

Joint Meeting of the Board of Trustees
and
Investment Advisory Committee

August 24, 2022



Public Agenda #6

Call Meeting of the Board of Trustees to Order

August 24, 2022

Public Agenda #7

Call Meeting of the Investment Advisory Committee to Order

August 24, 2022

Public Agenda #8

Consideration of the Minutes to the May 11, 2022 Joint Meeting of the Board of Trustees and Investment Advisory Committee – (Action)

August 24, 2022

Questions?
Action Item

Public Agenda Item #9

Introduction of Newly Appointed Trustee

August 24, 2022

Porter Wilson, Executive Director

ERS Welcomes John Rutherford



John R. Rutherford appointed to the ERS Board of Trustees in May 2022 by Governor Greg Abbott.

- Term expires August 31, 2024
- Extensive career in private sector, specialized in energy.
- BBA, UT Austin
- MBA, Finance, Wharton School of Business



Questions?

Public Agenda Item #10

Quarterly Report from Chief Investment Officer

August 24, 2022

David T. Veal, Chief Investment Officer, CFA, CAIA, FRM

Trust Performance

Mission & Objectives



Prudently maintain a high-performing, well-diversified, and cost-effective portfolio to support the provision of promised benefits.



Add value vs. benchmark
over rolling five-year periods



Earn appropriate returns
for the risks assumed

Trust Performance

Investment Strategy



Allocate assets
thoughtfully



Select effective
managers



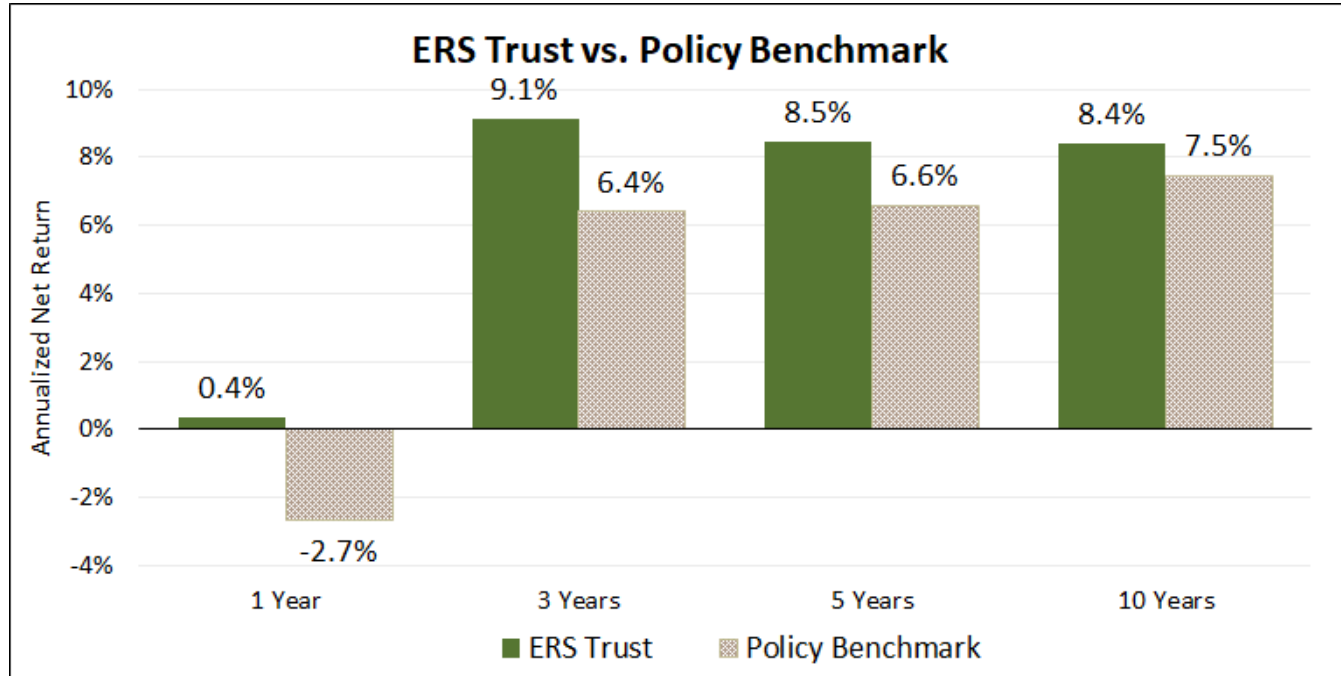
Diversify
across risks

ERS Trust Performance

Relative Return



- Strong performance vs. Policy Benchmark, including 189 bps on a 5-year basis

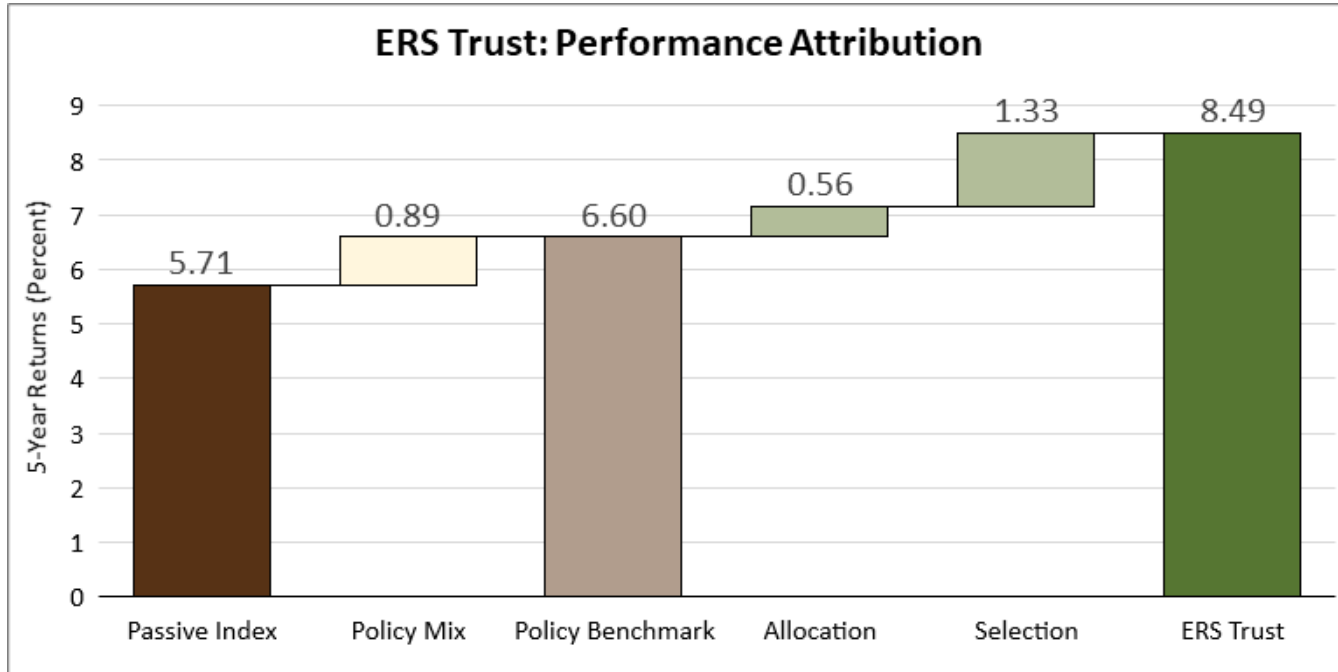


ERS Trust Performance

Attribution Analysis



- Meaningful excess return from both asset allocation and security selection decisions

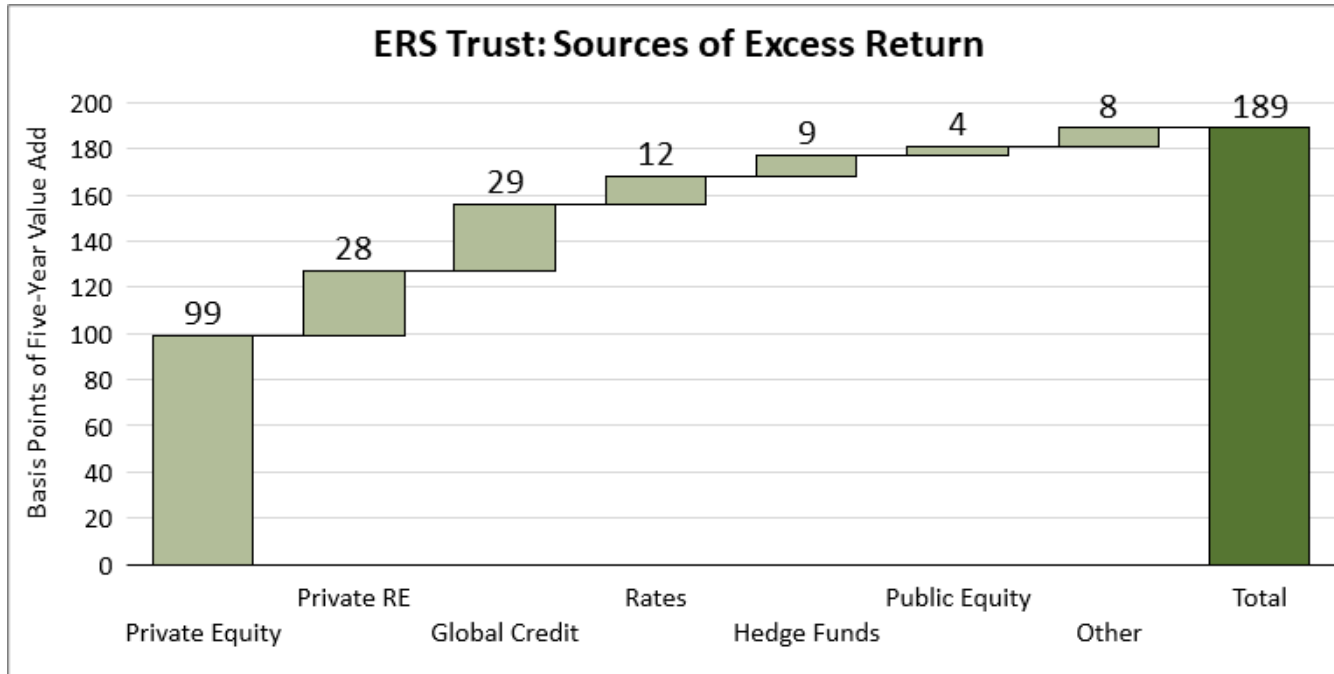


ERS Trust Performance

Attribution Analysis



- Private equity, private real estate, and credit represent 83% of five-year value add

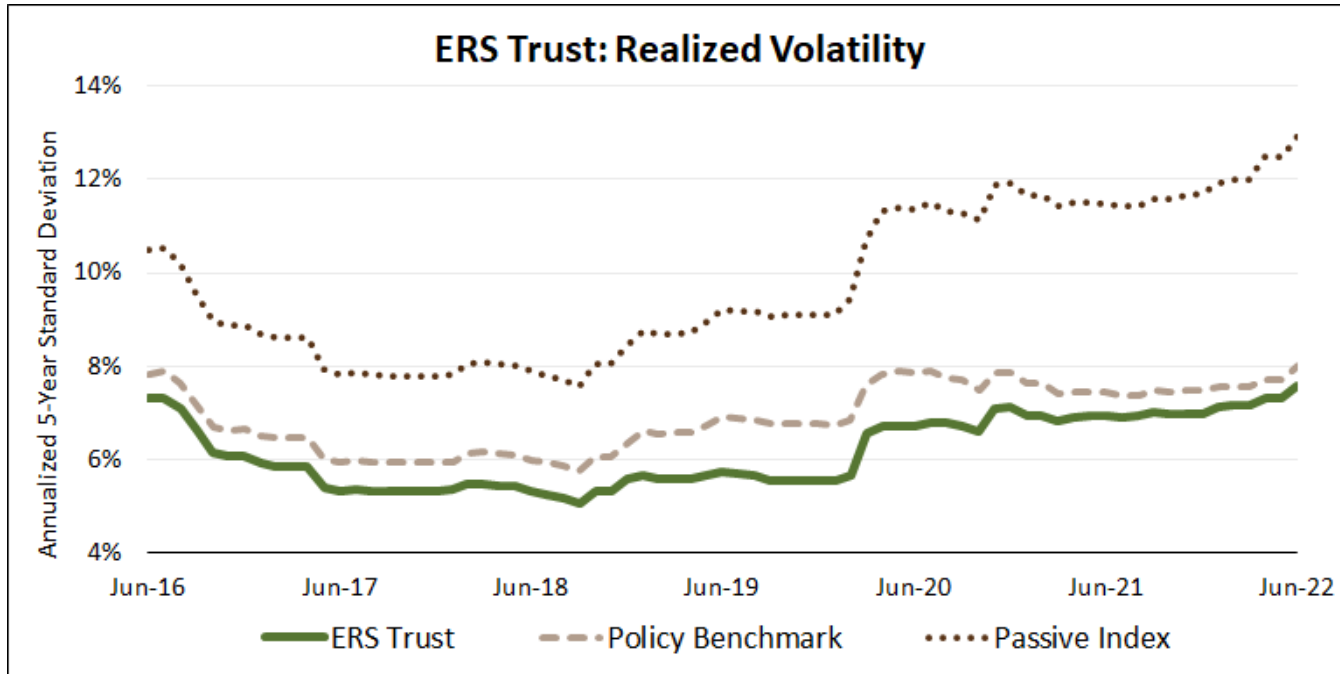


ERS Trust Performance

Absolute Risk



- Realized volatility levels now at 8% as the Passive Index reaches 13%

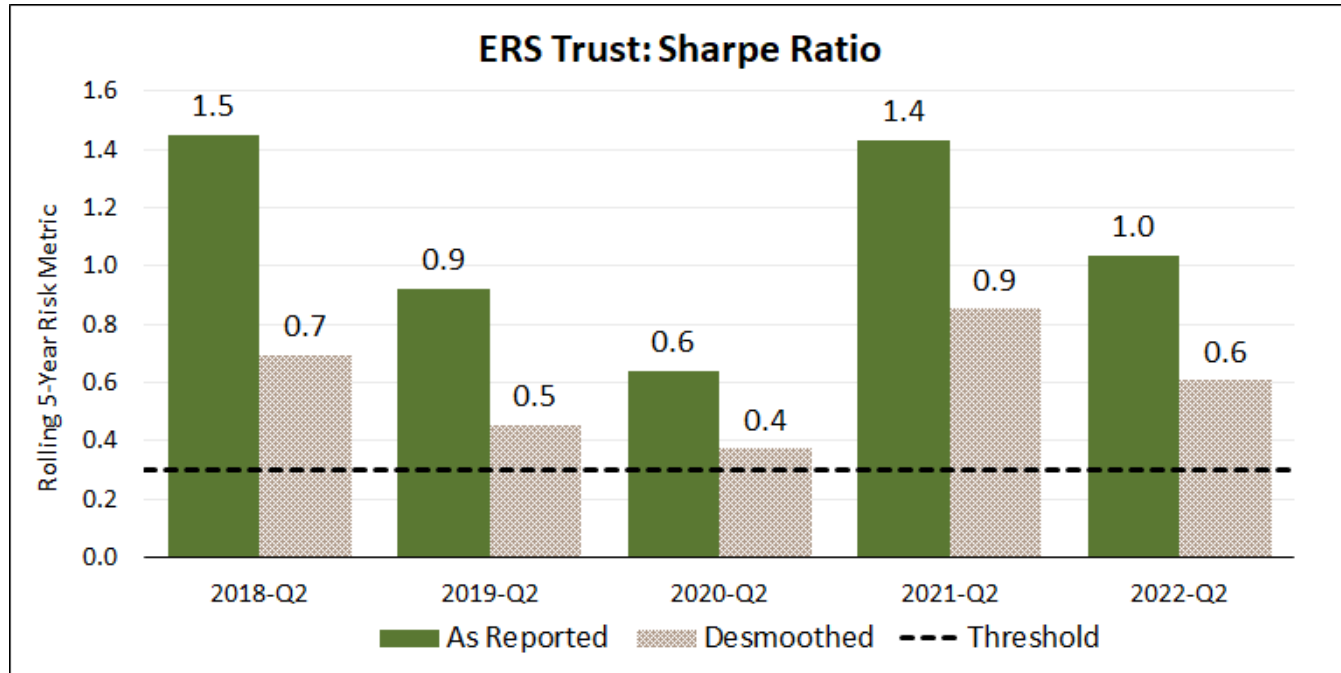


ERS Trust Performance

Risk-Adjusted Returns



- Good returns per unit of risk, even when compared to risk levels of the Passive Index

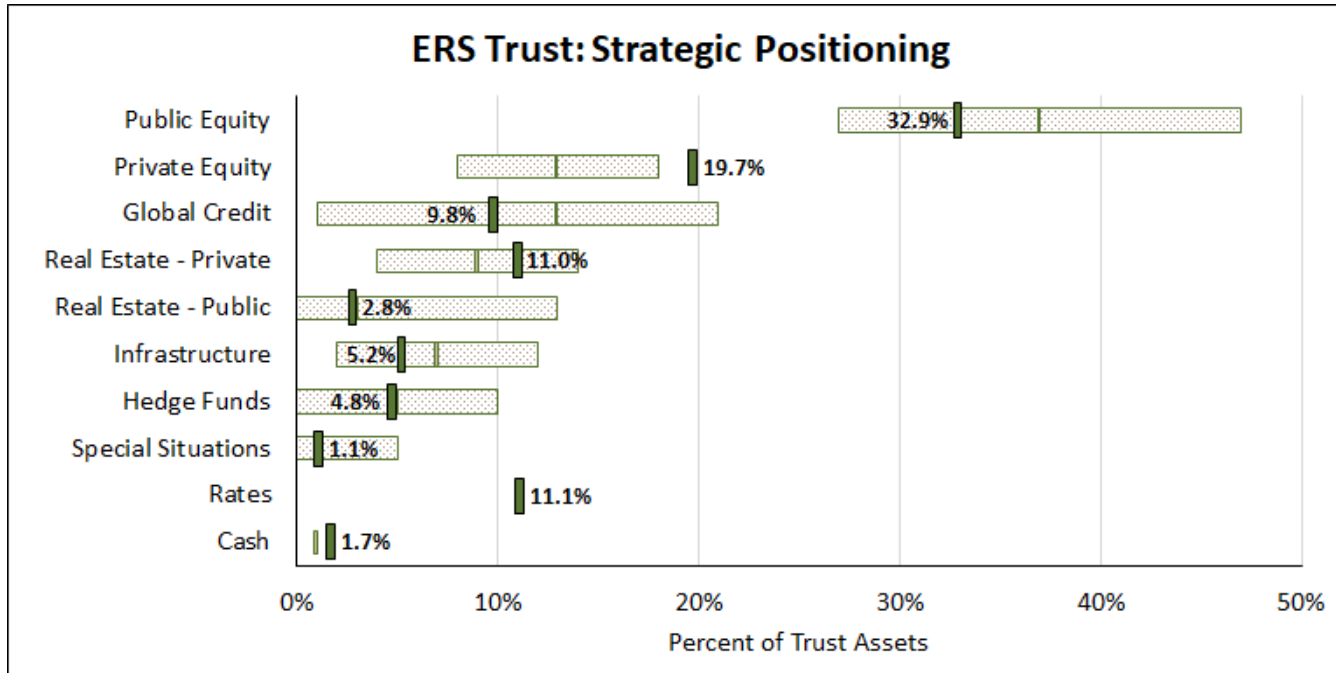


ERS Trust Performance

Asset Class Positioning



- Asset classes within ranges except private equity at 1.7% above 18% maximum

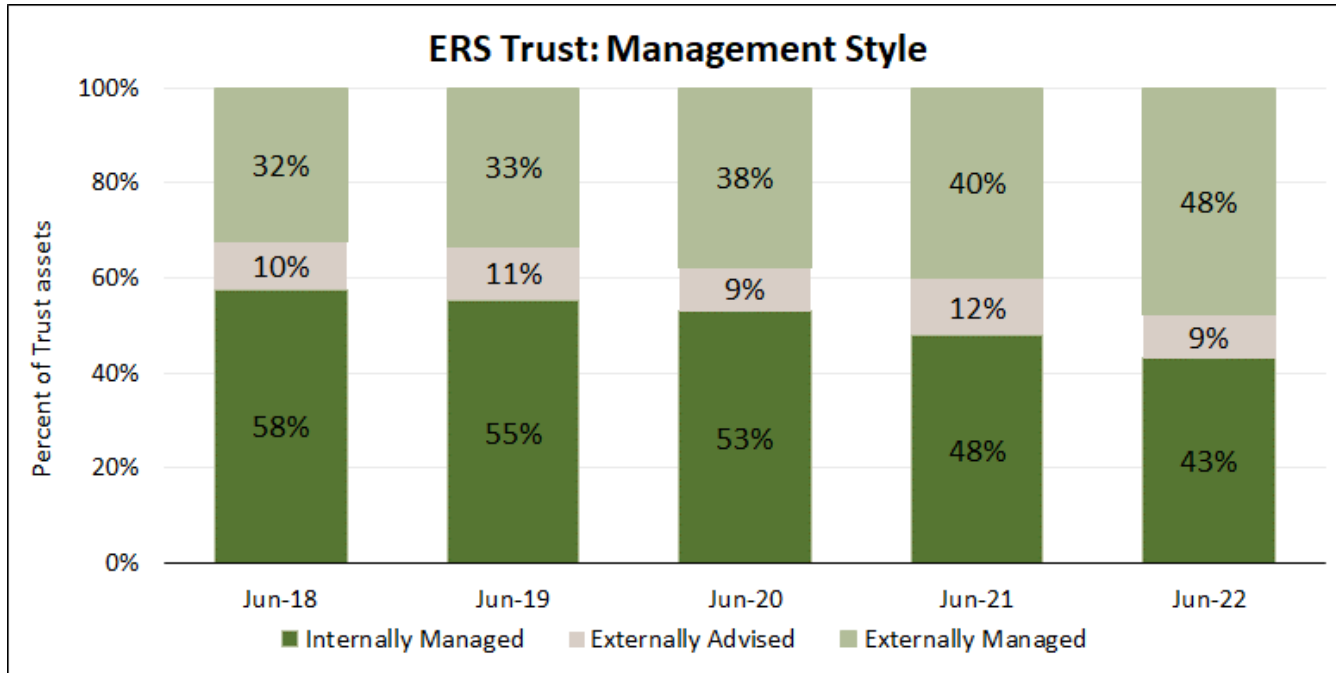


ERS Trust Performance

Management Style



- Mix shift toward private markets has made external management the majority

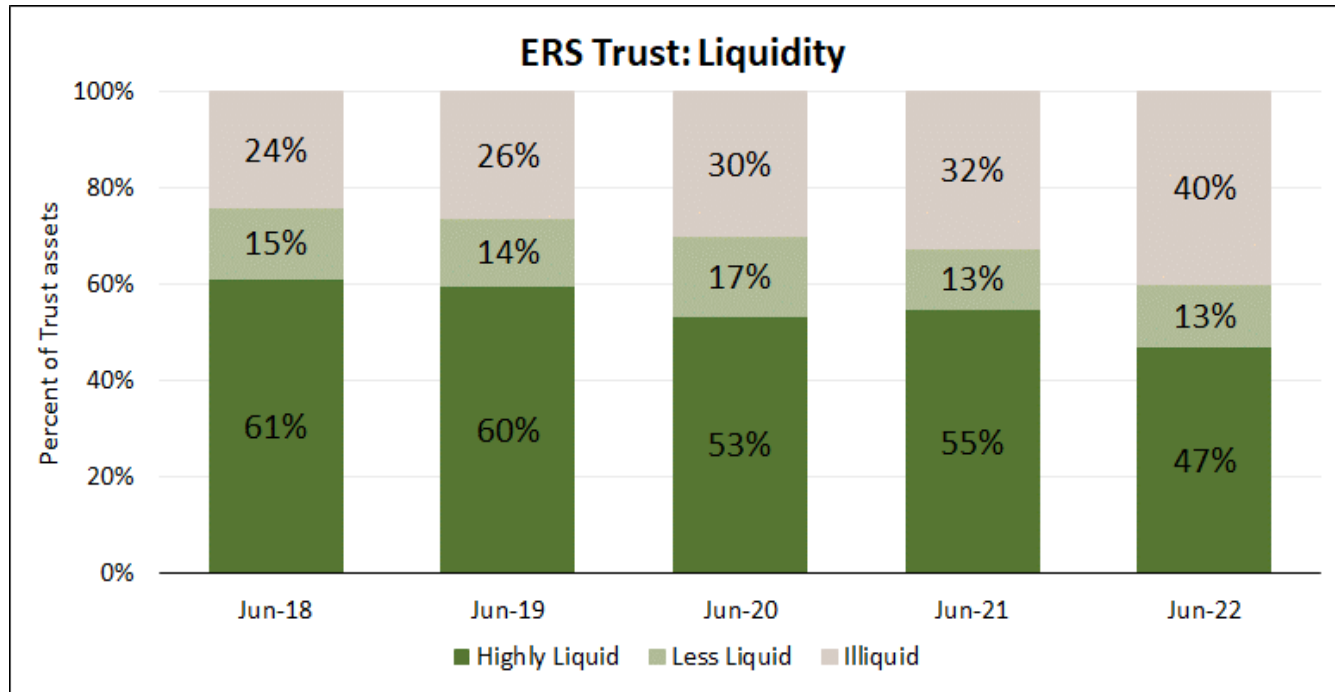


ERS Trust Performance

Liquidity Mix



- Mix shift toward private markets has made the Trust less liquid over time

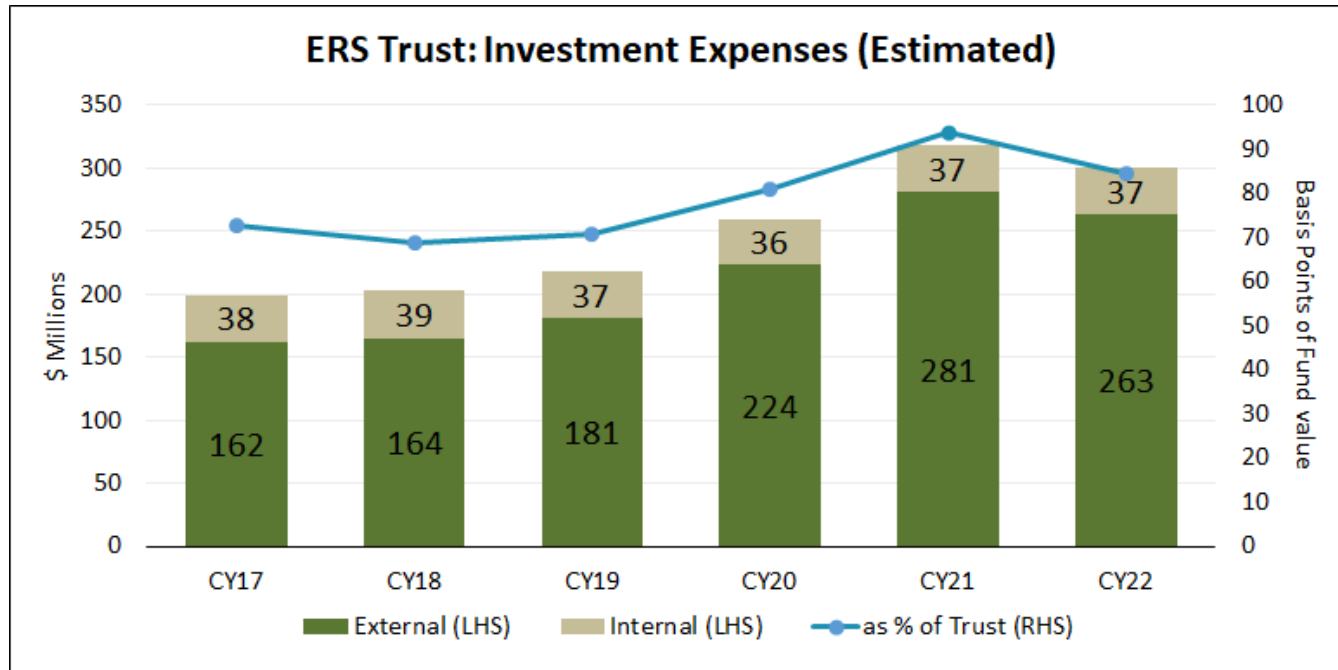


ERS Trust Performance

Investment Expenses



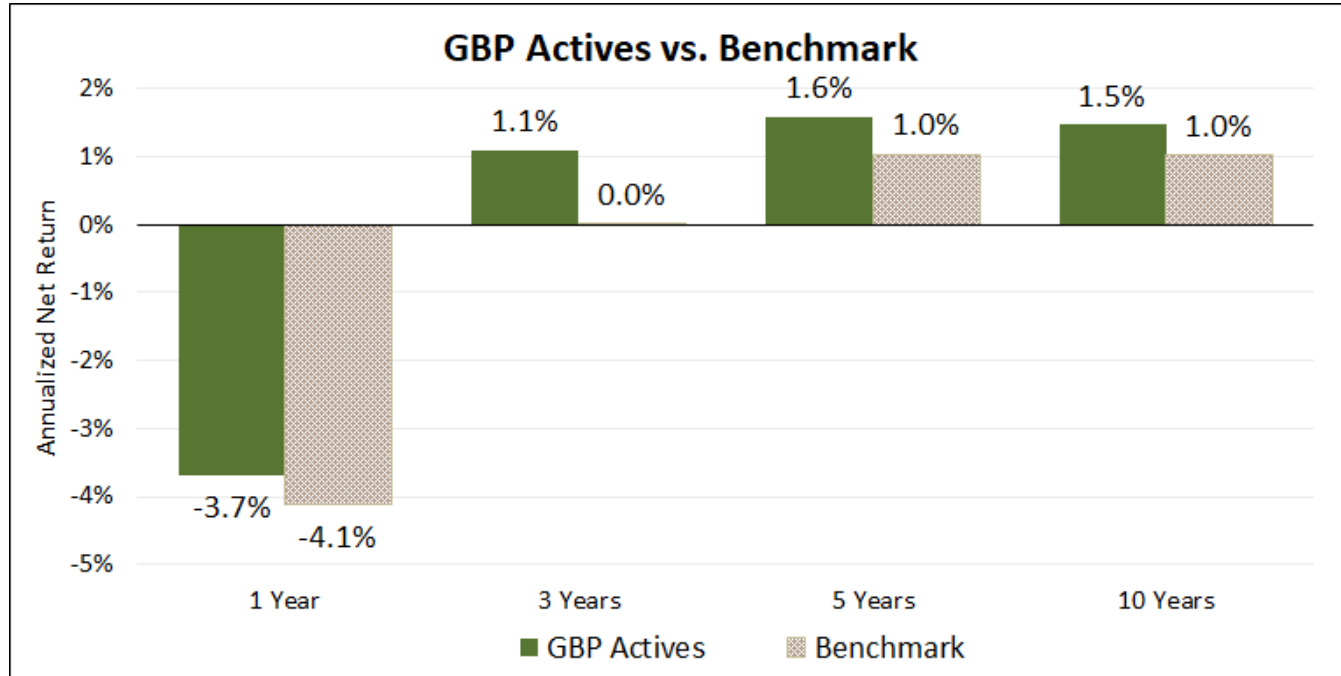
- Expense levels declining in 2022 with less profit share than during 2021



GBP Funds Performance

Programs for Actives (i.e., Insurance Benefits Fund)

- Good performance vs. highly conservative benchmark, funds now total \$3.3 billion



Priorities for Fiscal Year 2022

Investments Division



- Revisit organizational structure
- Update key policies and procedures
- Complete Asset/Liability Study
- Address consultant & audit recommendations

Investment Division

Governance Structure



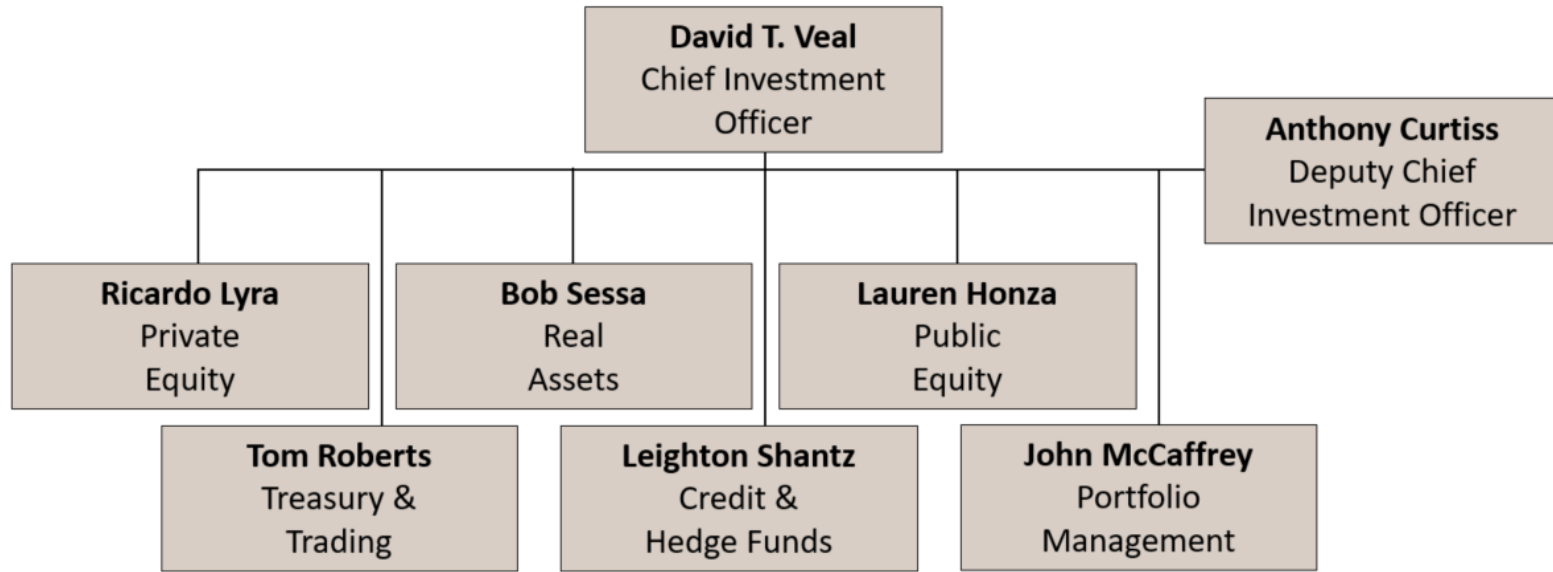
- IIP and SOPs guide Staff in day-to-day execution of the IPS

| DOCUMENT | OWNER | SUBJECTS |
|--------------------------------|---|---|
| Investment Policy Statement | Board/IAC with input from Staff, Consultant | Philosophy, Strategy and Authority |
| Investment Implementation Plan | CIO, DCIO and Risk Committee | Team Structure and Portfolio Guidelines |
| Standard Operating Procedures | DCIO and Program Heads | Routine Processes and Related Actions |

Investment Division

Organizational Structure

- New organizational structure streamlines asset classes into teams

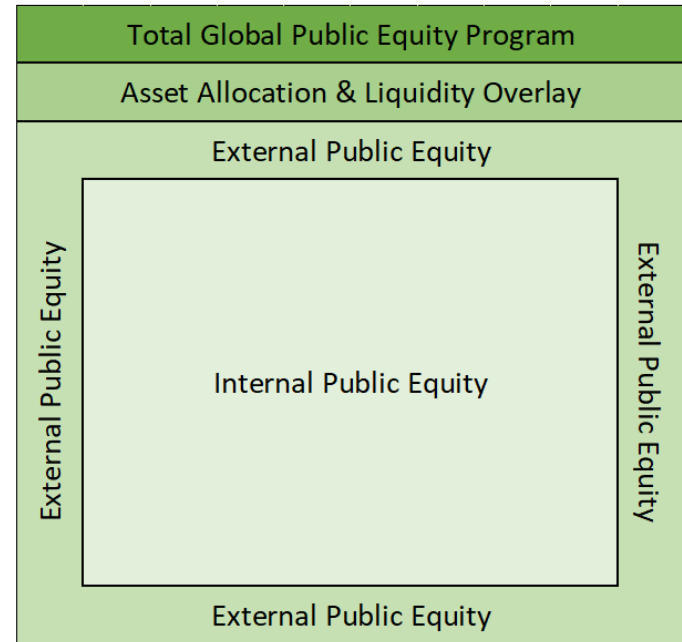


Public Equity

Organizational Restructuring

- Simplify and streamline to improve long-term performance

| NUMBER OF PORTFOLIOS | | | |
|----------------------|----------|-----------|-----------|
| Geography | Internal | External | Total |
| US | 3 | 2 | 5 |
| International | 5 | 15 | 20 |
| Global | 0 | 1 | 1 |
| TOTAL | 8 | 18 | 26 |



Investment Policy Statement

Annual Update Process



- Board requires review of IPS by staff at least annually
- Review conducted by Investments, Investment Compliance, Office of General Counsel, Executive Office, and General Investment Consultant
- Fresh eyes from CIO, General Counsel, and Compliance Officer
- Draft redline version circulated in July/August for feedback

2022 Asset/Liability Study

Timeline for NEPC



| Time Period | Activity |
|--------------------|--|
| January-March | Receives background information from ERS |
| April | Conducts initial analysis of information |
| May | Provides draft findings to the ERS Board |
| August | Delivers final report to the ERS Board |

Priorities for Fiscal Year 2023

Investments Division



- Focus on attracting and retaining talent
- Continue to improve key processes
- Conduct governance review with NEPC
- Sustaining the success of new initiatives

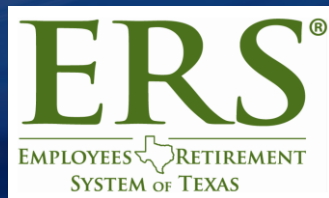
Questions?

