

# Joint Meeting of the ERS Board of Trustees and Investment Advisory Committee

May 26, 2021



# Public Agenda #1

*Call Meeting of the Board of Trustees to Order*

May 26, 2021

## Public Agenda #2

### *Call Meeting of the Investment Advisory Committee to Order*

May 26, 2021

## Public Agenda #3

*Review and Approval of the Minutes to the  
March 10, 2021 Joint Meeting of the Board of Trustees and  
Investment Advisory Committee - (Action)*

May 26, 2021

Questions?  
**Action Item**

## Public Agenda Item #4

# *Review and Discussion of the Incentive Compensation Plan for Fiscal Year 2022*

May 26, 2021

DeeDee Sterns, Director of Human Resources

Jamey Pauley, ICP Program Specialist

# Incentive Compensation Plan (ICP)

## *ICP Document*



- The Board of Trustees reviews the ICP on an annual basis.
- During the May Board meeting:
  - HR provides an overview of the plan that may or may not include any recommended plan changes, and
  - A draft plan document is submitted to the Board for the upcoming fiscal year.
- During the August Board meeting:
  - HR presents the final proposed plan document for consideration.
  - The plan must be adopted before the new fiscal year that begins September 1.

# Incentive Compensation Plan



## *Objectives*

- Communicate strategic performance priorities.
- Encourage sustained levels of high investment performance, without undue risk.
- Promote teamwork among employees.
- Support ERS' strategic and operational goals.
- Attract and retain key employees in a cost-effective manner.

# Incentive Compensation Plan



## Overview

- Eligibility for the ICP requires compliance with ERS policies/procedures and ERS Investment Policy Statement.
  - All participants must be in good standing.
  - New hires must successfully complete their six-month probationary period.
- Performance measures are based on one-, three-, and five-year performance periods.
- Participants have individual and total trust performance benchmarks.
- Participants must exceed their benchmarks to receive an incentive award.
- Benchmarks are set in the Investment Policy Statement unless otherwise stated in the ICP document or the CIO Goals Memo.

# Incentive Compensation Plan



## Overview

- Participants are evaluated on both quantitative and qualitative metrics.
  - 75% quantitative with minimum 25% total trust performance
  - 25% maximum qualitative
- Investments uses a discretionary matrix tool to evaluate participants' qualitative performance.
  - Qualitative metrics include areas above and beyond performance; leadership, teamwork, communication and innovation.
- Payout of incentive award is done over a three-year period: 50/25/25
  - The awardee must be an active and eligible ERS employee on each payment date to receive the full amount.

# Incentive Compensation Plan



## Overview

- Incentive compensation can be earned, but the Trust Fund as measured by the one-year Global Composite Performance must be positive to pay awards.
- Award payments shall be deferred during non-positive years.
- Unpaid incentive awards shall be forfeited after three years of deferrals.
- Metrics and calculations are tied to the Risk Budget approved by the Board.
- ICP awards are calculated based on a weighted average salary.
- If an award is paid in error, over/under-payment provisions to correct errors and help ensure 100% accuracy.

# Incentive Compensation Plan



## *Overview*

- Administrative oversight of the plan is managed by Human Resources.
- Finance performs the award calculations.
- Independent review is performed by a third-party entity.
- Internal and external audits help ensure payments are in accordance to plan.

# Incentive Compensation Plan

*Fiscal Year 2022*



- HR annually reviews the Plan and related processes to make recommendations to the Board.
- Based on a recent market compensation study conducted in-house by HR, staff recommends adjusting the Maximum Incentive Award Percentages for certain Plan Groups in Fiscal Year 2022.
- The changes to the max percentages align the plan more closely to a peer universe of public pension systems, selected based on their similarity to ERS in investment operations. Increasing the potential incentive award brings these positions close to the median of the peer universe for staff members in each group.
- Staff is not recommending any further changes for Fiscal Year 2022.

# Incentive Compensation Plan

## Fiscal Year 2022 – recommended changes to 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 (Performance Goal weightings based on Public Equity under Ex.B)	100%	50/25/25
Asset Class Director	100%	50/25/25
Director of Risk Management & Applied Research	100%	50/25/25
Director of Investment Services (Performance Goal weightings based on Inv Ops under Ex.B)	90%	50/25/25
Supervising Portfolio Manager	80%	50/25/25
Portfolio Manager I, II, III, IV, V & VI	70%	50/25/25
Chief Trader I & II	70%	50/25/25
Trader I, II & III	65%	50/25/25
Investment Analyst III, IV & V	58%	50/25/25
Investment Operations Manager	50%	50/25/25
Investment Analyst I & II	35%	50/25/25
Financial Analyst I, II, III & IV (Investment Operations Specialist and Operational Due Diligence Specialist)	25%	50/50
Investment Administrative Support	5%	100
General Counsel (Performance Goal weightings based on Legal Services under Ex. B)	65%	50/25/25
Investments and Securities, Attorney (Performance Goal weightings based on Legal Services under Ex. B)	65%	50/25/25
Investments and Securities, Paralegal (Performance Goal weightings based on Legal Services under Ex. B)	35%	50/25/25

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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 (Performance Goal weightings based on Public Equity under Ex.B)	100%	50/25/25
Asset Class Director	100%	50/25/25
Director of Risk Management & Applied Research	100%	50/25/25
Director of Investment Services (Performance Goal weightings based on Inv Ops under Ex.B)	90%	50/25/25
Supervising Portfolio Manager	<del>80%</del> 90%	50/25/25
Portfolio Manager IV, V & VI	80%	50/25/25
Portfolio Manager I, II, & III, IV, V & VI	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 & V	58%	50/25/25
Investment Operations Manager	50%	50/25/25

Questions?

## Public Agenda Item #5

# *Review of the Investment Performance for 1st Quarter of 2021 and Risk Update*

May 26, 2021

Tom Tull, CFA, Chief Investment Officer  
Carlos Chujoy, CFA, Director of Risk Management and Applied Research  
Sam Austin, Partner, NEPC  
Michael Malchenko, Senior Consulting Analyst, NEPC

## QUARTERLY PERFORMANCE REPORT

# EMPLOYEES RETIREMENT SYSTEM OF TEXAS

May 26, 2021

Sam Austin, Partner



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

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# EXECUTIVE SUMMARY

# ERS TRUST DASHBOARD

	CYTD	FYTD 2021
<b>Fund Performance</b>	4.9%	13.1%
<b>Policy Benchmark</b>	3.3%	9.7%
<b>Excess Return</b>	1.6%	3.4%

**3 Yr Tracking Error** 2.38%

**5 Yr Sharpe Ratio** 1.27

**5 Yr Sortino Ratio** 1.30

## Largest Contributors (Quarter)

Global Public Equity and Total Global Credit contributed +0.4% versus the policy benchmark

## Largest Detractors (Quarter)

Total Rates contributed 0.0% versus the policy benchmark

## Profile

### Market Value at 3/31/2021:

\$32.02 Billion

### Actuarial Accrued Liability 8/31/19:

\$39.8 Billion

### Actuarial Assumed Rate of Return:

7.0%

### Retirees and Beneficiaries 8/31/2019:

115,155

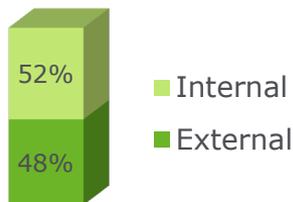
### Retirement Payments Year Ended 8/31/2019:

\$2.62 Billion

### ERS Trust Funding Ratio 8/31/2019

70.5%

## Management



## Allocation



## Liquidity



# TOTAL FUND PERFORMANCE DETAIL (NET OF FEES)

	Market Value(\$)	3 Mo(%)	Fiscal YTD	1 Yr(%)	3 Yrs(%)	5 Yrs(%)	10 Yrs(%)
Total Fund	32,023,039,283	4.9	13.1	28.1	8.9	9.8	7.9
<i>Total Fund Policy Index</i>		3.3	9.7	24.8	8.2	9.0	7.5
<i>Long Term Public Index</i>		3.1	12.9	42.3	10.6	11.1	8.0

- **One-year ended March 31, 2021, the Fund outperformed the policy benchmark by 3.3%.**
- **The Fund's assets increased from \$30.87 billion to \$32.02 billion in the calendar year which includes a \$1.507 billion investment gain in the first calendar quarter of 2021.**



# TOTAL FUND PERFORMANCE DETAIL (NET OF FEES)

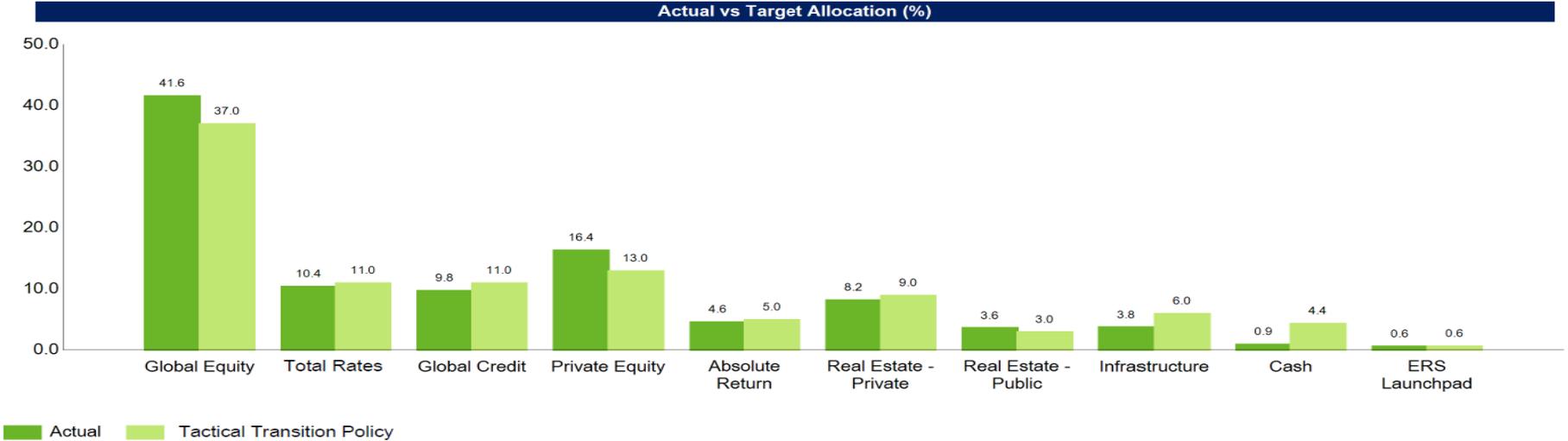
	3 Years Ending December 31, 2020			
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio RF
Total Fund	8.94%	8.40%	0.90	1.01
Total Fund Policy Index	8.21%	8.96%	0.76	0.90

	5 Years Ending December 31, 2020			
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio RF
Total Fund	9.79%	6.83%	1.27	1.30
Total Fund Policy Index	8.97%	7.40%	1.06	1.14

- **Three-year period ended March 31, 2021, the return of 8.94% outperformed the benchmark by 0.73%. On a risk-adjusted basis, the Sharpe and Sortino Ratios over this period outperformed the benchmark.**
- **Five-year period ended March 31, 2021, the Fund returned 9.79% and outperformed the policy benchmark as well as the actuarial rate of return. On a risk-adjusted basis, the Fund's Sharpe and Sortino Ratios indicate that active management benefitted the Plan.**



# TOTAL FUND ASSET GROWTH SUMMARY



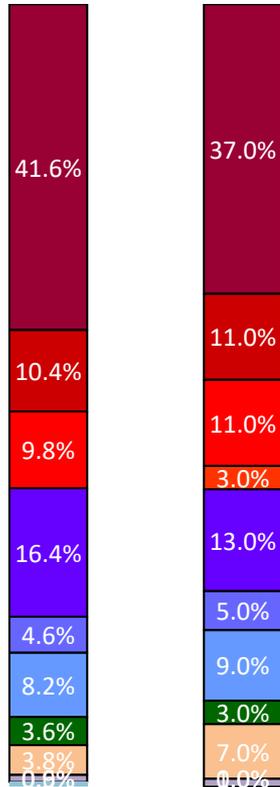
## Summary of Cash Flows

	Last Three Months	Fiscal Year-To-Date	One Year	Three Years	Five Years
Beginning Market Value	\$30,865,543,933	\$28,100,171,572	\$28,278,965,983	\$28,163,133,239	\$26,143,598,508
Contributions	\$2,916,737,486	\$7,681,767,119	\$13,255,890,764	\$29,281,154,733	\$47,688,077,517
Withdrawals	-\$3,266,494,905	-\$8,592,647,778	-\$14,707,345,263	-\$32,031,193,433	-\$52,752,220,674
Net Cash Flow	-\$349,757,419	-\$910,880,658	-\$1,451,454,499	-\$2,749,829,000	-\$5,052,023,609
Net Investment Change	\$1,507,252,769	\$4,833,748,369	\$5,195,527,800	\$6,609,735,044	\$10,931,464,384
Ending Market Value	\$32,023,039,283	\$32,023,039,283	\$32,023,039,283	\$32,023,039,283	\$32,023,039,283



# FUND ASSET ALLOCATION VS. POLICY TARGETS

Current Allocation      Current Target

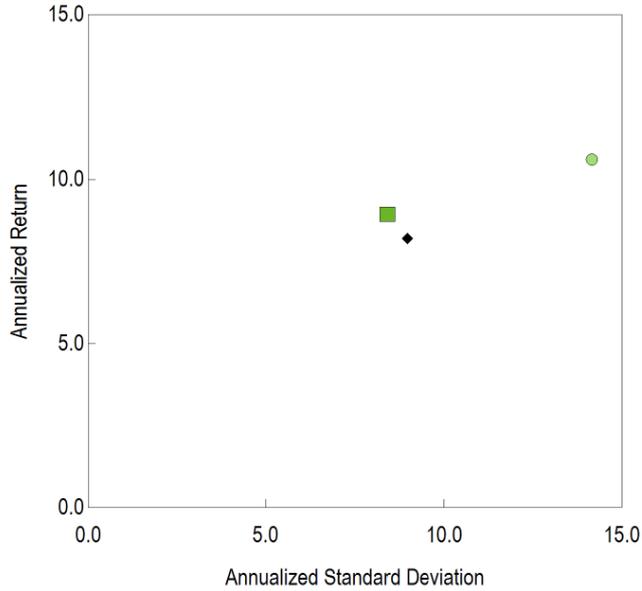


	Current	Current	Long-Term Target	Long-Term Target Range
Public Equity	\$13,326,350,251	41.6%	37.0%	27.0% - 47.0%
Total Rates	\$3,345,276,578	10.4%	11.0%	
Global Credit	\$3,135,173,033	9.8%	11.0%	1.0% - 21.0%
Opportunistic Credit	--	--	3.0%	0.0% - 8.0%
Private Equity	\$5,242,695,280	16.4%	13.0%	8.0% - 18.0%
Absolute Return	\$1,487,627,877	4.6%	5.0%	0.0% - 10.0%
Real Estate - Private	\$2,630,555,658	8.2%	9.0%	4.0% -14.0%
Real Estate - Public	\$1,161,348,970	3.6%	3.0%	0.0% - 13.0%
Infrastructure	\$1,200,941,809	3.8%	7.0%	2.0% - 12.0%
Cash	\$301,175,927	0.9%	1.0%	0.0% - 1.0%
ERS Launchpad	\$191,893,899	0.6%		0.0% - 5.0%
<b>Total</b>	<b>\$ 32,023,039,283</b>	<b>100.0%</b>	<b>100.0%</b>	



