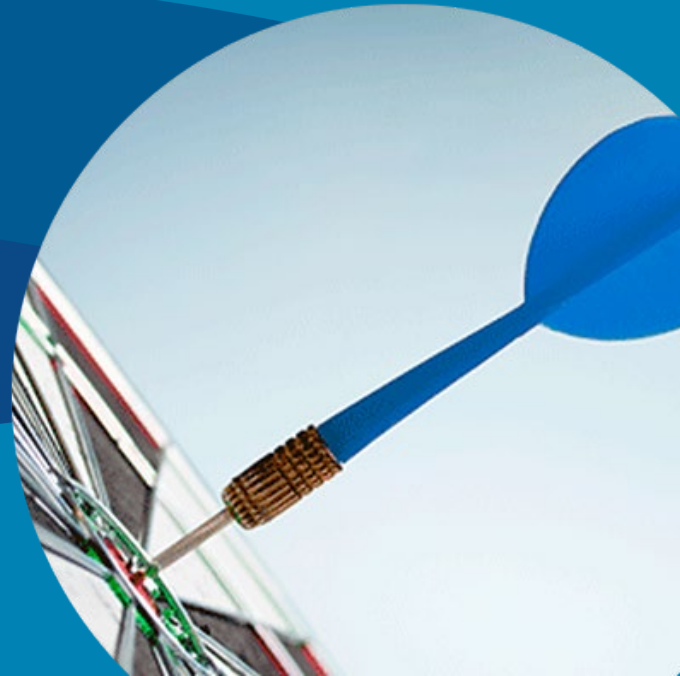




City of Dallas Employees' Retirement Fund

December 31, 2022

Preliminary Valuation Results



Key Issues and Changes

- ERF's investment return was below its investment target of 7.25% on both a market value and actuarial value basis in 2022
 - Return on market value was -9.31%
 - Dollar-weighted return
 - Versus Wilshire's time-weighted return of -7.96%
 - Investment shortfall in 2022 of \$661 million
 - \$221 million of shortfall was offset against prior gains, \$88 million of shortfall was recognized in this valuation, with the remaining \$352 million deferred
- 2021 and 2022 demonstrate why we use a smoothed asset value
 - The gains and losses on the actuarial value of assets these two years have to a great extent offset each other
- \$55 million liability experience loss in 2022
 - Loss from cost of living adjustment being greater than assumed
 - Loss from salary increases being higher than assumed
 - Gain on retiree mortality (more deaths than assumed)

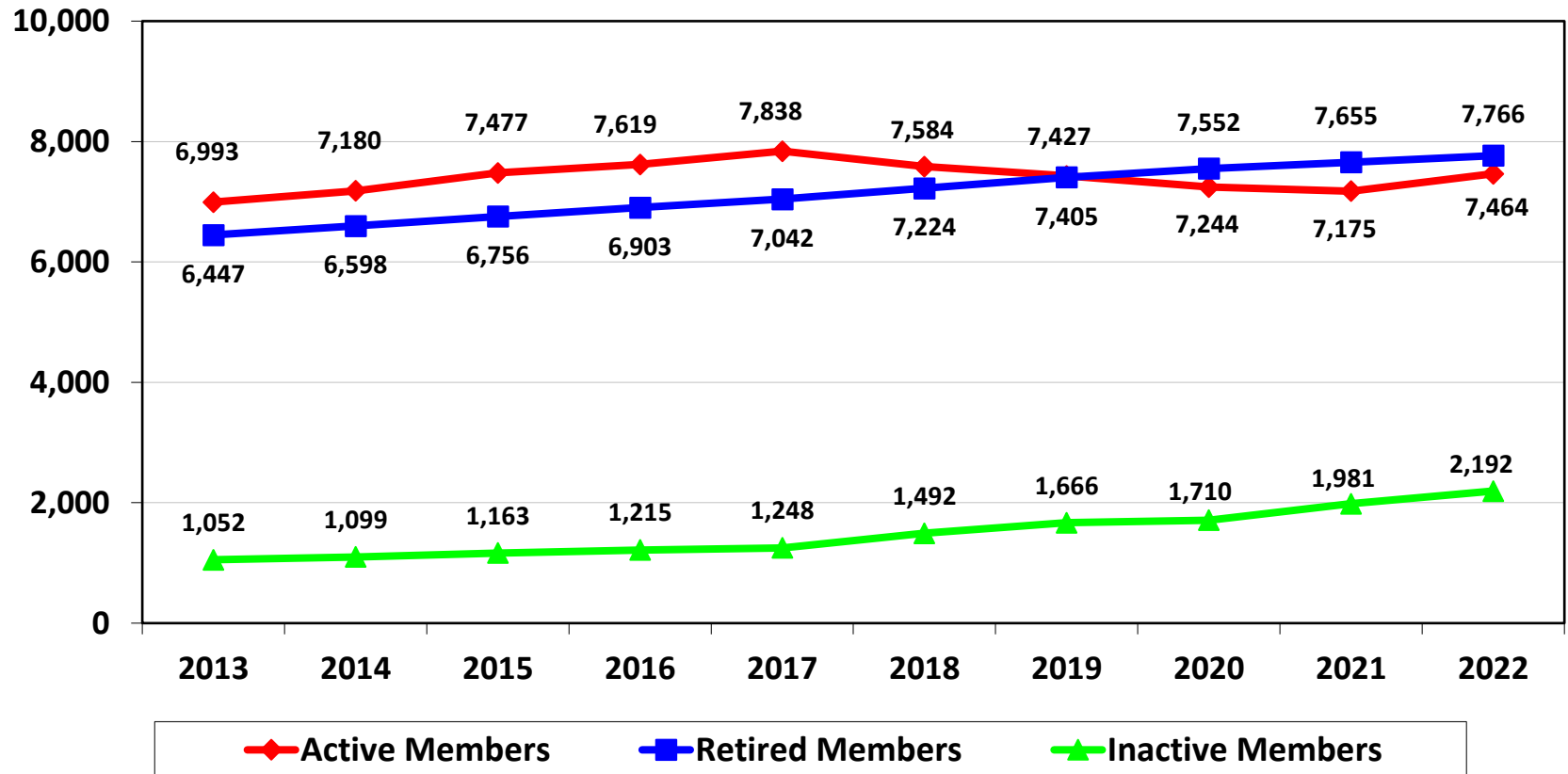
Key Issues and Changes

- Payroll increased more than expected
 - 7.6% increase versus 2.5% increase assumption
- Current Total Obligation Rate exceeds 36% of pay cap
 - CATOR is 36.00%
 - City contribution rate is 22.68%
 - Member rate is 13.32%
- The new Tier became effective January 1, 2017
 - Over 3,500 employees in new Tier at December 31, 2022
 - New Tier is approximately 48% of the active employees
 - NC% decreased from 19.71% last year to 19.17% this year

Membership

- The number of active members increased from 7,175 to 7,464, a 4.0% increase
- Payroll for active members increased from \$442.9 million to \$476.6 million, a 7.6% increase
- The number of members in payment status increased by a net 111, from 7,655 to 7,766, a 1.5% increase
- There are fewer active members than retired members, but the ratio is close to 1.0

Active Members and Retired Members

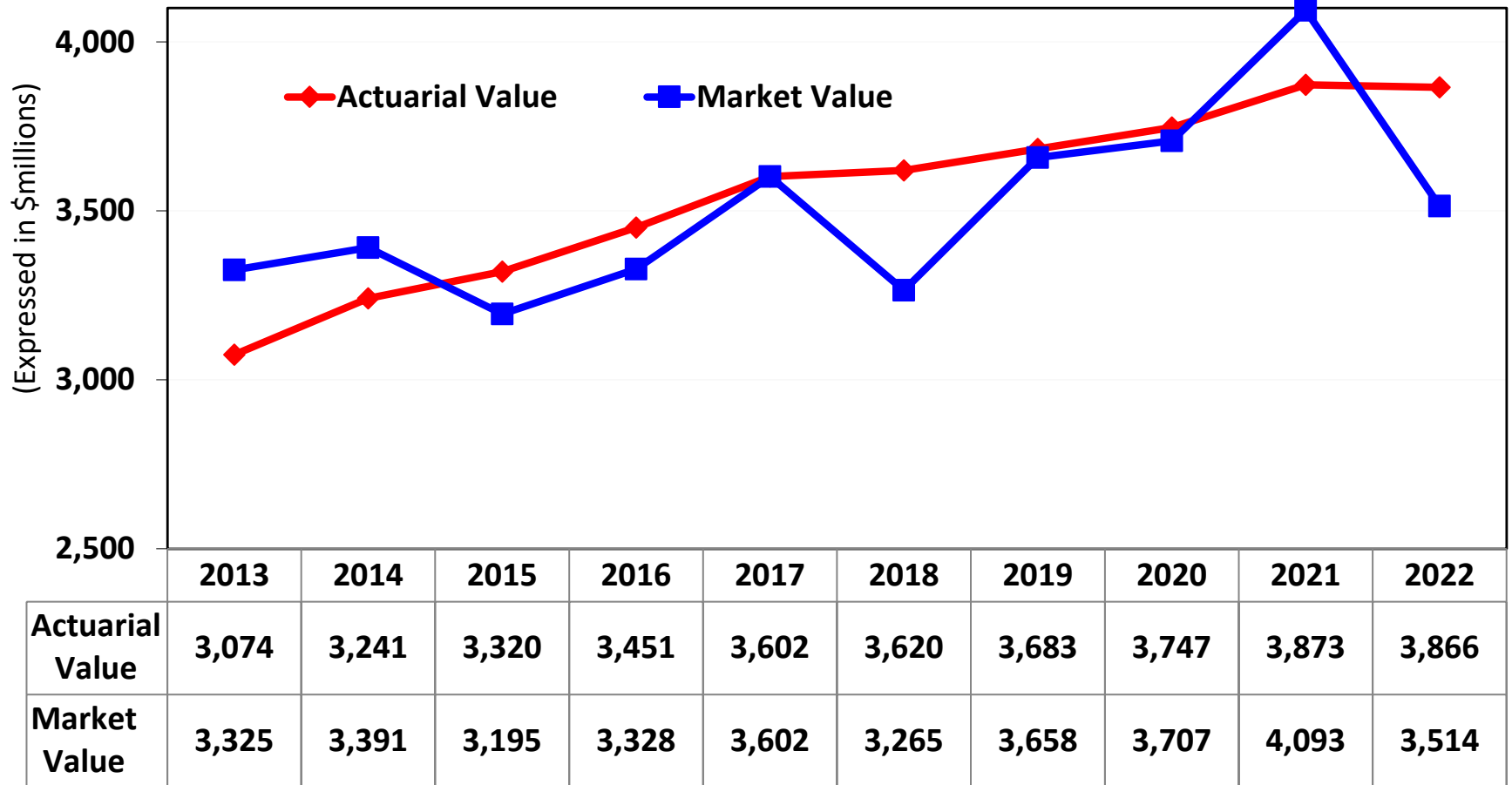


Note: active membership increased 4.0% versus last year

Assets

- Fair market value (unaudited) decreased from \$4.093 billion to \$3.514 billion
- Return on market value of assets was approximately -9.31% in 2022
- Actuarial value is \$3.866 billion, compared to \$3.873 billion last year
- Actuarial rate of return was 5.34% in 2022
 - Less than 7.25% assumed rate
- Actuarial value is 110.0% of fair market value
- Net deferred investment loss of \$352 million still to be recognized in actuarial value of assets

Historical Asset Values



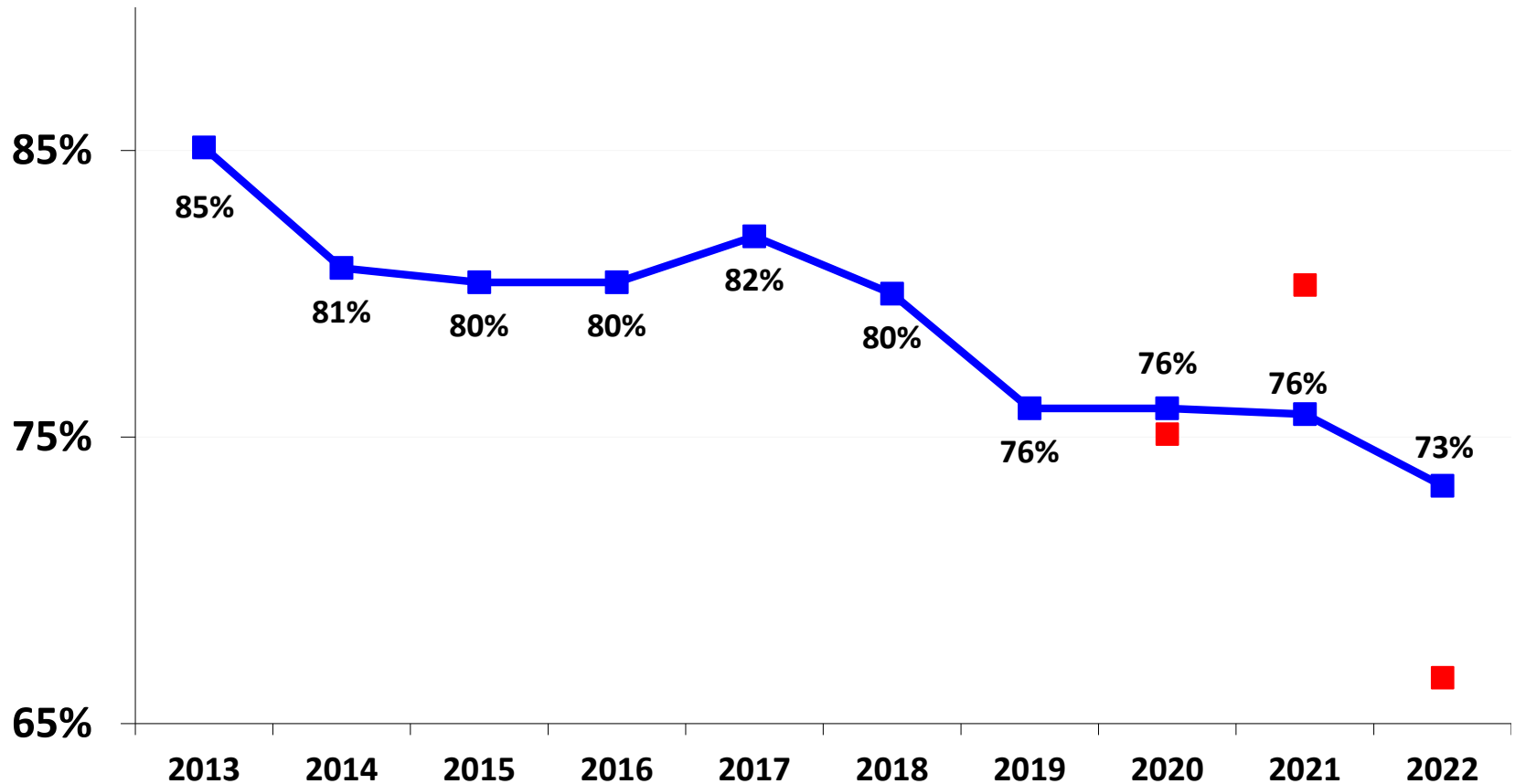
Actuarial Results

- Actuarial Accrued Liability (AAL) of benefits is now \$5.276 billion
- Unfunded Actuarial Accrued Liability (UAAL) increased from \$1,222 million to \$1,410 million
 - Expected to increase to \$1,247 million
 - Reflects \$72 million loss on actuarial value of assets and \$55 million loss on liabilities
 - UAAL increased \$36 million due to difference between calculated contribution rate and actual contribution rate

Actuarial Results

- Funded ratio (actuarial assets divided by actuarial accrued liability) decreased from 76.0% in 2021 to 73.3% in 2022
- Funded ratio using market value is 66.6%
 - Was 80.3% last year
- Total 30-year contribution rate is 35.34%
 - Does not include POB debt service payments
 - Based on open-group projection
 - 34.61% last year

Historical Funded Ratios



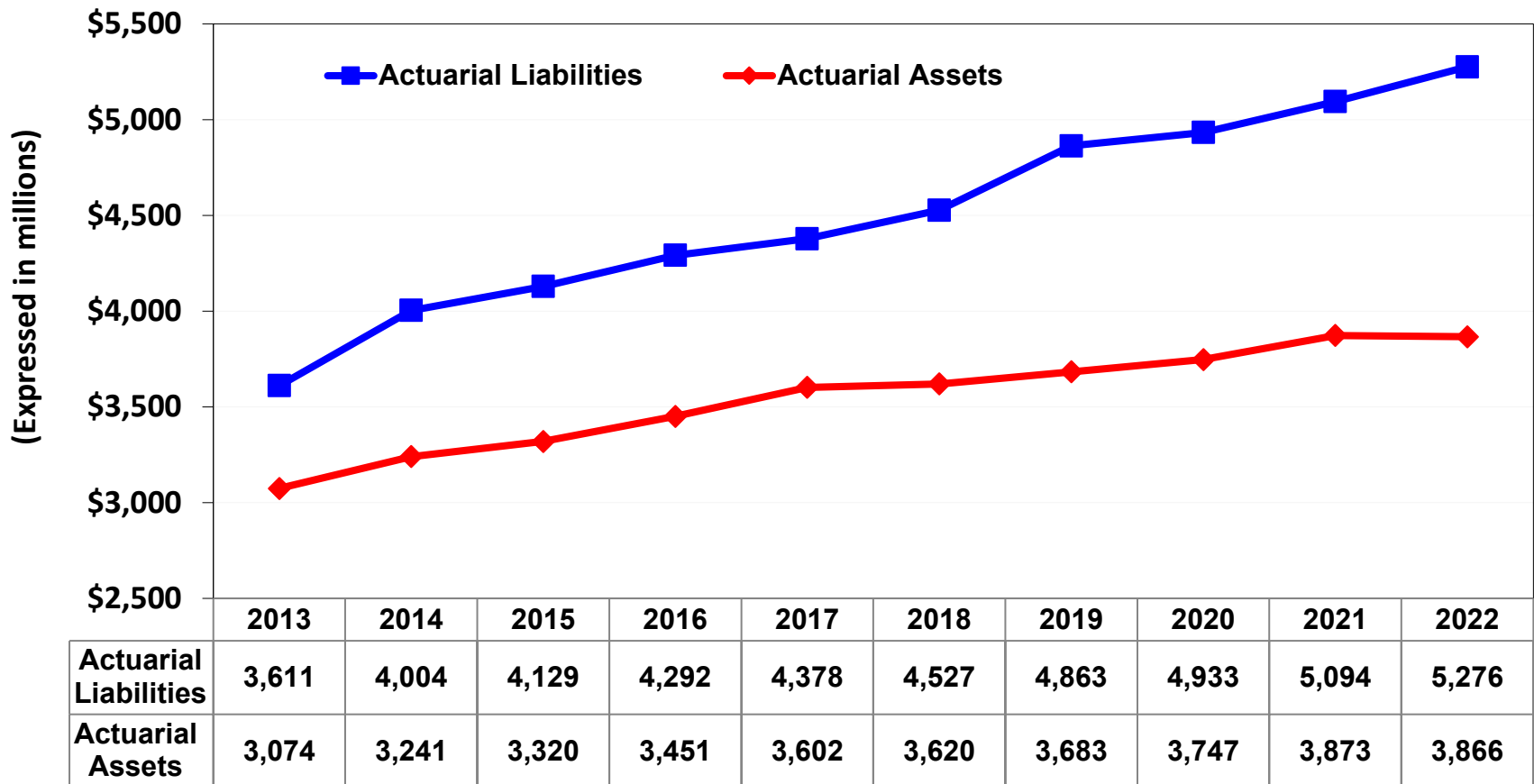
Funded ratio using market value of assets as of December 31, 2020 is 75%.

