A virtual special meeting of the Town of West Hartford Pension Board was held on Friday, January 15, 2021 at 7:45 a.m.

This meeting was made available live on West Hartford Community Interactive: Comcast Channel 5, Frontier TV Channel 6098, YouTube, and <u>www.whctv.org</u>.

The meeting was called to order at 7:46 a.m.

I. Roll Call/Attendance

Pension Board Members: Chair Nancy Dean, Commissioners Alan Lebow, Lazaro Guzman, Brittany Bermingham, and Ethan Goldman, and Peter Privitera, Director of Finance

Participants/Guests: Mayor Shari Cantor, Matt Hart, Town Manager, Rick Ledwith, Executive Director of Human Resources, Lee Gold, Town Council, Chris Kachmar, Partner, DiMeo Schneider, Maura Goulart, DiMeo Schneider, Lori Kearney, Clerk of the Board, Paula Knake, Benefits Coordinator, and Jennifer Evans, Executive Director of WH Community Television

- II. Chair's Opening Comments
 - A. Review of rules of decorum and procedure for the virtual meeting in accordance with Governor Lamont's Executive Order #7B permitting municipalities to conduct public meetings virtually during the COVID-19 pandemic.
 - B. Welcome to new Pension Board member, Ethan Goldman
 - C. Intend to conclude the meeting at 9 a.m. due to members' other commitments
- III. Peter Privitera, Director of Finance
 - A. Pension obligation bonds
 - 1. Prior to today's meeting, board members were provided with a copy of the pension bond presentation (attached to these minutes) given to the Town Council on 12/15/2020. Because of the amount of investment information to provide at today's board meeting, the presentation will not be reviewed in detail. Questions related to the presentation may be emailed to Peter.
 - Regarding the process, a bond authorization ordinance and an ordinance creating a pension bond reserve fund were submitted to the Town Council on 1/12/2021. They were referred to a virtual public hearing scheduled for 1/26/2021 at 6:30 a.m. followed by the Town Council meeting at 7:30 a.m.
 - 3. A discussion period followed Peter's presentation.
- IV. Chris Kachmar, DiMeo Schneider
 - A. Year End 2020
 - 1. Pension plan portfolio at \$254,342,283 as of 12/31/2020.
 - 2. Portfolio performance up 12.7% for the quarter and 16.8% calendar year.
 - 3. The full performance review will be presented at the 1/25/2021 meeting
 - B. Presentation of the proposed phased-in (6 QTR) investment of the bond sale proceeds into the portfolio and impact on total return (attached copy)
 - 1. Dollar cost averaging strategy used in a 6-quarter (18-month) program of sequencing in \$60 million each quarter to manage and mitigate point of entry risk. This conservatism may inhibit near term return potential.
 - 2. Discussion regarding the right holding investment vehicle for the bond proceeds awaiting portfolio investment followed. Possibly consider opportunities to hold the proceeds in other funds besides short term bonds to tighten up the yield

deficit while maintaining a conservative approach. Chris will return to the next meeting (1/25/2021) with additional alternatives.

3. Chair Dean indicated the Pension Board will work on refinement of the strategy and its implementation

V. Adjournment <u>Motion by Chair Dean for approval to adjourn the meeting at 9:06 a.m.</u> <u>It was unanimously voted to adjourn the meeting at 9:06 a.m. Motion carried.</u>

Attest: hondeauer

Lori Kearney, Clerk of the Board

Pension Bonds Presentation

December 15, 2020 Revised 1/14/2021

Pension Bonds Working Group:

Peter Privitera, **Director of Financial Services**, Town of West Hartford Becky Sielman, **Consulting Actuary**, Milliman Bill Lindsay, **Financial Advisor** Matt Ritter, **Bond Counsel**, Shipman & Goodwin, LLP Chris Kachmar, **Investment Advisor**, DiMeo Schneider & Assoc., LLC

Why is the Administration Proposing This:

- Although the Town has made all Actuarially Determined Employer Contributions (ADEC)to the pension plan, the plan funded ratio has declined and the annual payments have increased at a rate higher than the rate of inflation.
- 2. Given the size of the unfunded liability in the pension plan, the annual increases in the ADEC payment are one of the main drivers of growth in the Town operating budget. The issuance of Pension Obligation Bonds (POB's) will allow the Town to fund its pension obligation at a lower annual cost, providing tax relief and a fully funded pension plan.
- 3. This will allow the Town to take advantage of historically low interest rates.
- This overall funding plan will include an additional fiscal buffer to mitigate significant pension contribution increases during times of economic downturn in the form of a Pension Bond Reserve Fund.
- 5. The Town's Consulting Actuary has completed testing of a stochastic model which indicates that in less than 3% of 10,000 possible outcomes, the reserve fund will be depleted. This represents a 97% probability that reserve funds will be available to mitigate any significant increases in pension contributions over the bonds repayment period.

Why Pension Bonds Do Not Work for Some Communities:

- > Issued by distressed communities with pension cash flow issues and limited financial flexibility
- Issued when market conditions are not necessarily favorable
- Issued with aggressive asset growth assumptions
- Issued with no back-up plan to mitigate potential increases in pension contributions during times of economic downturn
- Historically issued without any stochastic analysis

What Makes West Hartford Different:

- > West Hartford is a financially sound AAA rated community by both Moody's and Standard & Poor's
- > This is a unique opportunity to take advantage of historically low interest rates
- > The analysis performed is based on realistic asset growth assumptions
- A Pension Bond Reserve Fund will be created to mitigate potential contribution increases during times of economic downturn
- West Hartford has commissioned a rigorous stochastic analysis of 10,000 scenarios to ensure we are considering the full range of possible risks over the lifetime of the pension bonds

History and Current Status of Pension Fund

The Accrued Liability as of July 1, 2020 is \$531.0M, which consists of the following amounts for the different classes of members covered by the plan:



The Accrued Liability has been growing over the years, partly as active members have continued to accrue benefits but largely because the assumptions used to calculate the Accrued Liability have been strengthened:



The plan's **assets** have experienced typical year-over-year volatility; the actuaries use an asset smoothing technique to reduce the volatility in the Town's contribution:



At July 1, 2020 the plan's assets stood at \$214.8M on a market value basis and \$215.8M on a smoothed, actuarial value basis. The **Unfunded Accrued Liability** at July 1, 2020 is determined as follows:

Accrued Liability	= \$531.0M
Actuarial Value of Assets	= \$215.8M
Unfunded Accrued Liability	= \$315.2M
Funded Ratio	= 40.6%

The **Unfunded Accrued Liability** has grown over the past five years and the **Funded Ratio** has declined:





The Town's annual contribution, termed the **Actuarially Determined Contribution**, consists of three pieces: a **Normal Cost** payment to fund the benefits earned by active employees each year, a **Past Service Cost** to gradually pay off the Unfunded Accrued Liability, and **Interest** to reflect the timing of the contribution relative to the valuation date:



If the Town pays the Actuarially Determined Contribution each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions, then the actuaries project the following changes in the plan's funded status and the long-range contribution levels*:



** Based on the 6.99% interest rate assumption used for the July 1, 2020 valuation; the POB projections presented later are based on a 6.25% interest rate assumption starting on July 1, 2021.

Pension Obligation Bonds

What is a Pension Obligation Bond ?

"A Pension Obligation Bond (POB) is an instrument of indebtedness issued by a municipal or State entity to fund all or a portion of the Unfunded Actuarially Accrued Liability (UAAL) for its pension plan."

Despite their name, POBs are obligations of the Town and not the Pension Fund. The Town will make a General Obligation pledge of its full faith and credit toward repayment. Because POB's are essentially arbitrage bonds, they must be issued as taxable bonds, which typically carry interest rates that are 75 to 100 basis higher than taxexempt bonds.

What is the Purpose of POB's ?

POB's are intended to take advantage of potential arbitrage opportunities. The bond proceeds, when invested as part of pension assets in higher yielding asset classes, should achieve a long-term rate of return that is greater than the interest rate owed over the term of the bonds.

Example: Expected Long-Term Asset Growth:6.25%Bond True Interest Cost:3.00%Variance (Arbitrage):3.25%

What Component of the Overall Pension Liability will be Impacted ?

The significant portion of the pension cost is funding the <u>Unfunded Accrued Liability</u>, or the cost associated with benefits that were earned in the past but are not currently matched with plan assets. Pension Obligation Bonds (POB's) are issued only to address this lability.

Primary Areas of Consideration:

> Legal Implications

Short and Long Term Market Conditions

Credit Rating Implications

Proposed Financial Outcome

Legal Implications:

Matt Ritter, Bond Counsel

Shipman & Goodwin

What Role Does the State of CT Play ?