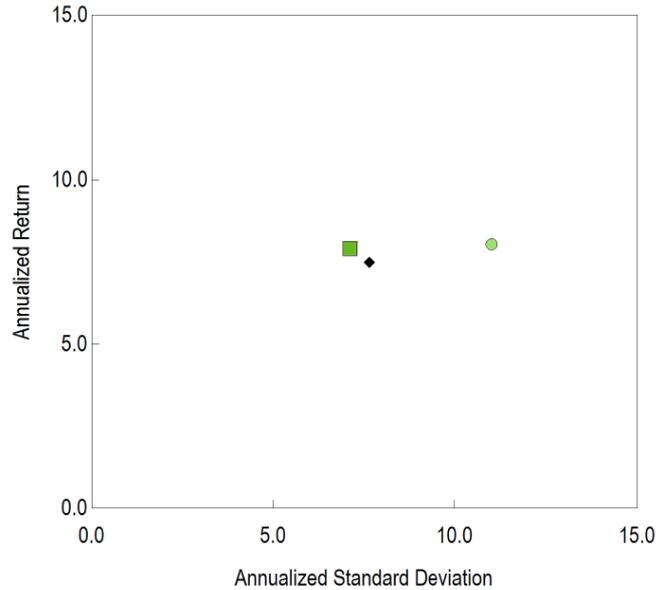
# TOTAL FUND RISK/ RETURN

3 Years Ending March 31, 2021



- Total Fund
- ◆ Total Fund Policy Index
- Long Term Public Index

10 Years Ending March 31, 2021



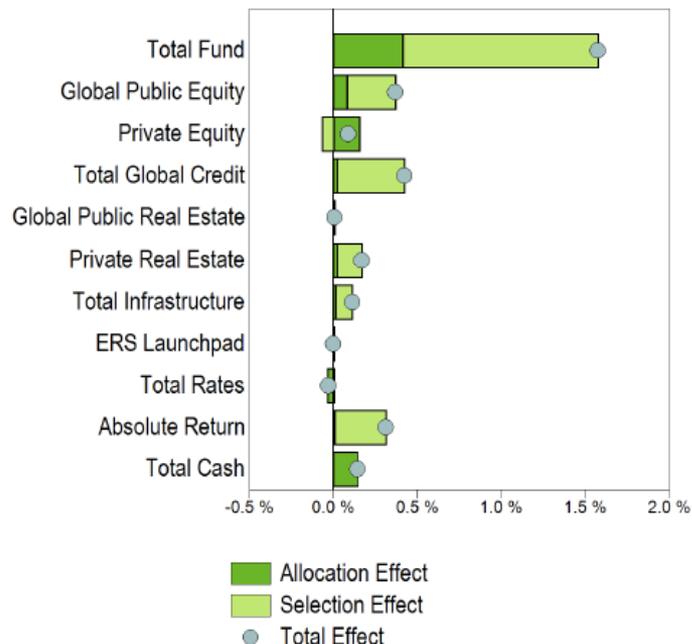
- Total Fund
- ◆ Total Fund Policy Index
- Long Term Public Index



Note: Long Term Public Index is comprised of 79% MSCI ACW IMI and 21% Barclays Intermediate Treasury Index. Index Definitions can be found in the appendix.

# TOTAL FUND ATTRIBUTION ANALYSIS

**Attribution Effects**  
3 Months Ending March 31, 2021



Attribution Summary						
3 Months Ending March 31, 2021						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Global Public Equity	5.9%	5.2%	0.7%	0.3%	0.1%	0.4%
Private Equity	7.9%	8.1%	-0.2%	-0.1%	0.2%	0.1%
Total Global Credit	4.8%	0.9%	3.9%	0.4%	0.0%	0.4%
Global Public Real Estate	6.1%	6.0%	0.0%	0.0%	0.0%	0.0%
Private Real Estate	2.9%	1.1%	1.8%	0.1%	0.0%	0.2%
Total Infrastructure	4.6%	2.1%	2.6%	0.1%	0.0%	0.1%
ERS Launchpad	2.5%	2.8%	-0.3%	0.0%	0.0%	0.0%
Total Rates	-1.7%	-1.8%	0.0%	0.0%	0.0%	0.0%
Absolute Return	7.6%	0.9%	6.7%	0.3%	0.0%	0.3%
Total Cash	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
<b>Total</b>	<b>4.9%</b>	<b>3.3%</b>	<b>1.6%</b>	<b>1.2%</b>	<b>0.4%</b>	<b>1.6%</b>

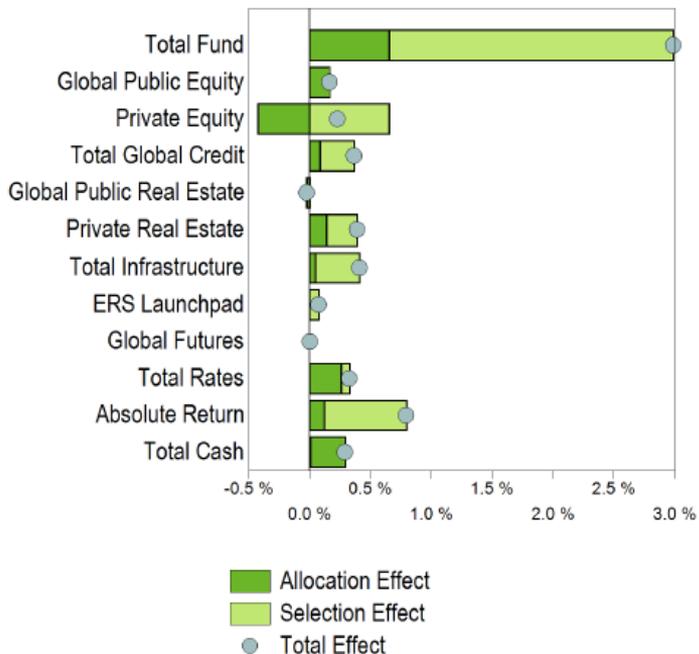
Note: Not all assets valued through March 31, 2021 within Private Equity, Total Global Credit, Private Real Estate, Total Infrastructure and Absolute Return.

\*Total Fund Attribution Analysis uses policy weights.



# TOTAL FUND ATTRIBUTION ANALYSIS

**Attribution Effects**  
1 Year Ending March 31, 2021



**Attribution Summary**  
1 Year Ending March 31, 2021

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Global Public Equity	58.0%	58.0%	-0.1%	0.0%	0.2%	0.2%
Private Equity	13.5%	8.8%	4.7%	0.6%	-0.4%	0.2%
Total Global Credit	26.8%	23.6%	3.1%	0.3%	0.1%	0.4%
Global Public Real Estate	35.5%	35.6%	-0.1%	0.0%	0.0%	0.0%
Private Real Estate	3.0%	0.3%	2.6%	0.2%	0.1%	0.4%
Total Infrastructure	14.1%	5.7%	8.3%	0.4%	0.0%	0.4%
ERS Launchpad	15.3%	2.8%	12.5%	0.1%	0.0%	0.1%
Global Futures	--	--	--	--	--	--
Total Rates	-0.9%	-1.3%	0.4%	0.1%	0.3%	0.3%
Absolute Return	17.1%	3.9%	13.2%	0.7%	0.1%	0.8%
Total Cash	0.0%	0.1%	-0.1%	0.0%	0.3%	0.3%
<b>Total</b>	<b>28.0%</b>	<b>24.8%</b>	<b>3.2%</b>	<b>2.3%</b>	<b>0.7%</b>	<b>3.0%</b>

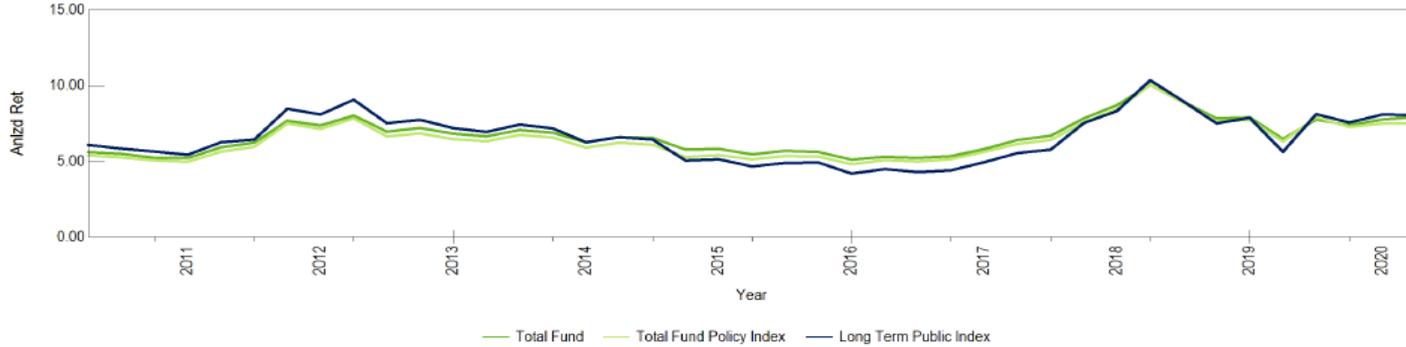
Note: Not all assets valued through March 31, 2021 within Private Equity, Total Global Credit, Private Real Estate, Total Infrastructure and Absolute Return.

\* Total Fund Attribution Analysis uses policy weights.

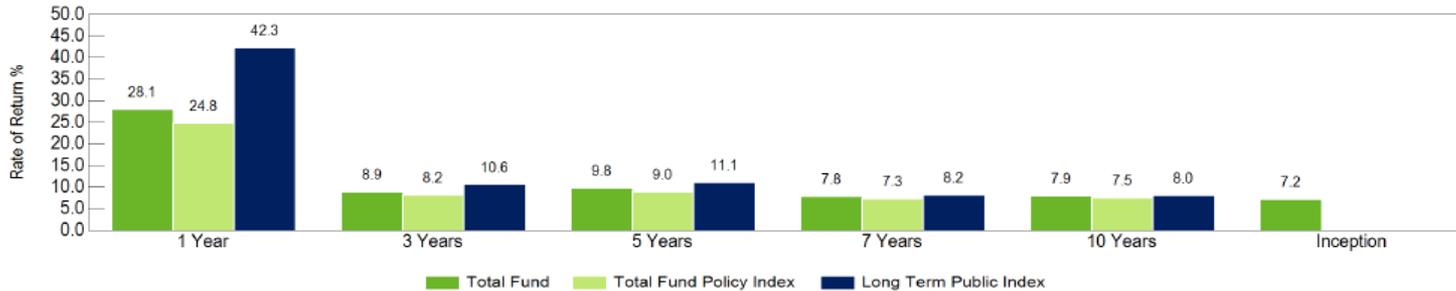


# LONG TERM INVESTMENT RESULTS

Rolling 10 Year Annualized Return (%)



Return Summary  
Ending March 31, 2021



Note: Long Term Public Index is comprised of 79% MSCI ACW IMI and 21% Barclays Intermediate Treasury Index. Index Definitions can be found in the appendix.

# ROLLING INFORMATION RATIO AND TRACKING ERROR

Rolling 3 Year Information Ratio



Rolling 3 Year Tracking Error



# SUMMARY PERFORMANCE COMMENTARY

- **Over the past 10 years, Total Fund returns outperformed the policy benchmark by 0.4% and outperformed the Plan's actuarial rate of return.**
- **In the one-year ended March 31, 2021 the Fund outperformed the policy benchmark by 3.3%.**
  - Absolute Return contributed +0.8%, Global Credit contributed +0.4%, Private Real Estate contributed 0.4% and Infrastructure contributed +0.4% to returns vs. the policy benchmark.
- **In the past one-year, portfolio positioning at the asset class level contributed +0.7% to Total Fund returns vs. policy benchmark.**
  - An over-weight position to Private Equity contributed negatively (-0.4%) to total fund returns vs. the policy benchmark.
  - An under-weight position to Rates contributed positively (+0.3%) to total fund returns versus the policy benchmark.
  - An over-weight position to Global Public Equity contributed positively (0.2%) to total fund returns vs. the policy benchmark.



