*** strategy is a lower-cost 'on-balance sheet' alternative, which seeks to achieve a similar outcome to that adopted by insurance companies, but which avoids any 'cost of capital' and other expense loadings required when insuring a portfolio. We believe that many closed/frozen plans may already be sufficiently funded to implement a hibernation strategy.

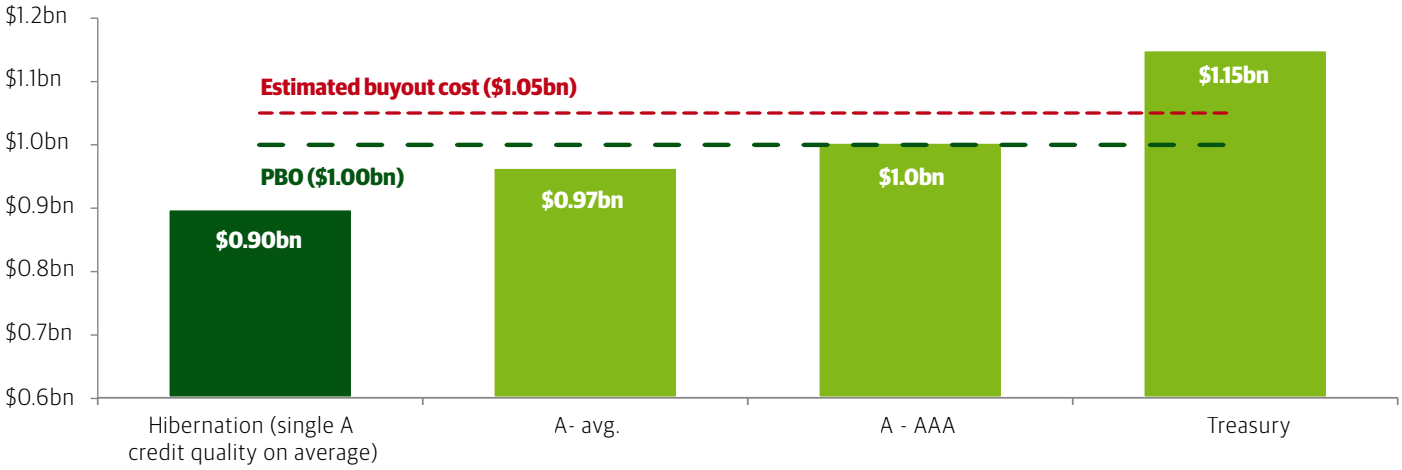
How does 'hibernation' work?

The investment strategy typically involves matching asset inflows with expected outflows, while fully hedging other valuation risks, such as interest rates. The asset strategy and required funding level can vary depending on the target credit quality, the liability hedge ratio and the cashflow-matching approach.

Figure 1 shows the illustrative required funding level to defease a sample set of obligations with a cashflow-matching strategy of different underlying target credit ratings. As the chart outlines, we estimate that following an 'insurance style' hibernation strategy would require only 90% funded status for a frozen plan, **saving up to 15%[1] in funding costs:** i.e. 105% of required funding to execute a buyout minus ~90% for the alternative self-managed solution.

[1] *Relative pricing is sensitive to credit spread movements.*

Figure 1: Illustrative cost of in-plan liability matching solutions [2]