Connecticut General Statute 7-374c requires that the municipality seeking to issue pension deficit funding bonds notify the Secretary of OPM of the Town's intent and include the following documentation in that notice:

- a) An actuarial valuation
- b) An actuarial analysis of the method by which the municipality proposes to fund any unfunded past benefit obligation not defrayed by the pension deficit funding bonds
- c) An explanation of the municipality's investment strategic plan; including an asset allocation plan
- d) A three year financial plan, including the major assumptions and plan of finance of the pension deficit bonds
- e) A comparison between the effects of funding the unfunded past benefit obligation with pension deficit bonds as compared to maintaining the current funding process through the <u>A</u>ctuarially <u>D</u>etermined <u>E</u>mployer <u>C</u>ontribution (ADEC).
- f) Documentation and Bond Counsel's opinion of the municipality's authorization of the issuance of pension deficit funding bonds.
- g) Documentation that the municipality has adopted an ordinance, by two thirds vote of the Town Council, requiring the municipality to appropriate funds in an amount to meet the ADEC
- h) Identify the methodology used and actuarial assumptions that will be utilized to calculate the ADEC
- i) Prepare a draft Official Statement with respect to the issuance of pension deficit funding bonds
- j) Provide any other information as required by the OPM Secretary and State of Ct. Treasurer.

Short and Long Term Market Conditions:

Chris Kachmar, Pension Investment Advisor

DiMeo Schneider & Associates, L.L.C.

- At November 30, 2020, the value of the invested assets supporting the pension plan stood at \$244.7 million.
- The asset allocation strategy currently in place today entails the following allocations: 65% to global equities, 30% to fixed income and 5% to real estate.
- The portfolio's annualized investment return for the ten (10) year period ending November 30, 2020 has been 9.6%.
- The investing environment has become more unsettled in 2020 as efforts to manage the pandemic have impeded near term economic activity. Market resiliency aided by stimulus pledges and developments on the vaccination front.
- DSA updates its capital market projections at least annually and regularly models the return potential of the portfolio.
- Expectations for investment returns have been modifying more recently. We share this sentiment and our assumptions reflect this possibility.
- DSA uses proprietary allocation methodologies to inform our portfolio construction efforts and periodically validates our assumptions and approach against industry norms.
- > Intent is to construct a portfolio demonstrating the potential for a 6.25% annualized return.

Credit Rating Implications:

Bill Lindsay, Financial Advisor

Credit Implications of Pension Bonds

General Considerations:

- Issuance of Pension Bonds would be neutral or negative to an issuer's credit rating. Degree of impact will depend on several factors including:
 - Size of bond issue
 - Issuer's current debt load (leverage)
 - Rationale for issuance
 - Level of future savings
- Issuance of Pension Bonds changes nature of liability and creates additional risk including:
 - Budgetary risk related to future savings in annual contributions which may not materialize
 - Default risk missed bond payment would constitute a default
 - Loss of flexibility Would apply to both loss of budgetary flexibility as State statute requires full funding of ADEC post issuance and potential crowding out of future debt financed projects

Credit Implications of Pension Bonds

Concerns Specific to West Hartford:

- Loss of budgetary flexibility in context of COVID-19 impact on State and local budget. Potential State aid volatility and the State's own pension issues is a serious concern
- Already elevated debt burden including overlapping debt from MDC
- Weaker credit fundamentals relative to peer group

Mitigating / Credit Positive Factors:

- Financial management has historically been strong as evidenced by:
 - Consistently funding at recommended contribution (ADEC)
 - Systematically reducing discount rate
 - Taking steps to constrain benefits (Hybrid Plan; increased employee contributions)
- Creation of POB reserve/stabilization fund will reduce budgetary and default risk

Proposed Financial Outcome:

Becky Sielman, Consulting Actuary

Milliman, Inc.

Details of the Proposed POB Arrangement

- The amount of debt issued will bring the plan to approximately 100% funded as of July 1, 2021, based on an interest rate assumption of 6.25%
- The POB proceeds will be deposited immediately into the pension trust, and gradually invested over a period of time
- The contribution the Town is budgeting for FY 2021-22 (\$26.9M) will be deposited into a reserve fund, which will be invested in low-yielding cash-like investments
- The reserve fund will be used to shield the Town from contribution volatility by picking up any year-over-year increases in the Actuarially Determined Contribution (ADEC) of more than 5%
 - \rightarrow ADEC increases by 4% means the Town's budgeted contribution increases by 4%
 - → ADEC increases by 6% means the Town's budgeted contribution increases by 5% and the reserve fund contributes the remaining increase
- So long as the pension plan is modestly overfunded (up to 150% funded ratio) the Town will continue to contribute the Normal Cost on an annual basis; if the funded ratio exceeds 150% then the Town can take a contribution "holiday" by using the surplus to cover the Normal Cost

- The plan currently has a significant Unfunded Accrued Liability
- Much of the Town's annual contribution to the pension plan is devoted to fully funding this over a long period of time
- This is a "soft" debt: there is no requirement to fully fund the pension plan
- A POB is a "hard" debt: the Town must pay the debt service
- The POB adds hundreds of millions of dollars to the pension plan's assets in order to make it fully funded now
- In theory, borrowing at 3% and investing the proceeds at 6.25% should save the Town money over the long term
- But if there is adverse market performance (relative to the 6.25% assumption), the plan may become underfunded again, and the Town would face higher contributions on top of paying debt service

- In order to analyze the trade-off between cost savings and increased investment risk, we constructed 10,000 scenarios of possible investment performance over the next 30 years
- For each scenario, we analyzed the pension plan's financial picture and the Town's contribution level over the 30 year period
- We sorted the scenarios by outcome and displayed them graphically so we could see the most favorable outcomes, the least favorable outcomes, and the middle-of-the-road outcomes

Town of West Hartford Pension Plan

1/8/2021

Stochastic analysis of 10,000 randomly generated investment performance 30-year scenarios



fully depleted

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- We used the same stochastic analysis process to analyze how each of the elements of the POB package would impact the likely outcome:
 - ✓ Amount of POB to issue (conclusion: become 100% funded with the proceeds)
 - ✓ Length of bond term (conclusion: 25 years)
 - ✓ Interest rate on bond (TBD based on market conditions)
 - ✓ Amount to put into the reserve fund (conclusion: 100% of 2021-22 ADEC)
 - ✓ How the reserve fund is invested (conclusion: short-term cash equivalents)
 - ✓ Trigger for accessing the reserve fund to control ADEC volatility (conclusion: 5% of year-over-year ADEC increase)
 - Continuing to pay the Normal Cost when the plan is modestly overfunded (conclusion: 150% funded ratio threshold)

Town of West Hartford Pension Plan

Deterministic projections based on July 1, 2020 Valuation (in \$ millions) - 6.25% asset return scenario