# Risk Management & Applied Research Risk Update

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

# Risk Update

## 1Q2021 Update

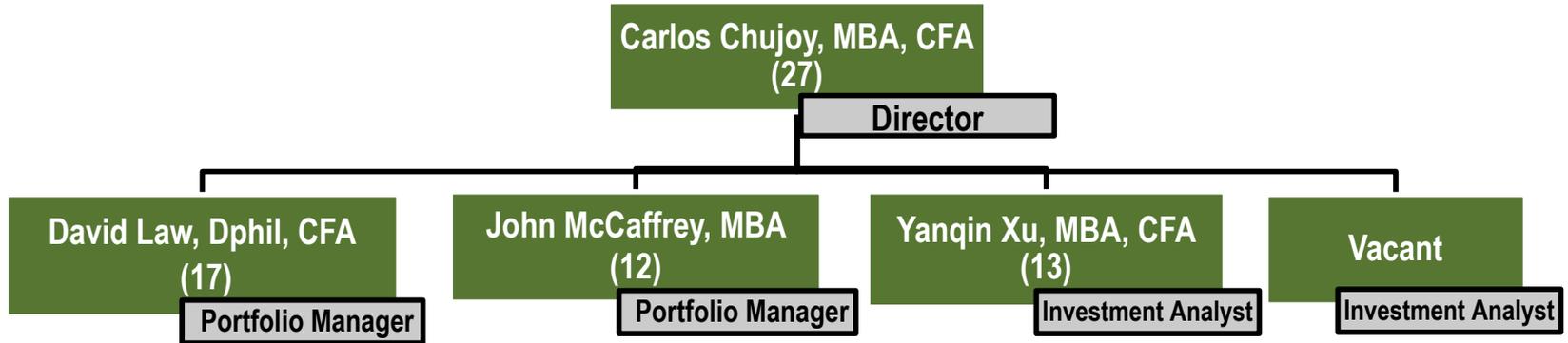


### Agenda

- Team Update
- Headwinds and Tailwinds
  - Market Concerns
- Performance Review of Selected Markets (Drawdowns, performance 2021)
- Heatmap of Market Stress and 'What-if' scenario analysis
- ERS Plan and Risk Survey
- Summary

# Risk Update

## Team



*(years of industry experience)*

# Risk Update

## 1Q2021 Update



### Headwinds

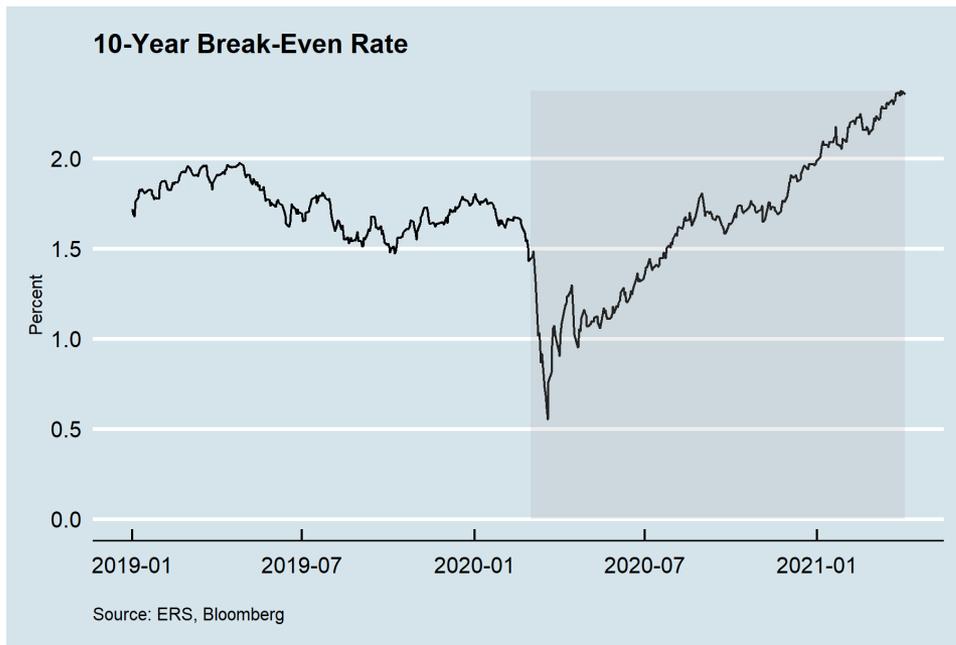
- Higher inflation expectations
- Bond yields rising
- COVID-19 (mutations)
- Concerns
  - Market Valuation
  - Speculative markets and Hedge Fund issues
  - Corporate Taxes

### Tailwinds

- COVID-19 (vaccinations)
- Broadening asset participation
- Global PMI's on the rise
- \$1.9 trillion relief package

# Inflation Expectations

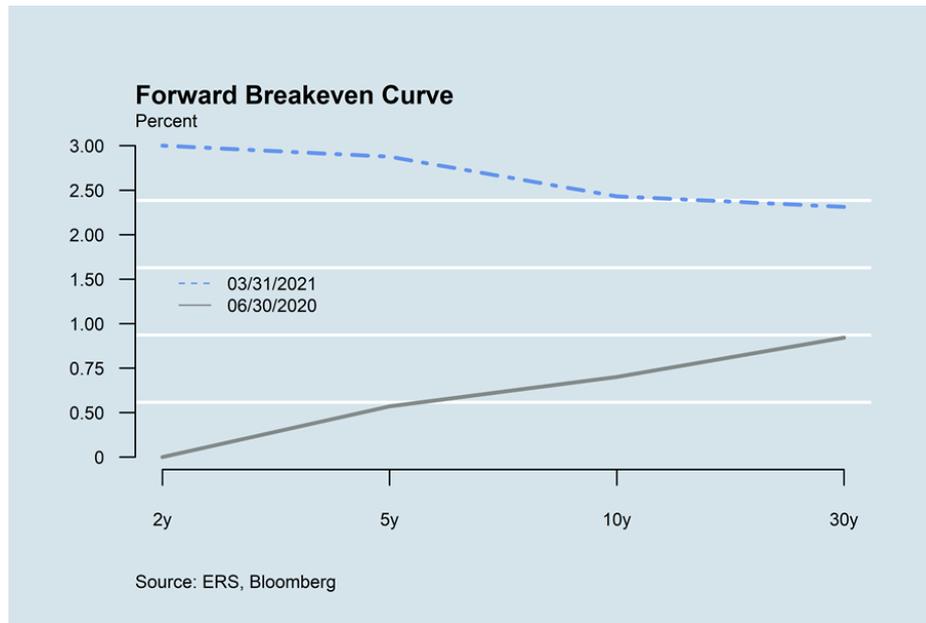
## *Break-even rates continue to rise*



- Inflation rate expectations based on the 10-year break even rate continued to rise during the quarter.
- Similar trend is shared by other break-even rates such as the 5-year and 30-year break-even rates as well.
- The increase in the break-evens imply a change in inflation expectations.

# Implicit Inflation Rate Trajectory

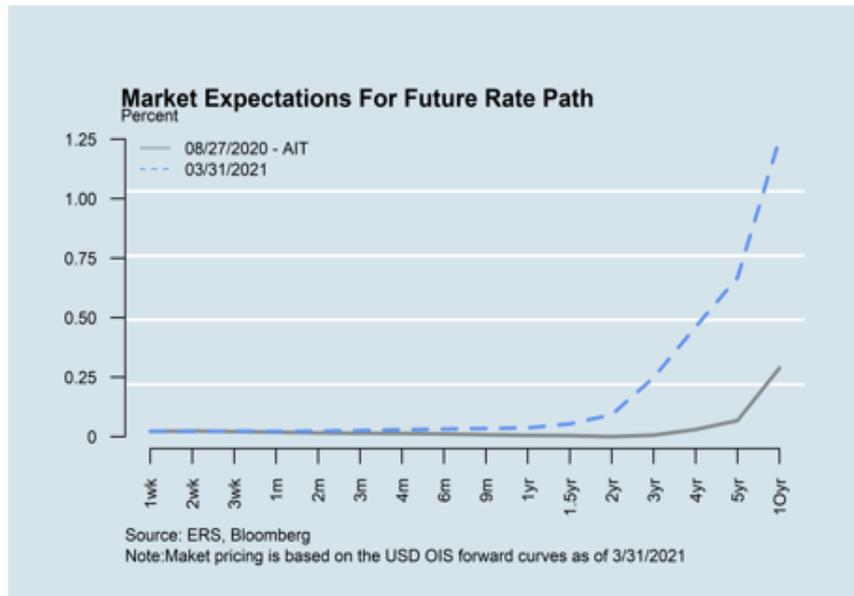
## *What's Priced In?*



- Inflation rate expectations have been on the rise since 06/30/2020 and increased in earnest from the Flexible Average Inflation Targeting – (FAIT) announcement onwards.
- However, by 3/31/2021, the forward break-even curve showed an inversion; suggesting that inflation rate expectations over the near future may peak and reach a plateau longer term.

# Implied Interest Rate Projections

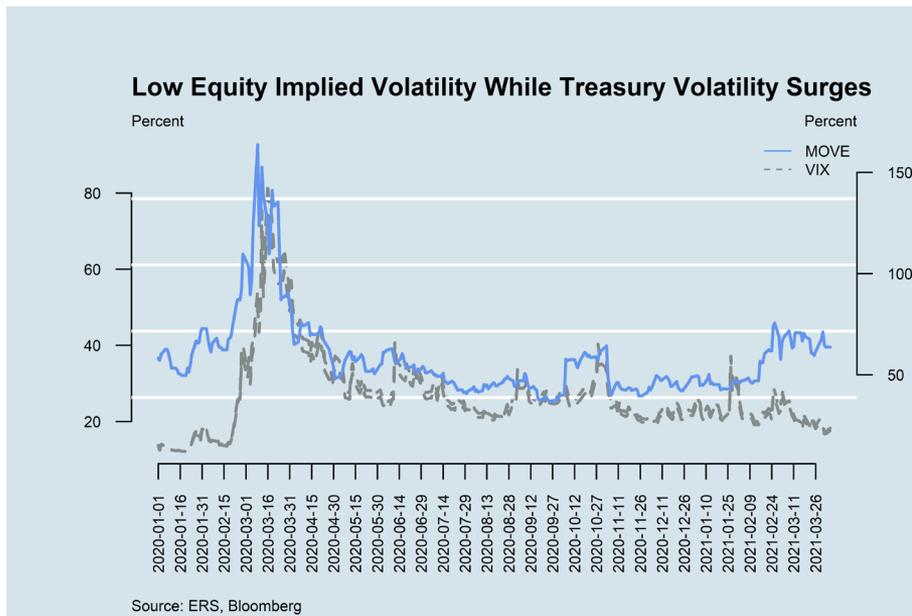
*Forward curves imply higher rates*



- Interest rate expectations based on forward curves have been steadily increasing since the FED's announcement of the Flexible Average Inflation Targeting – ("FAIT") framework announced on 27<sup>th</sup> August 2020.
- These expectations stood at their highest at the end of the 1Q.

# Pricing of Risk in Liquid Markets

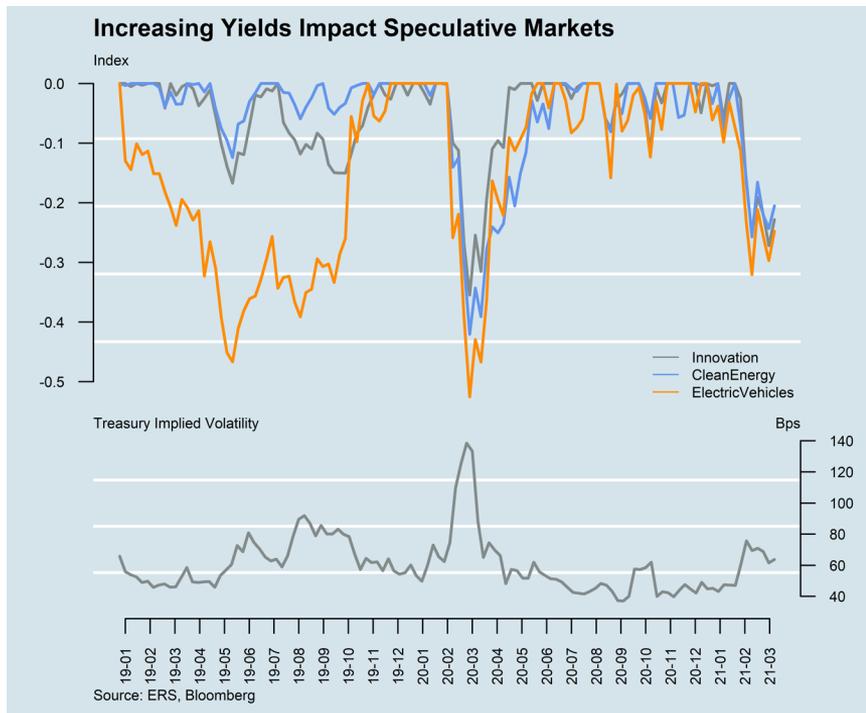
## MOVE index vs VIX



- The pricing of higher interest rate expectations has been reflected by elevated levels of implied treasury volatility as measured by the “MOVE” index.
- During this time period, the higher pricing of implied treasury risk has not translated in overall higher implied equity volatility as measured by the VIX index. However, the higher levels of MOVE have caused a repricing in certain segments of the equity markets.
- The increasing gap between these two measures indicates a dislocation in the pricing of risk between these two markets; a gap worth monitoring given the potential for mean reversion.

# Drawdowns and Impact of Higher Yields

## Speculative Markets vs. Yields



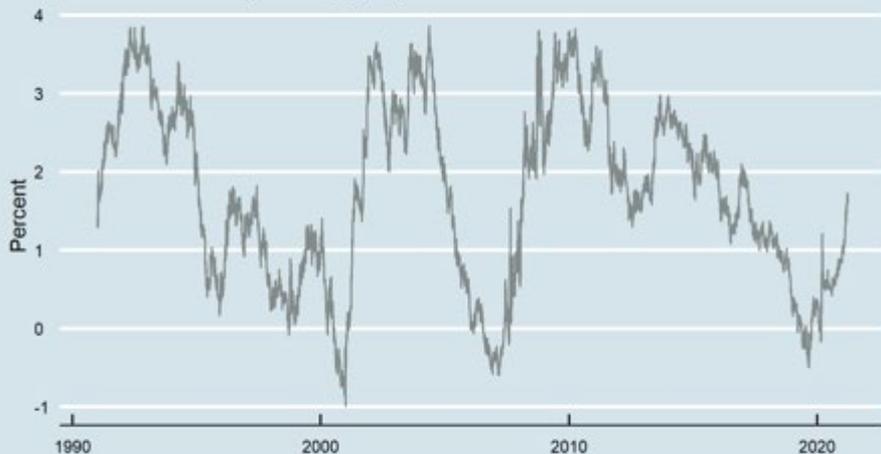
- Market segments that had performed strongly and reflected speculative type behavior (i.e.: tech innovation stocks, clean energy and electric vehicles, etc.) experienced large drawdowns during spikes in the pricing of interest rate volatility.
- This is clearly a risk for risky assets that depict
  - High valuations, especially those that performed strongly such that the underlying fundamentals no longer warranted their valuation levels and price action.
  - Cash flows that are projected to materialize over a long investment horizon

# Market Performance

## 1Q21 Returns

### Yield Curve Has Been Steepening Over The Past Year

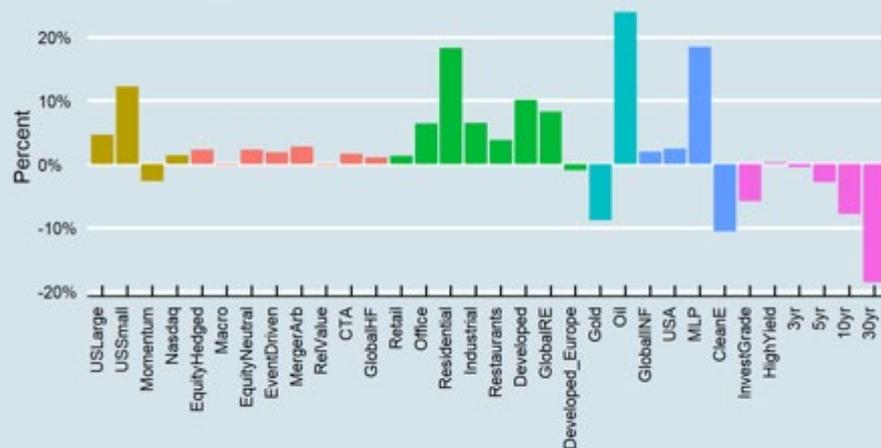
(10-Yr Yield - 90-day Treasury yield)



Source: ERS, Bloomberg

### YTD Returns

Equities, Hedge Funds, Real Estate, Commodities, Infrastructure & Fixed Income.