Public Agenda Item #11

**Consideration of Quarterly Review of Investment Performance and Risk Update*

August 24, 2022

David T. Veal, Chief Investment Officer, CFA, CAIA, FRM
Carlos Chujoy, CFA, Director of Risk Management and Applied Research
Sam Austin, Partner, NEPC



QUARTERLY PERFORMANCE REPORT

EMPLOYEES RETIREMENT
SYSTEM OF TEXAS

AUGUST 24, 2022

Sam Austin, Partner

Michael Malchenko, Consultant



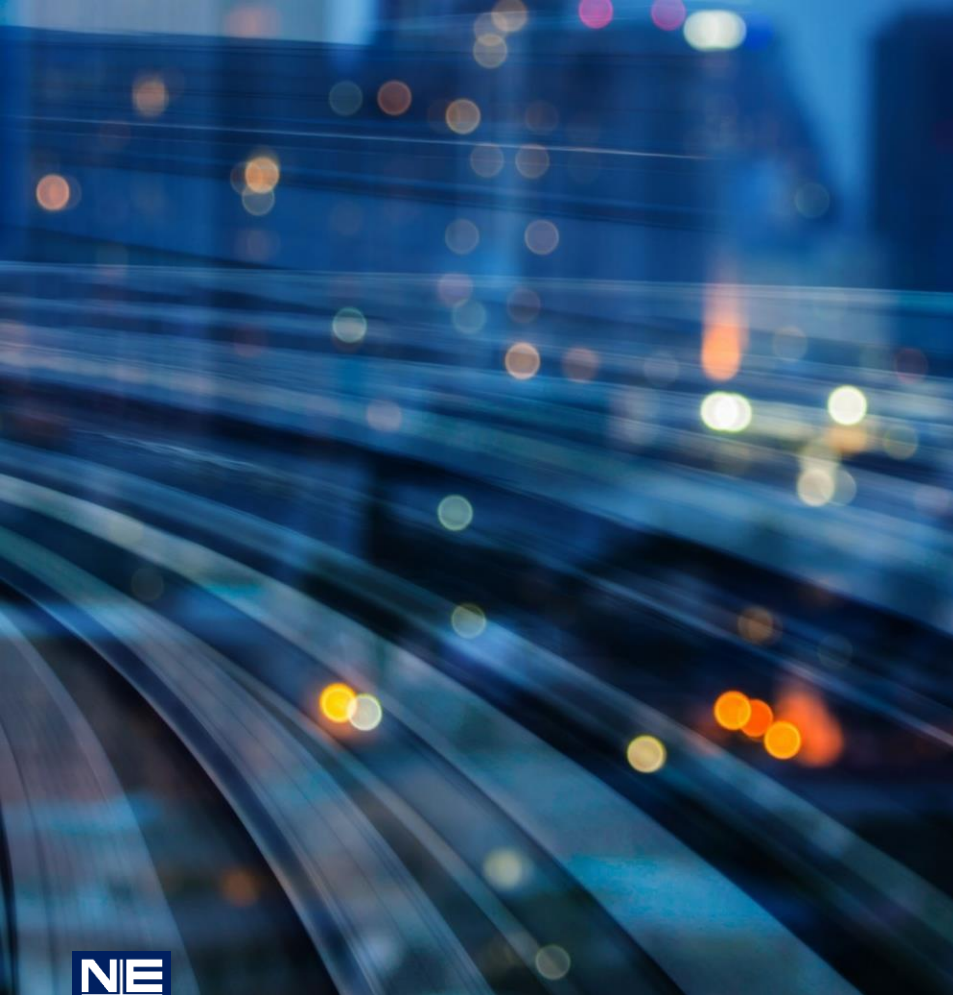


TABLE OF CONTENTS

- Economic and Market Environment
- Executive Summary



ECONOMIC AND MARKET ENVIRONMENT

ECONOMIC ENVIRONMENT



The S&P 500 had its worst start since 1970

- Large-Cap stocks outperformed Small-Cap, and Value outperformed Growth.
- Global markets continued to broadly decline.



Inflation keeps accelerating

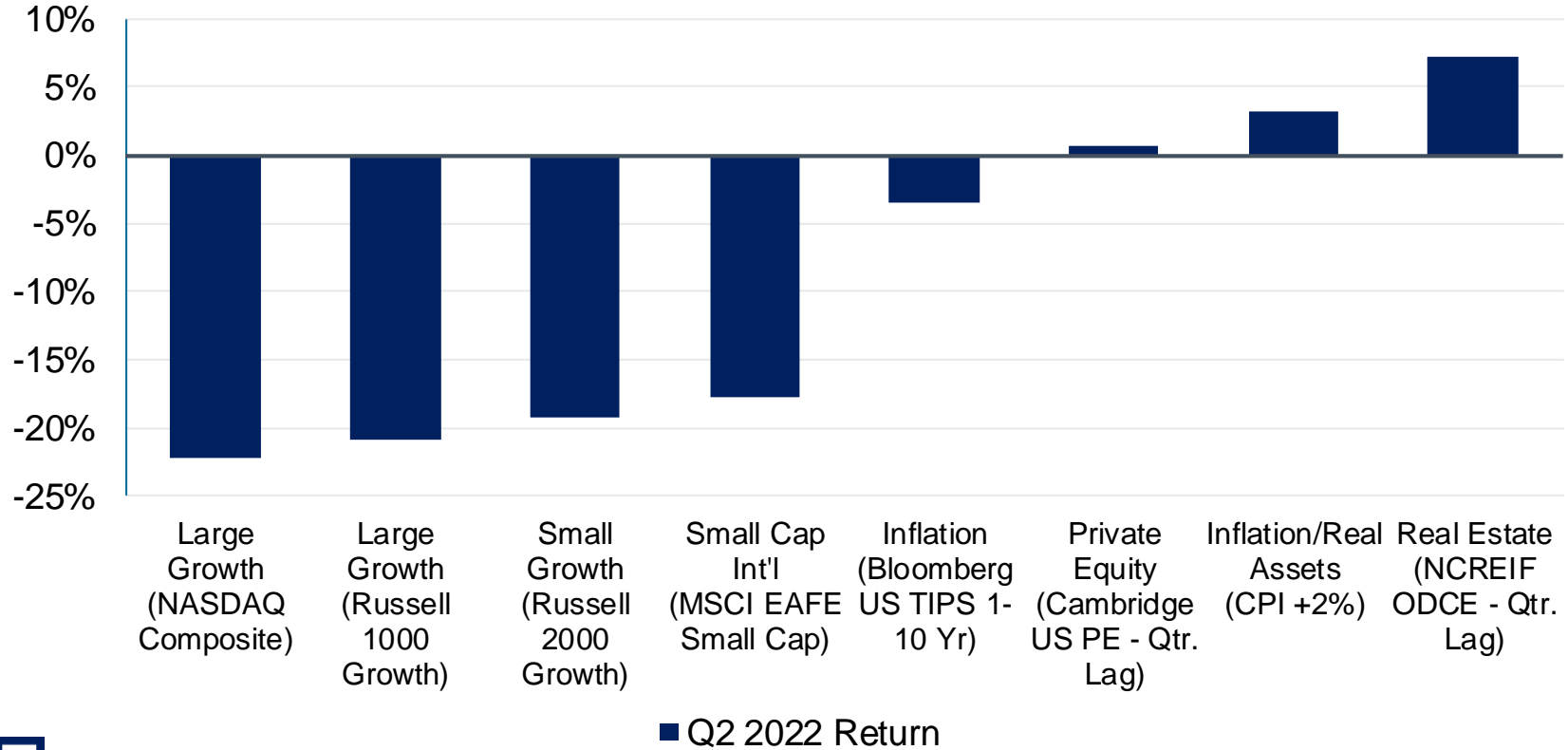
- Headline CPI jumped to 9.1% in June. Core CPI was up 6%.
- The Federal Reserve raised its benchmark interest rate by 75 basis points, the largest hike since 1994.



U.S. recession looming

- A second consecutive quarterly contraction will push the economy into a recession.
- Fears are growing regarding the length and severity of a downturn.

BEST AND WORST PERFORMING BENCHMARKS





EXECUTIVE SUMMARY

ERS TRUST DASHBOARD

| Performance | CYTD | FYTD 2022 |
|------------------|-------|-----------|
| Total Trust | -6.7% | -3.2% |
| Policy Benchmark | -8.1% | -5.6% |
| Excess Return | 1.4% | 2.4% |

| Risk Statistics | 5-Year | | 3-Year |
|------------------|--------------|------------------|----------------|
| | Sharpe Ratio | Sortino Ratio RF | Tracking Error |
| Total Trust | 1.0 | 1.5 | 2.2% |
| Policy Benchmark | 0.7 | 1.0 | - |

Attribution Summary

Largest Contributors (Quarter)

Global Public Equity (+0.7%) and Private Equity (+0.5%) contributed positively versus the Policy Benchmark.

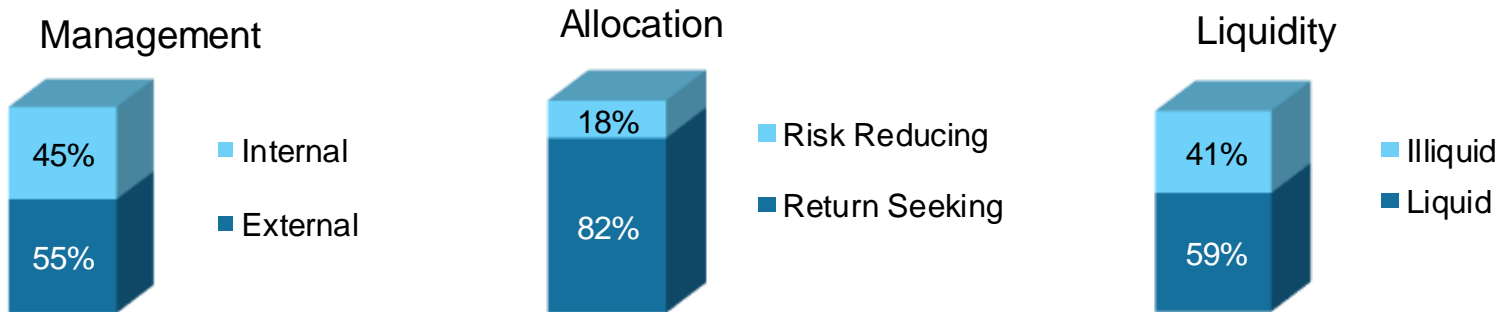
Largest Detractors (Quarter)

Infrastructure (-0.4%) and Absolute Return (-0.1%) contributed negatively versus the Policy Benchmark.



ERS TRUST DASHBOARD

| Profile | |
|--|-----------------|
| Market Value at June 30, 2022 | \$33.03 Billion |
| Actuarial Accrued Liability August 31, 2021 | \$44.2 Billion |
| Actuarial Value of Assets August 31, 2021 | \$30.1 Billion |
| ERS Trust Funded Ratio August 31, 2021 | 68.0% |
| Actuarial Assumed Rate of Return | 7.00% |
| Retirees and Beneficiaries August 31, 2021 | 120,294 |
| Retirement Payments Year Ended August 31, 2021 | \$2.79 Billion |





PERFORMANCE SUMMARY

TOTAL TRUST PERFORMANCE DETAIL (NET OF FEES)

| | Market Value | 3 Mo | Fiscal YTD | 1 Yr | 3 Yrs | 5 Yrs | 10 Yrs |
|-------------------------|-------------------------|--------------|--------------|-------------|-------------|-------------|-------------|
| Total Trust | \$33,028,200,122 | -5.2% | -3.2% | 0.4% | 9.1% | 8.5% | 8.4% |
| <i>Policy Benchmark</i> | | -6.6% | -5.6% | -2.7% | 6.4% | 6.6% | 7.5% |
| <i>Passive Index</i> | | -13.4% | -17.0% | -14.8% | 4.8% | 5.7% | 7.2% |

- **One-year period ended June 30, 2022, the Trust outperformed the policy benchmark by 3.1%.**
- **In the one-year period, the Trust's assets decreased from \$33.90 billion to \$33.03 billion. This includes a \$144 million net investment gain within the one-year period and a \$1.81 billion net investment loss within the second calendar quarter of 2022.**

Note: Passive Index is comprised of 79% MSCI ACWI IMI and 21% Bloomberg Intermediate Treasury Index. Index definitions can be found in the appendix.



TOTAL TRUST PERFORMANCE DETAIL (NET OF FEES)

3 Years Ending June 30, 2022

| | Anlzd Ret | Anlzd Std Dev | Sharpe Ratio | Sortino Ratio RF |
|------------------|-----------|---------------|--------------|------------------|
| Total Trust | 9.1% | 8.4% | 1.0 | 1.6 |
| Policy Benchmark | 6.4% | 8.2% | 0.7 | 1.1 |

5 Years Ending June 30, 2022

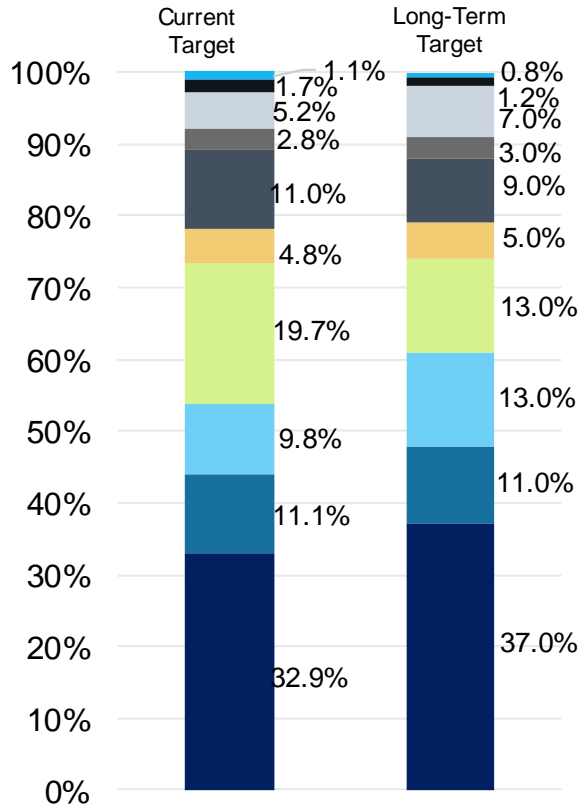
| | Anlzd Ret | Anlzd Std Dev | Sharpe Ratio | Sortino Ratio RF |
|------------------|-----------|---------------|--------------|------------------|
| Total Trust | 8.5% | 7.5% | 1.0 | 1.5 |
| Policy Benchmark | 6.6% | 8.0% | 0.7 | 1.0 |

- The three-year and five-year Trust returns have outperformed the actuarial rate of return.
- On a risk-adjusted basis, the three-year and five-year Sharpe and Sortino Ratios outperformed the benchmark, indicating that active management benefitted the plan.

TOTAL TRUST ASSET GROWTH SUMMARY

| | Summary of Cash Flows | | | | |
|----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | Last Three Months | Fiscal Year-To-Date | One Year | Three Years | Five Years |
| Beginning Market Value | \$35,211,542,388 | \$34,909,583,238 | \$33,902,876,973 | \$28,668,965,891 | \$26,979,126,647 |
| Contributions | \$2,377,145,673 | \$10,849,283,938 | \$14,736,024,186 | \$48,126,835,826 | \$67,452,073,750 |
| Withdrawals | -\$2,749,518,170 | -\$11,625,242,743 | -\$15,755,163,030 | -\$51,814,852,805 | -\$73,548,359,159 |
| Net Cash Flow | -\$372,372,497 | -\$775,953,571 | -\$1,019,133,610 | -\$3,687,802,045 | -\$6,084,160,627 |
| Net Investment Change | -\$1,810,969,770 | -\$1,105,429,546 | \$144,456,759 | \$8,047,036,275 | \$12,133,234,101 |
| Ending Market Value | \$33,028,200,122 | \$33,028,200,122 | \$33,028,200,122 | \$33,028,200,122 | \$33,028,200,122 |

TRUST ASSET ALLOCATION VS. POLICY TARGETS

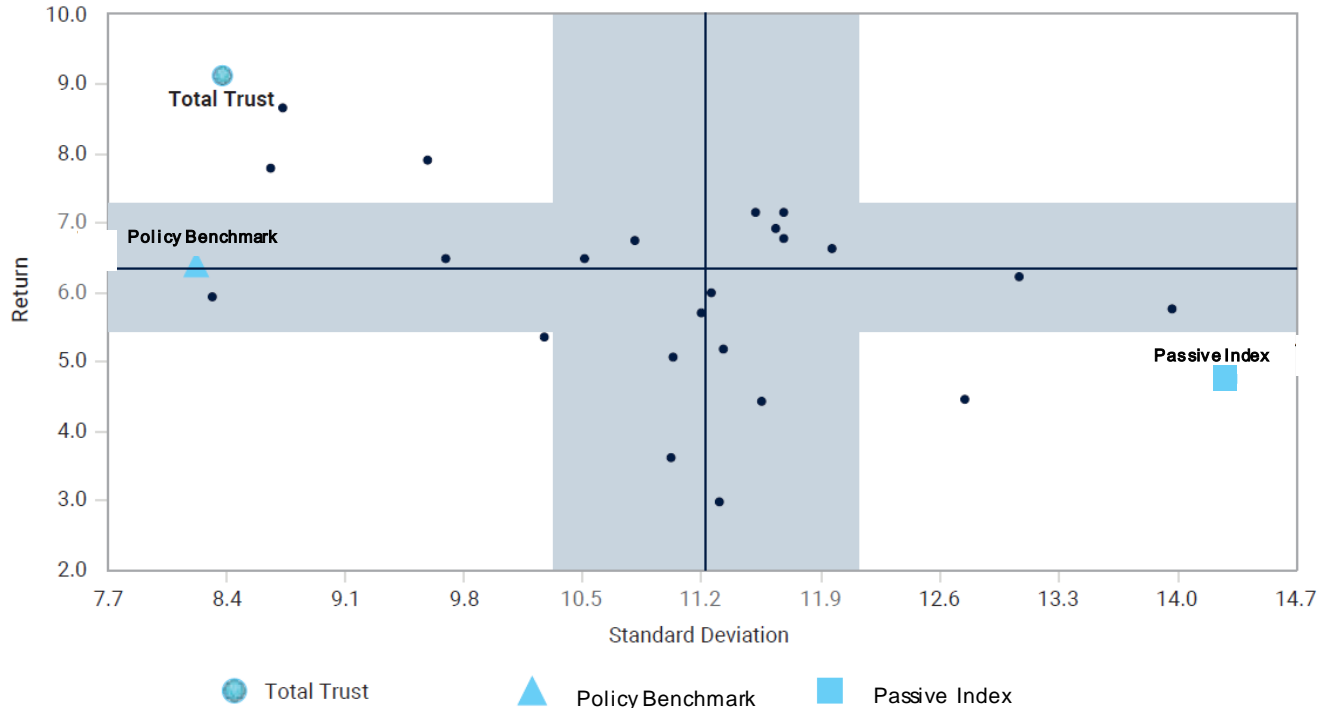


| Asset Allocation on June 30, 2022 | | | | |
|-----------------------------------|-------------------------|-------------|------------------|------------------------|
| | Current | Current | Long-Term Target | Long-Term Target Range |
| Public Equity | \$10,857,670,278 | 32.9% | 37.0% | 27.0% - 47.0% |
| Total Rates | \$3,665,910,317 | 11.1% | 11.0% | -- |
| Global Credit | \$3,234,187,647 | 9.8% | 13.0% | 1.0% - 21.0% |
| Private Equity | \$6,512,688,775 | 19.7% | 13.0% | 8.0% - 18.0% |
| Absolute Return | \$1,570,777,499 | 4.8% | 5.0% | 0.0% - 10.0% |
| Real Estate - Private | \$3,629,792,701 | 11.0% | 9.0% | 4.0% - 14.0% |
| Real Estate - Public | \$914,242,888 | 2.8% | 3.0% | 0.0% - 13.0% |
| Infrastructure | \$1,719,690,661 | 5.2% | 7.0% | 2.0% - 12.0% |
| Cash | \$562,180,302 | 1.7% | 1.2% | -- |
| Special Situations | \$361,059,052 | 1.1% | 0.8% | 0.0% - 5.0% |
| Total | \$33,028,200,122 | 100% | 100.0% | |



TOTAL TRUST RISK/RETURN

3 Years Ending June 30, 2022

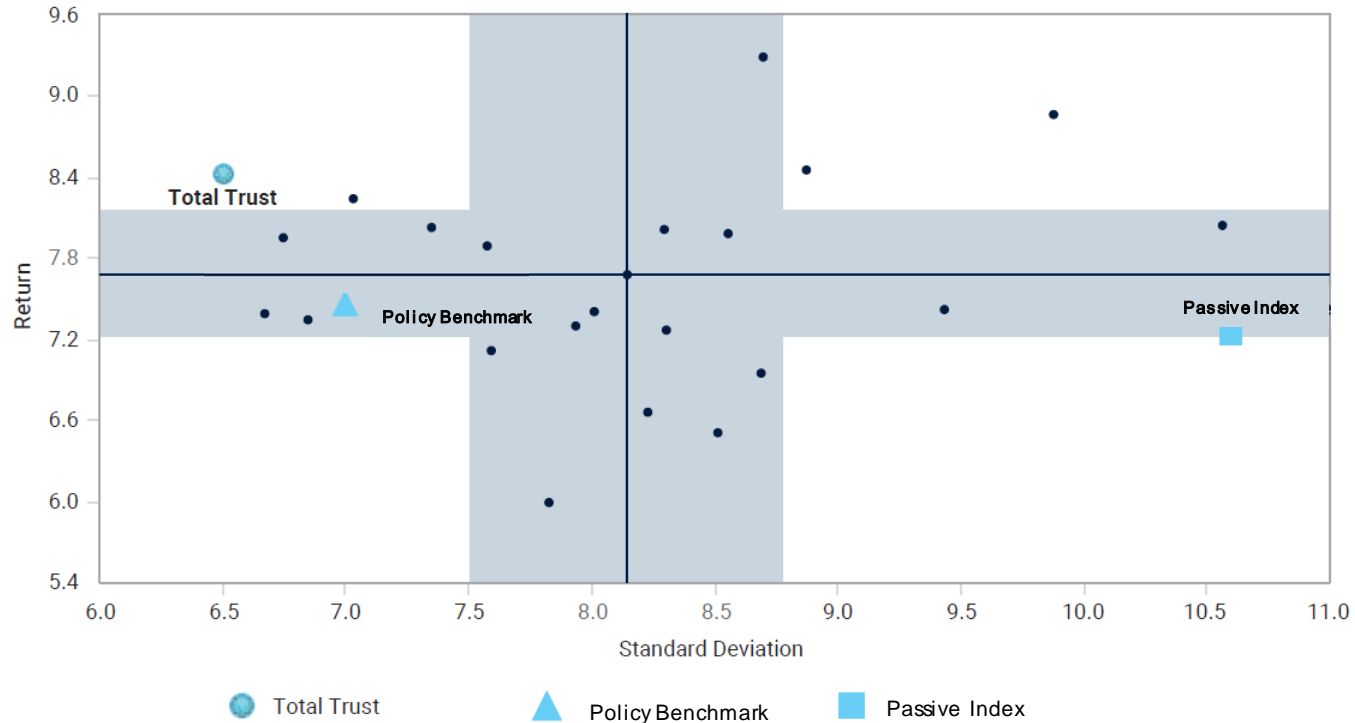


Note: Passive Index is comprised of 79% MSCI ACWI IMI and 21% Bloomberg Intermediate Treasury Index. Index definitions can be found in the appendix.



TOTAL TRUST RISK/RETURN

10 Years Ending June 30, 2022

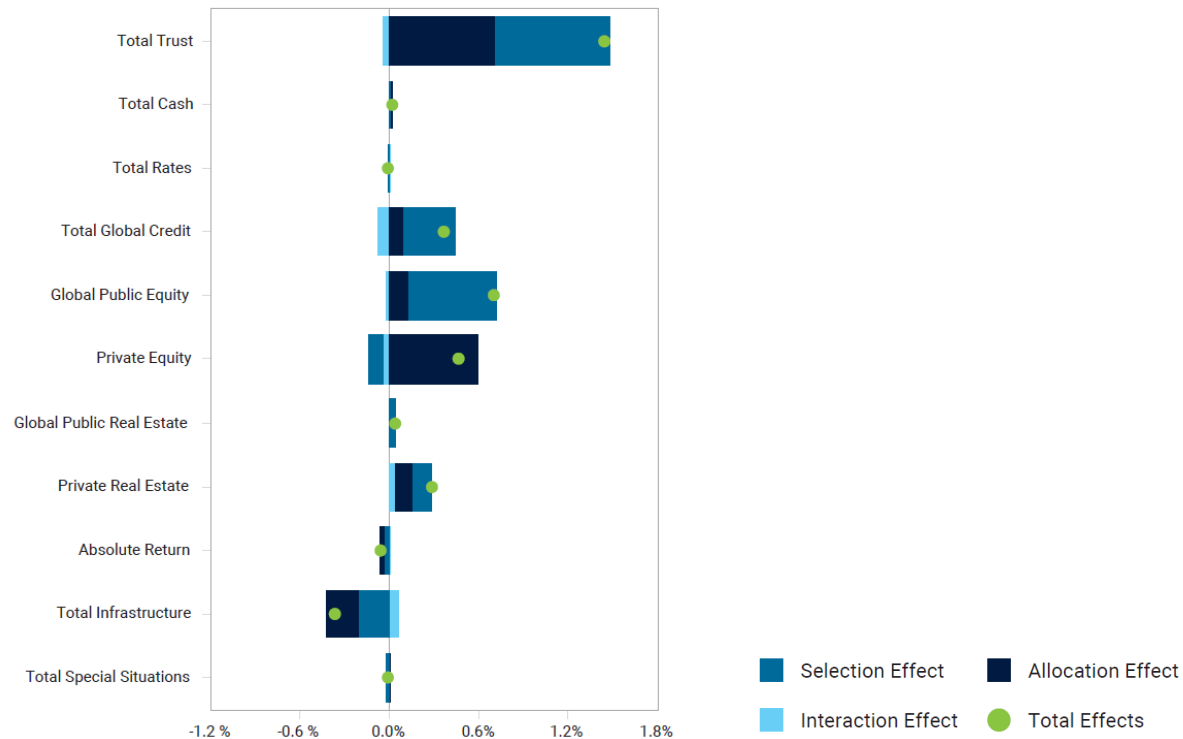


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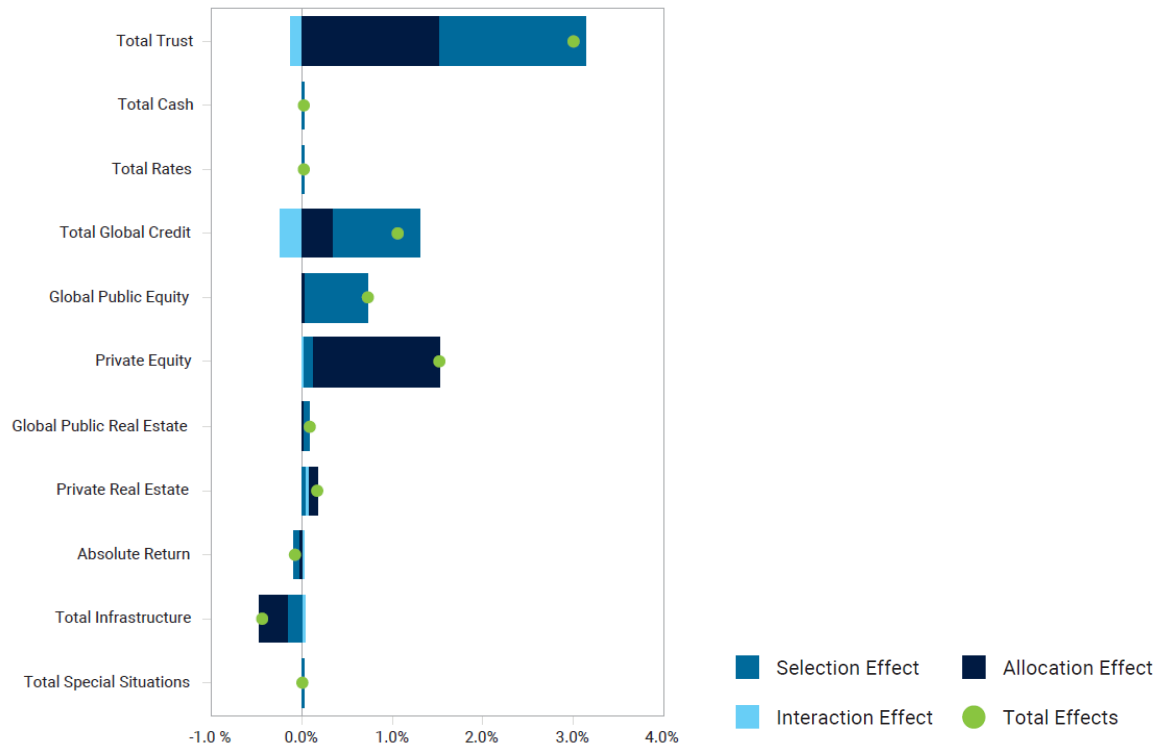
TOTAL TRUST ATTRIBUTION ANALYSIS

Attribution Effects
1 Quarter Ending June 30, 2022

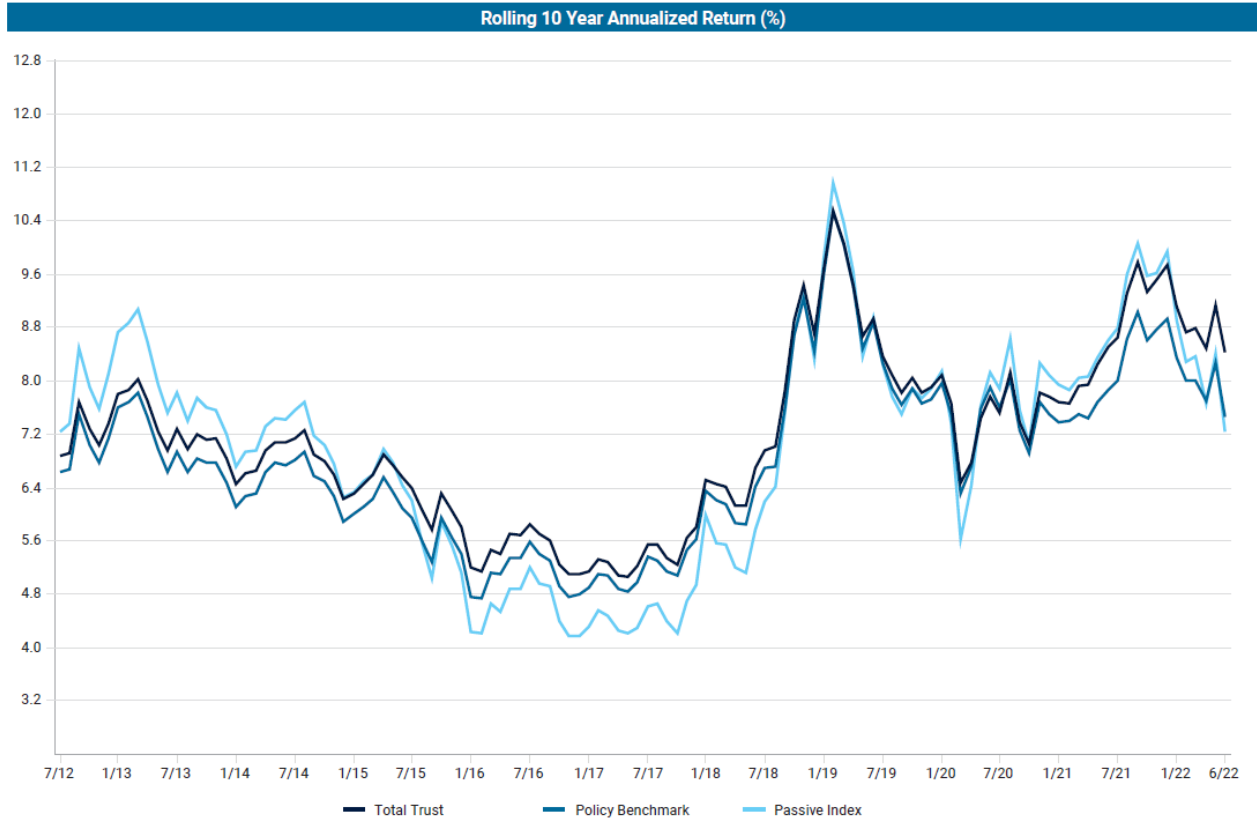


TOTAL TRUST ATTRIBUTION ANALYSIS

Attribution Effects
1 Year Ending June 30, 2022



LONG TERM INVESTMENT RESULTS

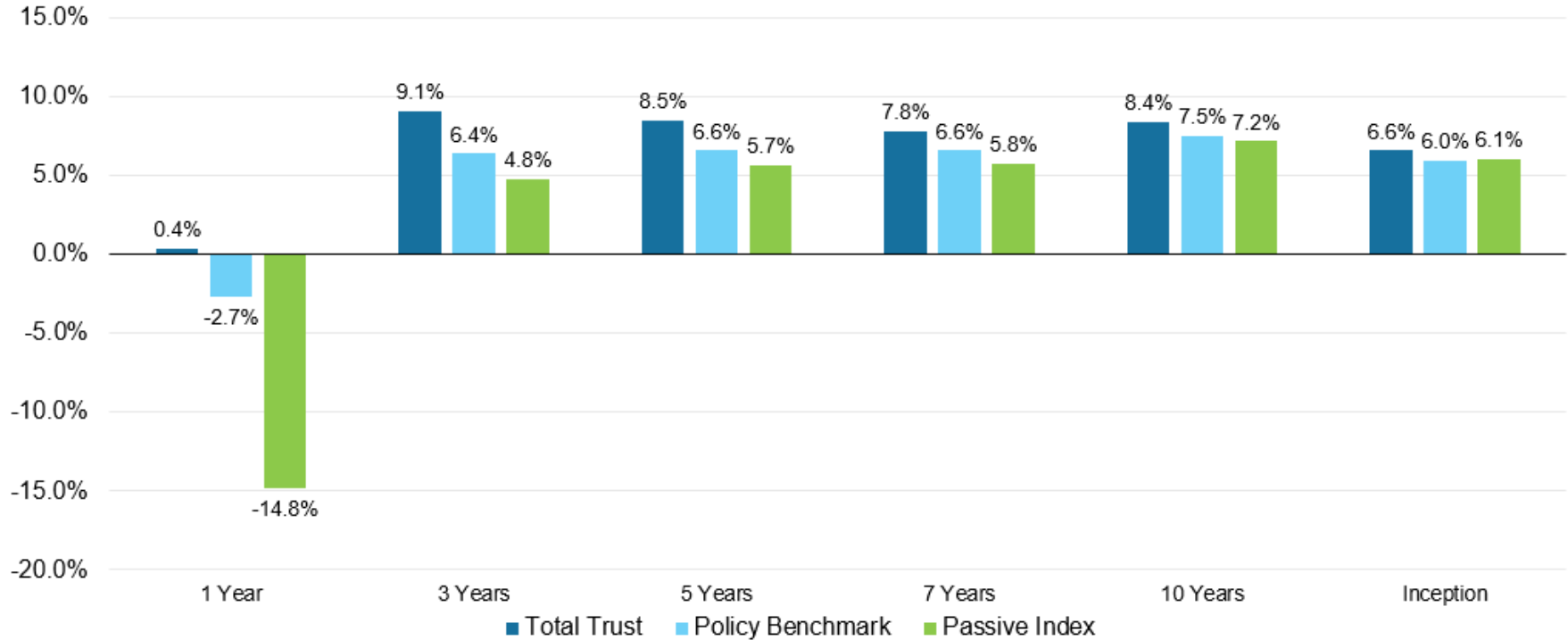


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LONG TERM INVESTMENT RESULTS

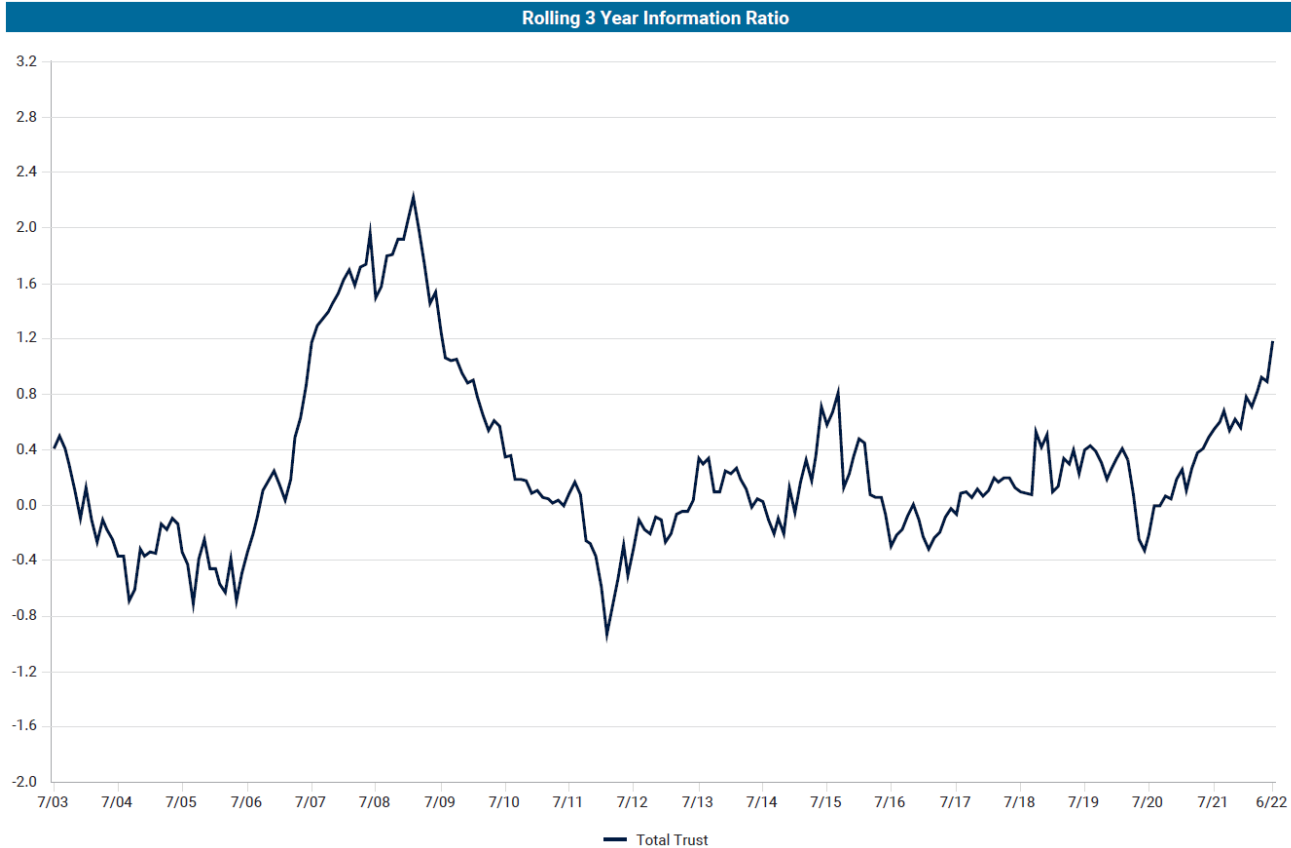
Return Summary (net of fees)



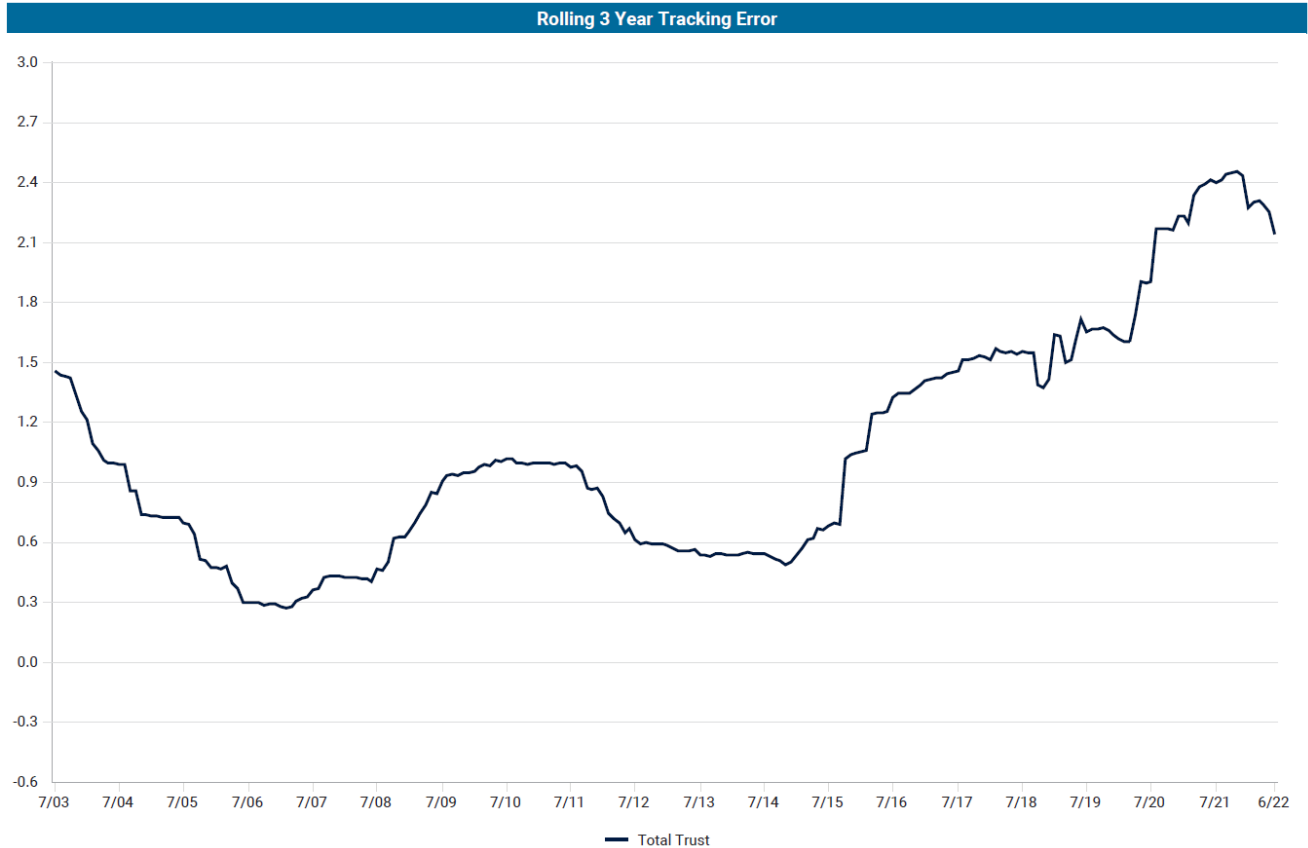
Note: Passive Index is comprised of 79% MSCI ACWI IMI and 21% Bloomberg Intermediate Treasury Index. Index definitions can be found in the appendix.



