Ryan ALM

Asset/Liability Management

Cash Flow is King!

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Executive Summary

Pensions are all about cash flows. They require asset cash flows including projected contributions to fund projected benefits + expenses.Retired Lives are the most imminent and certain liability cash flows and should be the highest priority to fund and secure these benefits.Cash flow matching Retired Lives chronologically with bonds (Beta assets) is the most prudent way to secure these benefits in a cost efficient manner. Unfortunately, most bond allocations are focused on outperforming some generic bond index whose cash flows are quite dissimilar to Retired Lives. This has led to a mismatch of asset/liability cash flows and a dilution of the cash flows of the performing assets (Alpha assets) who need to grow unencumbered to fund Active Lives.

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Pension Solution:

Cash Flow Is King!

The primary objective of a pension is to ***secure benefits*** in a cost-efficient manner and then secondarily to enhance the efficiency of the plan's asset allocation. Securing benefits is all about asset cash flows matching and funding liability cash flows *chronologically* for 10-years or for as far out as the plan sponsor deems necessary.

There are only two ways to secure benefits:
1. Insurance Buyout Annuity (IBA)
2. Cash Flow Matching (CDI) with bonds

IBA is too expensive for Public and multi-employer plans and unnecessary. Corporations use them to remove the PBGC premium expense on Retired Lives. However, corporations would be wise to compare cash flow matching (Cash Flow Driven Investments or CDI) to IBA. We believe they will find that CDI would reduce funding costs by over 20% in present value dollars versus the future value savings of eliminating PBGC premiums. CDI has been in vogue the longest (since the 1960s) and is a proven way to defease liabilities in a low cost, low risk manner.

It would be wise to separate Retired Lives from Active Lives. The Retired Lives are the most important liabilities since they are the most imminent and known benefits as well as they represent long tenured employees. These are the benefits that need to be secured as best as possible. The Active Lives are the less known and longest liabilities, which allow assets time to grow to fund these benefits.

Since contributions are the first source to fund benefits, **current assets fund net liabilities**. The actuarial projections of benefits and contributions tend to be annual. Net liabilities are usually not provided by the actuary. Moreover, benefits are paid monthly. Although an easy calculation, it is critical that current assets know what they are funding… *monthly net liabilities* (projected benefits + expenses – contributions).

It would be wise to separate liability Beta assets from Alpha assets. The Beta assets should be the allocation to bonds to cash flow match net Retired Lives chronologically for a target horizon (we recommend 10 years). Our cash flow matching model (**Liability Beta Portfolio™** or **LBP**) is well tested showing a funding cost savings of 8% to 15% depending on the liability term structure.

It would be wise to take the Cash plus the Fixed Income allocation in your plan's current asset allocation and apply it to a CDI allocation. This would match and secure benefits chronologically for as far out as the allocation of funds allow. Since we are dealing with net liabilities (after contributions) a 15% allocation may fund liabilities out to 10-years +.

Typically bond allocations are expected to outperform some generic bond index whose cash flows look nothing like the Retired Lives. Moreover, the index benchmark may be skewed to long bonds and Government securities. This introduces interest rate risk and more cost, as yields on government securities are generally the lowest for a similar maturity. Our LBP model is funding benefits (future values) which are not interest rate sensitive. This eliminates the largest risk in bonds. Our LBP model will usually outyield active bond managers by over 50 bps, which will reduce costs. The **key value added is the efficiency of the cash flows.**

No matter what generic bond index is chosen, active fixed income management cannot produce enough cash flows to fund benefits and 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 the plan 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:

Assumptions
Bond + Cash Allocation = $150 million (15%)
Net Benefits + Expenses (B + E) = $20 m per year ($200 million for 10 years)

Active bond management vs. generic bond index

- YTM = 2.50%
- Cash flow = $3.75 million annually ($150m x 2.50%)
- Cash flow shortfall = $16.25m annually ($20m - $3.75m)
- Requires dilution of Alpha assets cash flow to fund the B + E

Liability Beta Portfolio™

- YTM = 3.50%
- Cash flow = $20 million annual
- No dilution of Alpha assets cash flows
- Cash flow = Principal + Income + Reinvestment

Benefits of a CDI Approach

- Secures benefits for 10 years
- No change in Cash and Bond allocation
- No dilution of Alpha assets to fund B + E
- No interest rate risk (funding future values)
- Outyield active bond management which reduces costs
- LBP is skewed to higher yielding A/BBB corporate bonds
- LBP has no maturities longer than last benefit payment date

Observations

- Generic bond indexes cash flows look nothing like the projected benefit payment schedule of a pension.
- This leads to a mismatch of cash flows and risk/reward behaviors… serious issues over time.
- Alpha assets need time to perform without any dilution of their cash flows to pay benefits so they shouldn't be a source of liquidity
- CDI funds benefit payments and expenses chronologically
- CDI will out yield current bond managers and enhance the ROA
- Cash flow matching buys time for Alpha assets to grow unencumbered

Logic
Let the performance assets (Alpha assets) perform (grow unencumbered) as the liquidity assets (Beta) assets provide cash flow sufficient to fund benefits plus expenses chronologically.

Ryan ALM, Inc.
Was founded by Ronald J. Ryan, CFA on July 12, 2004 as an Asset/Liability Management (ALM) 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 a Liability Beta Portfolio™

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 Ronald Ryan having won the William F. Sharpe Index Lifetime Achievement Award.

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