



## Why Higher Interest Rates are Good for Pensions

by

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After a 40-year trend towards lower interest rates, 2022 has seen a significant shift to higher rates. Is this a secular trend? Time will tell but most economists see high inflation and a Fed making it clear that they will raise the Fed Funds rate several times in 2022. So far, we have witnessed not only a dramatic rise in rates but a definite shift in the yield curve to a flattening, if not inverse, yield curve. The *Ryan Treasury Yield Curve indexes* document this trend well:

	<u>12/31/21</u>	<u>4/30/22</u>	<u>Bps Change</u>	<u>High Yield / Date</u>		<u>Low Yield/Date</u>	
1-year	0.39%	2.10%	171	9.85%	3/21/89	0.04%	5/25/21
2-year	0.74%	2.70%	196	16.95%	9/08/81	0.11%	2/25/21
5-year	1.26%	2.92%	166	16.22%	9/30/81	0.22%	7/31/20
10-year	1.51%	2.89%	148	15.82%	9/30/81	0.51%	8/04/20
30-year	1.91%	2.96%	105	15.25%	10/27/81	1.00%	3/09/20

**Pension funds are highly interest rate sensitive!** Certainly, fixed income assets are such that the longer their maturity and effective duration, the greater their interest rate sensitivity. But it is pension liabilities that are more interest rate sensitive. Liabilities behave like a 100% zero-coupon bond portfolio because the discount rate(s) chosen price liabilities as zero-coupon bonds. This causes liabilities to be longer in duration than the same maturity(s) coupon bonds. Several discount rates are a yield curve of rates (ASC 715, PPA, PBGC, IASB):

ASC 715 = yield curve of zero-coupon AA corporate bonds

PPA = 3 segments (0-5, 6-20, 20+ years) of high-quality corporate bonds

PBGC = Single discount rate for 1-20 years then a rate for 20+ years

IASB = yield curve of high-quality corporate bonds

Today most pension plans have a duration of between nine years (mature plans) to 15 years (younger plans). This would suggest that for a 100 basis points hike in the discount rate(s), liabilities would have a price movement of -9% to -15%. Add in income (beginning yield) and you get the liability growth rate. So far in 2022, the liability growth rates have been negative except for the ROA and PPA (25-year average) discount rates which are not current market rates causing liability growth to be more stable and positive but not accurate economically:

<u>Discount Rates</u>	<u>4/30/22</u>
Treasury STRIPS	-16.23%
ASC 715	-20.09%
PPA (25-yr average)	1.92%
PPA (Spot YC)	-11.79%
ROA (@ 7.00%)	2.33%



### Enhanced Economic Funded Status

What is needed to enhance the funded status is for asset growth > liability growth. What discount rate is used will determine liability growth. So far in 2022 it looks like there is a good probability that asset growth will outperform liability growth and a better probability that liability growth will be largely negative. Enhanced funded status should translate into lower contribution costs and pension income that would enhance the income statement of corporate plan sponsors.

Milliman in their 2022 Corporate Pension Funding Study reported that the top 100 corporate pension plans had an average funded ratio of 96.3% (2021) vs. 88.1% (2020). Contributions were reduced from 34.3b (2020) to \$23.3b (2021). And for the first time since 2002, pension expense of \$18.1b (2020) turned into *pension income of \$20.2b* (2021) which enhanced earnings accordingly.

This year could be better. As of 4/30/22, based on the **Ryan ALM Newsletter**, we estimated asset growth of -11.15% YTD was better than liability growth for all discount rates except the ROA... so the *economic* funded status was enhanced. Our estimates of asset vs. liability growth were:

<b>Assets (60% S&amp;P, 30% Agg. 5% EAFE, 5% Cash)</b>	<b>= -11.15%</b>
<b>Liabilities (using ASC 715 discount rates)</b>	<b>= -20.09%</b>
<b>Liability Alpha (asset growth – liability growth)</b>	<b>= 8.94%</b>

### Solution: Cash Flow Matching

Given the volatility and uncertainty of the financial markets today not to mention an inflationary trend to higher interest rates, bonds can secure pension benefits through the *certainty of their cash flows*. This in the **true intrinsic value of bonds**. As interest rates trend higher, bonds can cash flow match liabilities at lower and lower costs. In contrast, bonds used as performance or growth assets could see negative returns. This is not the value in bonds. We urge pensions to transfer their bond allocation from focusing on outperforming some generic bond index to focusing on cash flow matching liabilities *chronologically*. Using bonds as your liquidity assets to fund benefits + expenses (B+E) would allow the non-bond growth assets to grow unencumbered. Many pensions do a cash sweep of all asset classes to fund B+E. This damages the growth assets ability to earn the ROA. According to S&P data, 48% of the S&P 500 rolling 10-years historical returns from 1940 come from dividends and reinvestment.