ROLLING INFORMATION RATIO



ROLLING TRACKING ERROR



PERFORMANCE SUMMARY COMMENTARY

- **Over the past 10 years, Total Trust returns outperformed the Policy Benchmark by 0.9% and outperformed the Plan's actuarial rate of return of 7.0% by 1.4%.**
- **In the one-year period ended June 30, 2022, the Trust outperformed the Policy Benchmark by 3.1%.**
 - The largest contributors to performance against the benchmark were Private Equity (+1.5%), Global Credit (+1.1%), and Public Equity (+0.7%).
 - The detractors against the benchmark were Infrastructure (-0.4%) and Absolute Return (-0.1%).
- **In the past one-year, portfolio positioning at the asset class level contributed +1.5% to Total Trust returns versus the policy benchmark.**
 - An overweight position to Private Equity contributed positively (+1.4%).
 - An underweight position in Global Credit contributed positively (+0.3%).
 - An underweight position in Infrastructure contributed negatively (-0.3%).

Risk Management & Applied Research
Risk Update

Carlos Chujoy, CFA, Director of Risk Management & Applied Research

Risk Update

Agenda



- Key Takeaways
- Headwinds and Tailwinds
- Market Conditions
- ERS Trust Portfolio Review

Risk Update

Key Takeaways



- Financial conditions continued to tighten up
 - Interest rates on the rise at a rapid pace
 - Economic slowdown
 - Recession fears
- Risk indicators at stressed levels
- Sharp market correction and increased market pessimism
- Positive ERS' Trust relative performance

Risk Update

Second Quarter of 2022



Headwinds

- Acceleration in the pace of rate increases
- Economic slowdown
- Recession risk
- Risky assets under pressure

Tailwinds

- Signs of inflation rate stabilizing

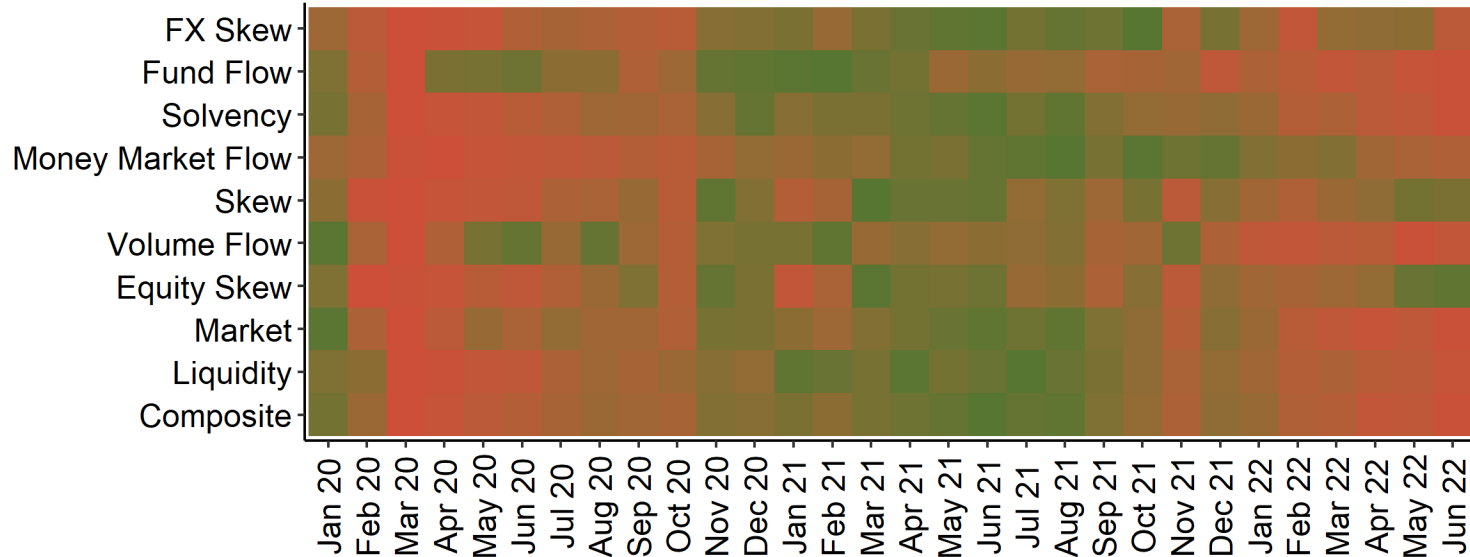
Risk Update

Market Conditions – Market Stress



Heatmap of Global Stress Financial Indicators

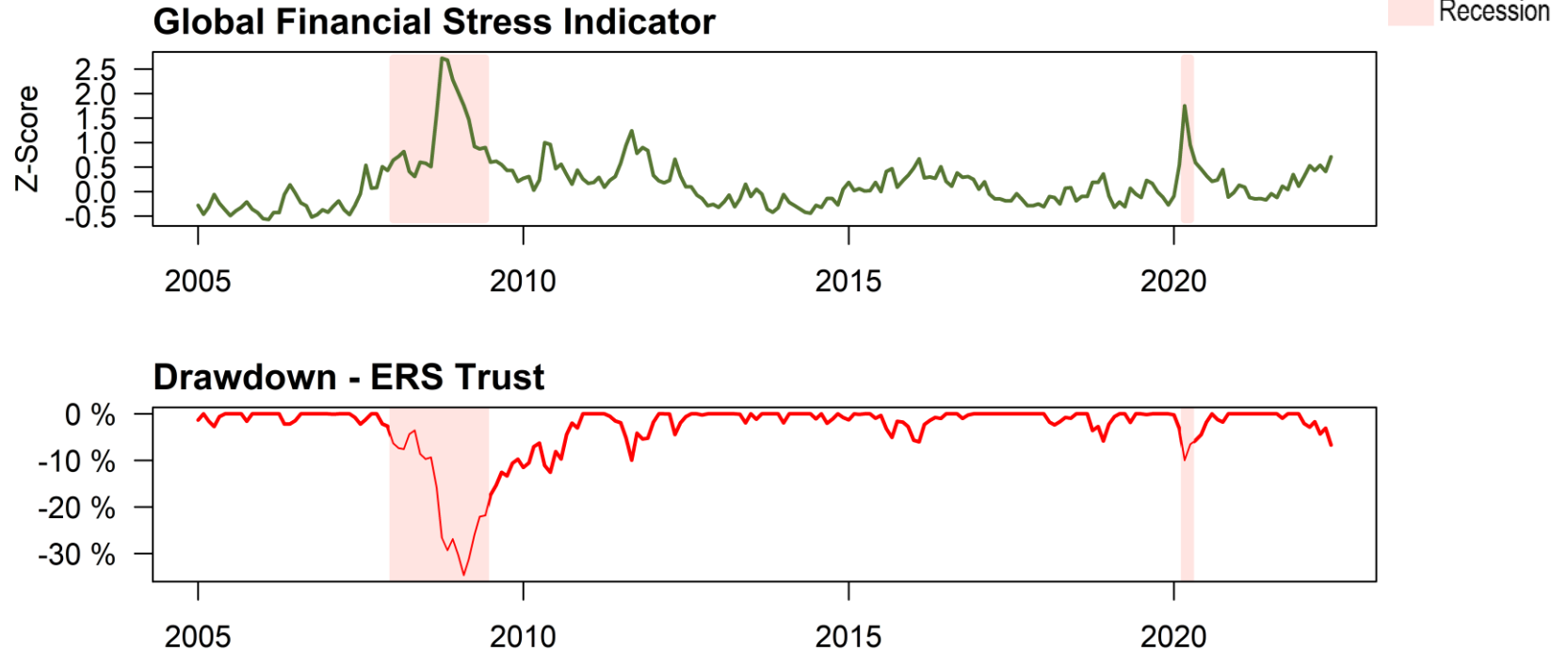
Over the preceding 30-month period ending June 2022



Source: ERS, Bloomberg, Bank of America

Risk Update

Market Conditions – Market Stress



Source: ERS, Bloomberg

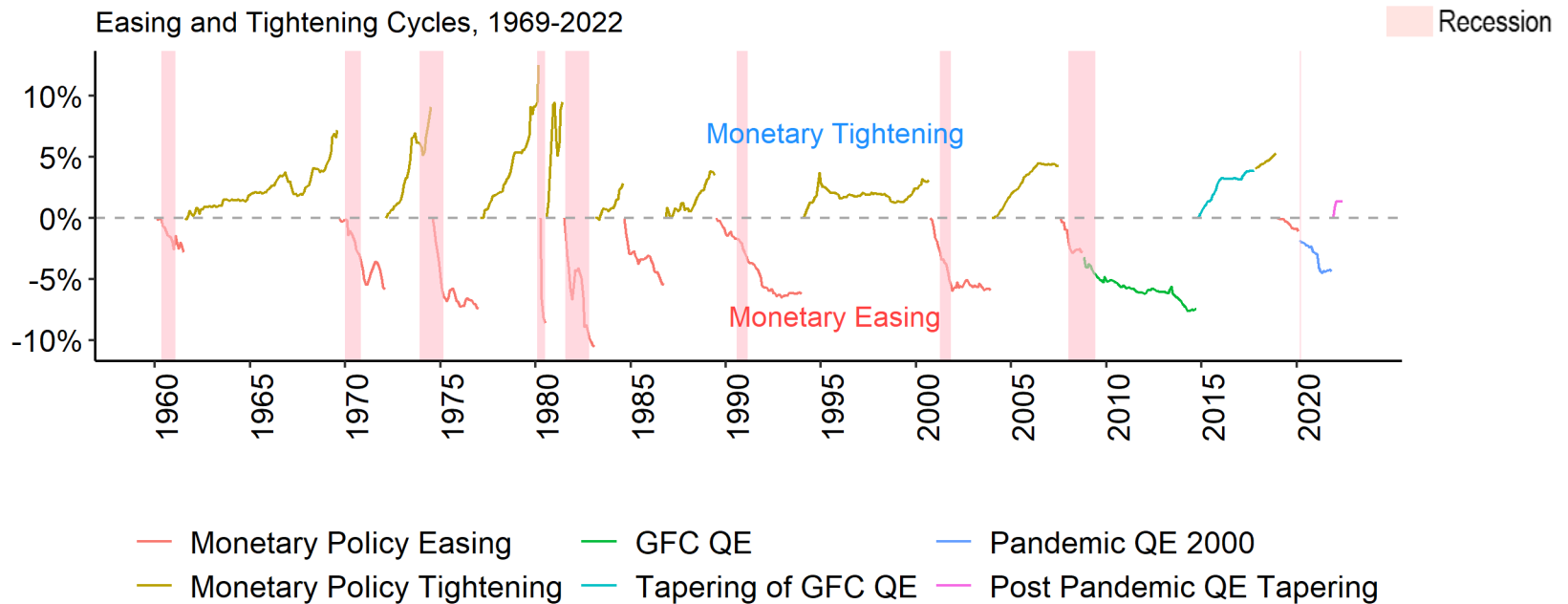
Risk Update

Market Conditions – Interest Rate Risk



US Interest Regimes

Easing and Tightening Cycles, 1969-2022



Source: ERS, Bloomberg

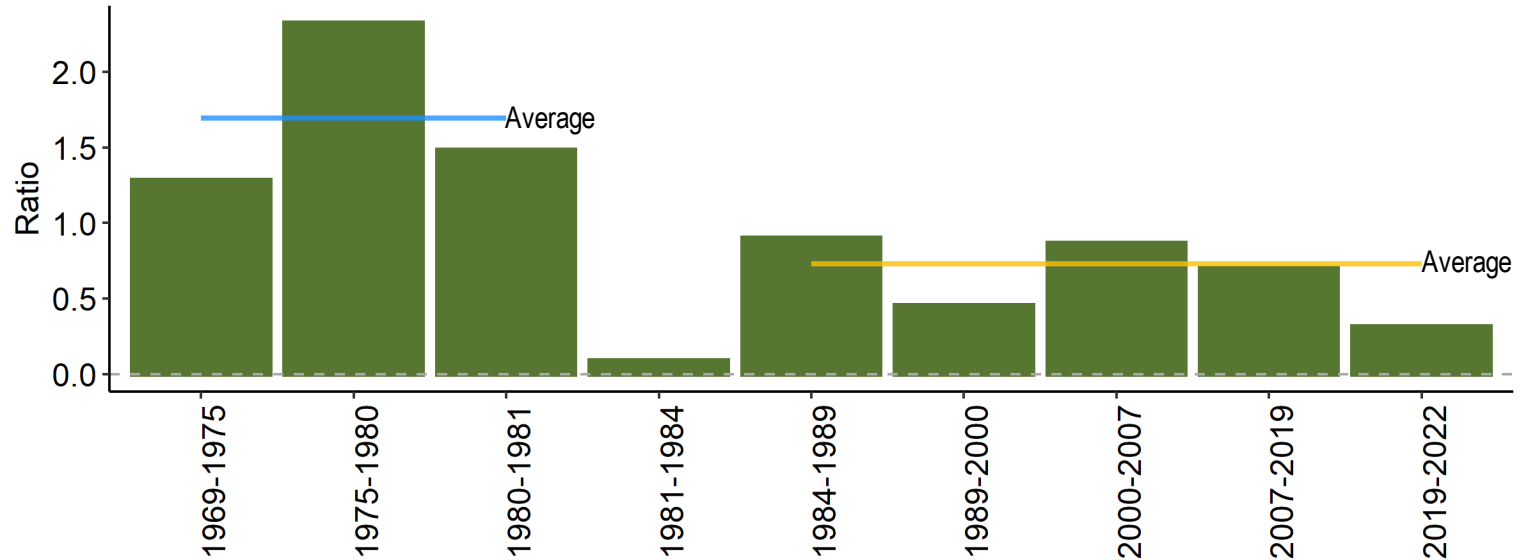
Risk Update

Market Conditions – Interest Rate Risk



US Interest Regimes

Monetary Tightening to Easing Ratio, 1969-2022



Source: ERS, Bloomberg, Societe Generale

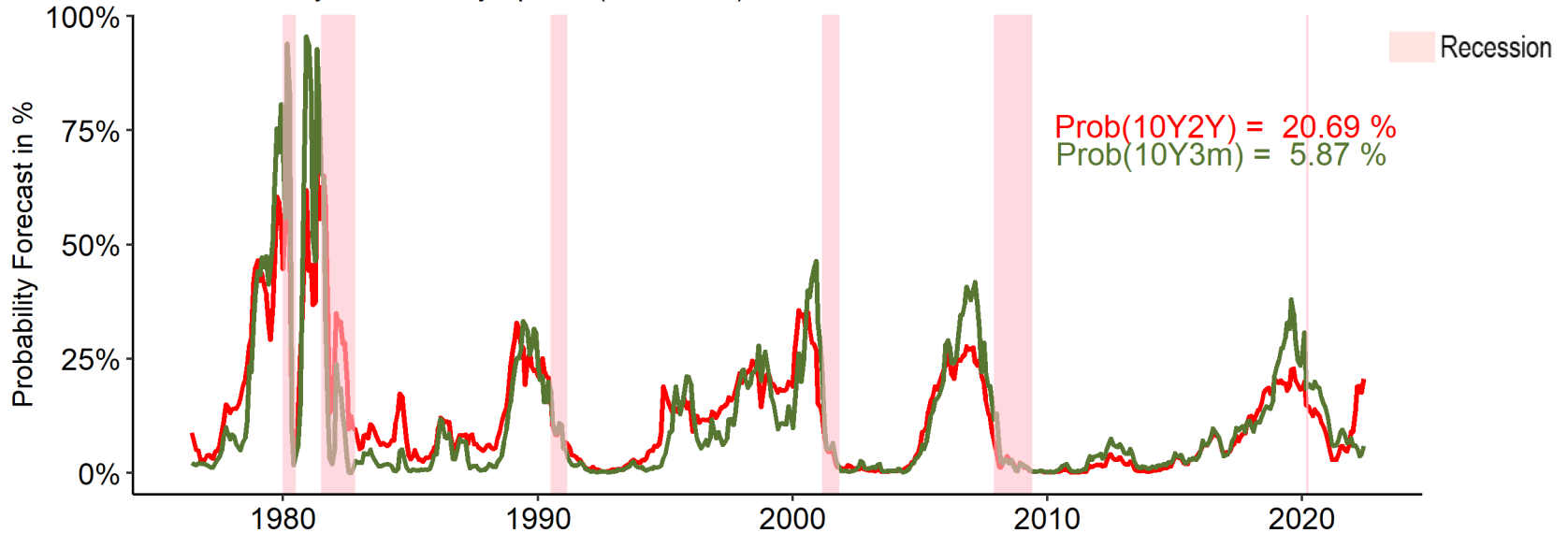
Risk Update

Market Conditions – Monetary Policy Risk



Probability of a US Recession Twelve Months Ahead

As Predicted by the Treasury Spread (June 2023)



Source: ERS, Bloomberg

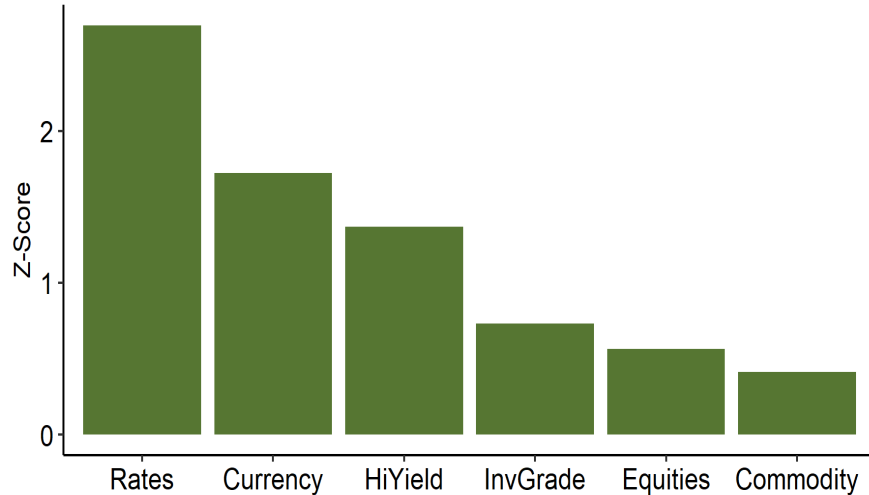
Risk Update

Market Conditions – Market Risk



Rates Volatility has been the main driver of risk

During 2022

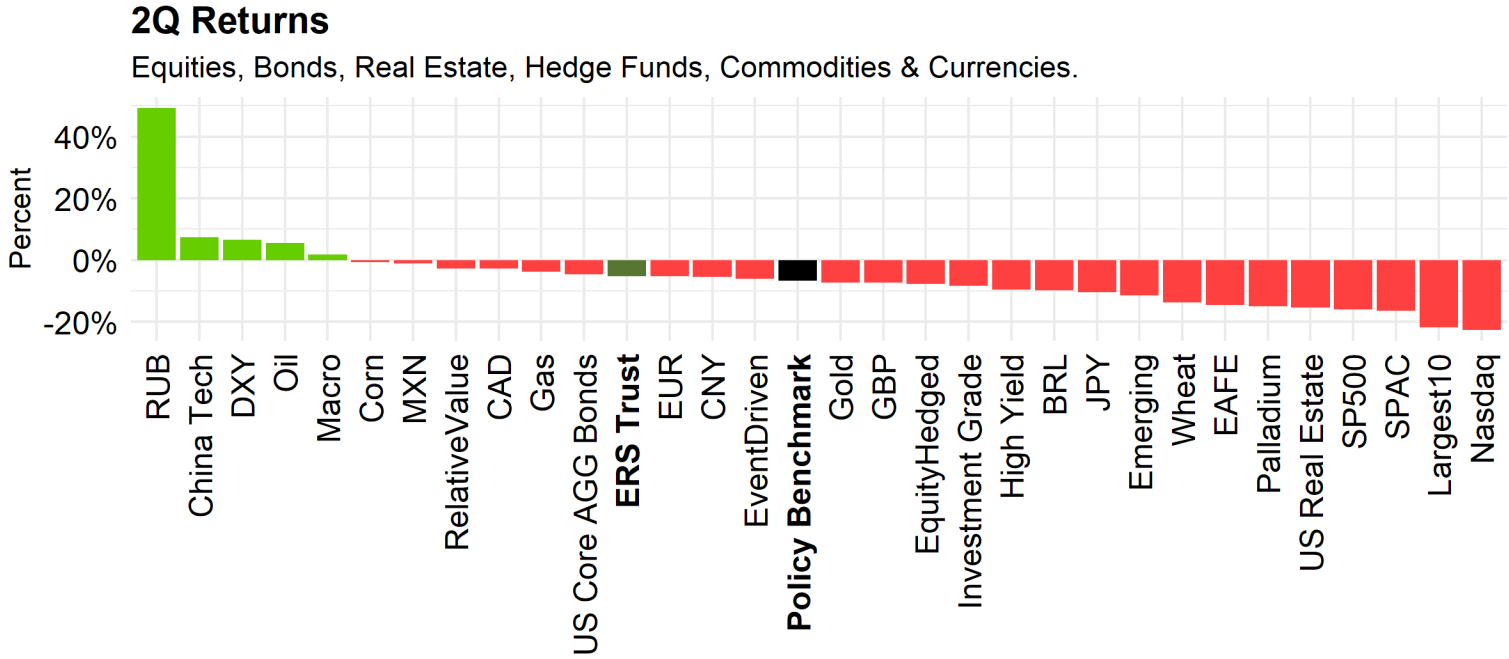


Source: ERS, Bloomberg

- The rise in rates volatility stemmed from tightening financial conditions
- When rates volatility is high relative to the markets, market volatility tends to rise over the following months
- In this context, rising volatility is generally associated with market pullbacks

Risk Update

Market Conditions – Market Performance



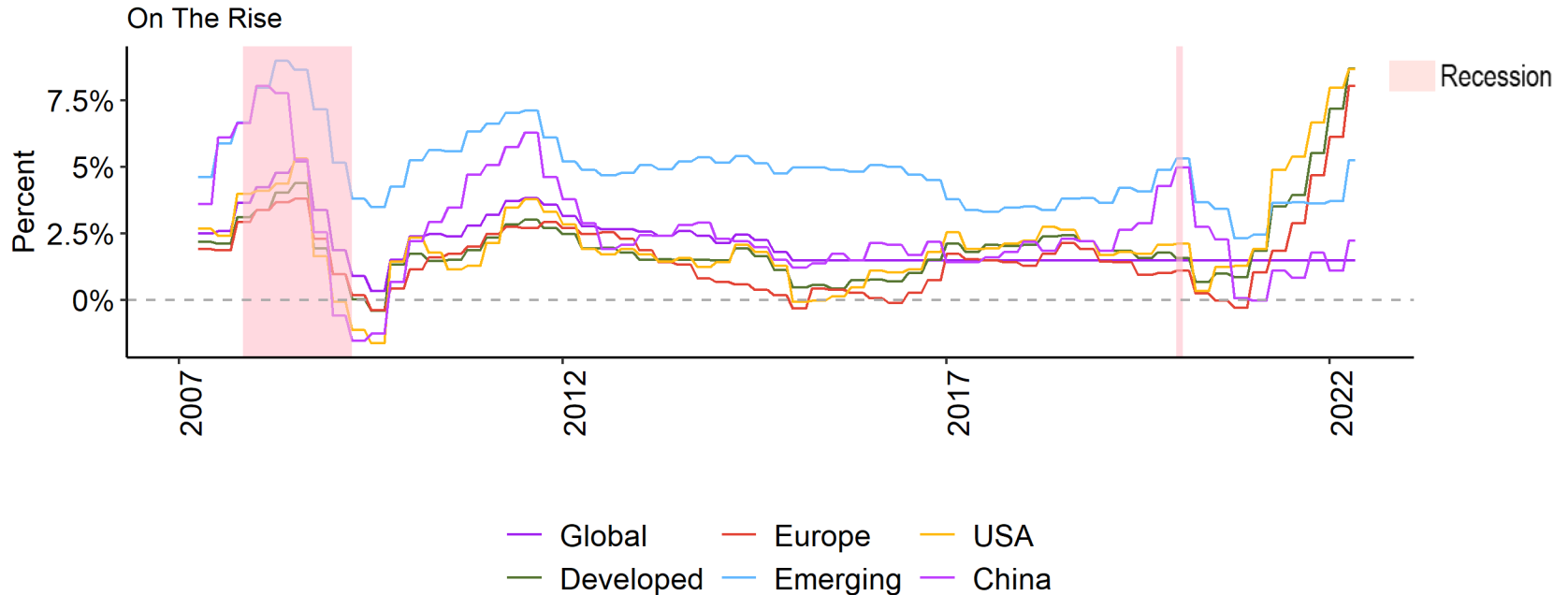
Source: ERS, Bloomberg

Risk Update

Market Conditions – Inflation Risk



World and Regional Inflation



Source: ERS, Bloomberg

Risk Update

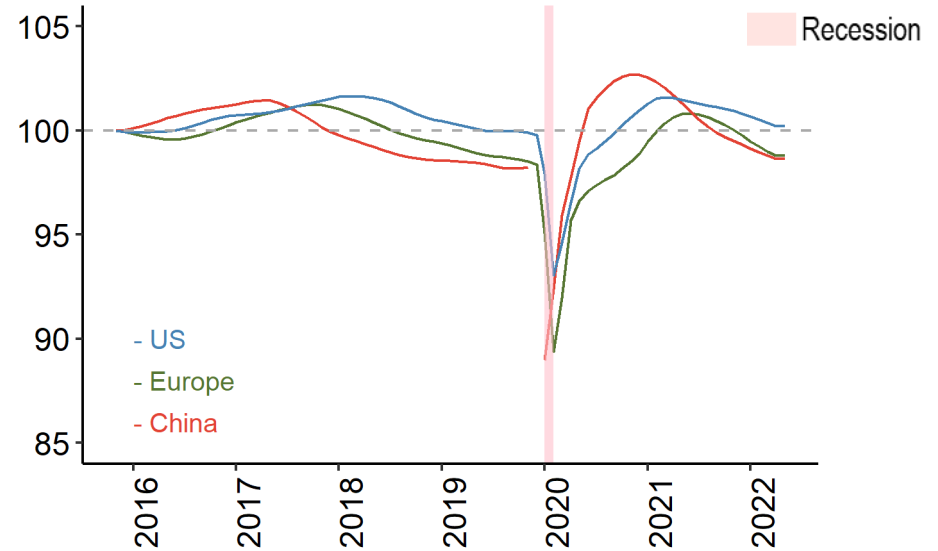
Market Conditions – Economic Activity

Manufacturing PMI's around the World

| | 2021-06-30 | 2021-09-30 | 2021-12-31 | 2022-03-31 | 2022-06-30 |
|----------------|------------|------------|------------|------------|------------|
| Regions | | | | | |
| Global | 55.50 | 54.10 | 54.30 | 52.90 | 52.20 |
| Developed | 59.50 | 57.10 | 56.60 | 56.50 | 52.50 |
| Emerging | 51.30 | 50.80 | 51.70 | 49.20 | 51.70 |
| America | | | | | |
| USA | 60.90 | 60.50 | 58.80 | 57.10 | 53.00 |
| Canada | 56.50 | 57.00 | 56.50 | 58.90 | 54.60 |
| Mexico | 48.80 | 48.60 | 49.40 | 49.20 | 52.20 |
| Europe | | | | | |
| Europe | 63.40 | 58.60 | 58.00 | 56.50 | 52.10 |
| Germany | 65.10 | 58.40 | 57.40 | 56.90 | 52.00 |
| UK | 63.90 | 57.10 | 57.90 | 55.20 | 52.80 |
| France | 59.00 | 55.00 | 55.60 | 54.70 | 51.40 |
| Italy | 62.20 | 59.70 | 62.00 | 55.80 | 50.90 |
| Spain | 60.40 | 58.10 | 56.20 | 54.20 | 52.60 |
| Asia | | | | | |
| China | 50.90 | 49.60 | 50.30 | 49.50 | 50.20 |
| Japan | 52.40 | 51.50 | 54.30 | 54.10 | 52.70 |

Global Economic Activity

Slowing Down



Source: ERS, Bloomberg

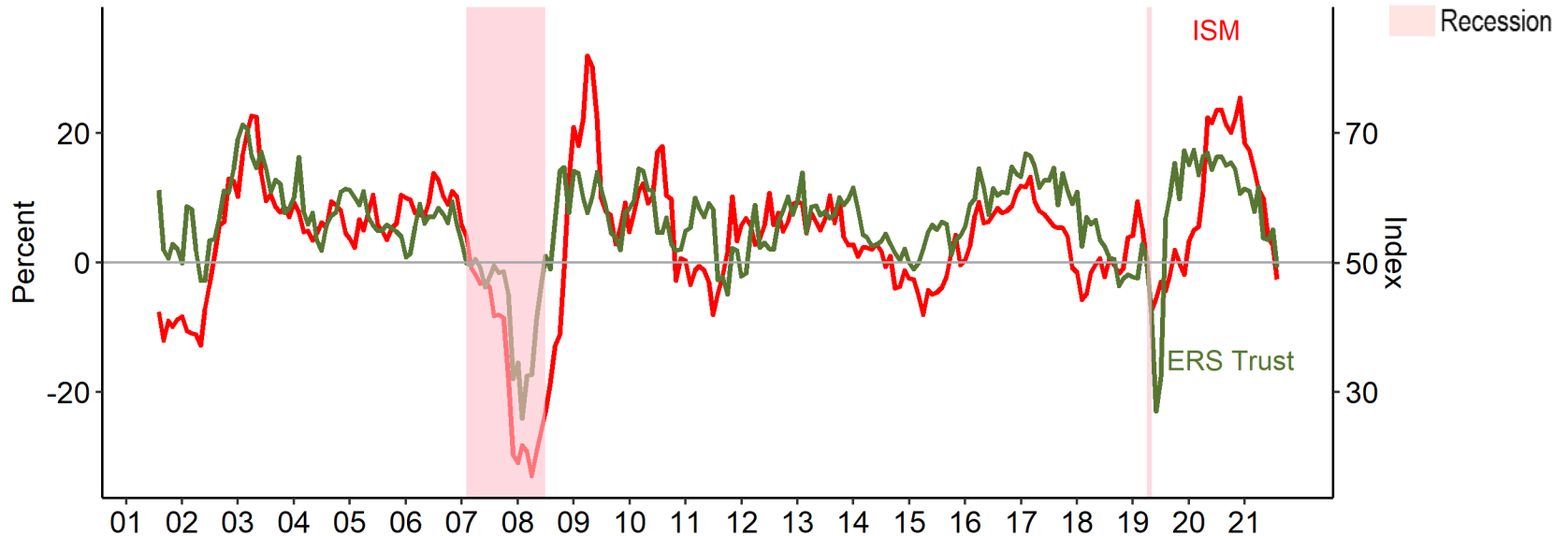
Risk Update

Market Conditions – Market Performance



Business Cycle Is A Major Driver Of Market Performance

ERS Trust vs ISM New Orders



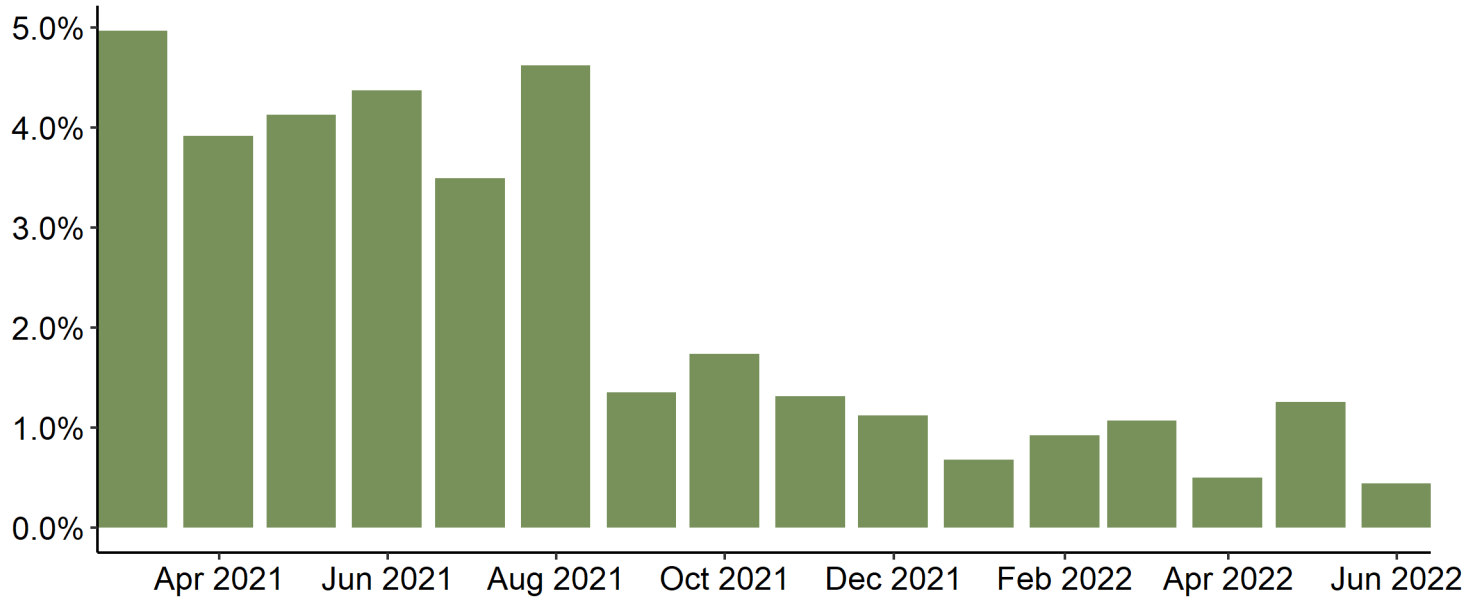
Source: ERS, Bloomberg

Risk Update

ERS Trust - Portfolio Review



ERS' Return Seeking Relative Policy Weight



Source: ERS, BNYM

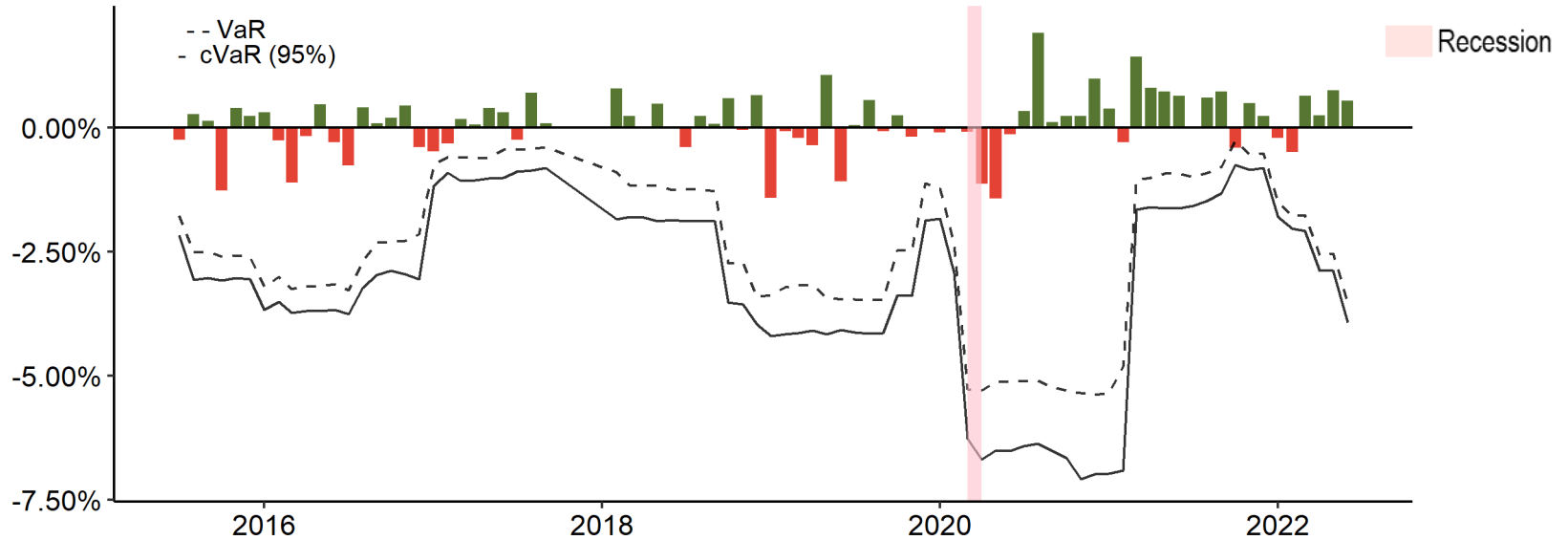
Risk Update

ERS Trust - Portfolio Review



ERS' Monthly Excess Return and Left Tail Risk

Trust asset returns fared better during the recent market pull back



Source: ERS, BNYM

Questions?

