

July 2022

# BUILDING THE TRUST

## Investment Management



**Teacher Retirement System of  
Texas**

1000 Red River Street  
Austin, Texas  
78701-2698



**TEACHER RETIREMENT SYSTEM OF TEXAS MEETING  
BOARD OF TRUSTEES  
AND  
INVESTMENT MANAGEMENT COMMITTEE**

*(Committee Chair and Members: Mr. Corpus, Chair; Mr. Hollingsworth; Mr. Moss,  
Ms. Sissney and Mr. Walls, Jr.)*

*All or part of the July 14, 2022, meeting of the TRS Investment Management Committee and Board of Trustees may be held by telephone or video conference call as authorized under Sections 551.130 and 551.127 of the Texas Government Code. The Board intends to have a quorum and the presiding officer of the meeting physically present at the following location, which will be open to the public during the open portions of the meeting: **1000 Red River, Austin, Texas 78701 in the TRS East Building, 5<sup>th</sup> Floor, Boardroom.** This meeting will be conducted in accordance with the Governor's authorization concerning suspension of certain open meeting law requirements in response to the COVID-19 (Coronavirus) Disaster.*

*The open portions of the July 14, 2022, meeting are being broadcast over the Internet. Access to the Internet broadcast and agenda materials of the meeting is provided at [www.trs.texas.gov](http://www.trs.texas.gov). A recording of the meeting will be available at [www.trs.texas.gov](http://www.trs.texas.gov).*

**AGENDA  
July 14, 2022 – 1:00 p.m.**

1. Call roll of Committee members.
2. Consider the approval of the proposed minutes of the April 2022 committee meeting – Committee Chair.
3. CIO Update including Fleet Strategy; Talent Management; Accomplishments; Notices, Key Dates and Upcoming Events; and Market Update – Jase Auby.
4. Discuss the First Quarter 2022 Performance Review – Steve Voss and Mike McCormick, AON.
5. Annual Review of external Private Markets – Eric Lang, Carolyn Hansard, Neil Randall, Grant Walker and Kimberly Carey.

NOTE: The Board of Trustees (Board) of the Teacher Retirement System of Texas will not consider or act upon any item before the Investment Management Committee (Committee) at this meeting of the Committee. This meeting is not a regular meeting of the Board. However, because the full Committee constitutes a quorum of the Board, the meeting of the Committee is also being posted as a meeting of the Board out of an abundance of caution.



Minutes of the Investment Management Committee  
**April 28, 2022**

The Investment Management Committee of the Board of Trustees of the Teacher Retirement System of Texas met on April 28, 2022, in the boardroom located on the Fifth Floor in the East Building of TRS' offices located at 1000 Red River Street, Austin, Texas, 78701.

**Committee members present:**

Mr. David Corpus, Chair  
Mr. Jarvis Hollingsworth  
Mr. Christopher Moss  
Mrs. Nanette Sissney  
Mr. Robert H. Walls, Jr.

**Other TRS Board Members present:**

Mr. Mike Ball  
Mr. John Elliott  
Mr. James D. Nance

**Others present:**

Brian Guthrie, TRS  
Andrew Roth, TRS  
Don Green, TRS  
Amanda Jenami, TRS  
Heather Traeger, TRS  
Jase Auby, TRS  
Katy Hoffman, TRS  
James Nield, TRS  
Stephen Kim, TRS  
Dale West, TRS  
Brad Gilbert, TRS  
J.B. Daumerie, TRS  
Denise Lopez, TRS  
Katherine Farrell, TRS  
Suzanne Dugan, Cohen Milstein  
Dr. Keith Brown, Board Advisor  
Steve Voss, Aon Hewitt  
Mike McCormick, Aon Hewitt.

Investment Management Committee Chairman, Mr. David Corpus, called the meeting to order at 1:00 p.m.

**1. Call roll of Committee members.**

Ms. Farrell called the roll. A quorum was present.

**2. Consider the approval of the proposed minutes of the December 2021 Committee meeting – Chair David Corpus.**

On a motion by Mr. Moss, seconded by Ms. Hollingsworth, the committee voted to approve the proposed minutes for the December 2021 Investment Management Committee meeting as presented.

**3. CIO Update including Fleet Strategy; Talent Management; Accomplishments; Notices and Key Dates and Upcoming Events and Market Update– Jase Auby.**

Mr. Jase Auby reported calendar year 2021 ended up with an 18.5 percent return for the year with 197 basis points of excess return. He noted there are two events in play creating high market volatility. One being the Russian invasion of Ukraine, impacting commodity prices. The other is the central banks around the world transitioning from easy monetary policy to tight monetary policy.

Mr. Auby said that the Investment Management Division (IMD) was fully back in the office and they hosted the first in-person SPN summit recently. He said they completed the semi-annual portfolio review. He noted IMD is in Phase 3, hiring 25 FTEs for this fiscal year which will complete the Building the Fleet hiring. He reported for the first four years of the Fleet program there has been \$321 million in savings.

**4. Discuss the Fourth Quarter 2021 Performance Review – Steve Voss and Mike McCormick, Aon Hewitt.**

Mr. Mike McCormick provided an overview of the Trust's performance. He said 2021 was a fantastic year, GDP growth at 6 percent. He noted inflation rates are at 5 to 7 percent creating higher energy prices and volatility in the markets. He said the higher inflation expectations, tighter Fed policy as well as geopolitical uncertainty is driving some negative returns in the current year.

Mr. McCormick reviewed the equity portfolio which was up by 24 percent. He noted the private equity holdings having tremendous returns during 2021. He stated the asset allocation of the portfolio pointing out the government bonds were a bit underweight at 13.5 versus 16 percent. He said because of that underweight, it added about 47 basis points of outperformance. He noted in comparison with pension peer groups, the System is getting similar returns as peers but with a lower level of volatility and risk.

**5. Semi-Annual Risk Report – James Nield and Stephen Kim.**

Mr. James Nield provided the semi-annual risk report. He reviewed the eight risk metrics and noted that despite the volatility, they were all in compliance. He provided greater detail regarding three of the metrics: asset allocation; leverage and liquidity. He reported stable value, real return and risk parity all in line with benchmark allocations during the quarter. He noted private equity was close to 18 percent which was close to the upper allocation limit. Mr. Auby commented the reason for the overweight was that private equity had a very good performance last year, a 49 percent return for the year.

Mr. Stephen Kim reported the value at risk, VaR, was at 5.9 percent. He said the Trust relative to the benchmark remained in range, just 40 basis points away from the benchmark VaR at 5.5 percent. He noted the asset allocation for leverage to be negative 3.2 percent. He said as leverage increased over the past few years there was a decline in liquidity. He said liquidity remains more than two times the threshold for keeping the Trust operational in difficult times.

Mr. Corpus announced agenda items 6 and 7 would be called up together.

**6. Annual review of Public Markets – Dale West and Brad Gilbert.**

**7. Annual Review of Public SPN – J.B. Daumerie.**

Mr. West reported on the Trust public equity portfolio, which totaled just under \$100 billion. He noted the absolute and relative returns for 2021 were high. The portfolio produced a 16.3 percent return, 149 basis points above benchmark, and \$836 million value add over benchmarks for the year. He reviewed the returns by strategy group emphasizing internal quantitative strategy performance having the largest positive impact in 2021 to the overall portfolio. Mr. West then reviewed market behavior during the pandemic period and how that led to poor results in 2020 and better results in 2021.

Mr. Brad Gilbert provided an update on the allocation to hedge funds. He reported hedge funds make up 9 percent of the Trust assets. He said over the last 10 years, the allocation for hedge funds have been separated out into two broadly defined buckets of directional and stable value portfolios. He reviewed the directional portfolio changes made in 2019. He said in aggregate the changes have added \$155 million. For the stable value hedge funds, he said, this portfolio is for downside protection. He reported they generated 8.5 percent, 89 basis points ahead of the benchmark, generating over \$800 million since inception ten years ago. Mr. West concluded with a review of priorities for 2022.

Mr. J.B. Daumerie reviewed the performance of the public strategic partnership portfolio. He said the partnership is now in its 14<sup>th</sup> year, ending the year at \$8.3 billion, 4.1 percent of the Trust. He said that in addition to performance and portfolio management, the partners support the Trust through research, summits and ad hoc requests. He reported that during the first quarter of this year they hosted the partners in Austin for the public SPN summit that incorporated a risk management exercise.

**8. Review of IMD Legal & Compliance – Heather Traeger and Denise Lopez.**

Ms. Heather Traeger provided an overview of the Legal & Compliance (L&C) team's work over the past few years and priorities for the upcoming year. Ms. Denise Lopez reported in more detail noting overall matters requiring legal review have increased steadily over the past five years. She said with the Building the Fleet initiative, L&C has worked with IMD in structuring principal investment vehicles and improving legal review processes to adjust the increase in co-investment deal flow. She said the team reduces deal costs, reduces risk through compliance and is a profit center through securities litigation.

There being no more business before the Investment Management Committee, the committee adjourned at 2:49 p.m.

Approved by the Investment Management Committee of the Board of Trustees of the Teacher Retirement System of Texas on July \_\_\_\_, 2022.

---

Katherine H. Farrell

---

Date



# CIO Update

Jase Auby, Chief Investment Officer

July 2022



# CIO Update

## IMD at a Glance

### Priorities

- **Market Volatility.** Continue to monitor risks and manage Trust through heightened market uncertainty with respect to inflation, the Ukraine crisis, and global tightening of monetary policy
- **CIO Fireside Chats.** Held team-level sessions to answer questions from employees and inform of key Trust priorities
- **Legislative.** Engaged with Texas Legislators to offer IMD subject matter expertise during interim hearings

### Key Dates and Upcoming Events

Event	Location	Dates
Council of Institutional Investors (CII) Fall 2022 Conference	Boston, MA	September 21-23, 2022
GCM Small and Emerging Managers Conference	Chicago, IL	October 12-13, 2022
Strategic Partnership Network (SPN) Summit	New York City	November 2, 2022

### Our People

Snapshot as of June 2022		Activity	Phase I	Phase II	Phase III
IMD FTEs	204	Hired	32	30	12
Shared-Services	17	Recruiting	0	0	0
Contractors	14	Pipeline	0	1	13
Secondes	6		32	31	25

- **Recruiting and Talent Management Activities**
  - **Retention.** Continue to focus on identifying solutions to retain and motivate employees
  - **Recruiting.** Actively recruiting for 17 positions
  - **Internship Program.** Onsite summer internship program began June 6<sup>th</sup> with seven students across public and private markets
  - **Development Workshops.** Hosted DiSC assessment trainings for individual teams and IMD-wide workshops focused on best practices for hybrid working environment

# CIO Update

## Metrics Reporting – As of March 31, 2022

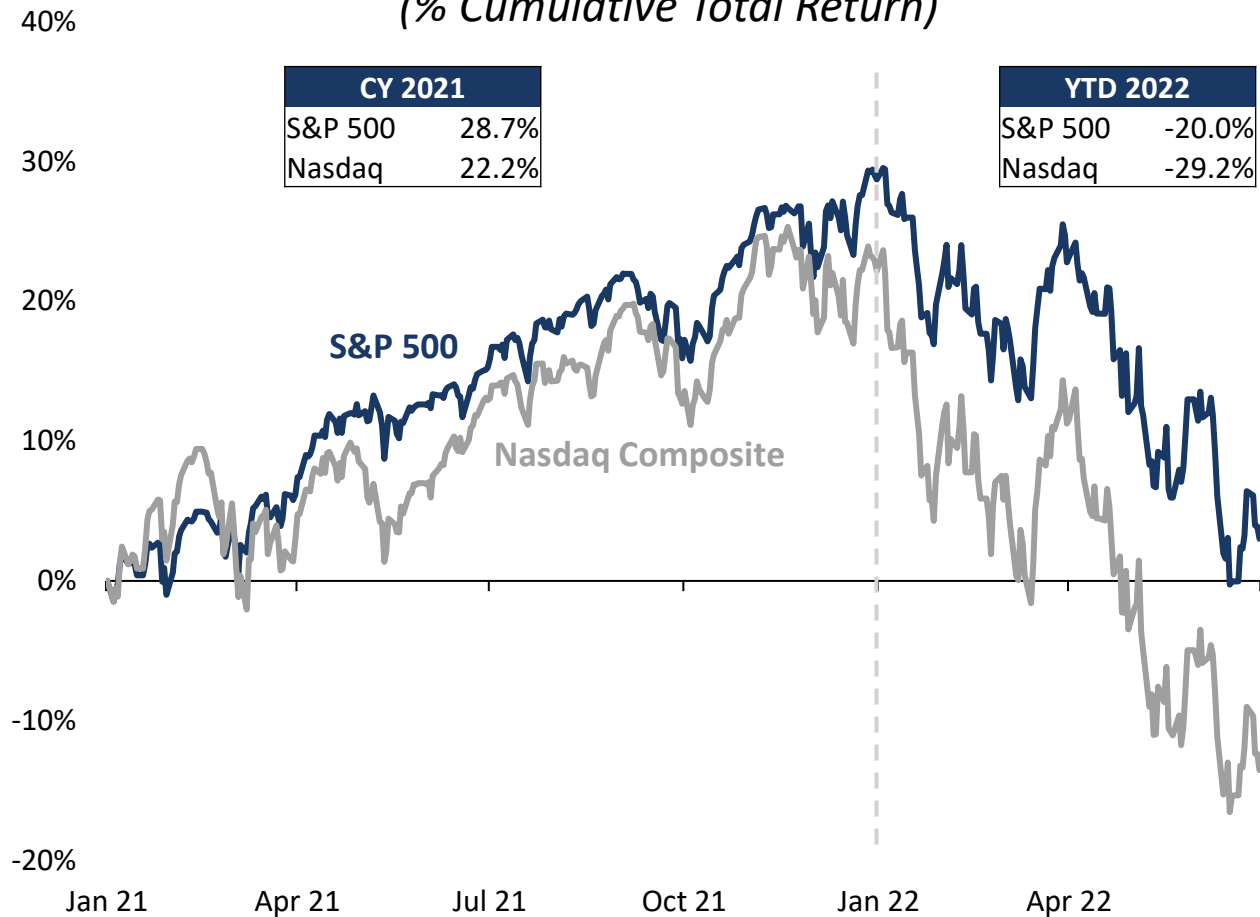
Metric	Objective	Target	Q4 2021	Q1 2022
<b>Total Trust Excess Return</b>	Return in excess of the benchmark return for the Total Trust (3 Year Rolling)	<b>+100 bp</b>	<b>+10 bp</b>	<b>+33 bp</b>
<b>Private Markets Excess Return</b>	Return in excess of the benchmark return for Private Markets investments (3 Year Rolling)	<b>+155 bp</b>	<b>+174 bp</b>	<b>+127 bp</b>
<b>Active Public Markets Excess Return</b>	Return in excess of the benchmark return for Active Public Markets investments (3 Year Rolling)	<b>+100 bp</b>	<b>-36 bp</b>	<b>-14 bp</b>
<b>Principal Investments</b>	Percent of portfolio capital plan in principal investments approved (cumulative year-to-date) <sup>1</sup>	<b>2021: 42%</b> <b>2022: 42%</b>	<b>2021: 52%</b>	<b>YTD: 45%</b>
<b>Public Equity Allocation</b>	Percent of internal public equity allocation	<b>45%</b>	<b>51%</b>	<b>52%</b>
<b>Estimated Net Fee Savings</b>	External manager annual net fee savings <sup>2</sup>	<b>2018: \$53M</b> <b>2019: \$64M</b> <b>2020: \$80M</b> <b>2021: \$105M</b> <b>2022: \$138M</b>	<b>2018: \$46M</b> <b>2019: \$65M</b> <b>2020: \$93M</b> <b>2021: \$117M</b> <b>2022: To be reported April 2023</b> <b>Total: \$321M</b>	

# CIO Update

*Market sentiment is down as investors grapple with inflation, war, and a tightening Federal Reserve*

## S&P 500 and Nasdaq Performance Since 12/31/2020

(% Cumulative Total Return)



- **Markets have struggled in year-to-date 2022**

- The S&P 500 closed at a record high (4,797) on January 3rd, 2022
- Since this point, the index has declined -20% year-to-date on a total return basis

- **Inflation, war, and monetary policy expectations have weighed on investor sentiment**

- **Inflation.** Global supply chain disruptions and higher prices continue to impact consumers and businesses, with headline CPI standing at 8.6% (highest level since 1981)
- **Ukraine Crisis.** Russia's invasion of Ukraine has lasted longer than anticipated, adding unpredictable volatility to financial markets
- **Monetary Policy.** The US Federal Reserve issued its biggest rate hike in nearly 30 years and has shifted to a tightening stance to combat inflation

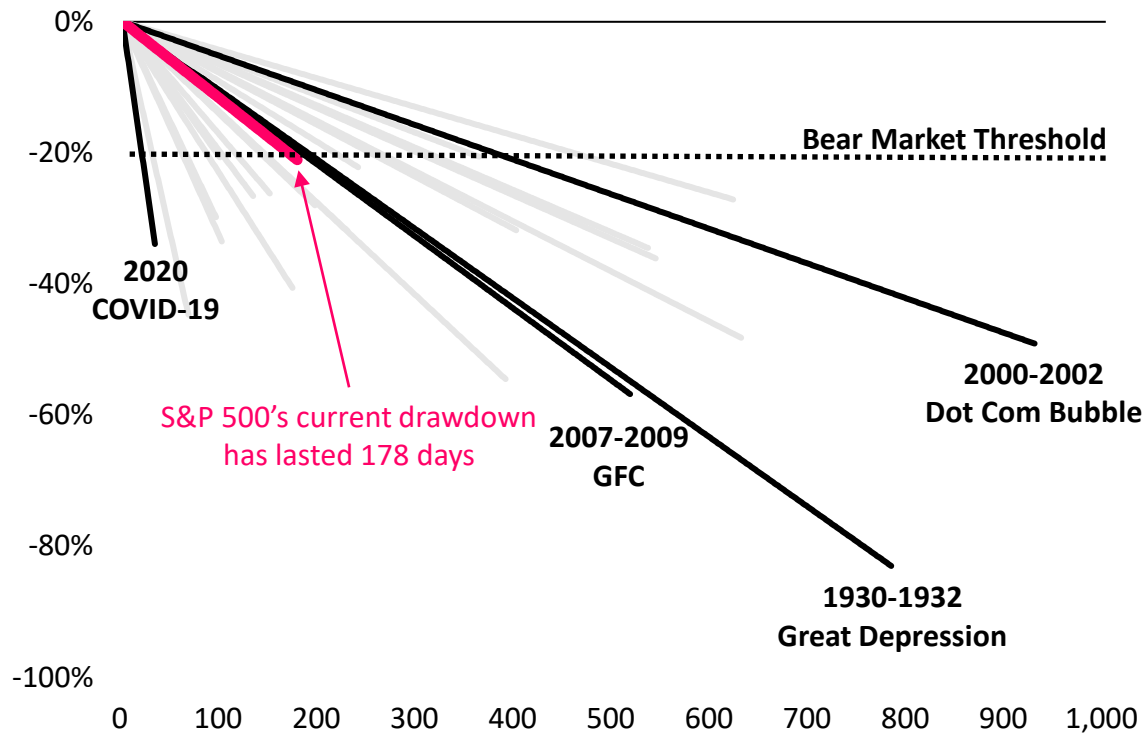
# CIO Update

*The markets are once again testing bear market territory after rebounding strongly from the pandemic*

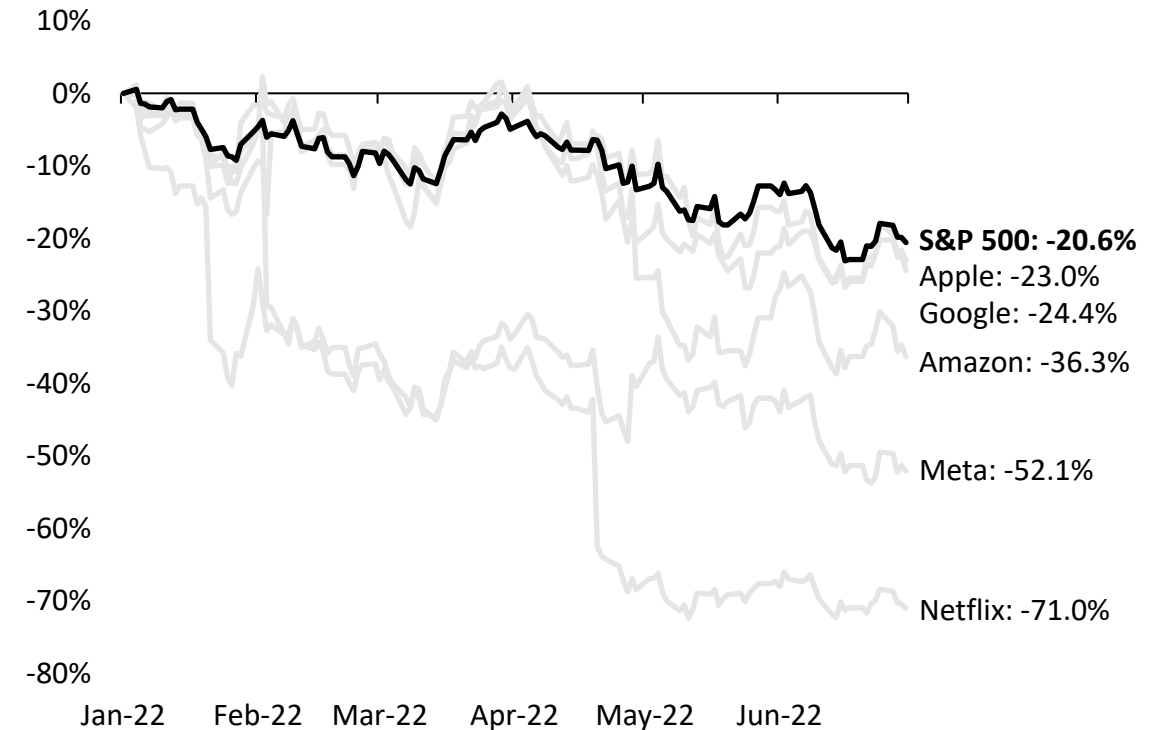
The S&P 500 entered a bear market after reaching an all time high at the beginning of 2022...

