



Ryan ALM

Asset/Liability Management

Pension Solution: Buy Time!

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Executive Summary

U.S. pension plans have been hard hit by rising pension costs since 2000. This has been primarily characterized by spiking contribution costs and volatile funded ratios. A solution to this dilemma is to implement a strategy that will buy time! By separating assets into liquidity (Beta) and performance (Alpha) assets, you can achieve the true objective of a pension, which is to secure benefits. The Beta assets secure Retired Lives benefits chronologically (we recommend 10 years) thereby buying time for the Alpha assets to enhance the funded status, while besting future liability growth.

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Pension Solution: Buy Time!

Ryan ALM's mission is to solve liability driven problems through low cost, low risk solutions.

Most pensions have been hard hit this year. According to a March study by Milliman of the top 100 Public Pensions, the average funded ratio fell to 66% from 74.9% at the end of 2019. This represents the largest decline Milliman has ever recorded. The funded status deficit grew to \$1.82 trillion. They reported only four plans with funded ratios > 90% and 35% were < 60% funded using the ROA as the discount rate. Imagine the funded ratio if Public Plans adopted FASB discount rates of AA corporates. Lower funded ratios also suggest higher contributions are coming. What to do?

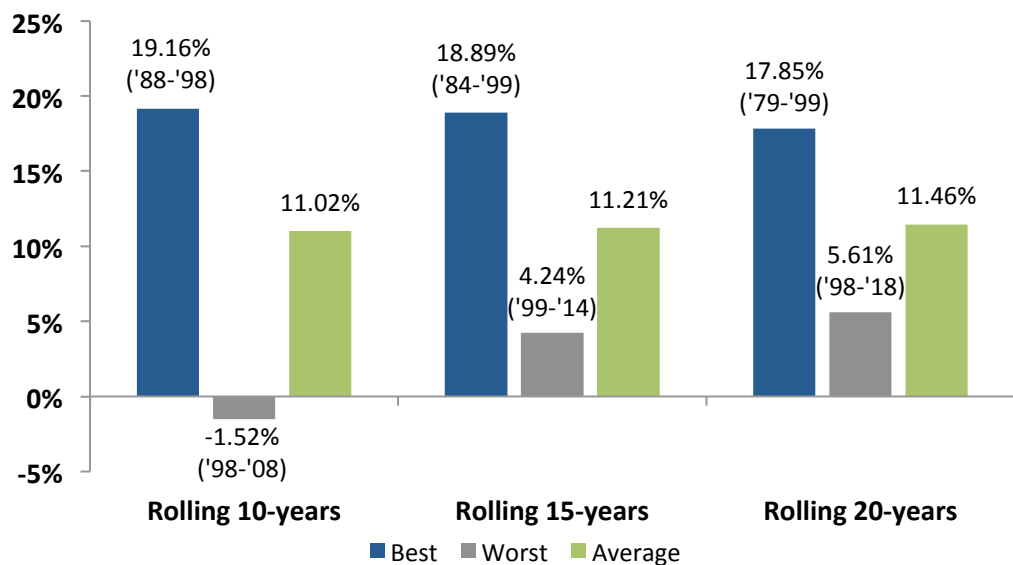
How do you buy time?

Cash flow match liabilities for the time you need.

We believe the answer is... BUY TIME!

Given time, equities (S&P 500) perform well but they need time. The more time you give equities... the better the returns. Here are historical average S&P 500 return measurements for rolling 10-year, 15-year and 20-year periods ending 12/31/19 over a 50-year horizon starting 1969:

Best, worst, and average returns





So how do you buy time? The answer is... **cash flow match liabilities for the time you need**. This is best accomplished by transferring the cash + bond allocation assets in kind over to cash flow match net liabilities + expenses. Our cash flow matching model (Liability Beta Portfolio™ or LBP) will calculate with precision the cost to fund net liabilities + expenses in a cost-effective manner chronologically. Since liabilities are funded initially by contributions, using the LBP model to cash flow match *net liabilities chronologically* may be able to fund more liabilities than you think. Assume that a 15% bond + 3% cash allocation could match the next 10 years of net Retired Lives benefit payments + expenses chronologically. Based on the Ryan ALM **Liability Beta Portfolio™ (LBP)** model we show a cost savings (projected benefits – cost of LBP) of about 10% to 15% on cash flow matching the first 10 years of net liabilities (projected benefit payment schedule – projected contributions).