Valuation 7/1	for FYE	Return in Year Starting on Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Actuarially Determined Contribution	Reserve Fund Balance	ADC Paid from Reserve Fund	POB Debt Service	Town Cost w/POB: ADC - Reserve + Debt Svc	Town Cost, no POB: ADC only	Impact on Town Cost
2019	2021	4.83%	\$510.8	\$209.1	\$301.8	41%	\$25.439	\$0.000	\$0.000	\$0.000	\$25.439	\$25.439	\$0.000
2020	2022	6.25%	531.0	215.8	315.2	41%	26.919	0.000	0.000	0.000	26.919	26.919	0.000
2021	2023	5.37%	584.1	581.4	2.7	100%	7.454	26.919	0.823	20.961	27.592	29.074	1.482
2022	2024	6.19%	592.7	581.1	11.6	98%	7.963	27.708	0.137	20.961	28.787	29.738	0.951
2023	2025	6.25%	600.8	587.6	13.2	98%	8.087	27.673	0.000	20.961	29.048	30.369	1.321
2024	2026	6.25%	608.4	594.3	14.1	98%	8.164	28.343	0.000	20.961	29.125	30.998	1.873
2025	2027	6.25%	615.7	600.9	14.8	98%	8.260	29.173	0.000	20.961	29.221	31.668	2.447
2026	2028	6.25%	622.7	607.3	15.4	98%	8.378	30.028	0.000	20.961	29.339	32.382	3.043
2027	2029	6.25%	629.2	613.4	15.8	97%	8.465	30.908	0.000	20.961	29.426	33.085	3.659
2028	2030	6.25%	635.5	619.5	16.0	97%	8.590	31.813	0.000	20.961	29.551	33.847	4.296
2029	2031	6.25%	641.8	625.6	16.2	97%	8.731	32.745	0.000	20.961	29.692	34.645	4.953
2030	2032	6.25%	647.9	631.7	16.2	97%	8.885	33.705	0.000	20.961	29.846	35.478	5.632
2031	2033	6.25%	654.1	638.0	16.1	98%	9.047	34.692	0.000	20.961	30.008	36.340	6.332
2032	2034	6.25%	660.5	644.5	16.0	98%	9.180	35.709	0.000	20.961	30.141	37.193	7.052
2033	2035	6.25%	666.9	651.3	15.6	98%	9.322	36.755	0.000	20.961	30.283	38.076	7.793
2034	2036	6.25%	673.3	658.1	15.2	98%	9.457	37.832	0.000	20.961	30.418	38.973	8.555
2035	2037	6.25%	679.9	665.3	14.6	98%	9.598	38.940	0.000	20.961	30.559	39.898	9.339
2036	2038	6.25%	686.8	672.8	14.0	98%	9.748	40.081	0.000	20.961	30.709	40.853	10.144
2037	2039	6.25%	693.9	680.7	13.2	98%	9.886	41.256	0.000	20.961	30.847	41.817	10.970
2038	2040	6.25%	701.3	689.0	12.3	98%	10.034	42.465	0.000	20.961	30.995	42.816	11.821
2039	2041	6.25%	709.0	697.7	11.3	98%	10.178	43.709	0.000	20.961	31.139	43.835	12.696
2040	2042	6.25%	717.0	706.8	10.1	99%	10.355	44.990	0.000	20.961	31.316	44.912	13.596
2041	2043	6.25%	725.3	716.3	8.9	99%	10.519	46.308	0.000	20.961	31.480	46.002	14.522
2042	2044	6.25%	733.9	726.3	7.5	99%	10.697	47.665	0.000	20.961	31.658	47.132	15.474
2043	2045	6.25%	742.8	736.8	6.0	99%	10.881	49.061	0.000	20.961	31.842	48.294	16.452
2044	2046	6.25%	752.1	747.7	4.4	99%	11.047	50.499	0.000	20.961	32.008	49.465	17.457
2045	2047	6.25%	761.6	759.0	2.5	100%	11.256	51.978	0.000	20.961	32.217	50.707	18.490
2046	2048	6.25%	771.3	770.8	0.5	100%	11.470	53.501	0.000	0.000	11.470	51.983	40.513
2047	2049	6.25%	781.5	783.1	(1.6)	100%	9.842	55.069	0.000	0.000	9.842	9.842	0.000
2048	2050	6.25%	791.9	795.9	(4.0)	101%	10.075	56.682	0.000	0.000	10.075	10.075	(0.000)
2049	2051	6.25%	802.6	807.3	(4.6)	101%	10.318	58.343	0.000	0.000	10.318	10.318	0.000
2050	2052		813.9	819.3	(5.4)	101%	10.567	60.052	0.000	0.000	10.567	10.567	0.000
								Net Prese	ent Value of Town	Cost at fixed 3%	582.600	723.500	140.900

Net Present Value of Town Cost at fixed 3% 582.600

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Important Information About Milliman's Analysis

Milliman's stochastic analysis model is intended to give the Town a general idea of the potential impact of changes in the investment allocation and a potential Pension Obligation Bond on the future funded status of, and contributions to, the Pension Plan. This analysis is not intended to provide precise projections of current or future costs; Milliman will prepare annual actuarial valuations which will be the basis for the Town's actual contributions.

This analysis is based on the results of the July 1, 2019 actuarial valuation as well as the actual performance of the plan's assets during FY 2019-20, except that (a) the interest rate assumption for 2021 and beyond is 6.25%, and (b) the mortality assumption for 2020 and beyond is based on full adoption of the Pub-2010 mortality table with projection scale Ultimate MP-2019. The valuation results presented in this analysis were developed using models intended for valuations that use standard actuarial techniques. We also relied on Milliman's capital market assumptions and the investment return model maintained by Milliman's investment consultants for the investment return assumption recommendation and to generate the 10,000 investment return scenarios.

The stochastic analysis of the long-term expected return on plan assets is based on Milliman's capital market assumptions as of June 30, 2019 and assumes there are no future changes to the current target allocation.

As active members terminate or retire in future years, they are assumed to be replaced by new active members whose age, gender, and compensation are similar to that of new hires from the past several years. No replacement is assumed in the case of members who are in unions where new employees are not covered by the Pension Plan. The analysis assumes there are no future liability gains or losses and there are no future changes in the actuarial methods or assumptions or in the plan provisions, except as described herein.

The Town is assumed to pay the Actuarially Determined Contribution (ADEC) each year, except for FY 2021-22 when the POB proceeds will satisfy the ADEC and the funds that would have been budgeted to pay the ADEC will be placed in a reserve fund. The amortization of the Unfunded Accrued Liability is based on a closed 26-year amortization period starting on July 1, 2021 and continuing until the amortization period reaches 10 years, at which point the amortization method will change to 10-year layered bases. If the plan becomes significantly overfunded (defined as a funded ratio of 150% or higher), the surplus is assumed to be used to offset the Normal Cost. If the plan is less than 150% funded, the Town is assumed to continue to fund the Normal Cost even when the plan is overfunded.

The projections with the POB assume that the proceeds from the bond offering are deposited into the pension trust in early 2021 with the first debt repayment made on July 1, 2022 and annually thereafter. The debt schedule is based on an estimate of issuance expenses, a 25-year term, and a 3% interest rate on the debt, and assumes a level debt schedule.

The Town is assumed to establish a separate reserve fund on July 1, 2021 based on the amount that would have been budgeted for the FY 2021-22 ADEC were the POB not issued. The reserve fund is assumed to earn interest during the projection period based on stochastically generated returns for cash investments. The purpose of the reserve fund is to provide a cushion for the Town to use for pension contributions that are larger than expected. If the annual percentage increase in the ADEC is higher than 5%, the portion of the ADEC in excess of the threshold is assumed to be paid from the reserve fund.

The Net Present Value of the Town's annual costs is calculated using a discount rate of 3%.

Important Information About Milliman's Analysis

The Government Finance Officers Association in their 2013 "Core Elements of a Pension Funding Policy" Best Practice stated that amortization periods should "never exceed 25 years, but ideally fall in the 15-20 year range". The Conference of Consulting Actuaries in their 2014 "Actuarial Funding Policies and Practices for Public Pension Plans" labels amortization periods longer than 25 years as a "Non-recommended Practice". A long amortization period coupled with level percent amortization produces a situation known as "negative amortization", where amortization payments are not sufficient to cover interest on the Unfunded Accrued Liability for a number of years. Absent a POB, the Town should be prepared for a period when the Unfunded Accrued Liability may potentially increase as a dollar amount and the funded ratio may potentially make very little progress towards 100%. Although extending the amortization period reduces Town contributions in the short term, this should not be considered a savings, but rather a deferral of contributions. Funding a pension plan is a "pay now or pay more later" proposition.

Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. Actual experience will not conform exactly to the assumptions made for this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience. Future actuarial measurements may differ significantly from the current measurements presented in this analysis due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status), and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

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I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Rebecca A. Sielman, FSA

Principal and Consulting Actuary

Helping Clients Prosper.



Town of West Hartford POB Considerations

January 2021

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Year-end Update

Asset Allocation

As of December 3	31,	2020
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	Asset Allocation (\$)	Asset Allocation (%)	Target Allocation (%)	Differences (%)
West Hartford Total Pension	254,342,283	100.0	100.0	0.0
Short Term Liquidity	76,033	0.0	0.0	0.0
WF Government Money Market Fund	76,033	0.0	0.0	0.0
Fixed Income	68,225,063	26.8	30.0	-3.2
Vanguard Total Bond Market Index Instl	38,507,452	15.1	17.0	-1.9
Metropolitan West Total Return Bond Pl	29,717,611	11.7	13.0	-1.3
Domestic Equity	116,341,383	45.7	43.5	2.2
Vanguard Total Stock Market Index Instl	81,809,669	32.2	31.3	0.9
T. Rowe Price Instl Large Cap Value	10,244,606	4.0	4.3	-0.2
Silvercrest Small Cap Value	10,159,668	4.0	4.0	0.0
Pier Capital Small Cap Growth	14,121,720	5.6	4.0	1.6
Equity Holdings	5,720	0.0	0.0	0.0
International Equity	59,175,303	23.3	21.5	1.8
Acadian Non-US All Cap Equity Fund, USD Hedged	12,836,654	5.0	5.0	0.0
Harbor Diversified International All Cap Ret	13,622,101	5.4	5.5	-0.1
Causeway International Value Instl	13,162,983	5.2	5.5	-0.3
Vanguard International Growth Adm	19,553,565	7.7	5.5	2.2
Real Estate	10,524,502	4.1	5.0	-0.9
Barings Core Property Fund LP	10,524,502	4.1	5.0	-0.9

West Hartford, CT Pension Plan

Performance Update As Of December 31, 2020

Portfolio Performance

						Perfo	ormance(%	5)			
	Value	1 Month	QTD	Jul-2020 To Dec-2020	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
West Hartford Total Pension	254,342,283	3.9	12.7	18.9	16.8	10.1	10.7	8.6	9.5	6.6	01/01/2001
Pension Blended Benchmark		3.2	10.2	16.3	14.3	9.6	10.4	8.8	9.6	6.8	01/01/2001

Calendar Year Performance

	2019	2018	2017	2016	2015	2014	2013
West Hartford Total Pension	20.9	-5.4	15.8	7.7	0.1	7.1	21.8
Pension Blended Benchmark	20.8	-4.8	15.3	8.3	1.2	8.6	19.8

Allocation Mandate	Weight (%)
Apr-2018	
Blmbg. Barc. U.S. Aggregate Index	30.00
Russell 3000 Index	43.50
MSCI AC World ex USA (Net)	21.50
NCREIF Fund Index - ODCE (net)	5.00

The allocation mandate represents the current benchmark composition for the portfolio. Please keep in mind that the investment objective may have changed over time.