...with much of the damage coming from top-heavy growth stocks that have outperformed over the last two years

### S&P 500 Bear Markets Severity and Duration



### YTD Price Returns (S&P 500 vs. FAANG Stocks)



# CIO Update

*So far, the current market decline is less severe and shorter in duration than the average US bear market*

## S&P 500 Bear Markets and Subsequent Recoveries Since 1928

Name	Peak Date	Trough Date	Bear Market Decline		Full Recovery		Subsequent Peak Gain	
			Percent Loss	Days	Percent Gain	Days	Percent Gain	Days
Great Depression	9/7/1929	11/13/1929	-44.7%	67			46.8%	148
	4/10/1930	6/1/1932	-83.0%	783			111.6%	98
	9/7/1932	2/27/1933	-40.6%	173			120.6%	141
	7/18/1933	10/21/1933	-29.8%	95			37.9%	108
	2/6/1934	3/14/1935	-31.8%	401	S&P 500 price did not recover to pre-Great Depression peak price until the 1950s's		131.8%	723
	3/6/1937	3/31/1938	-54.5%	390			62.2%	223
World War II	11/9/1938	4/8/1939	-26.2%	150			29.8%	200
	10/25/1939	6/10/1940	-31.9%	229			26.8%	152
	11/9/1940	4/28/1942	-34.5%	535			157.7%	1492
	5/29/1946	10/9/1946	-26.6%	133			20.8%	615
	6/15/1948	6/13/1949	-20.6%	363			262.6%	2954
Eisenhower Recession	7/15/1957	10/22/1957	-20.7%	99	26.6%	329	86.4%	1512
Kennedy Slide	12/12/1961	6/26/1962	-28.0%	196	38.9%	434	79.8%	1324
Credit Crunch	2/9/1966	10/7/1966	-22.2%	240	28.9%	209	48.0%	784
Vietnam War	11/29/1968	5/26/1970	-36.1%	543	57.0%	650	73.5%	961
Watergate	1/11/1973	10/3/1974	-48.2%	630	95.0%	2114	125.6%	2248
Volcker Bear	11/28/1980	8/12/1982	-27.1%	622	39.5%	83	228.8%	1839
Black Monday	8/25/1987	12/4/1987	-33.5%	101	51.0%	600	582.1%	4494
Dot Com Bubble	3/24/2000	10/9/2002	-49.1%	929	97.0%	1694	101.5%	1826
Global Financial Crisis	10/9/2007	3/9/2009	-56.8%	517	131.9%	1480	400.5%	3999
COVID-19	2/19/2020	3/23/2020	-33.9%	33	51.5%	148	114.4%	651
Inflation Breakout	1/3/2022	6/30/2022	-21.1%	178	?	?	?	?
Post WWII Average			-34.2%	372	N/A	N/A	184.1%	1964
Average			-36.4%	337	61.7%	774	135.7%	1262

Source: Bloomberg, Yardeni Research

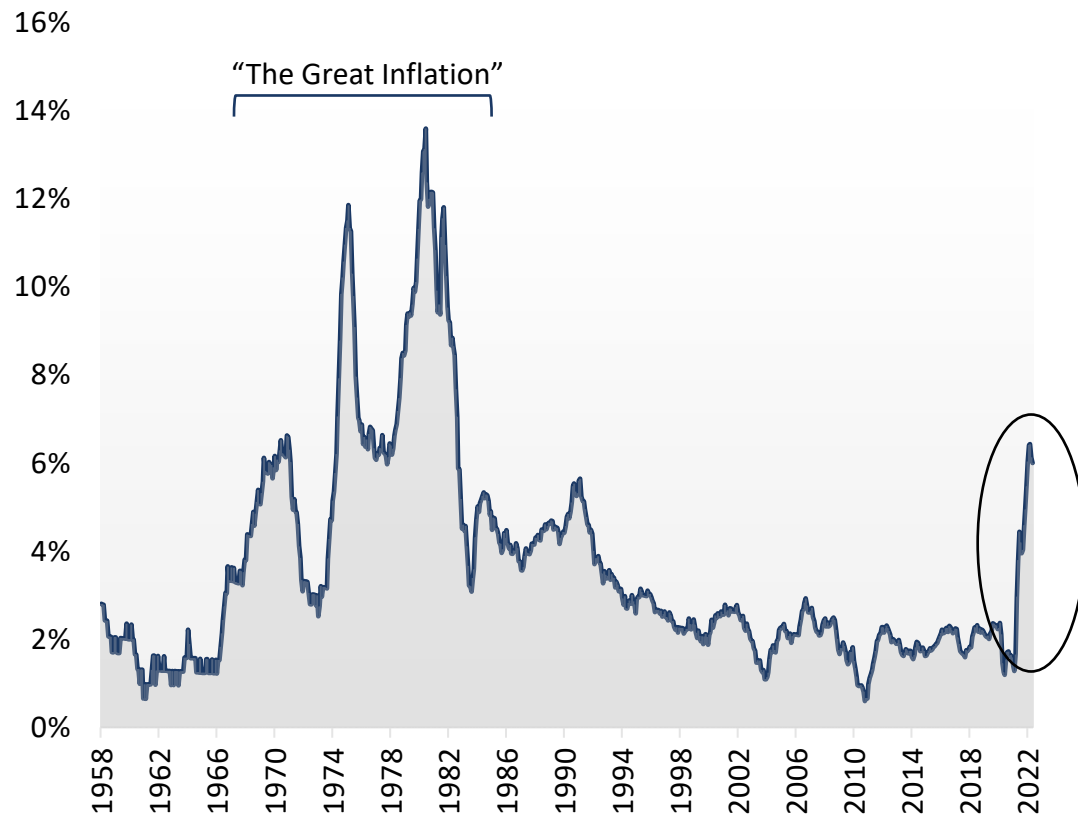
Note: Bear markets defined as declines of 20% or more. Full recovery is defined as length of time in days from bear market trough price to recover to prior peak price. Subsequent peak gain defined as time from bear market trough price to subsequent bear market peak price. Number of days includes weekends and holidays. Data as of 6/30/2022

# CIO Update

*The Fed has begun tightening as inflation reached levels not seen in over 40 years*

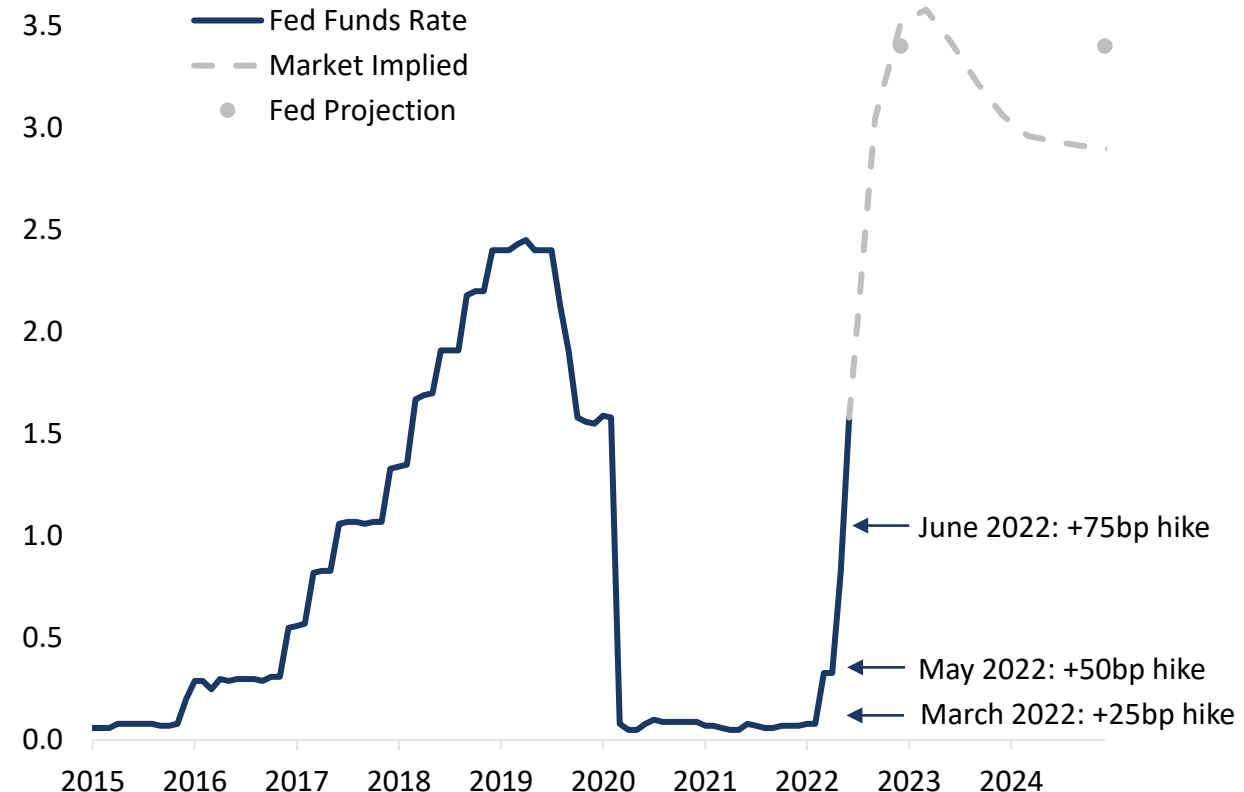
Core (ex. energy and food prices) consumer inflation stands at its highest level since the early 1980's

Core CPI Index (Year Over Year % Change)



The Fed has turned to monetary tightening with the market implying the fed funds rate will rise to over 3% by late 2022

Federal Funds Rate and Expectations (%)









# Teacher Retirement System of Texas

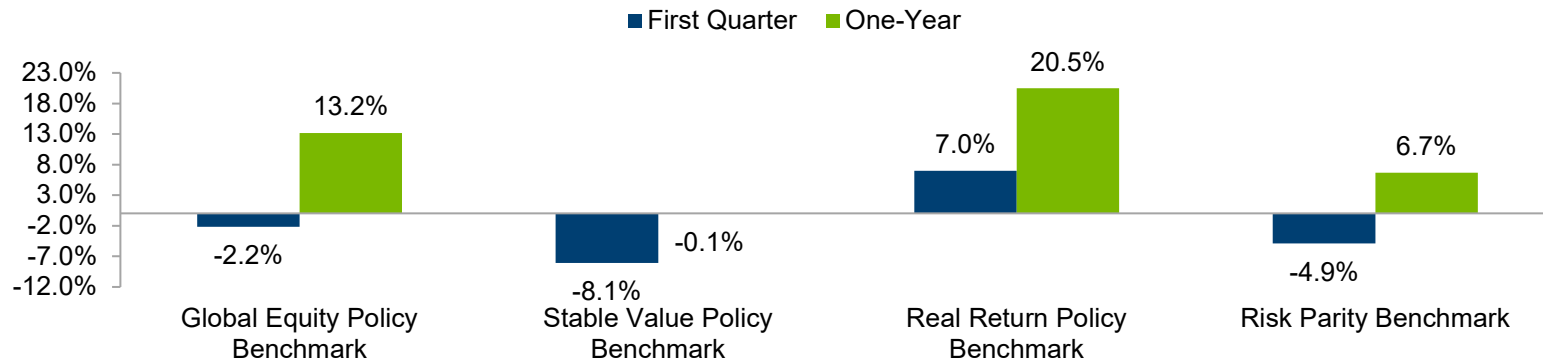
Performance Review: First Quarter 2022

Investment advice and consulting services provided by Aon Investments USA Inc., an Aon Company

Nothing in this document should be construed as legal or investment advice. Please consult with your independent professional for any such advice. To protect the confidential and proprietary information included in this material, it may not be disclosed or provided to any third parties without the approval of Aon.



# Summary

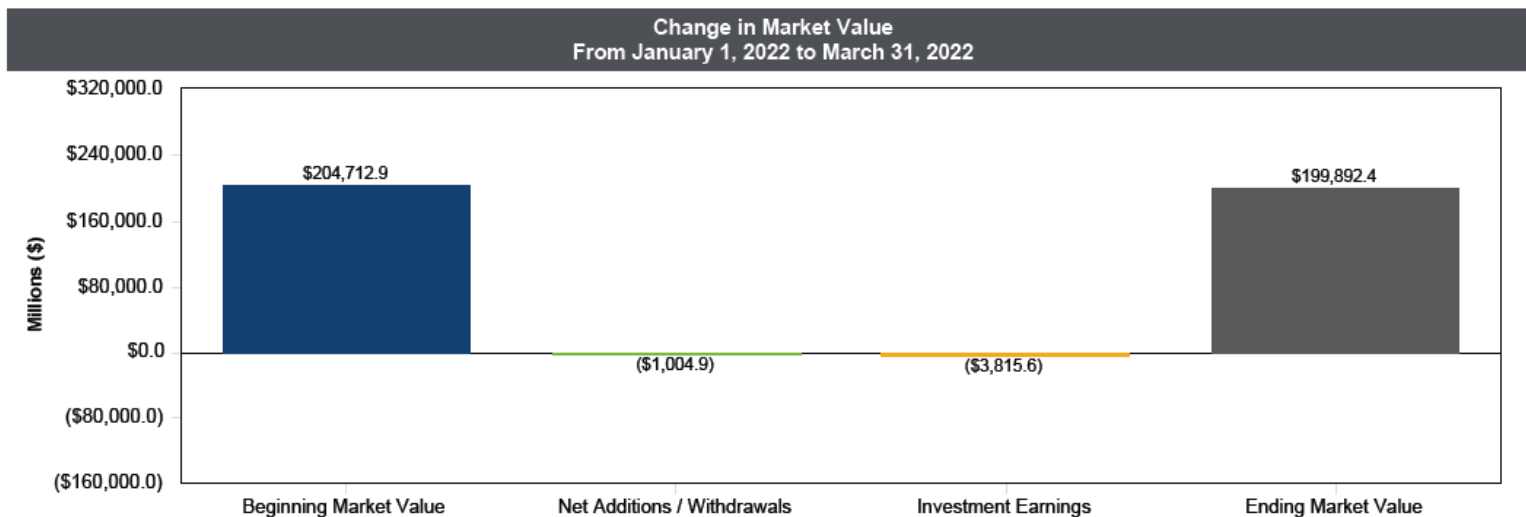


- Escalated global tensions caused by the Russia/Ukraine conflict, persistent high inflation and rising yields all weighed on capital markets during the first quarter of 2022, with global equities returning -2.2% for the period
- U.S. Treasury yields saw notable increases, particularly in the front end, with the 2-year yield briefly trading above the 10-year yield, “inverting” the curve in the final days of the quarter. The 2-year yield had the largest move over the quarter, rising 155 bps, followed by the 5-year yield up 116 bps. The longer end of the curve also rose, but at a slower pace, with the 10-year Treasury yield up 80bps to 2.32%, and the 30-year Treasury yield up 54bps to 2.44% over the quarter
- TRS returned -1.9% for the quarter which was 0.2 percentage points above its benchmark
  - Outperformance at the asset class level for Risk Parity and Stable Value were the primary drivers for relative results.
- For the trailing twelve months, TRS returned 13.3% versus the benchmark return of 11.7%
  - Outperformance from the Global Equity, Stable Value, Risk Parity and Real Return asset classes were the primary drivers to relative performance

# 1. Market Summary – First Quarter 2022

	First Quarter	One Year	Three Years	Five Years	Ten Years
<b><u>Global Equity:</u></b>					
TF USA Benchmark	-5.3%	12.4%	18.5%	15.6%	14.4%
MSCI EAFE + Canada Index	-4.7	3.2	8.6	7.2	6.3
MSCI Emerging Markets Index	-7.0	-11.4	4.9	6.0	3.4
HFRI Fund of Funds Composite Index	-2.8	1.2	5.9	4.6	3.9
State Street Private Equity Index (qtr lagged)	5.7	37.0	25.1	20.1	15.5
Global Equity Policy Benchmark	-2.2	13.2	15.9	13.2	10.7
<b><u>Stable Value:</u></b>					
Bloomberg Barclays Long Treasury Index	-10.6%	-1.4%	3.3%	3.9%	4.0%
HFRI Fund of Funds Conservative Index	0.1	4.0	5.7	4.5	3.8
Absolute Return Benchmark	1.0	3.2	3.2	3.5	3.0
90 Day U.S. Treasury Bill	0.0	0.1	0.8	1.1	0.6
Stable Value Policy Benchmark	-8.1	-0.1	4.0	4.1	4.0
<b><u>Real Return:</u></b>					
Bloomberg Barclays U.S. TIPS Index	-3.0%	4.3%	6.2%	4.4%	2.7%
NCREIF ODCE (qtr lagged)	7.7	21.0	8.2	7.7	9.4
Energy, Natural Resources & Infrastructure Benchmark	5.2	19.1	6.3	6.7	--
Goldman Sachs Commodities Index	33.1	64.6	13.4	10.0	-3.3
Real Return Policy Benchmark	7.0	20.5	7.8	7.0	7.4
<b><u>Risk Parity:</u></b>					
Risk Parity Benchmark	-4.9%	6.7%	8.7%	7.9%	5.8
<b>TRS Policy Benchmark</b>	<b>-2.1%</b>	<b>11.7%</b>	<b>11.8%</b>	<b>10.1%</b>	<b>8.7%</b>

## 2. Market Value Change



Summary of Cash Flow				
	1 Quarter	1 Year	3 Years	5 Years
Beginning Market Value	204,712,889,318	180,522,561,320	152,525,158,691	137,891,754,267
+ Additions / Withdrawals	-1,004,881,768	-4,485,560,166	-12,480,560,331	-19,700,478,142
+ Investment Earnings	-3,815,574,147	23,855,432,249	59,847,835,043	81,701,157,278
= Ending Market Value	199,892,433,403	199,892,433,403	199,892,433,403	199,892,433,403

### 3. Asset Allocation Detail

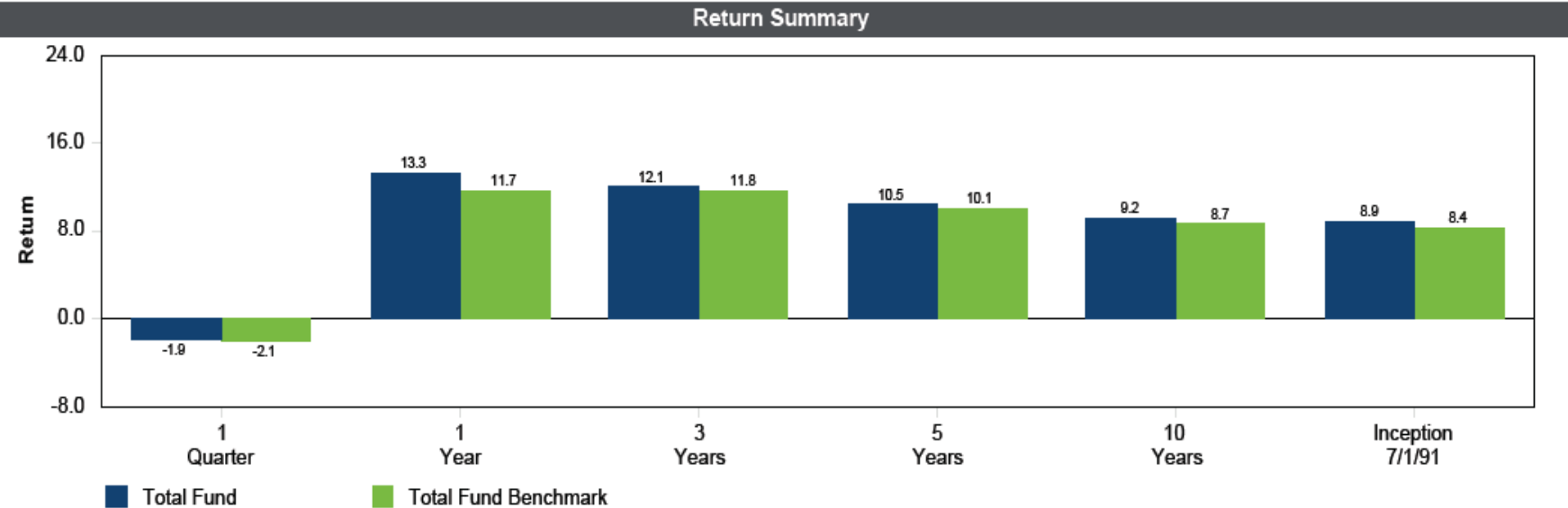
	Market Value \$ in millions) as of 3/31/2022		Interim Policy Target	Relative to Interim Policy Target	Long Term Policy Target	Long Term Policy Ranges
	(\$)	(%)				
<b>Investment Exposure</b>	--	<b>103.4%</b>	<b>104.0%</b>	<b>-0.6%</b>	<b>104.0%</b>	<b>99-115%</b>
Total U.S.A.	\$34,511	17.3%	18.1%	-0.8%	18.0	13-23%
Non-U.S. Developed	\$25,161	12.6%	13.1%	-0.5%	13.0	8-18%
Emerging Markets	\$15,882	7.9%	9.0%	-1.1%	9.0	4-14%
Private Equity	\$35,285	17.7%	16.8%	+0.9%	14.0	9-19%
<b>Global Equity</b>	<b>\$110,839</b>	<b>55.4%</b>	<b>56.9%</b>	<b>-1.5%</b>	<b>54.0</b>	<b>47-61%</b>
Government Bonds	\$26,213	13.1%	16.1%	-2.9%	16.0	0-21%
Stable Value Hedge Funds	\$10,071	5.0%	5.0%	0.0%	5.0	0-10%
Absolute Return	\$5,587	2.8%	0.0%	+2.8%	0.0	0-20%
<b>Stable Value</b>	<b>\$41,871</b>	<b>20.9%</b>	<b>21.1%</b>	<b>-0.1%</b>	<b>21.0</b>	<b>14-28%</b>
Real Estate	\$27,617	13.8%	13.0%	+0.9%	15.0	10-20%
Energy, Natural Resource and Inf.	\$10,641	5.3%	5.0%	+0.3%	6.0	1-11%
Commodities	\$315	0.2%	0.0%	+0.2%	0.0	0-5%
<b>Real Return</b>	<b>\$38,572</b>	<b>19.3%</b>	<b>18.0%</b>	<b>+1.3%</b>	<b>21.0</b>	<b>14-28%</b>
Risk Parity	\$15,377	7.7%	8.0%	-0.3%	8.0	0-13%
<b>Risk Parity</b>	<b>\$15,377</b>	<b>7.7%</b>	<b>8.0%</b>	<b>-0.3%</b>	<b>8.0</b>	<b>0-13%</b>
Cash	\$2,397	1.2%	2.0%	-0.8%	2.0	0-7%
Asset Allocation Leverage	-\$9,163	-4.6%	-6.0%	+1.4%	-6.0	--
<b>Net Asset Allocation</b>	<b>-\$6,608</b>	<b>-3.4%</b>	<b>-4.0%</b>	<b>+0.6%</b>	<b>-4.0</b>	<b>--</b>
<b>Total Fund</b>	<b>\$199,892</b>	<b>100.0%</b>		<b>---</b>	<b>100.0%</b>	<b>--</b>

Note: Asset allocation information shown above is based upon MOPAR reporting. The excess returns shown above may not be a perfect difference between the actual and benchmark returns due entirely to rounding.