Funded ratio using market value of assets as of December 31, 2021 is 80%.

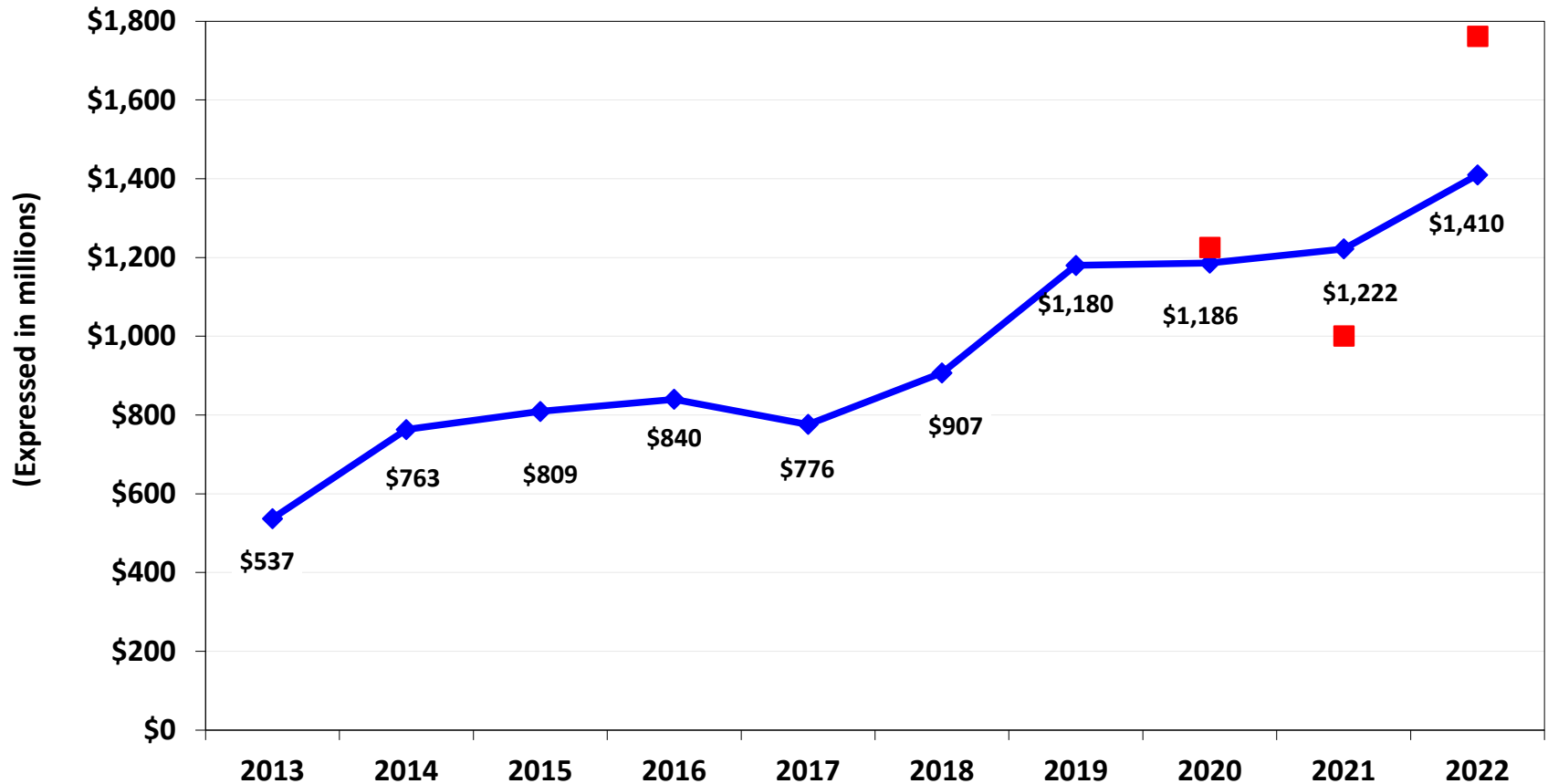
Funded ratio using market value of assets as of December 31, 2022 is 67%.



Liabilities vs. Assets



Unfunded Actuarial Accrued Liability (UAAL)



UAAL based on market value of assets as of December 31, 2020 is \$1,226 million.

■ UAAL based on market value of assets as of December 31, 2021 is \$1,001 million.

UAAL based on market value of assets as of December 31, 2022 is \$1,762 million.



Actuarial Required Contribution Rate

- We use an Open-Group projection to determine the Actuarially Required Contribution Rate (ARC)
 - Reflects declining average Normal Cost % over time due to new tier of benefits
 - Rate is determined as level percentage of pay so amortization rate is increasing over time
 - 30-year funding period is used
 - Debt service is not included

Actuarial Required Contribution Rate

- ARC as of December 31, 2022 is 35.34%
 - Increase from 34.61% in prior year
 - Compares to actual rate expected to be contributed in fiscal year 2023 of 27.78%
 - Total rate of 36.00% of pay less POB Credit of 8.22%
 - Increase due to investment shortfalls, partially offset by greater than expected payroll growth
 - Decrease in POB Credit

Fiscal Year Beginning October 1st

	<u>2022</u>	<u>2023</u>
1. Prior Adjusted Total Obligation Rate	36.00%	36.00%
2. Actuarially Required Contribution Rate	34.61%	35.34%
3. Debt Service		
a) Scheduled Debt Service Payment	\$ 38,843,241	\$ 40,142,080
b) Projected Payroll	\$453,934,344	\$488,516,155
c) Pension Obligation Bond Credit (a/b)	8.56%	8.22%
4. Current Total Obligation Rate (2+3c)	43.17%	43.45%
5. Current Adjusted Total Obligation Rate	36.00%	36.00%
6. Allocation of Contribution Rates for Fiscal Year Beginning October 1 st		
a) Employee (5 x .37)	13.32%	13.32%
b) City (5 x .63)	22.68%	22.68%
7. City Contribution to Fund (6.b. – 3.c)	14.12%	14.46%

The formula for contributions are based on Dallas City Code 40A originally established with City ordinance 25695



Valuation Summary

- The Actuarially Required Contribution to the Fund increased from 34.64% to 35.34%
- The total contribution rate including the debt service increased from 43.17% to 43.56%
- \$352 million in deferred investment loss still to be recognized or offset

Valuation Summary

- Calculated contribution rate is projected to remain relatively level until POBs are paid off
 - Assuming all assumptions are met including 7.25% return on AVA
 - Impact of shortfall in contributions because of 36.00% maximum rate is being somewhat offset by
 - 30-year rolling amortization period
 - Decrease in average normal cost due to new tier of benefits
- Actual contribution rate will remain at 36% cap for foreseeable future

Wilshire

Employees' Retirement Fund of The City of Dallas

Asset Allocation Update

Thomas Toth, CFA – Managing Director

Ali Kazemi – Managing Director

April 2023

Executive Summary & Recommendation

Background

The asset allocation decision is the most important decision an investor can make

- The asset allocation decision drives 90% of return variability among portfolios

Wilshire recommends revisiting the asset allocation decision every three to five years, or sooner, as market conditions warrant

- Dallas ERF last reviewed asset allocation in November 2019

Given a shift in Wilshire's capital market assumptions, an updated asset allocation study and recommendation is prudent

Asset allocation study activity:

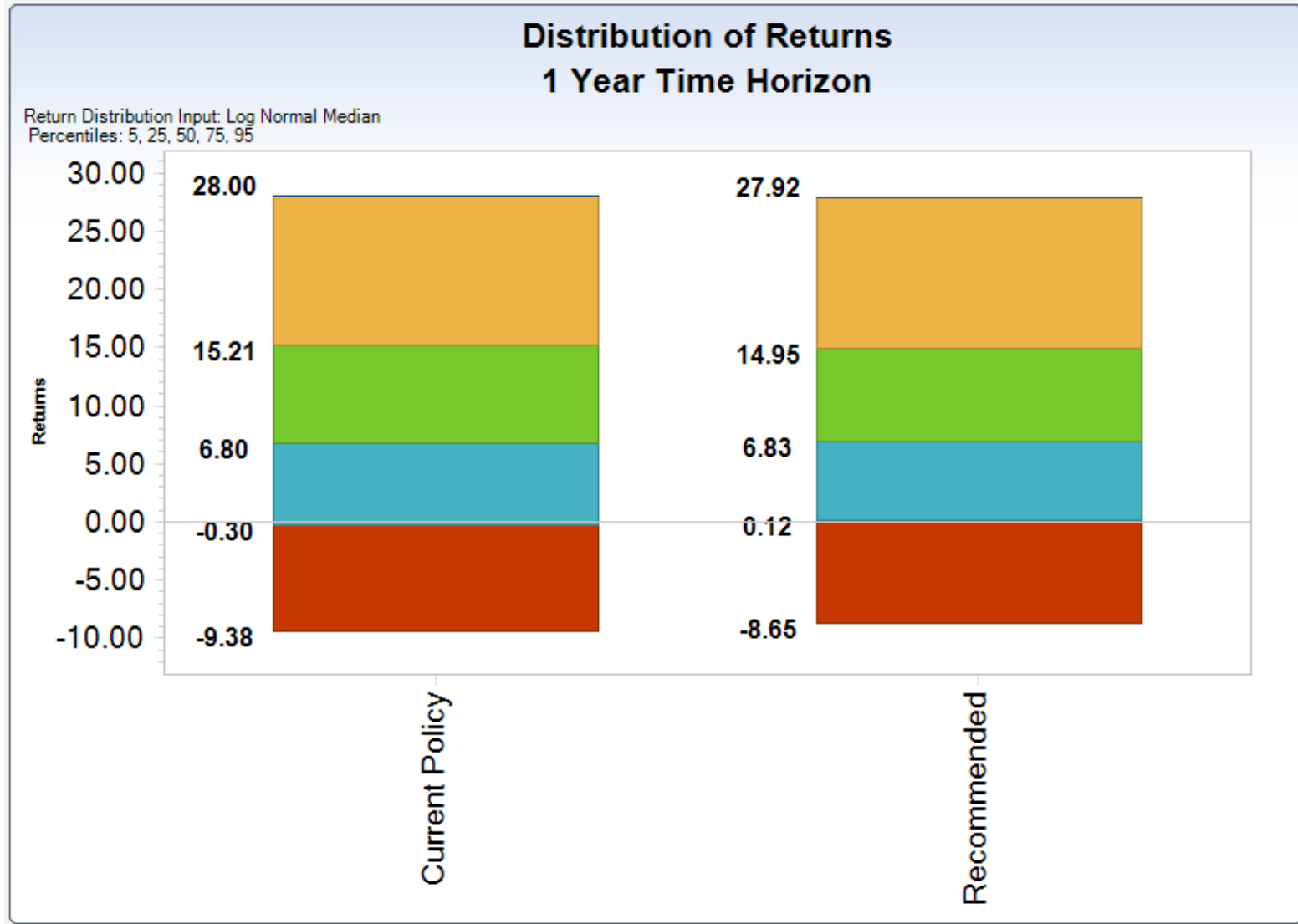
- Presented updated capital market assumptions to the Board
- Projected asset allocation return and risk metrics over 10-year forecast horizon

Recommended Target Portfolio

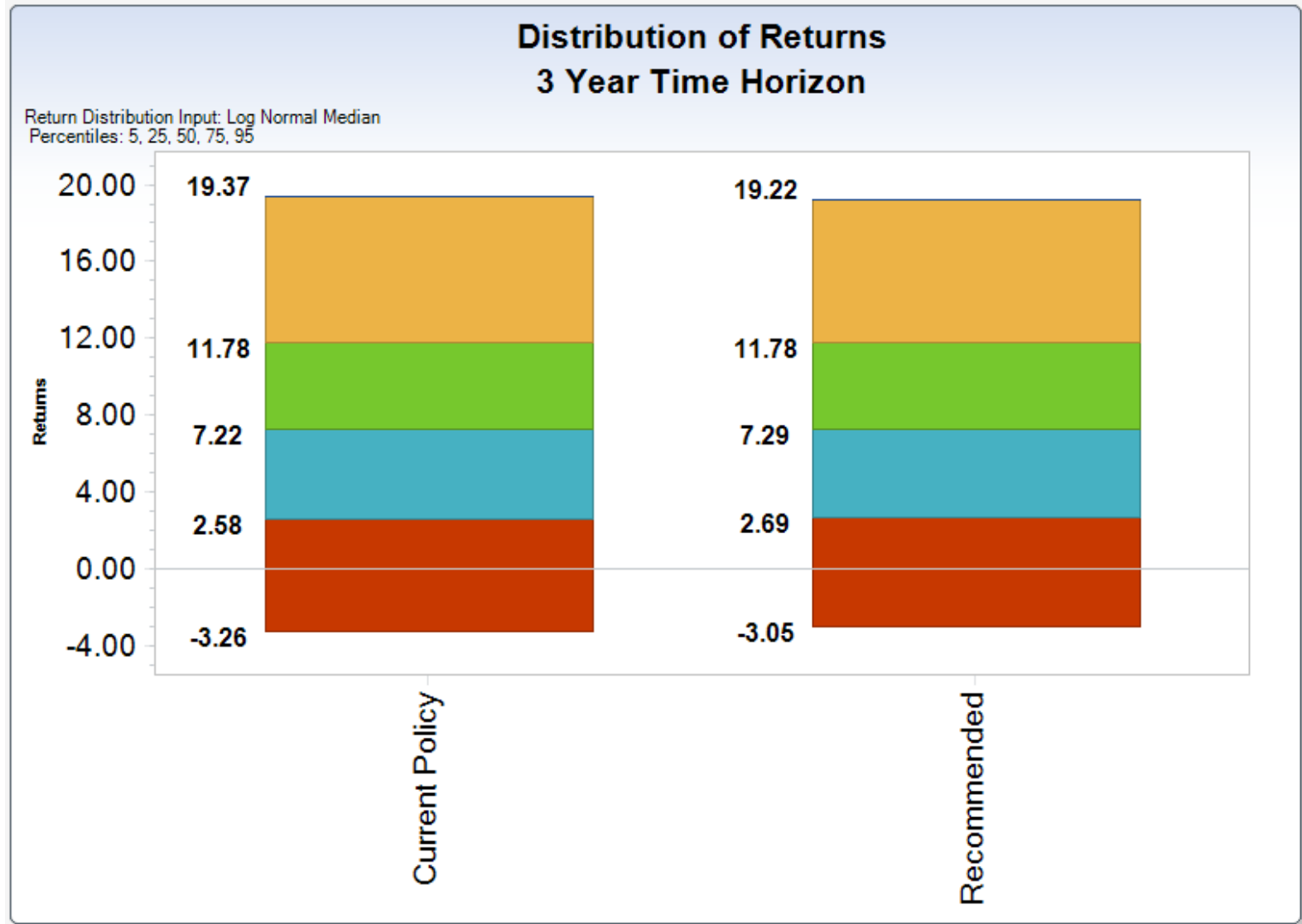
Asset Class	Current Policy	Recommended Policy
US Equity	12.50%	12.00%
Non US Equity	12.50%	11.50%
Global Equity	7.50%	5.00%
Global Low Volatility Equity	12.50%	10.00%
Private Equity	7.50%	10.00%
Total Growth Assets	52.50%	48.50%
High Yield	10.00%	10.00%
Opportunistic Credit	5.00%	4.00%
Private Credit	0.00%	2.50%
Total Defensive Growth Assets	15.00%	16.50%
Core Fixed Income	15.00%	17.50%
Cash	0.00%	0.00%
Total Defensive / Rate Sensitive Assets	15.00%	17.50%
Real Estate Securities	2.50%	2.50%
Private Real Estate - Core	5.00%	5.00%
Private Real Estate - Value Add	2.50%	2.50%
Public Listed Infrastructure	5.00%	5.00%
Total RA / Inflation Sensitive Assets	15.00%	15.00%
Marketable Alternatives	2.50%	2.50%
Total Diversifying	2.50%	2.50%
Total Assets	100.0%	100.0%
Expected Return - 10 Years (%)	7.24	7.34
Standard Deviation of Return (%)	11.40	11.17
+ / (-) in Expected Return - 10 Years (bps)		10
+ / (-) in SD of Return (bps)		(23)
Sharpe Ratio	0.28	0.30
Cash Yield	3.58	3.68