Source: ERS, Bloomberg

- Across asset classes, the increase in economic growth and higher inflation expectations translated in real estate outperformance while fixed income assets delivered one of the worst quarters in years.

# Market Stress

## Global Stress Financial Indicator and Cross Asset Class Implied Risk

### Heatmap of Global Stress Financial Indicators-GSFI

Over the preceding 15-month period ending March 2020.



Source: ERS, Bloomberg, Bank of America

### Heatmap of Cross Asset Class Implied Risk

Over the preceding 15-month period ending March 2021.



Source: ERS, Bloomberg

- Most components in the GSFI remained subdued. However, the backup in break-even rates and the Move index prompted a shift in market sentiment towards the end of the quarter.

# ERS “What-if” Scenario Return Analysis



*Based on different combinations of growth, real rates and inflation expectations*

	Growth: No Change									Growth: +1 std								
	Real Rate Change									Real Rate Change								
	0.10%			0.30%			0.50%			0.10%			0.30%			0.50%		
	Inflation Breakeven Change									Inflation Breakeven Change								
	0.10%	0.30%	0.50%	0.10%	0.30%	0.50%	0.10%	0.30%	0.50%	0.10%	0.30%	0.50%	0.10%	0.30%	0.50%	0.10%	0.30%	0.50%
S.P.500.INDEX	1.01%	1.47%	1.92%	1.08%	1.54%	2.00%	1.16%	1.61%	2.07%	0.96%	1.42%	1.88%	1.04%	1.50%	1.95%	1.11%	1.57%	2.03%
MSCI.USA.IMI.Index	1.07%	1.52%	1.96%	1.16%	1.60%	2.04%	1.24%	1.69%	2.13%	1.04%	1.49%	1.93%	1.13%	1.57%	2.02%	1.22%	1.66%	2.10%
MSCI.ACWI.ex.USA.Net.Total.Retu	0.92%	1.96%	3.01%	0.38%	1.42%	2.47%	-0.16%	0.88%	1.93%	0.54%	1.58%	2.63%	0.00%	1.04%	2.09%	-0.54%	0.50%	1.55%
Bloomberg.Barclays.US.High.Yield	-0.04%	-0.60%	-1.17%	-0.64%	-1.20%	-1.76%	-1.23%	-1.80%	-2.36%	0.05%	-0.51%	-1.08%	-0.55%	-1.11%	-1.67%	-1.14%	-1.70%	-2.27%
Bloomberg.Barclays.US.Intermedi	-0.32%	-0.85%	-1.39%	-0.96%	-1.49%	-2.03%	-1.60%	-2.13%	-2.66%	-0.29%	-0.82%	-1.35%	-0.93%	-1.46%	-1.99%	-1.56%	-2.10%	-2.63%
Dow.Jones.US.Real.Estate.Index	-0.75%	-2.06%	-3.37%	-1.88%	-3.19%	-4.51%	-3.01%	-4.32%	-5.64%	-1.02%	-2.33%	-3.64%	-2.15%	-3.46%	-4.77%	-3.28%	-4.59%	-5.90%
SP500.HighYield.Blended6040	0.59%	0.64%	0.69%	0.39%	0.44%	0.49%	0.20%	0.25%	0.30%	0.60%	0.65%	0.70%	0.40%	0.45%	0.50%	0.21%	0.26%	0.31%

Source: ERS, Bloomberg, UBS

- Under a variety of scenarios, the what-if’ scenario analysis applied to the historical returns of selected liquid assets suggest that risk-on assets should on average perform well, assuming other conditions remain the same.

# Market Performance

## *What drove the markets during the 1<sup>st</sup> Quarter*

### Drivers

- Material increase in the rollout of COVID-19 vaccines in the US
- Continuation of a loose monetary policy
- Approval of a \$1.9 trillion COVID-19 relief package
- Increasing expectations of inflationary pressures
- Continuation of the steepening of the yield curve
- Asset rotation
- Risk levels subdued with a handful of areas exhibiting stress
- Isolated cases of hedge fund failures

# Plan Risk Oversight Update

## *Policy Guideline Compliance*



### Plan Key Takeaways

- Asset Class Allocations well within Policy Guidelines
- Portfolio\* Tracking Error within Policy Guidelines
- Portfolio Drawdowns and Total Portfolio Risk Levels

*Note: \* Fixed Income reported breach of Tracking Error limit during the March 2021 Board meeting. It was noted then that the measurement breach would roll off over the next 36-month period.*

# ERS Risk Survey

## Overview



- Conducted last week of March 2021
- Participants included senior members of the risk committee
- Goal to gauge sentiment and risk views on a variety of areas such as
  - What their views are with respect to potential tail risks and opportunities
  - How are they managing their asset class exposures and do they intend to make changes
  - What metrics (either qualitative/quantitative do they use to assess risk)
  - Views with respect to the economy
  - Assessment of their conviction levels with respect to their asset class and overall plan
- In total there were 34 questions
- Plan is to roll the risk survey to the entire investment floor

# ERS Risk Survey

## Internal Results 1Q21



### Concerns

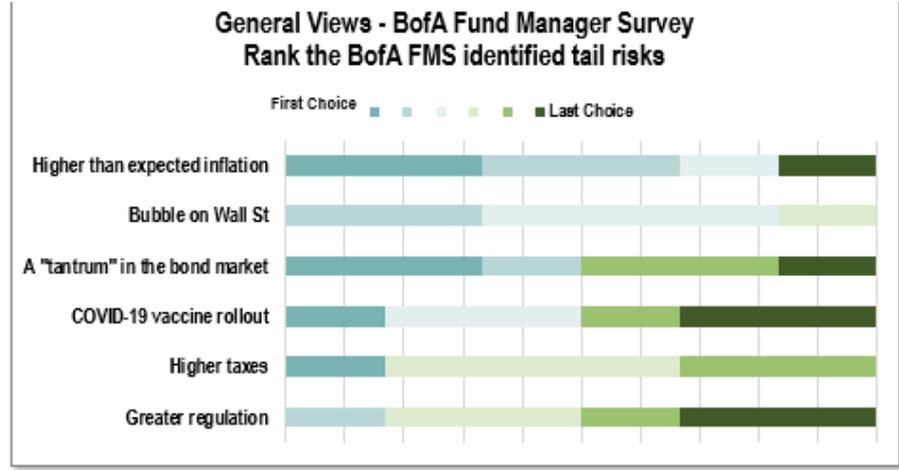
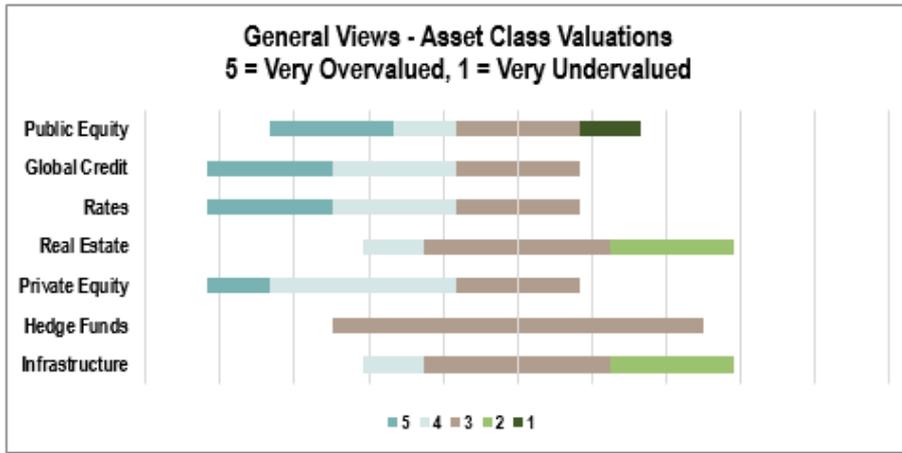
- Interest Rates  
Rapid move that would pose a challenge to risk-on assets vs. a gradual move
- Pandemic  
Resurgence of the pandemic (ie: new variant, delayed vaccine roll out around the world.) that would re-shutter the economy
- Valuation  
High market valuation levels that undermines future expected returns

### Opportunities

- Favorable view on the market  
The survey revealed a constructive view on the markets
- Diversification  
Opportunities to diversify across strategies
- Manager selection and Portfolio Exposure  
Focused on networking, sourcing and identifying attractive strategies for the plan while managing current portfolio exposures

# ERS Risk Survey

## Internal Results 1Q21



- ERS views valuation levels to be high on public equities, credit, rates and private equity.
- Bank of America’s fund manager survey points to higher inflation expectations and a tantrum in the bond market as the top two risk concerns; concerns that ERS shares as well.

# Risk Update

## Summary



- Some of the major headwinds during the quarter related to inflationary concerns and bond yields rising while the quarter's highlight included the roll out of vaccines in the nation, global PMI's improving and fund disbursement stemming from the \$1.9T relief package.
- Given market concerns on inflation and bond yields rising, we saw a decoupling of perceived investment risk between equities and bonds; with the former seeing areas of speculation suffer from large drawdowns. Equally, bond markets posted one of the largest losses in recent history.
- Global Stress Financial Levels remain subdued during the quarter albeit a few areas that exhibited stress.
- A 'what-if' scenario analysis by economic regimes suggested positive outcomes for equities but negative ones for fixed income and real estate.
- The asset allocation and portfolio tracking error\* remained within the ERS investment policy limits.
- ERS' internal risk survey conducted at the end of the quarter that yielded concerns with respect to a rapid interest rate rise as well as the potential for the pandemic to re-emerge.

*Note: \* Except for Fixed Income*

Questions?

# Public Agenda Item #6

*\*Review and Discussion of Fixed Income*

May 26, 2021

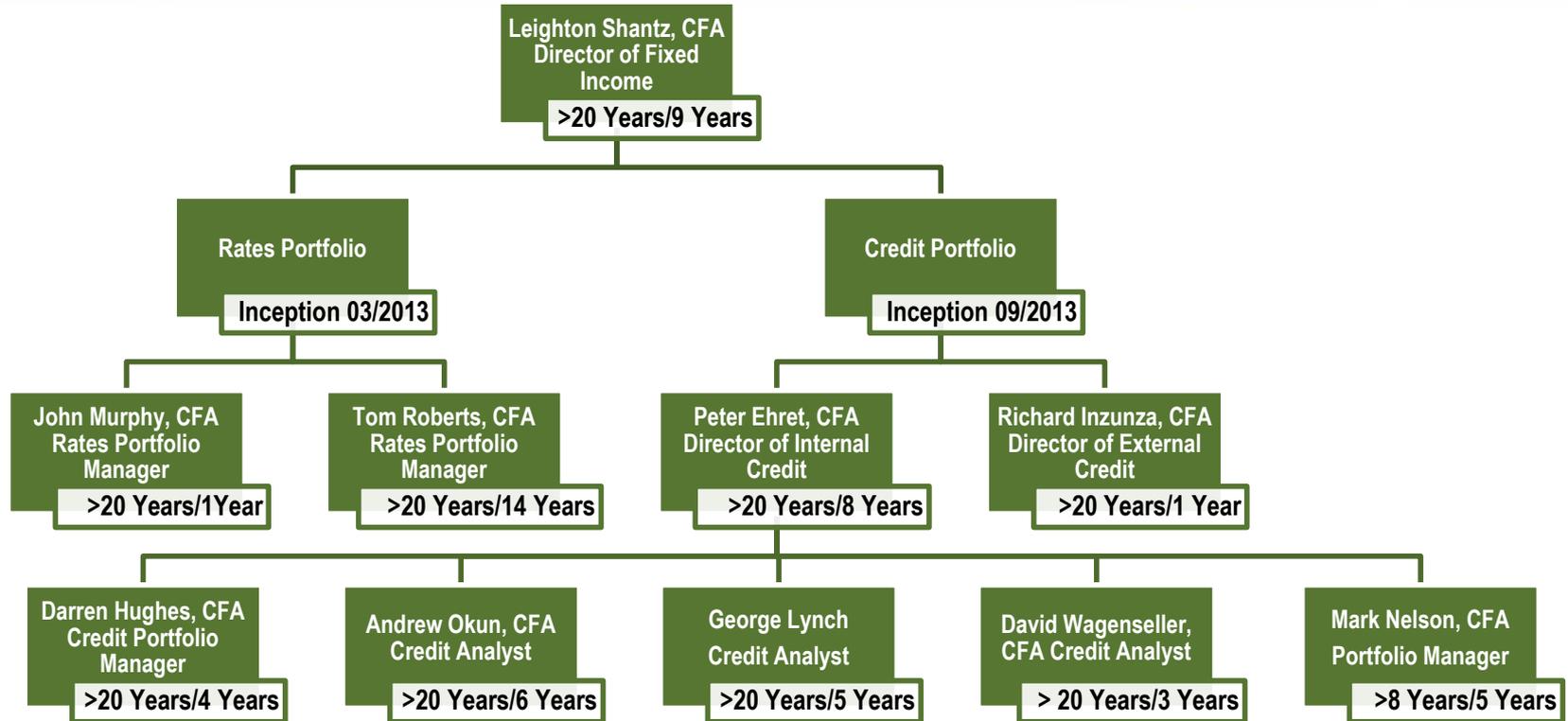
Leighton Shantz, CFA, Director of Fixed Income