Public Agenda Item #12

Consideration of 2022 Asset Liability Study – (Action)

August 24, 2022

David T. Veal, Chief Investment Officer, CFA, CAIA, FRM

Sam Austin, Partner, NEPC

Rob Goldthorpe, Investment Director, NEPC

ASSET-LIABILITY STUDY

EMPLOYEES RETIREMENT SYSTEM
OF TEXAS

AUGUST 2022



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

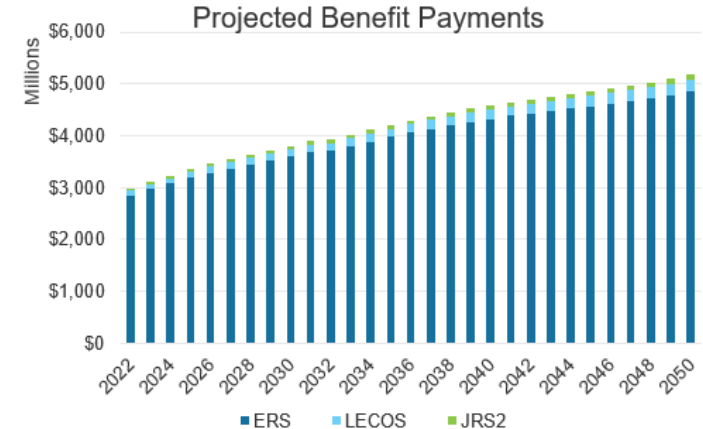
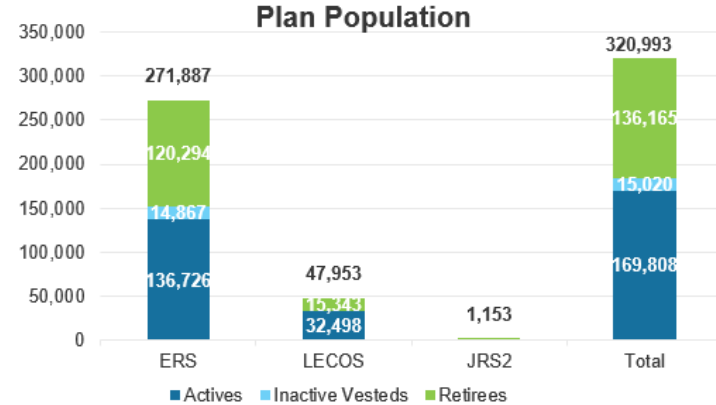
UPDATES SINCE PRELIMINARY RESULTS

- **Discussions and data provided by GRS was instrumental in improving Legacy Contribution projections**
 - Main adjustment was reduction in future normal cost that now allows for more of the unfunded liability to be paid down faster resulting in lower projected legacy contributions
- **Updating models to incorporate most recent NEPC capital market outlook**
 - Mean-variance assumptions were updated from 12/31/21 to 6/30/22
 - Interest rate outlook has changed significantly over this time frame
- **Run alternative mixes to provide comparative analysis alongside the Current Policy allocation**
 - Mix A & Mix B: realistic mixes that marginally adjusts current targets
 - Mix C: mix that illustrates the potential of maintaining higher current targets to private equity and adding to hedge funds
 - Lower Risk/Higher Risk: illustrative mixes that provide bookends in terms of risk/return

EMPLOYEES RETIREMENT SYSTEM OF TEXAS

PLAN CHARACTERISTICS

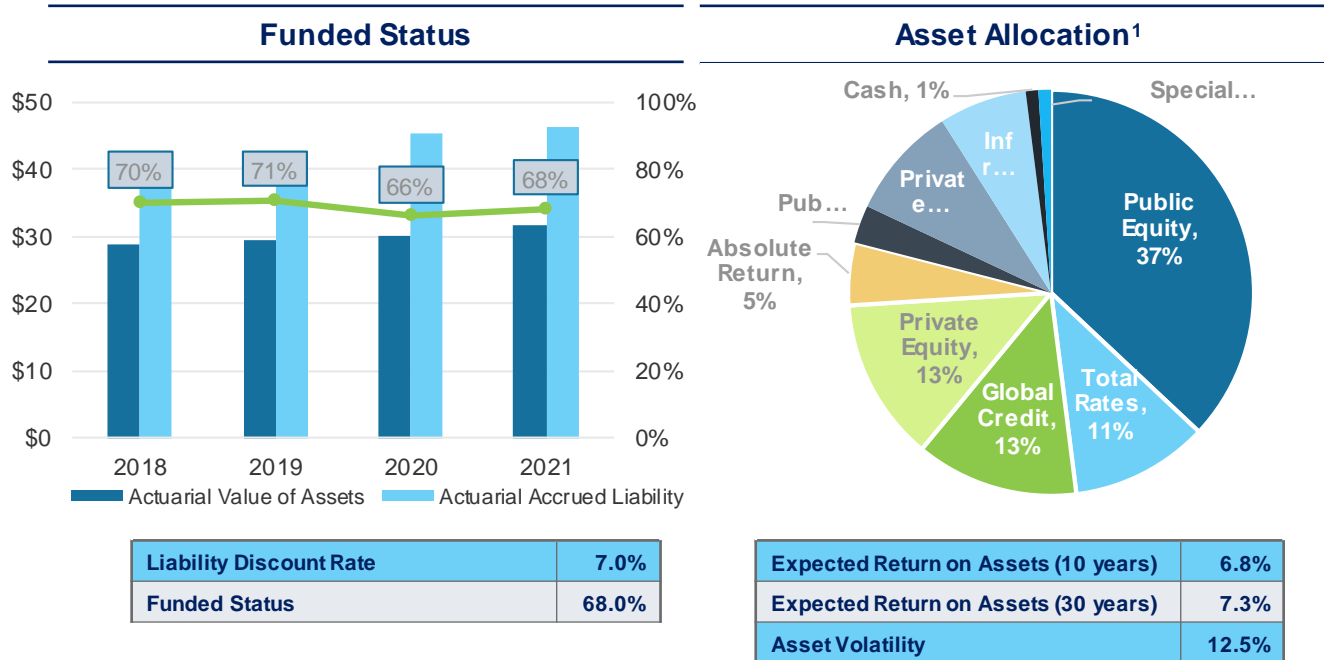
- **The Texas ERS administers 3 pension plans**
 - Employees Retirement System (ERS)
 - Law Enforcement and Custodial Officer Supplemental Retirement Fund (LECOS)
 - Judicial Retirement System Plan 2 (JRS2)
- **ERS is by far the main cost driver**
 - Consists of 85% of all participants and 95% of all liabilities
- **As of August 31, 2021 Texas ERS is 68.0% funded based on a smoothed asset value**
 - 76.0% funded on a market value basis
- **Due to recent legislative changes, ERS is now on a better path toward full funding**
 - “Legacy Payments” are now appropriated in order to reach full funding by 2054
- **Asset allocation has followed a diversified total return approach with a mix of public and private equity, debt and real estate along with hedge funds**
 - 30-yr expected return of 7.3% vs. 7.0% liability discount rate



Notes:
Source: GRS

EMPLOYEES RETIREMENT SYSTEM OF TEXAS

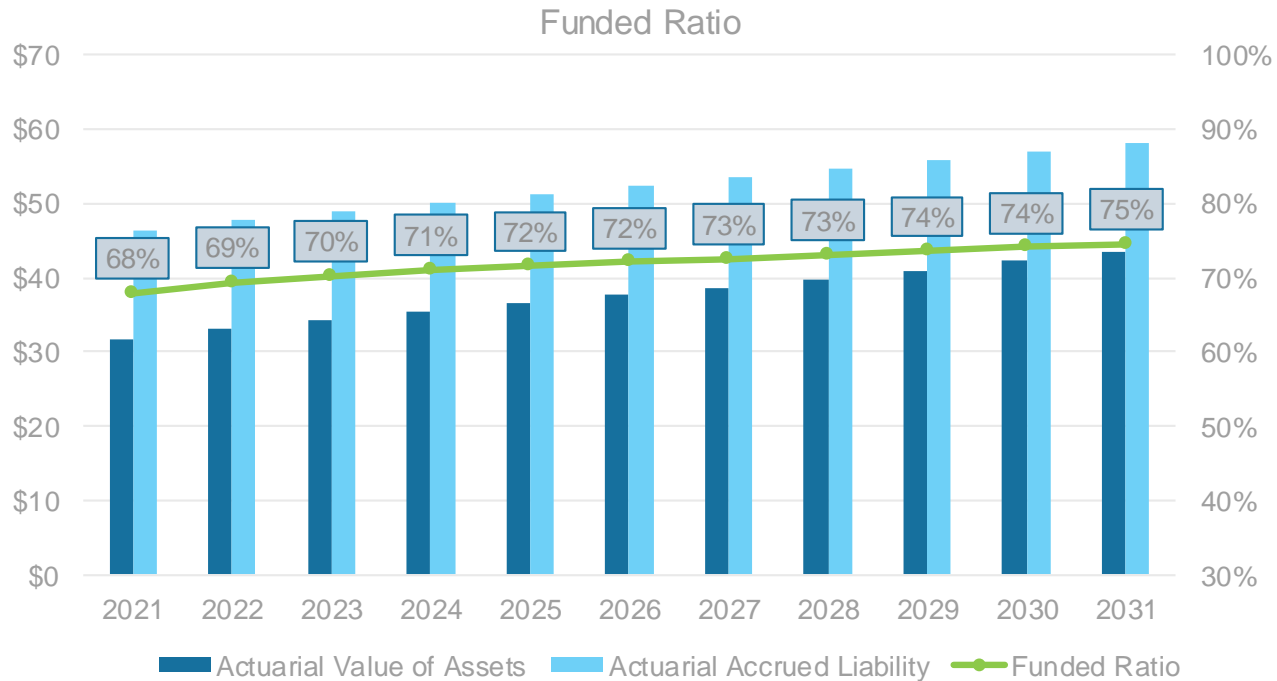
PLAN RISK PROFILE



Notes: ¹ Current Policy targets

EMPLOYEES RETIREMENT SYSTEM OF TEXAS

10-YR FUNDED STATUS PROJECTION – TOTAL SYSTEM

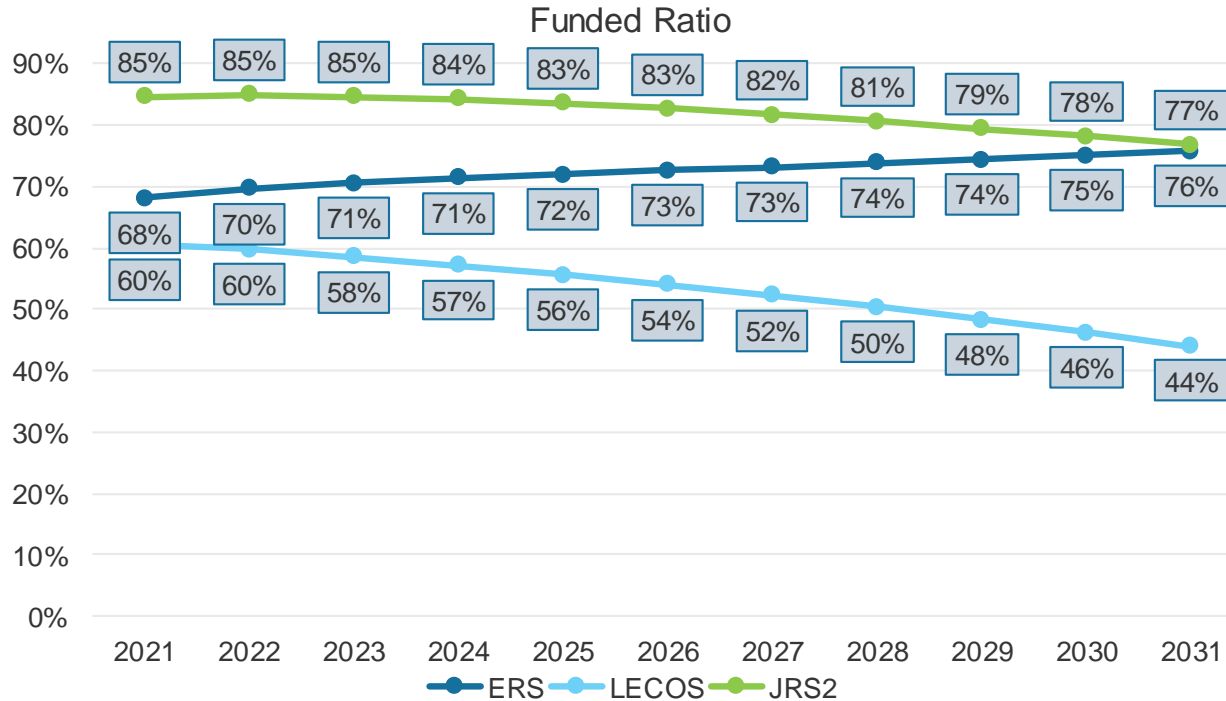


Notes: As of August 31; Reflects return of -3.2% thru 6/30/22, thereafter Current Policy allocation 10-yr expected return of 6.8% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

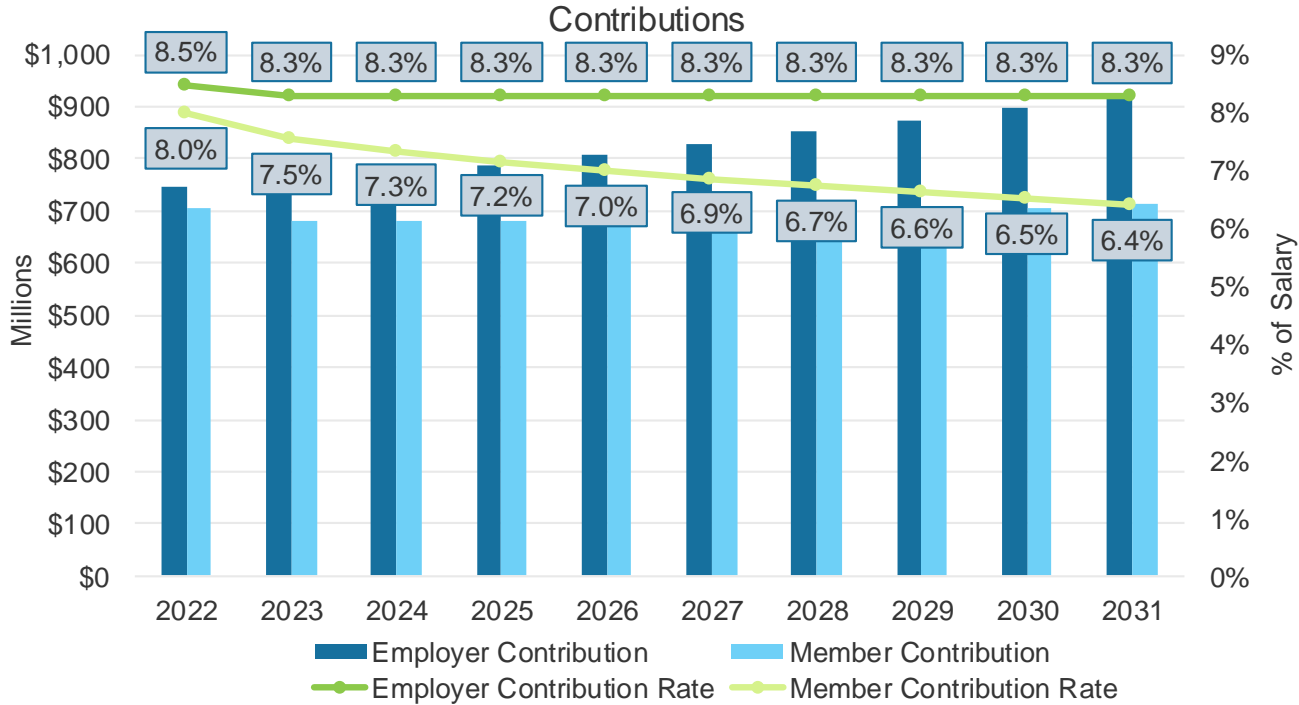
10-YR FUNDED STATUS PROJECTION – PLAN LEVEL



Notes: As of August 31; Reflects return of -3.2% thru 6/30/22, thereafter Current Policy allocation 10-yr expected return of 6.8% per annum

EMPLOYEES RETIREMENT SYSTEM OF TEXAS

10-YR CONTRIBUTION PROJECTION – TOTAL SYSTEM

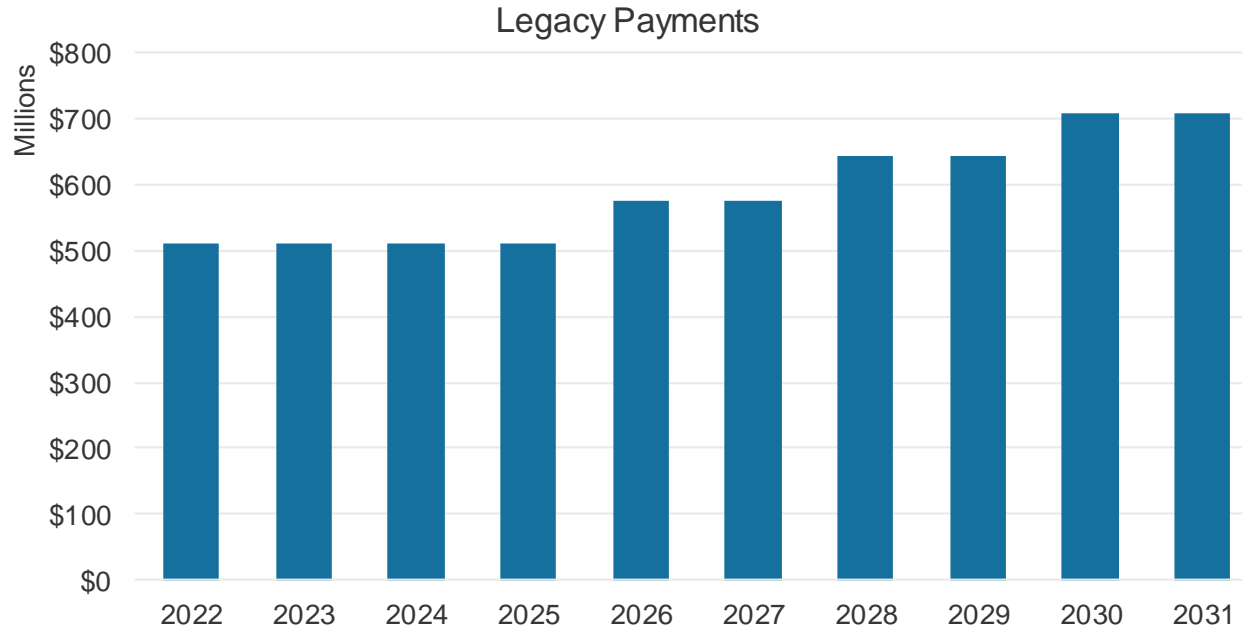


Notes: For the fiscal year ending August 31; Reflects return of -3.2% return thru 6/30/22, thereafter Current Policy allocation 10-yr expected return of 6.8% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

10-YR CONTRIBUTION PROJECTION – ERS LEGACY PAYMENTS

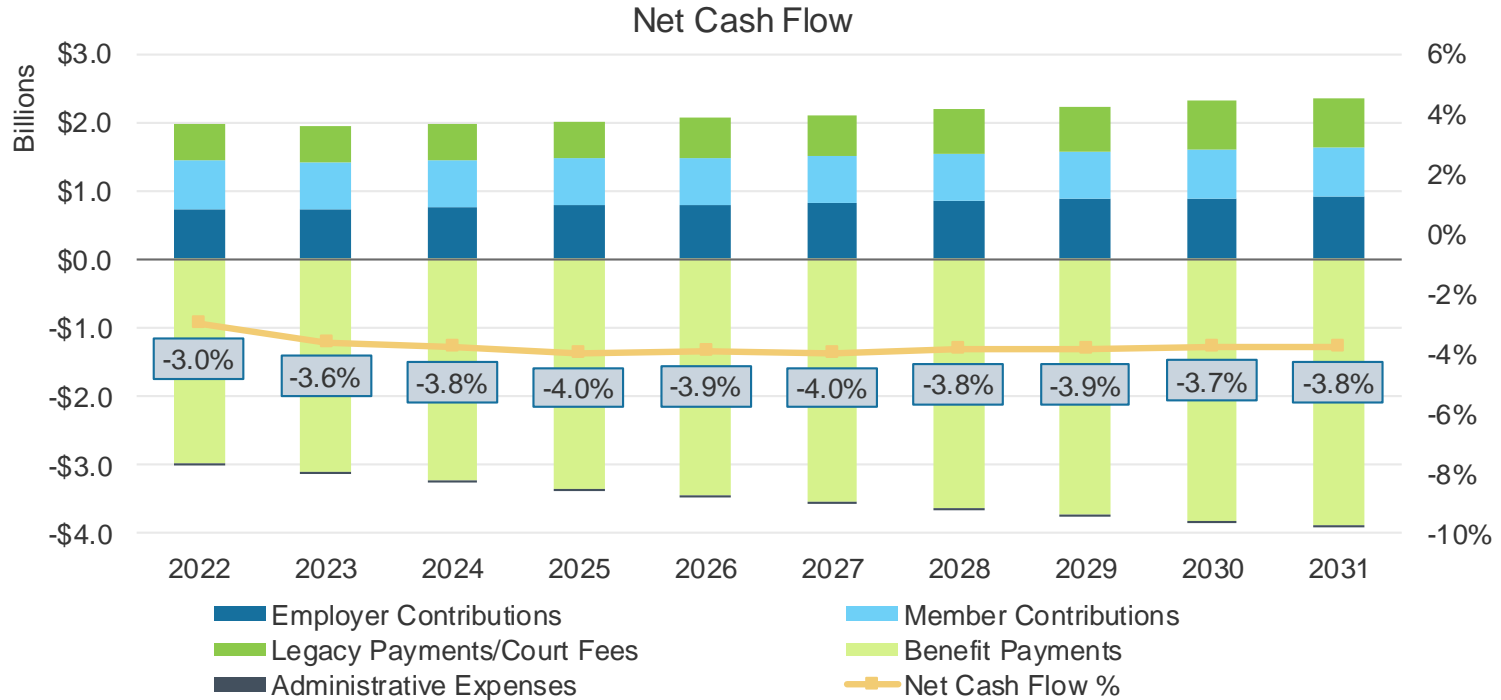


Notes: For the fiscal year ending August 31; Reflects return of -3.2% return thru 6/30/22, thereafter Current Policy allocation 10-yr expected return of 6.8% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

10-YR NET CASH FLOW – TOTAL SYSTEM

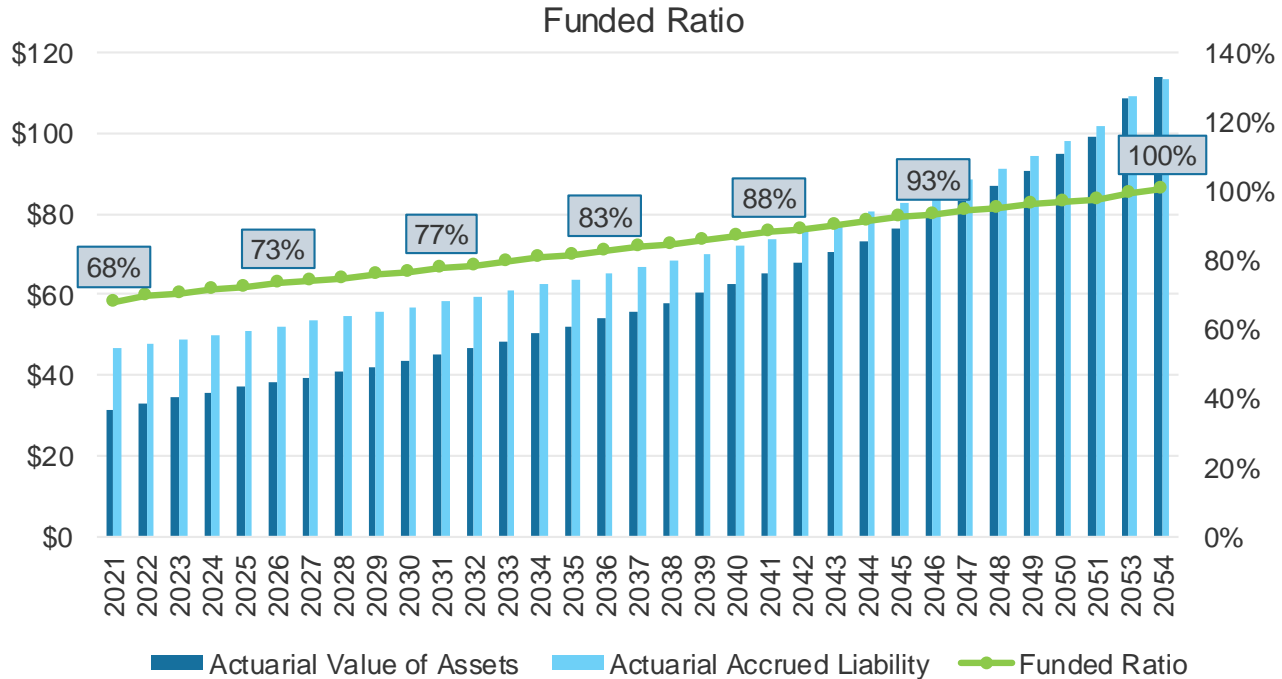


Notes: For the fiscal year ending August 31; Reflects return of -3.2% return thru 6/30/22, thereafter Current Policy allocation 10-yr expected return of 6.8% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

30-YR FUNDED STATUS PROJECTION – TOTAL SYSTEM

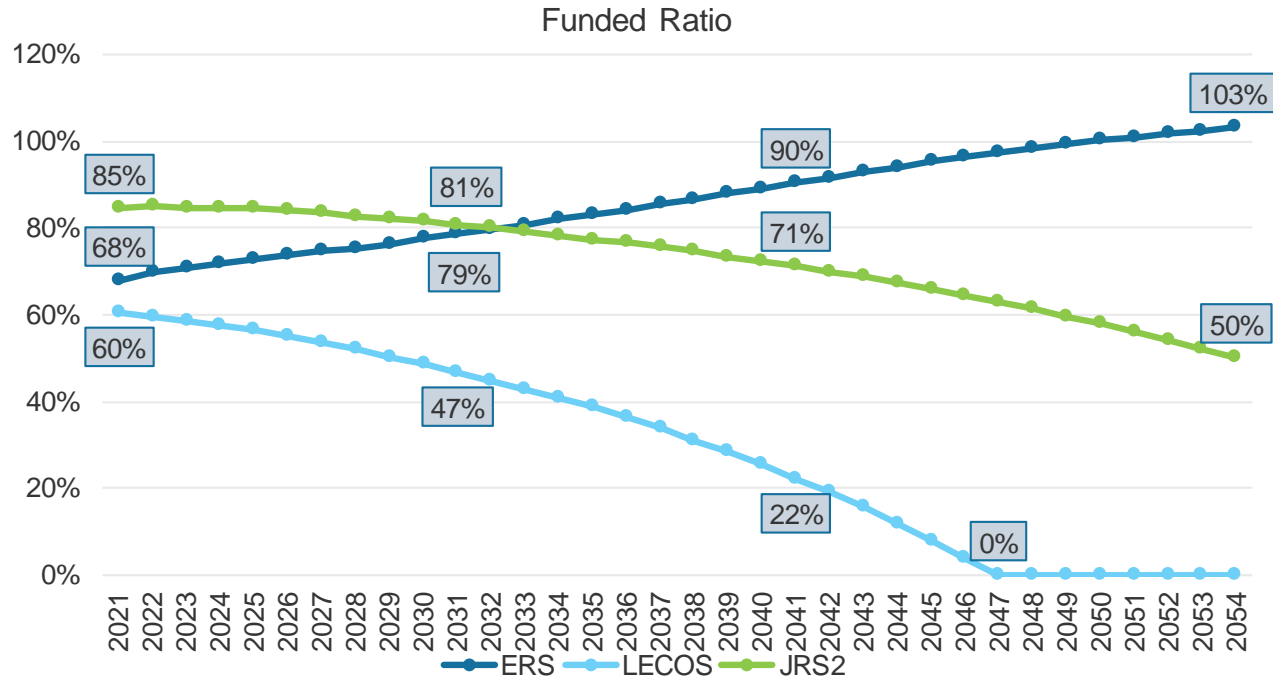


Notes: As of August 31; Reflects return of -3.2% thru 6/30/22, thereafter Current Policy allocation 30-yr expected return of 7.3% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

30-YR FUNDED STATUS PROJECTION – PLAN LEVEL

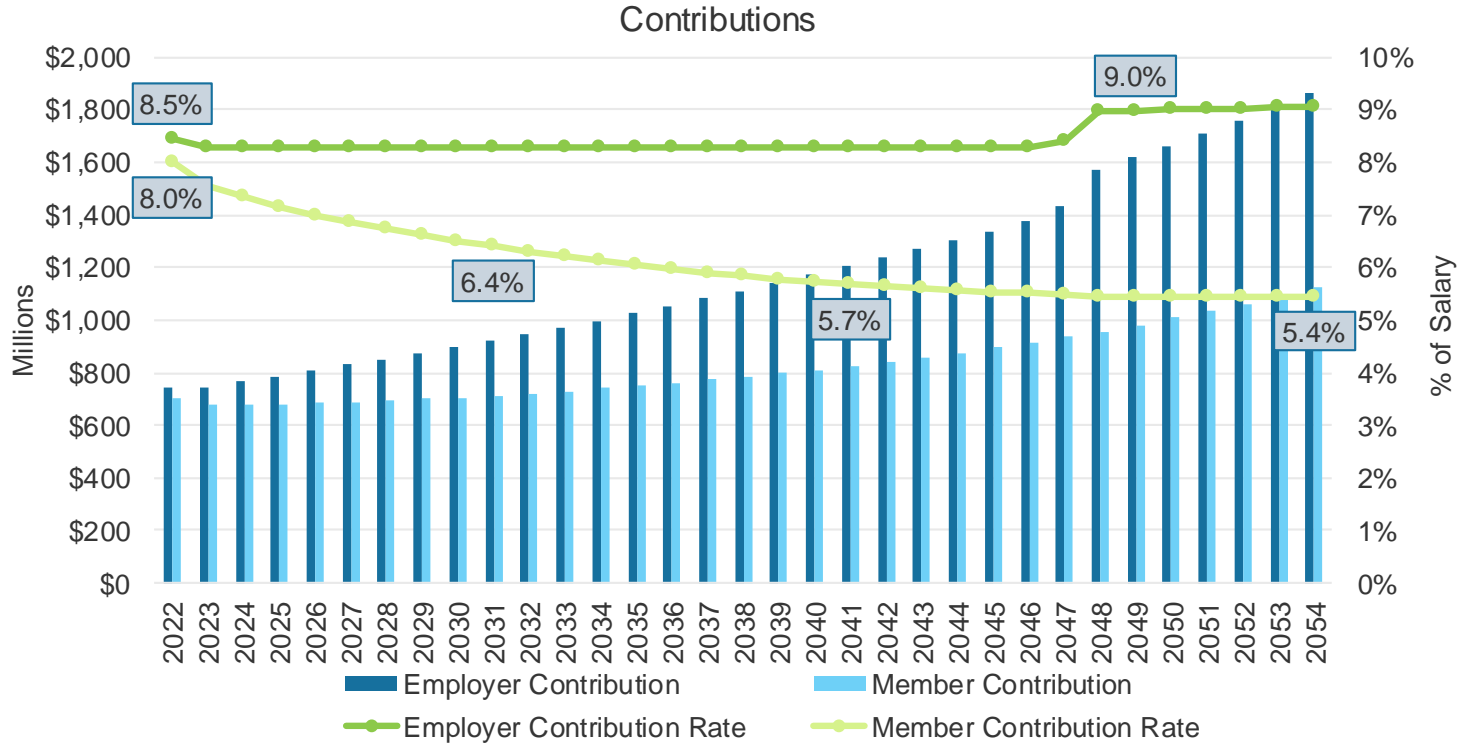


Notes: As of August 31; Reflects return of -3.2% return thru 6/30/22, thereafter Current Policy allocation 30-yr expected return of 7.3% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

30-YR CONTRIBUTION PROJECTION – ALL PLANS

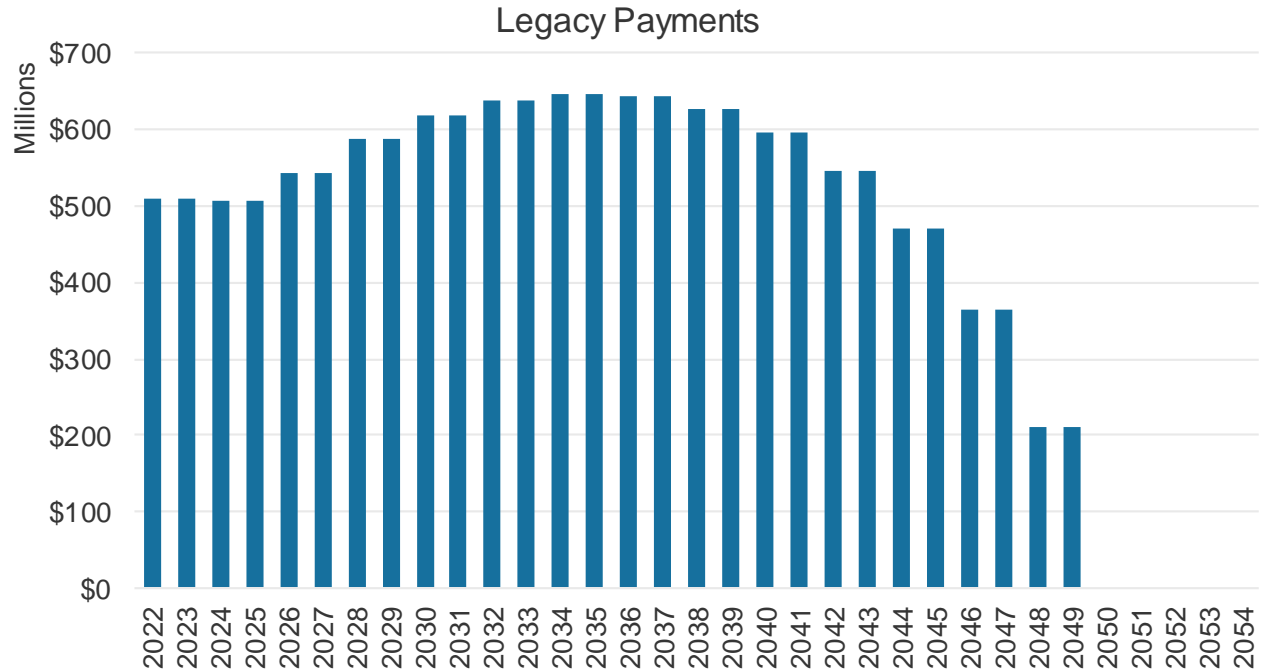


Notes: For the fiscal year ending August 31; Reflects return of -3.2% thru 6/30/22, thereafter Current Policy allocation 30-yr expected return of 7.3% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