- Overview of Recommended Policy
 - Increases expected return at a lower level of expected risk
 - Improves the risk-adjusted return of the Policy
 - Modestly increases cash yield
- Recommended Policy Allocation Shifts
 - Reduces overall Growth Assets allocation by 4%
 - Increases Defensive and Defensive Growth allocations by 2.5% and 1.5%, respectively
 - Increases target allocation to private asset classes
 - Private Equity target increases by 2.5%
 - Adds an allocation to Private Credit strategies at 2.5%

Distribution of Returns – 1 Year



Distribution of Returns – 3 Year



Appendix

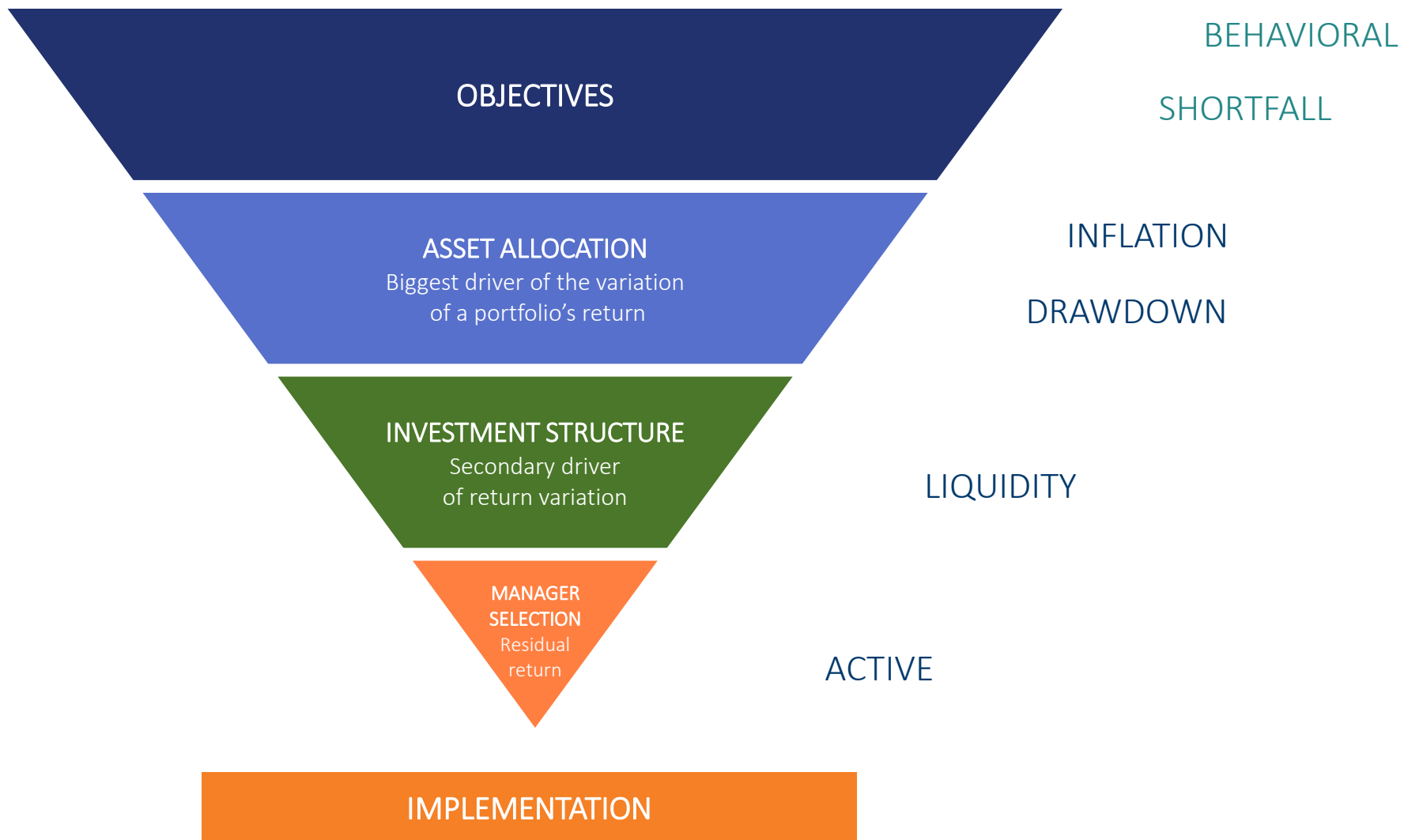
Wilshire's Fiduciary Responsibility

As an investment adviser, Wilshire is a fiduciary when we provide investment advice or management.

- When Wilshire is acting as a fiduciary, we are required to act in your best interests.
- It is Wilshire's policy to make evaluations, recommendations and decisions based solely upon the best interests of the client and without regard to any benefit (economic or otherwise) that Wilshire receives or might receive. Wilshire is committed to ensuring that it does not consider an investment manager's or financial service provider's business relationship with Wilshire, or lack thereof, in performing evaluations for or making recommendations to its advisory clients. Wilshire has implemented policies and procedures that seek to mitigate conflicts of interest through appropriate oversight, transparency and controls.

Asset Allocation Approach

Focus on Decisions that Matter



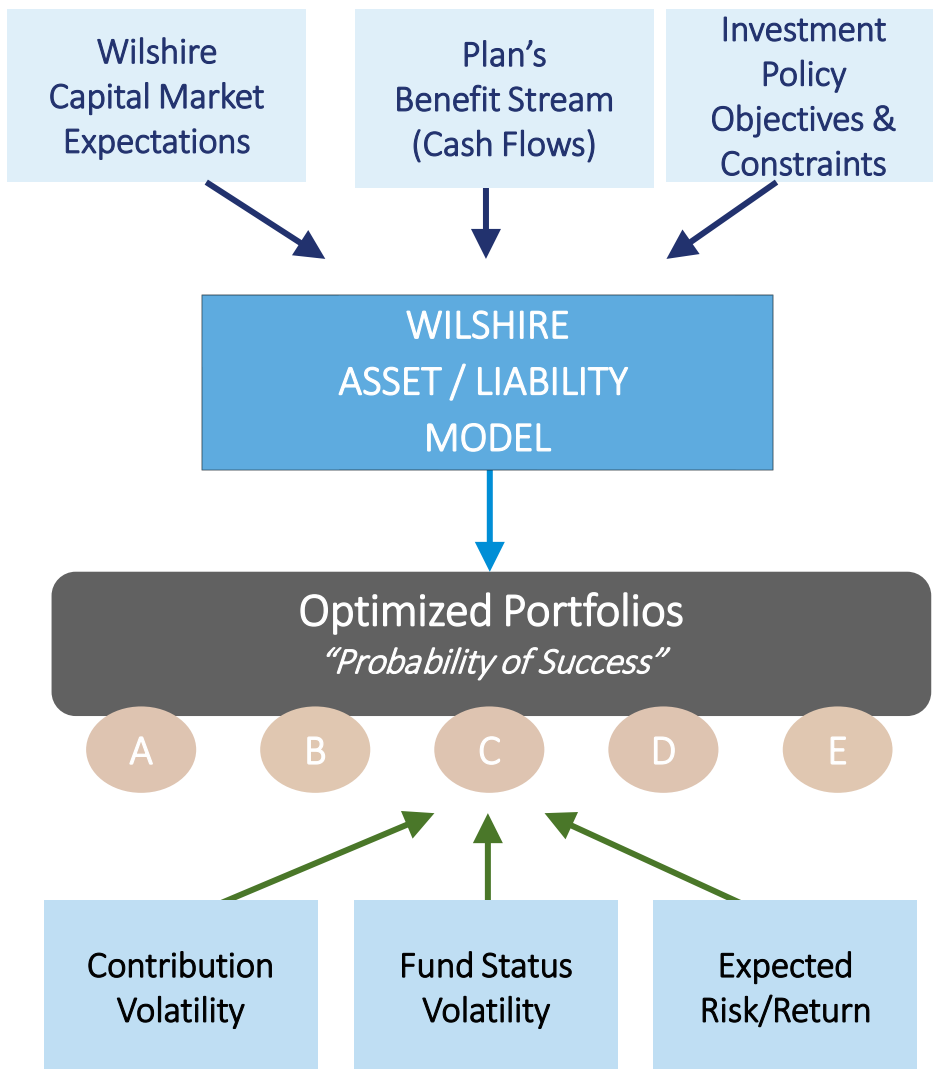
Risk Assessment Framework

Wilshire’s multi-dimensional view of risk integrates organizational and investment considerations into a comprehensive framework for evaluating strategic decisions.

- **Shortfall:** Support distributions and long-term growth
- **Behavioral:** Instill strong governance
- **Drawdown:** Limit portfolio losses
- **Inflation:** Preserve long-term purchasing power
- **Liquidity:** Balance near-term needs, long-term opportunities
- **Active:** Ensure unique exposures
- **Emerging & Long-Term:** Environmental, Social & Governance risks, such as externalities, intangibles and reputation may be linked to various risk lenses



Asset Allocation Process



- Wilshire believes the mission of a defined benefit plan is to fund benefits promised to participants
- The role of asset allocation is to manage risk in order to fulfill that core mission
 - **Maximize safety** of promised benefits
 - **Minimize cost** of funding these benefits
- Wilshire’s Asset Liability Model provides methodology for selecting a target portfolio that considers both goals
- Rigorously developed capital market assumptions for risk and return (see appendix)
- Given that short-term volatility is also important, we identify the impact of the asset allocation decision on funded ratios, annual contribution requirements, and other metrics
- Strategic asset allocation is not a guide to outperforming in every market ... but it should provide a roadmap for success over a market cycle

Asset Allocation Inputs

Plan Status

\$ - Thousands	December 31, 2020	December 31, 2021
Asset and Liability Data		
1. Actuarial Accrued Liability (AAL)	4,932.9	5,094.4
<u>2. Market Value of Assets (MVA)</u>	<u>3,706.8</u>	<u>4,093.2</u>
3. AAL MVA Funded Status (Unfunded Liability) (1. - 2.)	1,226.1	1,001.2
<u>4. AAL MVA Funded Ratio (2. / 1.)</u>	<u>75.1%</u>	<u>80.3%</u>
5. Actuarial Value of Assets (AVA)	3,747.1	3,872.6
6. AAL AVA Funded Status (Unfunded Liability) (1. - 5.)	1,185.8	1,221.8
<u>7. AAL AVA Funded Ratio (5. / 1.)</u>	<u>76.0%</u>	<u>76.0%</u>
Economic Assumptions		
Discount Rate	7.25%	7.25%

December 31, 2020 and December 31, 2021 data was provided in the actuarial valuation reports by the plan actuary.

AAL is a measure of total liability for all plan participants (active works, terminated vested and those in pay status) as of the measurement. It is calculated using the discount rate.

Capital Market Assumptions

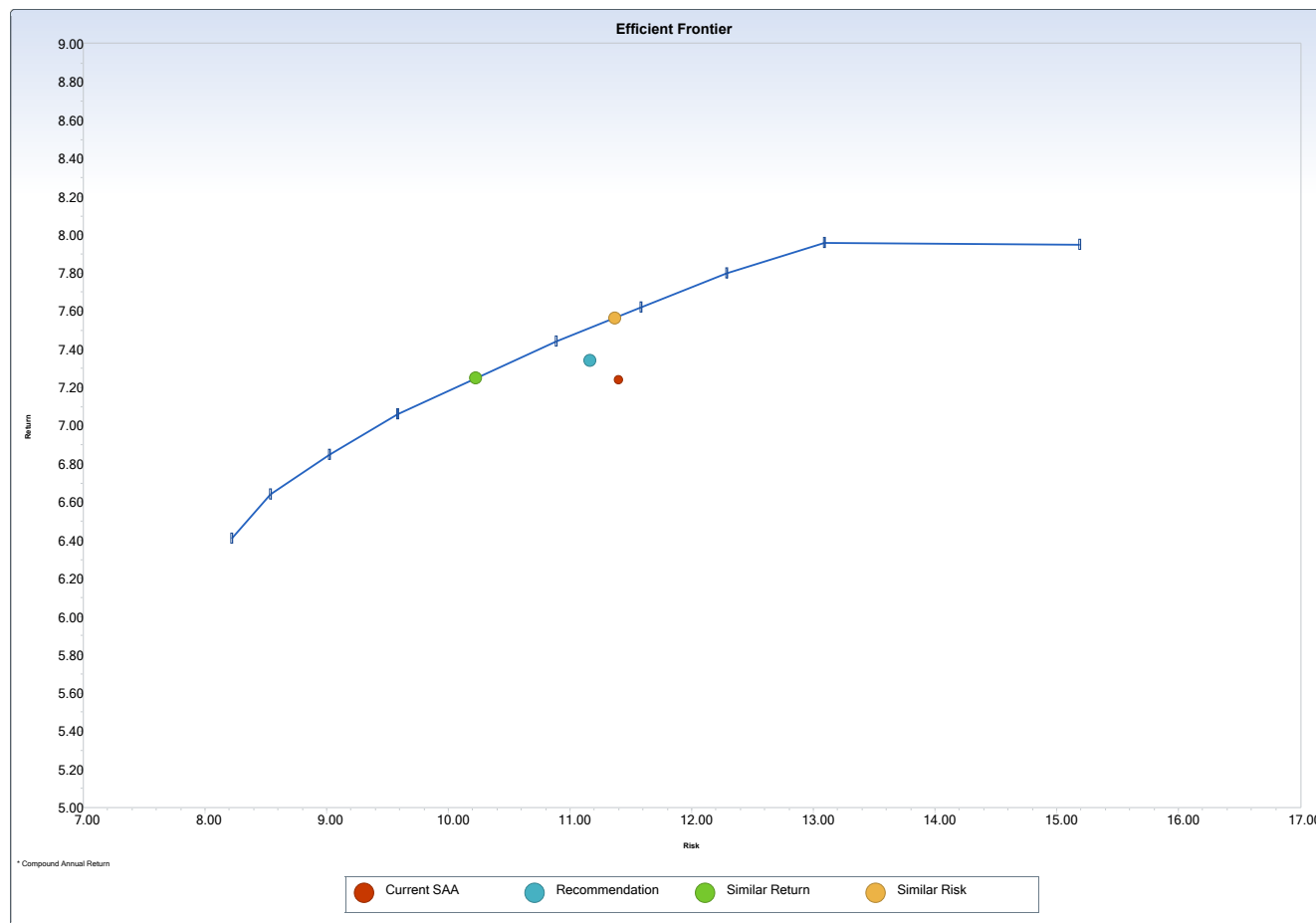
Using Wilshire’s December 31, 2022 Capital Market Assumptions

- Wilshire’s asset class return, risk and correlation assumptions are developed on multi-year forward looking expected rates of return and historical risk and correlation, adjusted to incorporate recent trends
- Public market return expectations represent a passive investment in the asset class (beta). They do not reflect value added from active management (alpha).

Asset Classes	Expected Return 10 Years	Expected Return 30 Years	Risk	Cash Yield	Factor Exposure Growth	Factor Exposure Inflation	Liquidity Market Level	Liquidity Stressed Metric
Domestic Equity	6.50	7.20	17.00	1.75	8.00	-3.00	1.00	0.00
International Equity	7.25	7.58	18.00	3.25	8.00	0.00	1.00	0.00
Global Equity	7.05	7.58	17.10	2.25	8.00	-1.30	0.90	0.00
Global Low Volatility Equity	7.10	7.62	13.78	2.59	6.40	-0.53	0.90	0.00
Private Equity	9.90	10.28	29.00	0.00	14.00	-3.75	0.00	0.00
Core Fixed Income	4.90	4.85	4.70	5.10	-0.95	-2.50	1.00	0.86
High Yield Fixed Income	6.55	6.78	10.00	9.65	4.00	-1.00	0.80	0.00
Private Credit Basket	8.65	7.95	11.24	7.61	4.50	-0.75	0.00	0.00
Cash	4.00	3.63	0.75	4.00	0.00	0.00	1.00	1.00
Credit Opportunities	7.41	7.30	10.33	5.35	4.67	0.00	0.00	0.00
REITs	5.65	6.45	17.50	3.95	6.00	1.00	0.90	0.00
Private Real Estate - Core	4.95	5.85	12.00	2.90	4.00	1.00	0.00	0.00
Private Real Estate - Value Add	7.95	8.60	17.50	1.45	3.00	1.00	0.00	0.00
Global Public Infrastructure	7.29	8.09	16.96	3.60	5.00	3.80	0.90	0.00
Marketable Alternatives	6.62	6.44	4.59	0.00	1.25	1.87	0.30	0.00

Asset Only Efficient Frontier

- Given the asset classes and constraints, opportunities to enhance portfolio efficiency do exist



Portfolios Modeled

Asset Class	Current Policy	Optimization Constraints	Similar Return Policy	Similar Risk Policy	Recommended Policy
US Equity	12.50%	10% - 80%	10.00%	10.00%	12.00%
Non US Equity	12.50%	10% - 80%	10.00%	10.00%	11.50%
Global Equity	7.50%	5% - 80%	5.00%	5.00%	5.00%
Global Low Volatility Equity	12.50%	5% - 80%	5.00%	5.00%	10.00%
Private Equity	7.50%	7.5% - 20%	9.25%	13.50%	10.00%
Total Growth Assets	52.50%		39.25%	43.50%	48.50%
High Yield	10.00%	0% - 10%	10.00%	10.00%	10.00%
Opportunistic Credit	5.00%	0% - 7.5%	7.50%	7.50%	4.00%
Private Credit	0.00%	0% - 2.5%	2.50%	2.50%	2.50%
Total Defensive Growth Assets	15.00%		20.00%	20.00%	16.50%
Core Fixed Income	15.00%	10% - 50%	22.50%	16.50%	17.50%
Cash	0.00%	0% - 10%	0.00%	0.00%	0.00%
Total Defensive / Rate Sensitive Assets	15.00%		22.50%	16.50%	17.50%
Real Estate Securities	2.50%	2.5% - 5%	2.50%	2.50%	2.50%
Private Real Estate - Core	5.00%	0% - 5%	5.00%	5.00%	5.00%
Private Real Estate - Value Add	2.50%	0% - 5%	5.00%	5.00%	2.50%
Public Listed Infrastructure	5.00%	0% - 5%	3.25%	5.00%	5.00%
Total RA / Inflation Sensitive Assets	15.00%		15.75%	17.50%	15.00%
Marketable Alternatives	2.50%	0% - 2.5%	2.50%	2.50%	2.50%
Total Diversifying	2.50%		2.50%	2.50%	2.50%
Total Assets	100.0%		100.0%	100.0%	100.0%
Expected Return - 10 Years (%)	7.24		7.25	7.56	7.34
Standard Deviation of Return (%)	11.40		10.23	11.37	11.17
+ / (-) in Expected Return - 10 Years (bps)			1	32	10
+ / (-) in SD of Return (bps)			(117)	(3)	(23)
Sharpe Ratio	0.28		0.32	0.31	0.30
Cash Yield	3.58		3.88	3.63	3.68

Wilshire’s Asset Allocation Committee (WAAC) maintains standard asset allocation parameters which reflect generally observed market practices for institutional asset owners (a table of these ranges is provided in the Appendix). While we expect most client portfolios will fall within these asset allocation ranges. Wilshire recognizes and occasionally recommends portfolio allocations that may diverge from these general ranges based on a client’s particular circumstances, goals or needs.