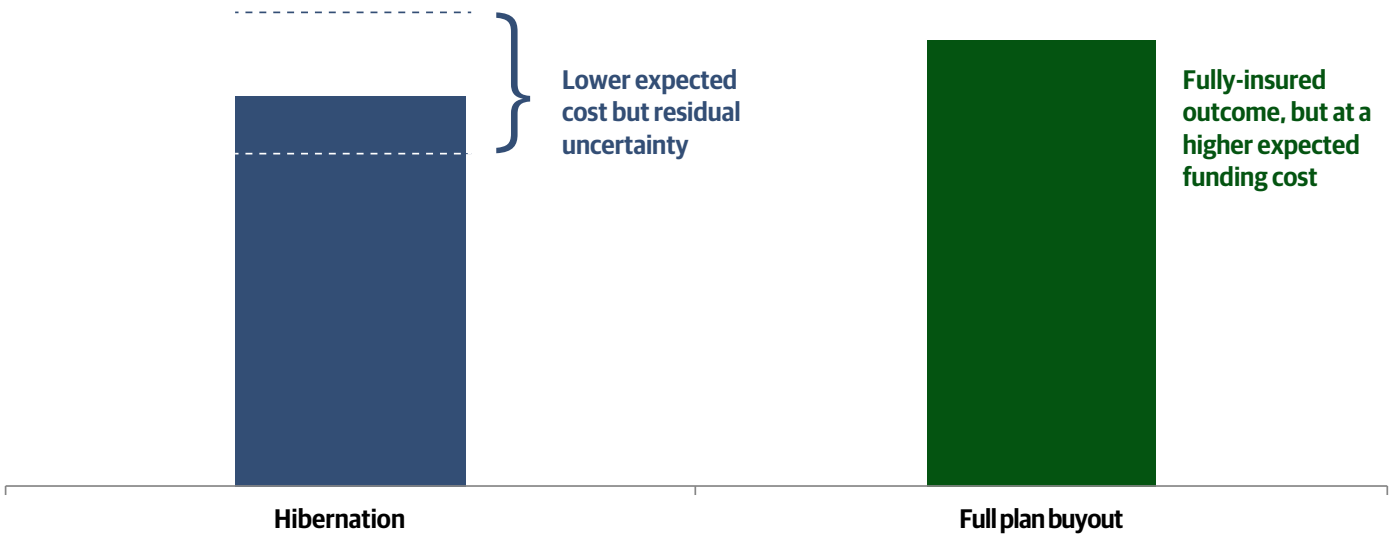


The light green bars are investment strategies consisting only of public investment grade corporate bonds and/or Treasuries. The dark green follows the typical annuity-style insurance investment strategy. It seeks to invest up to 40% in high quality private credit investments with the remaining 60% primarily in public investment grade bonds and Treasuries.

Comparing the approaches: a trade-off between cost and risk

A hibernation strategy can be an appealing alternative to a full insurance buyout, at least in the near-term to medium-term, due to the potentially materially lower upfront cash funding cost. Some uncertainty, however, remains with regards to the long-term funding outcome as some funding risks may remain unhedged and/or are difficult to address, such as longevity and credit default risks.

Figure 2: The choice of end-state depends on a cost vs residual risk trade-off[3]



[2] *Information provided herein is for illustrative purposes only and hypothetical in nature. Estimated GAAP single effective discount rate of 2.4% as of December 31, 2020 (1.0% spread to Treasuries). Assumes gross spread to Treasuries for blended credit, BBB avg., A- avg., A-AAA and Treasury portfolios of 1.9%, 1.5%, 1.2%, 0.9% and 0.0%, respectively. Insurance investor series includes assets such as structured credit. Manager makes no assurances that return objectives will be achieved. Each account is individually managed and could include results that are higher or lower than what is presented herein. Where model or simulated results are presented, they have many inherent limitations. Model information does not represent actual trading and may not reflect the impact that material economic and market factors might have had on Insight's decision-making.*

[3] *For illustrative purposes only. Does not represent any strategy, composite, or client account managed by Insight.*

How does hibernation compare with a partial retiree buyout strategy?

A **partial insurance buyout** is often discussed as a step toward a targeted full de-risked end-state and where the key attraction is to 'shrink' the total pension plan obligation, leaving behind a smaller 'more manageable' obligation.

The approach typically involves transferring the obligations of retiree participants (i.e. in-pays) or other participant groups. Non-transferred members remain an obligation of the plan sponsor in the 'residual plan'.

However, the challenge is that the amount of risk transfer achieved can be lower than expected compared to the cash funding required, while implementing the strategy can delay the timeframe to reach a full plan de-risking, increasing long-term de-risking costs.

We outline a hypothetical example in **Figure 3**. In the table, we show a frozen plan with a $1bn PBO[4], including $500m of retiree obligations with a 90% funding ratio. The plan is considering a retiree only buyout at a 'premium' of 105% of PBO – i.e. for a total premium funding cost of $525m.

Figure 3: Analysis of a hypothetical retiree buyout[5]

$m	Pre-retiree buyout	Post-retiree buyout	Change
Liability (PBO)	**1,000**	**500**	**-50%**
Assets	**900**	**450**	**-50%**
Assets not transferred to the insurer ($900m minus $525m cost)		375	
Cash top-up (required to remain 90% funded)		75	
Risk reduction (sensitivity to 1bp discount rate move)[6]	**1.3**	**0.9**	**-30%**

As we can observe from **Figure 3:**

- Although 50% of the pre-transaction assets and liabilities are transferred to the insurance company, ***only 30%*** of interest rate sensitivity and liability risk would be reduced. This is because the longer duration liabilities (and associated interest rate and longevity risk) remain in the residual plan.
- The plan is also left with $375m of residual assets before further funding: $900m of starting assets less $525m to fund the insurance premium. It would therefore require a $75m cash top-up to in order to maintain the funded status at 90% and to avoid disadvantaging remaining plan participants.