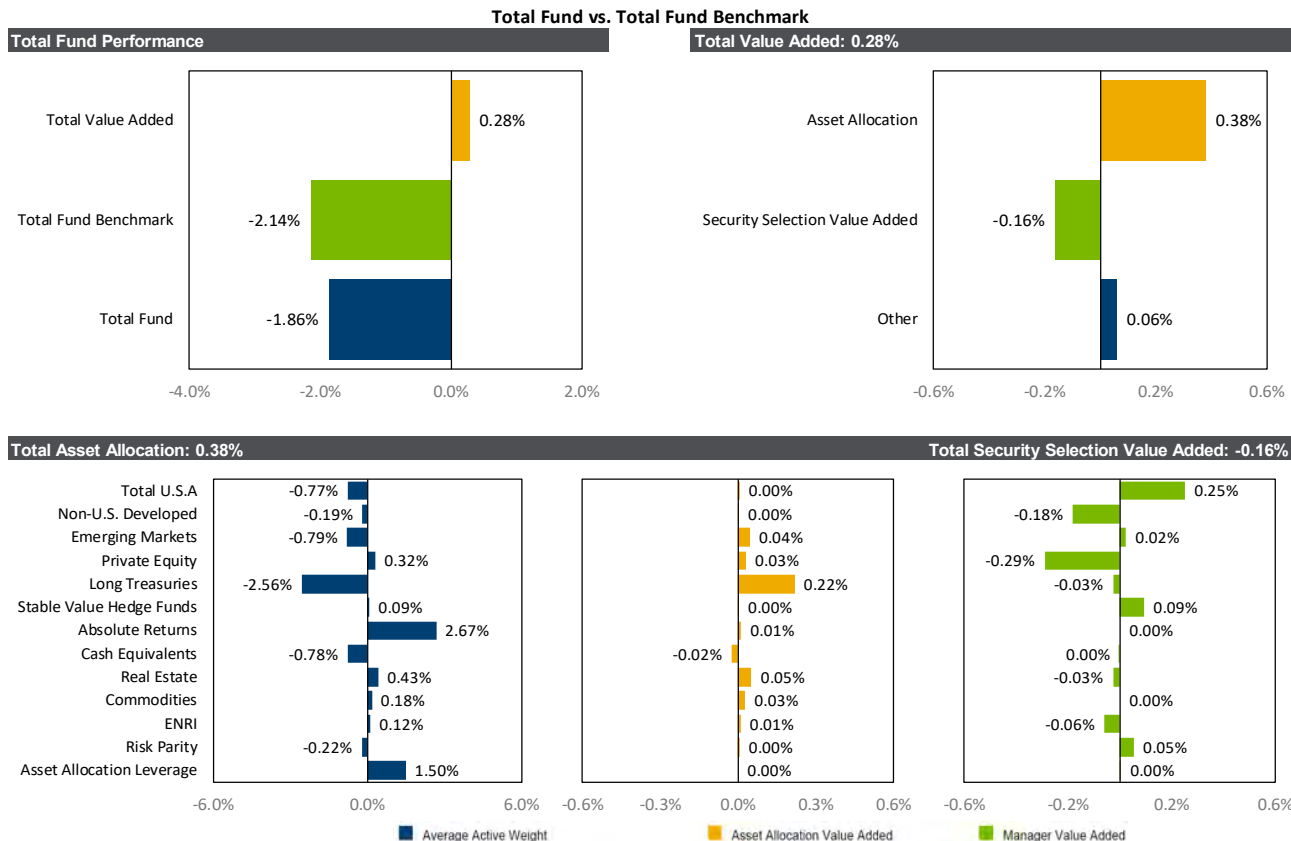
Proprietary & Confidential

Investment advice and consulting services provided by Aon Investments USA Inc., an Aon Company.

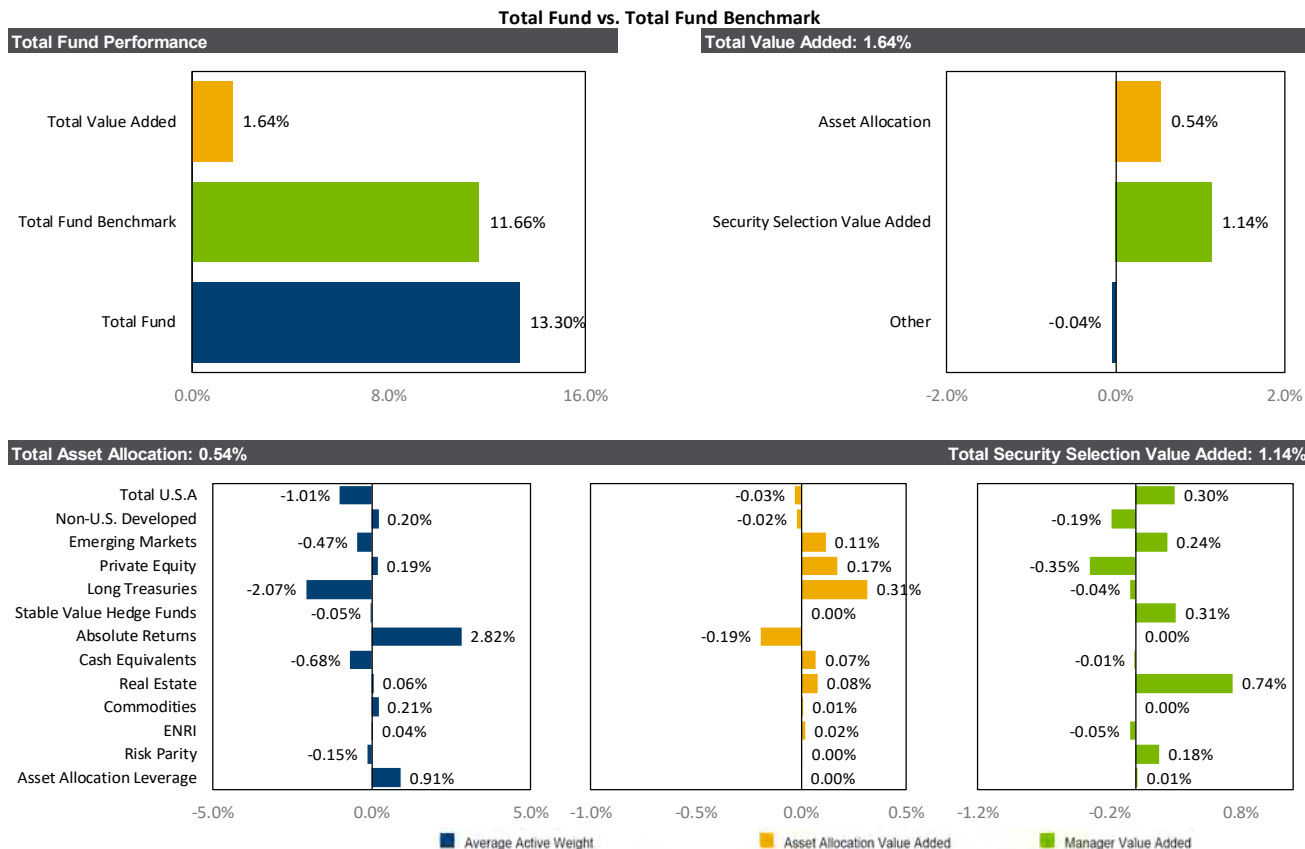
# 4. Total TRS Performance Ending 3/31/2022



## 5. Total Fund Attribution – One Quarter Ending 3/31/2022



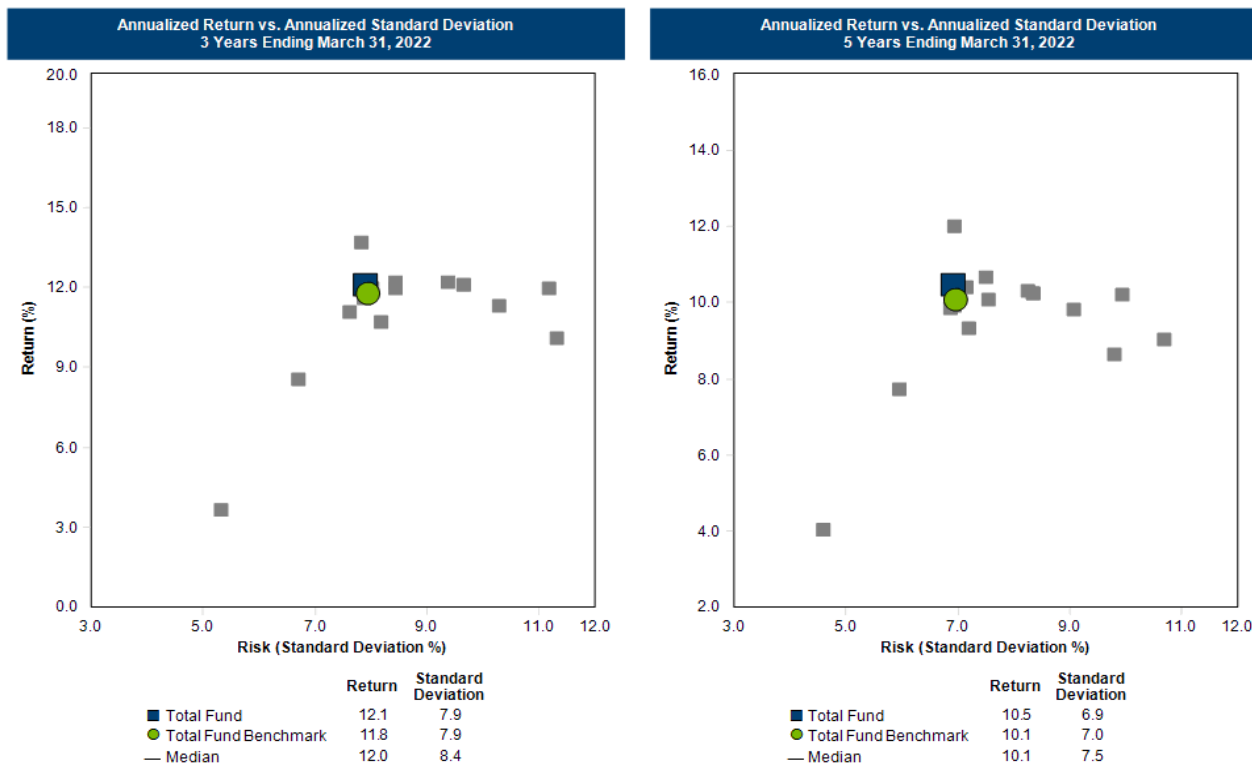
# 5. Total Fund Attribution – One Year Ending 3/31/2022





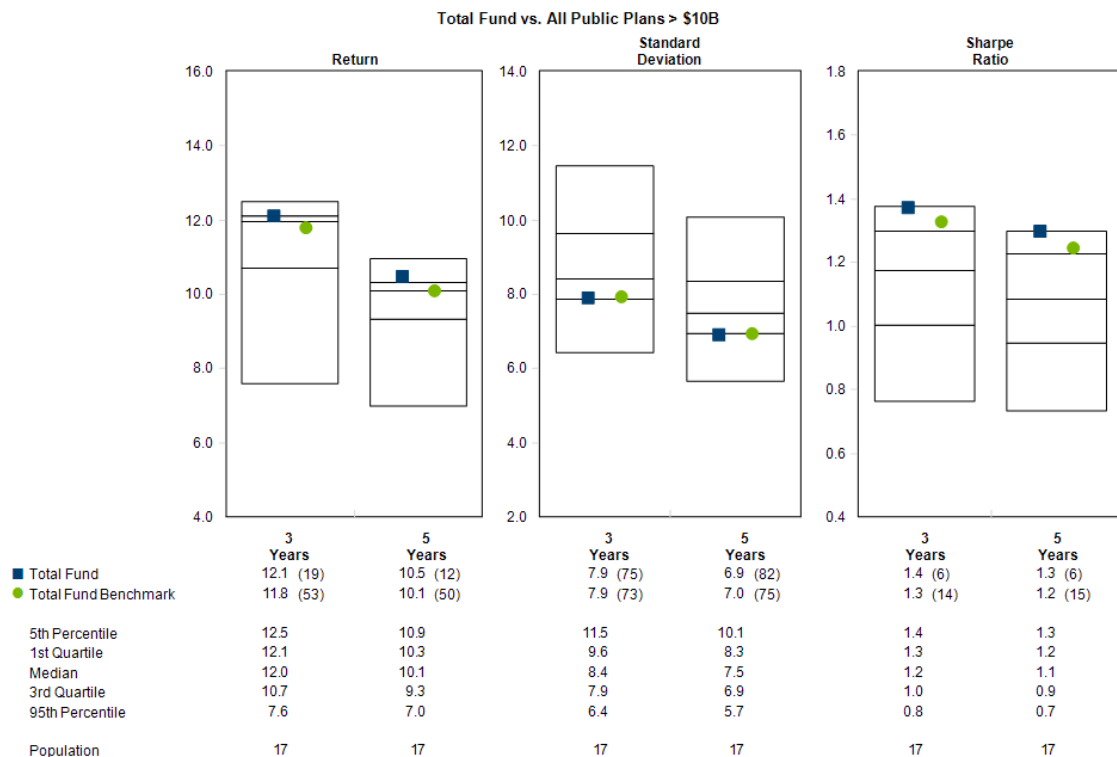
## 6. Risk Profile: Total Fund Risk-Return vs. Peers

All Public Plans > \$10B-Total Fund



*Note: Public Plan peer group composed of 17 public funds with total assets in excess of \$10B as of 3/31/2022 respectively for the periods above. An exhibit outlining the asset allocation of the peer portfolios is provided in the appendix of this report.*

## 6. Risk Profile: Trailing 3-Year and 5-Year Risk Metrics Peer Comparison



## 7. Global Equity: Performance Summary Ending 3/31/2022

	First Quarter	One Year	Three Years	Five Years	Ten Years
<b>Total Global Equity</b>	<b>-2.4%</b>	<b>13.6%</b>	<b>15.3%</b>	<b>12.6%</b>	<b>10.6%</b>
Global Equity Benchmark	-2.2	13.2	15.9	13.2	10.7
<i>Difference</i>	<i>-0.2</i>	<i>+0.4</i>	<i>-0.6</i>	<i>-0.6</i>	<i>-0.1</i>
<b>Total U.S. Equity</b>	<b>-3.9</b>	<b>14.2</b>	<b>16.8</b>	<b>13.9</b>	<b>12.8</b>
Total U.S. Equity Benchmark	-5.3	12.4	18.5	15.6	14.4
<i>Difference</i>	<i>+1.4</i>	<i>+1.8</i>	<i>-1.7</i>	<i>-1.7</i>	<i>-1.6</i>
<b>Non-U.S. Equity</b>	<b>-6.3</b>	<b>-2.6</b>	<b>7.8</b>	<b>7.1</b>	<b>5.8</b>
Non-U.S. Benchmark	-5.7	-2.9	7.2	6.8	5.2
<i>Difference</i>	<i>-0.7</i>	<i>+0.4</i>	<i>+0.6</i>	<i>+0.2</i>	<i>+0.6</i>
<b>Non-U.S. Developed</b>	<b>-6.1</b>	<b>1.8</b>	<b>8.3</b>	<b>7.0</b>	<b>6.7</b>
MSCI EAFE + Canada	-4.7	3.2	8.6	7.2	6.3
<i>Difference</i>	<i>-1.4</i>	<i>-1.4</i>	<i>-0.3</i>	<i>-0.2</i>	<i>+0.4</i>
<b>Emerging Markets</b>	<b>-6.7</b>	<b>-9.1</b>	<b>6.9</b>	<b>7.0</b>	<b>4.6</b>
MSCI Emerging Markets	-7.0	-11.4	4.9	6.0	3.4
<i>Difference</i>	<i>+0.3</i>	<i>+2.4</i>	<i>+2.0</i>	<i>+1.0</i>	<i>+1.2</i>

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 7. Global Equity: Performance Summary Ending 3/31/2022 (cont'd)

	First Quarter	One Year	Three Years	Five Years	Ten Years
<b>Total Public Equity</b>	<b>-5.2%</b>	<b>4.5%</b>	<b>11.6%</b>	<b>9.9%</b>	<b>8.7%</b>
Public Equity Benchmark	-5.5	3.9	12.2	10.5	9.0
<i>Difference</i>	+0.2	+0.7	-0.6	-0.6	-0.3
<b>Total Private Equity</b>	<b>4.3</b>	<b>37.9</b>	<b>24.4</b>	<b>19.8</b>	<b>17.0</b>
Private Equity Benchmark	6.0	38.0	25.3	20.2	15.6
<i>Difference</i>	-1.7	-0.1	-0.9	-0.3	+1.4

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 8. Stable Value: Performance Summary Ending 3/31/2022

	First Quarter	One Year	Three Years	Five Years	Ten Years
<b>Total Stable Value</b>	<b>-6.7%</b>	<b>1.9%</b>	<b>5.1%</b>	<b>5.0%</b>	<b>5.2%</b>
Total Stable Value Benchmark	-8.1	-0.1	4.0	4.1	4.0
<i>Difference</i>	<i>+1.4</i>	<i>+1.9</i>	<i>+1.1</i>	<i>+0.9</i>	<i>+1.2</i>
<b>Total Government Bonds</b>	<b>-10.8</b>	<b>-1.7</b>	<b>3.4</b>	<b>4.2</b>	<b>4.4</b>
Treasury Benchmark	-10.6	-1.4	3.3	3.9	4.0
<i>Difference</i>	<i>-0.2</i>	<i>-0.3</i>	<i>+0.1</i>	<i>+0.3</i>	<i>+0.4</i>
<b>Stable Value Hedge Funds</b>	<b>2.0</b>	<b>9.9</b>	<b>7.9</b>	<b>6.4</b>	<b>5.5</b>
Hedge Funds Benchmark	0.1	4.0	5.7	4.5	3.8
<i>Difference</i>	<i>+2.0</i>	<i>+5.9</i>	<i>+2.1</i>	<i>+2.0</i>	<i>+1.7</i>
<b>Absolute Return</b>	<b>-1.7</b>	<b>5.0</b>	<b>8.2</b>	<b>7.1</b>	<b>10.1</b>
Absolute Return Benchmark	1.0	3.2	3.2	3.5	3.0
<i>Difference</i>	<i>-2.7</i>	<i>+1.8</i>	<i>+5.0</i>	<i>+3.6</i>	<i>+7.1</i>

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 9. Real Return: Performance Summary Ending 3/31/2022

	First Quarter	One Year	Three Years	Five Years	Ten years
<b>Total Real Return</b>	<b>6.7%</b>	<b>25.3%</b>	<b>10.7%</b>	<b>10.0%</b>	<b>8.9%</b>
Real Return Benchmark	7.0	20.5	7.8	7.0	7.4
<i>Difference</i>	<i>-0.3</i>	<i>+4.8</i>	<i>+3.0</i>	<i>+2.0</i>	<i>+1.5</i>
<b>Real Estate</b>	<b>7.6</b>	<b>28.0</b>	<b>12.9</b>	<b>12.3</b>	<b>12.1</b>
Real Estate Benchmark	7.7	21.0	8.2	7.7	9.4
<i>Difference</i>	<i>0.0</i>	<i>+7.0</i>	<i>+4.7</i>	<i>+4.6</i>	<i>+2.7</i>
<b>Energy, Natural Resource and Infrastructure</b>	<b>4.1</b>	<b>18.8</b>	<b>5.3</b>	<b>6.2</b>	<b>--</b>
Energy and Natural Res. Benchmark	5.2	19.1	6.3	6.7	--
<i>Difference</i>	<i>-1.1</i>	<i>-0.3</i>	<i>-1.0</i>	<i>-0.5</i>	<i>--</i>
<b>Commodities</b>	<b>13.2</b>	<b>19.8</b>	<b>8.8</b>	<b>1.3</b>	<b>-7.1</b>
Commodities Benchmark	33.1	64.6	13.4	10.0	-3.3
<i>Difference</i>	<i>-19.9</i>	<i>-44.7</i>	<i>-4.6</i>	<i>-8.7</i>	<i>-3.8</i>