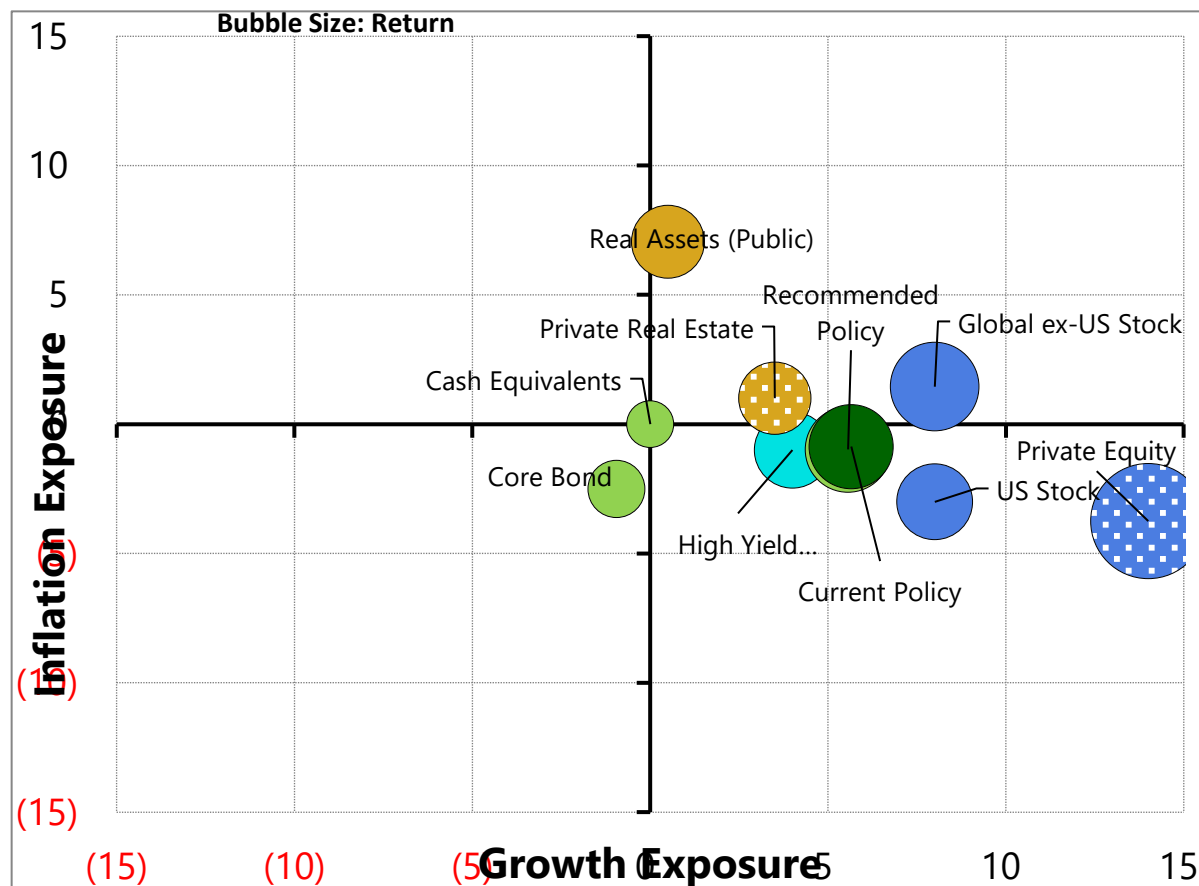
Portfolios Modeled

Asset Class	Current Policy	Similar Return Policy	Similar Risk Policy	Recommended Policy
<i>Total Growth Assets</i>	52.50%	39.25%	43.50%	48.50%
<i>Total Defensive Growth Assets</i>	15.00%	20.00%	20.00%	16.50%
<i>Total Defensive / Rate Sensitive Assets</i>	15.00%	22.50%	16.50%	17.50%
<i>Total RA / Inflation Sensitive Assets</i>	15.00%	15.75%	17.50%	15.00%
<i>Total Diversifying</i>	<u>2.50%</u>	<u>2.50%</u>	<u>2.50%</u>	<u>2.50%</u>
<i>Total Assets</i>	100.0%	100.0%	100.0%	100.0%
<i>Expected Return - 10 Years (%)</i>	7.24	7.25	7.56	7.34
<i>Standard Deviation of Return (%)</i>	11.40	10.23	11.37	11.17
<i>Cash Yield</i>	3.6	3.9	3.6	3.7
<i>Growth Factor</i>	5.7	5.0	5.7	5.6
<i>Inflation Factor</i>	-0.9	-1.1	-1.0	-1.0
<i>Liquidity</i>				
<i>Market</i>	73.0	65.0	61.0	70.0
<i>Stressed</i>	13.0	19.0	14.0	15.0

Wilshire’s Asset Allocation Committee (WAAC) maintains standard asset allocation parameters which reflect generally observed market practices for institutional asset owners (a table of these ranges is provided in the Appendix). While we expect most client portfolios will fall within these asset allocation ranges. Wilshire recognizes and occasionally recommends portfolio allocations that may diverge from these general ranges based on a client’s particular circumstances, goals or needs.

Economic Factor Exposures

- Concentrated factor tilts can represent portfolio vulnerability
- To the extent possible, portfolios with factor neutrality are desirable



Correlation Matrix

Capital Market Assumptions

Using Wilshire’s December 31, 2022 Capital Market Assumptions

- Wilshire’s asset class return, risk and correlation assumptions are developed on multi-year forward looking expected rates of return and historical risk and correlation, adjusted to incorporate recent trends
- Public market return expectations represent a passive investment in the asset class (beta). They do not reflect value added from active management (alpha).

	Domestic Equity	International Equity	Global Equity	Global Low Volatility Equity	Private Equity	Core Fixed Income	High Yield Fixed Income	Private Credit Basket	Cash	Credit Opportunities	REITs	Private Real Estate - Core	Private Real Estate - Value Add	Global Public Infrastructure
Return - 10-Year (%)	6.50	7.25	7.05	7.10	9.90	4.90	6.55	8.65	4.00	7.41	5.65	4.95	7.95	7.29
Risk (%)	17.00	18.00	17.10	13.78	29.00	4.70	10.00	11.24	0.75	10.33	17.50	12.00	17.50	16.96
Correlations														
Domestic Equity	1.00													
International Equity	0.81	1.00												
Global Equity	0.95	0.91	1.00											
Global Low Volatility Equity	0.93	0.89	0.97	1.00										
Private Equity	0.72	0.63	0.73	0.75	1.00									
Core Fixed Income	0.28	0.13	0.20	0.19	0.30	1.00								
High Yield Fixed Income	0.54	0.39	0.53	0.52	0.31	0.24	1.00							
Private Credit Basket	0.57	0.47	0.56	0.53	0.26	0.12	0.72	1.00						
Cash	-0.05	-0.09	-0.06	-0.04	0.00	0.18	-0.10	-0.05	1.00					
Credit Opportunities	0.59	0.52	0.61	0.61	0.37	0.26	0.74	0.90	-0.03	1.00				
REITs	0.58	0.47	0.57	0.64	0.49	0.17	0.56	0.59	-0.05	0.59	1.00			
Private Real Estate - Core	0.55	0.45	0.54	0.64	0.49	0.17	0.57	0.59	-0.05	0.59	0.85	1.00		
Private Real Estate - Value Add	0.50	0.40	0.49	0.58	0.46	0.17	0.54	0.58	-0.05	0.58	0.70	0.85	1.00	
Global Public Infrastructure	0.50	0.47	0.53	0.52	0.50	0.13	0.57	0.57	-0.01	0.58	0.53	0.50	0.47	1.00

Asset Allocation Ranges

Allowable Asset Allocation Ranges

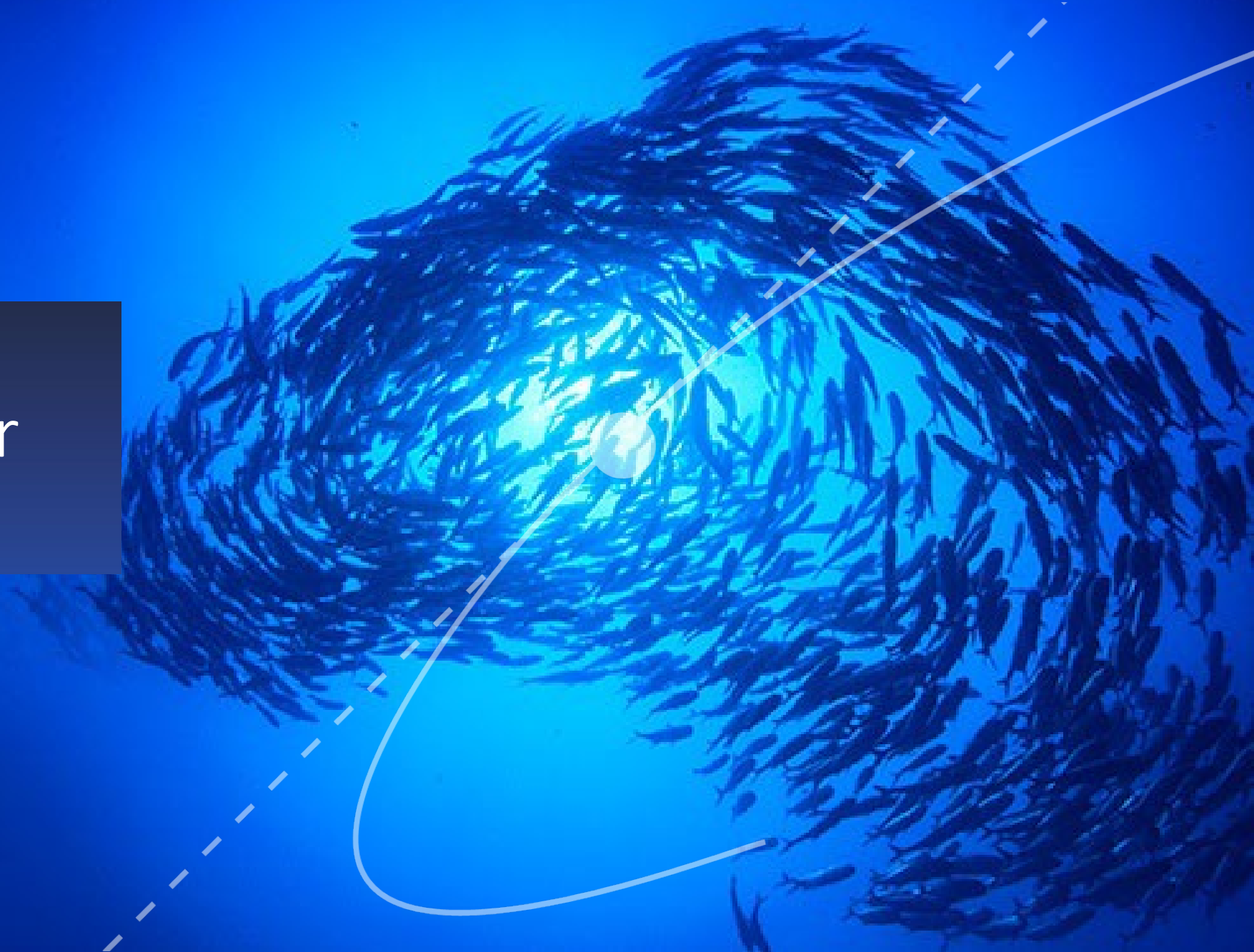
Wilshire’s Asset Allocation Committee (WAAC) maintains standard asset allocation parameters which reflect generally observed market practices for institutional asset owners. While Wilshire expects most client portfolios will fall within these asset allocation ranges. Wilshire recognizes and occasionally recommends portfolio allocations that may diverge from these general ranges based on a client’s particular circumstances, goals or needs.

Asset Segment	Corporate DB	Public DB	E&F
Total Equity (Public+Private)	0% - 80%		
Private Equity (Aggregate)	0% - 15%	0% - 20%	0% - 30%
Fixed Income (Core/High-quality - Liquid IG)	10% - 100%	10% - 50%	
Other Fixed Income/Credit (Aggregate)	0% - 25%		
Private/Illiquid Credit (Aggregate)	0% - 15%		
High Yield	0% - 10%		
Other: EMD, Loans, Convertibles	0% - 7.5%		
Total Real Assets (Public + Private)	0% - 25%		
Total Real Estate (Public + Private)	0% - 25%		
RA Other: Commodities, Gold, Infra, GLI, MLPs, O&G, Timber	0% - 5%		
Marketable Alternatives (Aggregate)	0% - 12.5%		0% - 20%
Cash	0% - 5%		
Leverage	0% - 20%		
Total Private/Illiquid	0% - 25%	0% - 35%	0% - 50%

These thresholds were informed by allocation information from Greenwich Associates, and Wilshire Advisors, LLC, universe data and will be reviewed for reasonableness from time to time.

**Last Updated 12/2021*

Efficient Frontier



Efficient Frontier Portfolios – Frontier 1

Asset Class	Current Policy	Optimization Constraints	Minimum Risk	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Maximum Risk
US Equity	12.50%	10% - 80%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Non US Equity	12.50%	10% - 80%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	12.04%	35.00%
Global Equity	7.50%	5% - 80%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Global Low Volatility Equity	12.50%	5% - 80%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Private Equity	7.50%	7.5% - 20%	7.50%	7.50%	7.50%	7.50%	9.26%	11.65%	14.44%	17.43%	20.00%	20.00%
Total Growth Assets	52.50%		37.50%	37.50%	37.50%	37.50%	39.26%	41.65%	44.44%	47.43%	52.04%	75.00%
High Yield	10.00%	0% - 10%	0.00%	0.00%	3.78%	10.00%	10.00%	10.00%	10.00%	10.00%	7.96%	0.00%
Opportunistic Credit	5.00%	0% - 7.5%	0.00%	4.60%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	0.00%
Private Credit	0.00%	0% - 2.5%	0.00%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Total Defensive Growth Assets	15.00%		0.00%	7.10%	13.78%	20.00%	20.00%	20.00%	20.00%	20.00%	17.96%	2.50%
Core Fixed Income	15.00%	10% - 50%	40.76%	32.90%	35.36%	27.23%	22.59%	18.80%	15.56%	12.57%	10.00%	10.00%
Cash	0.00%	0% - 10%	10.00%	10.00%	0.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Defensive / Rate Sensitive Assets	15.00%		50.76%	42.90%	36.22%	27.23%	22.59%	18.80%	15.56%	12.57%	10.00%	10.00%
Real Estate Securities	2.50%	2.5% - 5%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Private Real Estate - Core	5.00%	0% - 5%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Private Real Estate - Value Add	2.50%	0% - 5%	2.50%	2.50%	2.50%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Public Listed Infrastructure	5.00%	0% - 5%	0.00%	0.00%	0.00%	0.27%	3.16%	4.56%	5.00%	5.00%	5.00%	0.00%
Total RA / Inflation Sensitive Assets	15.00%		10.00%	10.00%	10.00%	12.77%	15.66%	17.06%	17.50%	17.50%	17.50%	12.50%
Marketable Alternatives	2.50%	0% - 2.5%	1.74%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	0.00%
Total Diversifying	2.50%		1.74%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	0.00%
Total Assets	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Expected Return - 10 Years (%)	7.24		6.41	6.64	6.85	7.06	7.25	7.44	7.62	7.80	7.96	7.95
Standard Deviation of Return (%)	11.40		8.22	8.54	9.02	9.58	10.23	10.89	11.58	12.29	13.09	15.19
+ / (-) in Expected Return - 10 Years (bps)			(83)	(60)	(39)	(18)	1	20	38	56	72	71
+ / (-) in SD of Return (bps)			(318)	(286)	(238)	(182)	(117)	(51)	18	89	169	379
Sharpe Ratio	0.28		0.28	0.30	0.30	0.31	0.31	0.30	0.30	0.30	0.29	0.25
Cash Yield	3.58		3.50	3.54	3.82	4.01	3.88	3.74	3.59	3.44	3.17	2.57

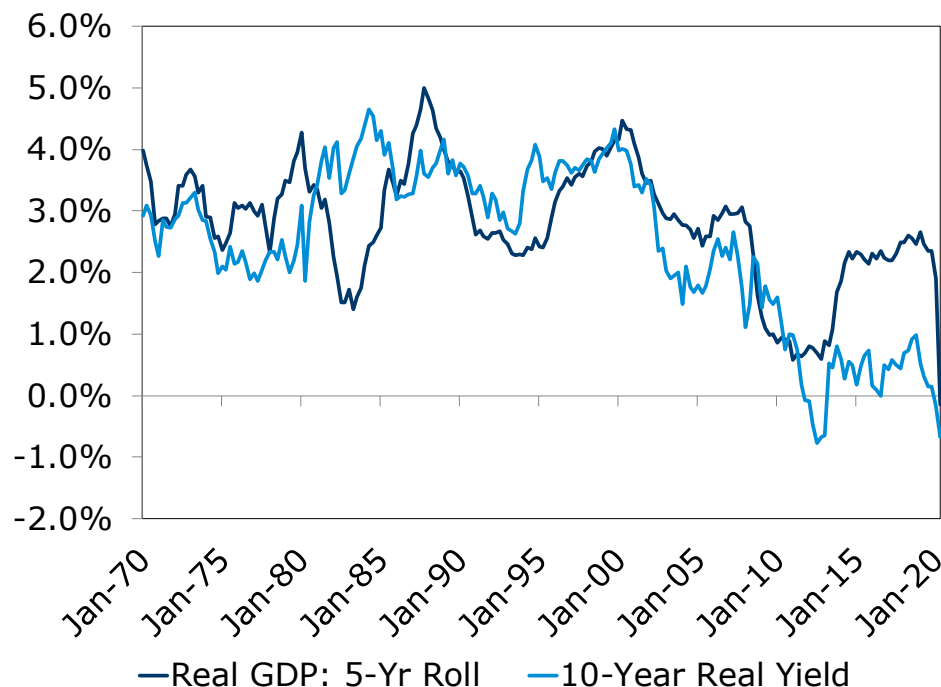
Economic Factor Exposures

Why Introduce Factors?