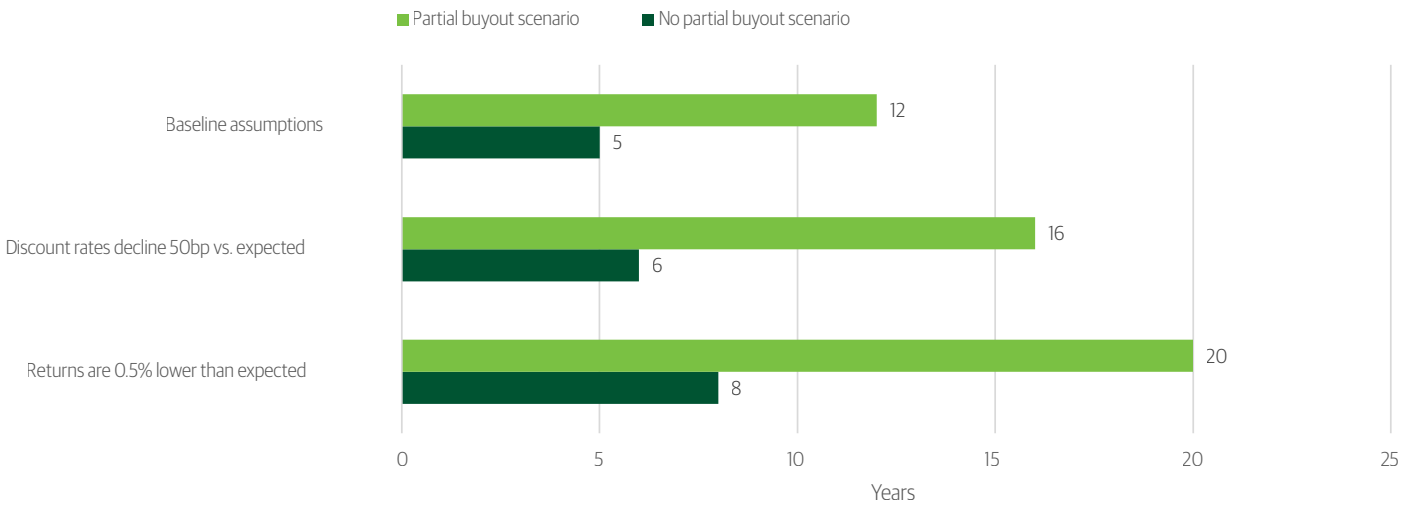
In **Figure 4** we compare this to a hibernation or 'no partial buyout' scenario. We assume that an additional $75m is added to the $900m of plan assets under the hibernation scenario – in order to make an 'apples to apples' funding cost comparison. As we can observe, the time horizon for the plan to achieve a target funding ratio of 105% is considerably extended under the partial buy-out scenario.

[4] The plan's PBO refers to its pension benefit obligation under a US GAAP basis.

[5] Insight. For illustrative purposes only. Assumes retiree-only duration of 10, residual plan duration of 16 and full plan duration of 13. Does not represent any strategy, composite, or client account managed by Insight. Information provided herein for illustrative purposes only and hypothetical in nature. It does not reflect actual investing. Information contained herein is derived from sources believed to be reliable. Insight does not guarantee or warrant the accuracy, timeliness, or completeness of the information either collected, sourced or otherwise provided, and is not responsible for any errors or omissions.

[6] Also called DV01 or dollar value of a basis point change in interest rates.

Figure 4: Time to achieve 105% target funded ratio[7]



Conclusion – what is the right end-state approach for your plan?

When planning for the endgame, plan sponsors naturally see the appeal of an 'off-balance sheet' solution, such as an insurance buyout. However, a self-managed 'on balance sheet' strategy may be more achievable. It is important to weigh the costs and benefits of each approach and to seek advice, as the financial differences and effects can be material.

[7] *Insight. For illustrative purposes only. All calculations and market conditions as of December 31, 2020. Baseline assumptions: Discount rate = 2.50%, assets return 1.0% over discount rate p.a. No Partial Buyout scenario assumes an 80% hedge ratio; Partial Buyout scenario: 50% hedge rate on residual liabilities (i.e. assume insurance buyout premium is funded with hedging assets). Does not represent any strategy, composite, or client account managed by Insight. Information provided herein for illustrative purposes only and hypothetical in nature. It does not reflect actual investing.*

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SECTION 3

PENSION CONSOLIDATION

3.1 INTERVIEW

Starting from scratch: Is the consolidation of Illinois' police pension funds a new model for public pension funds?