Pension Obligation Bond Introduction & Asset Allocation





Town Pension & POB Proceeds

- Bonds to be sold in late spring 2021 with proceeds around \$360 million
 - Current portfolio value is roughly \$256 million, combining for a total asset pool of roughly \$616 million
- Dollar cost averaging strategy to be employed 6 quarters with roughly \$60 million invested each quarter
- Current pension allocation models to 6.30% expected rate of return (POB target = 6.25%)
- Prior to being invested into the pension account, POB proceeds will be held in ultra short duration bonds, thus bringing down the expected rate of return of the combined asset pool considerably
- Utilizing this strategy (and all things being equal), we forecast an approximate \$10.4 MM opportunity cost loss versus investing all the funds immediately upon receipt over the 6-quarter period
- Over the remaining 23.5 years of the life of the bonds, that deficit can be made up by increasing the expected rate of return of the portfolio by 7.5 basis points to 6.375%



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Frontier Engineer[™] Analysis

11/30/2020					Asse	t Allo	catio	n									Forecas	sts		Past (1/	38-11/20)
	Fixed Income	Equity Real Assets	Alternatives	Cash	ST Bonds		US Bonds - Dynamic	Global Bonds	US Equity (LC)	US Equity (SC)	Non-US Equity (ACWI)	EM Equity	Real Estate	HFoF Multi-Strat	Private Equity	Annualized Return	Annualized Volatility	Normal 100 Year Flood*	Non-Normal 100 Year Flood**	Annualized Return	Annualized Volatility
Current Mix (A) 30	0% 65	5% 5%			30	.0%			29.3%	14.3%	16.5%	5.0%	5.0%			6.30%	12.76%	-23%	-31%	9.0%	10.7%
After DCA 1 (B) 65	5% 33	3% 3%			50.0% 15	.0%			14.8%	7.0%	8.3%	2.5%	2.5%			4.08%	6.71%	-11%	-16%	6.9%	5.5%
After DCA 2 (C) 58	8% 39	9% 3%			40.0% 18	.0%			17.5%	8.5%	10.0%	3.0%	3.0%			4.56%	7.90%	-13%	-19%	7.3%	6.5%
After DCA 3 (D) 5	1% 46	6% 4%			30.0% 21	.0%			20.3%	10.0%	11.8%	3.5%	3.5%			5.03%	9.10%	-16%	-22%	7.8%	7.5%
After DCA 4 (E) 44	4% 52	2% 4%			20.0% 24	.0%			23.0%	11.5%	13.5%	4.0%	4.0%			5.47%	10.32%	-18%	-25%	8.2%	8.6%
After DCA 5 (F) 3	7% 59	9% 5%			10.0% 27	.0%			25.8%	13.0%	15.3%	4.5%	4.5%			5.91%	11.55%	-20%	-29%	8.6%	9.6%
6.375% "Catch-Up" Portfolio 30	.0% 65	0% 5.0%	400/		23.	00% 4.0	00% 3.0	00%	29.25%	14.25%	16.50%	5.00%	5.00%	= 00/	=	6.378%	13.07%	-23%	-32%	9.0%	10.9%
10.0% 9.0% 8.0% 7.0% 6.0% 5.0% 4.0% 3.0% 2.0% 1.0% Cash 0.0% 0 Current Mix(es) • Observation Mix(es) • Asset Classes Engineer Frontier A 5.0% 5.0% 0 ST Bonds 0.0%	Globa	US Bonc Dynam	H C Is - ic IS Bond	FoF Mu Strat	Iti- E	Ē				Sond]		S Equity	y (LC)	Nor		US Equity (ACW	Priv /I) uity (SC) I Estate	vate Equity	EM EG	quity	
				10.0		E	(Sta	nda	rd De	viat	ion))		20.	0070			20.00	70		

¹The expected one in a hundred worst case calendar year return based on normally distributed capital market assumptions from 10,000 Monte Carlo simulations. Greater losses are possible (1% expected likelihood). ²The expected one in a hundred worst case calendar year return based on non-normally distributed capital market assumptions (factoring in skewness & kurtosis). Greater losses are possible (1% expected likelihood). Historical Returns and Risk Metrics for each Mix represent back-tested calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are gross of fees. Historical returns are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see disclosures at the end of this presentation for additional important information, including index proxies used to represent each asset class. Please ask for a copy of DiMeo Schneider's white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing.



Dollar Cost Average Strategy



Dollar Cost Averaging Implications

- Dollar cost averaging divides the total amount of money to be invested over the course of multiple purchases in order to reduce the effects of market volatility.
- For the Town of West Hartford specifically, this would entail a DCA strategy over 6 quarters rather than investing all the POB proceeds up front.
- As a result, the asset allocation of the combined portfolio will initially shift to be far more conservative to protect the principal of the POB proceeds that have yet to be invested.
- Over the course of the 6 quarters, funds will be invested in the main pension fund according to targets that will change as the DCA plan proceeds, eventually mirroring the original allocation once all proceeds have been invested.
- There is an opportunity cost to not investing all the proceeds up front which can be addressed by adjusting the allocation to have an increased expected rate of return for the remaining life of the bonds.
- There may also be times (i.e., a market downturn) where it makes sense to accelerate all or a portion of the next DCA investment in order to take advantage of an evolving market scenario.
- These factors should be taken into account when considering changes to the Investment Policy Statement for the pension plan.



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DCA Strategy Timeline

	Current Target	After DCA 1	After DCA 2	After DCA 3	After DCA 4	After DCA 5	<u>After DCA 6</u>
Short Term Liquidity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
WF Government Money Market Fund	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fixed Income	30.0%	65.0%	58.0%	51.0%	44.0%	37.0%	30.0%
Vanguard Ultra Short Duration	0.0%	50.0%	40.0%	30.0%	20.0%	10.0%	0.0%
Vanguard Total Bond Market Index Instl	17.0%	5.0%	7.0%	9.0%	11.0%	13.0%	15.0%
Metropolitan West Total Return Bond Pl	13.0%	5.0%	5.5%	6.0%	6.5%	7.0%	7.5%
Core Fixed Income Manager #2	0.0%	5.0%	5.5%	6.0%	6.5%	7.0%	7.5%
Domestic Equity	43.5%	21.8%	26.0%	30.3%	34.5%	38.8%	43.5%
Vanguard Total Stock Market Index Instl	31.3%	15.5%	18.5%	21.8%	24.8%	28.0%	31.3%
T. Rowe Price Instl Large Cap Value	4.3%	2.3%	2.8%	3.0%	3.5%	3.8%	4.3%
Silvercrest Small Cap Value	4.0%	1.0%	1.3%	1.5%	1.8%	1.8%	2.0%
SCV Manager #2	0.0%	1.0%	1.3%	1.5%	1.5%	1.8%	2.0%
Pier Small Cap Growth	4.0%	1.0%	1.3%	1.3%	1.5%	1.8%	2.0%
SCG Manager #2	0.0%	1.0%	1.0%	1.3%	1.5%	1.8%	2.0%
International Equity	21.5%	10.8%	13.0%	15.3%	17.5%	19.8%	21.5%
Acadian Non-US All Cap Equity Fund	5.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%
Harbor Diversified International All Cap R	5.5%	2.8%	3.3%	3.8%	4.5%	5.0%	5.5%
Causeway International Value Instl	5.5%	2.8%	3.3%	4.0%	4.5%	5.0%	5.5%
Vanguard International Growth Adm	5.5%	2.8%	3.5%	4.0%	4.5%	5.3%	5.5%
Real Estate	5.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%
Baring Core Property Fund LP	5.0%	1.3%	1.5%	1.8%	2.0%	2.3%	2.5%
Real Estate Manager #2	0.0%	1.3%	1.5%	1.8%	2.0%	2.3%	2.5%

Note: The representative timeline displayed illustrates expected target portfolio allocations following each stage of the dollar cost averaging program.