- **Risk Assessment:** Including factors within the asset allocation process provides an opportunity to measure asset class (and portfolio) exposures to key economic factors
- **Economic Efficiency:** If the underlying economic activity that drives asset performance can be identified, perhaps it can be used to assist in building economically-efficient portfolios
- **Portfolio Stability:** Macroeconomic risk factors – when separated from the valuation component inherent in investment pricing – may exhibit more stable correlations and, therefore, can better inform the allocation process

Growth Proxy

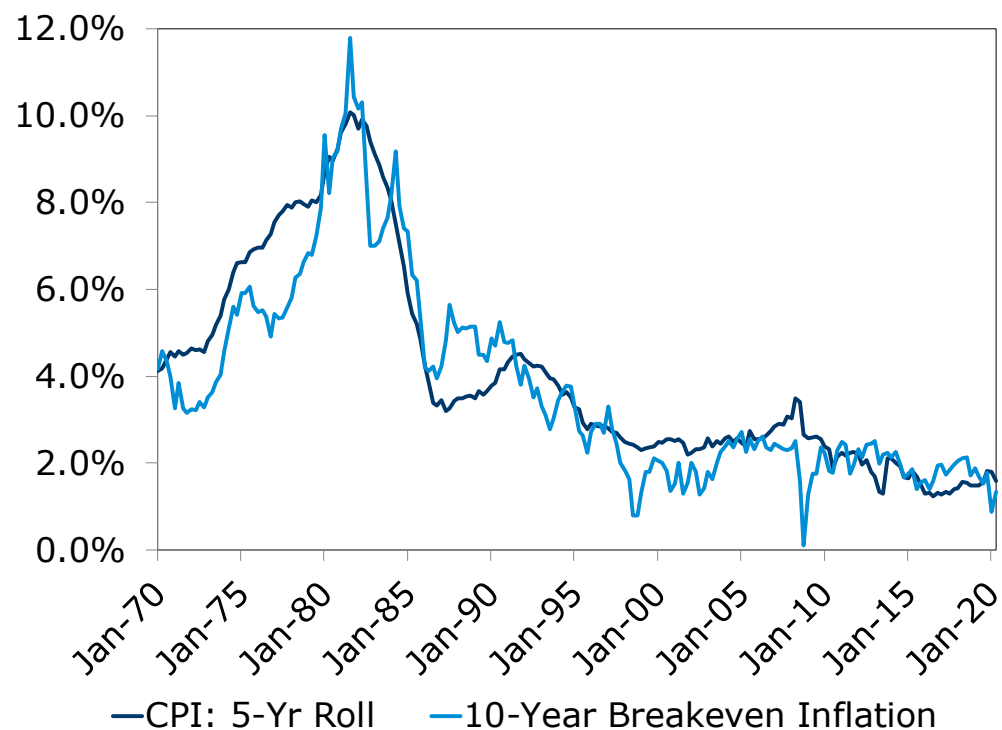
- Interest rates contain information and can reflect economic factors
- Nominal yields aggregate two important and distinct sources of economic information – real yields and expected inflation
- Disaggregating these factors should prove beneficial in developing a set of factors with improved explanatory power



Data Source: Federal Reserve, Bridgewater

Inflation Proxy

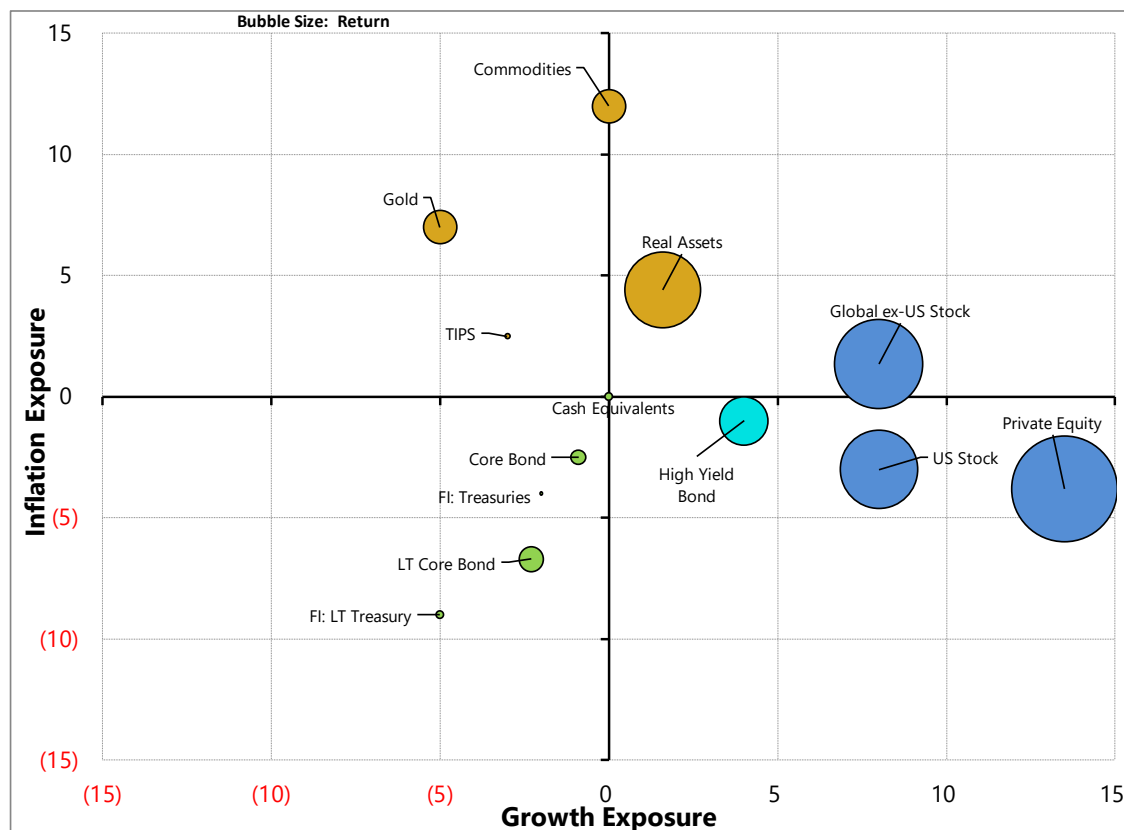
- Breakeven inflation is the market's expectation for inflation
- Tends to follow closely with actual, recent inflation and can act as a timely signal of trends in consumer prices



Data Source: Federal Reserve, Bridgewater

Wilshire's Approach

- Employ a 2-factor regression model (growth and inflation) to formulate factor assumptions
- Growth proxy is enhanced by high yield bond spreads to better capture shifts in growth forecasts



Liquidity



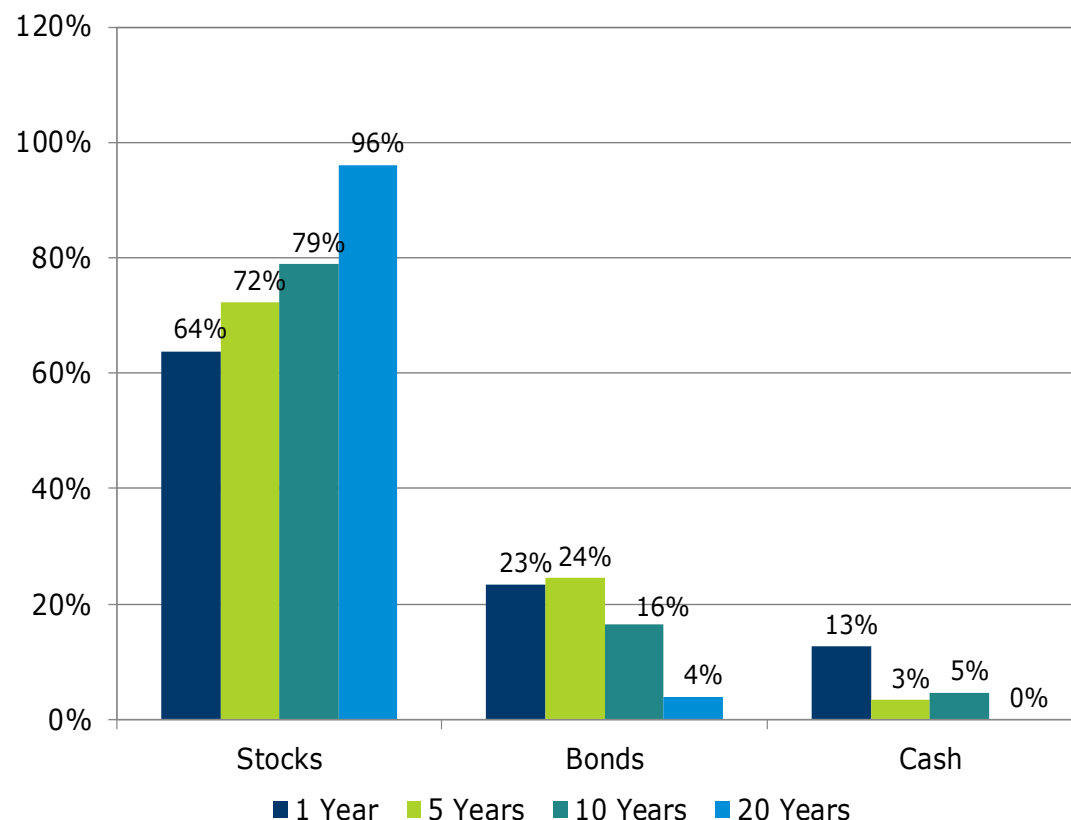
Liquidity Risk: What Are The Consequences?

Default/Insolvency is the most severe outcome from having insufficient liquidity, but...

There are many other, more likely, disruptive impacts that a lack of liquidity can impose on an investment portfolio

- Liquidity breaches can rob an investor of their biggest advantage: a long-term investment horizon
- The timing and price of such sales dictated by liquidity needs rather than by explicit investment rationale
- Can destroy portfolio value and effectively strip a portfolio from its ability to recover from market sell-offs

ASSET CLASS WINNING PERCENTAGES (1926-2019)



Wilshire Liquidity Metric

Wilshire's Liquidity Metric framework has two levels:

- **Market Level of Liquidity**
- **Overall Level of Liquidity**

Market Level of Liquidity

- Quantified on scale from 0% (low liquidity) to 100% (high liquidity)
- Designed to capture general notion of marketable versus private/off-market transactions
 - Marketable asset classes typically reflect a 90% or 100%
 - Private asset classes reflect 0%
- Goal is to reflect the tradability of assets, which is helpful in connecting these values back to our definitional framework (i.e., to quantify the differences between Convertible Liquidity and Delayed Liquidity)

Wilshire Liquidity Metric

Wilshire's Liquidity Metric framework has two levels:

- **Market Level of Liquidity**
- **Overall Level of Liquidity**

Overall Liquidity Metric

Includes a penalty process to reflect the loss in practical liquidity due to asset class volatility and sensitivity to particular economic environments

Penalty components:

1. **Growth Penalty:**
 - Impacts asset classes with vulnerability to slowing growth
 - Recognizes the hit to liquidity that can occur during growth related bear markets
2. **Inflation Penalty:**
 - Impacts asset classes with vulnerability to rising inflation
 - Recognizes the hit to liquidity that can occur during inflation driven bear markets
3. **Volatility Penalty:**
 - Impacts higher volatility asset classes
 - Recognizes the hit to liquidity that can occur from any form of volatility

Wilshire Stressed Liquidity Metric

Stressed Level of Liquidity Metric

Asset Class	Market Liquidity	Liquidity Penalty Components			Applied Penalty	Stressed Liquidity
		Growth	Inflation	Volatility		
US Equity	100	50		24	50	0
Dev ex-US Equity	100	50		26	50	0
EM Equity	90	50		40	50	0
Private Equity	0	50		40	0	0
Cash Equivalents	100				0	100
Core Bonds	100		8		8	86
High Yield Bonds	80	40		10	40	0
US Real Estate Securities	90	50		24	50	0
Private Real Estate	0	50		18	0	0
Commodities	90			20	20	55

Applied Penalty = Min(Max(Growth + Inflation, Volatility), Market Liquidity)

Stressed Liquidity * = Market Liquidity - (1.75 x Applied Penalty)

* If less than 20, Stressed Liquidity is assumed to be 0

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DISCUSSION SHEET

Employees' Retirement Fund
Board of Trustees Meeting

April 11, 2023

Issue: Financial Institutions Exposure Update

Attachment: None, informational purposes

Discussion: ERF staff has been following recent developments within the Financials sector and is tracking any direct and indirect exposure to Systemically Important Financial Institutions ("SIFI") in addition to at-risk non-SIFI exposure within the ERF portfolio:

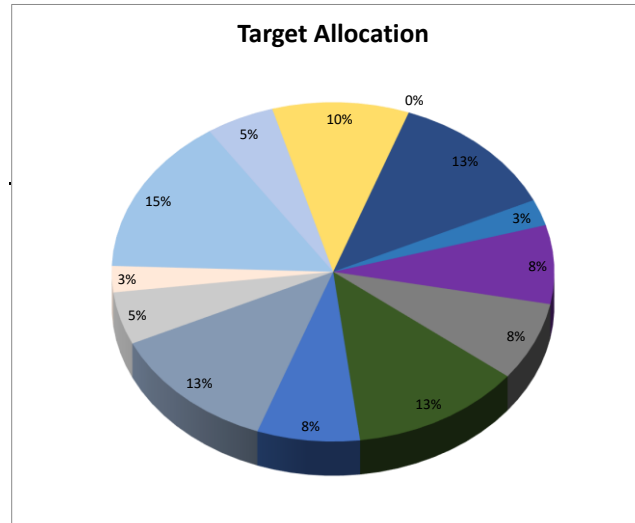
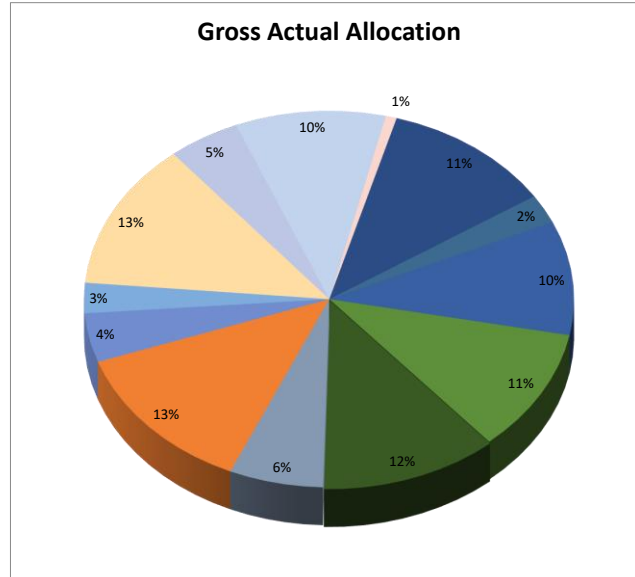
Direct exposure: \$2,546,610.00 or 7bps or .07% of total Fund AUM held in Credit Suisse and SVB bonds.

Indirect exposure: No financial risk found to date; operational risk immaterial; however all exposures regardless of size, will be continually monitored by the ERF Investment Team.