# Market Update and Program Overview

Leighton Shantz, CFA, Director of Fixed Income

# Fixed Income Program

## Team



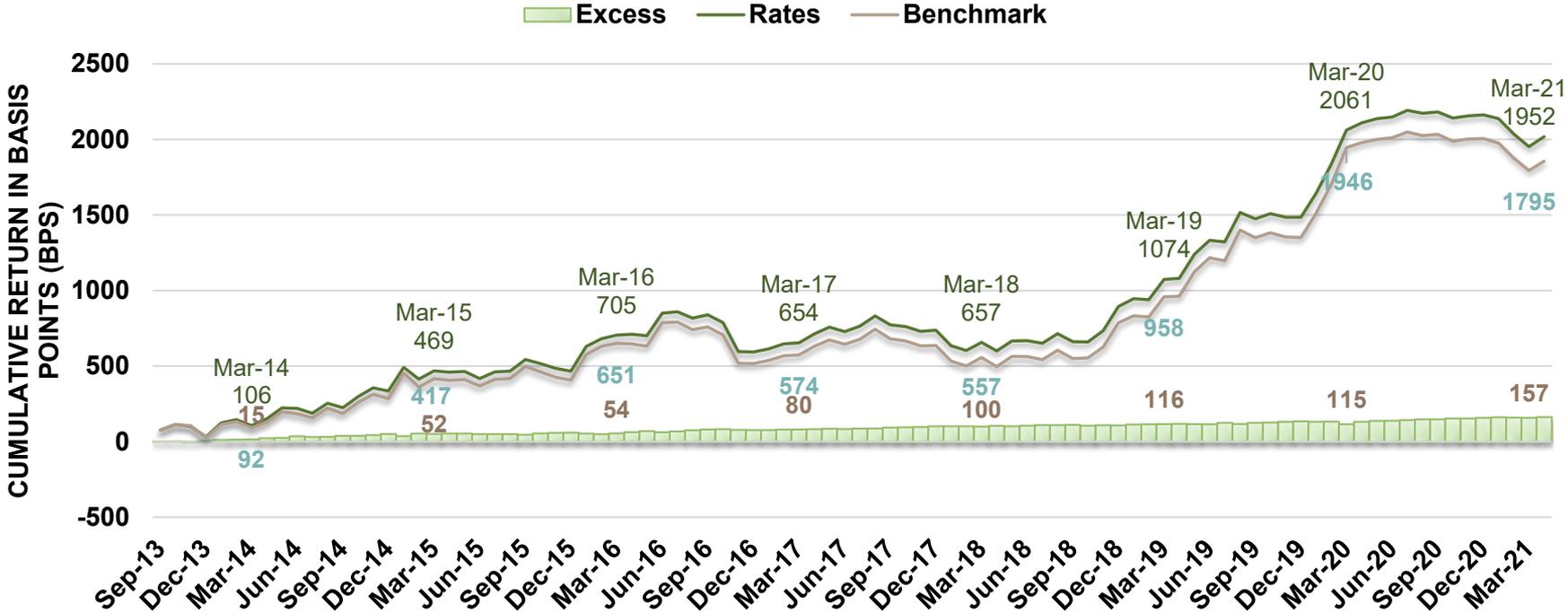
# Return Summary



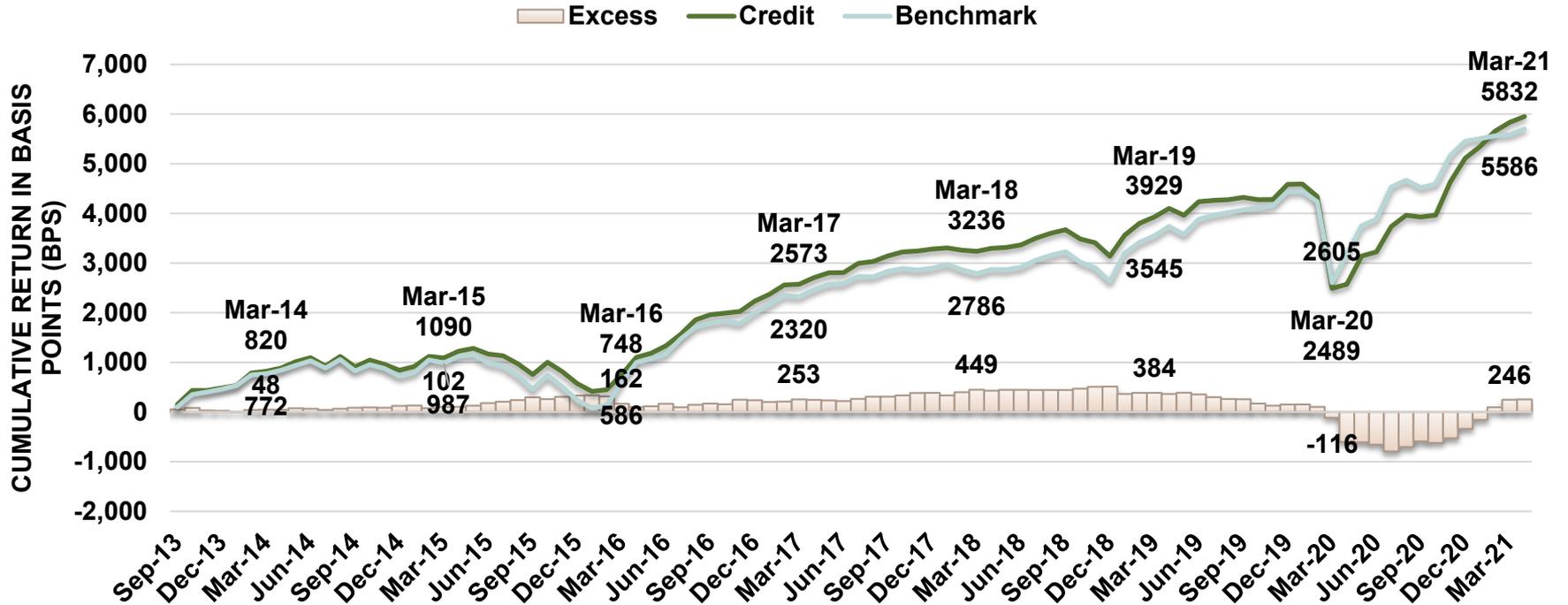
## Periodic Annualized Total Rates of Return

PORTFOLIO	FYTD	1-YEAR	3-YEARS	5-YEARS
RATES	-181 bps	-90 bps	+390 bps	+223 bps
BENCHMARK	-191 bps	-127 bps	+376 bps	+206 bps
DIFFERENCE	+10 bps	+36 bps	+14 bps	+17 bps
CREDIT	+1339 bps	+2676 bps	+616 bps	+805 bps
BENCHMARK	+625 bps	+2365 bps	+682 bps	+804 bps
DIFFERENCE	+714 bps	+311 bps	-67 bps	+01 bps