Appendix A: AA Study Supplement



Historical Annualized Total Returns

Annualized returns as of 11/30/2020	Fixed Income	Equity	Real Assets	Alternatives	Past 3 Months (Not Annualized)	1-Year Return	3-Year Return	5-Year Return	7-Year Return	10-Year Return	15-Year Return	20-Year Return	25-Year Return	30-Year Return	32.92-Year Returr
Current Mix (A)	30%	65%	5%	0%	5.8%	12.1%	8.1%	9.3%	7.9%	8.7%	7.4%	7.2%	7.9%	8.9%	9.0%
After DCA 1 (B)	65%	33%	3%	0%	3.0%	8.2%	5.8%	5.8%	4.9%	5.2%	5.1%	5.3%	5.9%	6.7%	6.9%
After DCA 2 (C)	58%	39%	3%	0%	3.6%	9.0%	6.2%	6.6%	5.5%	5.9%	5.6%	5.7%	6.3%	7.1%	7.3%
After DCA 3 (D)	51%	46%	4%	0%	4.2%	9.8%	6.7%	7.2%	6.1%	6.6%	6.1%	6.1%	6.7%	7.6%	7.8%
After DCA 4 (E)	44%	52%	4%	0%	4.7%	10.6%	7.2%	7.9%	6.7%	7.3%	6.5%	6.5%	7.1%	8.1%	8.2%
After DCA 5 (F)	37%	59%	5%	0%	5.3%	11.3%	7.6%	8.6%	7.2%	8.0%	6.9%	6.9%	7.5%	8.5%	8.6%
6.375% "Catch-Up" Portfolio	30%	65%	5%	0%	5.9%	11.9%	8.0%	9.4%	7.9%	8.8%	7.4%	7.3%	7.9%	9.0%	9.0%
6.25% Unconstrained Portfolio	40%	47%	4%	10%	4.5%	10.2%	7.3%	8.3%	7.0%	7.6%	6.9%	6.9%	7.7%	8.6%	8.8%
Cash	100%				0.0%	0.7%	1.6%	1.2%	0.8%	0.6%	1.2%	1.5%	2.2%	2.6%	3.0%
TIPS	100%				0.1%	10.1%	5.8%	4.7%	3.5%	3.5%	4.3%	5.4%	5.4%	6.0%	6.4%
US Bond	100%				0.5%	7.3%	5.5%	4.3%	4.0%	3.7%	4.5%	4.9%	5.2%	5.9%	6.3%
US Bonds - Dynamic	100%				1.5%	4.5%	4.2%	4.4%	3.6%	3.9%	4.4%	4.8%	4.9%	5.9%	6.0%
For. Dev. Bond	100%				1.9%	6.4%	4.6%	4.8%	3.4%	3.3%	4.1%	4.7%	4.8%	5.8%	5.7%
Global Bonds	100%				0.9%	5.0%	5.1%	4.4%	4.3%	4.1%	4.4%	4.8%	5.3%	5.9%	6.3%
HY Bond	100%				3.4%	7.2%	5.7%	7.6%	5.5%	6.8%	7.4%	7.8%	7.1%	8.9%	8.1%
EM Bond	100%				3.8%	3.3%	2.5%	5.5%	0.9%	1.5%	5.0%	7.2%	8.6%	9.5%	8.6%
Global Equity		100%			6.2%	15.6%	9.6%	11.4%	9.0%	10.0%	7.6%	6.5%	7.6%	8.3%	8.1%
US Equity (AC)		100%			5.7%	19.0%	13.2%	13.9%	12.5%	14.0%	9.7%	7.7%	9.5%	10.9%	11.0%
Int'l Dev. Equity		100%			8.1%	6.8%	3.8%	6.7%	4.4%	6.3%	5.0%	4.9%	5.4%	6.0%	5.7%
EM Equity		100%			9.8%	18.8%	5.3%	11.1%	5.3%	4.0%	6.9%	9.7%	6.8%	9.3%	10.7%
Int'l Dev. Equity		100%			8.1%	6.8%	3.8%	6.7%	4.4%	6.3%	5.0%	4.9%	5.4%	6.0%	5.7%
Real Estate			100%		4.1%	-11.0%	2.3%	4.3%	7.7%	8.6%	6.2%	9.6%	9.9%	9.9%	8.5%
Broad Real Assets			100%		2.7%	2.3%	4.0%	5.5%	4.2%	5.4%	5.8%	8.1%	7.9%	7.4%	6.7%
Midstream Energy			100%		11.6%	-24.5%	-12.1%	-7.1%	-9.0%	-2.4%	3.3%	7.9%	8.9%	8.9%	11.1%
HFoF Multi-Strat				100%	3.6%	8.2%	3.8%	3.6%	3.3%	3.1%	2.9%	3.6%	5.0%	6.0%	7.2%
Private Equity				100%	0.0%	2.4%	10.2%	10.7%	11.2%	12.5%	11.2%	8.5%	14.4%	15.1%	14.4%

¹The expected one in a hundred worst case calendar year return based on normally distributed capital market assumptions from 10,000 Monte Carlo simulations. Greater losses are possible (1% expected likelihood). ²The expected one in a hundred worst case calendar year return based on non-normally distributed capital market assumptions (factoring in skewness & kurtosis). Greater losses are possible (1% expected likelihood). Historical Returns and Risk Metrics for each Mix represent back-tested calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are gross of fees. Historical returns are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see disclosures at the end of this presentation for additional important information, including index proxies used to represent each asset class. Please ask for a copy of DiMeo Schneider's white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing.