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 10. Risk Parity: Performance Summary Ending 3/31/2022

	First Quarter	One Year	Three Years	Five Years	Ten Years
<b>Total Risk Parity</b>	<b>-4.2%</b>	<b>8.8%</b>	<b>7.1%</b>	<b>7.1%</b>	<b>6.1%</b>
Risk Parity Benchmark	-4.9	6.7	8.7	7.9	5.8
<i>Difference</i>	<i>+0.7</i>	<i>+2.1</i>	<i>-1.6</i>	<i>-0.8</i>	<i>+0.3</i>

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

## 11.Cash Equivalents: Performance Summary Ending 3/31/2022

	First Quarter	One Year	Three Years	Five Years	Ten Years
<b>Cash Equivalents</b>	<b>-0.1%</b>	<b>-0.4%</b>	<b>0.8%</b>	<b>1.4%</b>	<b>1.8%</b>
Cash Benchmark	0.0	0.1	0.8	1.1	0.6
<i>Difference</i>	<i>-0.1</i>	<i>-0.4</i>	<i>-0.1</i>	<i>+0.3</i>	<i>+1.2</i>

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

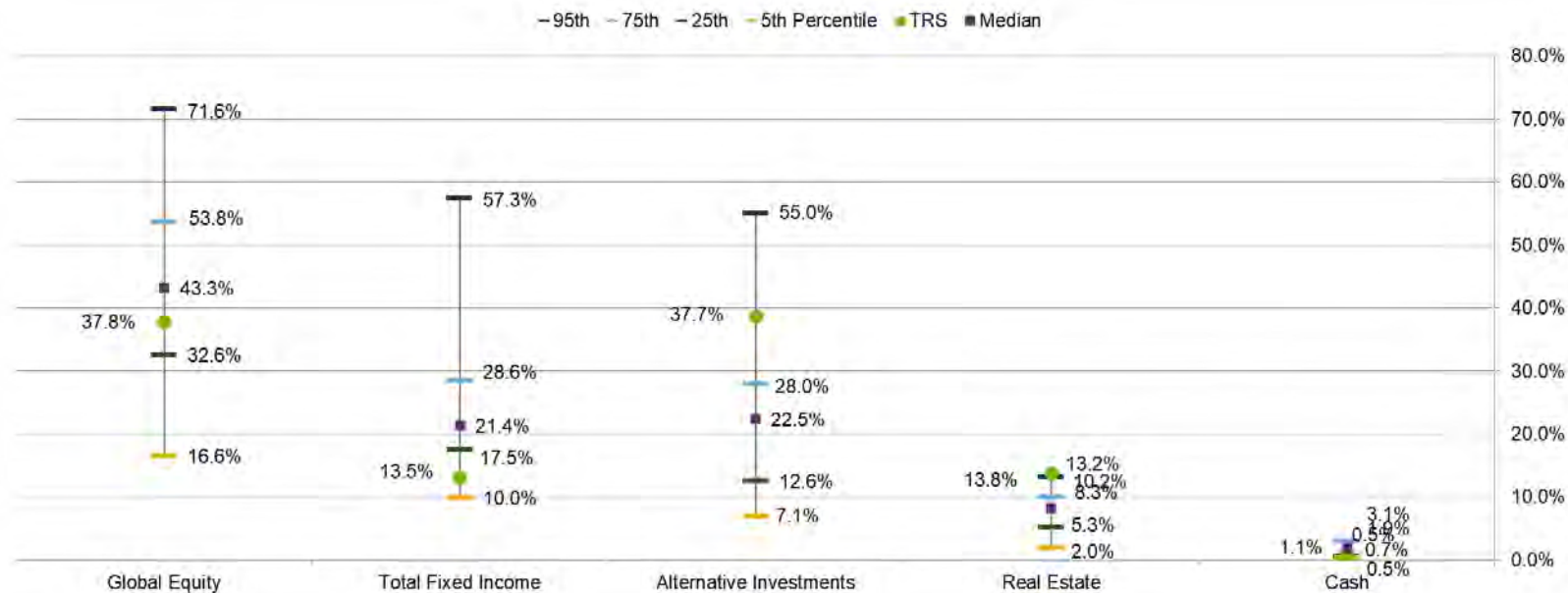




# Appendix – Supplemental Reporting

# TRS Commitment Levels vs. Peers (>\$10 Billion) as of 3/31/2022

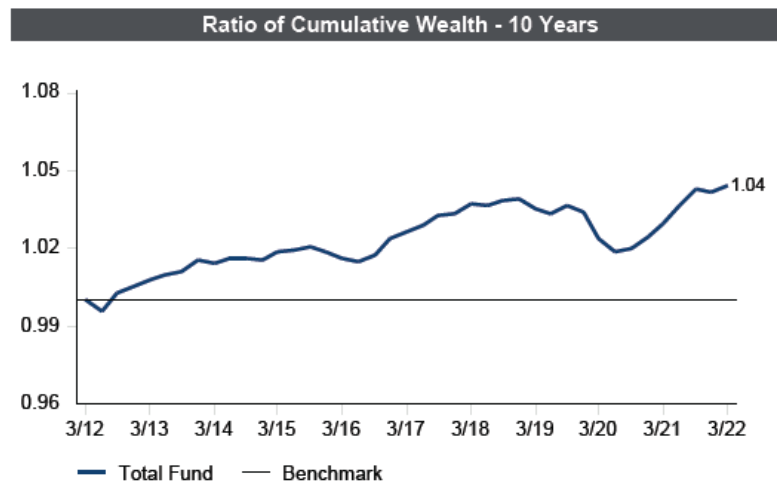
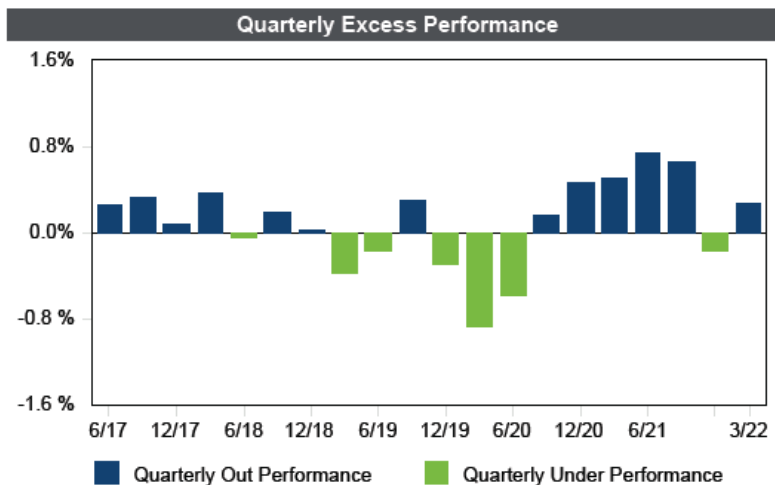
- The chart below depicts the asset allocation of peer public funds with assets greater than \$10 billion.
  - The ends of each line represent the 95<sup>th</sup> and 5<sup>th</sup> percentile of exposures, the middle light blue and grey lines represent the 25<sup>th</sup> and 75<sup>th</sup> percentile of exposures, the purple square represents the median, and the green dot represents TRS exposure.



*Note: The Public Plan peer universe had 21 observations for the fourth quarter 2021. TRS allocations may not sum to 100.0% which is entirely due to the impact of rounding*

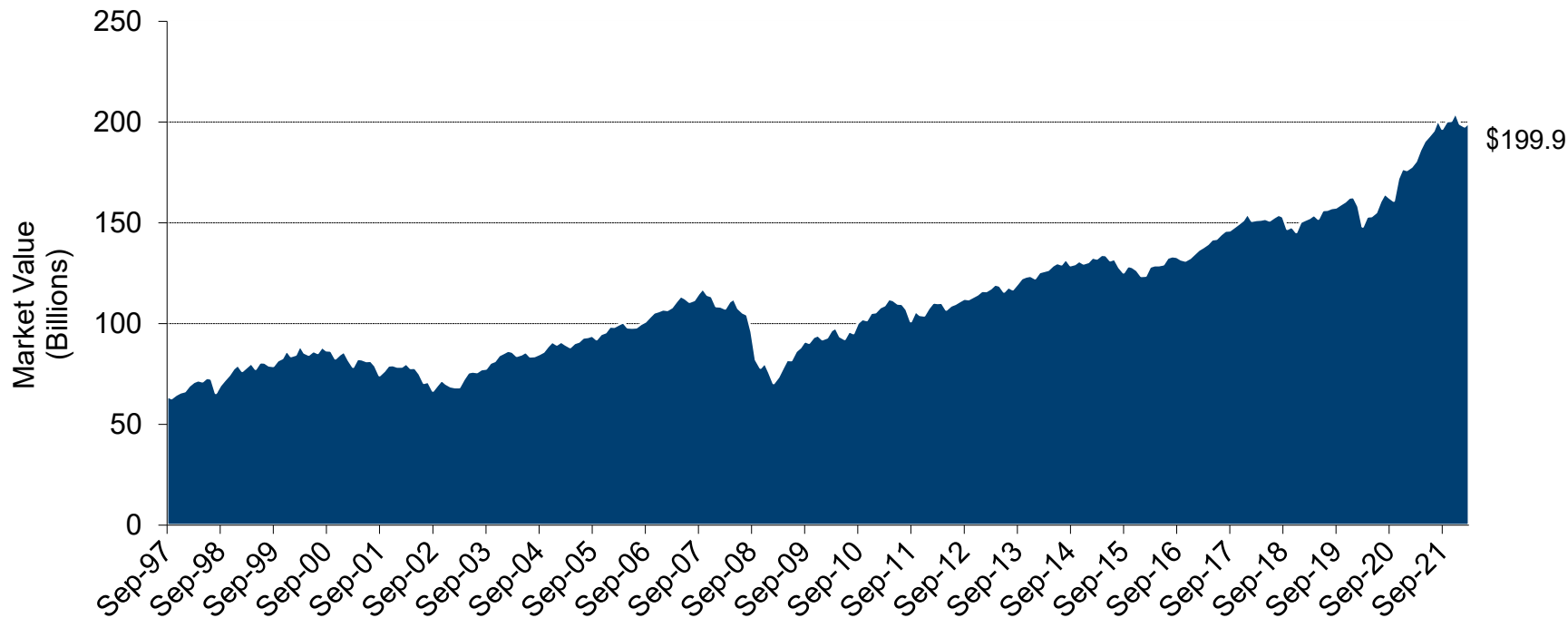
# Historical Excess Performance Ending 3/31/2022

## Quarterly and Cumulative Excess Performance Total Fund vs. Total Fund Benchmark



# TRS Asset Growth

Total Fund Historical Growth (September 1997 - March 2022)



# External Manager Program: Public Equity Performance as of 3/31/2022

	Allocation (\$ in billions)	First Quarter	One Year	Three Years
<b>EP Total Global Equity</b>	<b>\$29.5</b>	<b>-5.0%</b>	<b>5.6%</b>	<b>14.1%</b>
EP Global Equity Benchmark	--	-5.4	4.0	12.5
<i>Difference</i>	--	+0.4	+1.6	+1.6
<b>EP U.S.A.</b>	<b>\$10.4</b>	<b>-2.2</b>	<b>16.1</b>	<b>19.0</b>
EP U.S.A. Benchmark	--	-5.3	12.4	18.5
<i>Difference</i>	--	+3.1	+3.7	+0.5
<b>EP Non-U.S. Developed</b>	<b>\$6.1</b>	<b>-8.3</b>	<b>-3.3</b>	<b>10.2</b>
MSCI EAFE + Canada Policy Index	--	-4.7	3.2	8.6
<i>Difference</i>	--	-3.6	-6.5	+1.6
<b>EP Emerging Markets</b>	<b>\$6.3</b>	<b>-6.4</b>	<b>-7.7</b>	<b>9.2</b>
MSCI Emerging Markets Policy Index	--	-7.0	-11.4	4.9
<i>Difference</i>	--	+0.6	+3.7	+4.3
<b>EP World Equity</b>	<b>\$6.6</b>	<b>-4.6</b>	<b>12.7</b>	<b>16.2</b>
EP World Equity Benchmark	--	-5.3	6.6	14.2
<i>Difference</i>	--	+0.7	+6.1	+2.0

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

# External Manager Program: Stable Value/Total Program Performance as of 3/31/2022

	Allocation (\$ in billions)	First Quarter	One Year	Three Years
<b>EP Total Stable Value</b>	<b>\$10.1</b>	<b>2.0%</b>	<b>9.8%</b>	<b>7.9%</b>
EP Stable Value Benchmark	--	0.1	4.0	5.7
<i>Difference</i>	--	+1.9	+5.8	+2.2
<b>EP Stable Value Hedge Funds</b>	<b>\$10.1</b>	<b>2.0</b>	<b>9.8</b>	<b>7.9</b>
EP Stable Value Hedge Funds Benchmark	--	0.1	4.0	5.7
<i>Difference</i>	--	+1.9	+5.8	+2.2
<b>Total External Public Program</b>	<b>\$47.3</b>	<b>-3.8</b>	<b>5.8</b>	<b>11.9</b>
EP External Public Benchmark	--	-4.5	3.8	10.3
<i>Difference</i>	--	+0.7	+2.0	+1.6

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

# Public Strategic Partnership Program (SPN): Performance Summary as of 3/31/2022

The Public SPNs in aggregate outperformed the benchmark during the first quarter, as well as over the trailing three-, and five-year trailing periods.

	Allocation (\$ in billions)	First Quarter	One Year	Three Years	Five Years
<b>Public Strategic Partnership</b>	<b>\$7.8</b>	<b>-6.7%</b>	<b>1.8%</b>	<b>10.9%</b>	<b>9.7%</b>
Public SPN Benchmark	--	-6.9%	2.4%	9.9%	8.9%
<i>Difference</i>	--	+0.2	-0.6	+1.0	+0.8
<b>Blackrock</b>	<b>\$2.6</b>	<b>-6.7%</b>	<b>2.8%</b>	<b>10.7%</b>	--
<b>J.P. Morgan</b>	<b>\$2.7</b>	<b>-7.7%</b>	<b>1.5%</b>	<b>11.6%</b>	--
<b>Morgan Stanley</b>	<b>\$2.4</b>	<b>-5.5%</b>	<b>1.2%</b>	<b>10.0%</b>	--

*Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

# Benchmarks

---

- Total Fund Performance Benchmark – 18.1% MSCI U.S.A. IMI, 13.1% MSCI EAFE plus Canada Index, 9.0% MSCI Emerging Markets Index, 16.8% State Street Private Equity Index (1 quarter lagged), 16.1% Blmb. Barc. Long Term Treasury Index, 5.0% HFRI FoF Conservative Index, 2.0% Citigroup 3 Mo. T-Bill Index, 13.0% NCREIF ODCE Index (1 quarter lagged), 5.0% Energy and Natural Resources Benchmark, 8.0% Risk Parity Benchmark, and -6.0% Asset Allocation Leverage Benchmark.
- Global Equity Benchmark – 31.7% MSCI U.S.A. IMI, 22.9% MSCI EAFE plus Canada Index, 15.9% MSCI Emerging Markets Index, and 29.5% State Street Private Equity Index (1 quarter lagged)
  - TF U.S. Equity Benchmark - MSCI U.S.A. Investable Markets Index (IMI)
  - Emerging Markets Equity Benchmark – MSCI Emerging Markets Index
  - Non-US Developed Equity Benchmark– MSCI EAFE + Canada Index
  - Private Equity Benchmark - State Street Private Equity Index (1 quarter lagged)

*Note: Returns and market values (based on account level) reported are provided by State Street. Net additions/withdrawals are reported on a gross (adjusted for expenses) total fund level as provided by State Street. All rates of return for time periods greater than one year are annualized. The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*



## Benchmarks (cont'd)

---

- Stable Value Benchmark – 76.2% Blmb. Barc. Long Term Treasury Index and 23.8% HFRI FoF Conservative Index
  - US Treasuries Benchmark – Bloomberg Barclays Long Term Treasury Index
  - Stable Value Hedge Funds – HFRI Fund of Funds (FoF) Conservative Index
  - Absolute Return Benchmark - SOFR + 4%
  
- Real Return Benchmark – 72.1% NCREIF ODCE Index and 27.9% Energy & Natural Resources Benchmark
  - Real Estate Benchmark – NCREIF ODCE Index (1 quarter lagged)
  - Energy and Natural Resources Benchmark – 75% Cambridge Associates Natural Resources Index (reweighted) and 25% quarterly Seasonally-Adjusted Consumer Price Index (1 quarter lagged)
  - Commodities Benchmark – Goldman Sachs Commodity Index
  
- Risk Parity Benchmark – 100% HFR Risk Parity Vol 12 Institutional Index

*Note: Returns and market values (based on account level) reported are provided by State Street. Net additions/withdrawals are reported on a gross (adjusted for expenses) total fund level as provided by State Street. All rates of return for time periods greater than one year are annualized. The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.*

# Description of Performance Attribution

- A measure of the source of the deviation of a fund's performance from that of its policy benchmark. Each bar on the attribution graph represents the contribution made by the asset class to the total difference in performance. A positive value for a component indicates a positive contribution to the aggregate relative performance. A negative value indicates a detrimental impact. The magnitude of each component's contribution is a function of (1) the performance of the component relative to its benchmark, and (2) the weight (beginning of period) of the component in the aggregate.
- The individual Asset Class effect, also called **Selection Effect**, is calculated as  
$$\text{Actual Weight of Asset Class} \times (\text{Actual Asset Class Return} - \text{Asset Class Benchmark Return})$$
- The bar labeled **Allocation Effect** illustrates the effect that a Total Fund's asset allocation has on its relative performance.  
$$\text{Allocation Effect calculation} = (\text{Asset Class Benchmark Return} - \text{Total Benchmark Return}) \times (\text{Actual Weight of Asset Class} - \text{Target Policy Weight of Asset Class})$$
- The bar labeled **Other** is a combination of Cash Flow Effect and Benchmark Effect:
  - **Cash Flow Effect** describes the impact of asset movements on the Total Fund results. 
$$\text{Cash Flow Effect calculation} = (\text{Total Fund Actual Return} - \text{Total Fund Policy Return}) - \text{Current Selection Effect} - \text{Current Allocation Effect}$$
  - **Benchmark Effect** results from the weighted average return of the asset classes' benchmarks being different from the Total Funds' policy benchmark return. 
$$\text{Benchmark Effect calculation} = \text{Total Fund Policy Return} - (\text{Asset Class Benchmark Return} \times \text{Target Policy Weight of Asset Class})$$
- **Cumulative Effect**  
$$\text{Cumulative Effect calculation} = \text{Current Effect } t \times (1 + \text{Cumulative Total Fund Actual Return } t-1) + \text{Cumulative Effect } t-1 \times (1 + \text{Total Fund Benchmark Return } t)$$



# Disclaimers and Notes

# Disclaimers and Notes

---

## Disclaimers:

- Please review this report and notify Aon Investments USA Inc. (Aon) with any issues or questions you may have with respect to investment performance or any other matter set forth herein.
- The client portfolio data presented in this report have been obtained from the custodian. Aon has compared this information to the investment managers' reported returns and believes the information to be accurate. Aon has not conducted additional audits and cannot warrant its accuracy or completeness. This document is not intended to provide, and shall not be relied upon for, accounting and legal or tax advice.
- Refer to Hedge Fund Research, Inc. [www.hedgefundresearch.com](http://www.hedgefundresearch.com) for more information on HFR indices

## Notes:

- The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time weighted. Returns for periods longer than one year are annualized.
- Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.
- Due to rounding throughout the report, percentage totals displayed may not sum up to 100.0%. Additionally, individual fund totals in dollar terms may not sum up to the plan totals.

## Legal Disclosures and Disclaimers

---

Investment advice and consulting services provided by Aon Investments USA Inc. The information contained herein is given as of the date hereof and does not purport to give information as of any other date. The delivery at any time shall not, under any circumstances, create any implication that there has been a change in the information set forth herein since the date hereof or any obligation to update or provide amendments hereto.

This document is not intended to provide, and shall not be relied upon for, accounting, legal or tax advice. Any accounting, legal, or taxation position described in this presentation is a general statement and shall only be used as a guide. It does not constitute accounting, legal, and tax advice and is based on Aon Investments' understanding of current laws and interpretation.

Aon Investments disclaims any legal liability to any person or organization for loss or damage caused by or resulting from any reliance placed on that content. Aon Investments reserves all rights to the content of this document. No part of this document may be reproduced, stored, or transmitted by any means without the express written consent of Aon Investments.

Aon Investments USA Inc. is a federally registered investment advisor with the U.S. Securities and Exchange Commission. Aon Investments is also registered with the Commodity Futures Trading Commission as a commodity pool operator and a commodity trading advisor, and is a member of the National Futures Association. The Aon Investments ADV Form Part 2A disclosure statement is available upon written request to:

Aon Investments USA Inc.  
200 E. Randolph Street  
Suite 700  
Chicago, IL 60601  
ATTN: Aon Investments Compliance Officer

© Aon plc 2020. All rights reserved.