30-YR CONTRIBUTION PROJECTION – ERS LEGACY PAYMENTS

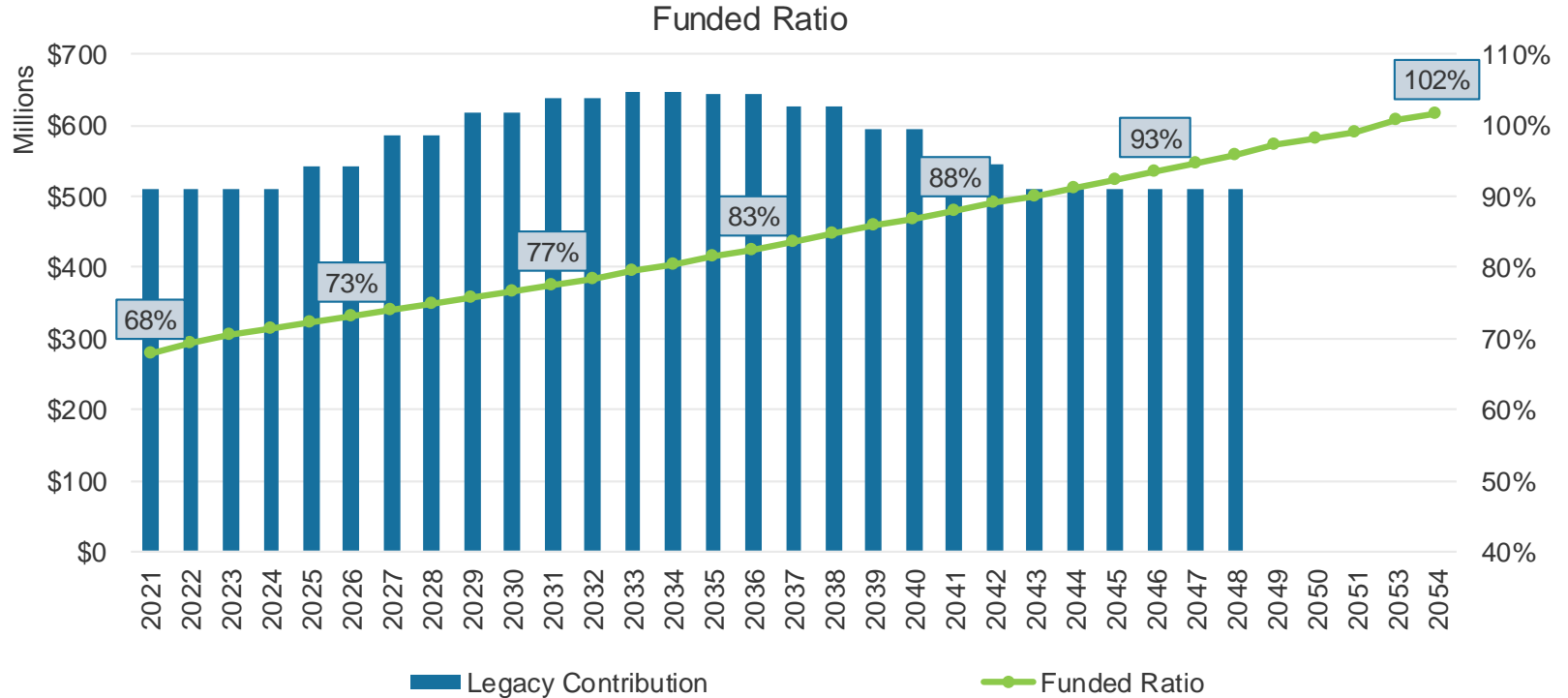


Notes: For the fiscal year ending August 31; Reflects return of -3.2% return thru 6/30/22, thereafter Current Policy allocation 30-yr expected return of 7.3% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

\$510 MILLION FLOOR ON LEGACY PAYMENTS

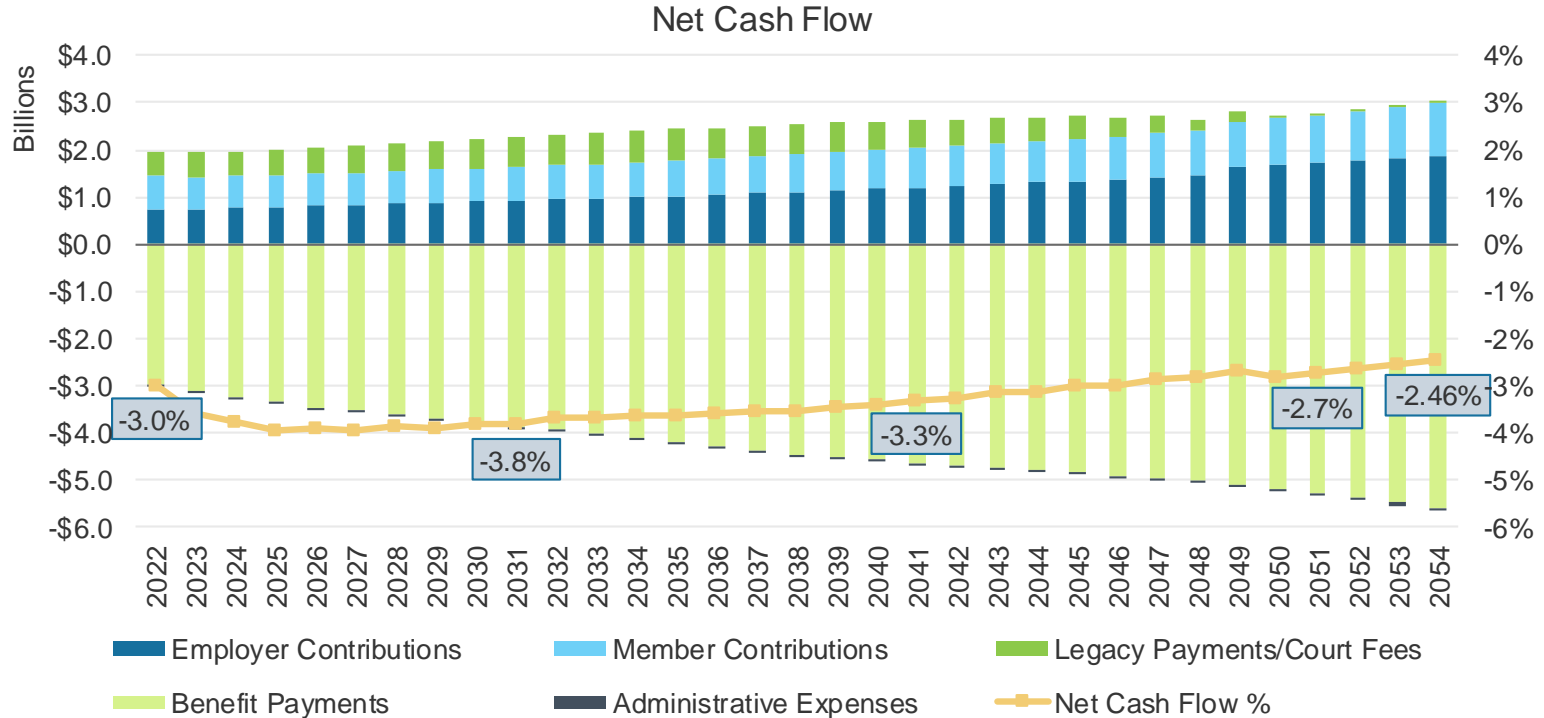


Notes: As of August 31; Reflects return of -3.2% thru 6/30/22, thereafter Current Policy allocation 30-yr expected return of 7.3% per annum



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

30-YR NET CASH FLOW – TOTAL SYSTEM



Notes: For the fiscal year ending August 31; Reflects return of -3.2% return thru 6/30/22, thereafter Current Policy allocation 30-yr expected return of 7.3% per annum



ALTERNATIVE ASSET ALLOCATION PROFILES



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

ALTERNATIVE ASSET ALLOCATIONS

| | Current Policy | Mix A | Mix B | Mix C | Lower Risk | Higher Risk |
|---------------------|----------------|-------|-------|-------|------------|-------------|
| Cash | 1% | 1% | 2% | 1% | 1% | 1% |
| Public Equity | 37% | 37% | 35% | 32% | 30% | 45% |
| Private Equity | 13% | 13% | 16% | 20% | 13% | 13% |
| Rates | 11% | 13% | 12% | 11% | 19% | 3% |
| Global Credit | 13% | 10% | 12% | 11% | 10% | 15% |
| Absolute Return | 5% | 6% | 6% | 8% | 7% | 3% |
| Public Real Estate | 3% | 3% | 3% | 3% | 3% | 3% |
| Private Real Estate | 9% | 9% | 9% | 9% | 9% | 9% |
| Infrastructure | 7% | 6% | 5% | 5% | 7% | 7% |
| Special Situations | 1% | 1% | 0% | 1% | 1% | 1% |

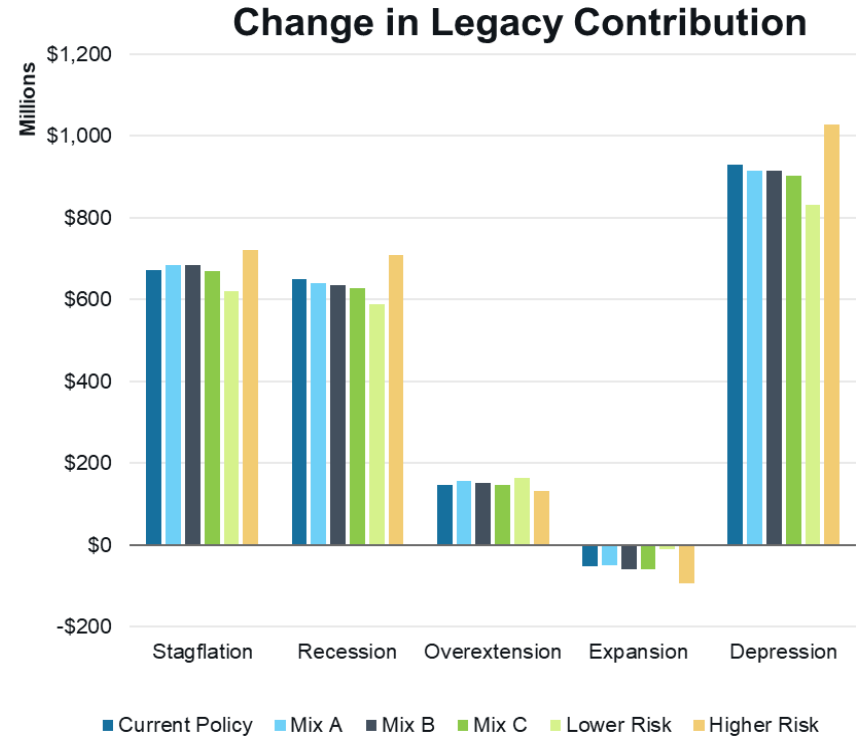
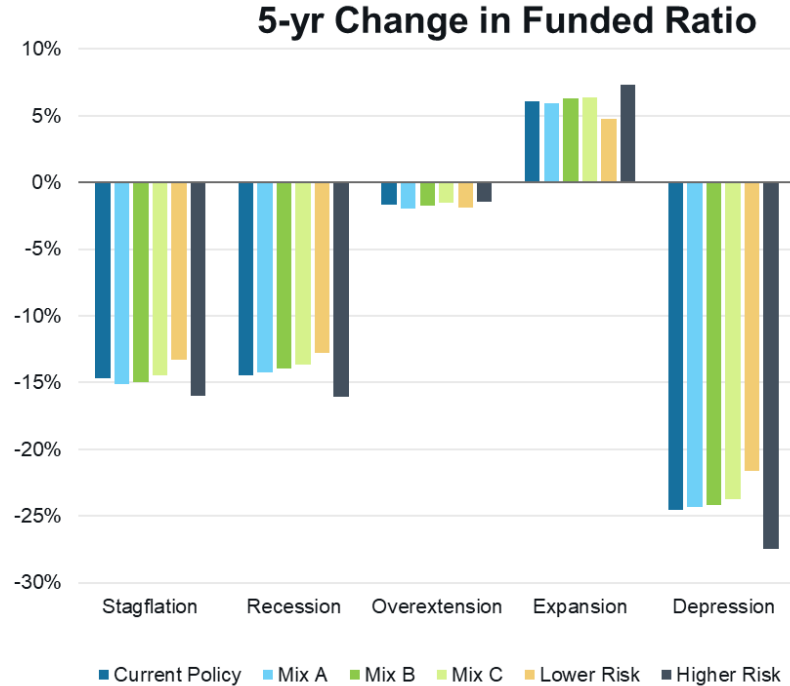
| | | | | | | |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| <i>Expected Return 10 yrs</i> | 6.8% | 6.7% | 6.9% | 7.0% | 6.5% | 7.0% |
| <i>Expected Return 30 yrs</i> | 7.3% | 7.3% | 7.5% | 7.5% | 7.0% | 7.6% |
| <i>Standard Deviation</i> | 12.5% | 12.3% | 13.0% | 12.8% | 11.1% | 13.9% |
| <i>Sharpe Ratio (10 years)</i> | 0.31 | 0.31 | 0.31 | 0.32 | 0.33 | 0.30 |
| <i>Sharpe Ratio (30 years)</i> | 0.36 | 0.36 | 0.35 | 0.36 | 0.37 | 0.34 |

Notes: Based on NEPC's 6/30/22 capital market assumptions; Allocations may not sum to 100% due to rounding



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

SCENARIO ANALYSIS

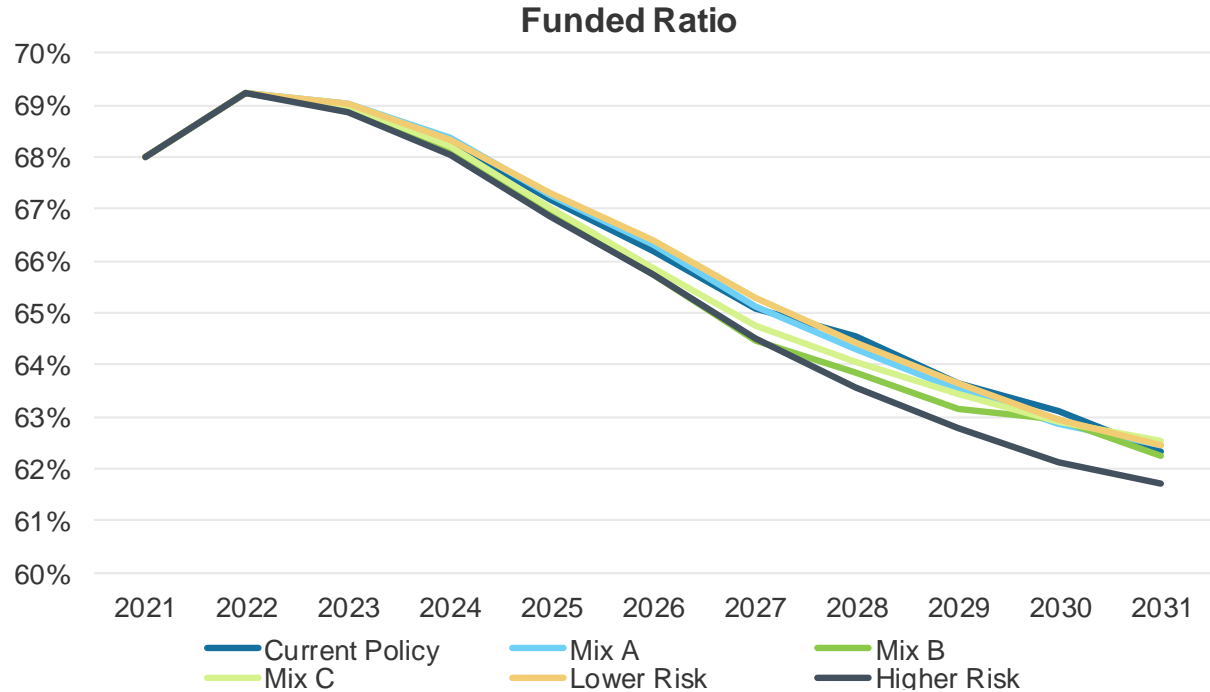


Notes: Scenarios reflect a 5-yr time horizon; Funded status change is relative to 68.0% as of August 31, 2021; Legacy Contribution change is relative to \$510 million for the year ending August 31, 2022



EMPLOYEES RETIREMENT SYSTEM OF TEXAS

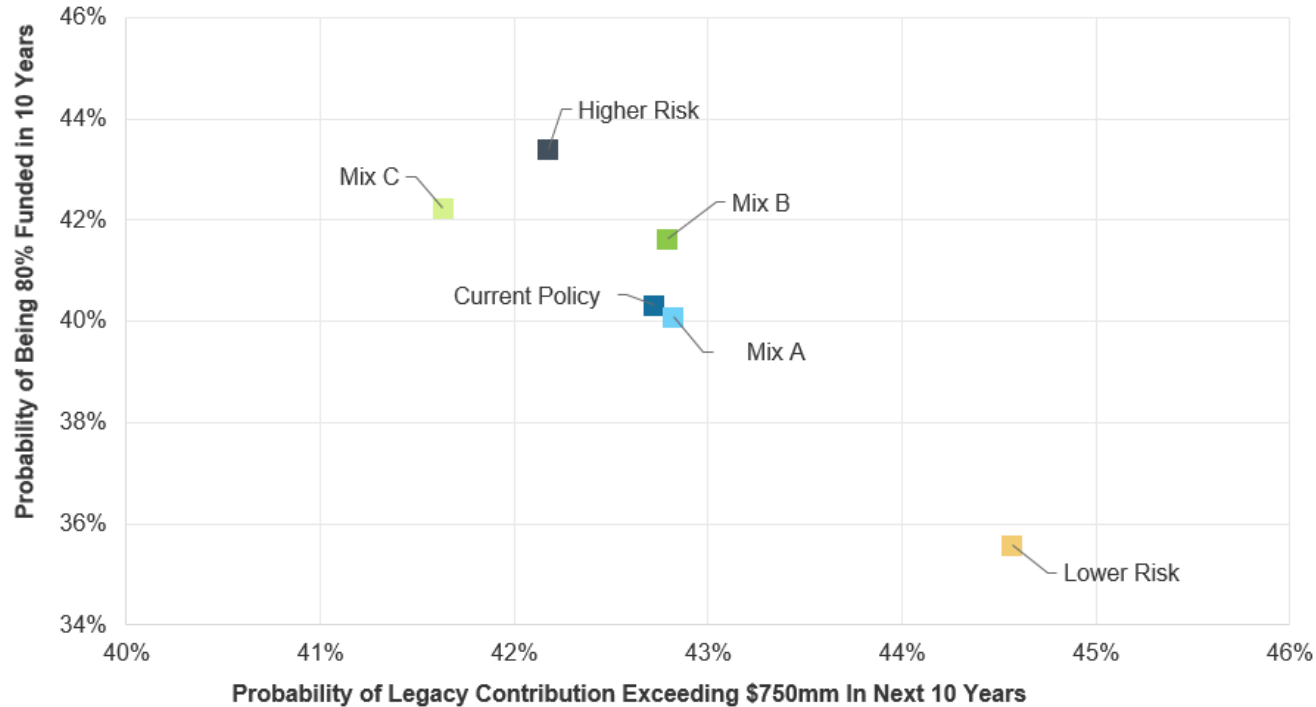
STOCHASTIC ANALYSIS – PESSIMISTIC FUNDED RATIO



Notes: As of August 31; Reflects the 25th percentile funded ratio outcome

EMPLOYEES RETIREMENT SYSTEM OF TEXAS

STOCHASTIC ANALYSIS – RISK/REWARD TRADEOFF



*Staff Analysis of
Asset Liability Study Asset Allocation Mixes*

David T. Veal, CFA, CAIA, FRM

Strategic Asset Allocation

Annual Update Process



- Major changes to SAA parameters are typically paired with A/L Studies
- 2022 A-L Study considers 5 alternate mixes that bracket current policy
- Current Portfolio is also included in this analysis as a reference point
- All figures are for market returns only, assume no implementation gains



Strategic Asset Allocation

Five Key Evaluation Criteria



RETURN

Would the portfolio grow enough to support the goals of ERS?

RISK

Would the portfolio avoid undue concentration in any asset type?

EFFICIENCY

Would the expected risk level be reasonably compensated?

LIQUIDITY

Would the portfolio regularly meet payment obligations?

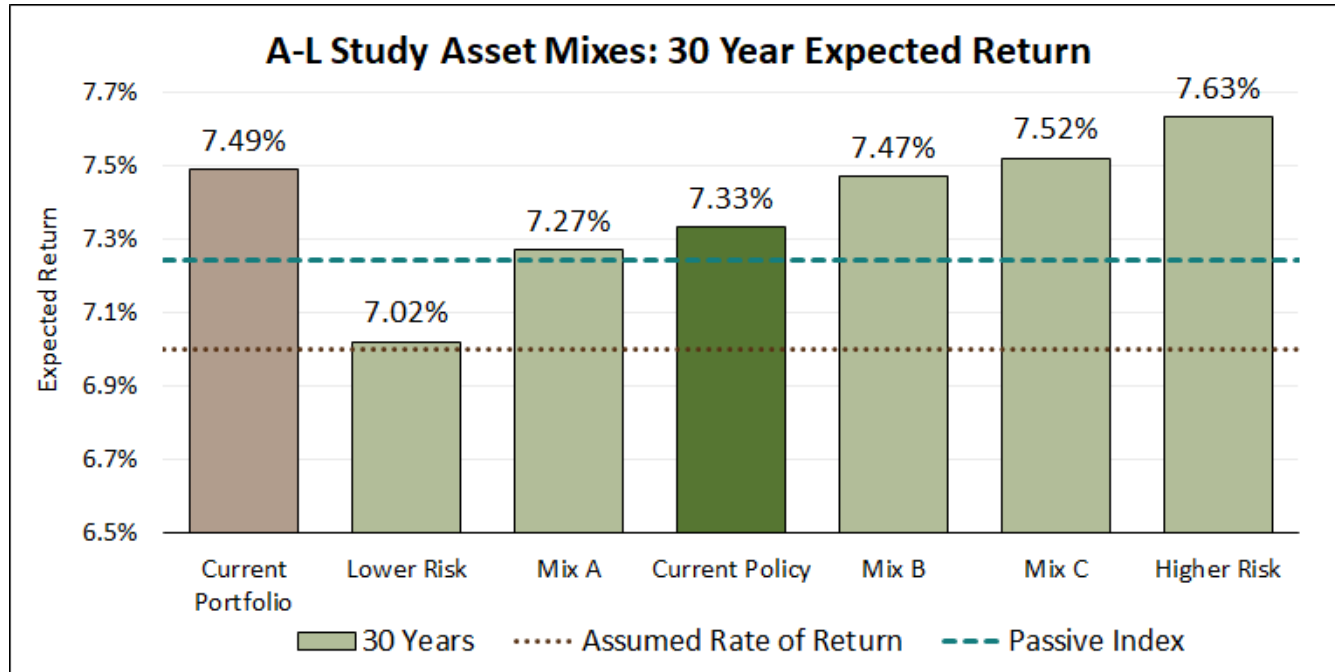
TURNOVER

Would significant reallocation be needed to reach the targets?

Strategic Asset Allocation

Key Criteria: Return

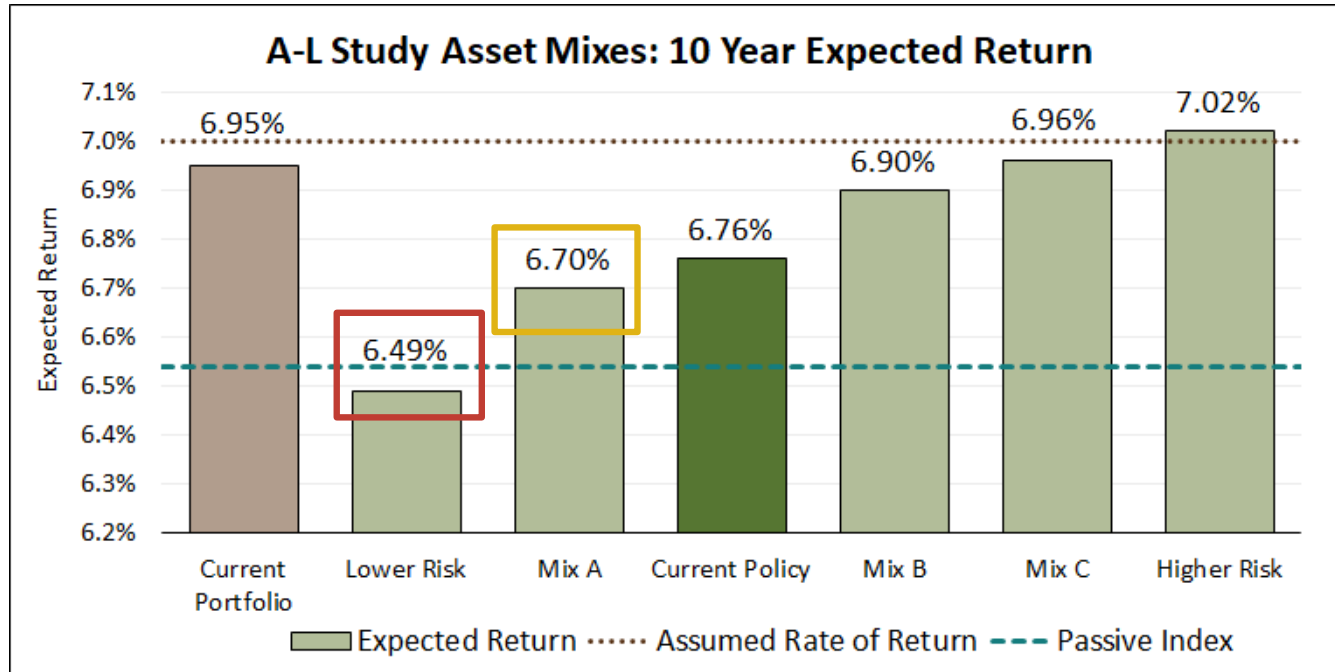
- 30-year expected returns for most are above ARR and Passive Index



Strategic Asset Allocation

Key Criteria: Return

- 10-year expected returns for most are below ARR, above Passive Index

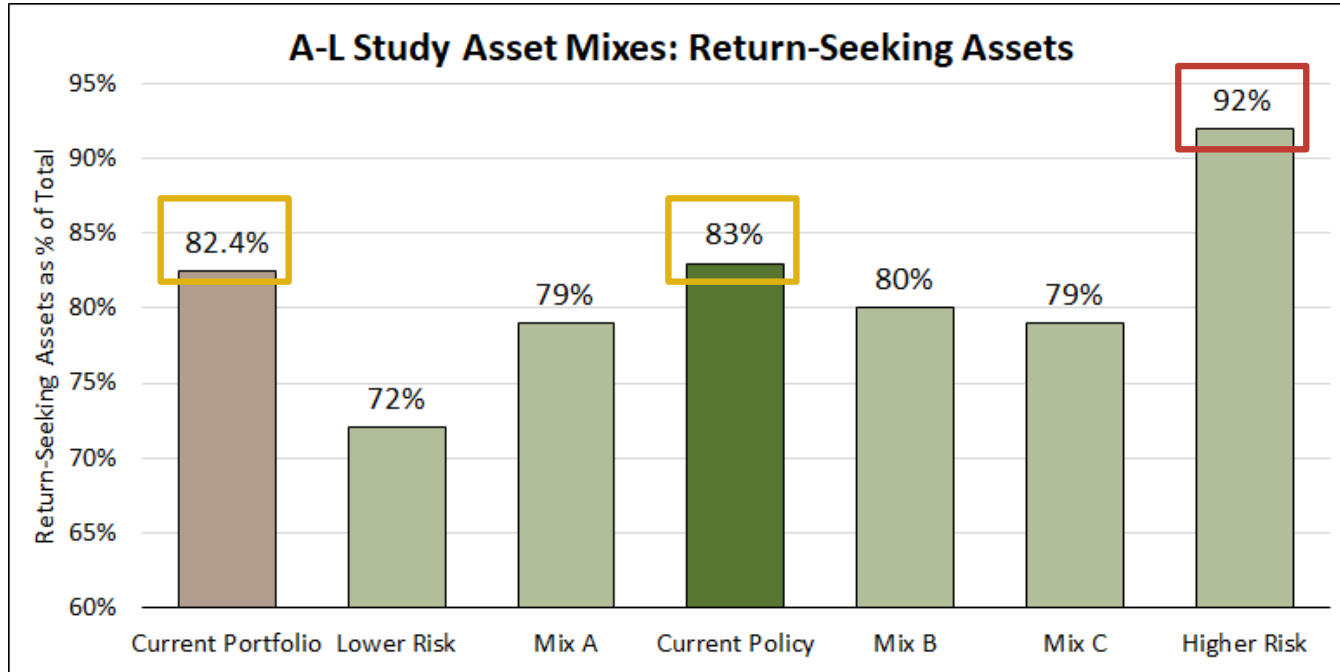


Strategic Asset Allocation

Key Criteria: Risk



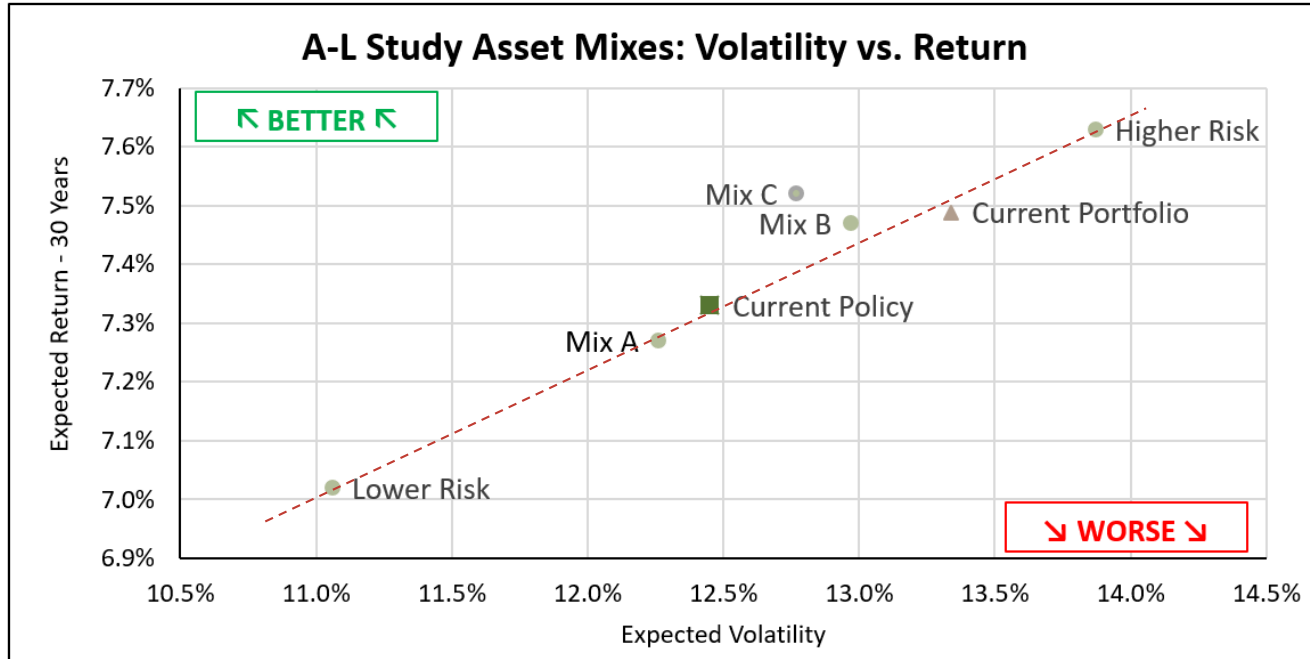
- Higher Risk mix well above prudent level of ~80% risk-seeking assets



Strategic Asset Allocation

Key Criteria: Efficiency

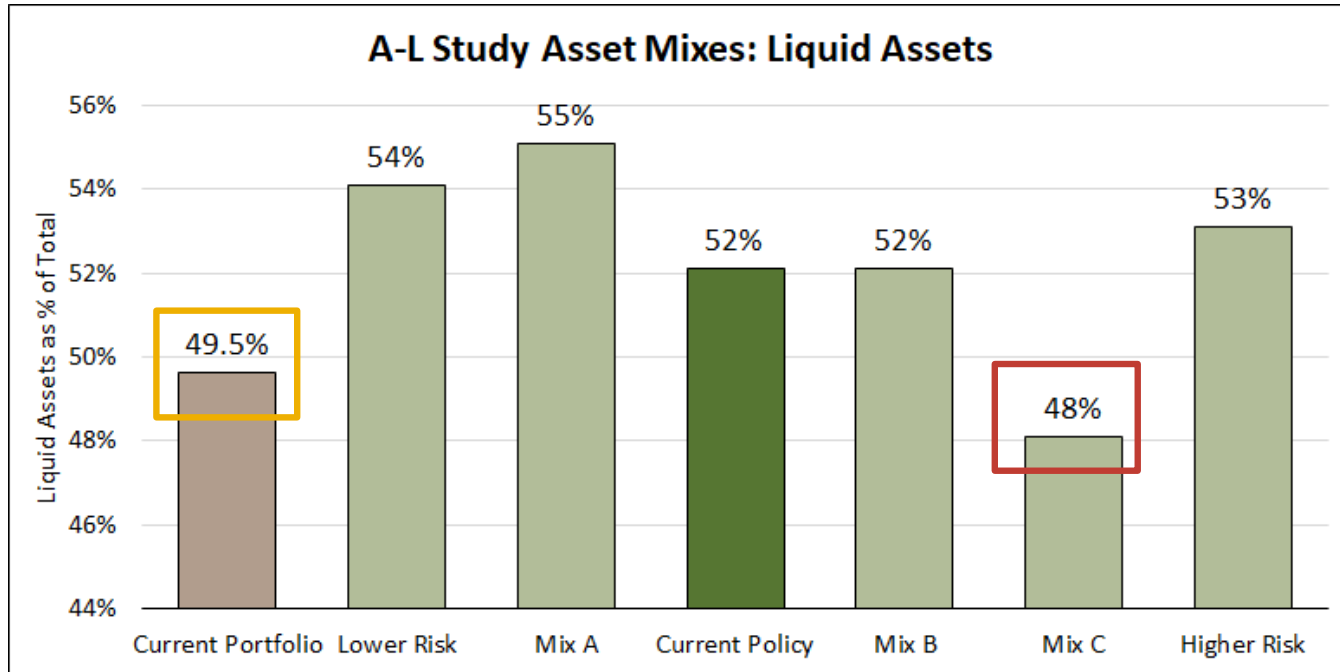
- All mixes offer reasonable compensation for bearing market risk



Strategic Asset Allocation

Key Criteria: Liquidity

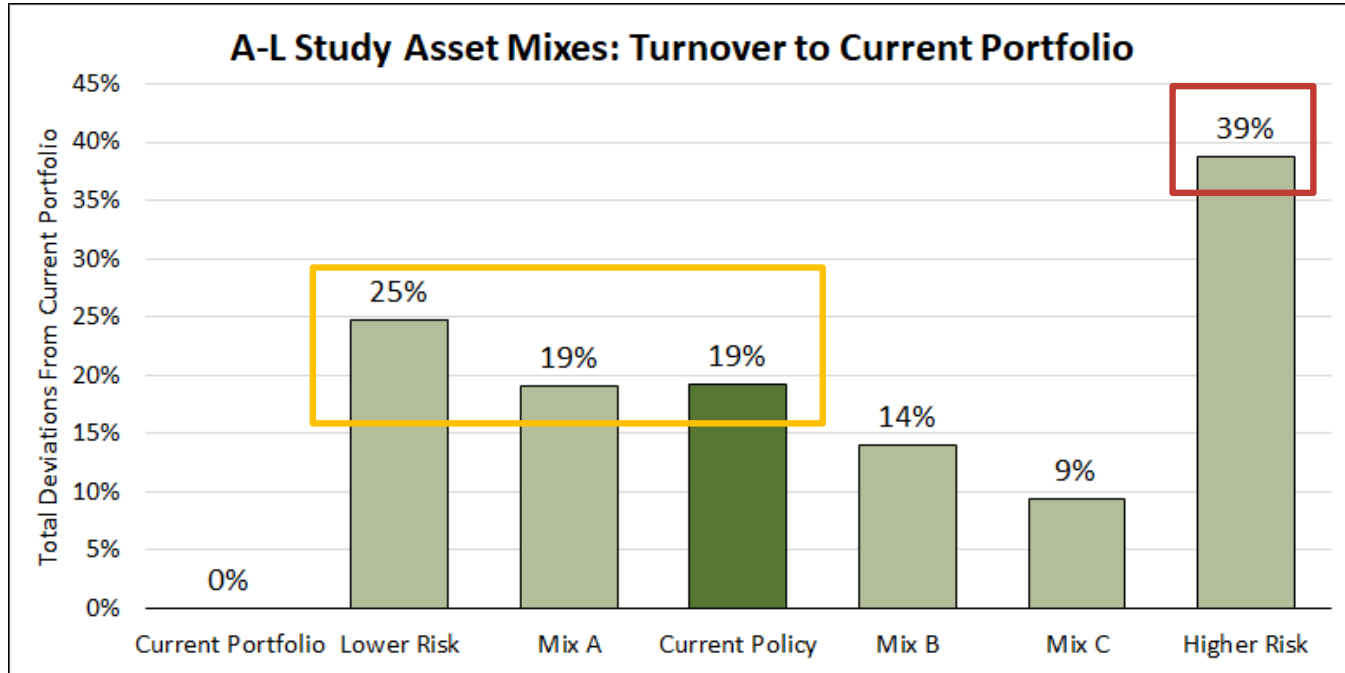
- Mix C includes even lower level of liquid assets than current portfolio