Asset Allocation: Actual vs. Target

February 28, 2023

	Market Value	Gross Actual Allocation	Target Allocation	% Difference from Allocation
EQUITY				
CHANNING CAPITAL	34,985,018.27	0.99		
REDWOOD- SL	28,596,932.94	0.81		
SYSTEMATIC	65,568,856.70	1.85		
<i>Total Small Cap</i>	129,150,807.91	3.64		
SMITH GRAHAM	74,179,886.98	2.09		
T. ROWE PRICE	139,735,792.79	3.94		
<i>Total Domestic/Enhanced equity</i>	213,915,679.77	6.03		
NTGI S&P 500 EQUITY INDEX	60,134,286.92	1.69		
<i>Total Index</i>	60,134,286.92	1.69		
<i>Total Domestic</i>	403,200,774.60	11.36	12.50	-1.14
ADELANTE CAPITAL	43,570,099.96	1.23		
CENTERSQUARE-SL	44,275,430.82	1.25		
<i>Total REITS</i>	87,845,530.78	2.48	2.50	-0.02
AEW PARTNERS	38,726,921.00	1.09		
BRASA CAPITAL MGMT	9,353,431.00	0.26		
HEITMAN	105,944,228.89	2.99		
INVESCO	84,217,125.61	2.37		
INVESCO - SL	80,039,512.00	2.26		
VIRTUS REAL ESTATE CAP	29,124,742.00	0.82		
<i>Total Real Estate</i>	347,405,960.50	9.79	7.50	2.29
FAIRVIEW CAPITAL	91,510,245.00	2.58		
GROSVENOR GCM - CFGI	174,454,485.00	4.92		
HAMILTON LANE	110,421,030.00	3.11		
<i>Total Private Equity</i>	376,385,760.00	10.61	7.50	3.11
ACADIAN	105,669,533.18	2.98		
AQR CAPITAL	119,507,787.24	3.37		
AQR CAPITAL MGMT - Russia	1.01	0.00		
ATIVO	30,081,220.69	0.85		
BAILLIE GIFFORD	67,505,512.25	1.90		
EARNEST PARTNERS	93,454,068.90	2.63		
<i>Total International</i>	416,218,123.27	11.73	12.50	-0.77
ARIEL	97,572,675.10	2.75		
WELLINGTON MGMT	122,410,894.34	3.45		
<i>Total Global Equity</i>	219,983,569.44	6.20	7.50	-1.30
ACADIAN-LVG	235,474,899.58	6.64		
BLACKROCK	225,280,034.47	6.35		
<i>Total Global Low Volatility Equity</i>	460,754,934.05	12.98	12.50	0.48
ATLANTIC TRUST	44,369,132.22	1.25		
HARVEST FUND	48,315,872.67	1.36		
COHEN & STEERS	56,908,766.26	1.60		
<i>Total Global Listed Infrastructure</i>	149,593,771.15	4.22	5.00	-0.78
DAVIDSON KEMPNER INST PTRS	46,359,738.00	1.31		
HUDSON BAY CAPITAL	45,669,170.00	1.29		
<i>Total Marketable Alternatives</i>	92,028,908.00	2.59	2.50	0.09
TOTAL EQUITY	2,553,417,331.79	71.95	70.00	1.95
FIXED INCOME				
GARCIA HAMILTON	146,636,746.11	4.13		
WESTERN ASSET MANAGEMENT	151,133,082.25	4.26		
WELLINGTON-CORE BOND	150,372,594.47	4.24		
<i>Total Investment Grade</i>	448,142,422.83	12.63	15.00	-2.37
NEUBERGER BERMAN	169,145,366.24	4.77		
<i>Total Opportunistic Credit</i>	169,145,366.24	4.77	5.00	-0.23
BLACKROCK-HY	173,256,762.40	4.88		
OAKTREE	179,136,573.56	5.05		
<i>Total High Yield</i>	352,393,335.96	9.93	10.00	-0.07
CASH ACCOUNT	25,729,103.79	0.73		
<i>Total Short Term</i>	25,729,103.79	0.73	0.00	0.73
TOTAL FIXED INCOME	995,410,228.82	28.05	30.00	-1.95
TOTAL FUND	\$ 3,548,827,560.61			



ASSET ALLOCATION COMPARISON

March 31, 2023

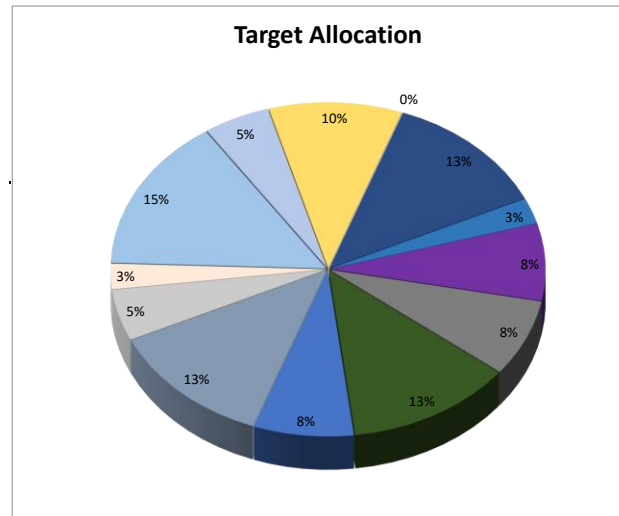
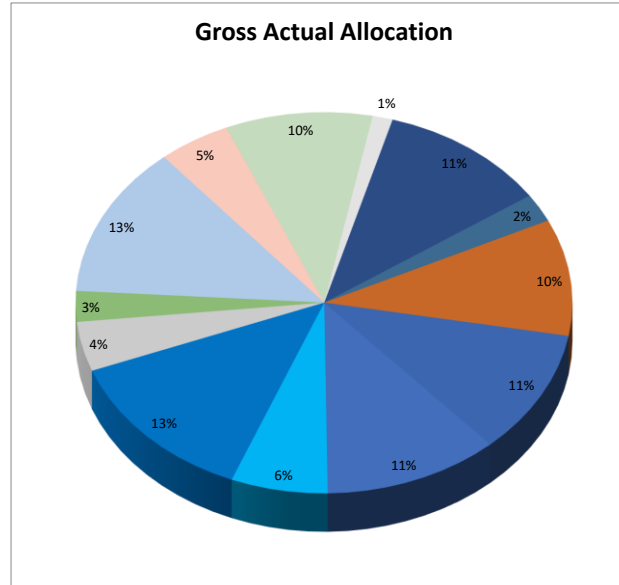
	Market Value	% of Total Fund	Allocation Policy	% Difference from Allocation	Prior Period Market Value	Prior Period % of Total Fund
EQUITY						
CHANNING CAPITAL	25,952,898.16	0.73			34,985,018.27	0.99
REDWOOD- SL	28,255,133.31	0.79			28,596,932.94	0.81
SYSTEMATIC	62,936,353.56	1.76			65,568,856.70	1.85
<i>Total Small Cap</i>	117,144,385.03	3.27			129,150,807.91	3.64
SMITH GRAHAM	71,061,158.89	1.99			74,179,886.98	2.09
T. ROWE PRICE	145,041,055.21	4.05			139,735,792.79	3.94
<i>Total Domestic/Enhanced equity</i>	216,102,214.10	6.04			213,915,679.77	6.03
NTGI S&P 500 EQUITY INDEX	62,341,739.82	1.74			60,134,286.92	1.69
<i>Total Index</i>	62,341,739.82	1.74			60,134,286.92	1.69
<i>Total Domestic</i>	395,588,338.95	11.06	12.50	-1.44	403,200,774.60	11.36
ADELANTE CAPITAL	42,682,215.06	1.19			43,570,099.96	1.23
CENTERSQUARE-SL	43,230,098.93	1.21			44,275,430.82	1.25
<i>Total REITS</i>	85,912,313.99	2.40	2.50	-0.10	87,845,530.78	2.48
AEW PARTNERS	43,375,614.00	1.21			38,726,921.00	1.09
BRASA CAPITAL MGMT	9,353,431.00	0.26			9,353,431.00	0.26
HEITMAN	105,944,228.89	2.96			105,944,228.89	2.99
INVESCO	79,941,528.00	2.35			80,039,512.00	2.37
INVESCO - SL	84,217,125.61	2.23			84,217,125.61	2.26
LONG WHARF CAPITAL	2,158,516.00	0.06			-	0.00
VIRTUS REAL ESTATE CAP	29,124,742.00	0.81			29,124,742.00	0.82
<i>Total Real Estate</i>	354,115,185.50	9.90	7.50	2.40	347,405,960.50	9.79
FAIRVIEW CAPITAL	91,643,589.00	2.56			91,510,245.00	2.58
GROSVENOR GCM - CFG	175,521,230.00	4.91			174,454,485.00	4.92
HAMILTON LANE	109,760,387.00	3.07			110,421,030.00	3.11
<i>Total Private Equity</i>	376,925,206.00	10.54	7.50	3.04	376,385,760.00	10.61
ACADIAN	106,304,314.95	2.97			105,669,533.18	2.98
AQR CAPITAL	119,334,420.08	3.34			119,507,787.24	3.37
AQR CAPITAL MGMT - Russia	1.01	0.00			1.01	0.00
ATIVO	30,759,755.06	0.86			30,081,220.69	0.85
BAILLIE GIFFORD	71,096,826.67	1.99			67,505,512.25	1.90
EARNEST PARTNERS	81,823,610.91	2.29			93,454,068.90	2.63
<i>Total International</i>	409,318,928.68	11.44	12.50	-1.06	416,218,123.27	11.73
ARIEL	100,238,533.30	2.80			97,572,675.10	2.75
WELLINGTON MGMT	124,872,802.78	3.49			122,410,894.34	3.45
<i>Total Global Equity</i>	225,111,336.08	6.29	7.50	-1.21	219,983,569.44	6.20
ACADIAN-LVG	235,130,765.89	6.57			235,474,899.58	6.64
BLACKROCK	233,932,303.97	6.54			225,280,034.47	6.35
<i>Total Global Low Volatility Equity</i>	469,063,069.86	13.11	12.50	0.61	460,754,934.05	12.98
ATLANTIC TRUST	44,189,358.95	1.24			44,369,132.22	1.25
HARVEST FUND	48,145,903.66	1.35			48,315,872.67	1.36
COHEN & STEERS	58,049,969.57	1.62			56,908,766.26	1.60
<i>Total Global Listed Infrastructure</i>	150,385,232.18	4.20	5.00	-0.80	149,593,771.15	4.22
DAVIDSON KEMPNER INST PTRS	46,462,275.00	1.30			46,359,738.00	1.31
HUDSON BAY CAPITAL	46,452,173.00	1.30			45,669,170.00	1.29
<i>Total Marketable Alternatives</i>	92,914,448.00	2.60	2.50	0.10	92,028,908.00	2.59
TOTAL EQUITY	2,559,334,059.24	71.54	70.00	1.54	2,553,417,331.79	71.95
FIXED INCOME						
GARCIA HAMILTON	150,989,469.85	4.22			146,636,746.11	4.13
WESTERN ASSET MANAGEMENT	155,376,330.62	4.34			151,133,082.25	4.26
WELLINGTON-CORE BOND	153,850,356.60	4.30			150,372,594.47	4.24
<i>Total Investment Grade</i>	460,216,157.07	12.86	15.00	-2.14	448,142,422.83	12.63
NEUBERGER BERMAN	168,295,711.15	4.70			169,145,366.24	4.77
<i>Total Opportunistic Credit</i>	168,295,711.15	4.70	5.00	-0.30	169,145,366.24	4.77
BLACKROCK-HY	176,170,792.13	4.92			173,256,762.40	4.88
OAKTREE	166,583,030.59	4.66			179,136,573.56	5.05
<i>Total High Yield</i>	342,753,822.72	9.58	10.00	-0.42	352,393,335.96	9.93
CASH ACCOUNT	47,137,038.65	1.32			25,729,103.79	0.73
<i>Total Short Term</i>	47,137,038.65	1.32	0.00	1.32	25,729,103.79	0.73
TOTAL FIXED INCOME	1,018,402,729.59	28.46	30.00	-1.54	995,410,228.82	28.05

TOTAL FUND	\$	3,577,736,788.83	\$	3,548,827,560.61
Market Value YE 2022	\$	3,534,487,750.77		
			Market Value Variance	
			Change from YE 2022:	\$ 43,249,038.06
			Change from prior month:	\$ 28,909,228.22

Asset Allocation: Actual vs. Target

March 31, 2023

	Market Value	Gross Actual Allocation	Target Allocation	% Difference from Allocation
EQUITY				
CHANNING CAPITAL	25,952,898.16	0.73		
REDWOOD- SL	28,255,133.31	0.79		
SYSTEMATIC	62,936,353.56	1.76		
<i>Total Small Cap</i>	117,144,385.03	3.27		
SMITH GRAHAM	71,061,158.89	1.99		
T. ROWE PRICE	145,041,055.21	4.05		
<i>Total Domestic/Enhanced equity</i>	216,102,214.10	6.04		
NTGI S&P 500 EQUITY INDEX	62,341,739.82	1.74		
<i>Total Index</i>	62,341,739.82	1.74		
Total Domestic	395,588,338.95	11.06	12.50	-1.44
ADELANTE CAPITAL	42,682,215.06	1.19		
CENTERSQUARE-SL	43,230,098.93	1.21		
<i>Total REITS</i>	85,912,313.99	2.40	2.50	-0.10
AEW PARTNERS	43,375,614.00	1.21		
BRASA CAPITAL MGMT	9,353,431.00	0.26		
HEITMAN	105,944,228.89	2.96		
INVESCO	79,941,528.00	2.35		
INVESCO - SL	84,217,125.61	2.23		
LONG WHARF CAPITAL	2,158,516.00	0.06		
VIRTUS REAL ESTATE CAP	29,124,742.00	0.81		
<i>Total Real Estate</i>	354,115,185.50	9.90	7.50	2.40
FAIRVIEW CAPITAL	91,643,589.00	2.56		
GROSVENOR GCM - CFGI	175,521,230.00	4.91		
HAMILTON LANE	109,760,387.00	3.07		
<i>Total Private Equity</i>	376,925,206.00	10.54	7.50	3.04
ACADIAN	106,304,314.95	2.97		
AQR CAPITAL	119,334,420.08	3.34		
AQR CAPITAL MGMT - Russia	1.01	0.00		
ATIVO	30,759,755.06	0.86		
BAILLIE GIFFORD	71,096,826.67	1.99		
EARNEST PARTNERS	81,823,610.91	2.29		
<i>Total International</i>	409,318,928.68	11.44	12.50	-1.06
ARIEL	100,238,533.30	2.80		
WELLINGTON MGMT	124,872,802.78	3.49		
<i>Total Global Equity</i>	225,111,336.08	6.29	7.50	-1.21
ACADIAN-LVG	235,130,765.89	6.57		
BLACKROCK	233,932,303.97	6.54		
<i>Total Global Low Volatility Equity</i>	469,063,069.86	13.11	12.50	0.61
ATLANTIC TRUST	44,189,358.95	1.24		
HARVEST FUND	48,145,903.66	1.35		
COHEN & STEERS	58,049,969.57	1.62		
<i>Total Global Listed Infrastructure</i>	150,385,232.18	4.20	5.00	-0.80
DAVIDSON KEMPNER INST PTRS	46,462,275.00	1.30		
HUDSON BAY CAPITAL	46,452,173.00	1.30		
<i>Total Marketable Alternatives</i>	92,914,448.00	2.60	2.50	0.10
TOTAL EQUITY	2,559,334,059.24	71.54	70.00	1.54
FIXED INCOME				
GARCIA HAMILTON	150,989,469.85	4.22		
WESTERN ASSET MANAGEMENT	155,376,330.62	4.34		
WELLINGTON-CORE BOND	153,850,356.60	4.30		
<i>Total Investment Grade</i>	460,216,157.07	12.86	15.00	-2.14
NEUBERGER BERMAN	168,295,711.15	4.70		
<i>Total Opportunistic Credit</i>	168,295,711.15	4.70	5.00	-0.30
BLACKROCK-HY	176,170,792.13	4.92		
OAKTREE	166,583,030.59	4.66		
<i>Total High Yield</i>	342,753,822.72	9.58	10.00	-0.42
CASH ACCOUNT	47,137,038.65	1.32		
<i>Total Short Term</i>	47,137,038.65	1.32	0.00	1.32
TOTAL FIXED INCOME	1,018,402,729.59	28.46	30.00	-1.54
TOTAL FUND	\$ 3,577,736,788.83			



DISCUSSION SHEET

Employees' Retirement Fund
Board of Trustees Meeting

April 11, 2023

Issue: Second Quarter Cash Rebalance

Attachment: None, informational purposes

Discussion: During the month of March, ERF staff rebalanced fund managers taking \$40 million in cash to pay benefits for the Second Quarter of 2023.

Redemptions for Second Quarter cash needs were as follows: \$12 million from Earnest Partners, \$12 million from Oaktree Capital, \$9 million from Acadian Asset Management, and \$7 million from Channing Capital.

Wilshire

Dallas Employees' Retirement Fund

Monthly Investment Summary

February 28, 2023

Monthly Index Performance

Periods Ended February 28, 2023

	Performance (%)					
	1 Month	QTD	YTD	1 Year	3 Years	5 Years
U.S. Equity						
FT Wilshire 5000 Index	-2.34	4.40	4.40	-8.10	12.11	9.64
S&P 500 Index	-2.44	3.69	3.69	-7.69	12.15	9.82
Wilshire 4500 Completion Index	-1.61	8.58	8.58	-9.51	11.36	8.13
MSCI USA Minimum Volatility Index	-3.43	-2.01	-2.01	-2.46	6.59	8.34
U.S. Equity by Size/Style						
Wilshire U.S. Large-Cap Index	-2.39	4.02	4.02	-8.37	12.20	10.09
Wilshire U.S. Large-Cap Growth Index	-1.19	8.28	8.28	-13.65	12.19	10.26
Wilshire U.S. Large-Cap Value Index	-3.60	0.01	0.01	-2.19	11.95	9.09
Wilshire U.S. Small-Cap Index	-1.72	8.41	8.41	-4.83	11.61	7.18
Wilshire U.S. Small-Cap Growth Index	-0.85	10.10	10.10	-5.49	10.01	6.65
Wilshire U.S. Small-Cap Value Index	-2.52	6.89	6.89	-4.24	13.17	7.28
Wilshire U.S. Micro-Cap Index	-2.11	6.91	6.91	-12.01	5.75	1.64
Non-U.S. Equity (USD)						
MSCI AC World ex USA (Net)	-3.51	4.32	4.32	-7.19	5.27	1.62
MSCI ACWI ex USA Minimum Volatility Index (Net)	-3.10	0.04	0.04	-10.08	1.58	1.30
MSCI EAFE (Net)	-2.09	5.84	5.84	-3.14	6.84	2.64
MSCI Emerging Markets (Net)	-6.48	0.90	0.90	-15.28	0.97	-1.87
MSCI AC World ex USA Small Cap (Net)	-2.55	4.46	4.46	-9.67	7.03	1.39
U.S. Fixed Income						
Blmbg. U.S. Aggregate Index	-2.59	0.41	0.41	-9.72	-3.77	0.53
Blmbg. U.S. Treasury: Long	-4.74	1.36	1.36	-24.09	-10.96	-0.68
Blmbg. U.S. Long Corporate Index	-5.45	1.08	1.08	-17.49	-7.21	0.42
Blmbg. U.S. TIPS Index	-1.37	0.44	0.44	-10.40	0.20	2.57
Blmbg. U.S. Credit Index	-3.01	0.69	0.69	-10.15	-3.82	1.05
Blmbg. U.S. Corp: High Yield Index	-1.29	2.47	2.47	-5.46	1.34	2.87
S&P LSTA Leverage Loan Index	0.82	3.58	3.58	3.11	4.00	3.78