# Private Markets

Eric Lang, Senior Managing Director

Kimberly Carey, Director - TRICOT

July 2022



# Overview

---

- Philosophy
- Private Markets Role in the Trust
- Performance
- Building the Fleet Status
- TRICOT Update
- Accomplishments and Priorities



# Private Markets Philosophy

---

## Culture and Team

- Demonstrating the TRS IMD culture through collaboration, openness, candor and meritocracy of ideas
- Hire and retain great investors for internal capabilities and work across the Trust

## World Class Investors through Partnership

- Being the partner of choice for our managers using speed, consistency, predictability, and our people

## Transparency

- Using improved transparency through reporting and communication both internally and externally

## Innovate

- Utilizing unique partnership and investment structures
- Focus on technology and data
- Always evolving

## Value Driven

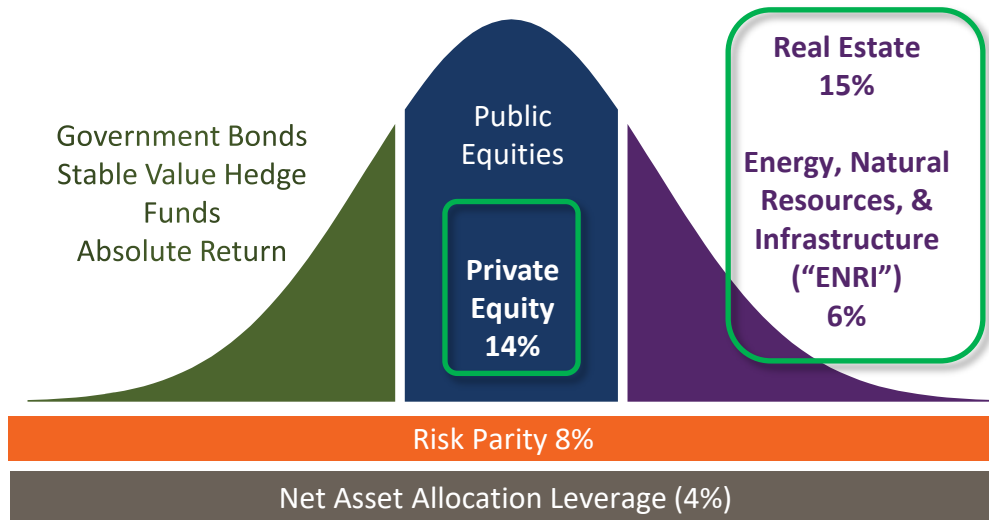
- Finding value where others are not looking

## Industry Leadership

- Maintaining industry leadership roles across all private assets
- Growing TRS Private Markets alumni network

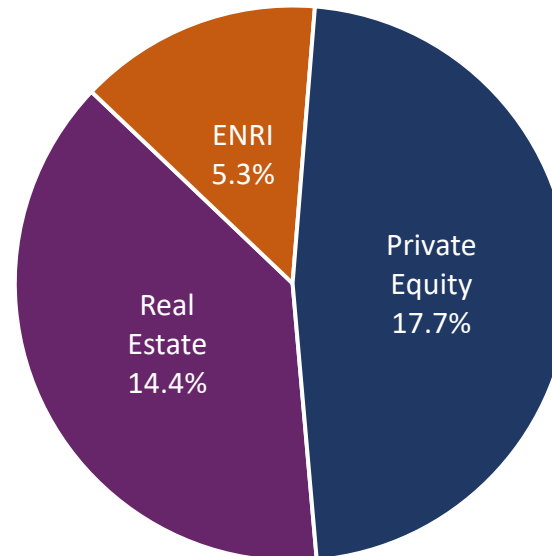
# Private Markets Role in the Trust

## Role in the Trust



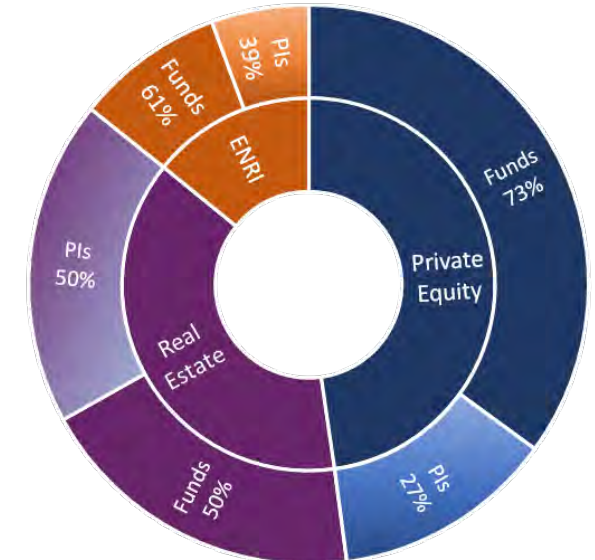
## Private Markets

(% of Trust)



## Portfolio and Type

Funds vs Principal Investments ("PI")



# Private Markets Role in the Trust

## Executive Summary (\$M)

PORTFOLIO PERFORMANCE											
Portfolio	Market Value	% of Trust	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR	SAA Median Return	PL Invested Managers
ENRI	\$10,661	5.3%	18.8%	5.3%	6.2%	18.5%	5.7%	6.2%	6.3%	7.3%	26
Private Equity	\$35,934	17.7%	37.9%	24.4%	19.8%	36.4%	24.0%	19.7%	14.9%	8.4%	43
Real Estate	\$28,563	14.4%	28.0%	12.9%	12.3%	27.5%	12.8%	12.2%	9.9%	8.5%	47
<b>Total</b>	<b>\$75,159</b>	<b>37.3%</b>	<b>31.3%</b>	<b>16.8%</b>	<b>14.7%</b>	<b>30.3%</b>	<b>16.7%</b>	<b>14.7%</b>	<b>12.1%</b>	<b>8.3%</b>	<b>86</b>

PRINCIPAL INVESTMENTS ("PI") PERFORMANCE										
Portfolio	Market Value	% of Portfolio	No. (active)	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR
ENRI	\$4,211	39.5%	36	17.9%	3.7%	5.5%	17.2%	4.3%	5.0%	8.3%
Private Equity	\$9,628	26.8%	73	37.9%	21.5%	19.6%	38.1%	21.4%	19.8%	18.9%
Real Estate	\$14,145	49.5%	107	30.9%	15.0%	14.4%	30.0%	14.7%	14.2%	15.7%
<b>Total</b>	<b>\$27,984</b>	<b>37.2%</b>	<b>216</b>	<b>30.8%</b>	<b>15.3%</b>	<b>14.9%</b>	<b>30.7%</b>	<b>15.1%</b>	<b>14.5%</b>	<b>15.7%</b>

2021 APPROVAL ACTIVITY NUMBER OF INVESTMENTS			
Portfolio	Funds	PIs	Total
ENRI	4	42	46
Private Equity	20	67	87
Real Estate	8	135	144
<b>Total</b>	<b>33</b>	<b>244</b>	<b>277</b>

2021 APPROVAL ACTIVITY DOLLAR VALUE OF INVESTMENTS			
Portfolio	Funds	PIs	Total
ENRI	\$425	\$996	\$1,422
Private Equity	\$2,311	\$1,194	\$3,505
Real Estate	\$1,261	\$3,198	\$4,459
<b>Total</b>	<b>\$3,997</b>	<b>\$5,389</b>	<b>\$9,386</b>

2021 CASH FLOWS					
Portfolio	Net Capital Called	Capital Distributions	Income Distributions	Total Distribution	Net Cash Flows
ENRI	\$2,053	\$1,582	\$261	\$1,843	(\$210)
Private Equity	\$5,099	\$8,764	\$616	\$9,380	\$4,281
Real Estate	\$5,061	\$5,702	\$660	\$6,362	\$1,301
<b>Total</b>	<b>\$12,213</b>	<b>\$16,048</b>	<b>\$1,537</b>	<b>\$17,585</b>	<b>\$5,372</b>

Source: State Street based on 12/31/21 valuations for IRR calculation and 3/31/22 cash adjusted valuations for TWR calculation; Percentage of Trust is as of 3/31/22; Activity based on TRS IMD data

Note: ENRI TWR reflects ENR performance from 10/01/13 through 9/30/2016 and ENRI (ENR plus Infrastructure) from 10/01/16 through 3/31/22

Note: ENRI IRR reflects performance from fund investments initially transferred to ENRI portfolio (inception date: 10/28/04)

Note: Approval activity does not include Emerging Managers

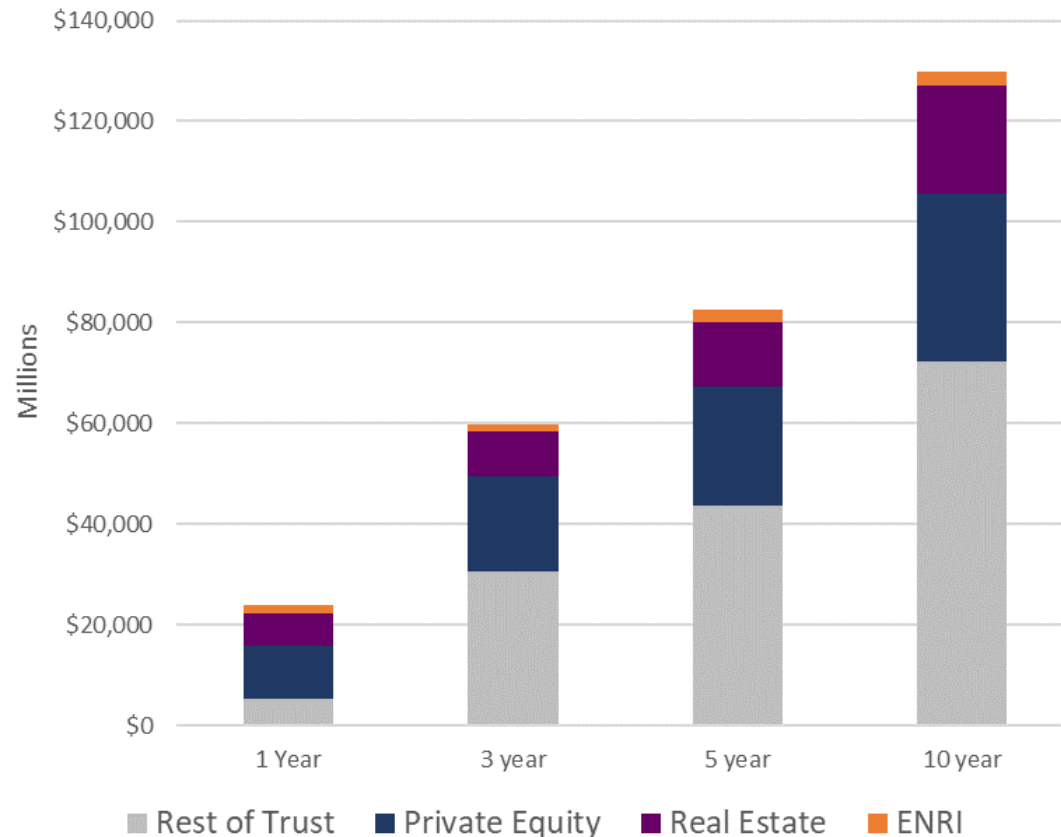
# Private Markets Role in the Trust

## Portfolio Detail Returns

PORTFOLIO	MEASURE	1-YEAR RETURN	3-YEAR RETURN	5-YEAR RETURN	COMMENTS
ENRI	IRR	18.5%	5.7%	6.2%	• Excellent 1-year returns
	TWR	<b>18.8%</b>	<b>5.3%</b>	<b>6.2%</b>	• Energy overweight is working
	Benchmark	19.1%	6.3%	6.7%	• Slightly lagging benchmark due to valuation timing of some
	Excess Return	<b>(0.3%)</b>	<b>(1.0%)</b>	<b>(0.5%)</b>	large energy related investments
Private Equity	IRR	36.4%	24.0%	19.7%	• Excellent returns over all time periods
	TWR	<b>37.9%</b>	<b>24.4%</b>	<b>19.8%</b>	• Significant contributor to Trust level returns
	Benchmark	38.0%	25.3%	20.2%	• Slightly lagging benchmark due to venture underweight
	Excess Return	<b>(0.1%)</b>	<b>(0.9%)</b>	<b>(0.3%)</b>	and legacy partnerships
	TUCS Peer (Percentile)	<b>11th</b>	<b>10th</b>	<b>14th</b>	
Real Estate	IRR	27.5%	12.8%	12.2%	• Excellent 1-year returns
	TWR	<b>28.0%</b>	<b>12.9%</b>	<b>12.3%</b>	• Consistent long-term returns
	Benchmark	21.0%	8.2%	7.7%	• Portfolio is positioned well during Covid
	Excess Return	<b>7.0%</b>	<b>4.7%</b>	<b>4.6%</b>	• Significant alpha generator to the Trust
	TUCS Peer (Percentile)	<b>19th</b>	<b>18th</b>	<b>12th</b>	

# Private Markets Performance

## Dollar Value Add to Trust



## 2022 Performance – Early Preview

- First quarter 2022 returns are looking healthy
- Real Estate and ENRI are having excellent returns and doing their part in the inflationary environment
- Private Equity outperforming Public Equity

## Preview of 1Q 2022 Performance

Portfolio	Q1 2021 IRR	1-Year IRR	% of NAV Reported
ENRI	8.3%	21.4%	89.0%
Private Equity	-1.4%	20.0%	90.9%
Real Estate	5.1%	29.6%	95.5%
<b>Total</b>	<b>2.4%</b>	<b>23.8%</b>	<b>92.4%</b>

# Building the Fleet

## People



### ➤ Hiring:

- Cumulative fleet hires of 28
- 8 hired 2021
- 3 hired in YTD 2022



### ➤ Attrition

- 21 team members have left since 2021
- 12 in 2021
- 9 left YTD 2022

## Savings



### ➤ Achieving Build the Fleet savings through Principal Investments

- 52% of executed investments in 2021 were Principal Investments
- Private markets excess return of 209 bps for 1 year through Q1-2022
- Estimated cumulative gross fee savings of \$180 million through 2021

## Relationships



### ➤ TRS London Office

- Established a local permanent employment presence
- Increased relationship management to include fund investments

### ➤ Strategic Partnerships have been modified



# TRICOT

## TRICOT 2.0 Update

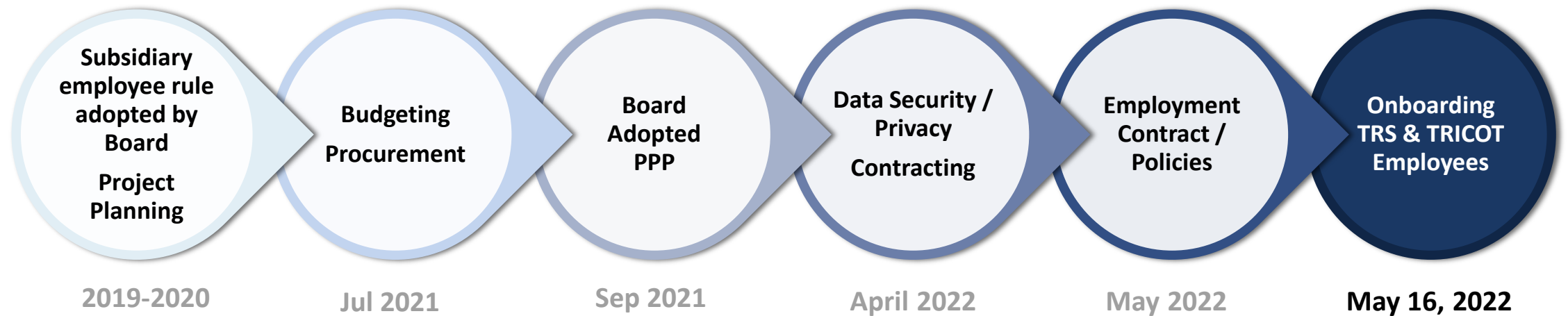
- TRICOT 2.0 is a 5-year business plan initiated in 2020 to further develop TRICOT and establish a more permanent presence in London at a lower cost to the Trust



# TRICOT

## Local Hiring Update

- Multi-year effort to allow TRICOT to hire locally at a lower cost to the Trust
- This project involved cross collaboration across the entirety of TRS, teams including IMD, L&C, Finance, OE, Business Administration, and Information Security



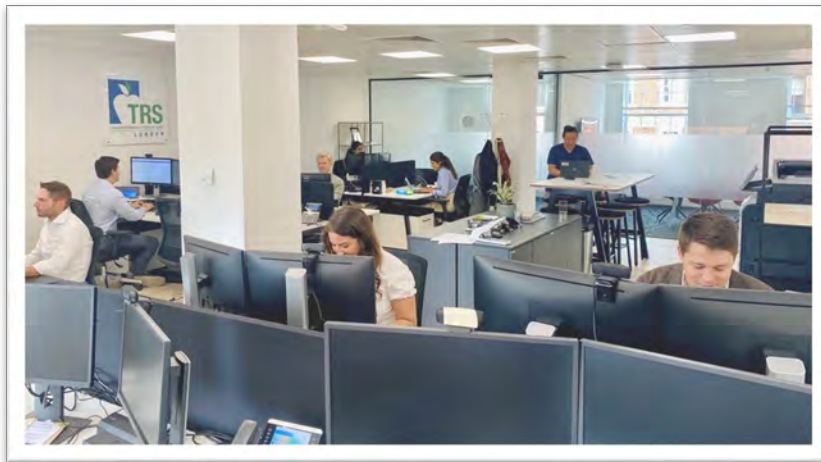


# TRICOT

## Last Twelve Months Update

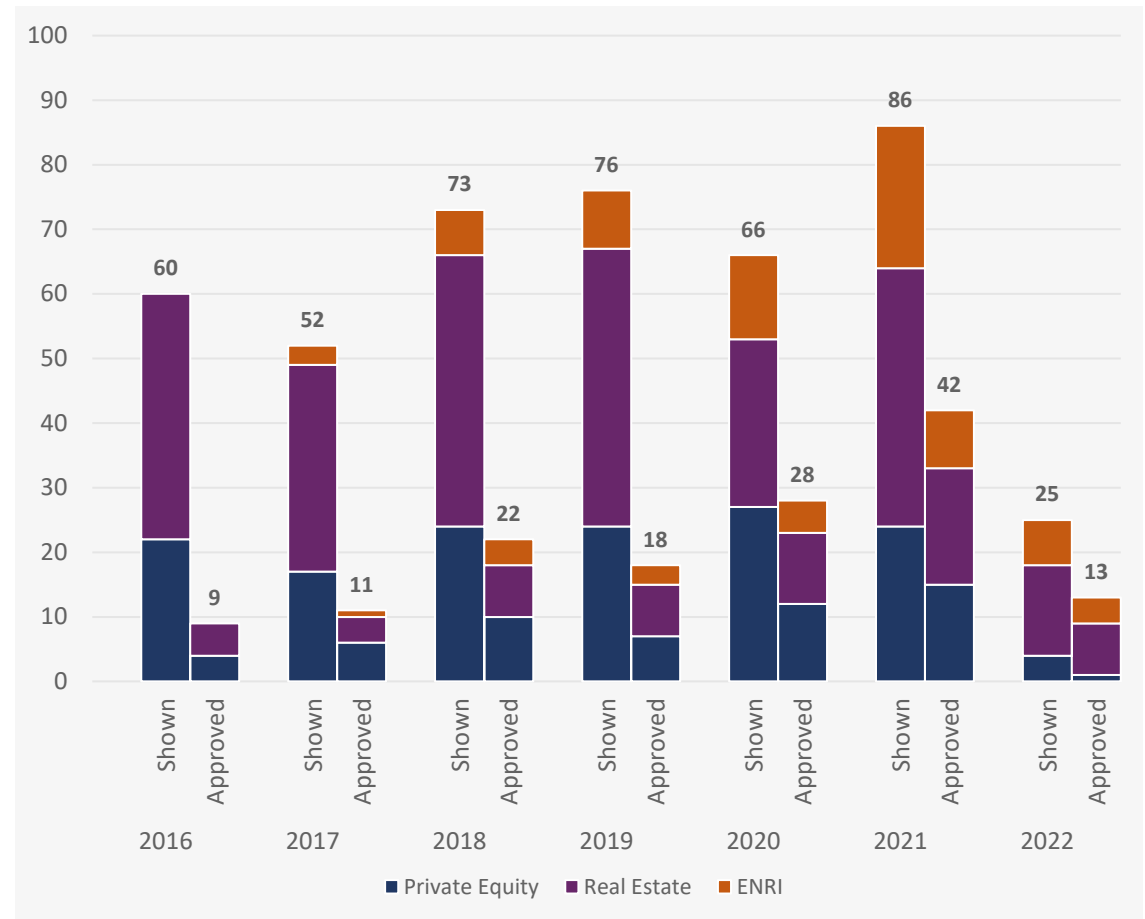
### Overview

- TRICOT continues to **strengthen local presence, relationships, and expertise** in Europe – resulting in attractive deal flow and increasingly-sophisticated underwriting
- TRICOT saw an increase in deal flow in 2021 and has exceeded pre-covid levels primarily driven by the local ENRI presence. TRICOT recommended 42 deals in 2021, representing \$679 million of capital across Private Markets
- The TRICOT **team continues to grow**, now totaling 10 people
  - TRS seconded three Austin employees to TRICOT in 2021
  - Three secondees from AEW and Blackrock work in the TRICOT office



Source: TRS IMD

### Historical Deal Summary



# Summary: Accomplishments & Priorities

## 2021 ACCOMPLISHMENTS

- Successfully managed through COVID
  - Generated over 30% 1-Year IRR for Private Markets
- Modified the SPN to better suit TRS for the next decade
- Continued to Build the Fleet
- Over 50% approved in Principal Investments
  - Estimated \$66 million in management fee savings for 2021