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Calendar Year Total Returns

Calendar Year Returns	Fixed Income	Equity	Real Assets	Alternatives	YTD 11/30/2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987
Current Mix (A)	30%	65%	5%	0%	9%	21%	-6%	16%	9%	-1%	7%	16%	13%	0%	15%	26%	-28%	7%	16%	8%	14%	27%	-9%	-3%	-2%	17%	11%	16%	13%	22%	0%	18%	6%	26%	-7%	21%	19%	7%
After DCA 1 (B)	65%	33%	3%	0%	7%	13%	-2%	8%	5%	0%	4%	8%	7%	1%	9%	15%	-12%	7%	10%	5%	7%	14%	-2%	3%	3%	10%	9%	12%	9%	17%	0%	12%	6%	19%	1%	16%	12%	7%
After DCA 2 (C)	58%	39%	3%	0%	7%	14%	-3%	10%	6%	0%	5%	10%	8%	1%	10%	17%	-16%	7%	11%	6%	9%	17%	-3%	2%	2%	11%	10%	12%	10%	18%	0%	13%	6%	21%	0%	17%	14%	7%
After DCA 3 (D)	51%	46%	4%	0%	8%	16%	-4%	11%	7%	-1%	5%	11%	10%	0%	11%	19%	-19%	7%	13%	6%	10%	19%	-5%	0%	1%	12%	10%	13%	11%	19%	0%	14%	6%	22%	-2%	18%	15%	7%
After DCA 4 (E)	44%	52%	4%	0%	8%	18%	-4%	13%	8%	-1%	6%	13%	11%	0%	13%	21%	-22%	7%	14%	7%	11%	22%	-6%	-1%	0%	14%	10%	14%	12%	20%	0%	16%	6%	23%	-4%	19%	16%	7%
After DCA 5 (F)	37%	59%	5%	0%	9%	20%	-5%	14%	8%	-1%	7%	14%	12%	0%	14%	24%	-25%	7%	15%	7%	12%	25%	-8%	-2%	-1%	15%	10%	15%	12%	21%	0%	17%	6%	25%	-6%	20%	17%	7%
6.375% "Catch-Up" Portfolio	30%	65%	5%	0%	9%	22%	-6%	16%	10%	-1%	7%	17%	14%	0%	15%	28%	-29%	7%	17%	8%	14%	28%	-10%	-4%	-3%	17%	10%	16%	14%	22%	0%	19%	7%	28%	-8%	21%	19%	7%
6.25% Unconstrained Portfolio	40%	47%	4%	10%	8%	18%	-4%	14%	8%	-1%	7%	12%	12%	0%	13%	25%	-24%	9%	15%	9%	13%	23%	-6%	-3%	-1%	19%	10%	15%	13%	20%	1%	19%	7%	24%	-4%	20%	17%	9%
Cash	100%				1%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	2%	5%	5%	3%	1%	1%	2%	4%	6%	5%	5%	5%	5%	6%	4%	3%	4%	6%	8%	9%	7%	6%
TIPS	100%				10%	8%	-1%	3%	5%	-1%	4%	-9%	7%	14%	6%	11%	-2%	12%	0%	3%	8%	8%	17%	8%	13%	2%	4%	3%	4%	18%	-3%	10%	7%	16%	9%	15%	8%	3%
US Bond	100%				7%	9%	0%	4%	3%	1%	6%	-2%	4%	8%	7%	6%	5%	7%	4%	2%	4%	4%	10%	8%	12%	-1%	9%	10%	4%	18%	-3%	10%	7%	16%	9%	15%	8%	3%
US Bonds - Dynamic	100%				4%	8%	1%	4%	7%	-1%	3%	2%	7%	4%	7%	19%	-7%	4%	7%	3%	6%	10%	3%	6%	3%	3%	6%	9%	8%	14%	0%	10%	9%	21%	1%	15%	8%	3%
For. Dev. Bond	100%				6%	7%	1%	6%	3%	-2%	4%	-2%	4%	5%	4%	3%	9%	8%	5%	-2%	9%	10%	14%	1%	4%	-1%	15%	3%	8%	19%	1%	14%	6%	14%	9%	0%	6%	22%
Global Bonds	100%				5%	8%	2%	3%	4%	1%	8%	0%	6%	5%	5%	5%	6%	5%	4%	4%	5%	3%	8%	7%	10%	1%	10%	10%	7%	18%	-4%	11%	7%	14%	7%	15%	8%	3%
HY Bond	100%				5%	14%	-2%	8%	17%	-4%	2%	7%	16%	5%	15%	58%	-26%	2%	12%	3%	11%	29%	-1%	5%	-6%	2%	2%	13%	11%	19%	-1%	17%	16%	46%	-10%	1%	13%	5%
EM Bond	100%				-1%	13%	-6%	15%	10%	-15%	-6%	-9%	17%	-2%	16%	22%	-5%	18%	15%	6%	23%	17%	14%	10%	13%	20%	-8%	11%	38%	27%	-19%	17%	16%	46%	-10%	1%	13%	5%
Global Equity		100%			12%	27%	-9%	25%	8%	-2%	5%	23%	17%	-7%	13%	35%	-42%	12%	22%	11%	16%	35%	-19%	-16%	-14%	27%	22%	15%	13%	19%	5%	25%	-4%	20%	-16%	18%	24%	5%
US Equity (AC)		100%			16%	31%	-5%	21%	13%	0%	13%	34%	16%	1%	17%	28%	-37%	5%	16%	6%	12%	31%	-22%	-11%	-7%	21%	24%	32%	22%	37%	0%	11%	10%	34%	-5%	29%	18%	2%
Int'l Dev. Equity		100%			3%	23%	-13%	26%	2%	0%	-4%	23%	18%	-12%	8%	32%	-43%	12%	27%	14%	21%	39%	-16%	-21%	-14%	27%	20%	2%	6%	12%	8%	33%	-12%	12%	-23%	11%	29%	25%
EM Equity		100%			11%	19%	-14%	38%	12%	-15%	-2%	-2%	19%	-18%	19%	79%	-53%	40%	33%	35%	26%	56%	-6%	-2%	-31%	66%	-25%	-12%	6%	-5%	-7%	75%	11%	60%	-11%	65%	40%	25%
Int'l Dev. Equity		100%			3%	23%	-13%	26%	2%	0%	-4%	23%	18%	-12%	8%	32%	-43%	12%	27%	14%	21%	39%	-16%	-21%	-14%	27%	20%	2%	6%	12%	8%	33%	-12%	12%	-23%	11%	29%	25%
Real Estate			100%		-10%	26%	-5%	5%	8%	5%	32%	2%	18%	9%	29%	29%	-40%	-18%	36%	14%	35%	37%	3%	10%	31%	-3%	-17%	20%	37%	14%	2%	15%	7%	20%	-33%	2%	24%	-8%
Broad Real Assets			100%		0%	18%	-5%	8%	11%	-8%	8%	1%	12%	9%	16%	32%	-28%	9%	16%	10%	21%	27%	24%	-4%	27%	10%	-14%	2%	14%	14%	4%	4%	4%	4%	-6%	2%	3%	-2%
Midstream Energy			100%		-30%	7%	-12%	-7%	18%	-33%	5%	28%	5%	14%	36%	76%	-37%	13%	26%	6%	17%	45%	-3%	44%	46%	-8%	-3%	26%	17%	29%	9%	5%	7%	3%	31%	46%	30%	20%
HFoF Multi-Strat				100%	6%	8%	-4%	8%	1%	0%	3%	9%	5%	-6%	6%	11%	-21%	10%	10%	7%	7%	12%	1%	3%	4%	26%	-5%	16%	14%	11%	-3%	26%	12%	14%	18%	23%	19%	26%
Private Equity				100%	1%	16%	13%	16%	9%	8%	15%	23%	12%	12%	18%	10%	-20%	18%	25%	21%	22%	14%	-16%	-21%	10%	125%	21%	32%	33%	32%	14%	23%	14%	14%	4%	9%	9%	2%

Historical Returns for each Mix based on back-tested return calculations developed with the benefit of hindsight. Return calculations use an asset-weighted methodology based on the target asset allocation of each mix and the total return of index proxies used to represent each asset class and are gross of fees. Historical returns used are hypothetical and do not represent returns earned by a client. It is not possible to invest in an index. Please see disclosures at the end of this presentation for additional important information, including index proxies used to represent each asset class. For additional information on forecast methodologies, please ask for a copy of DiMeo Schneider's white paper titled 10-Year Capital Market Forecasts. Past performance does not indicate future performance and it is possible to lose money when investing.



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Capital Market Assumptions

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Return & Risk Assumptions (Forecasts)	Arithmetic Return	Geometric Return	Standard Deviatior	Skewness	Kurtosis
Cash	0.7%	0.7%	0.0%	0	0
ST Bonds	1.5%	1.5%	2.3%	0.52	1.02
US Bond	2.4%	2.1%	6.8%	-0.23	1.01
US Bonds - Dynamic	3.0%	2.8%	5.7%	-1.11	8.21
HY Bond	5.4%	4.4%	14.1%	-1.18	8.90
Global Bonds	2.0%	1.8%	7.2%	-0.15	0.07
US Equity (LC)	7.6%	6.3%	16.4%	-0.58	1.04
US Equity (SC)	8.8%	6.7%	20.3%	-0.50	1.37
Non-US Equity (ACWI)	11.1%	8.6%	22.1%	-0.65	1.72
EM Equity	13.5%	9.4%	28.9%	-0.70	1.98
Real Estate	8.4%	6.2%	21.1%	-0.72	7.62
HFoF Multi-Strat	6.7%	6.3%	8.7%	-0.93	5.30
Private Equity	12.0%	9.4%	22.9%	0.00	0.00

Correlation Assumptions (Forecasts)	Cash	ST Bonds	US Bond	US Bonds - Dynam	HY Bond	Global Bonds	US Equity (LC)	US Equity (SC)	Non-US Equity (ACM	EM Equity	Real Estate	HFoF Multi-Strat	Private Equity
Cash	1	0	0	0	0	0	0	0	0	0	0	0	0
ST Bonds	0	1.00	0.89	0.21	0.17	0.78	0.11	0.05	0.01	-0.01	0.14	0.06	-0.16
US Bond	0	0.89	1.00	0.35	0.29	0.94	0.19	0.10	0.08	0.03	0.21	0.08	-0.11
US Bonds - Dynamic	0	0.21	0.35	1.00	0.95	0.49	0.53	0.51	0.55	0.53	0.54	0.50	0.17
HY Bond	0	0.17	0.29	0.95	1.00	0.20	0.61	0.63	0.60	0.59	0.61	0.52	0.22
Global Bonds	0	0.78	0.94	0.49	0.20	1.00	0.09	-0.01	0.07	0.02	0.18	0.09	-0.10
US Equity (LC)	0	0.11	0.19	0.53	0.61	0.09	1.00	0.84	0.77	0.67	0.62	0.59	0.38
US Equity (SC)	0	0.05	0.10	0.51	0.63	-0.01	0.84	1.00	0.69	0.66	0.70	0.62	0.38
Non-US Equity (ACWI)	0	0.01	0.08	0.55	0.60	0.07	0.77	0.69	1.00	0.77	0.52	0.62	0.37
EM Equity	0	-0.01	0.03	0.53	0.59	0.02	0.67	0.66	0.77	1.00	0.47	0.67	0.30
Real Estate	0	0.14	0.21	0.54	0.61	0.18	0.62	0.70	0.52	0.47	1.00	0.35	0.21
HFoF Multi-Strat	0	0.06	0.08	0.50	0.52	0.09	0.59	0.62	0.62	0.67	0.35	1.00	0.49
Private Equity	0	-0.16	-0.11	0.17	0.22	-0.10	0.38	0.38	0.37	0.30	0.21	0.49	1.00

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January 1, 2021 Twenty-Year Forecasted CMAs

For additional information on forecast methodologies, please speak with your advisor. Please see Index Proxy Summary slide at the end of this presentation for summary of indexes used to represent each asset class. Past performance does not indicate future performance.