Interviewer

David Grana,
Head of North America Media, Clear Path Analysis

Interviewee

Rich White,
Executive Director, Illinois Police Officers' Pension Investment Fund

SUMMARY

- *Illinois Bill SB 1300 provides that the more than 650 downstate, suburban public safety pension funds would be consolidated into a single trust fund*
- *By consolidating investments, the fund is estimated to earn as much as $1 million more per day in returns, $820 million to $2.5 billion over the first five years, and as much as $12.7 billion over the next 20 years*
- *The consolidation of the assets of the 650 funds will remove investment barriers and enable them with greater negotiating power*
- *The transition period for the plans must be completed by June of 2022*

David Grana: Where did the idea or inspiration for the IPOPIF come from?

Rich White: This has been an idea that has been percolating through the Illinois legislature for a long time. Recently, Governor Pritzker formed a feasibility task force, which studied and determined that the suburban and down state police and fire pension plans underperformed versus the state-wide municipal plan by an average of around 25% per year over the past decade.

This task force determined that consolidation was a way to address the underfunding of the local plans, which led to the passage of SB 1300 by the state legislature in December 2019. Governor Pritzker signed the law into effect in January of 2020, provides that the more than 650 downstate, suburban public safety pension funds would be consolidated into a single trust fund. One is designated for police departments and the other for fire departments.

David: What has been the response from the respective police pension funds to the idea of consolidation?

Rich: The initial response was not as warmly received as hoped for by the members and beneficiaries of the respective pensions, especially the police plans. Hopefully, by accomplishing the goals that we have been given through consolidation, we will gain their trust and support going forward.

David: What advantages will consolidation bring to the respective pension funds?

Rich: This law states that one of the reasons for the consolidation is to ensure that more money is available to fund pension benefits and to reduce the burden on local taxpayers.

One of our goals is to increase investment returns. In fact, the taskforce mentioned that by consolidating investments, the fund is estimated to earn as much as $1 million more per day in returns, $820 million to $2.5 billion over the first five years, and as much as $12.7 billion over the next 20 years. Another goal is enhancing the overall efficiency of our investments by reducing the number of managers and service providers across the various plans.

Consolidation will also remove barriers for investments. The original 650 funds were, by statute, restricted in the investment vehicles they could invest in, based upon their size. By removing these barriers, the fund can avail itself the benefits that are realized by larger plans, including having access to different asset classes and vehicles, as well as having greater negotiating power. This will also help to drive down operating expenses.

> BY CONSOLIDATING INVESTMENTS, THE FUND IS ESTIMATED TO EARN AS MUCH AS $1 MILLION MORE PER DAY IN RETURNS, $820 MILLION TO $2.5 BILLION OVER THE FIRST FIVE YEARS, AND AS MUCH AS $12.7 BILLION OVER THE NEXT 20 YEARS

David: What are the challenges that you and your team have ahead with creating the foundation to launch IPOPIF and what are the steps that you are taking to meet those challenges?

Rich: The known unknowns are the issues that come with any start-up organization. This includes setting up bank accounts, paying expenses and service providers, building a website, establishing our infrastructure and offices, as well as developing and enforcing governance systems, policies and procedures. We are also in the process of hiring staff, and developing job descriptions and employee manuals for a whole range of functions.

I had mentioned that one of the goals of consolidation includes reducing costs, however, we will have initial start-up costs that we will need to incur in the first few years as we establish the new organization. This is not limited to expenses for custodians and consultants, among other costs.

The local participating police funds, members and beneficiaries have a sense that they have lost a bit of local control over their pension funds and their operations. It will be an ongoing challenge to win over their trust and ensure them that we are looking out for their best interests, as well as executing their mission and abiding by their values.

As for overcoming all of these challenges, we have elected a permanent board of trustees, which in itself was a massive undertaking. We had to create a database of over 20,000 active and retired law enforcement beneficiaries from scratch in order to hold this election.

We are also defining roles and policies, as well as carrying out ethical and fiduciary training. Our new website provides the public with transparency on our progress as we continue to build this infrastructure. We have ongoing assessments and planning discussions and are actively building out our financial system as well as budgeting so that we can operate effectively. We are also developing the operations and administration systems and are establishing IT infrastructure and data management systems.