Strategic Asset Allocation

Key Criteria: *Turnover*

- Some mixes would require significant turnover to achieve targets



Strategic Asset Allocation

Scorecard and Recommendation



- Staff believes Mix B represents the best balance of the evaluation criteria

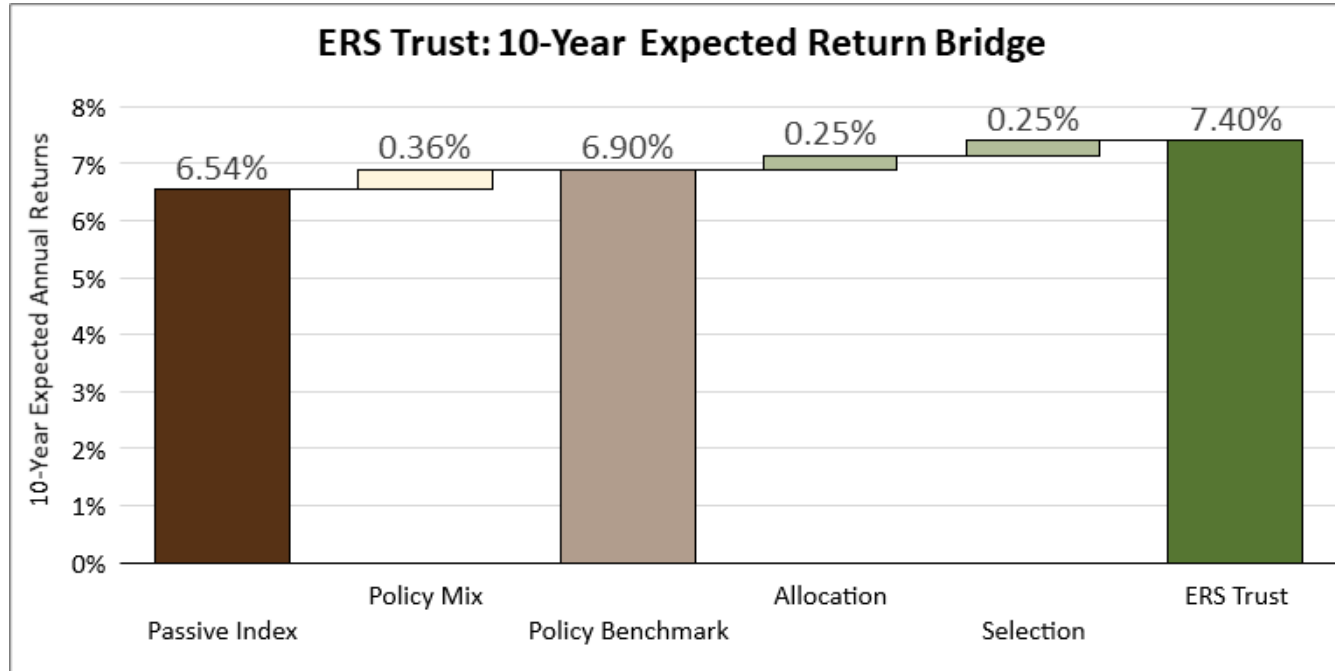
| | Current Portfolio | Lower Risk | Mix A | Current Policy | Mix B | Mix C | Higher Risk |
|------------|-------------------|------------|-------|----------------|-------|-------|-------------|
| Return | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ |
| Risk | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ |
| Efficiency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Liquidity | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| Turnover | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ |

Strategic Asset Allocation

10-Year Expected Return for Mix B



- Target returns of 7.4% with 50 bps of implementation gains annually



Questions?
Action Item

Public Agenda Item #13

Consideration of the Investment Policy Statement – (Action)

August 24, 2022

David T. Veal, Chief Investment Officer, CFA, CAIA, FRM

Cynthia Hamilton, General Counsel

Kurt Cressotti, Investment Compliance Officer

Annual IPS Review



Process for Developing Recommendations

- Board requires review of IPS by staff at least annually
- Review conducted by Investments, Investment Compliance, Office of General Counsel, Executive Office, and General Investment Consultant
- Fresh eyes from CIO, General Counsel, and Compliance Officer
- Draft redline version circulated in July/August for feedback

Annual IPS Review

Highlights of Staff Recommendations



- Most significant proposed updates:
 - Update SAA parameters to balance liquidity & returns
 - Address recommendations of NEPC governance report
 - Improve upon Code of Ethics/Standards of Conduct
- Better policies for Scrutinized Investments, GBP Funds
- Priorities of General Counsel and Investment Compliance

Annual IPS Review

Strategic Asset Allocation Parameters

- Mix B increases liquidity, reduces risk and maintains expected return
- Moving closer to current positioning reduces risk of disruption

| | Lower Risk | Mix A | Current Policy | Mix B | Mix C | Higher Risk |
|------------|------------|-------|----------------|-------|-------|-------------|
| Return | x | x | ✓ | ✓ | ✓ | ✓ |
| Risk | ✓ | ✓ | ✓ | ✓ | ✓ | x |
| Efficiency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Liquidity | ✓ | ✓ | ✓ | ✓ | x | ✓ |
| Adjacency | x | x | x | ✓ | ✓ | x |

Annual IPS Review

Investment Policies, Procedures and Practices



- Address recommendations in 2020 governance report from NEPC
 - ✓ Comprehensive approach to funding policy
 - ✓ Assumed Rate of Return as an explicit goal
 - ✓ Clearly define A/L Study and A/A Study
 - ✓ Fully document rebalancing process
 - ✓ Regular reports on transaction costs, liquidity
 - ✓ Valuation Committee referenced in policy
 - ✓ Define role of CIO more explicitly
 - ✓ Reporting regarding fees and expenses
- Move the Allocations & Ranges Table to appendix
- Adopt a “watch list” policy and process

2023 Governance Review by NEPC

- *Kicks off in late 2022/early 2023*
- *Focus on best-in-class integration of IPS, IIP and SOPs*
- *Report likely due to Pension Review Board on June 1, 2024*

Annual IPS Review

Code of Ethics & Standards of Conduct



- Currently a chapter in the IPS that also references CFA Institute policy
- Many of the CFAI standards are irrelevant to or even confusing for ERS
- Incorporate all relevant CFAI standards into ERS policy
- Add principles from CFA Trustee Code of Conduct into ERS policy
- Create a set of Standards of Conduct for Investments Division

Annual IPS Review



Key Recommendations from Investments Division

- Public and Private Credit separated into distinct asset classes
- Public and Private Real Estate separated into distinct asset classes
- Update ticker for public real estate benchmark index to net of tax withholding for international stocks
- Revised policy for management of GBP funds
- Require ACIC approval for material extensions and redemptions

Annual IPS Review



Key Recommendations from Office of General Counsel

- Significant improvements to Code of Ethics
- Streamline policies for Scrutinized Investments
- Expand ability to pursue securities actions
- Updates to statutory references
- Align placement agent disclosures with current contracting practices
- Add language necessary to invest in collective investment trusts

Annual IPS Review



Key Recommendations from Investment Compliance

- Restricted Persons required to disclose brokerage accounts
- Policy violations can result in exclusion from Incentive Compensation Plan
- Adds \$500 de minimus threshold for trade preclearance
- Updates to Personal Trading guidelines
 - Exemptions for CDs, muni bonds, etc.
 - Carve-outs for employee stock, fully managed accounts

Questions?
Action Item

Public Agenda Item #14

Consideration of the Incentive Compensation Plan – (Action – Board Only)

August 24, 2022

DeeDee Sterns, Director of Human Resources

Jamey Pauley, ICP Program Specialist

Incentive Compensation Plan (ICP)

Annual Review



- The Board of Trustees reviews and approves the ICP on an annual basis.
- For the May Board meeting, staff provides:
 - A review of the plan objectives and key features.
 - Information on any proposed plan changes.
 - A draft plan document for the upcoming fiscal year.
 - A summary of the ICP awards over the last five years (new this year).
- At the August Board meeting:
 - Staff presents the final proposed plan document for consideration and approval.

Incentive Compensation Plan

Fiscal Year 2023 – Proposed Material Changes



- Revise the three and five year performance periods to be weighted more heavily.
- Increase the minimum percentage attributable to Global Composite Performance (overall Trust).
- Further simplify the Global Composite Performance calculation.
- Reduce the waiting periods for new hires.

Incentive Compensation Plan

Longer-term Performance (section 4.8c)



Employees with five or more years of plan participation

Current Performance Period Weightings:

| 1-Year | 3-Year | 5-Year |
|--------|--------|--------|
| 33% | 33% | 34% |

Proposed:

| 1-Year | 3-Year | 5-Year |
|--------|--------|--------|
| 20% | 30% | 50% |

Incentive Compensation Plan

Longer-term Performance (section 4.8b)



Employees with between three and five years of plan participation

Current Performance Period Weightings:

| 1-Year | 3-Year |
|--------|--------|
| 50% | 50% |

Proposed:

| 1-Year | 3-Year |
|--------|--------|
| 40% | 60% |

Incentive Compensation Plan

Longer-term Performance



Employees with less than three years of plan participation

No Change to Performance Period Weightings:

| |
|--------|
| 1-Year |
| 100% |

Incentive Compensation Plan

Longer-term Performance



Objective:

- Encourage an even greater emphasis on longer-term performance.

Incentive Compensation Plan



Overall Trust Performance (section 4.7a, Appendix B)

Current Goal Weightings:

| Minimum to Overall Trust (Global Composite) | Maximum to Individual Portfolios | Maximum to Qualitative |
|---|----------------------------------|------------------------|
| 25% | 50% | 25% |

Proposed:

| Minimum to Overall Trust (Global Composite) | Maximum to Individual Portfolios | Maximum to Qualitative |
|---|----------------------------------|------------------------|
| 35% | 40% | 25% |

Incentive Compensation Plan

Overall Trust Performance



Objective:

- Place greater emphasis on the shared goal of robust Trust performance (35%), while retaining a significant weight to strong portfolio performance (40%).

Incentive Compensation Plan

Simplification and Consistency (section 2.16)



Proposal:

Discontinue the exclusion of **securities litigation proceeds** from the Global Composite Performance calculation (overall Trust).

Incentive Compensation Plan

Simplification and Consistency



Objectives/Reasoning

Including securities litigation proceeds in the GCP calculation:

- Will provide the same base return used for ICP that is used for general reporting purposes (ACFR).
- Reduce the administrative burden of excluding these figures, while having an insignificant impact on the ICP awards.
- Over the previous five years, would have actually had no impact on ICP awards.
- Consistent with our three local peer funds that also have incentive compensation plans.

Incentive Compensation Plan

Recruitment (section 3.2)



New Hire Waiting Periods

| | Current | Proposed |
|---|-----------------|-----------------|
| Standard waiting period: | 6 Months | 3 Months |
| Exception to the standard waiting period (with written justification and approval by the Executive Director): | 90 Days | 0 Days |

Incentive Compensation Plan

Recruitment



Objectives:

- Help attract needed talent, in general, within a very tight labor market.
- Help attract certain experienced hires who are expected to add value from day one (i.e., with ED authority to waive the waiting period).
- Provide better alignment with peer funds, whose new hire waiting periods are generally between zero and three months.

Incentive Compensation Plan

Fiscal Year 2023 – Other Changes



In addition to the material changes, staff is proposing some other changes to the Plan document that will:

- Provide clarification.
- Better reflect current processes and practices.
- Align the Plan document with recent organization changes.

These changes are reflected in the draft Plan document.

Incentive Compensation Plan

Fiscal Year 2023 – Appendix A



APPENDIX A
ELIGIBLE EMPLOYEE POSITIONS WITH
MAXIMUM INCENTIVE AWARD PERCENTAGES AND PAYMENT SCHEDULES

| Plan Groups | Maximum Incentive Award Percentages | Payment Schedules (Year 1/2/3, see Section 6.2) |
|--|-------------------------------------|---|
| Executive Director | 100% | 50/25/25 |
| Chief Investment Officer | 100% | 50/25/25 |
| Deputy Chief Investment Officer | 100% | 50/25/25 |
| Asset Class Managing Director | 100% | 50/25/25 |
| Program Director | 90% | 50/25/25 |
| Director of Risk Management & Applied Research | 100% | 50/25/25 |
| Director of Investment Services | 90% | 50/25/25 |
| Supervising Portfolio Manager | 90% | 50/25/25 |
| Portfolio Manager IV, V & VI | 80% | 50/25/25 |
| Portfolio Manager I, II & III | 70% | 50/25/25 |
| Chief Trader I & II | 70% | 50/25/25 |
| Investment Analyst V | 70% | 50/25/25 |
| Trader I, II & III | 65% | 50/25/25 |
| Investment Analyst III & IV | 58% | 50/25/25 |
| Investment Operations Manager | 50% | 50/25/25 |
| Operational Due Diligence Manager | 50% | 50/25/25 |
| Investment Analyst I & II | 35% | 50/25/25 |
| Performance Specialist | 35% | 50/25/25 |
| Investment Operations Specialist | 25% | 50/50/ |
| Operational Due Diligence Specialist | 25% | 50/50/ |
| Investment Administrative Support | 5% | 100/50/ |
| General Counsel | 65% | 50/50/ |
| Investments and Securities, Attorney | 65% | 50/25/25 |
| Investments and Securities, Paralegal | 35% | 50/25/25 |

| Plan Groups | Maximum Incentive Award Percentages | Payment Schedules (Year 1/2/3, see Section 6.2) |
|--|-------------------------------------|---|
| Executive Director | 100% | 50/25/25 |
| Chief Investment Officer | 100% | 50/25/25 |
| Deputy Chief Investment Officer | 100% | 50/25/25 |
| Asset Class Managing Director | 100% | 50/25/25 |
| Program Director | 90% | 50/25/25 |
| Director of Risk Management & Applied Research | 100% | 50/25/25 |
| Director of Investment Services | 90% | 50/25/25 |
| Supervising Portfolio Manager | 90% | 50/25/25 |
| Portfolio Manager IV, V & VI | 80% | 50/25/25 |

Incentive Compensation Plan

Fiscal Year 2023 – Appendix B



APPENDIX B

Page 1 of 2

PERFORMANCE GOAL WEIGHTINGS FOR INVESTMENT PROFESSIONALS AND LEADERSHIP EMPLOYEES
 Any variations of from these weightings from the preceding Plan Year shall be approved by the Executive Director.

(This table is crossed out with a large red 'X' and has a green arrow pointing to the right.)

| Weighting | Main Category | Sub Category | Exec. Director | Dep. CO Inv. Serv. | Credit & Hedge Funds | Portfolio Mgmt. | Private Equity | Public Equity | Real Assets | Treasury & Trading | Legal Services |
|-------------|--|--------------|----------------|--------------------|----------------------|-----------------|----------------|---------------|-------------|--------------------|----------------|
| 25% Maximum | Discretionary | | 50% | 25% | 25% | 25% | 25% | 25% | 25% | 25% | 25% |
| 25% Minimum | Global Composite Performance | | 50% | 75% | 35% | X | 35% | 35% | 35% | 35% | 35% |
| 50% Maximum | A combination of one or more of the following, as indicated below (1): | | | | | | | | | | |
| | Global Public Equity | | | | | | | X | | | |
| | Internal Global Public Equity | | | | | | | X | | | |
| | Individual Portfolios | | | | | | | X | | X | |
| | Internally Traded Portfolios | | | | X | X | | | | X | |
| | Trading Performance | | | | | | | | | X | |
| | Credit – Internal | | | X | | | | | | | |
| | Credit – External | | | X | | | | | | | |
| | Rates | | | | X | | | | | X | |
| | Private Equity Public Market Equivalent (2) | | | | | | 10% | | | | X |
| | Private Equity Peer Comparison (3) | | | | | | 30% | | | | X |
| | Private Real Estate Public Market Equivalent (2) (4) | | | | | | | | X | | X |
| | Public REIT(s) | | | | | | | | X | | |
| | Private Infrastructure Public Market Equivalent (2) | | | | | | | | X | | X |
| | Hedge Funds | | | | X | | | | | | X |

| Weighting | Main Category | Sub Category | Exec. Director | Dep. CO Inv. Serv. | Credit & Hedge Funds | Portfolio Mgmt. | Private Equity | Public Equity | Real Assets | Treasury & Trading | Legal Services |
|----------------------------|--|--------------|----------------|--------------------|----------------------|-----------------|----------------|---------------|-------------|--------------------|----------------|
| 25% Maximum (excluding ED) | Discretionary | | 50% (5) | 25% | 25% | 25% | 25% | 25% | 25% | 25% | 25% |
| 35% Minimum | Global Composite Performance | | 50% | 75% | 35% | X | 35% | 35% | 35% | 35% | 35% |
| 40% Maximum | A combination of one or more of the following, as indicated below (1): | | | | | | | | | | |
| | Global Public Equity | | | | | | | X | | | |
| | Internal Global Public Equity | | | | | | | X | | | |
| | Individual Portfolios | | | | | | | X | | X | |
| | Internally Traded Portfolios | | | | X | X | | | | X | |
| | Trading Performance | | | | | | | | | X | |
| | Credit – Internal | | | X | | | | | | | |
| | Credit – External | | | X | | | | | | | |
| | Rates | | | | X | | | | | X | |
| | Private Equity Public Market Equivalent (2) | | | | | | 10% | | | | X |
| | Private Equity Peer Comparison (3) | | | | | | 30% | | | | X |
| | Private Real Estate Public Market Equivalent (2) (4) | | | | | | | | X | | X |
| | Public REIT(s) | | | | | | | | X | | |
| | Private Infrastructure Public Market Equivalent (2) | | | | | | | | X | | X |
| | Hedge Funds | | | | X | | | | | | X |

Incentive Compensation Plan

Fiscal Year 2023 – Appendix B



| Main Category Weights | Main Category | Sub Category | Exec. Director | CIO Dep. CIO Inv. Serv. | Credit & Hedge Funds | Portfolio Mgmt. | Private Equity | Public Equity | Real Assets | Treasury & Trading | Legal Services |
|----------------------------|------------------------------|--|----------------|-------------------------|----------------------|-----------------|----------------|---------------|-------------|--------------------|----------------|
| 25% Maximum (excluding ED) | Discretionary | | 50% (5) | 25% | 25% | 25% | 25% | 25% | 25% | 25% | 25% |
| 35% Minimum | Global Composite Performance | | 50% | 75% | 35% | X | 35% | 35% | 35% | 35% | 35% |
| 40% Maximum | | A combination of one or more of the following, as indicated below (1): | | | | | | | | | |
| | | Global Public Equity | | | | | | X | | | |
| | | Internal Global Public Equity | | | | | | X | | | |
| | | Individual Portfolios | | | X | X | | X | | X | |
| | | Internally Traded Portfolios | | | | | | | | X | |
| | | Trading Performance | | | | | | | | X | |
| | | Credit – Internal | | | X | | | | | | |
| | | Credit – External | | | X | | | | | | |
| | | Rates | | | | | | | | X | |
| | | Private Equity Public Market Equivalent (2) | | | | | 10% | | | | X |
| | | Private Equity Peer Comparison (3) | | | | | 30% | | | | X |
| | | Private Real Estate Public Market Equivalent (2) (4) | | | | | | | X | | X |
| | | Public REIT(s) | | | | | | | X | | |
| | | Private Infrastructure Public Market Equivalent (2) | | | | | | | X | | X |
| | | Hedge Funds | | | X | | | | | | X |

Questions?
Action Item -BOT

Public Agenda Item #15

Consideration and Annual Review of Real Estate Program and Proposed Annual Tactical Plan for Fiscal Year 2023 – (Action)

August 24, 2022

David T. Veal, Chief Investment Officer, CFA, CAIA, FRM

Robert Sessa, Managing Director of Real Assets

Amy Cureton, Director of Private Real Estate

Annie Xiao, Director of Public Real Estate

Real Estate

Program Overview



Two Separate Programs

- **Public**

- Return seeking allocation to provide long-term growth
- Program began in 2005

- **Private**

- Return seeking allocation to provide long-term growth
- Program began in 2008

Investment Objective

- Outperform benchmark over rolling 5-year (for Public Real Estate) and 10-year periods (for Private Real Estate)
- Maintain compliance with risk parameters

Public Real Estate

Key Characteristics



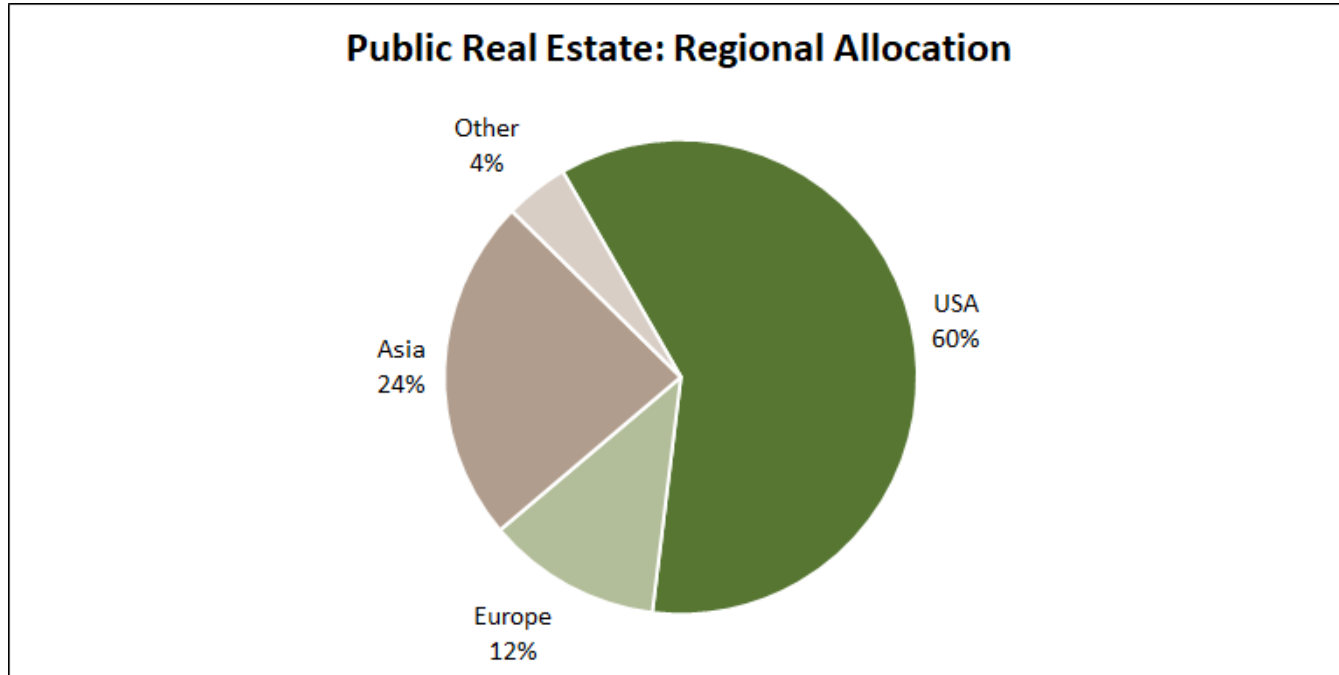
| Attribute | Public Real Estate Portfolio |
|-----------------------|--|
| Type of Allocation | Return Seeking |
| Policy Allocation | Target weight of 3% , range from 0% to 13% |
| Management Style | Internally managed but can hire external managers |
| Performance Objective | Outperform FTSE EPRA/NAREIT Developed Total Return Index |
| Risk Budget | Tracking error target of 200 basis points. |
| Information Ratio | ≥ 0.30 expected |
| Investment Expenses | ~11 bps total |

Public Real Estate

Portfolio Structure



- \$914 million represents 2.8% of the Trust, well-diversified across major regions

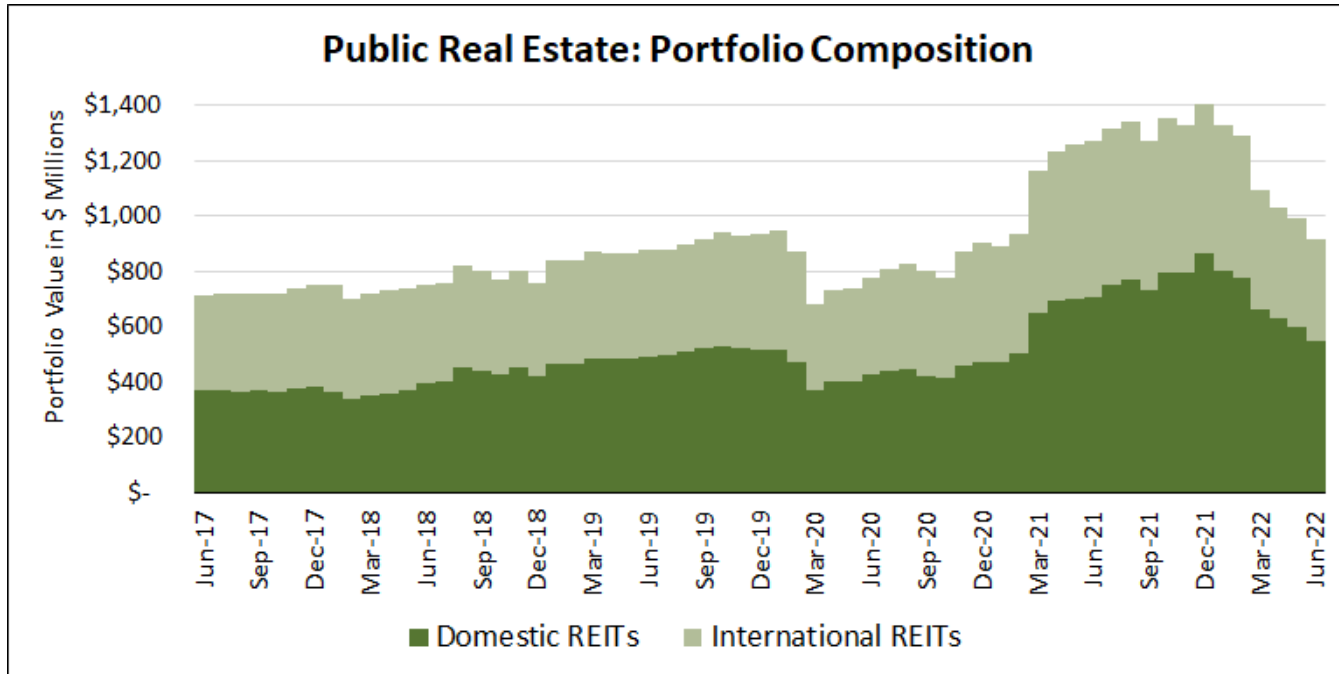


Public Real Estate

Historical Composition



- \$200 million tactically allocated in March 2021, \$250 million moved out in March 2022

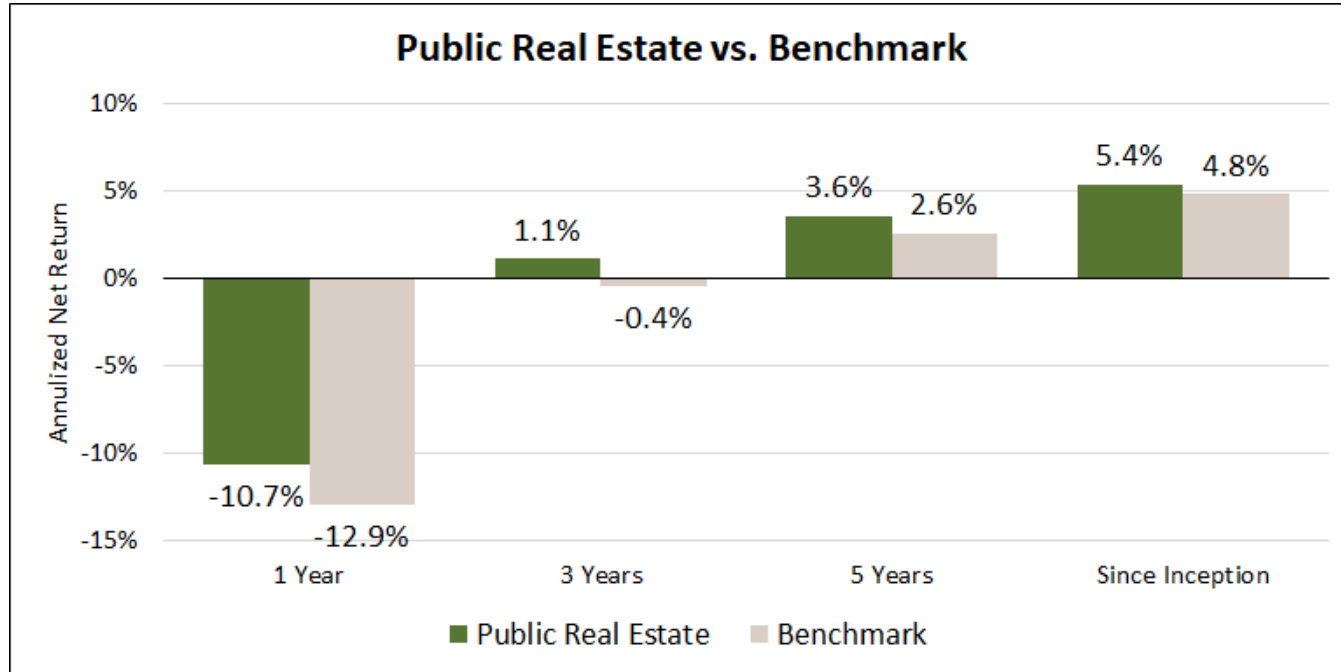


Public Real Estate

Performance Snapshot as of June 30, 2022



- Strong performance across all time horizons, including +101 bps of value add last 5 years

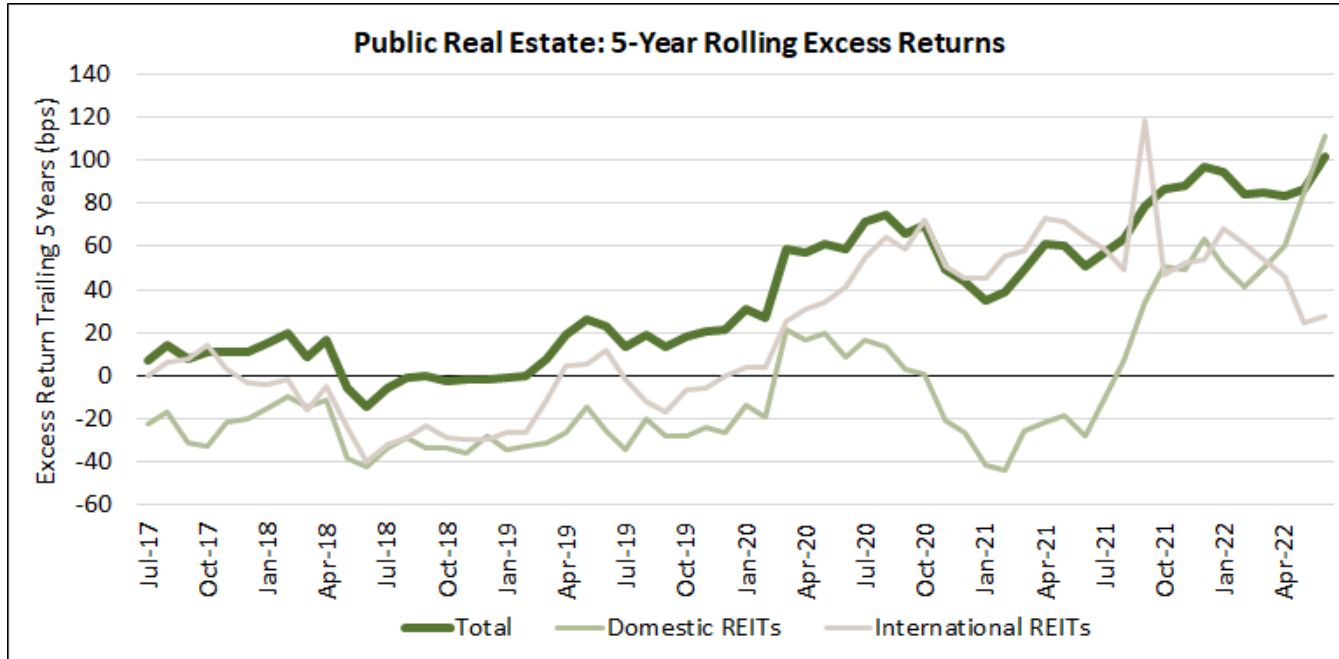


Public Real Estate

Relative Returns



- Solid performance from both domestic (+111 bps) and international (+27 bps) portfolios

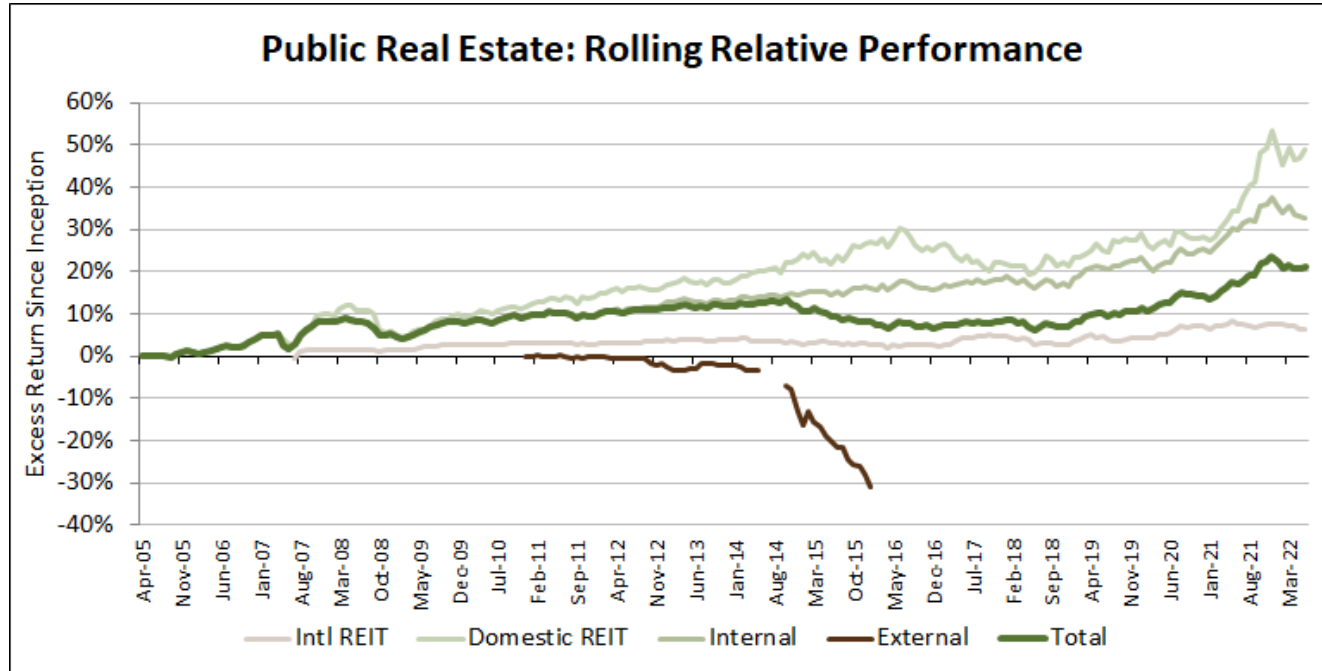


Public Real Estate Program

Cumulative Excess Return



- Portfolios have added significant value over time despite periods of underperformance

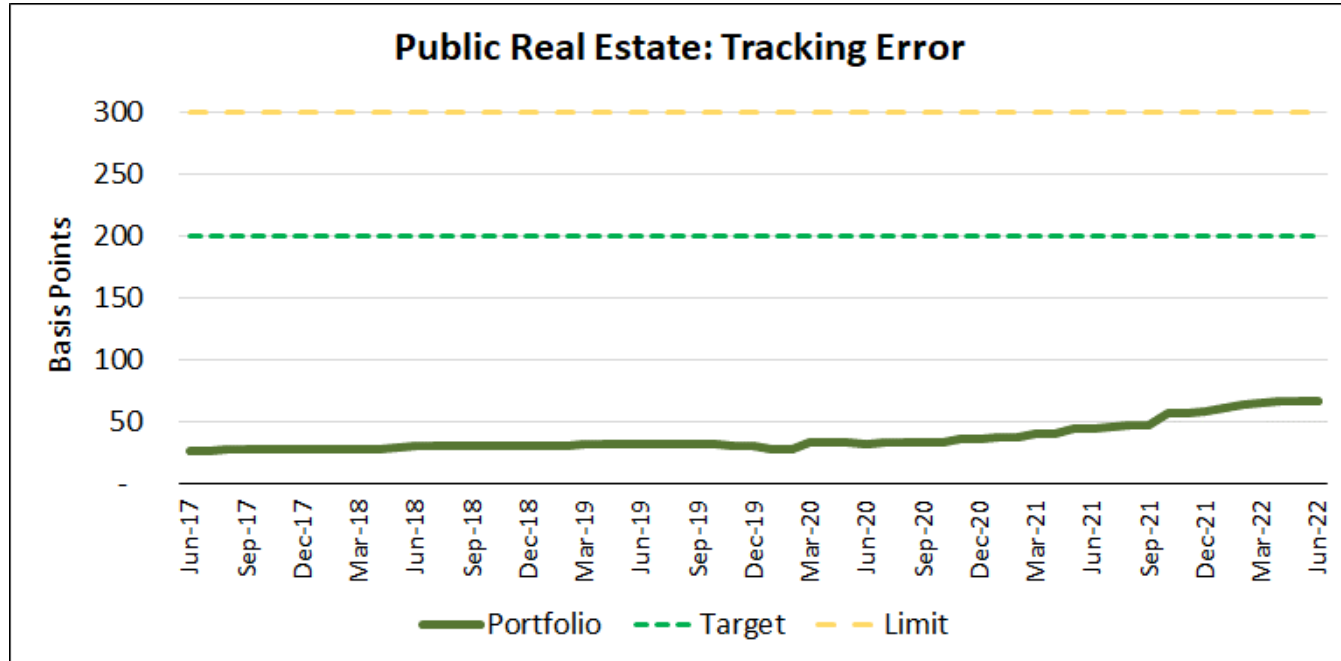


Public Real Estate

Risk Budget



- Tracking error has been well below target, but is increasing as the program matures



Public Real Estate

Goals and Objectives for Fiscal Years 2022 & 2023



Fiscal Year 2022

- Outperform respective benchmarks – Ongoing
- IPS compliant
- Continue to Improve Investment Process

Fiscal Year 2023

- Outperform respective benchmarks
- IPS compliant
- Continue to Improve Investment Process
- Find replacement for Domestic REIT PM position (Tony Cardona departed)