Most pensions focus on earning the return on asset (ROA) assumption as the goal of asset allocation. Because bonds yield less today than the ROA (7.00% average) the asset allocation to bonds tends to be low, if not very low. But the bond allocation could enhance the ROA. Here's how:

1. **Cash Flow Matching** – if bonds were used to cash flow match and fund net liabilities (after contributions) *chronologically* they would produce the liquidity needed to fully fund such net liabilities at lower costs. Cash flow matching works best when skewed to longer coupon bonds where you use semi-annual interest income to partially fund liabilities chronologically. A 10-year bond has 20 interest cash flows + one principal cash flows all



priced at a 10-year yield. This would eliminate the need to do a *cash sweep* of other asset classes which is a common liquidity procedure. According to S&P data, the S&P 500 has 48% of its historical returns from dividends and reinvestment since 1940 on a 10-year rolling period basis. Wouldn't you want to reinvest dividends back into growth assets rather than spend it on funding benefits + expenses? By using bonds as the liquidity assets, the growth assets are left unencumbered to grow. As S&P documented, this should be a major return enhancement. The longer the cash flow matching period, the more time the growth assets have to compound their growth. This could significantly enhance the ROA.

2. **Yield on Bonds** – the asset allocation models forecast the return of each asset class in the model, then weight each asset class to get the derived ROA for total assets. The ROA for most asset classes is based on the historical returns of each asset class index benchmark except for bonds. The *current yield* on the bond index benchmark(s) is usually used as the forecast for bond returns. The Bloomberg Barclay Aggregate is most favored as the bond index benchmark. This index and most bond index benchmarks were designed at Lehman Bros. by me (Ron Ryan) when I was the head of Fixed Income Research & Strategy. The Aggregate is a very large and diversified portfolio of bonds with the following summary statistics as of March 31, 2022:

# of issues	<b>9,982</b>	Treasury	<b>39.76%</b>	AAA	<b>68.92%</b>
YTM	<b>2.92%</b>	Agency	<b>4.04%</b>	AA	<b>2.92%</b>
Duration	<b>6.58 yrs.</b>	Mtg. Backed	<b>29.91%</b>	A	<b>11.16%</b>
Avg. Maturity	<b>8.78 yrs.</b>	Corporates	<b>26.29%</b>	BBB	<b>15.38%</b>

As a result, most asset allocation models would have a ROA for bonds of about **2.90%**. If you can build a bond portfolio that outyields the Aggregate index, by definition, it should enhance the ROA for total assets. Ryan ALM Advisers, LLC has created a cash flow matching product we call the **Liability Beta Portfolio™ (LBP)**. The LBP is a cost optimization model that cash flow matches liability cash flows chronologically at the lowest cost from a corporate bond portfolio skewed to A/BBB+ bonds. Based on the actuarial projections of each client we initially build a Custom Liability Index (CLI) to calculate **net liabilities** ((benefits + expenses) – contributions) chronologically. The CLI provides all the data needed for the LBP to function efficiently. Based on the allocation to the LBP will determine how far out the LBP can fully fund net liabilities. Usually, a 15% allocation to the LBP can fund 1-7 or 1-10 years of net liabilities. The longer the term structure of the LBP, the higher the yield. The LBP will outyield the Aggregate index by 50 bps (1-5 years) to over 100 bps (1-10 years) based on the LBP term structure. If the LBP outyields the AGG index by 50 to 100 bps, asset allocation can afford to overweight the bond allocation and still meet the target ROA for total assets. A 15% allocation to a LBP yield of 3.90% is 59 bps value added to the ROA while 15% at 2.90% is only 44 bps. Said differently, you would need a 20% allocation to a bond total return focus versus the Aggregate to equal the same ROA value as a 15% LBP allocation at a 3.90% yield.



3. **Higher Interest Rates** – bonds are interest rate sensitive as to their market value (present value). If interest rates go up this may cause negative returns. However, cash flow matching is focused on funding B + E which are future values. Future values are not interest rate sensitive. Bonds are the only asset class with the certainty of cash flows (future values). That is why bonds have always been used as the methodology for defeasance (cash flow matching) of liabilities. Moreover, if interest rates trend upward any reinvestment of cash flow can buy future value at a lower cost. As a result, cash flow matching sees higher interest rates as an opportunity to reduce funding costs.
  
4. **Cash** – many pension plans have a cash allocation of around 3% to 5%. Cash is the lowest yielding asset. Since the LBP becomes the liquidity assets to fully fund benefits + expenses chronologically, there is little need for cash to fund B+E. Cash might be needed for capital calls on Private Equity and Alternative Investments. The LBP should significantly increase the yield margin versus cash since the LBP is using coupon income from all maturities of the LBP. With the LBP fully funding B+E, the cash allocation can be reduced significantly. Replacing most of the cash allocation to fund B+E with the LBP allocation is another ROA enhancement... it all adds up.

## Summary

Higher interest rates are good for pensions for the following reasons and benefits:

1. **Enhances Funded Status**

- Lowers PV of liabilities

- LBP will outyield liabilities + bond index benchmark

2. **Reduces Funding Costs**

- Buy bonds at lower costs to fund liability cash flows

3. **LBP provides Low Cost and Certain Liquidity**

- Replaces cash and cash sweeps

- Allows performance assets to grow unencumbered

- Buys time for as far out as LBP cash flow matches liabilities

4. **Certainty of LBP Cash Flows**

- LBP will cash flow match liability cash flows with certainty

*“Where is the knowledge we have lost in information”*

T.S. Eliot

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