At the moment, the board of trustees are reviewing applications for finalists for the chief investment officer position, which will be filled shortly. We will then be interviewing and hiring a consulting firm, which will then enable us to conduct the transition of assets.

We communicate the planning and execution of this entire process to our stakeholders, which includes our members, retirees, municipalities and the public. We have covered a lot of ground in the past 9-10 months, but there is still a lot of work yet to be done. By statute, the transition period must be completed by June of 2022. While this may seem like a long ways off, there is still a lot to do in order to consolidate the 353 participating police pension plans and their roughly $8.5 billion dollars in assets.

David: Thank you for sharing your thoughts on this topic.

3.2 ROUNDTABLE DEBATE

How economies of scale could reduce costs and provide access to a more diverse portfolio

Moderator

David Grana,
Head of North America Media, Clear Path Analysis

Panellists

Barbara Sanders,
Associate Professor, Simon Fraser University

Jean-François Bégin,
Assistant Professor, Simon Fraser University

POINTS OF DISCUSSION

- *Pension plan consolidation commingles the assets and liabilities of two pension plan, going beyond the "master trust" approach, which only commingles assets*
- *Consolidation is a potentially powerful tool for re-engineering the fiscal and demographic profile of a pension plan*
- *This study explores two hypothetical examples: a smaller plan merged into a larger one with a radically different membership profile, and three groups of similar size coming together to form a new plan*
- *The project is scheduled to conclude in 2022*

David Grana: What is pension plan consolidation, as defined by the parameters from your upcoming study?

Barbara Sanders: We define pension plan consolidation as the merger of two or more pension plans, commingling both their assets and liabilities. This goes beyond the "master trust" approach, where only the assets are pooled. It includes harmonizing the plan provisions and integrating the liability experience of the groups in question.

These transactions are not just of academic interest: there has been significant consolidation in the defined benefit sphere over the past 20 years in the Netherlands. Activity has also been picking up in Canada since the introduction of DBplus by the Colleges of Applied Arts and Technology in 2018. We believe this is the beginning of a new trend.

David: What are the factors that your study will examine?

Jean-François Bégin: Consolidation is a potentially powerful tool for re-engineering the fiscal and demographic profile of a pension plan. Our study explores the impact of four specific components: savings in investment and administrative expenses on account of a larger asset and membership pool, better returns stemming from a more sophisticated and efficient investment process in a larger plan with more resources, access to alternative asset classes, and differences in demographic characteristics (primarily longevity expectations).

Each of these has already been established in the literature as having a significant impact on pension costs and risks on its own. Our contribution is creating a cohesive framework for evaluating the value of a merger from the perspective of each party to the deal, taking into account all of these factors.

David: What are the scenarios that will be modeled in the study and are they hypothetical or real-world?

Jean-François: The characteristics of the groups being brought together in a pension merger (their demographic profiles, funded status, etc.) might significantly impact the value of the deal to each party. We will explore two hypothetical examples in our study, inspired by real-world cases. In the first example, a smaller plan is merged into a larger one with a radically different membership profile. In the second example, three groups of similar size come together to form a new plan. Our focus is less on the specific results of these hypothetical deals and more on illustrating how to apply our framework to any new case.

David: What is the motivation behind the study and are there expectations of certain outcomes?

Barbara: Our primary motivation was a need for a unified approach to the complex problem of evaluating the merits and drawbacks of specific pension plan mergers. As Jean-François mentioned, several disparate components contribute to the final value of a given deal, some easier to quantify than others. Our goal is to round out advisors' quantitative toolkit and help them paint a complete picture of a deal by devising a method for combining these different components.

We have no expectations about the numerical outcomes produced by our framework: the value of each deal will vary based on its unique parameters. This is precisely why it is important to evaluate each proposed merger transaction separately. Given the complexity of the task, there may be some asymmetries between smaller and larger players regarding capacity and resources for performing this analysis. We hope that our framework will equip all plans with the appropriate concepts and tools to evaluate merger transactions holistically. This will even the playing field and ultimately lead to better decisions.

David: When is the study projected to conclude and where can our subscribers find the results?

Jean-François: We expect to conclude our work in 2022 and will publish our results shortly after. Subscribers can keep an eye on our websites for the paper. We also plan to disseminate our work through conferences aimed at the retirement industry.

David: Thank you both for sharing your thoughts on this topic.