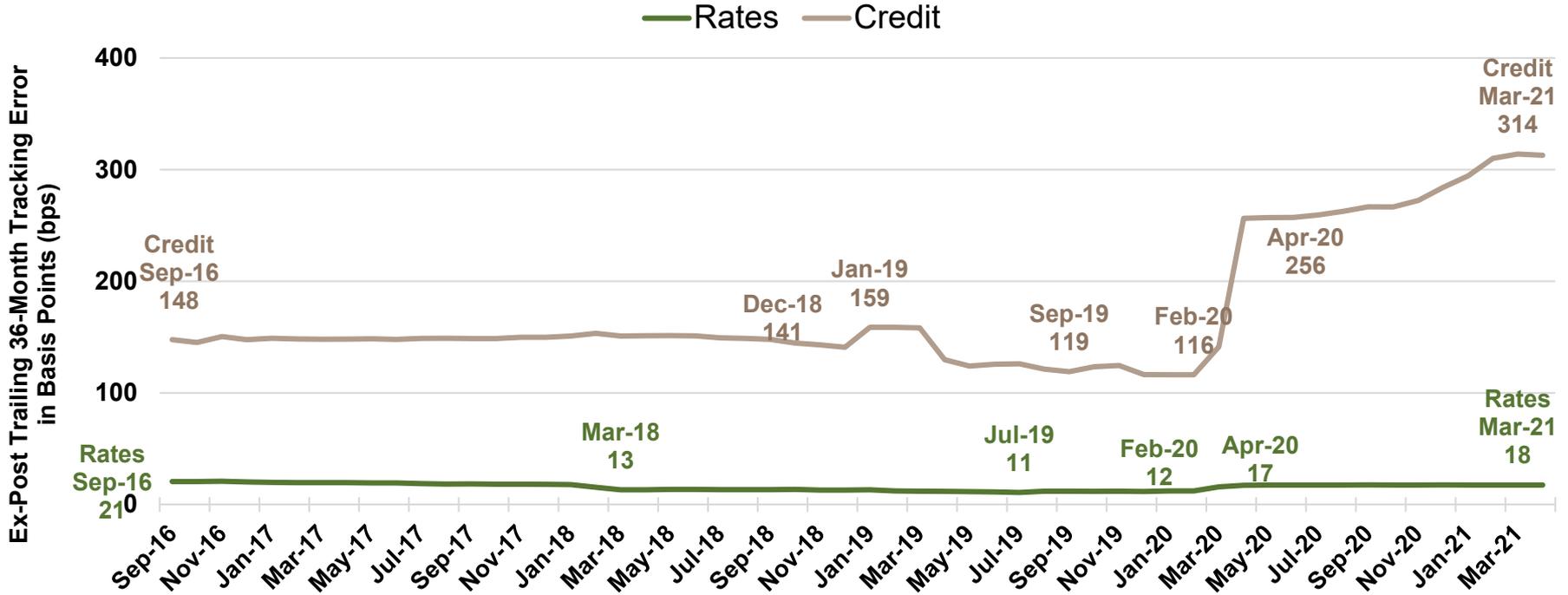
# Rates Cumulative Return Comparison



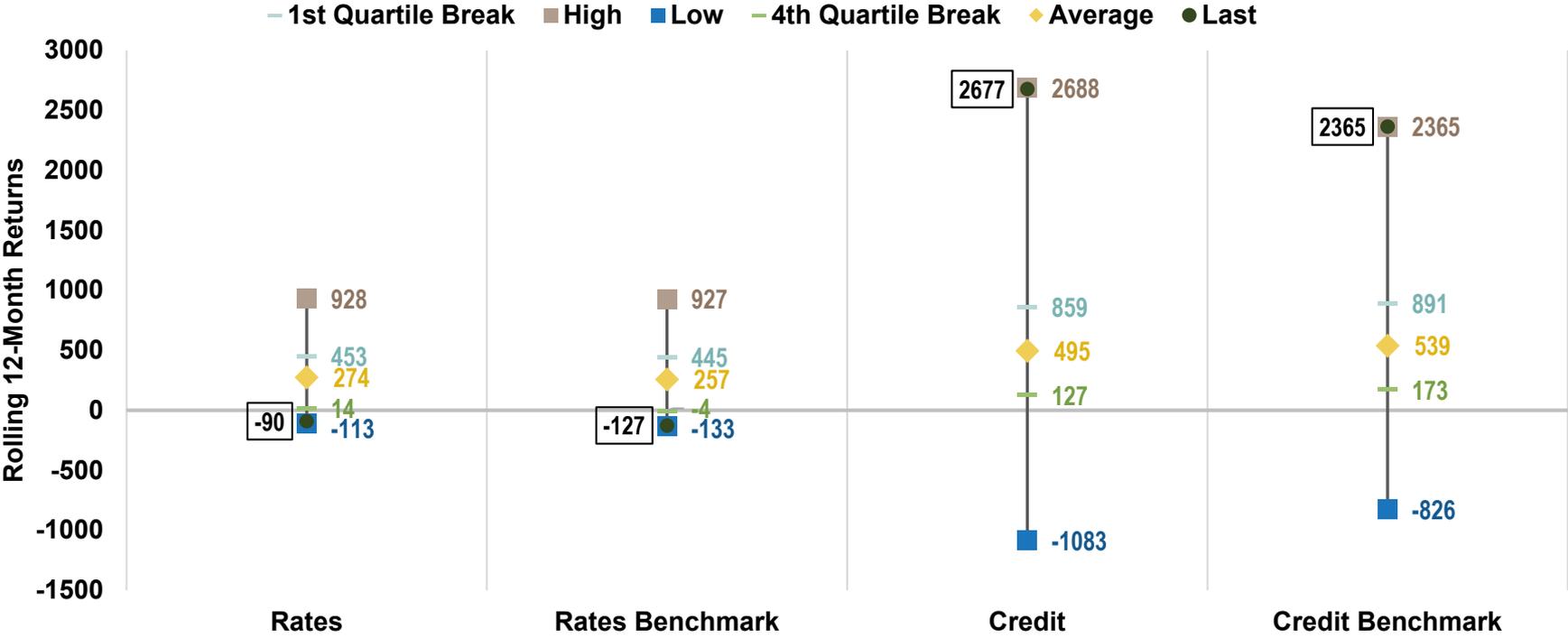
# Credit Cumulative Return Comparison



# Rolling 36 - Month Tracking Error



# Rolling 12 - month Return Dispersion



# External Credit Investments



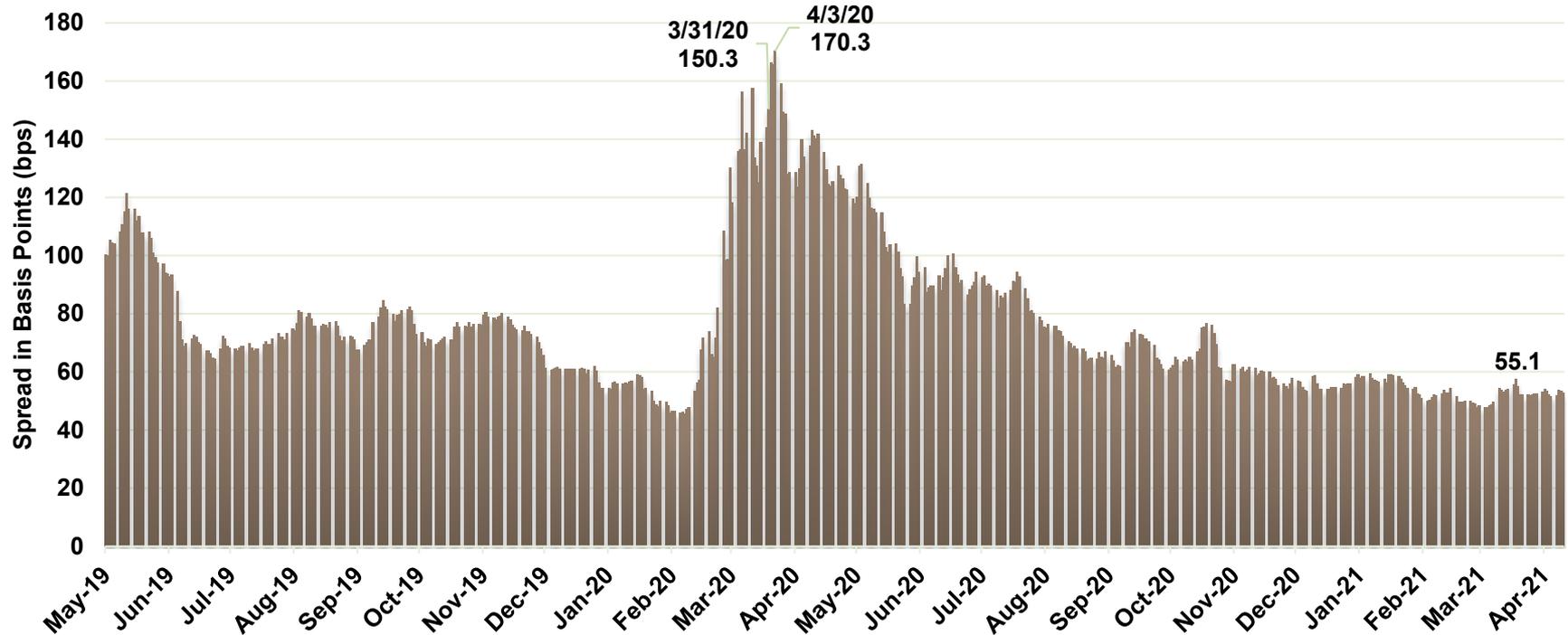
				1 Year	ITD	ITD
NAME	Commitment	Drawn	Strategy	Return	IRR	\$ Gain
BCA	\$150mm	\$20mm	Special Situations HF	+4950 bps	+1038 bps	+\$104.4mm
BDC	\$100mm	\$75mm	Public BDC	+9173 bps	+64 bps	+\$1.6mm
BPCP III	\$75mm	\$54mm	Middle Mkt Origination	+1533 bps	+1444 bps	+\$12.0mm
BPCP V	\$125mm	\$5mm	Middle Mkt Origination	N/A	+11074 bps	+\$0.2mm
BSP	\$75mm	\$65mm	Middle Mkt Distress	+1442 bps	+991 bps	+\$15.5mm
CLO	\$250mm	\$225mm	CLO Mezzanine & Equity	+1662 bps	+923 bps	+\$80.8mm
CLOW	\$150mm	\$150mm	CLO Equity & Warehouse	+579 bps	+1047 bps	+\$14.5mm
CLOW II	\$150mm	\$66mm	CLO Equity & Warehouse	N/A	N/A	N/A
GOF	\$50mm	\$43mm	Opportunistic Distress	-352 bps	+293 bps	+\$6.4mm
GOF II	\$75mm	\$38mm	Opportunistic Distress	+1776 bps	+2325 bps	+\$6.8mm
VWH	\$50mm	\$27mm	Residential NPL	+1969 bps	+1529 bps	+\$4.4mm

Questions?

# Review of Securities Lending Program

Leighton Shantz, CFA, Director of Fixed Income

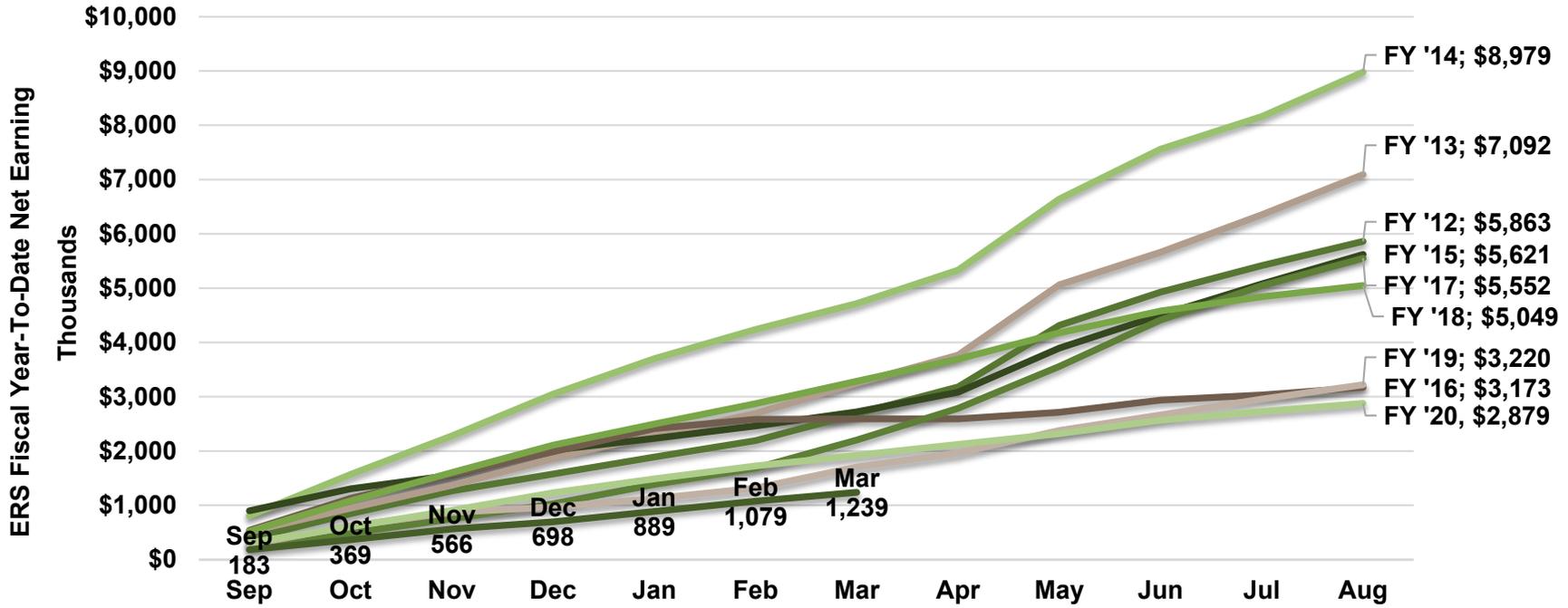
# Lending Agent CDS Spread



# Securities Lending Revenue Comparison

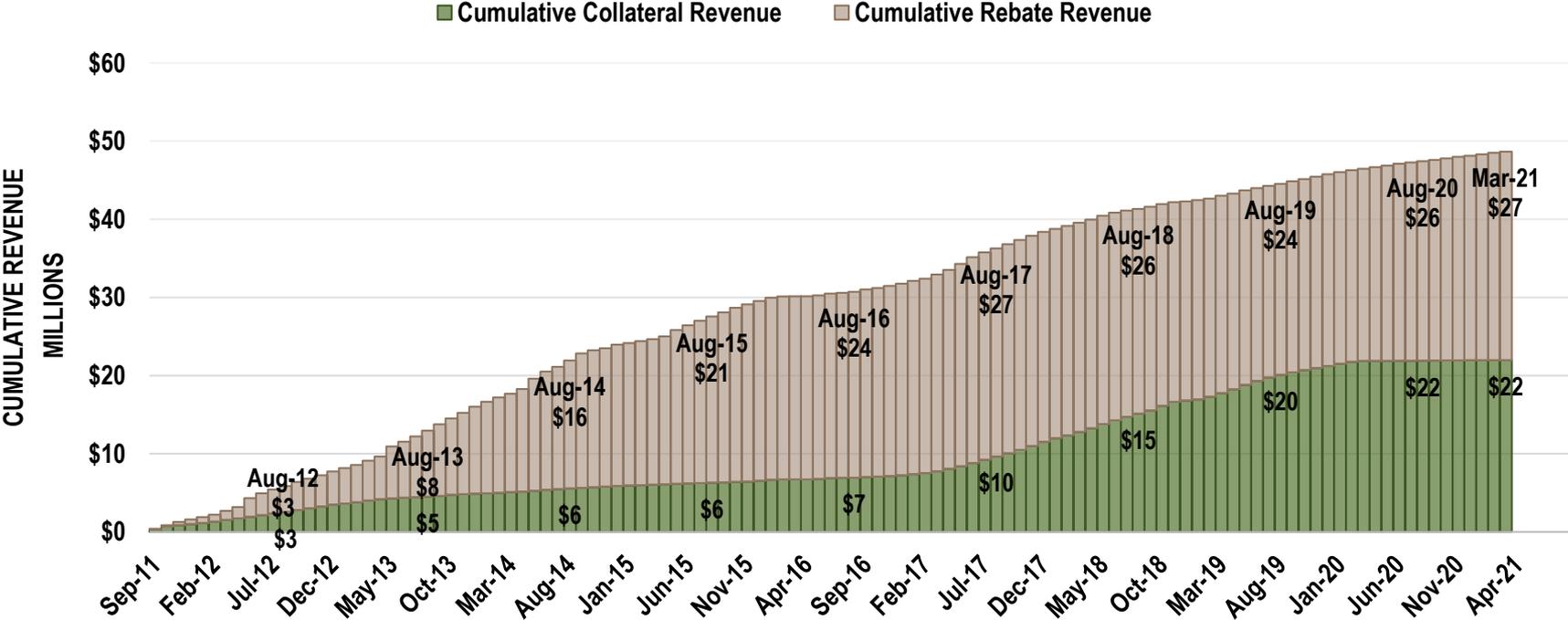


## Fiscal Year-to-Date



# Securities Lending Cumulative Revenue

## Cumulative Revenue



# Questions

## \*Public Agenda Item #7

### *Review, Discussion and Consideration of Private Infrastructure – (Action)*

May 26, 2021

Pablo de la Sierra Perez, Director of Infrastructure

Ryan Wilkinson, Infrastructure Portfolio Manager

Asif Hussain, CBRE Caledon

# Market Update and Program Overview

Pablo de la Sierra Perez, Director of Infrastructure  
Ryan Wilkinson, Infrastructure Portfolio Manager

# Private Infrastructure Program Overview



## *Agenda - Key Topics*

- Team Update
- Portfolio Update
- Market Update
- Achievements, Goals and Objectives
- Infrastructure Consultant

# Private Infrastructure Program Overview

## *Team Update*



### **Pablo de la Sierra Pérez**

#### *Director Infrastructure and Natural Resources*

- Joined ERS August 2014
- 18+ years infrastructure investment experience
- Background in Direct Investing and Engineering
- MS Ind. Engineering from Universidad de Oviedo

### **Ryan Wilkinson**

#### *Portfolio Manager Real Assets*

- Joined ERS February 2017
- 11+ years infrastructure investment experience
- Background in Direct Investing & Consulting
- MS Finance from John Hopkins University

### **Michael Miller**

#### *Senior Associate Real Assets*

- Joined ERS August 2019
- 11+ years infrastructure investment experience
- Background in Direct Investing and PE
- MBA from New York University

# Private Infrastructure Program Overview

## *Portfolio Update as of March 31, 2021\**



- Inception through March 31, 2021\*: 20 Funds, 26 co-investments, **\$2.38 billion committed**
- **Net Asset Value (NAV) of \$1,201.6 million or 3.8% of system assets**
  - Includes 3 legacy Special-Situation investments
  - **1.14x TVPI\*\***, **0.36x DPI\*\***, **4.93 % IRR** since inception
  - **\$1.08 billion** Unfunded Commitments
- Policy Benchmark: CPI+400
- FY2020: committed \$414 million vs a \$450 million target
- FY2021: expecting \$475 million in commitments
  - \$305 million already committed (March 31, 2021)
  - Additional \$175 - \$275 million expected
- Pursuing efficient ways to deploy
  - Co-investments, direct investments, anchor & seed investments, partnerships

(as of March 31, 2021)	Portfolio IRR
<b>1-year</b>	<b>13.56%</b>
<b>3-year</b>	<b>9.12%</b>
<b>5-year</b>	<b>6.78%</b>
<b>Since Inception</b>	<b>4.93%</b>

\*. Values are based on December 31, 2020 (or September 30, 2020) valuations rolled forward to March 31, 2021.

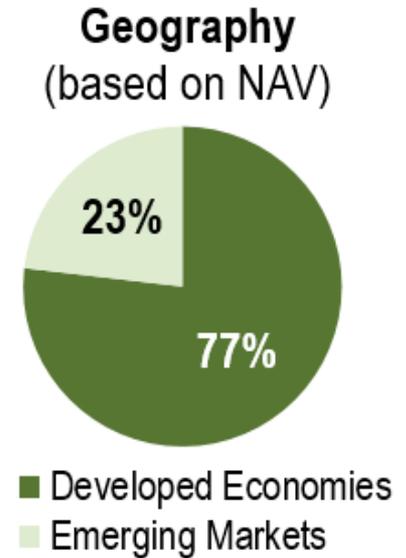
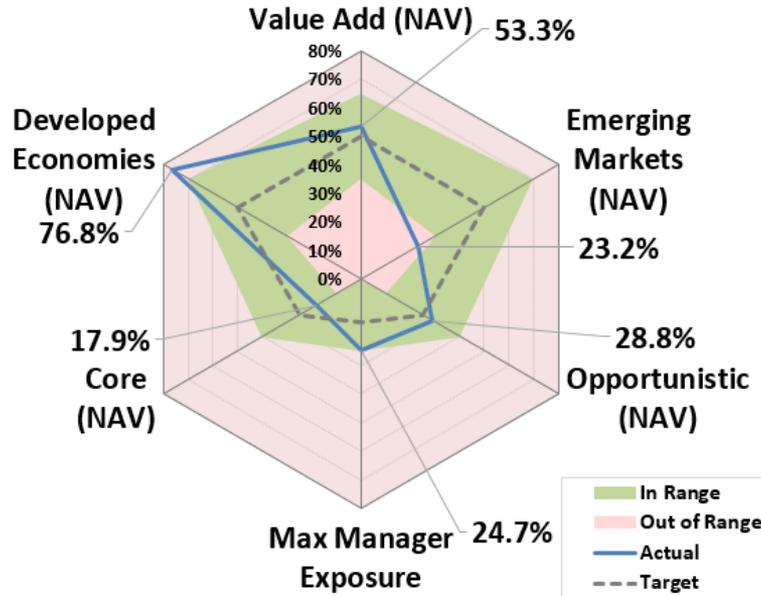
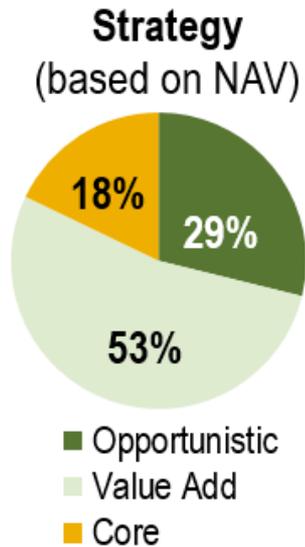
\*\* TVPI, or Total Value to Paid in Capital, is equal to (NAV + Distributions) / Paid in Capital; DPI, or Distributed to Paid in Capital, is equal to Distributions / Paid in Capital

