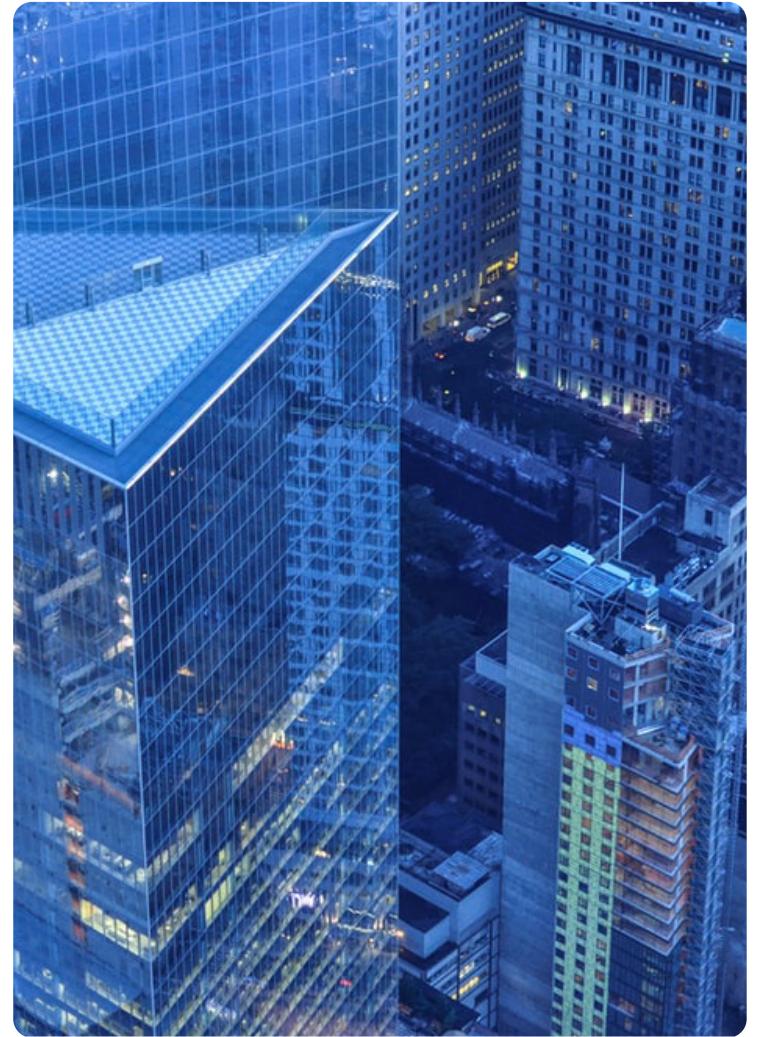


Town of Branford Police Pension Plan and OPEB Trust

Duration Analysis

November 2023



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SYNERGIES

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Town of Branford Police Pension Plan Duration Analysis

Observations

- As of July 2021, the Town of Branford Police Pension Plan had a 72.8% funded ratio.
- The actuarial expected return is 6.50%.
- Duration of benefit payments using an investment rate of return of 6.50% is 14 years.
- Actuarial accrued liability for members currently in pay status as a percentage of the total actuarial accrued liability is 57.2%.
- Based on the Treasury yield curve, and projected liabilities the current allocation will immunize approximately 4 years of liabilities.
- Based on the Treasury yield curve and projected liabilities, increasing fixed income to 55% would support a 6.5% rate of return and immunize 5+ years of liabilities.

Recommendations

Consider asset-liability match and the sequence of returns risk.

- The asset allocation may incorporate the Town of Branford's unique plan liabilities.
- Customize bond portfolio to immunize near-term liabilities of retired lives.
- Allow the return-seeking portfolio to grow separately from paying benefits.
- Active vs Passive Allocation.
 - Actively manage bond assets versus a predetermined set of liabilities.
 - Obtain beta (passive) exposure from risk assets.
 - Potential to customize beta exposure using direct indexing factors.