Private Real Estate

Key Characteristics

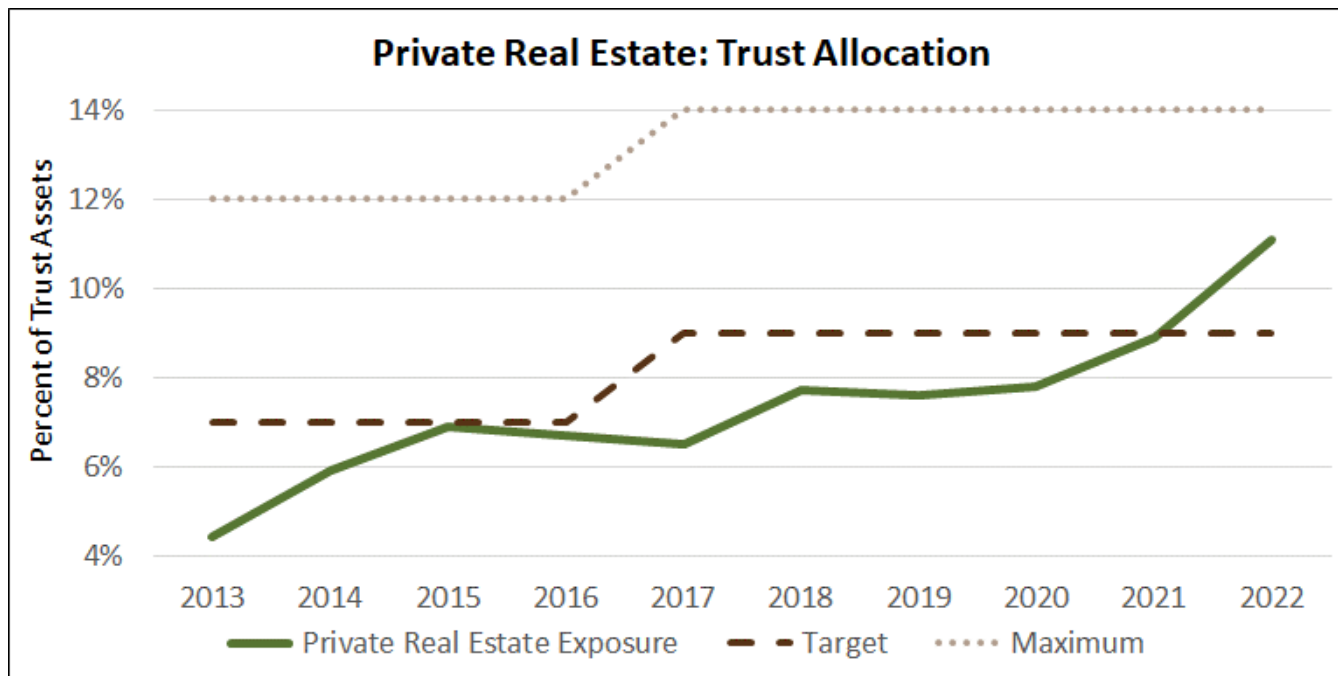


| Attribute | Private Real Estate Portfolio |
|-----------------------|--|
| Type of Allocation | Return Seeking |
| Policy Allocation | Target weight of 9% , range from 4% to 14% |
| Performance Objective | Outperform NCREIF-ODCE Net Total Return Benchmark |
| Management Style | Externally managed commingled funds |
| | Also includes fund of funds, separate accounts, and co-investments |
| Risk Mitigation | Diversification across vintages, geographies, strategies, sectors and managers |
| Investment Expenses | ~175 basis points external, ~10 bps internal |

Private Real Estate

Historical Allocation

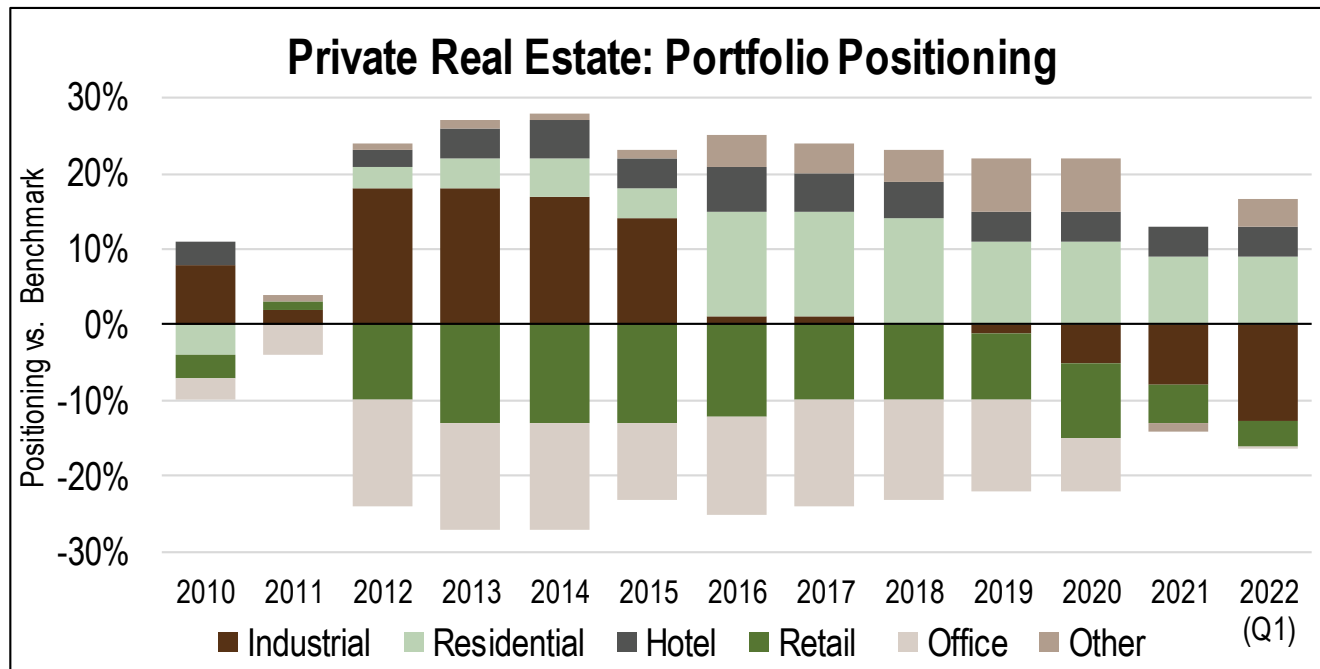
- Strong performance and denominator effect has led to increased allocation over time



Private Real Estate

Historical Composition

- Highly diversified with current tilts toward residential and away from industrial

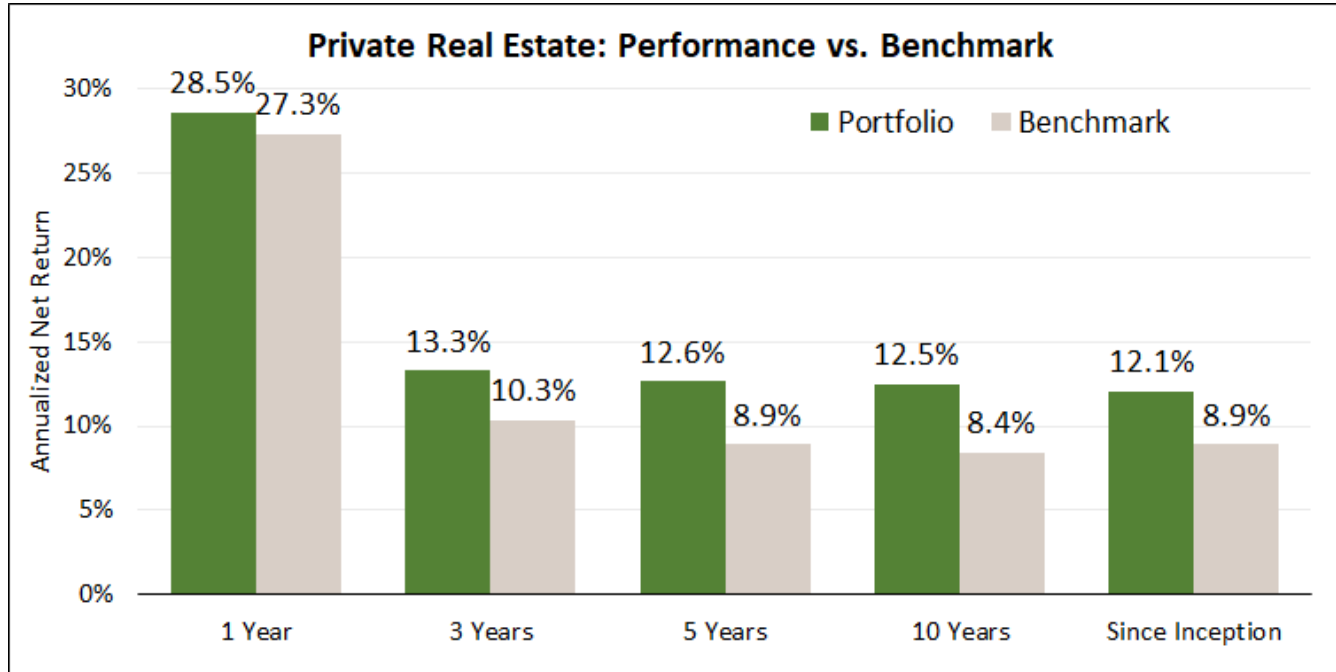


Private Real Estate

Performance Snapshot as of June 30, 2022



- Strong performance across all horizons, including 400 bps of value add over last 10 years

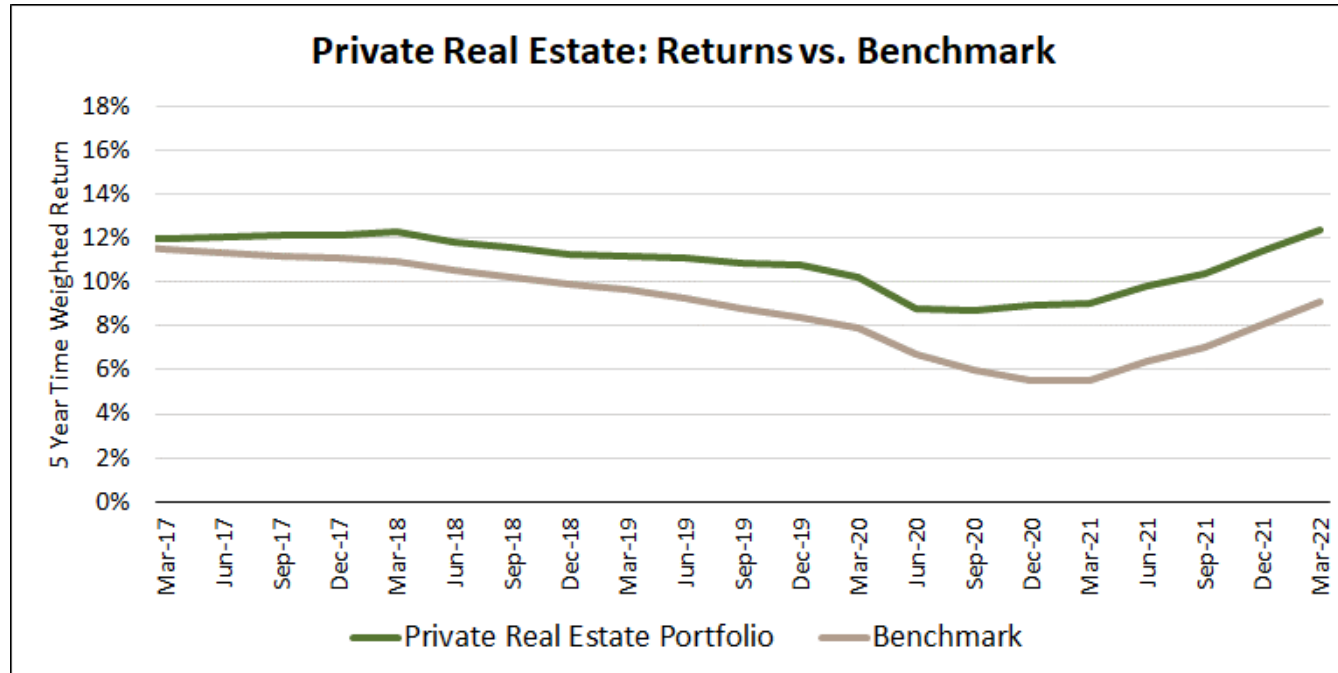


Private Real Estate

Historical Performance



- Strong and improving performance vs. benchmark across recent horizons



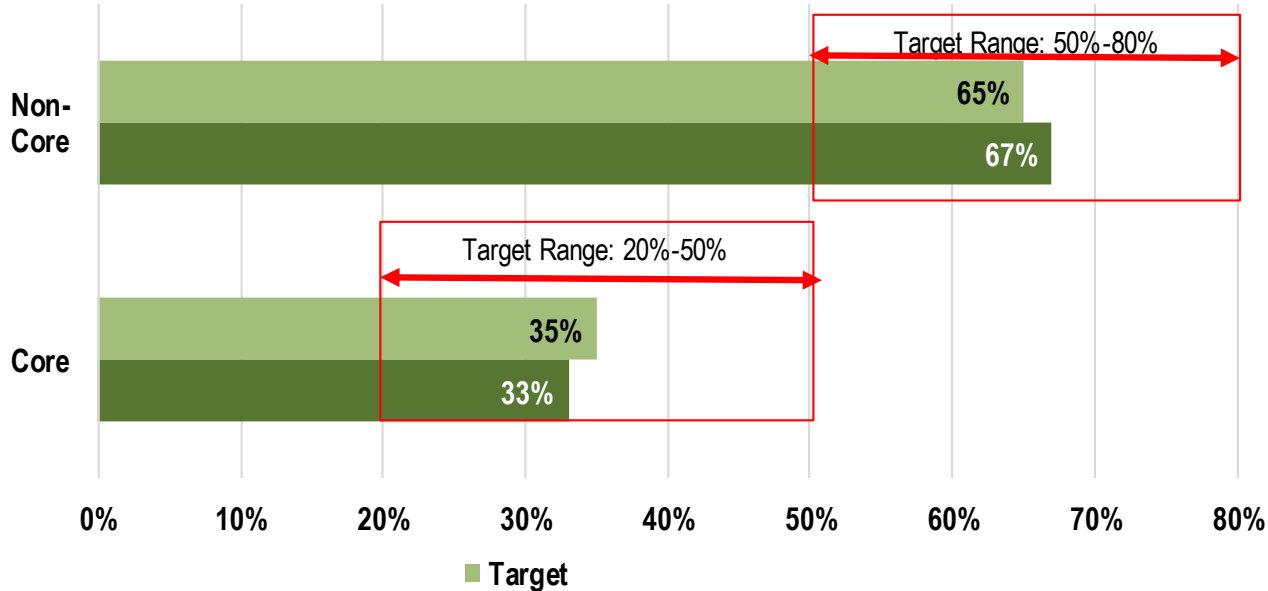
Private Real Estate

Risk Diversification



- Portfolio remains diversified and slightly overweight non-core property types

Private Real Estate: Allocation vs. Target

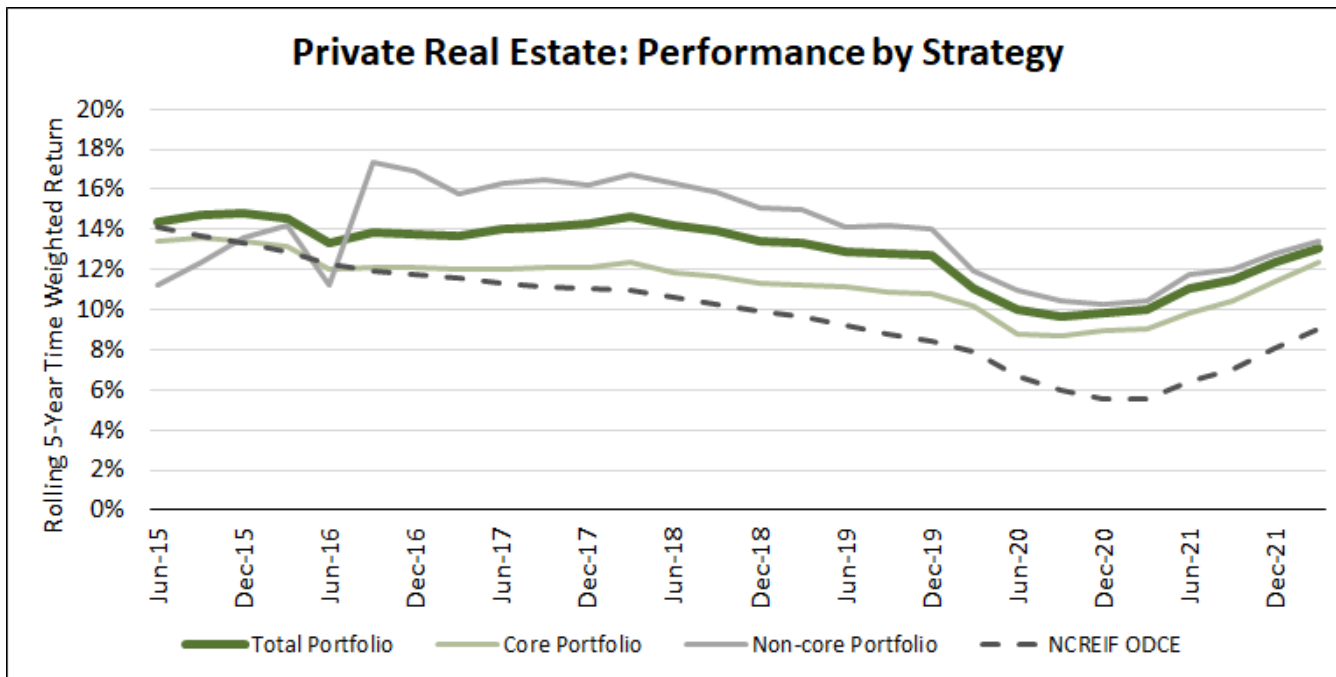


Private Real Estate

Historical Performance



- Strong performance by both core and non-core across recent horizons

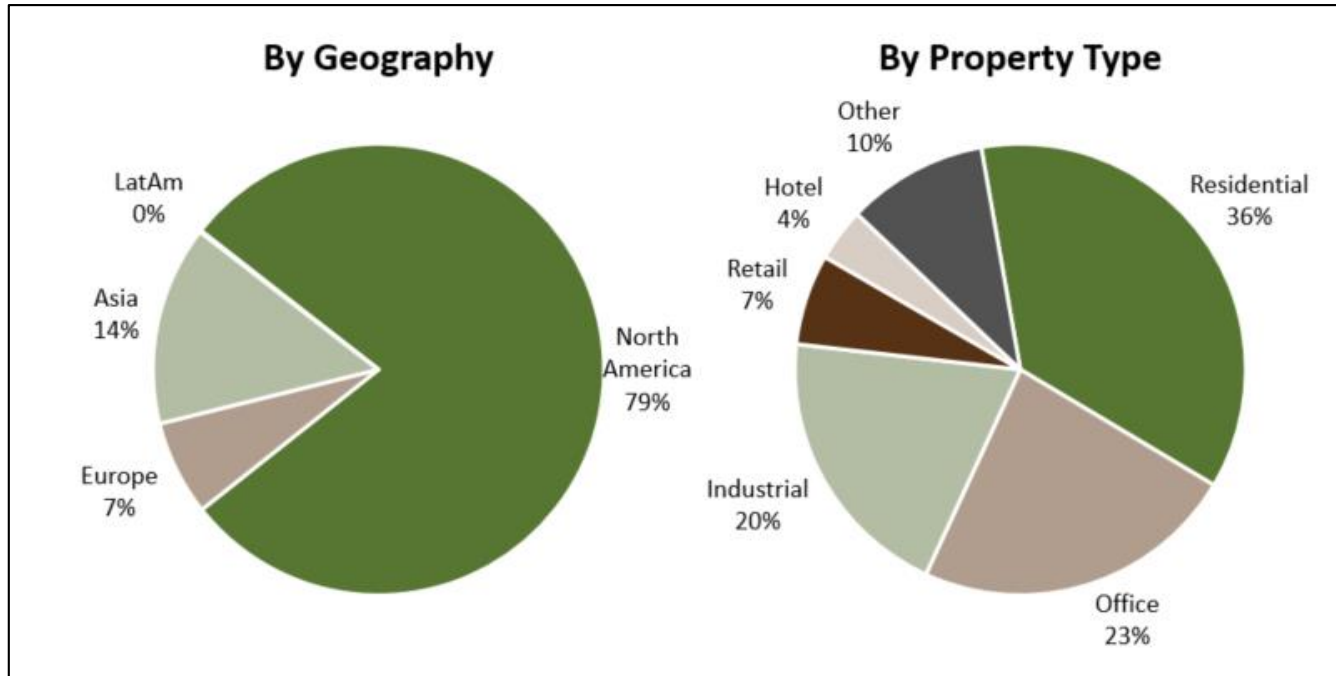


Private Real Estate

Risk Diversification



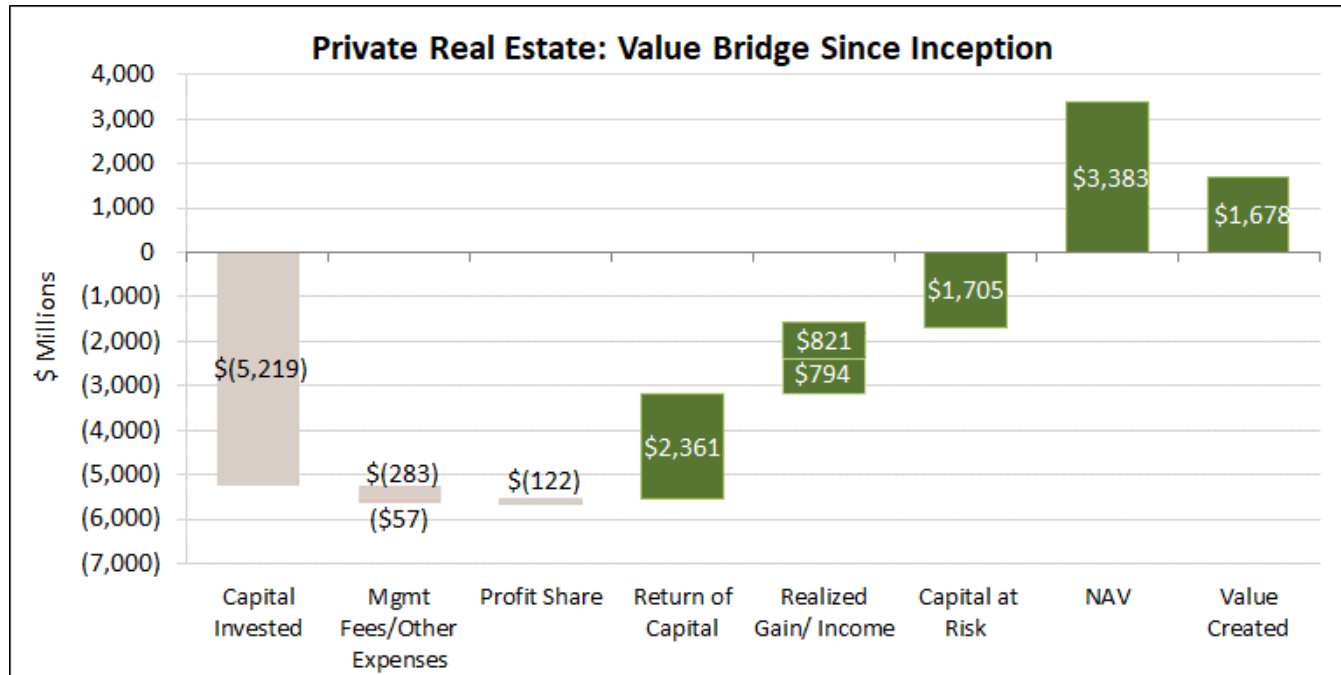
- Portfolio remains well-diversified across regions and property types



Private Real Estate

Historical Performance: Value Bridge

- Significant value creation for the Trust with contributions from income and appreciation

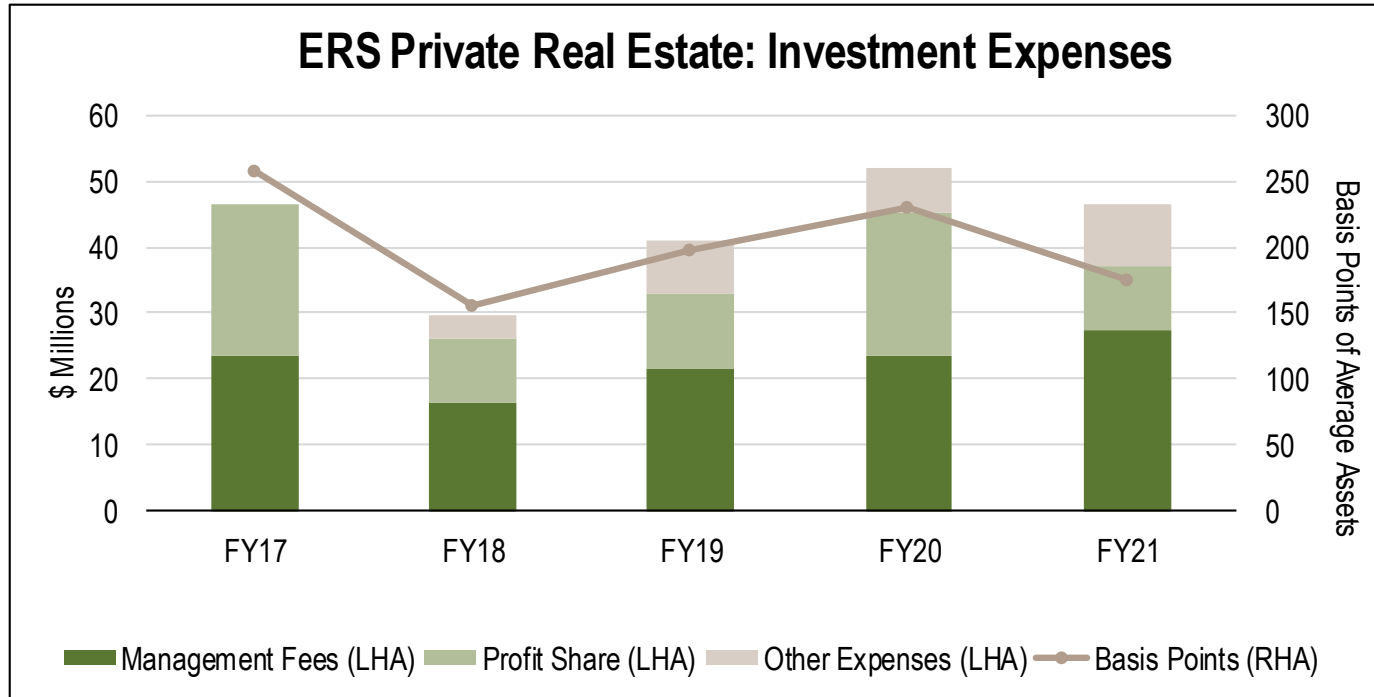


Private Real Estate

Investment Expenses



- Strong performance in FY20 translated into above average profit share



Private Real Estate

Goals and Objectives for Fiscal Years 2022 & 2023



Fiscal Year 2022

- Outperform respective benchmarks – Ongoing
- Execute on Tactical Plan – Ongoing
- Target Allocation Strategy Adjustments – Ongoing
- Continue to Improve Investment Process

Fiscal Year 2023

- Outperform respective benchmarks
- Execute on Tactical Plan
- Target Allocation Strategy Adjustments
- Continue to Improve Investment Process

Questions?

*Review and Approval of Proposed
Private Real Estate Tactical Plan For
Fiscal Year 2023 – (Action)*

Robert Sessa, Managing Director of Real Assets
Amy Cureton, Director Private Real Estate

Tactical Plan

Proposal for Fiscal Year 2023



ERS Private Real Estate Annual Tactical Plan for Fiscal Year 2023:

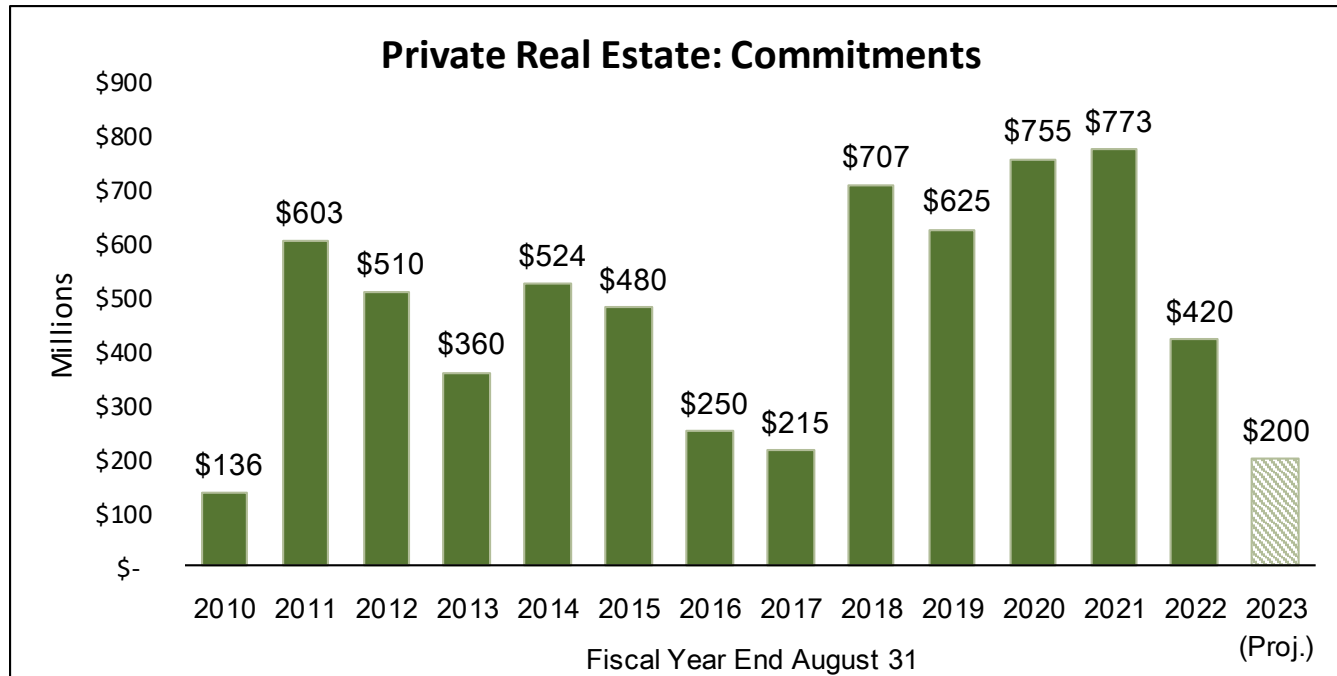
- Commitments totaling \$200 million
 - 3-6 investments mostly with existing managers but new relationships may be added
 - Co-investments – as presented
- Commitment target range \pm 50% (\$100 million – \$300 million)

Tactical Plan

Commitment Pacing



- Pacing within Private Real Estate moderating after a period of high growth

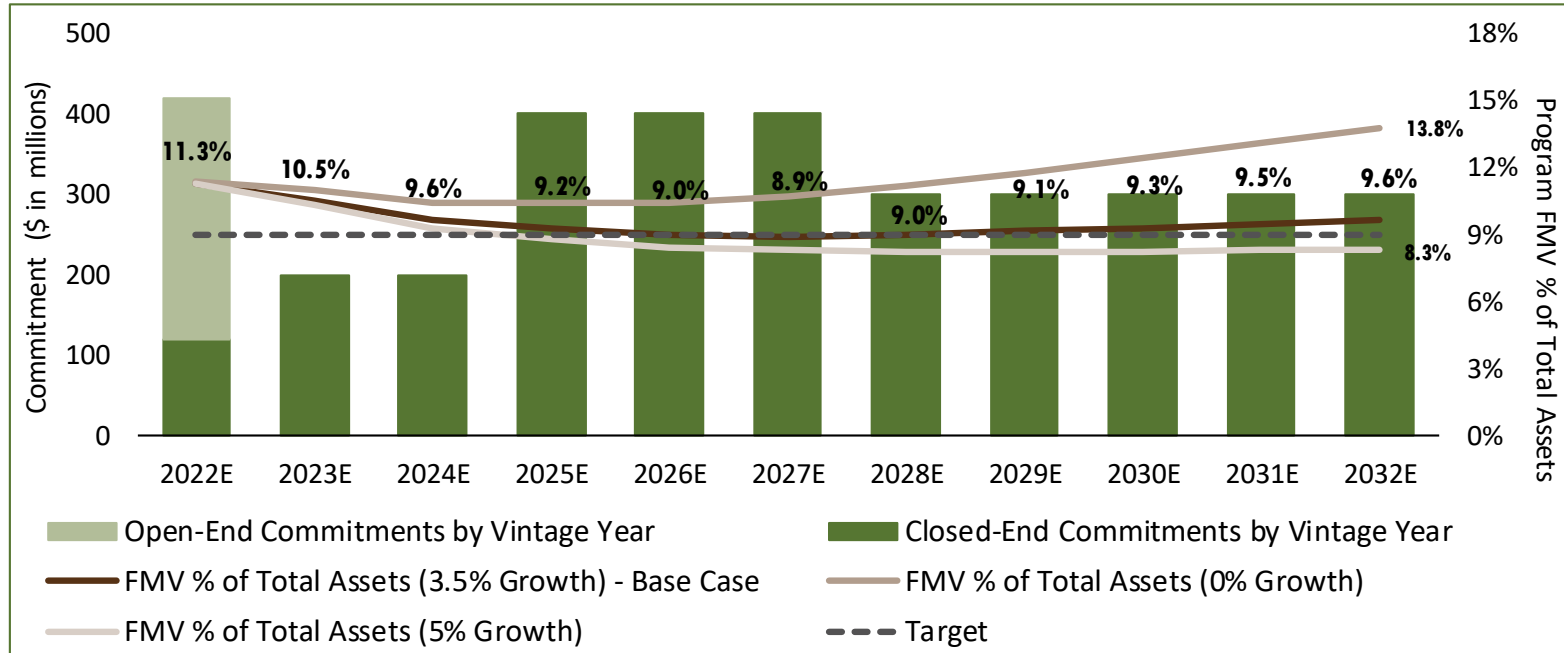


Tactical Plan

Pacing Model Output



- Return to policy allocation target in 2025-2028 with commitments adjusted as appropriate



Questions?
Action Item

Public Agenda Item #16

*Consideration and Annual Review of Private Infrastructure Program and Proposed Annual Tactical Plan for Fiscal Year 2023 - (**Action**)*

August 24, 2022

David T. Veal, Chief Investment Officer, CFA, CAIA, FRM

Pablo de la Sierra Perez, Director of Private Infrastructure

Private Infrastructure

Program Overview



Private Infrastructure Program

- Program inception in 2013
- Total Portfolio cumulative commitments totaling \$2.7 billion
- Portfolio includes Legacy – Special Situations assets

Investment Objective

- Outperform its benchmark over rolling 10-year periods
- Maintain risk compliance through portfolio diversification

Private Infrastructure

Key Characteristics



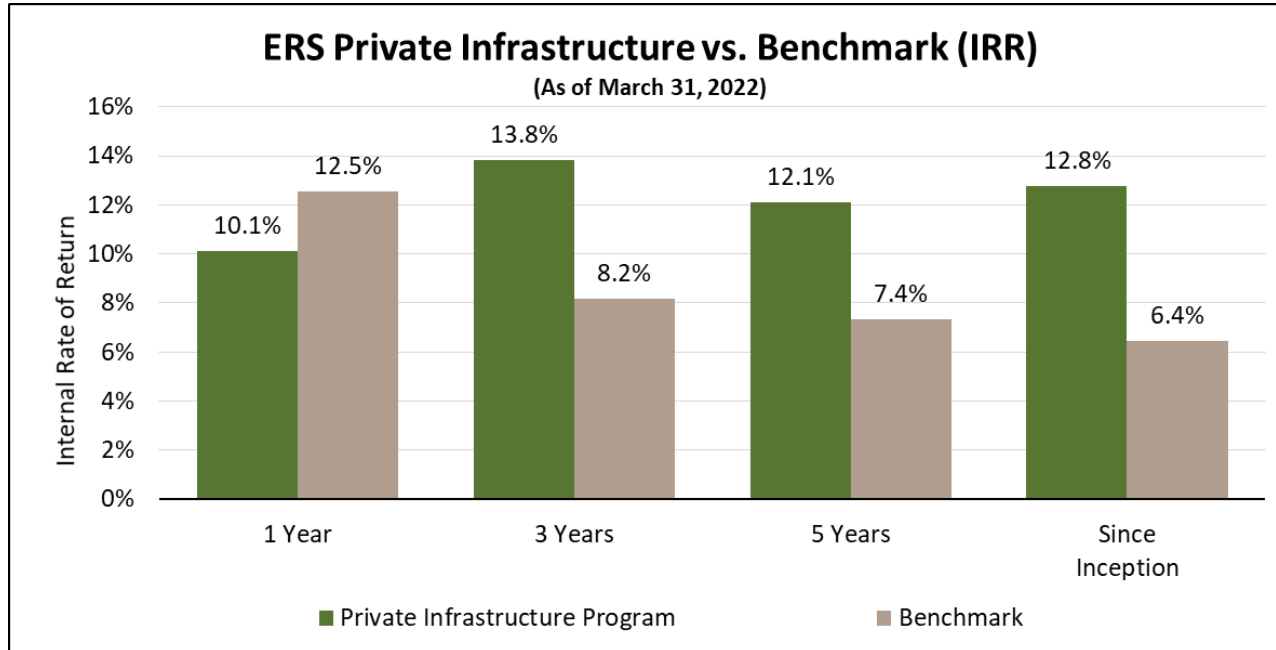
| Attribute | Private Infrastructure Program |
|-----------------------|---|
| Type of Allocation | Return Seeking |
| Policy Allocation | Target weight of 7% , range from 2% to 12% |
| Performance Objective | Exceed CPI +400 |
| Management Style | Externally managed open- and closed-end funds, Co-investments and directs to enhance governance and mitigate investment expenses |
| Risk Mitigation | Diversification across vintages, geographies, strategies, sectors and managers |
| Investment Expenses | ~123 bps external, ~17 bps internal for FY21 |

Private Infrastructure

Performance Snapshot as of March 31, 2022



- Strong Program performance across all time horizons, including +480 bps over five years
- 1-Yr returns positive, although lagging recent inflation increases