Indices For Past Risk & Return Metrics

Indices used to generate historical risk and return metrics	Most Recent Index	Index Dates		Linked Index 1	Index Dates		ex es	Linked Index 2	Inc Da		ex es	Linked Index 2	Inde Date		¥X €S
Cash	FTSE Treasury Bill 3 Mon USD	11/20	- 1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
ST Bonds	BBgBarc US Govt/Credit 1-3 Yr TR USD	11/20	- 1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Bond	BBgBarc US Agg Bond TR USD	11/20	- 1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Bonds - Dynamic	1/3 Béglen: Gel Agg Sx LGD TR Heg LGD & FTSE Treasury Bit 3 Mon LGD & Béglen: LG Corporate High Yield TR LGD	11/20	- 2/90	BBgBarc US Agg Bond TR USD	1/90	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
HY Bond	BBgBarc US Corporate High Yield TR USD	11/20	- 7/83	BBgBarc US Agg Bond TR USD	6/83	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Global Bonds	BBgBarc Global Aggregate TR Hdg USD	11/20	- 2/90	BBgBarc US Agg Bond TR USD	1/90	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Equity (LC)	S&P 500 TR USD	11/20	- 1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Equity (SC)	Russell 2000 TR USD	11/20	- 1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Non-US Equity (ACWI)	MSCI ACWI Ex USA GR USD	11/20	- 1/88	MSCI EAFE GR USD	12/87	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
EM Equity	MSCI EM GR USD	11/20	- 1/88	MSCI EAFE GR USD	12/87	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Real Estate	Wilshire US RESI TR USD	11/20	- 1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
HFoF Multi-Strat	HFRI Fund of Funds Composite USD	11/20	- 1/90	HFN Hedge Fund Aggregate Average	12/89	-	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Private Equity	Cambridge PE 67% Buy out vs. 33% Venture	11/20	- 4/86	Russell 2000 TR USD	3/86	-	1/79	N.A.	N.A.	_	N.A.	N.A.	N.A.	-	N.A.

Note: Private Equity Index is frequently 3-6 months behind the other indices. For historical return calculation purposes, it is given 0% returns during the most recent period where gaps may exist.



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Indices For Past Risk & Return Metrics

Indices used to generate historical risk and return metrics	Most Recent Index	Index Dates		Linked Inde 1	ex I	Index Dates		Linked Index 2	Index Dates		ex es	Linked Index 2	Ind Da ⁻		¥X €S
Cash	FTSE Treasury Bill 3 Mon USD	11/20	- 1/7	9 ^{N.A.}	N.A	. -	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
ST Bonds	BBgBarc US Govt/Credit 1-3 Yr TR USD	11/20	- 1/7	9 ^{N.A.}	N.A	. -	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Bond	BBgBarc US Agg Bond TR USD	11/20	- 1/7	9 ^{N.A.}	N.A	. -	N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Bonds - Dynamic	13 Biglian: Gei Agg Ex USD TR Hög USD & FTSE Treasury Bill 3 Men USD & Biglian: US Corporate High Yield TR USD	11/20	- 2/9	0 BBgBarc US Agg Bond TR US	□ 1/90) -	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
HY Bond	BBgBarc US Corporate High Yield TR USD	11/20	- 7/8	3 BBgBarc US Agg Bond TR US	₽ 6/83	3 -	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Global Bonds	BBgBarc Global Aggregate TR Hdg USD	11/20	- 2/9	0 BBgBarc US Agg Bond TR US	□ 1/90) -	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
US Equity (LC)	S&P 500 TR USD	11/20	- 1/7	9 ^{N.A.}	N.A		N.A.	N.A.	N.A.	1	N.A.	N.A.	N.A.	-	N.A.
US Equity (SC)	Russell 2000 TR USD	11/20	- 1/7	9 ^{N.A.}	N.A		N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Non-US Equity (ACWI)	MSCI ACWI Ex USA GR USD	11/20	- 1/8	8 MSCI EAFE GR USD	12/8	7 -	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
EM Equity	MSCI EM GR USD	11/20	- 1/8	8 MSCI EAFE GR USD	12/8	7 -	1/79	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
Real Estate	Wilshire US RESI TR USD	11/20	- 1/7	9 ^{N.A.}	N.A		N.A.	N.A.	N.A.	-	N.A.	N.A.	N.A.	-	N.A.
HFoF Multi-Strat	HFRI Fund of Funds Composite USD	11/20	- 1/9	0 HFN Hedge Fund Aggregate Av	^{erage} 12/8	9 -	1/79	N.A.	N.A.	_	N.A.	N.A.	N.A.	-	N.A.
Private Equity	Cambridge PE 67% Buyout vs. 33% Venture	11/20	- 4/8	6 Russell 2000 TR USD	3/86	; -	1/79	N.A.	N.A.	_	N.A.	N.A.	N.A.	_	N.A.

Note: Private Equity Index is frequently 3-6 months behind the other indices. For historical return calculation purposes, it is given 0% returns during the most recent period where gaps may exist.



Disclosures

The historical performance information derived from the Frontier Engineer and used or presented in charts, tables, or graphs represent simulated historical performance, which has been derived by retroactively applying an asset allocation modeling process in its most recently developed form with its most recently derived ten-year (forward-looking) capital market assumptions. Such historical return simulations (or back testing) was performed by simulating the combination of actual index returns for the historical period with a buy and hold strategy effective January 1, 1988 through the most recently available month-end date with simulated rebalancing occurring every month-end (with the reinvestment of dividends and capital gains from each index).

Back tested performance is hypothetical and does not reflect actual trades or actual client performance. As with all models, there are inherent limitations which are derived from the retroactive application developed with the benefit of hindsight, including the risk that certain factors such as material economic and market conditions could have contributed to materially different (either higher or lower) performance results than those depicted, or that certain material factors may have been included or excluded from consideration. As such, actual results during the applicable back tested period would have been different than those depicted.

The asset allocation modeling process currently used was initially developed in 2002, and was not offered as a strategy prior to that time. The output of a forward-looking model (or process) is a representation of allocation percentages among specific asset classes. Clients cannot invest directly in a target allocation, but rather, in underlying securities within designated asset classes. Advisor may change its models from time to time, and regularly updates its model as additional capital market assumption information becomes available or to increase or decrease relative weightings or emphasis on certain factors. Consequently, the Advisor may choose to deviate from a stated model over time as the model itself is revised, which could have a materially positive or negative impact on performance.

During the period represented, numerous modelling changes were made, including the regular changes in (ten-year) forward-looking expected returns, expected volatilities, expected non-normal return distribution assumptions, as well as tracking-error assumptions and risk budgets. Furthermore, such assumptions can be modified client-by-client depending on certain preferences, priorities, constraints or unique considerations applicable to each client.

Other economic and market factors may have impacted decision-making when using the model to manage client funds, including the list of approved asset classes by a client or client type as well as any client-directed or Advisor implemented constraints.

All investments bear the risk of loss, including the loss of principal. Past performance, actual or hypothetical, is no guarantee of future results.

The returns displayed on the preceding pages are gross of fees. Actual performance would be reduced by investment advisory fees and other expenses that may be incurred in the management of the client's portfolio. The collection of fees produces a compounding effect on the total rate of return net of management fees. As an example, the effect of investment management fees on the total value of a client's portfolio assuming (a) quarterly fee assessment, (b) \$1,000,000 investment, (c) portfolio return of 8% a year, and (d) 0.50% annual investment advisory fee would be \$5,228 in the first year, and cumulative effects of \$30,342 over five years and \$73,826 over ten years. Additional information on advisory fees charged by DiMeo Schneider are described in Part 2 of the Form ADV.