# Private Infrastructure Program Overview

## Portfolio Update\*



ERS Infrastructure Portfolio - Investment Guidelines

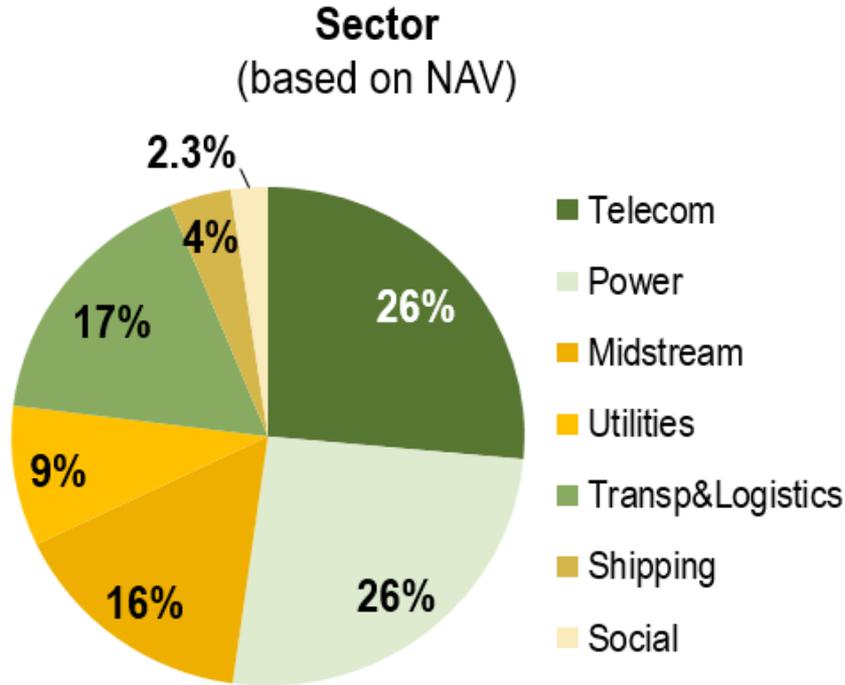


\* Concentration metrics estimated based on December 31, 2020 (or September 30, 2020) valuations

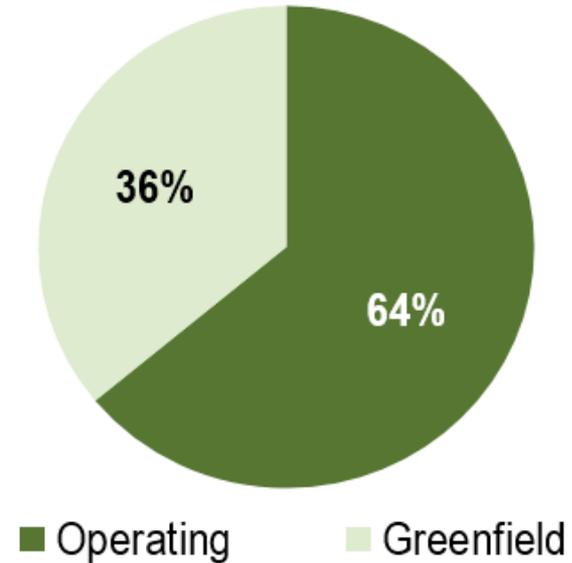
Note: 16% in non-OECD economies

# Private Infrastructure Program Overview

## *Portfolio Update\**



**New Construction vs. Operating**  
(based on committed capital)



\* Concentration metrics estimated based on December 31, 2020 (or September 30, 2020) valuations

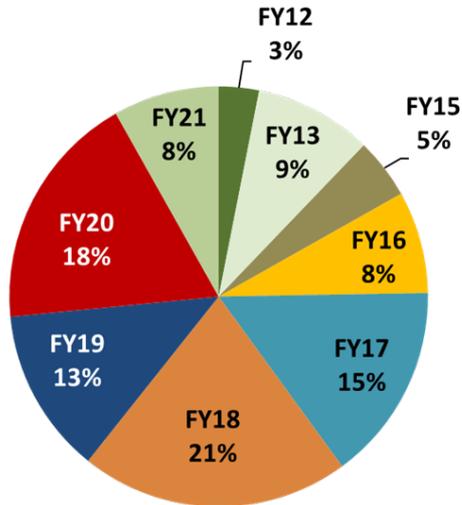
Note: Greenfield = new construction

# Private Infrastructure Program Overview

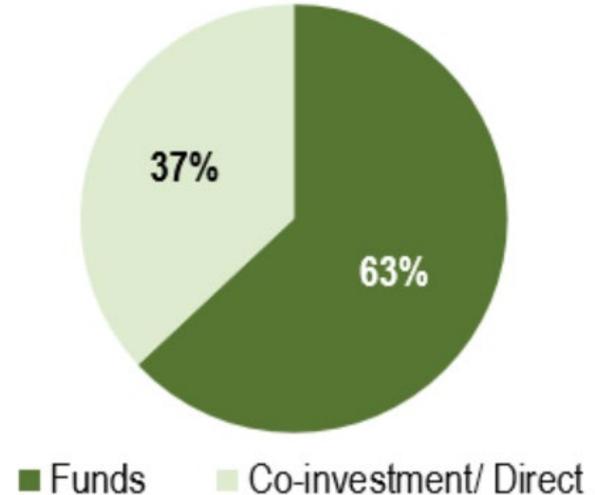
## Portfolio Update as of March 31, 2021



**Vintage**  
(based on committed capital)



**Vehicle**  
(based on committed capital)



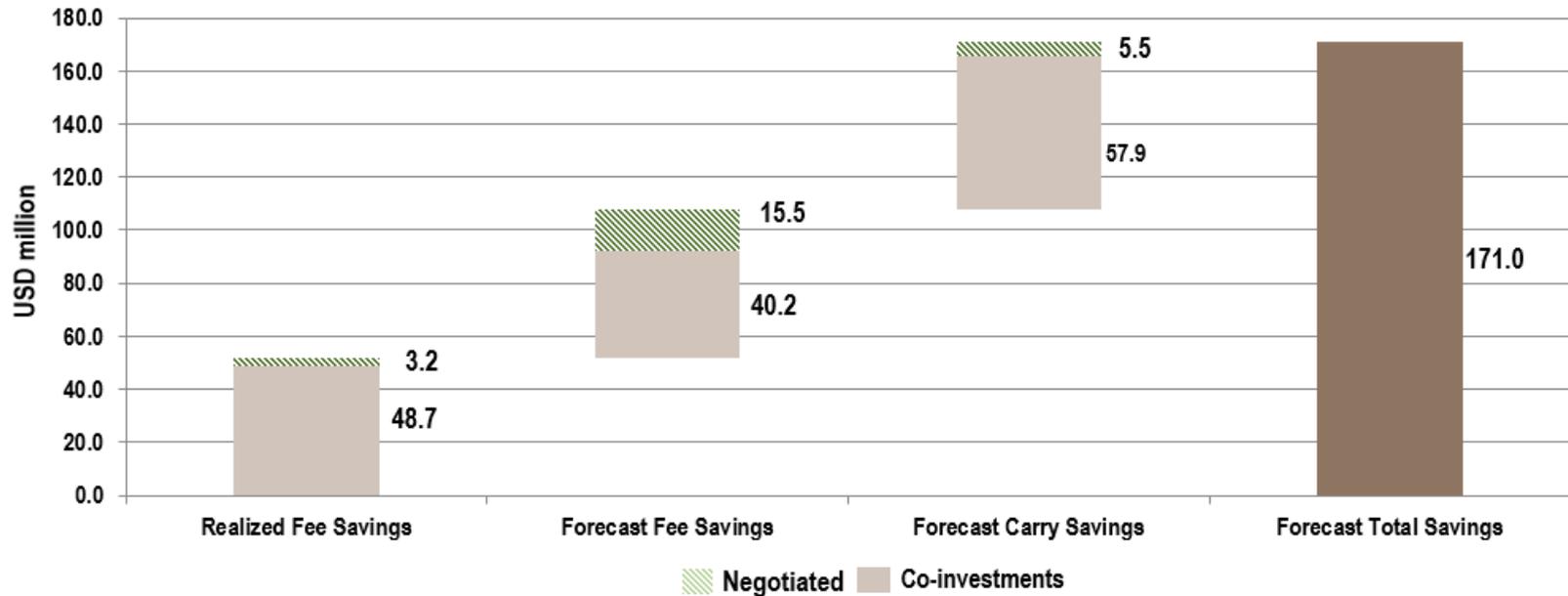
# Private Infrastructure Program Overview

## Portfolio Update – Average Portfolio Economics and Fee Savings



- March 31, 2021, portfolio's averages: Management Fee 0.86%; Carry: 12.1%

Estimated Infrastructure portfolio's savings

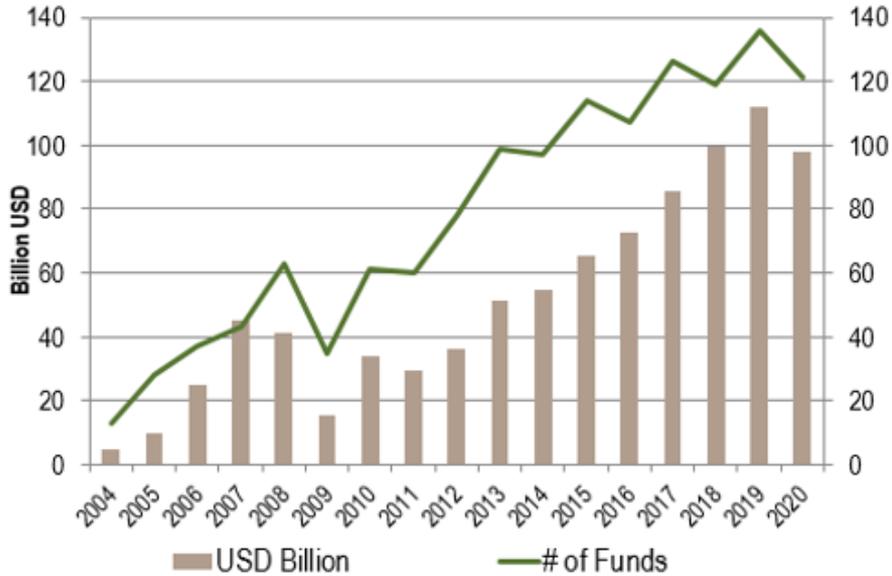


# Private Infrastructure Program Overview

## Market Update

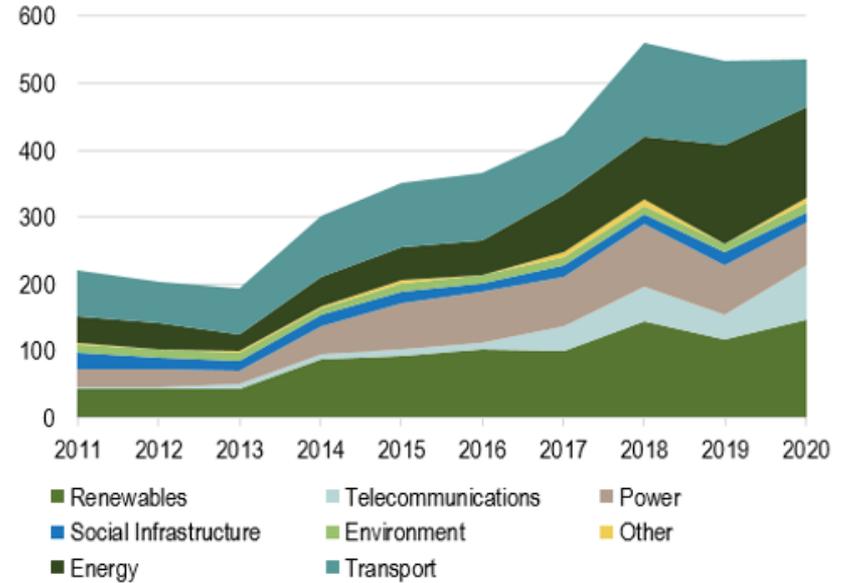


Unlisted Infrastructure Capital Raised



Source: Preqin

Est. Transactions by Sector (USD Billion) – Excl. Refinancing



Source: Infraction

# Private Infrastructure Program Overview

## *Market Update and Outlook*



- Developing, growing asset class
- Strong long-running fundraising trends
- COVID-19 impacts: long-term vs short-term changes
- Need for infrastructure investment – economic development
- Political environment / new administration
  - Focused on climate change and sustainability
  - Private capital involvement unclear

# Private Infrastructure Program Overview

## *Achievements and Goals & Objectives*



### Achievements

- FY20 commitments vs tactical plan
- Continued to grow portfolio towards 7% allocation
- Sector diversification
- Portfolio performance and resilience

### Goals and Objectives

- Execute Tactical Plan FY21 (amended) and FY22
- Continue to grow towards 7% target allocation in 2023-2024
- Portfolio diversification
- Seek one analyst

# Private Infrastructure Program Overview

## *Infrastructure Consultant*



- Frequent calls with staff/in-person meetings
- Annual on-site visit at consultant office – exception in 2020
- Investment memorandums for deals
- Participation in Internal Investment Committee meetings
- Staff reviewed the Infrastructure Program Guidelines with consultant
  - No proposed changes



PRIVATE INFRASTRUCTURE PROGRAM REVIEW  
& MARKET OUTLOOK 2020  
MAY 2021

**CBRE**  
CALEDON



## I. ERS PRIVATE INFRASTRUCTURE PROGRAM

# PRIVATE INFRASTRUCTURE

## Portfolio Snapshot

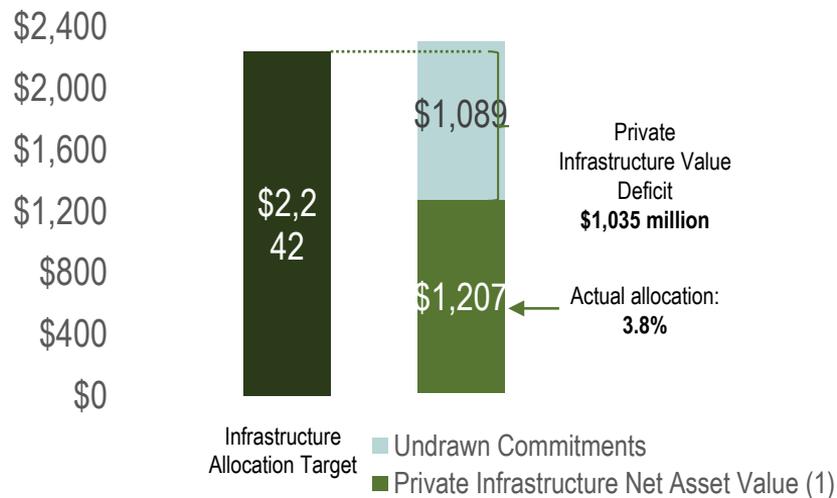


- Since inception through to March 31, 2021, the Private Infrastructure Portfolio has made \$2,375 million of commitments into 20 infrastructure funds and 15 co-investments<sup>(1)</sup>.
- **Since January 1, 2020**, the Team made commitments of \$402 million across 5 funds and \$153 million across 5 co-investments.