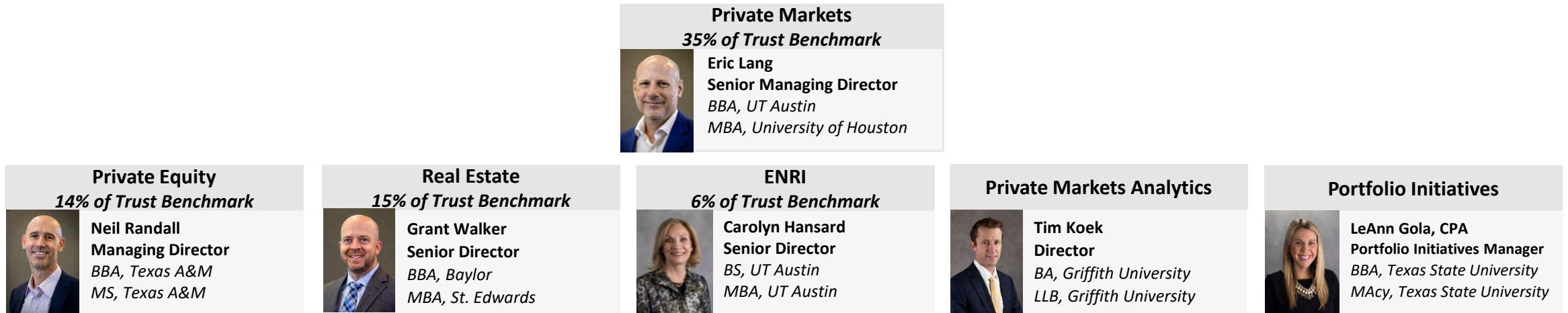
## 2022 PRIORITIES

- TRICOT 2.0
  - Local hiring
- Training and Development Framework
- Digital Assets Investment Plan
- Continue Data Analytics Integration
- Team Stabilization
  - Attrition is extraordinarily high

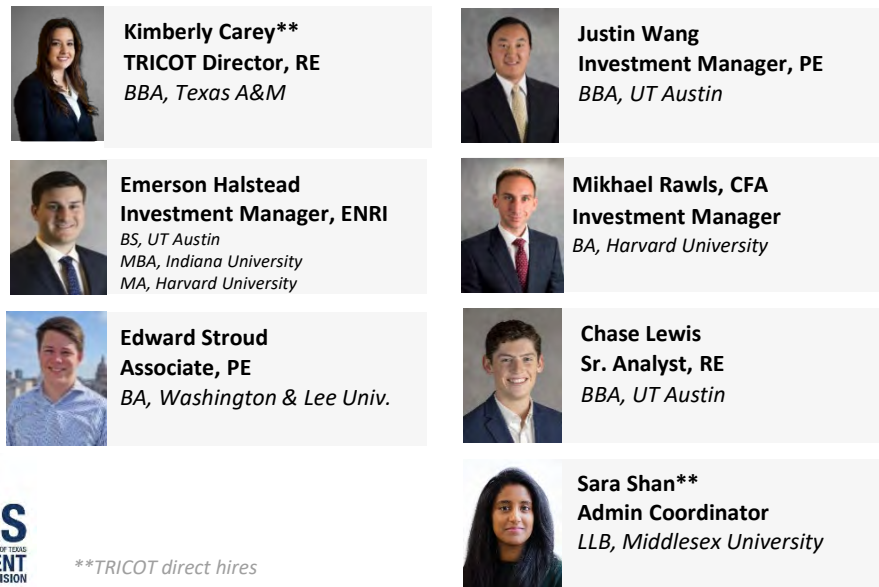
# APPENDIX

# Private Markets Overview

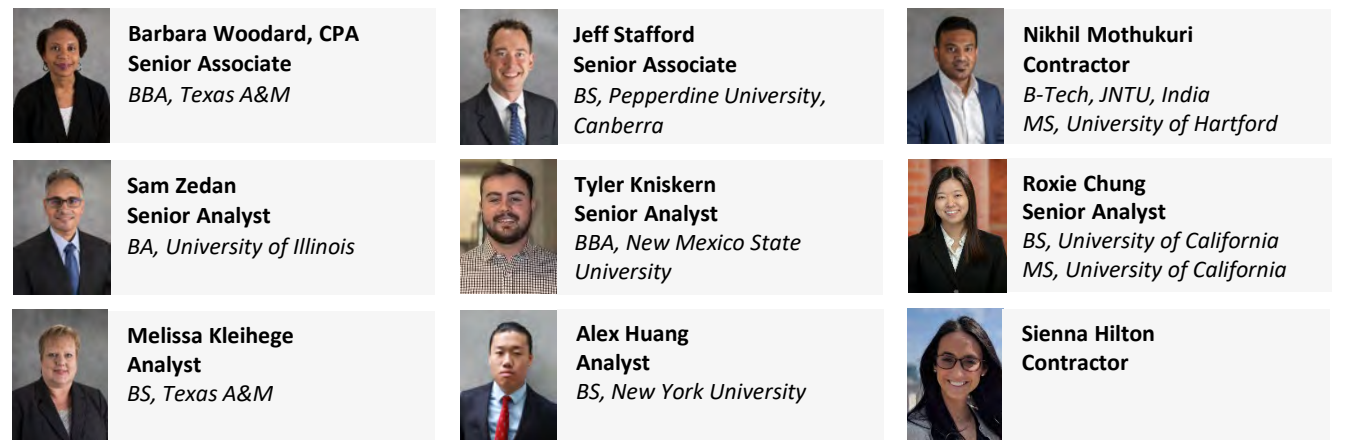
## Organizational Structure



### TRICOT – TRS LONDON



### PRIVATE MARKETS ANALYTICS AND SUPPORT



---

This slide was intentionally left blank.

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.





# Energy, Natural Resources, and Infrastructure

Carolyn Hansard, Senior Director

July 2022



# Overview

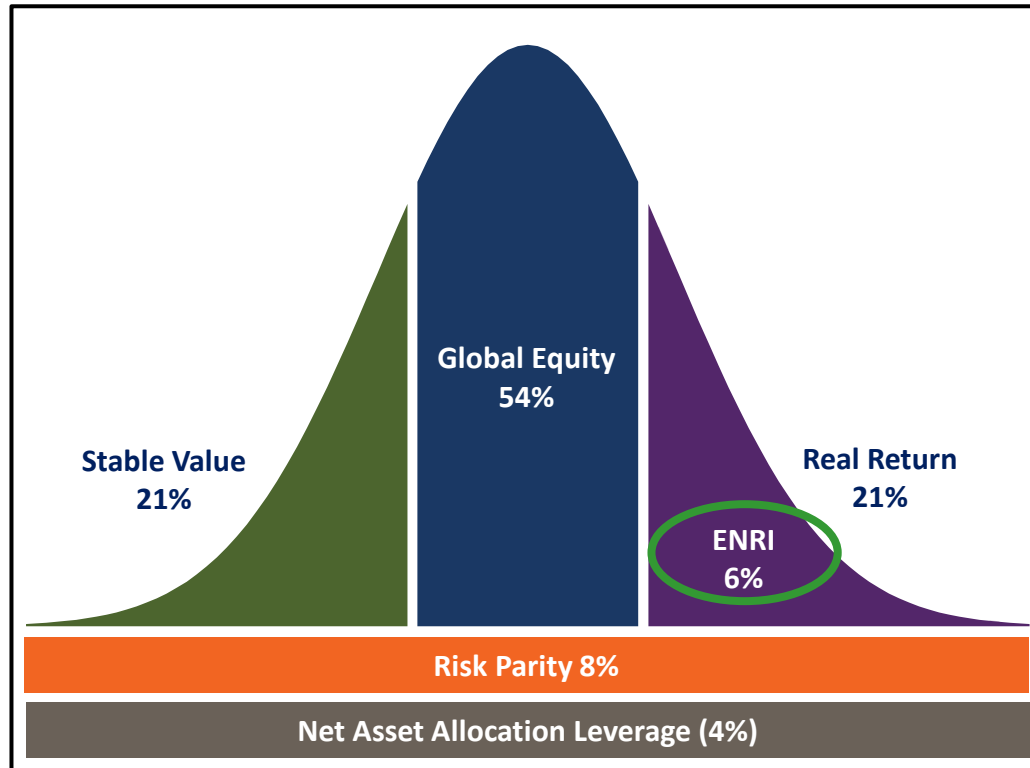
---

- ENRI in the Trust
- 2021 Performance
- Capital Plan
- Spotlight - Energy Markets
- Accomplishments and Priorities

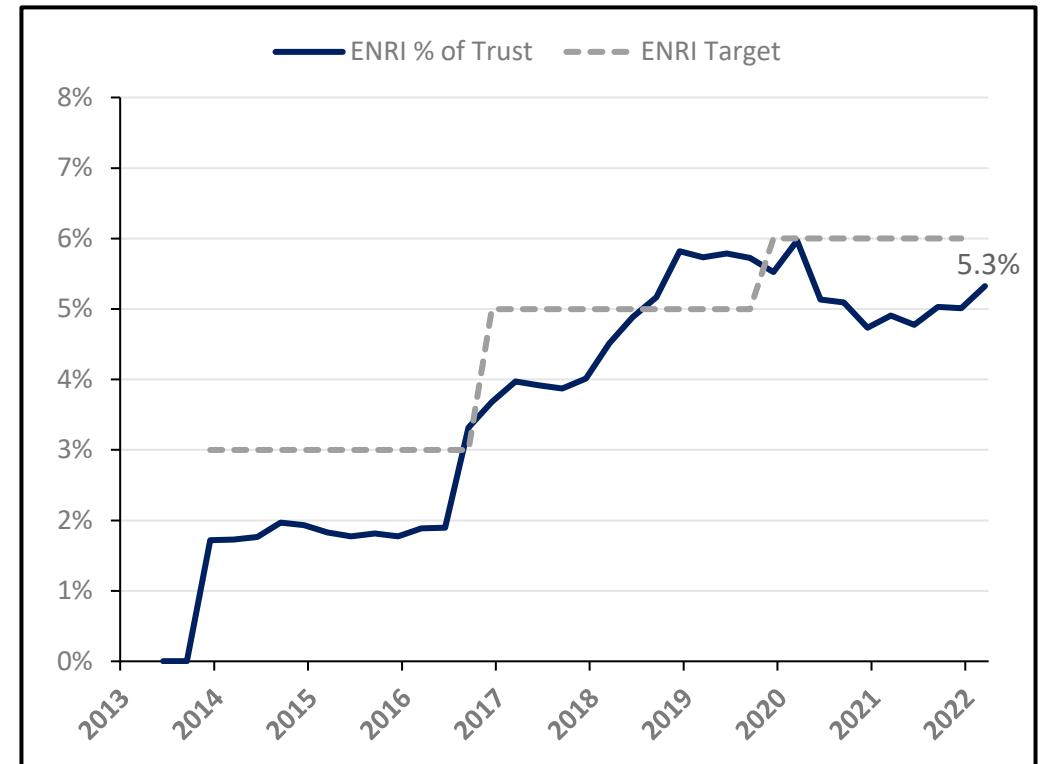
# Role in the Trust

## Energy, Natural Resources & Infrastructure (ENRI)

### ENRI TARGET % OF TRUST



### HISTORICAL TRUST ALLOCATION



# Performance Summary

(\$M)

PORTFOLIO PERFORMANCE			
Asset Class	1-Year Return	3-Year Return	5-Year Return
ENRI IRR	18.5%	5.7%	6.2%
ENRI TWR	18.8%	5.3%	6.2%
ENRI Benchmark	19.1%	6.3%	6.7%
<b>ENRI Excess Return</b>	<b>(0.3%)</b>	<b>(1.0%)</b>	<b>(0.5%)</b>

PORTFOLIO GROWTH			
ENRI	1-Year	3-Year	5-Year
Ending Value	\$10,661	\$10,661	\$10,661
<i>less</i> Starting Value	8,802	8,465	5,287
<i>less</i> Contributions	2,053	5,005	9,317
<i>plus</i> Distributions	1,843	4,398	6,421
<b>Investment Return</b>	<b>\$1,650</b>	<b>\$1,589</b>	<b>\$2,479</b>

FUND AND PRINCIPAL INVESTMENTS PERFORMANCE										
Portfolio	Market Value	% of Portfolio	No. (active)	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR
Funds	\$6,450	60.5%	73	19.4%	6.3%	6.6%	19.4%	6.6%	6.8%	5.5%
Principal Investments	4,211	39.5%	36	17.9%	3.7%	5.5%	17.2%	4.3%	5.0%	8.3%
Total	\$10,661	100%	109	18.8%	5.3%	6.2%	18.5%	5.7%	6.2%	6.3%

PORTFOLIO STRATEGY SUMMARY BY RISK							
Strategy	Target Portfolio Weight	% of Portfolio			Investment Returns		
		<u>12/31/2021</u>	<u>12/31/2018</u>	<u>Change</u>	<u>1-Year IRR</u>	<u>3-Year IRR</u>	<u>SI IRR</u>
Core	10-20%	4.7%	0.3%	4.4%	20.0%	7.2%	5.6%
Value-Add	50-70%	61.0%	57.8%	3.2%	13.2%	8.1%	7.5%
Opportunistic	20-30%	34.3%	41.9%	(7.6%)	28.5%	2.0%	3.9%
ENRI TOTAL	100%	100.0%	100.0%	0.0%	18.5%	5.7%	6.2%

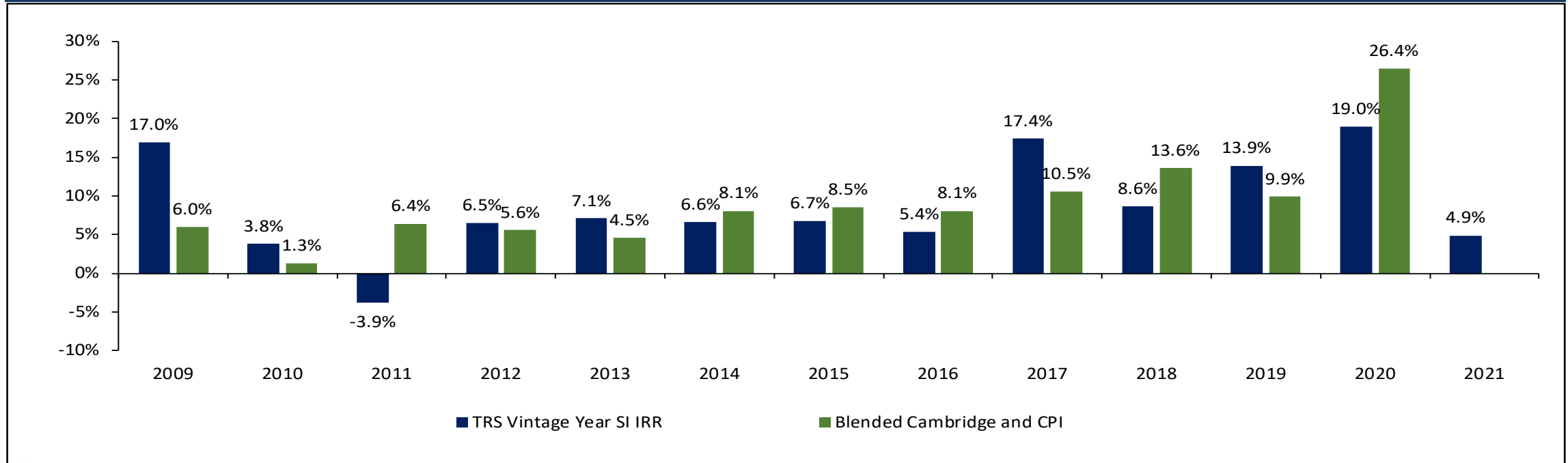
PORTFOLIO SECTOR SUMMARY BY SECTOR							
Sector	Target Portfolio Weight	% of Portfolio			Investment Returns		
		<u>12/31/2021</u>	<u>12/31/2018</u>	<u>Change</u>	<u>1-Year IRR</u>	<u>3-Year IRR</u>	<u>SI IRR</u>
Infrastructure	N/A	52.2%	41.6%	10.5%	13.6%	11.7%	11.4%
Energy Diversified	N/A	41.5%	52.1%	(10.6%)	26.0%	0.1%	0.7%
Natural Resources	N/A	6.4%	6.3%	0.1%	9.7%	7.9%	12.8%
ENRI TOTAL	N/A	100.0%	100.0%	0.0%	18.5%	5.7%	6.2%

# Performance Summary

## TRS Vintage Year Comparison

- ENRI outperformed the blended Cambridge and CPI returns six out of the last 12 years through 2020
- ENRI's performance against the index has been volatile due to the energy exposure
  - ENRI's outperformance has totaled 460 bp on average
  - ENRI's underperformance has totaled 480 bp on average

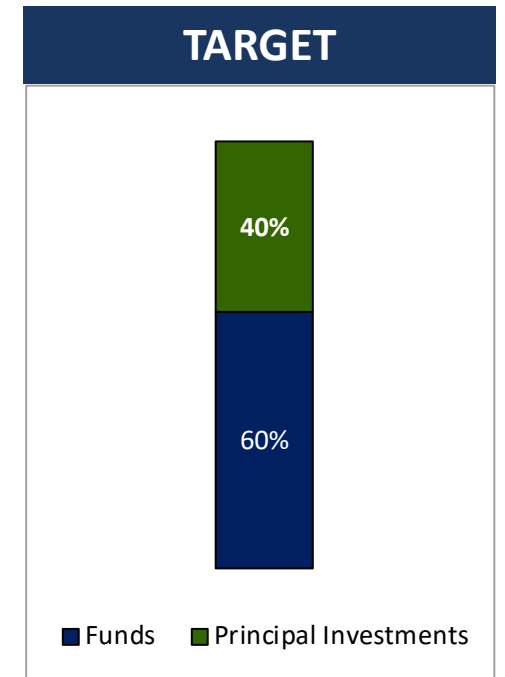
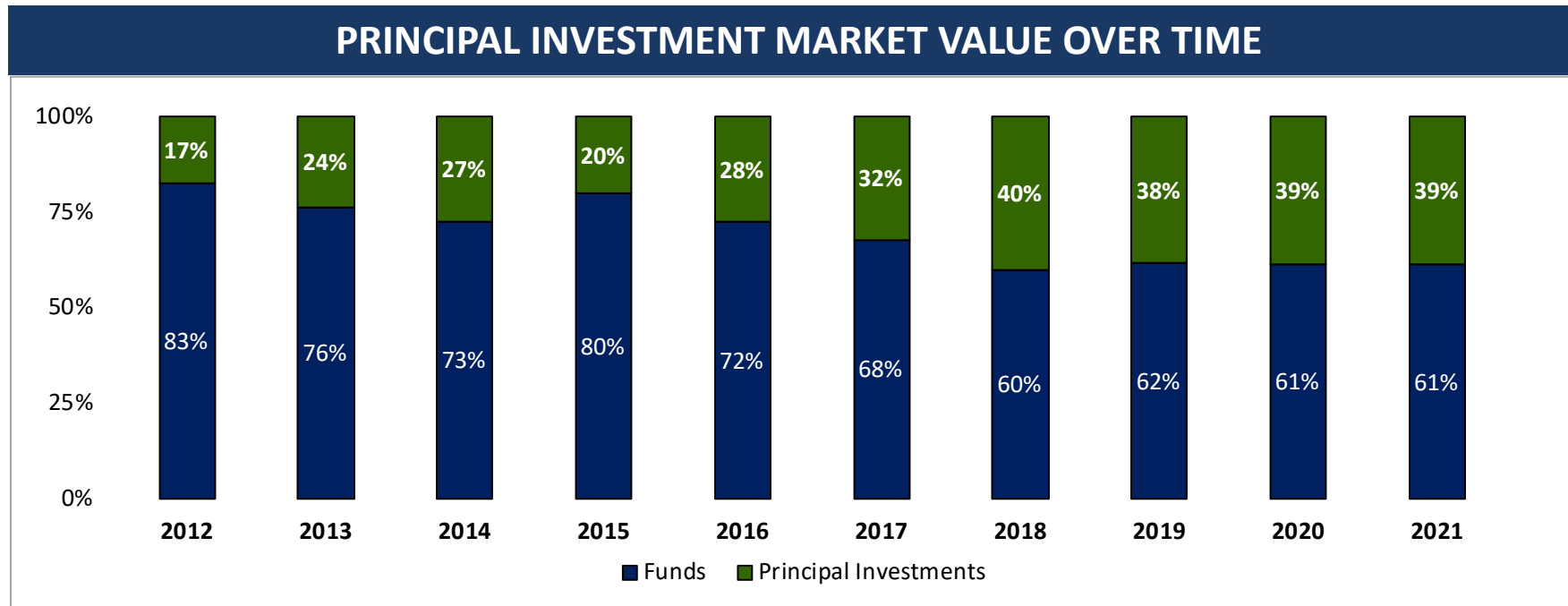
### ENRI PORTFOLIO VINTAGE YEAR COMPARISON



# Performance Summary

## ENRI Principal Investments Program

- ENRI continues to focus on Principal Investments with increased transaction volumes through innovative structures
- ENRI has maintained its target allocation of 60% Funds and 40% Principal Investments



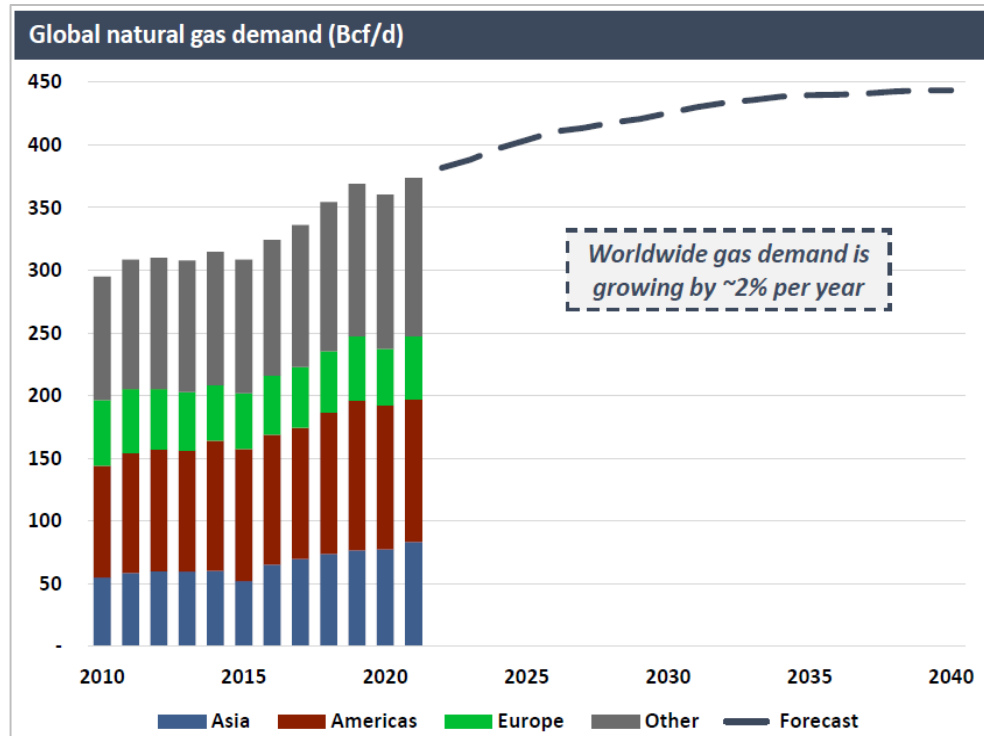
---

This slide was intentionally left blank.