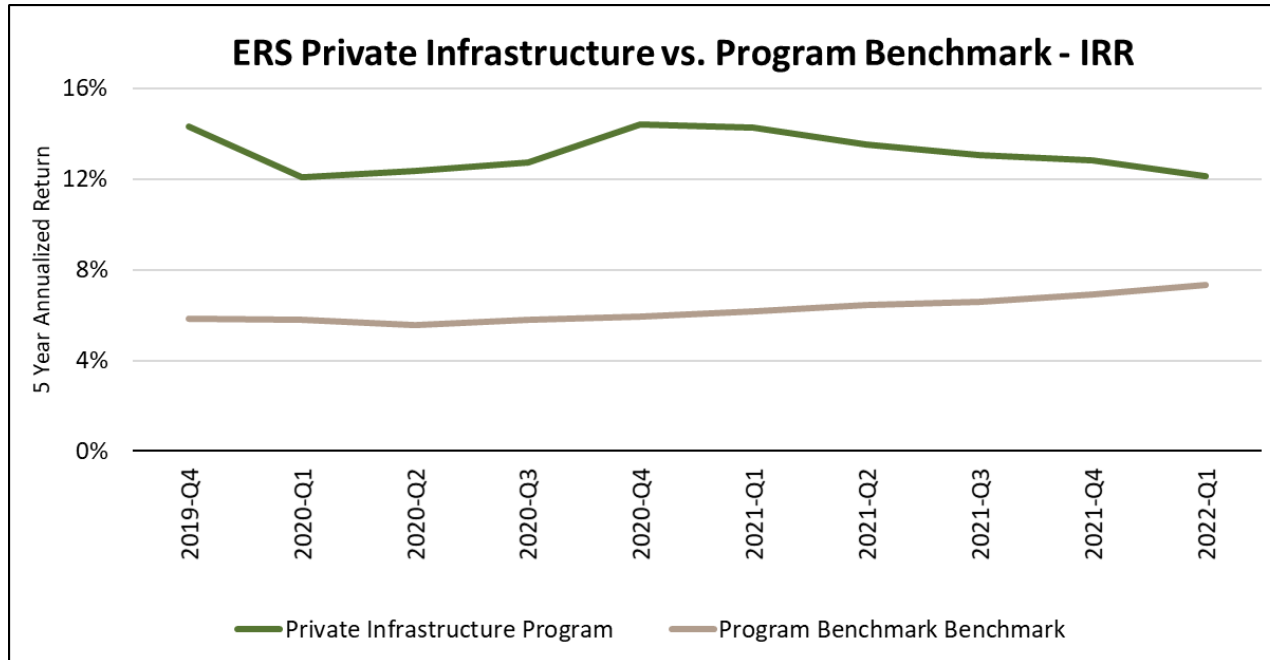


Private Infrastructure

Historical 5 Year Annualized Performance



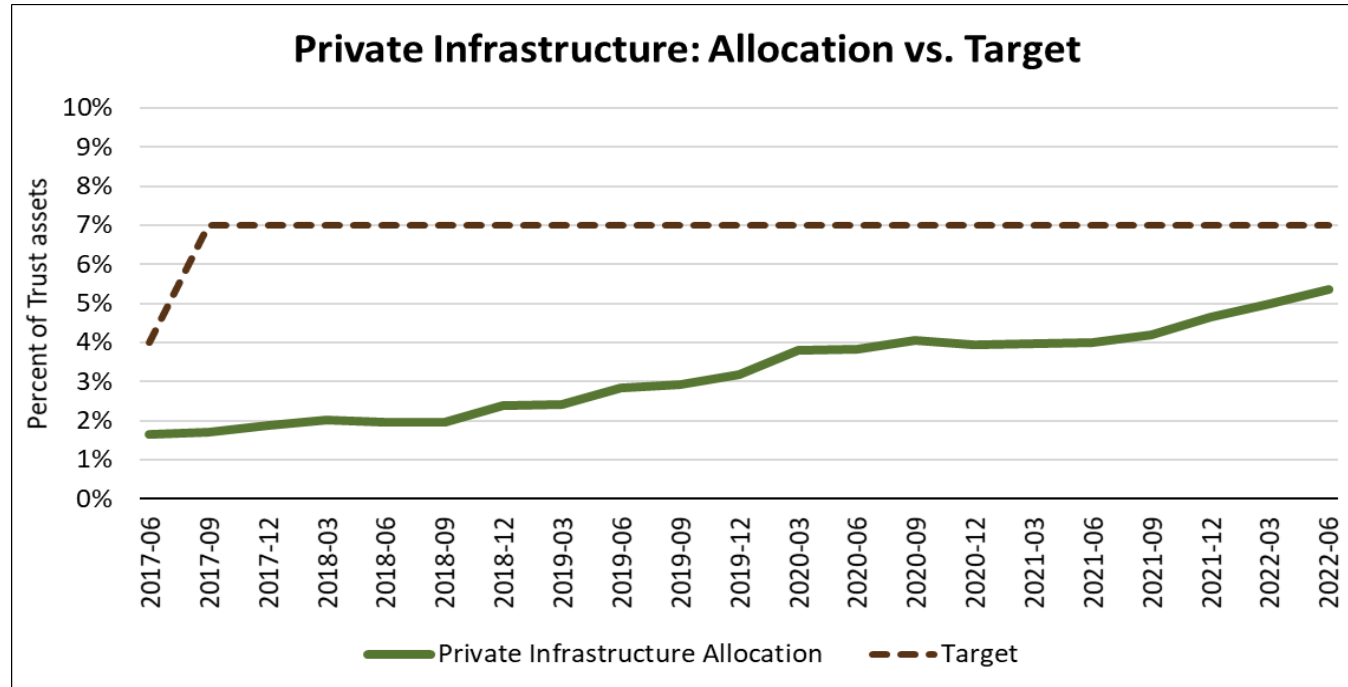
- Strong performance against policy benchmark



Private Infrastructure

Historical Allocation

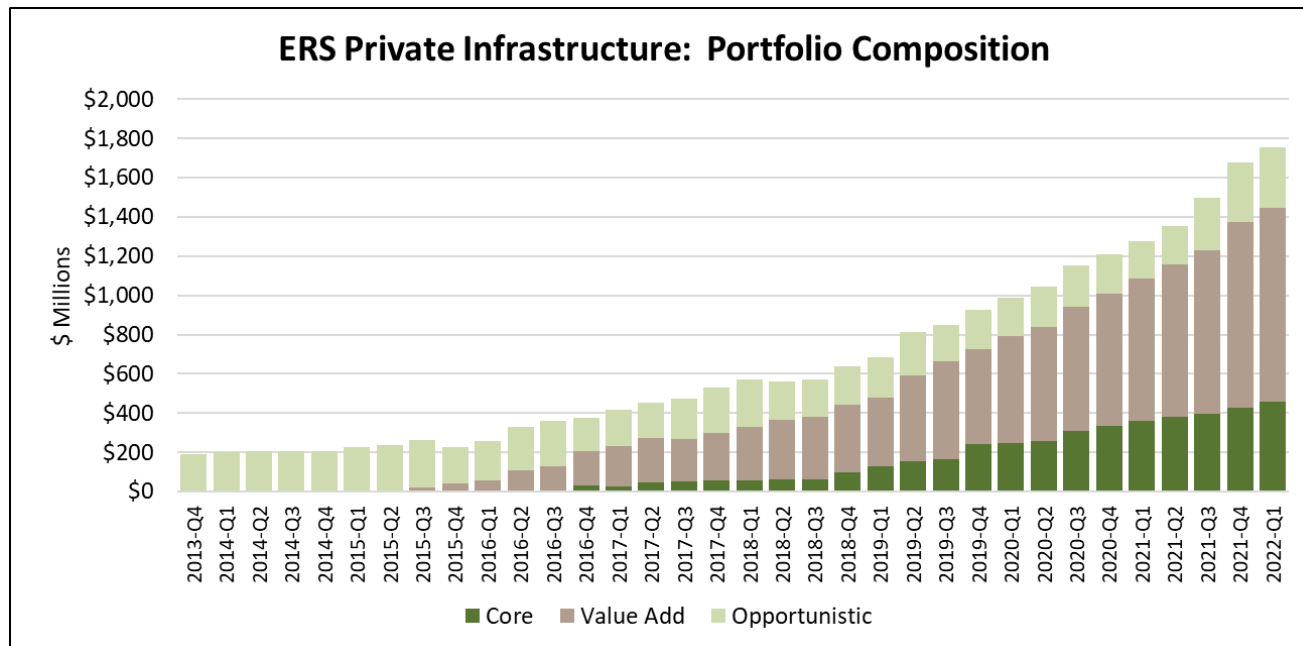
- Portfolio deployment pace consistent with historic changes in target allocation



Private Infrastructure

Historical Composition

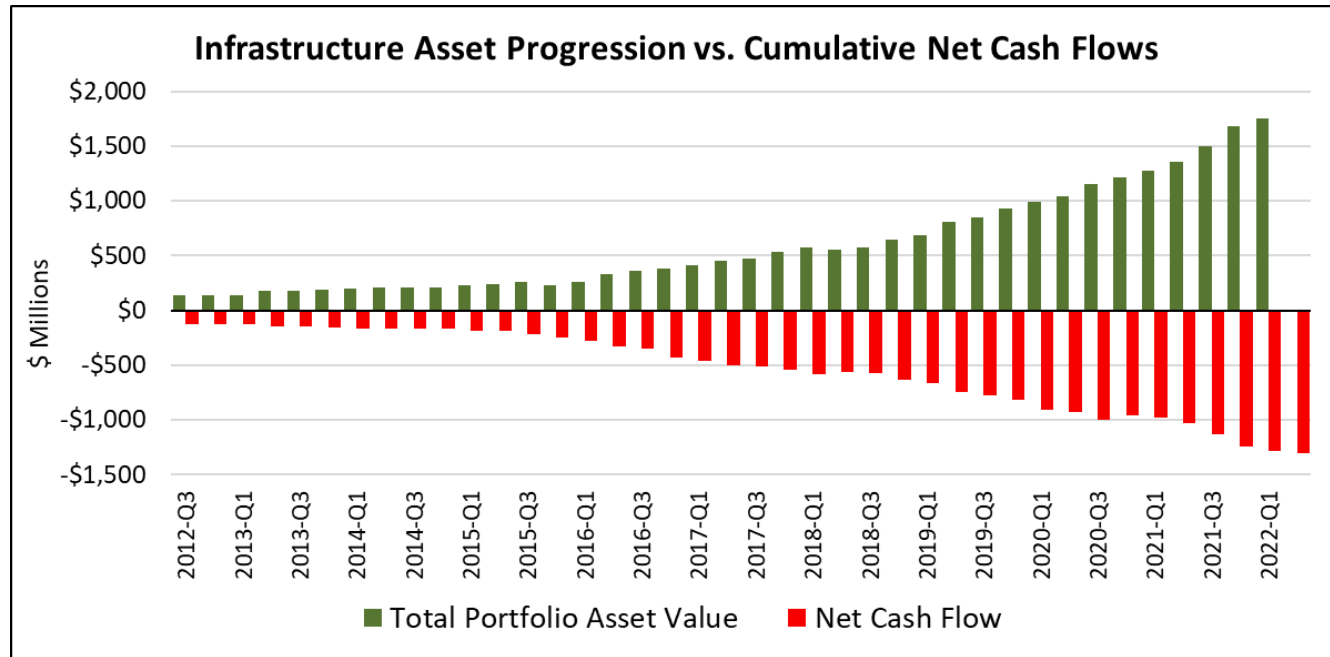
- Total Portfolio has become more diversified as assets have grown over time



Private Infrastructure

Historical Performance

- Both asset value of the portfolio and cash flow continue to rise as the portfolio moves towards maturity

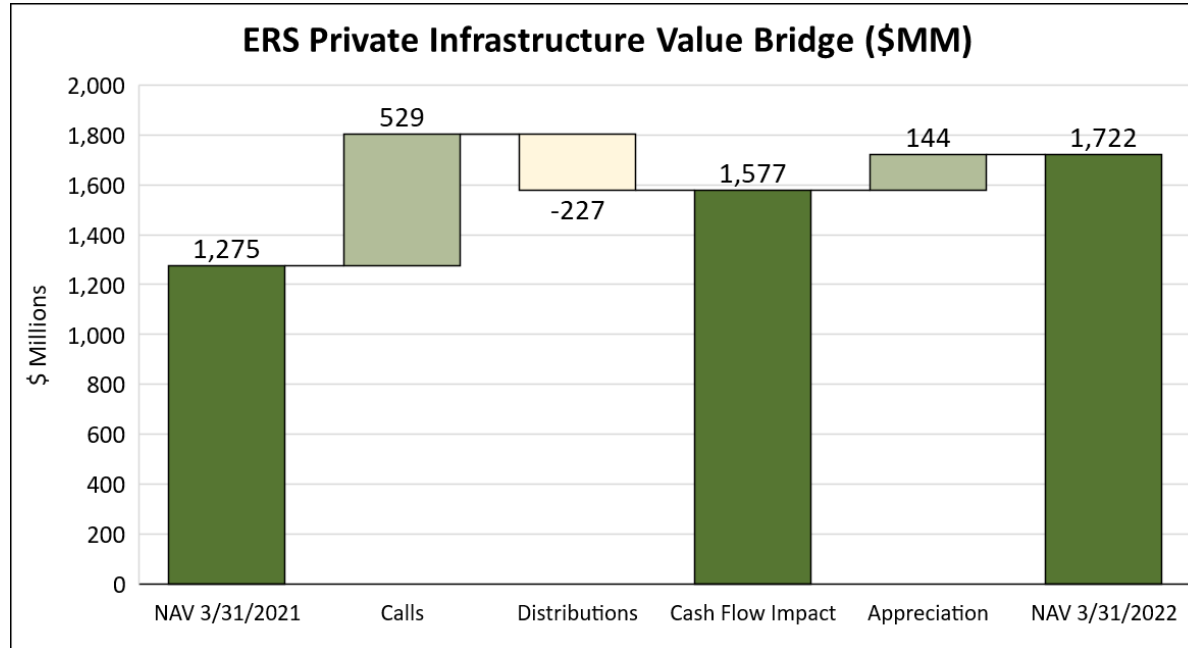


Private Infrastructure

Historical Performance



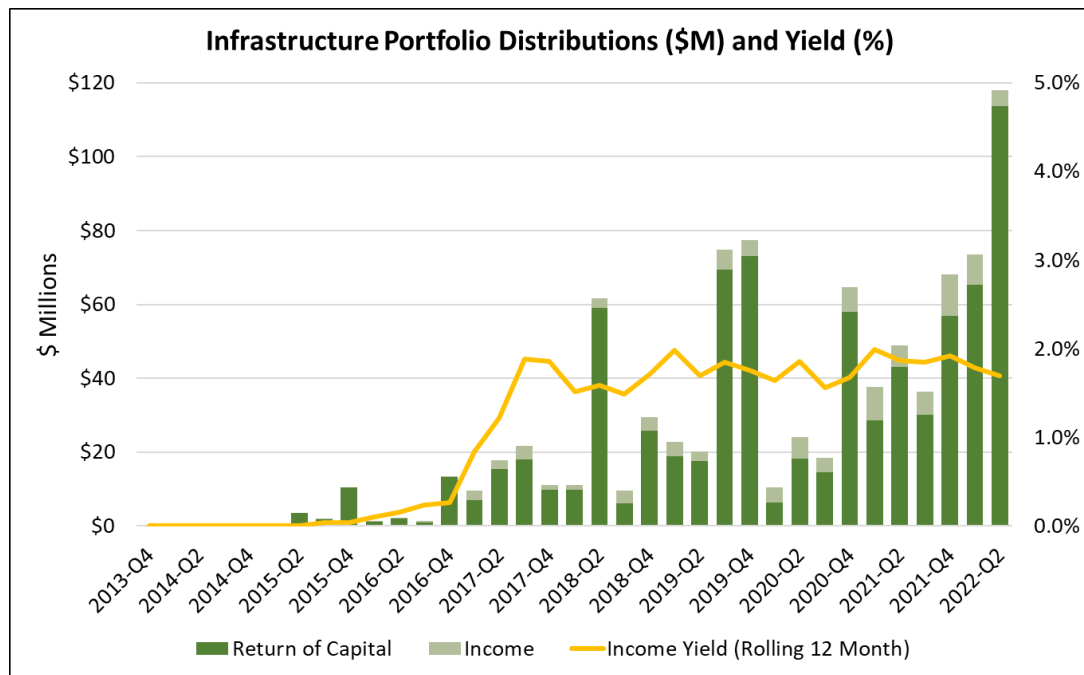
- Return driven by appreciation, current yield and capital distributions



Private Infrastructure

Performance Drivers

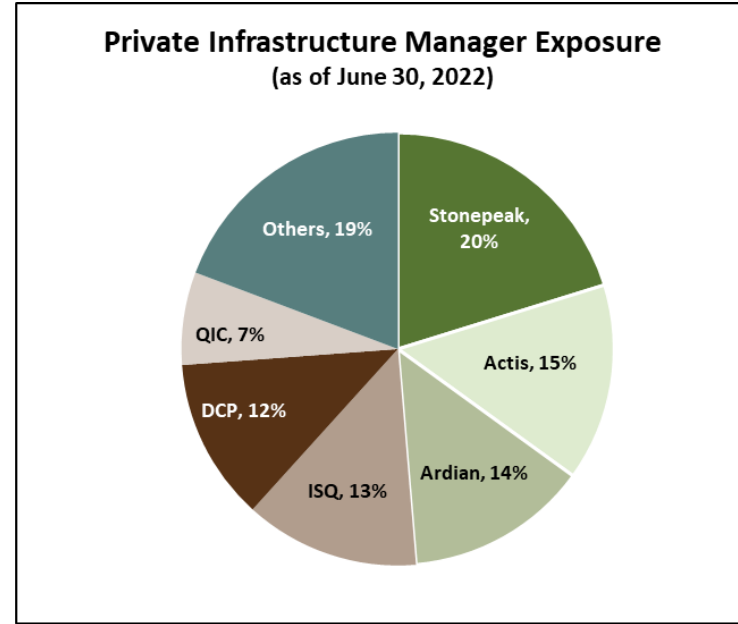
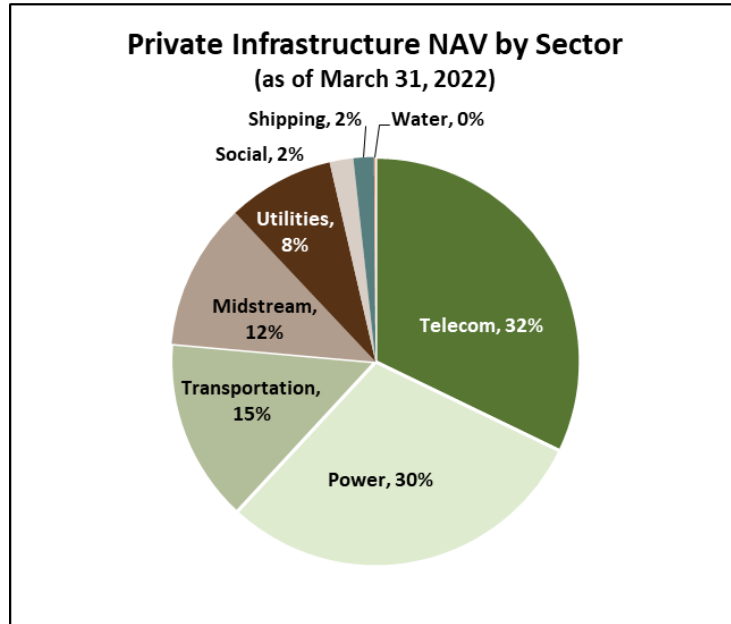
- Current yield generation



Private Infrastructure

Risk Diversification

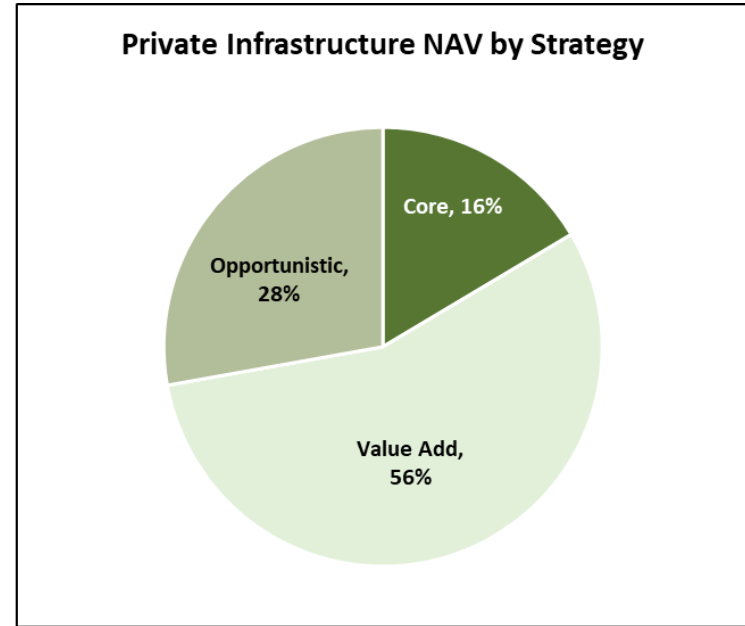
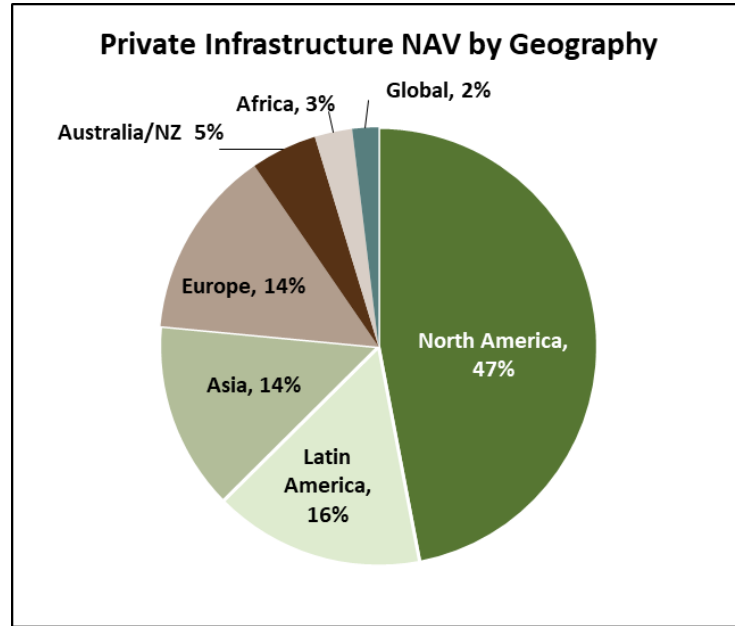
- Total Portfolio



Private Infrastructure

Risk Diversification

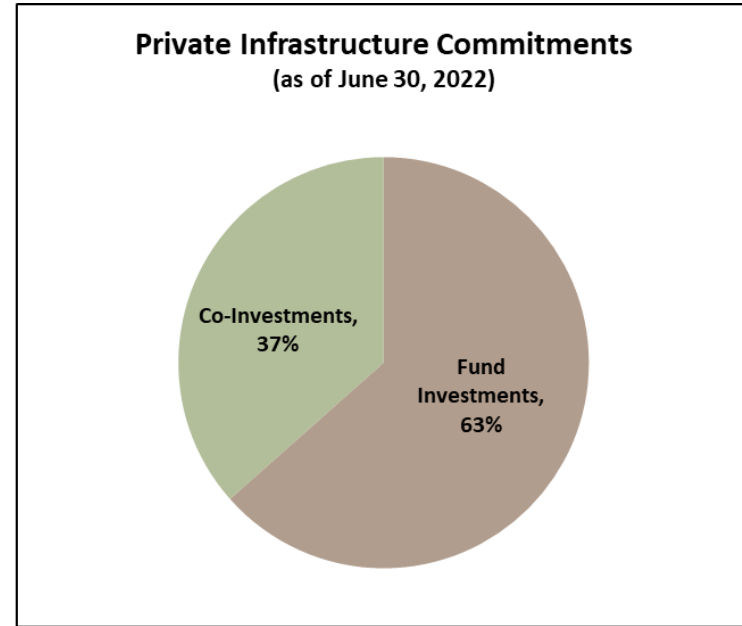
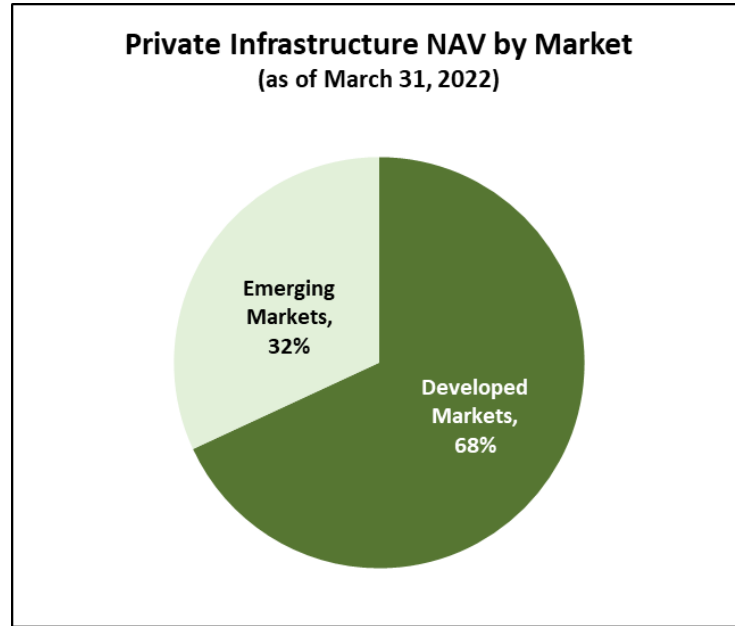
- Total Portfolio as of March 31, 2022



Private Infrastructure

Risk Diversification

- Total Portfolio

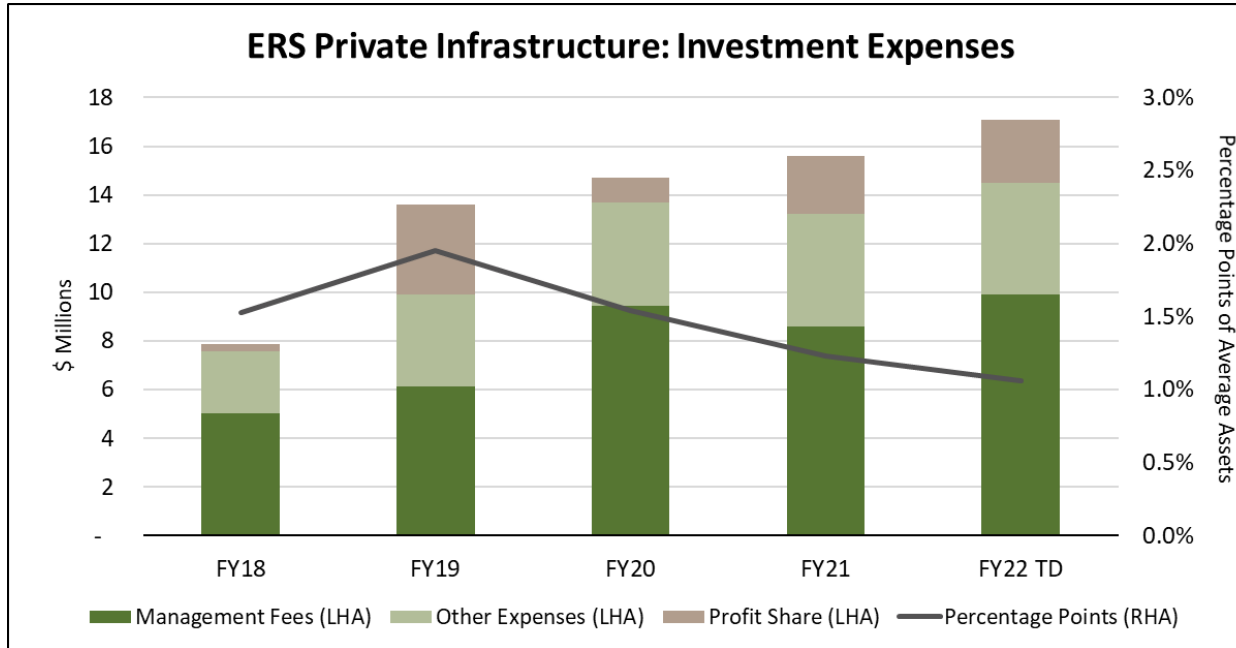


Private Infrastructure

Investment Expenses



- Fee-free co-investments have helped reduce fee load

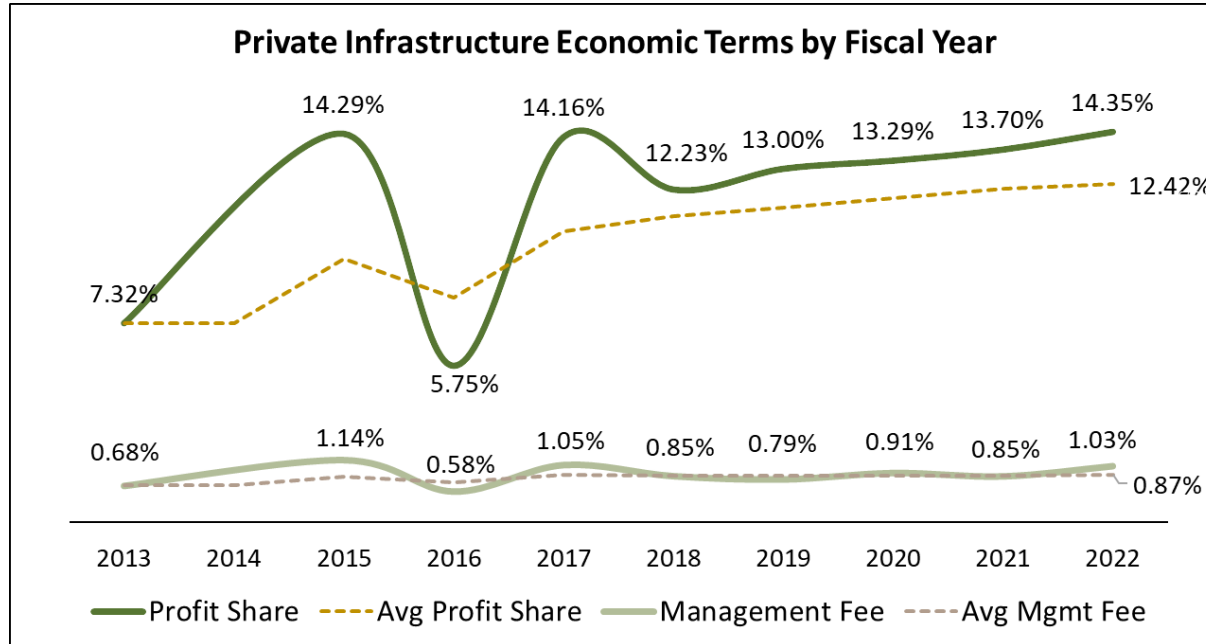


Private Infrastructure

Investment Expenses



- Strong Portfolio economics from allocation to co-investments and negotiated terms



Private Infrastructure Program

Goals and Objectives for Fiscal Year 2023



Fiscal Year 2022

- Execute on Tactical Plan
- Seek Core Diversification – Ongoing
- Seek Emerging Markets
- Seek Sector Diversification
- Establish New Relationships - Ongoing
- Focus on Co-investments / Directs

Fiscal Year 2023

- Execute on Tactical Plan
- Target Allocation Strategy Adjustments
- Seek Portfolio Diversification
- Focus on Co-Investments / Directs
- Hire One Senior Analyst
- Continue to Seek Alternative Benchmarks

Questions?

*Consideration of Proposed
Private Infrastructure Tactical Plan*

Pablo de la Sierra Perez, Director of Private Infrastructure

Tactical Plan

Proposal for Fiscal Year 2023



Review and consideration of ERS Private Infrastructure Annual Tactical Plan for Fiscal Year 2023:

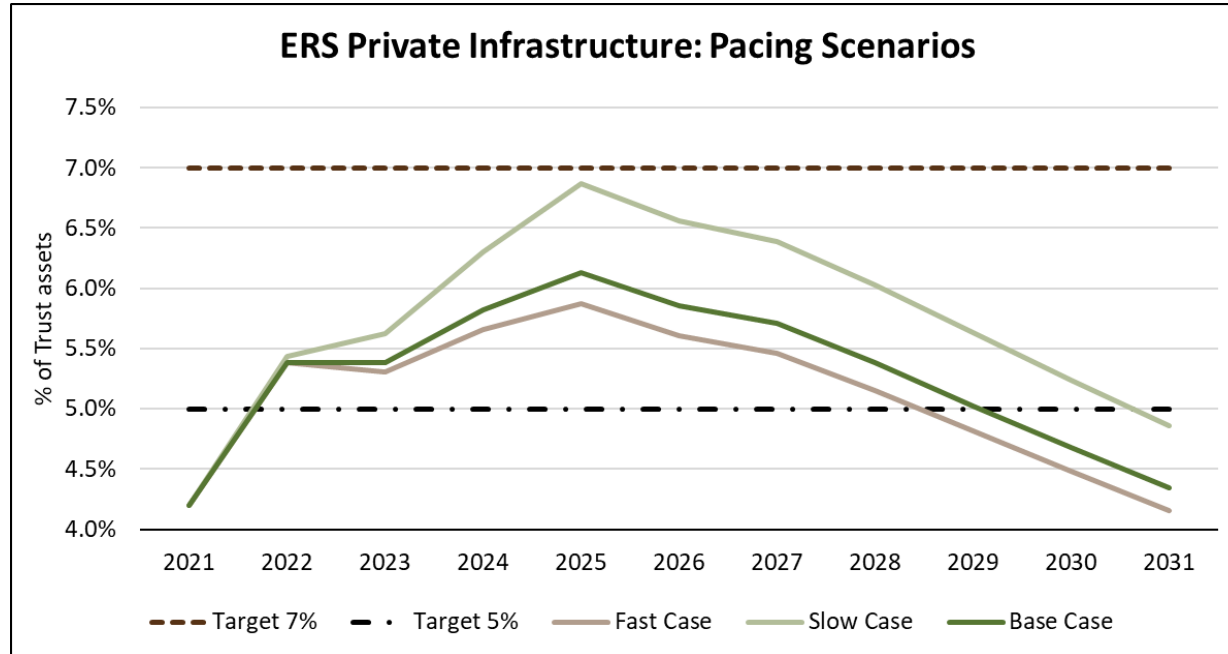
- Commitments totaling \$250 million
 - 3-6 Fund commitments
 - 2-4 co-investments / directs
- Commitment target range \$200M – \$300M

Tactical Plan

Pacing Model Output



- Projected to reach 5% allocation target in 2029
- Fast, Base and Slow cases differ on Trust Growth assumptions (5%, 3.5% and 0% respectively)

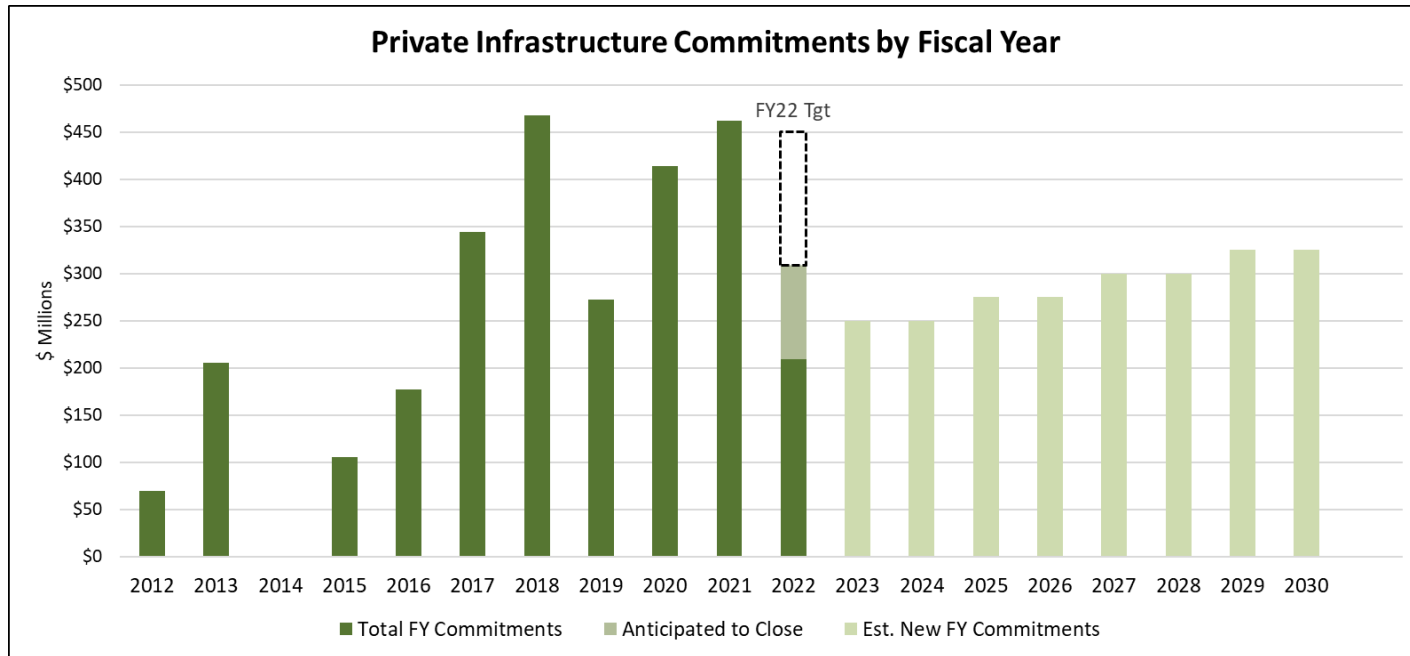


Tactical Plan

Pacing Model Output



- FY22 pace of deployment adjusted in consideration of Trust's liquidity



Questions?
Action Item

Public Agenda Item #17

*Set Fiscal Year 2023 Meetings of the Board of Trustees,
Investment Advisory Committee, and Audit Committee*

August 24, 2022

Next Meeting Dates



Fiscal Year 2023 Meeting Dates

2- day Workshop:

Tuesday, December 6, 2022

Wednesday, December 7, 2022

Wednesday, March 1, 2023

Wednesday, May 17, 2023

Wednesday, August 23, 2023

Public Agenda Item #18

*Adjournment of the Joint Meeting of the Board of Trustees and
Investment Advisory Committee*

August 24, 2022

Public Agenda Item #19

Recess of the Board of Trustees. Following a temporary recess, the Board of Trustees will reconvene to take up the Board agenda items

August 24, 2022