> “CONSOLIDATION IS A POTENTIALLY POWERFUL TOOL FOR RE-ENGINEERING THE FISCAL AND DEMOGRAPHIC PROFILE OF A PENSION PLAN”

Bégin and Sanders's research on pension plan consolidation is co-sponsored by the Society of Actuaries and the Canadian Institute of Actuaries.

3.3 CASE STUDY

Defined benefit 2.0: Providing stability for employees through accumulation and decumulation

Interviewer

David Grana,
Head of North America Media, Clear Path Analysis

Interviewee

Marnie Niemi Hood,
Vice President, CAAT Pension Plan

SUMMARY

- *Diversifying the CAAT Pension Plan by including new sectors and industries increased defined benefit pension coverage and mitigated risk*
- *The plan has a 119% funding ratio and a 10-year annualized net rate of return of 10%*
- *Cost and risk sharing by employers and members has enabled inflation protection and volatility management*
- *CAAT's DBplus plan provides predictable retirement income, including conditional inflation enhancements, subsidized early retirement, and survivor benefits*

David Grana: When and why did CAAT undergo a pension consolidation?

Marnie Niemi Hood: In 2015, the Royal Ontario Museum approached CAAT Pension Plan regarding a merger to consolidate their single-employer pension plan. Shortly thereafter, one of our Plan sponsors, OPSEU, began asking for a plan design that would meet the needs of part-time professors and support staff at our member colleges. Our Board and Sponsors' Committee struck a joint task force to conduct an intergenerational equity-focused review. From that initiative we proceeded to create a new plan design that would improve equity in the value of benefits for contributions among all part-time and full-time members, while meeting the changing needs of the broader workforce. By opening the Plan to new sectors and industries across the country, our Plan governors pursued both a policy objective to increase defined benefit pension coverage for Canadian workplaces and further our risk mitigation strategy by diversifying the Plan's demographic profile.

David: What are the advantages for the plan sponsors as well as for the members?

Marnie: Since we opened to the private sector in 2018, more than 60 new employers and 15,000 members from across the country have joined the Plan. Employers appreciate our innovative design with its fixed-cost contributions and no liabilities, while members love the security and predictability that come with joining a large, well-funded defined benefit plan that is usually only available to the public sector.

David: How has the overall fund performed and what is the current funding level? How does this compare to the average pension fund?

Marnie: CAAT's 10-year annualized net rate of return is 10%, achieved through the use of both internal and external managers. Our Chief Investment Officer Julie Cays and her capable team have added over $1.5B in value above the policy benchmark. Julie was recently recognized by Canadian Investment Review magazine as CIO of the Year. As well, according to Benefits Canada magazine, CAAT was the fastest growing pension plan in Canada in 2019.

Compared to many defined benefit pension plans in the private sector, large plans such as CAAT, and others operated for the public sector, enjoy many advantages, including access to alternative asset classes, exemption from solvency funding rules (and the volatility that can bring), as well as economies of scale in administration. Cost and risk sharing by employers and members is a hallmark of the governance structure, which has enabled inflation protection and other benefit enhancements to be granted conditional on the Plan's funded status, serving as another technique for managing through periods of volatility. With going-concern funding at 119%, and a funding reserve of $3.3 billion, as

> COST AND RISK SHARING BY EMPLOYERS AND MEMBERS IS A HALLMARK OF THE GOVERNANCE STRUCTURE, WHICH HAS ENABLED INFLATION PROTECTION AND OTHER BENEFIT ENHANCEMENTS

of the January 1, 2021 valuation, CAAT is strongly positioned to manage through economic downturns and market volatility well into the future. The Plan's recent Asset Liability Modelling study confirmed a 97% likelihood it will remain fully funded in 20 years.

David: How does this pension fund differ with commonly seen pensions available to members across as it relates to accumulation and decumulation?

Marnie: Due to changes in accounting rules in the 1990s, defined benefit coverage has been on the decline with a shift, predominantly in the private sector, to defined contribution arrangements and group RRSPs. Few of the remaining legacy DB plans offer any indexation or subsidized early retirement and survivor benefits.

CAAT's DBplus plan design offers a solution, providing predictability for employers and members, with DC-like contribution rates as the member builds secure, predictable retirement income that includes conditional inflation enhancements, subsidized early retirement, and survivor benefits at no additional cost. DBplus really offers the best of DC and DB, and thus the widespread appeal to CEOs, CFOs, CHROs, trade unions, and plan members alike.

David: Thank you for sharing your thoughts on this topic.

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