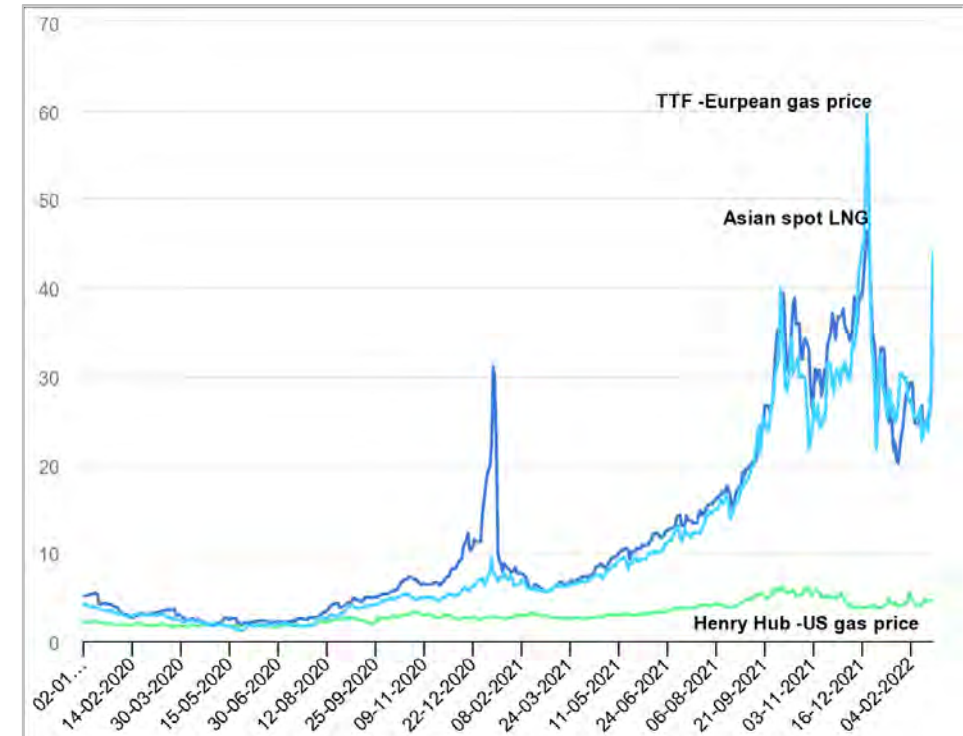
# Spotlight - Natural Gas Markets

## Global Markets

Global Demand for Gas has increased with growth in electricity needs and as a transitional fuel



Growth in Natural Gas demand coupled with low storage stocks led to record-high spot prices



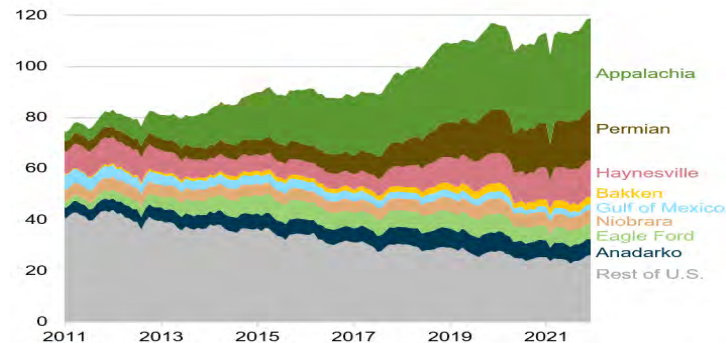


# Spotlight - Natural Gas Markets

## US Gas Markets

### Gas production in the US has grown largely in 3 basins

U.S. average monthly gross gas withdrawals (2011–2021)  
billion cubic feet per day



Source: U.S. Energy Information Administration, *Drilling Productivity Report*, March 2022

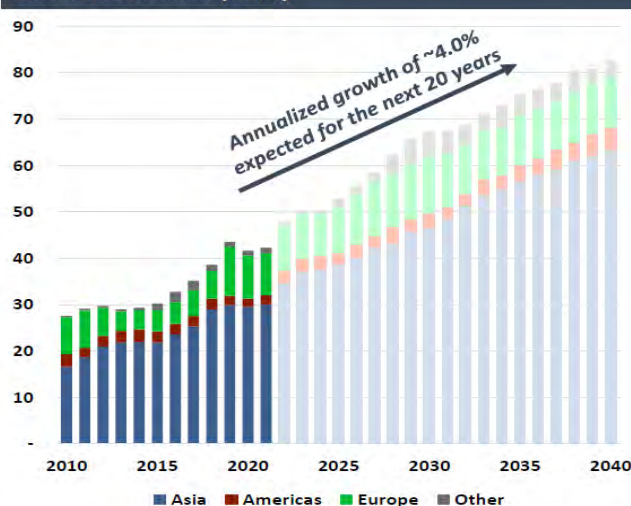
### US supply to global markets has increased through LNG

Annual U.S. liquefied natural gas exports (2020–2021)  
billion cubic feet per day



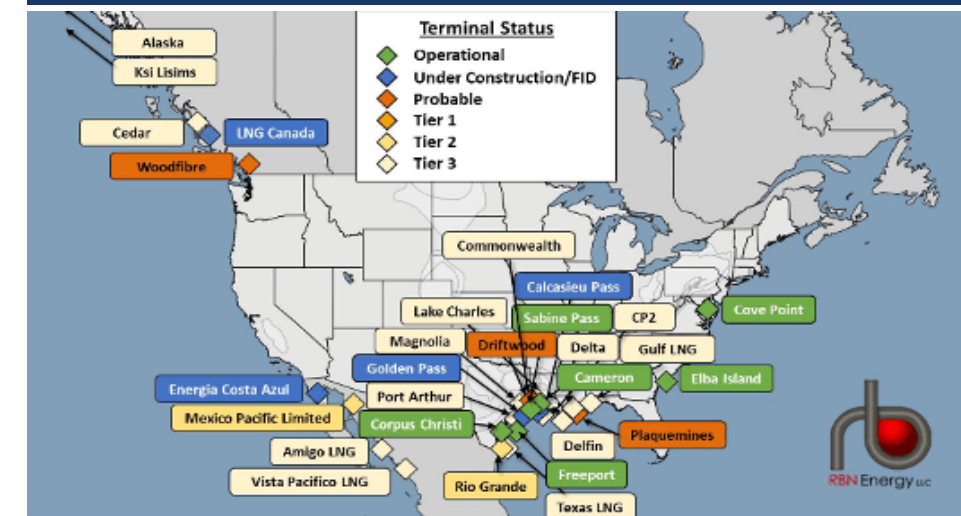
### Global LNG demand to continue

Global LNG demand (Bcf/d)



Source: EIA, Wood Mackenzie, IEA, BNEF.

### LNG facilities are primarily along the Gulf Coast



# Summary: Accomplishments and Priorities

ENRI

## 2021 ACCOMPLISHMENTS

- Performance
  - Overall, generated IRR of 18.5%, 5.7% and 6.2% for 1, 3 and 5-year periods, respectively
  - Principal investments generated IRR of 17.9%, 3.7% and 5.5% for 1, 3 and 5-year periods, respectively
- Team Update
  - Successfully established TRICOT presence, consisting of one transfer and one BlackRock secondee
- Portfolio Construction
  - Comprehensive review of energy opportunities
  - Expanded European and Infrastructure Premier List
- Capital Plan Impact
  - Approximately \$1.3 billion
    - \$424 million to Funds
    - \$856 million to Principal Investments
    - \$34 million to Emerging Managers

## 2022 PRIORITIES

- Capital Plan
  - Commit approximately \$2.5 billion with 40% in Principal Investments
- Team
  - Recruit to rebuild team from recent departures
  - Streamlining work processes
- Portfolio Construction
  - Continue to review energy opportunities
  - Develop more mid-market Infra opportunities
  - Assess additional natural resource opportunities

# APPENDIX

# Organization

## ENRI Team



**Carolyn Hansard\***  
**Sr. Director**  
*BS, UT Austin  
MBA, UT Austin*

### TRICOT (ENRI)



**Eric Chang\***  
**Director**  
*BBA, UT Austin*



**Daniel Judd, CFA\***  
**Director**  
*BBus, Griffith University  
MBA, Bond University*



**Ryan Zafereo\***  
**Director**  
*BBA, UT Austin*



**Emerson Halstead**  
**Investment Manager**  
*BS, UT Austin  
MBA, Indiana University Bloomington  
MLA, Harvard University*



**Hunter Coleman, CFA**  
**Associate**  
*BBA, Texas A&M*



**Patrick Quinn**  
**Associate**  
*BA, Providence College  
MBA, UT Austin  
Starting June 2022*



**Murilo Martins**  
**Associate**  
*BS, Louisiana Tech University  
MBA, UT Austin  
Starting July 2022*



**James Gilbert**  
**Associate**  
*BS, University of Arkansas  
MBA, Columbia University  
Starting July 2022*



**Susan White**  
**Administrative Assistant**  
*BS, Penn State University*

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.



# Private Equity

Neil Randall, Managing Director

July 2022



# Overview

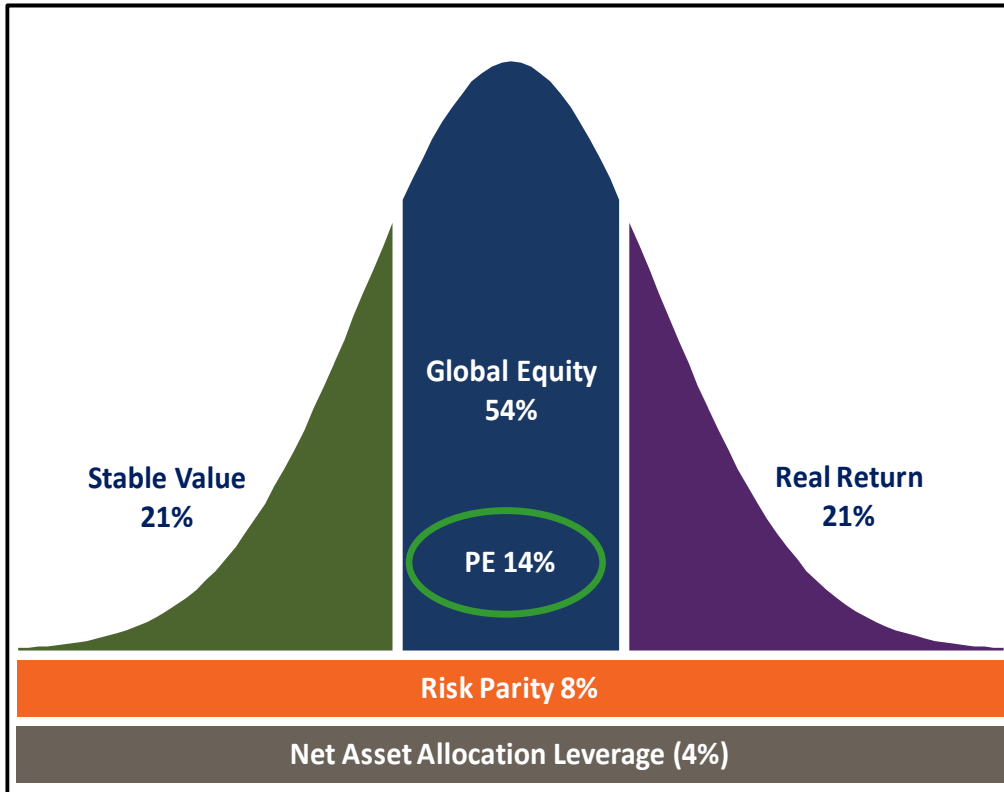
---

- Private Equity in the Trust
- 2021 Performance
- Capital Plan
- Spotlight – Status of Private Equity Market
- Accomplishments and Priorities

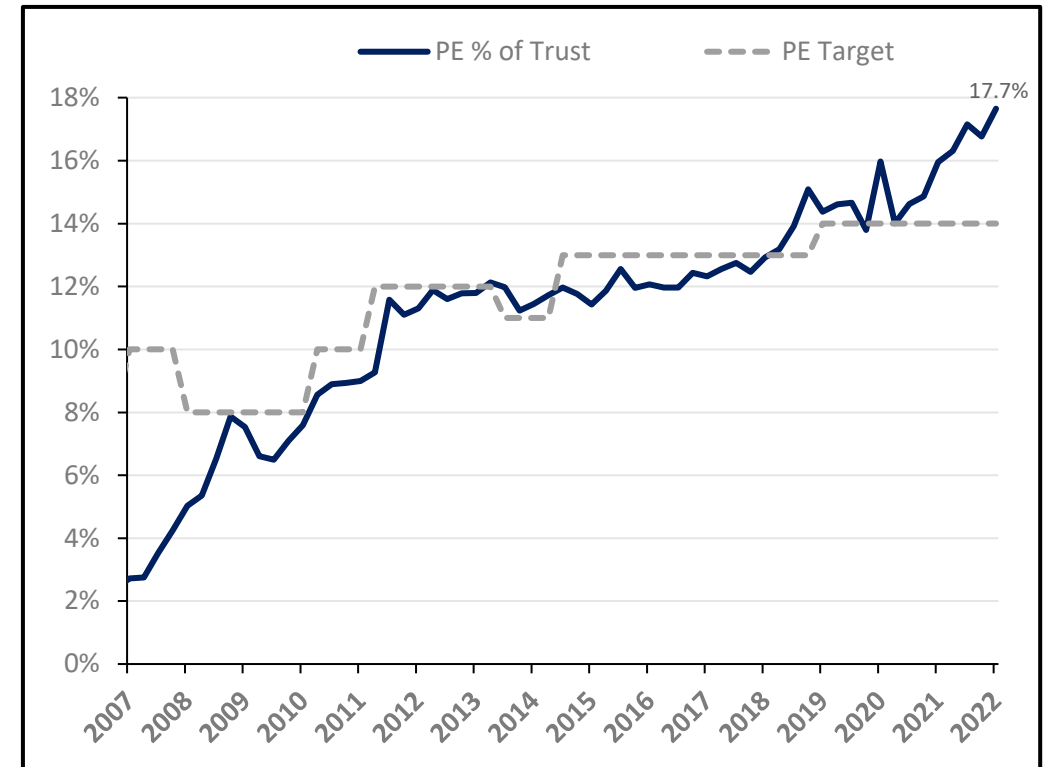
# Role in the Trust

## Private Equity (PE)

### PE TARGET % OF TRUST



### HISTORICAL TRUST ALLOCATION



# Performance Summary

(\$M)

PORTFOLIO PERFORMANCE			
Asset Class	1 Year Return	3 Year Return	5 Year Return
Private Equity IRR	36.4%	24.0%	19.7%
Private Equity TWR	37.9%	24.4%	19.8%
Private Equity Benchmark	38.0%	25.3%	20.2%
<b>Private Equity Excess Return</b>	<b>(0.1%)</b>	<b>(0.9%)</b>	<b>(0.3%)</b>
TUCS Peer (Percentile)	11th	10th	14th

PORTFOLIO GROWTH			
Private Equity (\$ millions)	1 Year	3 Year	5 Year
Ending Value	\$35,934	\$35,934	\$35,934
less Starting Value	29,935	21,617	16,988
less Contributions	5,099	13,686	21,547
plus Distributions	9,380	18,382	26,526
<b>Investment Return</b>	<b>\$10,281</b>	<b>\$19,013</b>	<b>\$23,925</b>

FUNDS AND PRINCIPAL INVESTMENT PERFORMANCE										
Portfolio	Market Value	% of Portfolio	No. (active)	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR
Funds	\$26,306	73.2%	222	37.7%	25.5%	20.2%	35.8%	24.9%	19.7%	14.4%
Principal Investments	9,628	26.8%	73	37.9%	21.5%	19.6%	38.1%	21.4%	19.8%	18.9%
Total	\$35,934	100%	295	37.9%	24.4%	19.8%	36.4%	24.0%	19.7%	14.9%

PORTFOLIO STRATEGY SUMMARY							
Style	Target Portfolio Weight	% of Portfolio			Investment Returns		
		<u>12/31/2021</u>	<u>12/31/2018</u>	<u>Change</u>	<u>1-Year IRR</u>	<u>3-Year IRR</u>	<u>SI IRR</u>
Total Buyout	82.5-87.5%	78.9%	79.9%	(0.9%)	36.9%	20.1%	14.6%
Mega Buyout (>\$10bn)	30-35%	39.8%	34.0%	5.8%	37.5%	25.0%	14.2%
Large Buyout (\$3-10bn)	12.5-17.5%	25.6%	31.4%	(5.9%)	40.7%	24.5%	17.9%
Mid/Small Buyout (<\$3bn)	12.5-17.5%	13.6%	14.5%	(0.8%)	36.9%	20.1%	14.6%
Venture Capital	12.5-17.5%	15.1%	11.0%	4.1%	45.6%	36.2%	14.4%
Credit / Special Situations	0.0%	6.0%	9.1%	(3.2%)	2.9%	5.9%	10.3%
<b>Private Equity Total</b>	<b>100%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>36.4%</b>	<b>24.0%</b>	<b>14.9%</b>

Source: State Street based on 12/31/21 valuations; TWR and TUCS as of 3/31/22

Note: Legal fees are included in the total aggregate IRR and TWR performance

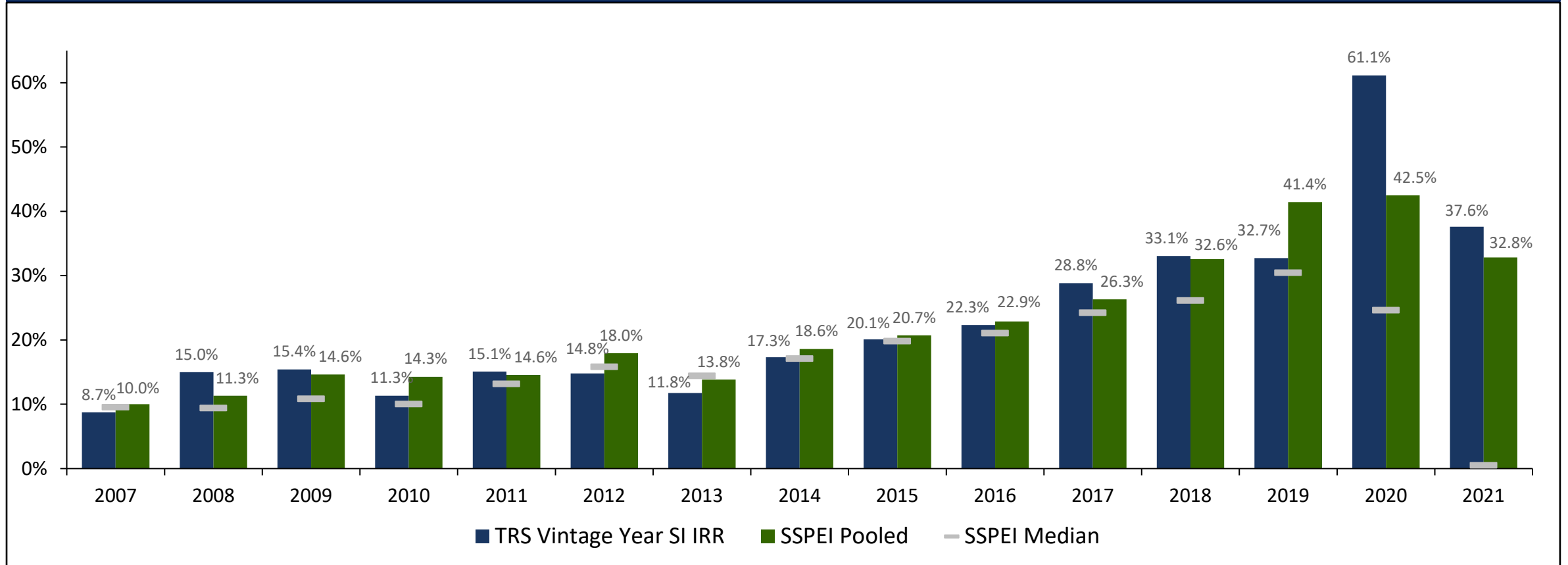
Note: Since Inception IRR of PE Portfolio reflects performance since June 1992, the strategies within the portfolio have various inception dates

# Performance Summary

## TRS Vintage Year Comparison

- PE outperformed the pooled average vintage year benchmark 4 out of the last 5 years