Disclosures & Definitions (continued)

INDEX DEFINITIONS

- FTSE Treasury Bill 3 Month measures return equivalents of yield averages and are not marked to market. It is an average of the last three three-month Treasury bill month-end rates.
- Bloomberg Barclays Capital US Treasury Inflation Protected Securities Index consists of Inflation-Protection securities issued by the U.S. Treasury.
- Bloomberg Barclays Muni 5 Year Index is the 5 year (4-6) component of the Municipal Bond index.
- Bloomberg Barclays High Yield Municipal Bond Index covers the universe of fixed rate, non-investment grade debt.
- Bloomberg Barclays U.S. Aggregate Index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.
- FTSE World Government Bond Index (WGBI) (Unhedged) provides a broad benchmark for the global sovereign fixed income market by measuring the performance of fixed-rate, local currency, investment-grade sovereign debt from over 20 countries,
- FTSE World Government Bond Index (WGBI) (Hedged) is designed to represent the FTSE WGBI without the impact of local currency exchange rate fluctuations.
- Bloomberg Barclays US Corporate High Yield TR USD covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.
- JP Morgan Government Bond Index-Emerging Market Index (GBI-EMI) is a comprehensive, global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure.
- JPMorgan EMBI Global Diversified is an unmanaged, market-capitalization weighted, total-return index tracking the traded market for U.S.-dollar-denominated Brady bonds, Eurobonds, traded loans, and local market debt instruments issued by sovereign and quasi-sovereign entities.
- MSCI ACWI is designed to represent performance of the full opportunity set of large- and mid-cap stocks across multiple developed and emerging markets, including cross-market tax incentives.
- The S&P 500 is a capitalization-weighted index designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.
- Russell 3000 is a market-cap-weighted index which consists of roughly 3,000 of the largest companies in the U.S. as determined by market capitalization. It represents nearly 98% of the investable U.S. equity market.
- Russell Mid Cap measures the performance of the 800 smallest companies in the Russell 1000 Index.
- Russell 2000 consists of the 2,000 smallest U.S. companies in the Russell 3000 index.
- MSCI EAFE is an equity index which captures large and mid-cap representation across Developed Markets countries around the world, excluding the US and Canada. The index covers approximately 85% of the free float-adjusted market capitalization in each country.
- MSCI Emerging Markets captures large and mid-cap representation across Emerging Markets countries. The index covers approximately 85% of the free-float adjusted market capitalization in each country
- The Wilshire US Real Estate Securities Index (Wilshire US RESI) is comprised of publicly-traded real estate equity securities and designed to offer a market-based index that is more reflective of real estate held by pension funds.
- Alerian MLP Index is a float adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis.
- Bloomberg Commodity Index (BCI) is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weightcaps are applied at the commodity, sector and group level for diversification.
- Treasury Inflation-Protected Securities (TIPS) are Treasury bonds that are indexed to inflation to protect investors from the negative effects of rising prices. The principal value of TIPS rises as inflation rises.
- HFRI Fund of Funds Composite is an equal-weighted index consisting of over 800 constituent hedge funds, including both domestic and offshore funds.
- Cambridge Associates U.S. Private Equity Index (67% Buyout vs. 33% Venture) is based on data compiled from more than 1,200 institutional-quality buyout, growth equity, private equity energy, and mezzanine funds formed between 1986 and 2015.
- HFN Hedge Fund Aggregate Average is an equal weighted average of all hedge funds and CTA/managed futures products reporting to the HFN Database. Constituents are aggregated from each of the HFN Strategy Specific Indices.
- Goldman Sachs Commodity Index (GSCI) is a broadly diversified, unleveraged, long-only composite index of commodities that measures the performance of the commodity market.



Appendix B: Short Term Investment Options

Helping Clients Prosper.



Short Term Investment Options January 2021

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Manager Portfolio Profiles

• Using ultra-short or short duration strategies can generate an attractive yield/duration profile compared to a broad index or money market strategy while still maintaining a low duration profile and ample liquidity.

Strategy	Prospectus Net Expense Ratio (%)	Yield 9/30/2020 (%)*	Duration (yrs)	Yield/ Year of Duration (%)
Baird Ultra Short Bond	0.15	0.69	0.50	1.38
Baird Short-Term Bond	0.30	0.70	1.92	0.36
Vanguard Short-Term Investment-Grade	0.10	1.07	2.70	0.40
Vanguard Ultra-Short-Term Bond	0.10	0.80	0.90	0.89
Payden Limited Maturity	0.25	0.64	0.80	0.80
Vanguard Federal Money Market	0.11	0.05	0.00	0.00
Bloomberg Barclays Gov/Cred 1-3 Yr	-	0.32	1.92	0.17

*Yield for Vanguard Federal Money Market is 7-day SEC Yield, the yield on the other mutual funds is 30-day SEC yield, the yield on the Bloomberg Barclays 1-3 Gov/Credit Index is yield to maturity.

Sources: Morningstar Direct, Baird, Vanguard, Payden & Regel, FactSet, Bloomberg Barclays. Data as of 9/30/2020 unless otherwise noted.



Manager Profiles – Sector & Quality

- Active managers are diversified across fixed income sectors and credit qualities.
- In order to generate additional yield, manager will have increased exposure to BBB and some below investment grade bonds.

Strategy	Government/Gov't Related	Corporates	Asset Backed	Mortgage Backed	Cash/ Money Market	Other
Baird Ultra Short Bond	32%	47%	17%	1%	3%	0%
Baird Short-Term Bond	30%	56%	7%	6%	1%	0%
Vanguard Short-Term Investment-Grade	6%	69%	7%	10%	2%	6%
Vanguard Ultra-Short-Term Bond	0%	56%	27%	1%	9%	8%
Payden Limited Maturity	9%	45%	27%	12%	7%	0%
Vanguard Federal Money Market	95%	0%	0%	0%	0%	5%
Bloomberg Barclays Gov/Cred 1-3 Yr	77%	23%	0%	0%	0%	0%

Strategy	AAA	AA	Α	BBB	Below IG	Unrated
Baird Ultra Short Bond Institutional	44%	5%	15%	33%	1%	2%
Baird Short-Term Bond Inst	41%	5%	20%	32%	2%	0%
Vanguard Short-Term Investment-Grade Adm	18%	8%	35%	32%	2%	5%
Vanguard Ultra-Short-Term Bond Admiral	25%	12%	32%	24%	0%	8%
Payden Limited Maturity	33%	20%	17%	24%	3%	3%
Vanguard Federal Money Market Investor	95%	0%	0%	0%	0%	5%
Bloomberg Barclays Gov/Cred 1-3 Yr Stats	75%	3%	12%	10%	0%	0%



Trailing & Calendar Year Returns

- Active managers have demonstrated an ability to add value over the short duration and cash benchmarks.
- Money market returns were effectively zero from 2010-2015.

	YTD	1-Year	3-Year	5-Year	7-Year	10-Year
Baird Short-Term Bd;Inst	4.23	4.23	3.46	2.83	2.36	2.40
Vanguard Sh-Tm Inv;Adm	5.25	5.25	4.00	3.38	2.84	2.76
Baird Ultra Sh Bd;Inst	1.66	1.66	2.24	1.91	1.58	NA
Vanguard Ultra ST Bd;Adm	2.10	2.10	2.53	2.05	NA	NA
Payden:Ltd Mat;Inv	1.84	1.84	2.32	1.99	1.54	1.36
Vanguard Fed MM;Inv	0.45	0.45	1.46	1.10	0.79	0.56
Barclays 1-3 Year Government/Credit TR	3.33	3.33	2.98	2.21	1.78	1.60
Merrill Lynch 3-month T-Bill	0.67	0.67	1.61	1.20	0.87	0.64

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Baird Short-Term Bd;Inst	4.65	6.08	-1.79	8.14	4.39	2.08	4.16	1.33	1.49	0.89	2.25	1.53	1.49	4.68	4.23
Vanguard Sh-Tm Inv;Adm	5.11	5.98	-4.65	14.17	5.33	2.02	4.63	1.08	1.86	1.13	2.82	2.12	0.96	5.84	5.25
Baird Ultra Sh Bd;Inst	NA	NA	NA	NA	NA	NA	NA	NA	1.21	0.30	1.56	1.30	1.95	3.11	1.66
Vanguard Ultra ST Bd;Adm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.33	1.37	2.10	3.39	2.10
Payden:Ltd Mat;Inv	4.51	1.97	-2.11	4.69	1.41	0.44	1.83	0.48	0.58	0.30	1.34	1.64	1.78	3.35	1.84
Vanguard Fed MM;Inv	4.81	5.07	2.53	0.40	0.02	0.01	0.01	0.02	0.01	0.04	0.30	0.81	1.78	2.14	0.45
Barclays 1-3 Year Government/Credit TR	4.25	6.83	4.97	3.82	2.80	1.59	1.26	0.64	0.77	0.65	1.28	0.84	1.60	4.03	3.33
Merrill Lynch 3-month T-Bill	4.85	5.00	2.06	0.21	0.13	0.10	0.11	0.07	0.03	0.05	0.33	0.86	1.87	2.28	0.67

Performance sourced from MPI Stylus. Data as of 12/31/2020. Periods greater than one year are annualized.



Rolling 12-Month Performance

• While managers can exhibit short drawdown periods, such as the first quarter in 2020 and in 2008-2009, they have rarely generated a negative absolute return on a rolling 12-month basis.



Rolling 12-Month Returns

Performance sourced from MPI Stylus. Data From 3/1/2001 to 12/31/2020.