Asset Allocation & Performance

Dallas Total Fund

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Global Equity Composite	-2.70	0.95	2.93	-4.54	8.43	5.18	8.14	9/1/2012	219,983,569	6.20
Global Low Volatility Composite	-3.19	-2.88	-1.18	-4.63	4.15	4.29	6.23	7/1/2015	460,754,934	12.98
Domestic Equity Composite	-1.95	-0.85	5.58	-6.42	13.66	9.10	10.09	1/1/1990	403,200,775	11.36
International Equity Composite	-2.50	5.02	5.88	-6.74	7.51	2.11	5.38	1/1/1990	416,218,123	11.73
Fixed Income Composite	-2.78	0.36	0.83	-9.26	-3.00	0.86	4.26	10/1/1995	448,142,423	12.63
High Yield Composite	-1.38	0.92	2.27	-4.94	1.71	2.73	5.85	1/1/1997	352,393,336	9.93
Credit Opportunities Composite	-1.16	3.03	2.57	-4.65	-0.07	1.80	3.95	2/1/2016	169,145,366	4.77
Total Real Estate Composite	-0.93	-2.71	1.20	2.11	8.96	8.98	6.80	1/1/1990	435,251,491	12.26
Global Listed Infrastructure Composite	-2.61	-2.29	1.93	10.52	11.36	4.40	4.90	1/1/2012	149,593,771	4.22
Private Equity Composite	-0.18	-1.39	-0.20	8.47	16.65	15.74	14.21	6/1/2009	376,385,760	10.61
Marketable Alternatives Composite	1.12	2.22	1.12				2.25	10/1/2022	92,028,908	2.59
Managed Short Term Composite	0.33	1.00	0.64	2.10	0.84	1.35	2.74	1/1/1990	25,729,104	0.73
Dallas Total Fund	-1.85	-0.11	2.00	-3.45	6.41	5.21	8.68	1/1/1985	3,548,827,561	100.00
Policy Index	-1.93	-0.10	2.39	-6.21	5.66	4.90	9.16			

Asset Allocation & Performance

Domestic Equity

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Systematic Financial	-0.90	0.26	5.98	-1.49	14.53	6.97	10.51			
Russell 2000 Index	-1.69	0.89	7.89	-6.01	10.08	6.01	8.74	8/1/2003	65,568,857	16.26
Redwood Investments *	-0.80	-4.71	5.52	-20.80	7.38	4.45	5.76			
Russell 2000 Growth Index	-1.08	1.78	8.76	-7.92	6.51	5.06	7.96	10/1/2016	28,596,933	7.09
Channing Capital *	-1.87	1.36	9.46	-9.88	13.74	5.79	6.51			
Russell 2000 Value Index	-2.31	0.00	7.02	-4.40	12.87	6.38	6.74	12/1/2013	34,985,018	8.68
Domestic Equity Small Cap Composite	-1.14	-0.54	6.71	-8.17	13.00	6.33	9.17			
								6/1/2003	129,150,808	32.03
Smith Graham *	-2.24	1.65	7.82	1.01	18.95	9.20	9.06			
Russell Midcap Index	-2.43	-0.03	5.68	-4.99	11.46	8.40	8.01	1/1/2018	74,179,887	18.40
T. Rowe Price	-2.33	-1.76	4.22	-7.89	12.34	10.19	9.54			
S&P 500 Index	-2.44	-2.28	3.69	-7.69	12.15	9.82	9.02	4/1/2006	139,735,793	34.66
Northern Trust S&P 500 (Lending)	-2.44	-2.28	3.69	-8.59	11.73	9.59	10.02			
S&P 500 Index	-2.44	-2.28	3.69	-7.69	12.15	9.82	10.02	1/1/1995	60,134,287	14.91
Domestic Equity Composite	-1.95	-0.85	5.58	-6.42	13.66	9.10	10.09			
FT Wilshire 5000	-2.34	-1.73	4.40	-8.10	12.11	9.64	10.11	1/1/1990	403,200,775	100.00

* Domestic Equity Composite Since Inception benchmark includes S&P 500 until March, 1999.

Asset Allocation & Performance

International Equity

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian International	-2.50	3.95	4.14	-7.26	10.81	2.32	8.10	4/1/1989	105,669,533	25.39
Custom Benchmark	-2.55	4.63	4.46	-9.67	7.03	1.39	5.66			
Ativo International *	-1.59	4.27	5.04	-7.82	3.42	1.51	1.32	1/1/2018	30,081,221	7.23
MSCI EAFE (Net)	-2.09	5.93	5.84	-3.14	6.84	2.64	2.61			
AQR Capital Management	-2.23	6.21	6.55	-4.55	5.09	-0.03	3.05	4/1/2006	119,507,787	28.71
Custom Benchmark	-3.51	3.54	4.32	-7.19	5.27	1.62	2.87			
Baillie Gifford	-3.43	5.37	7.40	-11.14	1.90		3.22	4/1/2019	67,505,512	16.22
MSCI AC World ex USA (Net)	-3.51	3.54	4.32	-7.19	5.27		3.67			
Earnest Partners *	-2.45	4.86	6.35	-5.09	10.32		6.98	4/1/2019	93,454,069	22.45
MSCI AC World ex USA (Net)	-3.51	3.54	4.32	-7.19	5.27		3.67			
International Equity Composite	-2.50	5.02	5.88	-6.74	7.51	2.11	5.38	1/1/1990	416,218,123	100.00
Custom Benchmark	-3.38	3.69	4.34	-7.55	5.49	1.58	4.38			

Asset Allocation & Performance

Global Equity

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Ariel Global *	-2.05	0.12	1.61	-1.64	8.22	5.17	5.38	1/1/2018	97,572,675	44.35
MSCI AC World Index (Net)	-2.87	0.00	4.10	-8.26	8.81	5.82	5.87			
Wellington	-3.21	1.75	4.16	-6.83	8.14	4.86	9.80	9/1/2012	122,410,894	55.65
MSCI AC World Index (Net)	-2.87	0.00	4.10	-8.26	8.81	5.82	8.61			
Global Equity Composite	-2.70	0.95	2.93	-4.54	8.43	5.18	8.14	9/1/2012	219,983,569	100.00
MSCI AC World Index (Net)	-2.87	0.00	4.10	-8.26	8.81	5.82	8.61			

Asset Allocation & Performance

Global Low Volatility

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian Global Low Vol.	-2.65	-1.86	-0.35	-3.45	5.20	4.14	6.20	7/1/2015	235,474,900	51.11
MSCI AC World Index (Net)	-2.87	0.00	4.10	-8.26	8.81	5.82	7.23			
MSCI AC World Minimum Volatility Index (Net)	-3.77	-4.05	-2.10	-6.19	3.15	4.29	5.97			
BlackRock Global Low Vol.	-3.75	-3.93	-2.04	-5.83	3.09	4.43	6.24	7/1/2015	225,280,034	48.89
MSCI AC World Minimum Volatility Index (Net)	-3.77	-4.05	-2.10	-6.19	3.15	4.29	5.97			
Global Low Volatility Composite	-3.19	-2.88	-1.18	-4.63	4.15	4.29	6.23	7/1/2015	460,754,934	100.00
MSCI AC World Minimum Volatility Index (Net)	-3.77	-4.05	-2.10	-6.19	3.15	4.29	5.97			

Private Equity Summary

Periods Ended as of February 28, 2023

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Hamilton Lane Secondary Fund II	182,152	25,000,000	22,058,532	31,222,789	Jul-09	13.5%	1.4
Hamilton Lane Secondary Fund III	3,383,281	30,000,000	23,372,292	28,082,252	Nov-12	10.0%	1.3
Hamilton Lane Secondary Fund IV	17,270,073	30,000,000	25,907,343	24,483,967	Mar-17	18.7%	1.6
Hamilton Lane Secondary Fund V	54,360,134	65,000,000	43,128,993	8,244,733	Mar-20	26.6%	1.5
Hamilton Lane Secondary Fund VI-A	1,500,000	30,000,000	1,500,000	-	Feb-23	-	1.0
Hamilton Lane Fund VII Composite	15,431,594	50,000,000	45,600,834	55,162,854	Jan-10	6.4%	1.5
Hamilton Lane Fund VIII (Global)	18,293,796	30,000,000	22,270,594	15,820,316	Nov-12	7.6%	1.5
GCM Grosvenor - Partnership, L.P.	27,698,803	75,000,000	93,988,722	132,884,962	Jun-11	14.5%	1.7
GCM Grosvenor - Partnership II, L.P. (2014)	50,289,382	60,000,000	71,665,890	66,885,465	Jul-14	17.2%	1.6
GCM Grosvenor - Partnership II, L.P. (2015)	58,120,199	30,000,000	40,494,934	11,065,785	Dec-15	14.2%	1.7
GCM Grosvenor - Partnership II, L.P. (2017)	31,001,435	30,000,000	29,053,710	8,384,101	Jan-18	17.1%	1.4
GCM Grosvenor - Advance Fund, L.P.	5,127,529	10,000,000	4,746,483	53,279	Jun-21	-	1.1
GCM Grosvenor - Partnership II, L.P. (2022)	2,217,137	20,000,000	2,229,719	974	May-22	-20.3%	1.0
Fairview Capital - Lone Star Fund I	51,512,615	40,000,000	35,813,040	14,458,863	Aug-15	15.6%	1.8
Fairview Capital - Lone Star Fund II	28,195,947	30,000,000	20,966,085	496,453	Dec-18	12.6%	1.4
Fairview Capital - Lone Star Fund III - A	10,517,855	25,000,000	10,833,831	-	Apr-21	-4.0%	1.0
Fairview Capital - Lone Star Fund III - B	158,544	20,000,000	266,095	-	Dec-22	-	0.6
Fairview Capital - Private Markets Fund VI	1,125,284	10,000,000	1,469,595	210,556	Apr-22	-9.7%	0.9
Total Private Equity Composite	376,385,760	610,000,000	495,366,692	397,457,349	Jul-09	14.1%	1.6

Public Market Equivalent (PME) ²

441,686,479

15.7%

Private Real Estate Summary

Periods Ended as of February 28, 2023

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Invesco II	80,039,512	65,188,333	65,188,333	13,221,901	Jan-14	5.8%	1.4
Total Direct Private Real Estate	80,039,512	65,188,333	65,188,333	13,221,901	Jan-14	5.8%	1.4

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Heitman America Real Estate Trust	105,944,229	75,000,000	88,210,161	92,344,808	Dec-10	7.7%	2.2
Invesco Core Real Estate USA	84,217,126	75,000,000	75,000,000	93,351,398	Oct-10	11.3%	2.4
Total Core Private Real Estate	190,161,355	150,000,000	163,210,161	185,696,206	Oct-10	10.0%	2.3

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
AEW Partners Real Estate Fund IX	29,441,646	45,000,000	28,703,704	16,806	Mar-21	2.6%	1.0
AEW PIX MM Co-Invest	4,122,474	10,000,000	3,943,396	264,914	Nov-21	12.3%	1.1
AEW PIX Oakland Park Co-Invest	5,162,801	5,000,000	5,000,000	255,918	Feb-22	8.4%	1.1
Virtus Real Estate Capital III	29,124,742	43,281,585	27,369,556	3,714,853	Jan-21	10.6%	1.2
Brasa Real Estate Fund II	9,353,431	20,000,000	9,899,977	546,545	Jul-22	-	1.0
Total Value-Add Private Real Estate	77,205,094	123,281,585	74,916,633	4,799,036	Jan-21	7.3%	1.1

¹ Total Value to Paid-in Capital ("TVPI") multiple calculation = $(market\ value + distributions) / capital\ called$

Asset Allocation & Performance

Real Estate

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Adelante Capital Management *	-4.23	0.48	5.95	-14.37	5.00	7.64	9.00	10/1/2001	43,570,100	49.60
Wilshire U.S. Real Estate Securities Index	-4.65	0.19	6.15	-13.54	4.05	7.10	9.12			
CenterSquare	-4.87	-0.07	5.24	-11.60	5.41		6.79	6/1/2018	44,275,431	50.40
Wilshire U.S. Real Estate Securities Index	-4.65	0.19	6.15	-13.54	4.05		5.47			
REIT Composite	-4.56	0.20	5.59	-13.00	5.21	7.99	9.13	10/1/2001	87,845,531	100.00
Wilshire U.S. Real Estate Securities Index	-4.65	0.19	6.15	-13.54	4.05	7.10	9.12			

Asset Allocation & Performance

Global Listed Infrastructure
 Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Atlantic Trust CIBC	-1.56	-1.25	4.04	16.35	19.01	8.30	6.80	1/1/2012	44,369,132	29.66
Alerian MLP Index	-1.19	0.39	5.34	18.45	19.33	6.14	2.68			
Harvest Fund Advisors MLP	-1.33	-1.61	3.73	16.75	20.77	9.91	6.93	1/1/2012	48,315,873	32.30
Alerian MLP Index	-1.19	0.39	5.34	18.45	19.33	6.14	2.68			
C&S Global Listed Infrastructure	-4.45	-3.64	-1.08	-1.63			7.80	11/1/2020	56,908,766	38.04
FTSE Global Core Infrastructure 50/50 (Net)	-4.80	-4.48	-2.33	-3.76			6.80			
Global Listed Infrastructure Composite	-2.61	-2.29	1.93	10.52	11.36	4.40	4.90	1/1/2012	149,593,771	100.00
Global Listed Infrastructure Benchmark	-2.09	-0.82	3.40	12.91	12.58	2.49	1.09			

Asset Allocation & Performance

Fixed Income

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Garcia Hamilton *	-3.19	-0.22	0.54	-8.21	-2.88	0.57	1.71	11/1/2013	146,636,746	32.72
Blmbg. U.S. Aggregate Index	-2.59	-0.04	0.41	-9.72	-3.77	0.53	1.30			
Western Asset Management	-2.56	0.90	1.19				-2.38	7/1/2022	151,133,082	33.72
Blmbg. U.S. Aggregate Index	-2.59	-0.04	0.41				-2.57			
Wellington Core Bond	-2.61	0.40	0.75				-2.37	7/1/2022	150,372,594	33.55
Blmbg. U.S. Aggregate Index	-2.59	-0.04	0.41				-2.57			
Fixed Income Composite	-2.78	0.36	0.83	-9.26	-3.00	0.86	4.26	10/1/1995	448,142,423	100.00
Blmbg. U.S. Aggregate Index	-2.59	-0.04	0.41	-9.72	-3.77	0.53	4.28			

Asset Allocation & Performance

Opportunistic Credit

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Neuberger Berman	-1.16	3.03	2.57	-4.65	-0.07	1.80	3.95	2/1/2016	169,145,366	
Custom Benchmark	-0.97	2.24	2.25	-3.82	-0.05	1.93	4.16			

Asset Allocation & Performance

High Yield

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Oaktree Capital Management	-1.11	0.56	2.45	-5.27	1.88	2.47	6.01	2/1/1997	179,136,574	50.83
FTSE High Yield Cash Pay	-1.29	1.85	2.51	-5.19	1.33	2.71	6.14			
BlackRock	-1.65	1.30	2.07	-4.60	1.54	2.98	5.44	10/1/2006	173,256,762	49.17
FTSE High Yield Cash Pay	-1.29	1.85	2.51	-5.19	1.33	2.71	5.79			
High Yield Composite	-1.38	0.92	2.27	-4.94	1.71	2.73	5.85	1/1/1997	352,393,336	100.00
FTSE High Yield Cash Pay	-1.29	1.85	2.51	-5.19	1.33	2.71	6.15			

Asset Allocation & Performance

Marketable Alternatives

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Davidson Kempner	1.53	2.96	1.53				3.02	10/1/2022	46,359,738	50.38
Davidson Kempner Policy	3.12	3.82	2.78				6.35			
Hudson Bay Capital	0.70	1.48	0.70				1.49	10/1/2022	45,669,170	49.62
Hudson Bay Policy	1.83	3.13	2.00				3.33			
Marketable Alternatives Composite	1.12	2.22	1.12				2.25	10/1/2022	92,028,908	100.00
Marketable Alternatives Policy	2.47	3.48	2.39				4.84			

Asset Allocation & Performance

Cash

Periods Ended February 28, 2023

	Performance (%) net of fees								Allocation	
	1 Month	1 Quarter	YTD	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Cash Account	0.33	1.00	0.64	2.10	0.84	1.35	3.07	1/1/1988	25,729,104	100.00
Managed Short Term Composite	0.33	1.00	0.64	2.10	0.84	1.35	2.74	1/1/1990	25,729,104	100.00

Wilshire

Dallas Employees' Retirement Fund

Monthly Investment Summary

Mar-2023

Monthly Index Performance

Periods Ended March 31, 2023

	Performance (%)				
	1 Month	QTD	1 Year	3 Years	5 Years
U.S. Equity					
FT Wilshire 5000 Index	2.77	7.29	-8.62	18.80	10.71
S&P 500 Index	3.67	7.50	-7.73	18.60	11.19
Wilshire 4500 Completion Index	-2.59	5.77	-12.95	19.60	7.43
MSCI USA Minimum Volatility Index	3.37	1.30	-4.42	12.42	9.11
U.S. Equity by Size/Style					
Wilshire U.S. Large-Cap Index	3.48	7.64	-8.42	18.78	11.40
Wilshire U.S. Large-Cap Growth Index	6.83	15.68	-11.44	19.71	12.42
Wilshire U.S. Large-Cap Value Index	0.05	0.06	-4.79	17.52	9.53
Wilshire U.S. Small-Cap Index	-4.48	3.55	-10.28	19.77	5.95
Wilshire U.S. Small-Cap Growth Index	-3.41	6.35	-8.75	17.59	5.70
Wilshire U.S. Small-Cap Value Index	-5.48	1.03	-11.70	21.97	5.79
Wilshire U.S. Micro-Cap Index	-3.31	3.37	-15.96	15.54	0.48
Non-U.S. Equity (USD)					
MSCI AC World ex USA (Net)	2.44	6.87	-5.07	11.80	2.47
MSCI ACWI ex USA Minimum Volatility Index (Net)	3.70	3.75	-7.58	6.44	1.99
MSCI EAFE (Net)	2.48	8.47	-1.38	12.99	3.52
MSCI Emerging Markets (Net)	3.03	3.96	-10.70	7.83	-0.91
MSCI AC World ex USA Small Cap (Net)	0.23	4.70	-10.37	15.04	1.67
U.S. Fixed Income					
Blmbg. U.S. Aggregate Index	2.54	2.96	-4.78	-2.77	0.90
Blmbg. U.S. Treasury: Long	4.74	6.17	-16.00	-11.33	-0.35
Blmbg. U.S. Long Corporate Index	4.32	5.45	-11.46	-2.55	1.14
Blmbg. U.S. TIPS Index	2.89	3.34	-6.06	1.75	2.94
Blmbg. U.S. Credit Index	2.74	3.45	-5.31	-0.70	1.54
Blmbg. U.S. Corp: High Yield Index	1.07	3.57	-3.34	5.91	3.21
S&P LSTA Leverage Loan Index					