Total Trust Market Value <sup>(2)</sup>



Infrastructure Allocation Target 7%



(1) Excludes Legacy Investments  
(2) Estimated as of March 31, 2021

# PORTFOLIO SNAPSHOT

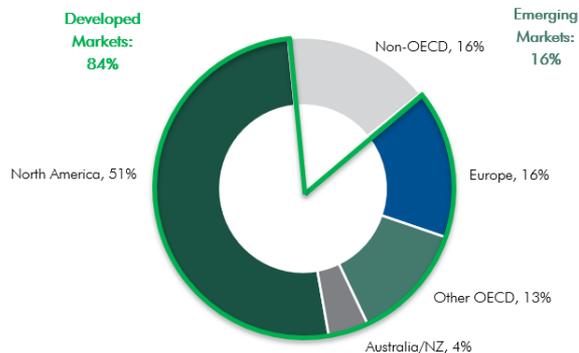


## Geographic & Industry Diversification

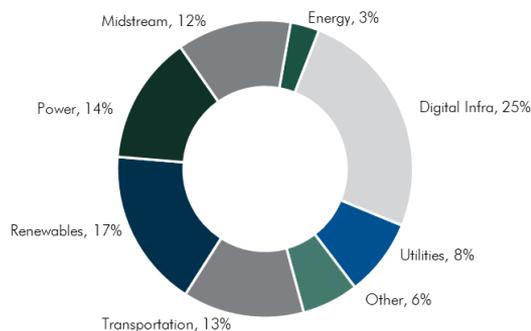
ERS' infrastructure portfolio is reasonably well-diversified across strategies, industries and geographies, and continuously evolving

- ERS' portfolio has fallen below the minimum target range for emerging markets and is overweight in developed markets, not uncommon during portfolio construction. Recommend additional commitments in Europe, Australia/New Zealand and emerging markets regions such as Asia, Latin America, and even Africa.
- CBRE Caledon recommends prudence on new commitments to funds or co-investments which have a large allocation to digital infrastructure
- In terms of core strategy, the portfolio remains below the lower end of the target range (10%), currently at 5%.

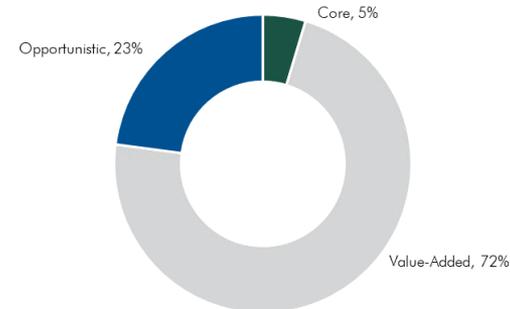
### Portfolio Summary by Geography



### Portfolio Summary by Industry



### Portfolio Summary by Strategy



# CONCLUSIONS & RECOMMENDATIONS



## *Opportunity remains for patient and prudent investors*

- Despite a moderate slowdown in fundraising activity in 2020, early signals indicate a strong investor appetite for infrastructure is expected to continue into 2021 as institutions look for downside protection, steady cash flow, yield, and reduced correlation to public markets
- During the COVID-19 pandemic, infrastructure assets have generally played a defensive role in investors' portfolios
- Newer infrastructure sectors, such as renewables and digital infrastructure, have cemented their position as key segments of the asset class
- Key to unlocking accretive value will be in focusing on growth sub-sectors and regions, where few specialists currently focus

### Recommendations

- **Core and non-US markets exposure:** Core assets can provide a strong cash yield and strong downside protection. CBRE Caledon recommends adding a core and a non-US focused manager in FY 2022.
- **Emerging market exposure:** Given the dynamic and maturing nature of infrastructure investments in these geographies, ERS can benefit from capturing risk premiums emerging markets can sometimes offer. CBRE Caledon recommends adding at least one emerging markets manager in FY2022.
- **Ticket size:** Larger commitment sizes to fewer funds would also secure ERS favorable management fees, governance rights and access to more co-investment opportunities.
- **First-time managers:** Though it is important be selective given the increased risk, favorable terms and governance can usually be negotiated



## II. PRIVATE INFRASTRUCTURE MARKET OVERVIEW

# INFRASTRUCTURE FUNDRAISING



*Fundraising growth trend expected to persist*

**\$102.6<sub>BN</sub>**

capital raised by  
infrastructure funds in 2020

**10**

largest funds secured 58% of  
all capital raised in 2020

- Continuation of the multi-year trend towards capital consolidation.
- Small number of mega-funds dominate, diverting capital away from smaller GPs and contributing to a steady decline in the number of funds in market

Unlisted Infrastructure Fundraising (2015 – 2021)



# OVERVIEW BY INDUSTRY

*Infrastructure has enjoyed a strong performance in recent years*



- **ENERGY:** The appetite for energy sector investments has continued to decline since 2015, mostly in favor of an increased interest in renewables. Coal-fired and gas-fired project deal volumes dipped, while electricity distribution projects saw an increase. Market is demonstrating a clear shift away from traditional power sources into more efficient natural gas generation and cost-competitive distributed renewables.



- **RENEWABLE POWER:** Growth in this sector remains strong. Renewables were the only energy source to grow in 2020 despite a dwindling demand in energy and an initial halt to greenfield renewable projects in H1 2020 as a result of lockdown measures. The rise of renewable generation will bring about growth in adjacent sectors such as energy storage and energy efficiency in order to deal with the problem of intermittency, grid reliability and price volatility.



- **TRANSPORTATION:** Transportation assets with revenues linked to variable volumes have experienced a meaningful impact from COVID-19 whereas those underpinned by availability contracts, have continued to exhibit strong performance. In the long-term, transport is expected to emerge as a thriving sector as a consequence of returning passenger volumes and supportive government policy, the latter of which will drive sustainability and decarbonization megatrends.



- **DIGITAL INFRA:** The surge in data volumes resulting from COVID-19 will have a long-lasting impact that will continue to put data centers and fiber networks in high demand. Mobile network operators are anticipated to resume the addition of telecom tower and fiber capacity in a bid to improve network coverage.

# EMERGING TRENDS IN INFRASTRUCTURE



*Infrastructure has enjoyed a strong performance in recent years*

- **Climate Change and Sustainability:** governments have already begun responding to calls to resolve the climate crisis, with the US rejoining the Paris Agreement and major economies committing to net zero targets. Infrastructure investors are taking a very active role in addressing these concerns. It is now estimated that 40% of the US \$1 trillion alternative assets industry is managed under an ESG framework and this trend is expected to continue to gather momentum.
- **Infratech innovation:** Last year, a large number of sectors, such as education, hospitality and healthcare, underwent a very sudden change in their operating environment, forcing them to rapidly move online. Network densification and upgrades are believed to be key to meeting fast-growing data consumption globally, including better coverage, faster speed, and improved management and storage of data.
- **Government Partnerships:** The public sector adopted radical changes in an astonishingly short timeframe in a bid to continue operating and delivering key services under extreme new circumstances. Governments have been presented with a rare opportunity to embrace the change and use it as a catalyst to enforce permanent changes to social infrastructure and delivery of government services.
- **Emerging markets:** More managers launching funds with a focus on emerging markets. To increase private capital participation, governments have been working with state-owned enterprises and infrastructure developers to improve the quality, sustainability and financeability of infrastructure projects.

Questions?

Amended Private Infrastructure Annual Tactical Plan for  
Fiscal Year 2021 and Proposed Private Infrastructure  
Annual Tactical Plan for Fiscal Year 2022 – (*Action*)

Pablo De La Sierra Perez, Director of Private Infrastructure

# ERS Private Infrastructure Tactical Plan

## *FY21 & FY22 IAC and Board Approval Request*



- Review and consideration of an amended FY21 ERS Private Infrastructure Annual Target Commitments:
  - Propose to make commitments totaling \$475MM (including co-investments/direct investments) – up from the approved \$400MM
    - Commitment target range +/- 30% (\$332.5MM - \$617.5MM)

# ERS Private Infrastructure Tactical Plan

## FY21 & FY22 IAC and Board Approval Request



- Review and consideration of FY22 ERS Private Infrastructure Annual Tactical Plan:
  - Propose to invest in 3-6 investments with commitments totaling \$450MM (including co-investments/direct investments)
    - Commitment target range +/- 30% (\$315MM - \$585MM)
  - Continue seeking sector diversification
  - Opportunistically seek Core assets and EM
  - Continue establishing key relationships  
(and seeking seed investments, partnerships, etc.)
  - Continue to focus on efficiency and co-investments / direct investments
  - Will seek approval for an analyst in FY22

### Consultant's Recommendations

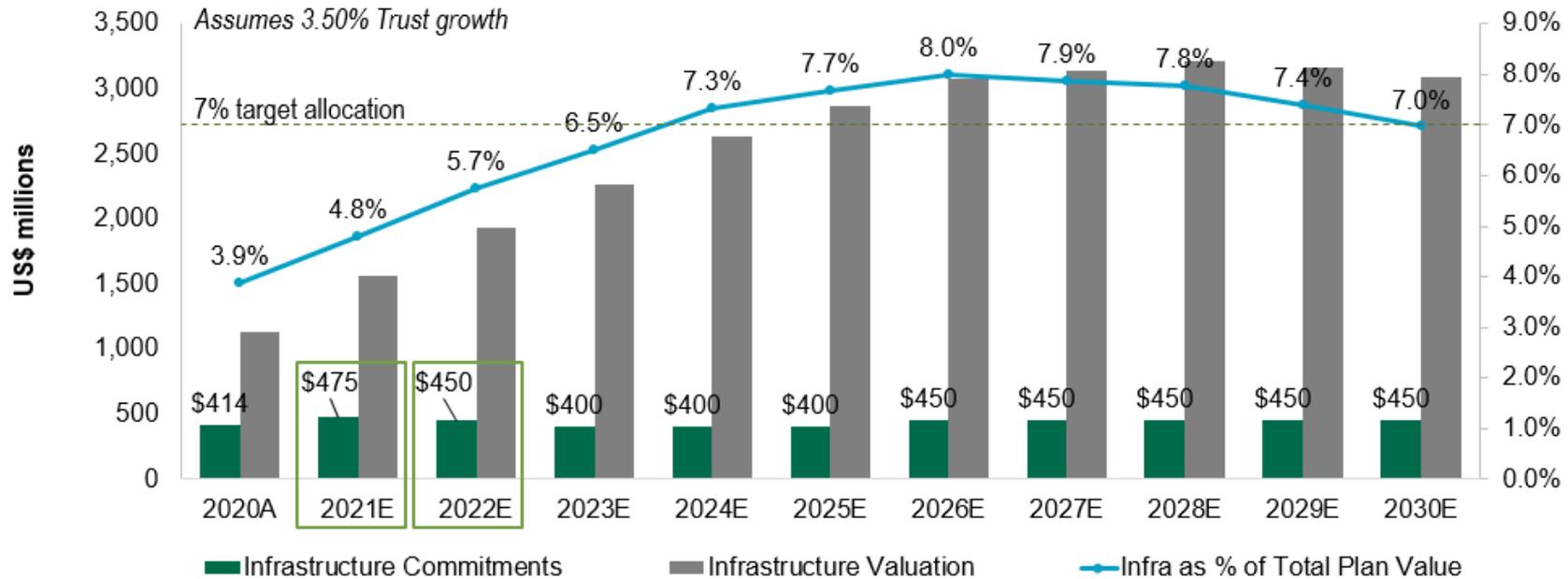
- Core and non-US markets exposure
- Emerging market exposure
- Larger ticket sizes

# ERS Private Infrastructure Tactical Plan

## FY21 & FY22 IAC and Board Approval Request



Long Term Projections:



Questions?  
**Action Item**

## Public Agenda Item #8

### *Investment Advisory Committee Member Recognition*

May 26, 2021

Tom Tull, CFA, Chief Investment Officer

# Dr. Laura Starks – 29 years of IAC service



Dr. Starks was appointed to the IAC in 1990 and served for 29 years.

During her tenure:

- Trust assets grew from \$6.2 B to \$28.65 B
- Trust investments moved into alternative asset classes
- She provided investment advice and expertise on asset allocation, investment policy, governance, and strategy, helping contributing greatly to the program's success

Dr. Starks continues to serve members as part of the Texa\$aver<sup>SM</sup> Product Review Committee.



ERS thanks Dr. Starks for her dedication and significant contributions.

## Public Agenda Item #9

*Reminder date for the next Joint Meeting of the Board of Trustees and Investment Advisory Committee, the next meeting of the Board of Trustees, and the next meeting of the Audit Committee*

May 26, 2021

# Next Meeting Dates



## 2021 Meeting Dates

Wednesday, March 10, 2021

Wednesday, May 26, 2021

**Wednesday, August 25, 2021**

2-Day Workshop:

Tuesday - Wednesday, December 7 & 8, 2021

## Public Agenda Item #10

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

May 26, 2021

## Public Agenda Item #11

### *Recess of the Board of Trustees*

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

May 26, 2021