Matching liabilities chronologically should buy time for the non-bond assets (Alpha assets) to perform. Given time (10 years) most non-bond asset classes tend to outperform bonds and the ROA. Since liabilities behave like bonds there is a high probability that non-bond asset classes could outperform liability growth (earn liability Alpha) over an extended time horizon especially at today's low yield on bonds and liabilities. This would enhance the funded status allowing for reduced contribution costs or increased benefits or both. Our LBP also has numerous benefits that enhance the pension plan:

Secures Benefits

- Cash flow match monthly Retired Lives benefits chronologically

Reduces Costs

- LBP reduces Contribution, Funding and Asset Management Costs:
- (LBP Fee = 15 bps... much less than most active bond managers)

Reduces Volatility

- Reduces volatility of Contributions and Funded Ratio

Reduces Risk

- Risk = Uncertainty of Funding Benefit Payments (LBP funds benefits with certainty)
- Projected Benefit Payments are Future Values (FV have NO Interest Rate Sensitive)



Enhances ROA

- LBP should out yield most active management bond portfolios

Buys Time

- LBP matches & funds liabilities chronologically
- Moves deficit out longer extending the investment horizon
- Buys Time for Non-bond assets (Alpha assets) to grow
- No dilution of Alpha assets to fund benefits

However, most bond allocations are for active bond management versus a generic index benchmark(s). As the designer of the Lehman bond indexes from my days as the Director of Fixed Income Research at Lehman, I can tell you unequivocally that generic bond indexes look nothing like a projected pension benefit payment schedule. Such a mismatch will distort the cash flows and risk/reward behavior of assets vs. liabilities. The major issues and differences are:

Versus Generic Bond Indexes

- Does not fund benefits + expenses
- Aggregate Index = low yielding @ 1.42%
- Generic bond index \neq plan sponsor's liabilities
- Cash flows do not match plan sponsor's liabilities
- Index skewed to long bonds + Government securities
- Performance (value added) = small to none (after fees)

Cash Flow Matching (Liability Beta Portfolio™ - LBP)

- Custom Liability Index = plan sponsor's liabilities
- LBP funds Net Benefit + Expense payments (monthly)
- Performance = immediate funded cost savings of 8% to 20%

But the worst difference and discrepancy is... all about cash flows. Active bond management is focused on outperforming the returns of a generic bond index benchmark. As a result, cash flows are not a consideration. But no matter what generic bond index is chosen; the fixed income assets cannot produce enough cash flows to fund benefits + expenses. As a result, bonds will require help from performance assets to fund benefits. This will create dilution and disruption of the growth rate of such performance assets. With the Liability Beta Portfolio™ in place as the core



portfolio to fund the shorter Retired Lives net liabilities (1-10 years), the Alpha assets are now free to grow without being diluted or unencumbered to pay any benefits. Alpha assets returns will be volatile, but the Liability Beta Portfolio™ bought time (10 years) for the Alpha assets to grow. The example below shows the cash flow difference of bonds managed to a generic index versus cash flow matching to liabilities:

It's about Cash Flows...Not returns!

Bond + Cash allocation = \$150 million
Net Benefits + Expenses = \$20 million per year

Bond management vs. generic bond index

- YTM = 2.50%
- Cash flow = \$3.75 million annual ($2.50\% \times \150m)
- Annual cash flow shortfall = \$16.25 million ($\$20\text{m} - \3.75m)
- Dilution of Alpha assets cash flow to fund benefits + expenses

Cash Flow Matching

- YTM = 3.50% (skewed to A/BBB corporate bonds)
- Cash flow = \$20 million annual
(includes principal + income + income reinvested)
- No dilution of Alpha assets cash flows

Observations:

- Generic bond indexes look nothing like the projected benefit payment schedule of a pension.
- This leads to a mismatch of cash flows and risk/reward behaviors... serious issue over time.
- Alpha assets need time to perform without any dilution of their cash flows to pay benefits.
- Cash flow matching funds benefit payments chronologically
- Cash flow matching will out yield current bond managers and enhance ROA
- Cash flow matching buys time for Alpha assets to grow unencumbered



Logic

Let the performance (Alpha) assets perform (grow) as the liquidity (Beta) assets provide cash flow sufficient to fund benefits plus expenses over a time horizon sufficient to let the Alpha assets grow unencumbered.

About Ryan ALM, Inc.

Ryan ALM was founded by Ronald J. Ryan, CFA on July 12, 2004 as an Asset/Liability Management firm. The firm builds a turnkey system of proprietary synergistic products designed to measure liabilities as a Custom Liability Index (CLI) and manage assets to the CLI as Liability Beta Portfolios.

Ryan ALM is unique in having its own proprietary Index company named ALM Research Solutions, LLC. This company builds both custom and generic bond indexes. Such indexes range from Custom Liability Indexes to ETF Indexes.

Our Liability Beta Portfolio™ is our proprietary cost optimization model that "cash flow matches" clients projected liability benefit payment schedules at the least cost using investment grade bonds. It is back-tested since 2009 showing a consistent cost savings of 8% to 15%. Our LBP best represents the *core portfolio* of a pension plan.

Our team has been recognized for our expertise and results including Ron Ryan having won the *William F. Sharpe Index Lifetime Achievement Award*.



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