Asset Allocation & Performance

Dallas Total Fund

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Global Equity Composite	2.33	5.33	-4.13	13.63	6.07	8.30	9/1/2012	225,111,336	6.29
Global Low Volatility Composite	3.76	2.53	-3.90	10.01	5.11	6.66	7/1/2015	469,063,070	13.11
Domestic Equity Composite	-0.15	5.42	-8.08	20.60	9.31	10.06	1/1/1990	395,588,339	11.06
International Equity Composite	1.31	7.18	-6.60	14.25	2.71	5.40	1/1/1990	409,318,929	11.44
Fixed Income Composite	2.67	3.56	-4.27	-0.79	1.31	4.34	10/1/1995	460,216,157	12.86
High Yield Composite	0.69	3.35	-3.31	5.78	3.05	5.87	1/1/1997	342,753,823	9.58
Credit Opportunities Composite	-0.31	2.06	-4.77	5.10	1.67	3.83	2/1/2016	168,295,711	4.70
Total Real Estate Composite	-0.03	1.15	0.00	11.68	8.45	6.78	1/1/1990	440,027,500	12.30
Global Listed Infrastructure Composite	0.53	2.47	5.06	32.20	5.61	4.91	1/1/2012	150,385,232	4.20
Private Equity Composite	-0.11	-0.31	8.42	16.62	15.23	14.11	6/1/2009	376,925,206	10.54
Marketable Alternatives Composite	0.96	2.09				3.24	10/1/2022	92,914,448	2.60
Managed Short Term Composite	0.78	1.43	2.86	1.01	1.48	2.75	1/1/1990	47,137,039	1.32
Dallas Total Fund	1.19	3.23	-3.30	11.29	5.57	8.70	1/1/1985	3,577,736,789	100.00
Policy Index	1.60	4.03	-6.01	11.19	5.46	9.18			

Asset Allocation & Performance

Domestic Equity

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Systematic Financial	-4.01	1.72	-3.72	22.42	5.70	10.23			
Russell 2000 Index	-4.78	2.74	-11.61	17.51	4.71	8.43	8/1/2003	62,936,354	15.91
Redwood Investments *	-1.19	4.26	-19.62	10.70	4.08	5.49			
Russell 2000 Growth Index	-2.47	6.07	-10.60	13.36	4.26	7.44	10/1/2016	28,255,133	7.14
Channing Capital *	-5.85	3.06	-13.64	21.41	4.39	5.76			
Russell 2000 Value Index	-7.17	-0.66	-12.96	21.01	4.55	5.83	12/1/2013	25,952,898	6.56
Domestic Equity Small Cap Composite							6/1/2003	117,144,385	29.61
Smith Graham *	-4.20	3.29	-3.72	30.83	8.37	8.02			
Russell Midcap Index	-1.53	4.06	-8.78	19.20	8.05	7.56	1/1/2018	71,061,159	17.96
T. Rowe Price	3.80	8.17	-7.41	19.12	11.54	9.73			
S&P 500 Index	3.67	7.50	-7.73	18.60	11.19	9.21	4/1/2006	145,041,055	36.66
Northern Trust S&P 500 (Lending)	3.67	7.50	-8.70	18.16	10.95	10.13			
S&P 500 Index	3.67	7.50	-7.73	18.60	11.19	10.13	1/1/1995	62,341,740	15.76
Domestic Equity Composite	-0.15	5.42	-8.08	20.60	9.31	10.06			
FT Wilshire 5000	2.77	7.29	-8.62	18.80	10.71	10.17	1/1/1990	395,588,339	100.00

* Domestic Equity Composite Since Inception benchmark includes S&P 500 until March, 1999.

Asset Allocation & Performance

International Equity

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian International	0.60	4.77	-9.50	18.01	2.79	8.10	4/1/1989	106,304,315	25.97
Custom Benchmark	0.23	4.70	-10.37	15.04	1.67	5.65			
Ativo International *	2.26	7.41	-6.74	11.21	2.18	1.73	1/1/2018	30,759,755	7.51
MSCI EAFE (Net)	2.48	8.47	-1.38	12.99	3.52	3.05			
AQR Capital Management	-0.14	6.39	-5.89	11.52	0.28	3.03	4/1/2006	119,334,420	29.15
Custom Benchmark	2.44	6.87	-5.07	11.80	2.47	3.00			
Baillie Gifford	5.32	13.12	-5.32	8.64		4.50	4/1/2019	71,096,827	17.37
MSCI AC World ex USA (Net)	2.44	6.87	-5.07	11.80		4.22			
Earnest Partners *	0.77	6.77	-4.50	18.57		6.94	4/1/2019	81,823,611	19.99
MSCI AC World ex USA (Net)	2.44	6.87	-5.07	11.80		4.22			
International Equity Composite	1.31	7.18	-6.60	14.25	2.71	5.40	1/1/1990	409,318,929	100.00
Custom Benchmark	2.13	6.56	-5.84	12.20	2.35	4.43			

Asset Allocation & Performance

Global Equity

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Ariel Global *	2.73	4.39	-1.23	12.04	6.00	5.84	1/1/2018	100,238,533	44.53
MSCI AC World Index (Net)	3.08	7.31	-7.44	15.36	6.93	6.39			
Wellington	2.01	6.25	-6.39	14.29	5.79	9.93	9/1/2012	124,872,803	55.47
MSCI AC World Index (Net)	3.08	7.31	-7.44	15.36	6.93	8.85			
Global Equity Composite	2.33	5.33	-4.13	13.63	6.07	8.30	9/1/2012	225,111,336	100.00
MSCI AC World Index (Net)	3.08	7.31	-7.44	15.36	6.93	8.85			

Asset Allocation & Performance

Global Low Volatility

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian Global Low Vol.	3.68	3.32	-2.06	11.38	4.98	6.62	7/1/2015	235,130,766	50.13
MSCI AC World Index (Net)	3.08	7.31	-7.44	15.36	6.93	7.57			
MSCI AC World Minimum Volatility Index (Net)	3.71	1.53	-6.10	8.25	5.05	6.40			
BlackRock Global Low Vol.	3.84	1.72	-5.75	8.64	5.22	6.69	7/1/2015	233,932,304	49.87
MSCI AC World Minimum Volatility Index (Net)	3.71	1.53	-6.10	8.25	5.05	6.40			
Global Low Volatility Composite	3.76	2.53	-3.90	10.01	5.11	6.66	7/1/2015	469,063,070	100.00
MSCI AC World Minimum Volatility Index (Net)	3.71	1.53	-6.10	8.25	5.05	6.40			

Private Equity Summary

Periods Ended as of March 31, 2023

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Hamilton Lane Secondary Fund II	182,152	25,000,000	22,058,532	31,222,789	Jul-09	13.5%	1.4
Hamilton Lane Secondary Fund III	3,383,281	30,000,000	23,372,292	28,082,252	Nov-12	10.0%	1.3
Hamilton Lane Secondary Fund IV	17,174,397	30,000,000	25,907,343	24,579,643	Mar-17	18.5%	1.6
Hamilton Lane Secondary Fund V	54,360,134	65,000,000	43,128,993	8,244,733	Mar-20	25.3%	1.5
Hamilton Lane Secondary Fund VI-A	1,500,000	30,000,000	1,500,000	-	Feb-23	-	1.0
Hamilton Lane Fund VII Composite	15,431,594	50,000,000	45,600,834	55,162,854	Jan-10	6.3%	1.5
Hamilton Lane Fund VIII (Global)	17,728,829	30,000,000	22,270,594	16,385,283	Nov-12	7.5%	1.5
GCM Grosvenor - Partnership, L.P.	27,110,896	75,000,000	93,988,722	132,884,962	Jun-11	14.5%	1.7
GCM Grosvenor - Partnership II, L.P. (2014)	50,289,382	60,000,000	71,665,890	66,885,465	Jul-14	17.2%	1.6
GCM Grosvenor - Partnership II, L.P. (2015)	59,605,348	30,000,000	41,980,082	11,065,785	Dec-15	14.2%	1.7
GCM Grosvenor - Partnership II, L.P. (2017)	31,001,435	30,000,000	29,053,710	8,384,101	Jan-18	17.1%	1.4
GCM Grosvenor - Advance Fund, L.P.	5,297,032	10,000,000	4,746,483	53,279	Jun-21	-	1.1
GCM Grosvenor - Partnership II, L.P. (2022)	2,217,137	20,000,000	2,229,719	974	May-22	-20.3%	1.0
Fairview Capital - Lone Star Fund I	51,512,615	40,000,000	35,813,040	14,458,863	Aug-15	15.4%	1.8
Fairview Capital - Lone Star Fund II	28,195,947	30,000,000	20,966,085	496,453	Dec-18	12.0%	1.4
Fairview Capital - Lone Star Fund III - A	10,517,855	25,000,000	10,833,831	-	Apr-21	-3.7%	1.0
Fairview Capital - Lone Star Fund III - B	277,356	20,000,000	384,907	-	Dec-22	-	0.7
Fairview Capital - Private Markets Fund VI	1,139,816	10,000,000	1,484,127	210,556	Apr-22	-9.1%	0.9
Total Private Equity Composite	376,925,206	610,000,000	496,985,184	398,117,992	Jul-09	14.0%	1.6

Private Real Estate Summary

Periods Ended as of March 31, 2023

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Invesco II	79,941,528	65,188,333	65,188,333	13,663,828	Jan-14	5.8%	1.4
Total Direct Private Real Estate	79,941,528	65,188,333	65,188,333	13,663,828	Jan-14	5.8%	1.4

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Heitman America Real Estate Trust	105,944,229	75,000,000	88,210,161	92,344,808	Dec-10	7.7%	2.2
Invesco Core Real Estate USA	84,217,126	75,000,000	75,000,000	93,351,398	Oct-10	11.3%	2.4
Total Core Private Real Estate	190,161,355	150,000,000	163,210,161	185,696,206	Oct-10	10.0%	2.3

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
AEW Partners Real Estate Fund IX	33,483,418	45,000,000	31,481,481	16,806	Mar-21	6.4%	1.1
AEW PIX MM Co-Invest	4,707,129	10,000,000	4,584,906	321,769	Nov-21	11.2%	1.1
AEW PIX Oakland Park Co-Invest	5,185,067	5,000,000	5,000,000	345,235	Feb-22	9.9%	1.1
Virtus Real Estate Capital III	29,124,742	43,281,585	27,369,556	3,714,853	Jan-21	10.1%	1.2
Brasa Real Estate Fund II	9,353,431	20,000,000	9,899,977	546,545	Jul-22	-	1.0
Long Wharf Real Estate Partners VII	2,158,516	20,000,000	2,158,516		Mar-23	-	1.0
Total Value-Add Private Real Estate	84,012,303	143,281,585	80,494,436	4,945,208	Jan-21	8.3%	1.1

¹ Total Value to Paid-in Capital ("TVPI") multiple calculation = (market value + distributions) / capital called

Asset Allocation & Performance

Real Estate

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Adelante Capital Management *	-2.04	3.79	-21.51	11.44	6.39	8.85	10/1/2001	42,682,215	49.68
Wilshire U.S. Real Estate Securities Index	-2.55	3.44	-21.15	11.15	5.69	8.96			
CenterSquare	-2.36	2.76	-18.98	12.39		6.15	6/1/2018	43,230,099	50.32
Wilshire U.S. Real Estate Securities Index	-2.55	3.44	-21.15	11.15		4.81			
REIT Composite	-2.20	3.27	-20.26	11.91	6.69	8.98	10/1/2001	85,912,314	100.00
Wilshire U.S. Real Estate Securities Index	-2.55	3.44	-21.15	11.15	5.69	8.96			

Asset Allocation & Performance

Global Listed Infrastructure

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Atlantic Trust CIBC	-0.40	3.62	11.51	42.88	9.67	6.84	1/1/2012	44,189,359	29.38
Alerian MLP Index	-1.18	4.09	14.70	47.08	7.42	2.55			
Harvest Fund Advisors MLP	-0.35	3.36	11.35	41.84	11.06	6.88	1/1/2012	48,145,904	32.02
Alerian MLP Index	-1.18	4.09	14.70	47.08	7.42	2.55			
C&S Global Listed Infrastructure	2.01	0.90	-6.67			8.41	11/1/2020	58,049,970	38.60
FTSE Global Core Infrastructure 50/50 (Net)	2.95	0.55	-7.77			7.85			
Global Listed Infrastructure Composite	0.53	2.47	5.06	32.20	5.61	4.91	1/1/2012	150,385,232	100.00
Global Listed Infrastructure Benchmark	-0.15	3.24	9.04	39.24	3.95	1.07			

Asset Allocation & Performance

Fixed Income

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Garcia Hamilton *	2.97	3.53	-3.45	-1.36	1.04	2.01	11/1/2013	150,989,470	32.81
Blmbg. U.S. Aggregate Index	2.54	2.96	-4.78	-2.77	0.90	1.55			
Western Asset Management	2.82	4.05				0.38	7/1/2022	155,376,331	33.76
Blmbg. U.S. Aggregate Index	2.54	2.96				-0.09			
Wellington Core Bond	2.22	3.09				-0.11	7/1/2022	153,850,357	33.43
Blmbg. U.S. Aggregate Index	2.54	2.96				-0.09			
Fixed Income Composite	2.67	3.56	-4.27	-0.79	1.31	4.34	10/1/1995	460,216,157	100.00
Blmbg. U.S. Aggregate Index	2.54	2.96	-4.78	-2.77	0.90	4.36			

Asset Allocation & Performance

Opportunistic Credit

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Neuberger Berman	-0.31	2.06	-4.77	5.10	1.67	3.83	2/1/2016	168,295,711	
Custom Benchmark	0.68	2.94	-2.59	4.80	2.07	4.21			

Asset Allocation & Performance

High Yield

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Oaktree Capital Management	-0.26	2.92	-4.20	5.82	2.68	6.01	2/1/1997	166,583,031	48.60
FTSE High Yield Cash Pay	1.07	3.60	-3.41	5.94	3.06	6.16			
BlackRock	1.68	3.79	-2.39	5.73	3.42	5.51	10/1/2006	176,170,792	51.40
FTSE High Yield Cash Pay	1.07	3.60	-3.41	5.94	3.06	5.83			
High Yield Composite	0.69	3.35	-3.31	5.78	3.05	5.87	1/1/1997	342,753,823	100.00
FTSE High Yield Cash Pay	1.07	3.60	-3.41	5.94	3.06	6.17			

Asset Allocation & Performance

Marketable Alternatives

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Davidson Kempner	0.22	1.76				3.25	10/1/2022	46,462,275	50.01
Davidson Kempner Policy	-0.01	2.77				6.35			
Hudson Bay Capital	1.71	2.43				3.23	10/1/2022	46,452,173	49.99
Hudson Bay Policy	0.05	2.05				3.37			
Marketable Alternatives Composite	0.96	2.09				3.24	10/1/2022	92,914,448	100.00
Marketable Alternatives Policy	0.02	2.41				4.86			

Asset Allocation & Performance

Cash

Periods Ended March 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Cash Account	0.43	1.07	2.50	0.89	1.41	3.08	1/1/1988	47,137,039	100.00
Managed Short Term Composite	0.78	1.43	2.86	1.01	1.48	2.75	1/1/1990	47,137,039	100.00

At A Glance

For period ended February 28, 2023

	2022		2023	
	This Month	YTD	This Month	YTD
Retirements				
Age	22	39	16	25
Service	3	3	3	5
Rule of 78	11	18	8	16
QDRO	0	0	1	2
<i>Total</i>	36	60	28	48
Disability Retirements				
Service	0	0	0	0
Non-service	0	0	0	0
<i>Total</i>	0	0	0	0
Benefits Paid	\$ 26,053,150.56	\$ 52,046,672.91	\$ 27,261,362.77	\$ 54,263,135.82
Refunds	\$ 869,771.10	\$ 1,730,070.18	\$ 797,668.95	\$ 1,491,141.03
Number of refunds	45	99	60	108
*Contributions	\$ 9,652,220.14	\$ 19,171,114.86	\$ 10,682,545.17	\$ 21,229,726.40

	Members on record at month end				
	Retirees & beneficiaries	Disabilities	Actives	Tier A actives	Tier B Actives
Jan	7,757	130	7,643	3,850	3,793
Feb	7,768	129	7,625	3,800	3,825
Mar					
April					
May					
June					
July					
Aug					
Sep					
Oct					
Nov					
Dec					

At A Glance

For period ended March 31, 2023

	2022		2023	
	This Month	YTD	This Month	YTD
Retirements				
Age	14	53	37	62
Service	2	5	3	8
Rule of 78	10	28	9	25
QDRO	1	1	0	2
<i>Total</i>	27	87	49	97
Disability Retirements				
Service	0	0	0	0
Non-service	0	0	0	0
<i>Total</i>	0	0	0	0
Benefits Paid	\$ 26,860,254.06	\$ 78,906,926.97	\$ 27,175,033.08	\$ 81,438,168.90
Refunds	\$ 1,125,798.15	\$ 2,855,868.33	\$ 1,101,109.05	\$ 2,592,250.08
Number of refunds	49	148	64	172
*Contributions	\$ 9,563,356.21	\$ 28,734,471.07	\$ 11,868,000.30	\$ 33,097,726.70

Members on record at month end					
	Retirees & beneficiaries	Disabilities	Actives	Tier A actives	Tier B Actives
Jan	7,757	130	7,643	3,850	3,793
Feb	7,768	129	7,625	3,800	3,825
Mar	7,802	128	7,653	3,752	3,901
April					
May					
June					
July					
Aug					
Sep					
Oct					
Nov					
Dec					