Portfolio Composition and Statistics

Asset Class	Current Target Policy 54.5% EQ / 45.5% FI	10% EQ / 90% FI	20% EQ / 80% FI	30% EQ / 70% FI	42.5% EQ / 57.5% FI	45% EQ / 55% FI	55% EQ / 45% FI
US Large Cap Equity	14.50	4.00	5.50	9.00	13.50	14.50	18.00
US Mid Cap Equity	5.50	1.00	1.50	2.50	3.00	3.50	4.00
US Small Cap Equity	5.50	1.50	2.00	3.50	4.50	4.50	5.50
Non-US Developed Large Cap Equity	12.50	2.50	4.00	6.00	9.00	10.00	12.50
Emerging Markets Equity	8.50	1.00	3.00	4.50	6.00	6.00	7.50
US Real Estate - REITS	3.25	0.00	2.00	2.00	3.00	3.00	3.50
MLPs	4.75	0.00	2.00	2.50	3.50	3.50	4.00
US Aggregate FI	35.00	79.50	69.50	59.50	47.00	44.50	34.50
US High Yield FI	7.50	7.50	7.50	7.50	7.50	7.50	7.50
US Cash	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Arithmetic Mean (1 Year)	6.96	5.15	5.56	5.96	6.45	6.54	6.94
Standard Deviation (1 Year)	10.91	5.05	5.89	7.12	8.93	9.30	10.92
Sharpe Ratio (1 Year)	0.64	1.02	0.94	0.84	0.72	0.70	0.63
Daily VaR* Cutoff 2.5%	13.34	4.83	5.89	7.61	10.32	10.90	13.38
Worst Case (2.5th %tile)**	-11.73	-4.39	-4.87	-6.30	-8.69	-9.37	-11.78

* **Value at Risk (VAR):** The potential loss in value of a traded portfolio over a defined period for a given confidence level. Example: If a portfolio has a \$100 Million traded portfolio and has a daily VAR of 3% for a 97.5% confidence interval, it means that there is a 2.5% chance the portfolio could lose 3% OR MORE of their portfolio over a daily basis.

** **Worst Case Return:** references the 95th confidence level or two standard deviations. Statistically this implies a 2.5% chance of experiencing a lower return.

Town of Branford OPEB Trust Duration Analysis

Observations

- The Town of Branford OPEB Trust is overfunded at approximately 160%.
- Two lump sum contributions occurred in 2019 and 2020. The Town did not want to take on the timing risk and therefore the contributions are set up to dollar cost average into the plan every 6 months for 7 years.
- The increase in rates since 2022 combined with the funded status, offers the OPEB Trust the opportunity to modify this policy and immunize the projected liabilities for years.
- Currently the target allocation of the OPEB Trust is 55% Equity / 45% Fixed Income. Note: there is an additional \$9 million in cash and Treasury bills not included in this allocation.

Recommendations

Consider asset-liability match and the sequence of returns risk.

- The asset allocation may incorporate the Town of Branford's unique plan liabilities.
- Given the change in yields since the lump sums were contributed, it makes sense to explore altering the dollar cost-averaging program, in favor of immunizing most or all of the liabilities.
- If the OPEB Trust were to move to a target allocation of 30% equity/70% fixed income, the assumed rate of return would decrease to approximately 6% and would immunize 21+ years of liabilities.
- Alternatively, if the OPEB Trust were to move to a target allocation of 20% equity/80% fixed income, the assumed rate of return would decrease to approximately 5.5% and would immunize 25+ years of liabilities.

Portfolio Composition and Statistics

Asset Class	Current Target Policy 55% EQ / 45% FI	10% EQ / 90% FI	20% EQ / 80% FI	30% EQ / 70% FI	42.5% EQ / 57.5% FI	45% EQ / 55% FI	55% EQ / 45% FI
US Large Cap Equity	15.00	4.00	6.50	8.00	11.00	12.00	15.50
US Mid Cap Equity	9.00	1.00	1.50	3.50	5.00	5.50	6.50
US Small Cap Equity	7.00	1.50	2.00	4.50	6.00	6.50	8.00
Non-US Developed Large Cap Equity	10.00	2.50	4.00	6.00	9.50	9.50	11.50
Emerging Markets Equity	6.00	1.00	2.00	3.50	4.50	5.00	6.00
US Real Estate - REITS	3.00	0.00	2.00	2.00	3.00	3.00	3.50
MLPs	5.00	0.00	2.00	2.50	3.50	3.50	4.00
US Aggregate FI	35.00	80.00	70.00	60.00	47.50	45.00	35.00
US High Yield FI	8.00	8.00	8.00	8.00	8.00	8.00	8.00
US Cash	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Arithmetic Mean (1 Year)	6.95	5.18	5.56	5.98	6.46	6.57	6.96
Standard Deviation (1 Year)	10.99	5.10	5.92	7.18	8.98	9.39	11.00
Sharpe Ratio (1 Year)	0.63	1.01	0.94	0.83	0.72	0.70	0.63
Daily VaR* Cutoff 2.5%	13.58	4.91	5.96	7.72	10.44	11.06	13.55
Worst Case (2.5th %tile)**	-11.72	-4.49	-5.02	-6.23	-8.68	-9.37	-11.77

* **Value at Risk (VAR):** The potential loss in value of a traded portfolio over a defined period for a given confidence level. Example: If a portfolio has a \$100 Million traded portfolio and has a daily VAR of 3% for a 97.5% confidence interval, it means that there is a 2.5% chance the portfolio could lose 3% OR MORE of their portfolio over a daily basis.

** **Worst Case Return:** references the 95th confidence level or two standard deviations. Statistically this implies a 2.5% chance of experiencing a lower return.

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