### TOTAL PE PORTFOLIO VERSUS BENCHMARK

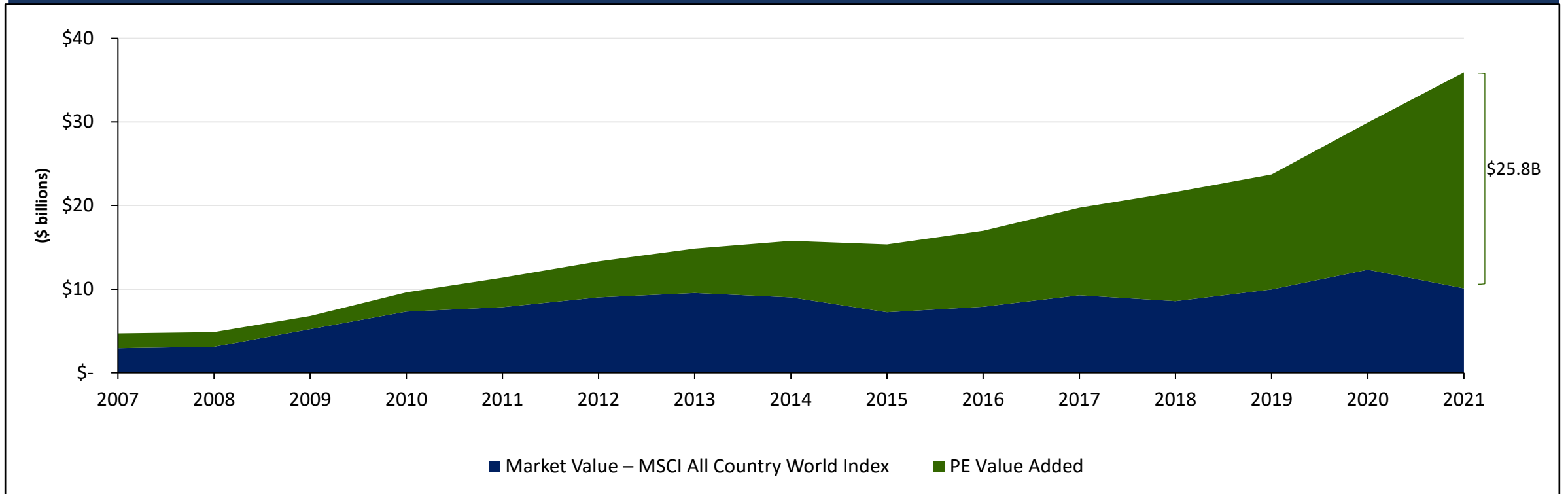


# Performance

## PE Value Added

- \$25.8 billion of value added over the public benchmark through 2021
- Since inception alpha versus MSCI All Country World Index: 542 bps

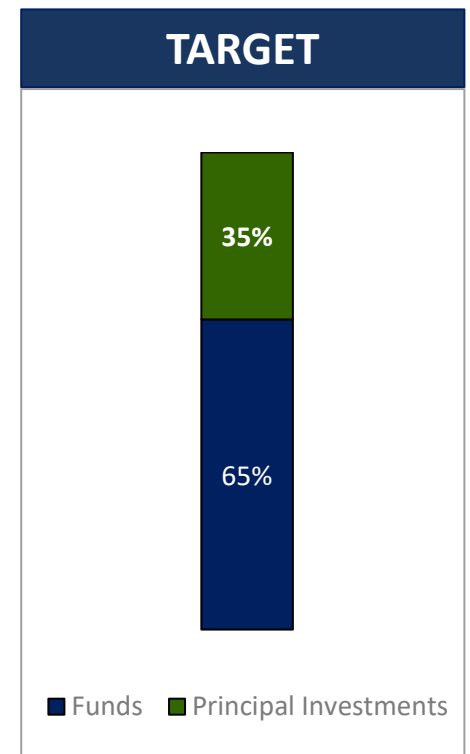
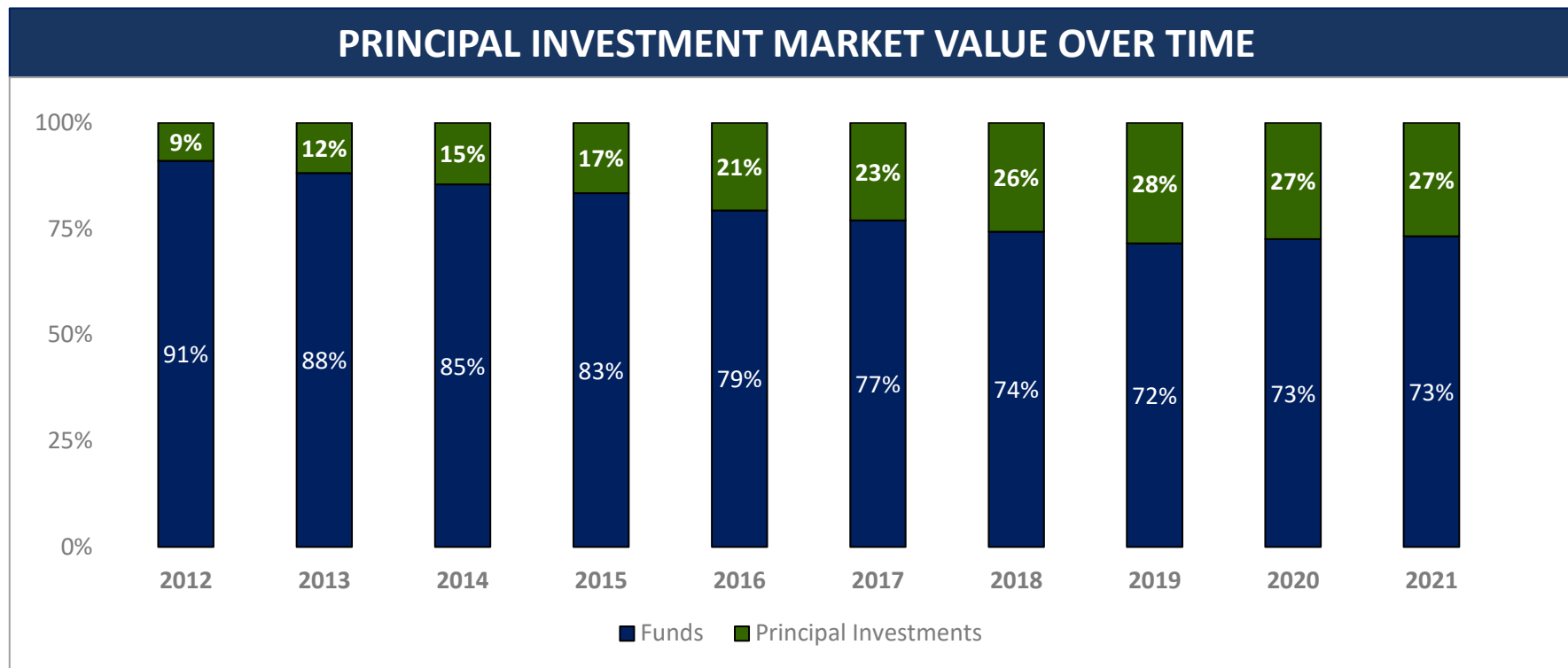
### PRIVATE EQUITY PERFORMANCE RELATIVE TO PUBLIC MARKETS



# Performance

## PE Principal Investments Program

- PE continues to focus on Principal Investments with increased transaction volumes through innovative structures

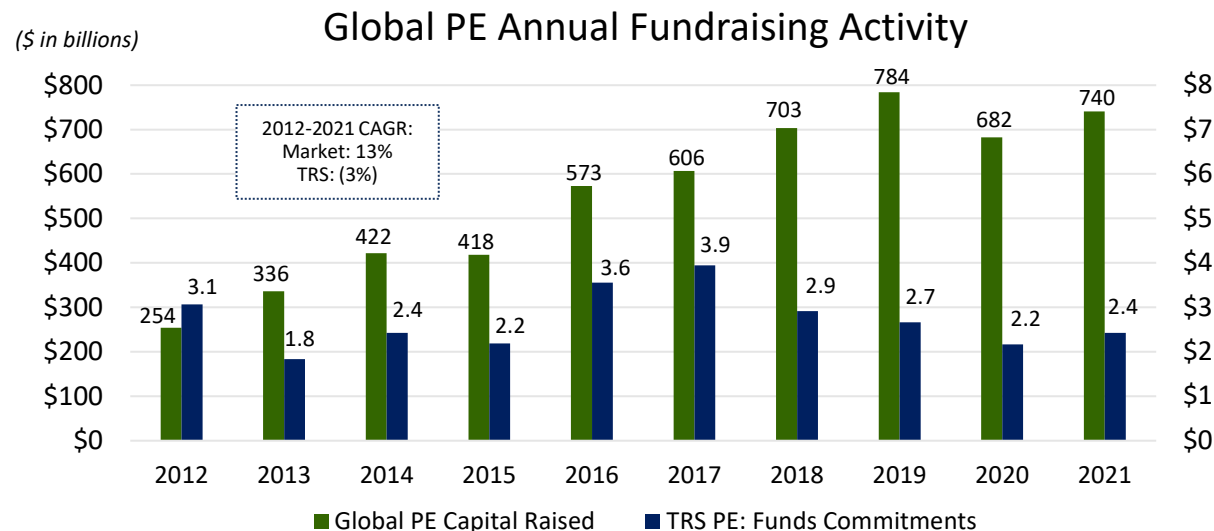


---

This slide was intentionally left blank.

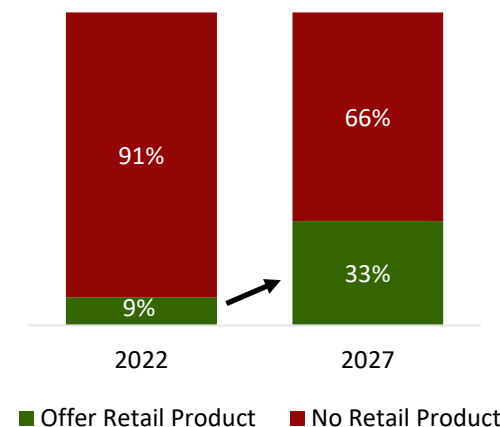


# Spotlight – State of the Market and TRS PE Strategy Evolution



## Retail Garnering Attention and Access to Private Markets

Private Market Managers Offering Retail-Vehicles



### In the News

The largest Private Markets firms are focused on retail investors; some anticipate retail could comprise up to 50% of AUM in 5-10 years

iCapital provides 7K+ financial advisors access to alt. investments, including PE; notable backers include Apollo, Blackstone, KKR, and Carlyle Group

CAIS is increasing penetration with financial advisors, enabling access to alt. investments, including PE; notable backers include Apollo, Motive Partners, Franklin Templeton, and others

## TRS Private Equity Strategy

Deliver **strong absolute net returns with a diversified sub-strategy allocation**; generate alpha from manager selection and principal investments

Adjusted PE allocation to **encompass more Small-Mid Buyout & Venture Capital**, to capture right-tail returns and build a stronger presence below the Mega landscape

Be a **Preferred Partner** in the PE landscape to generate access to the best managers and Principal Investment deal flow

Seeking co-investment from broader-set of Partners, utilizing full TRS Premier List and Emerging Manager program

Recruit and retain a **world-class team** to build and maintain the TRS brand

With influx of private markets capital, there is **even greater emphasis on team strength** to bring **value, beyond just capital**

# Summary: Accomplishments and Priorities

PE

## 2021 Accomplishments

- Performance
  - Generated attractive absolute returns across all time periods; 36.4% 1-yr IRR, 24.0% 3-yr IRR
  - Ranked in the top quartile versus peer universe (TUCS) across all time periods; top decile on 3-yr
- Team
  - Awarded Best LP (Global PE >\$10bn) by Private Equity Exchange
  - Established Funds coverage out of TRICOT office
- Capital Plan Impact
  - Approximately \$3.4 billion
    - \$2.2 billion to Funds
    - \$1.0 billion to Principal Investments
    - \$0.2 billion to Emerging Managers

## 2022 Priorities

- Commit \$4 billion with ~35% in Principal Investments
  - Closely monitoring commitment pacing in light of high Trust PE allocation
  - 55% of TRS PE Premier List GPs are raising capital in 2022, the supply/demand imbalance is forcing challenging decisions
- Team
  - Successfully onboarded 8 new team members
  - Establish new portfolio coverage across Funds team
- Establish new processes for GP-led deal flow
- Evaluate alternatives to establish a systematic approach to active portfolio management

# APPENDIX

# TRS Organizational Chart

## Private Equity Team



**Neil Randall\***  
Managing Director  
BBA, Texas A&M  
MS, Texas A&M

### FUNDS



**Scott Ramsower\***  
Head of Funds  
Director  
BBA, Texas A&M



**Kaitlin Miles**  
Investment Manager  
BBA, University of  
Richmond



**Caitlyn Macdonald**  
Investment Manager  
BA, Williams College



**Layne Johnson**  
Investment Manager  
BA, Yale University

### PRINCIPAL INVESTMENTS



**Michael Lazorik\***  
PI Head / Technology  
Director  
BBA, UT Austin



**Tamara Polewik\***  
PI Head / Consumer  
Director  
BA, Dartmouth College  
MBA, University of Chicago



**Will Carpenter, CFA\***  
PI Head / Industrials  
Director  
BBA, Texas A&M  
MS, Texas A&M

### TRICOT\*\* (PRIVATE EQUITY)



**Justin Wang**  
PI Lead TRICOT  
Investment Manager  
BBA, UT Austin



**Mikhael Rawls, CFA**  
Funds Lead TRICOT  
Investment Manager  
BA, Harvard University



**Pierre Duran**  
Sr. Associate  
BS, University of  
Central Florida



**Kent Zier**  
Sr. Associate  
BS, University of  
Notre Dame



**D'Oncee Brockington**  
Associate  
BBA, UT Austin



**Benjamin Bayles**  
Associate  
BA, Washington &  
Lee University



**Edward Stroud**  
Associate  
BA, Washington & Lee  
University



**Stephen Y. Kim**  
Associate  
AB, Brown  
University



**Ryan Voves**  
Associate  
BBA, University  
of Iowa



**Jake Melville**  
Sr. Analyst  
BA, Denison University



**Alexandra Wildeson**  
Sr. Analyst  
BBA, Southern Methodist  
University



**Ethan Uecker**  
Analyst  
BS, University of  
Oregon



**Beth Booker**  
Assistant  
BA, Ursuline College  
MLIS, Kent State University

Team members work across Funds & Principal Investments



Note: TRS PE leverages Blackrock secondees in Austin and London

\* Private Equity Investment Committee (PEIC) members; PEIC also includes Eric Lang

\*\* TRICOT is TRS' London office

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.



# Real Estate

Grant Walker, Senior Director

July 2022



# Overview

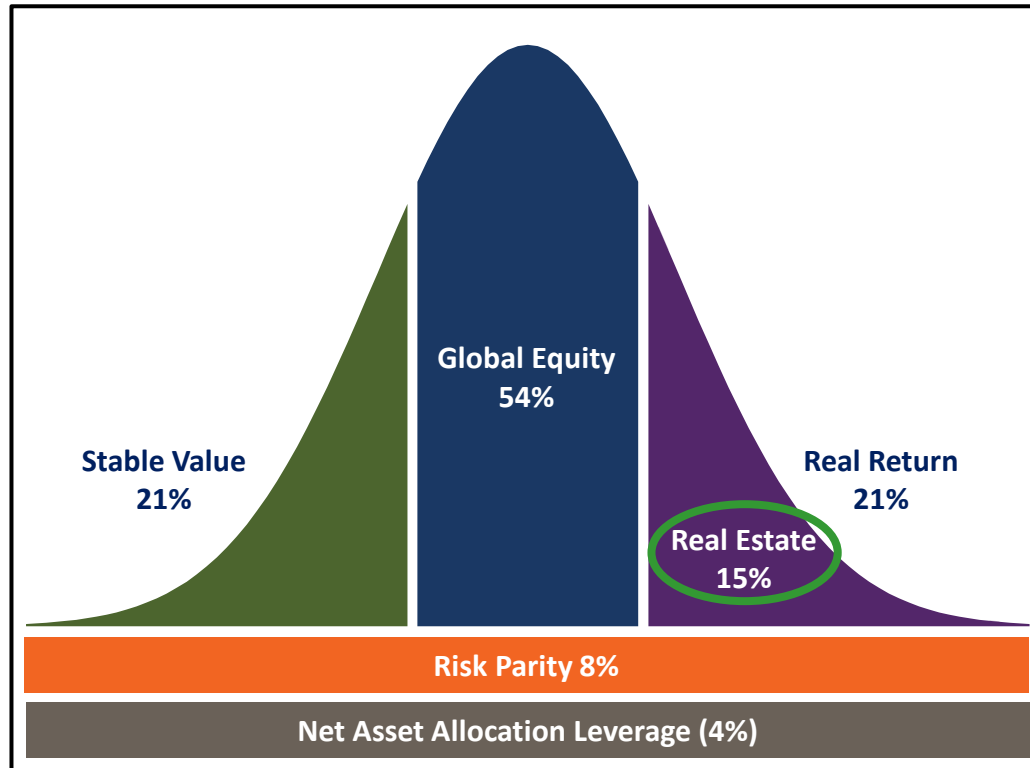
---

- Real Estate in the Trust
- 2021 Performance
- Capital Plan
- Spotlight – Real Estate Benchmark
- Accomplishments and Priorities

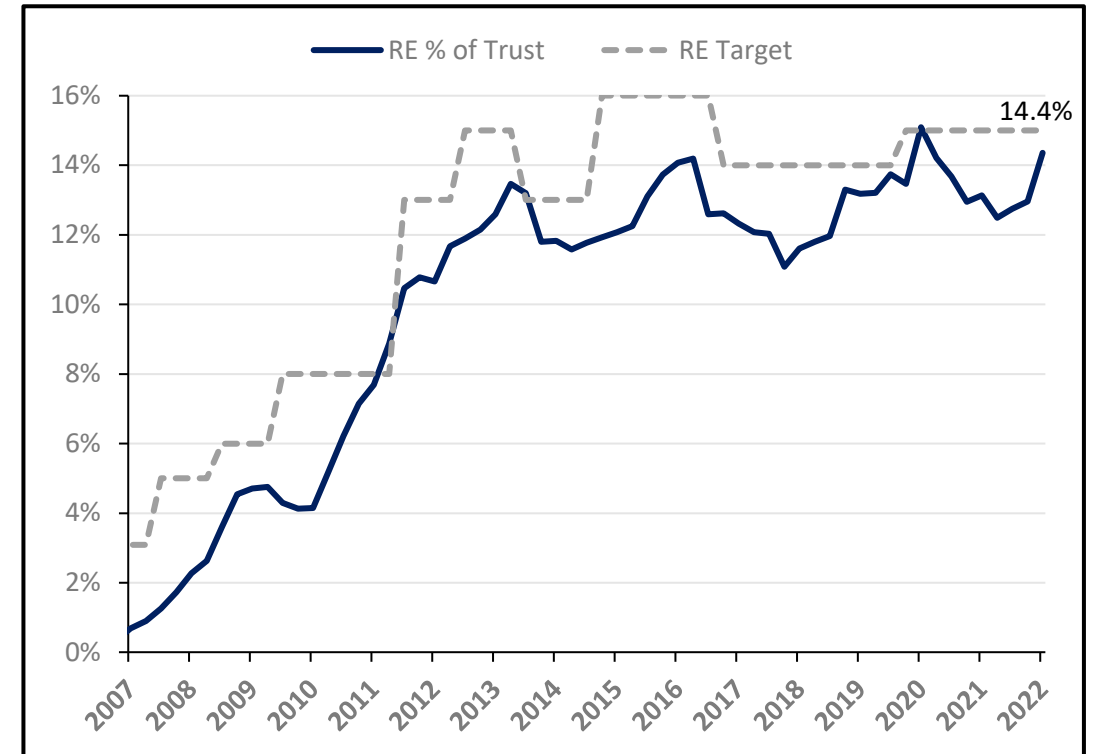
# Role in the Trust

## Real Estate (RE)

### RE TARGET % OF TRUST



### HISTORICAL TRUST ALLOCATION



# Performance Summary

(\$M)

PORTFOLIO PERFORMANCE			
Asset Class	1-Year Return	3-Year Return	5-Year Return
Real Estate IRR	27.5%	12.8%	12.2%
Real Estate TWR	28.0%	12.9%	12.3%
Real Estate Benchmark	21.0%	8.2%	7.7%
<b>Real Estate Excess Return</b>	<b>7.0%</b>	<b>4.7%</b>	<b>4.6%</b>
TUCS Peer (Percentile)	19th	18th	12th

PORTFOLIO GROWTH			
Real Estate (\$ millions)	1 Year	3 Year	5 Year
Ending Value	\$28,563	\$28,563	\$28,563
less Starting Value	23,513	19,621	17,179
less Contributions	5,061	14,403	23,075
plus Distributions	6,362	14,400	24,468
<b>Investment Return</b>	<b>\$6,352</b>	<b>\$8,939</b>	<b>\$12,777</b>

FUNDS AND PRINCIPAL INVESTMENT PERFORMANCE										
Portfolio	Market Value	% of Portfolio	No. (active)	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR
Funds	\$14,418	50.5%	147	24.4%	10.9%	10.6%	25.1%	11.0%	10.6%	7.8%
Principal Investments	14,145	49.5%	107	30.9%	15.0%	14.4%	30.0%	14.7%	14.2%	15.7%
Total	\$28,563	100%	254	28.0%	12.9%	12.3%	27.5%	12.8%	12.2%	9.9%

PORTFOLIO STRATEGY SUMMARY								
Strategy	Target Portfolio Weight	RE Portfolio Leverage	% of Portfolio			Investment Returns		
			<u>12/31/2021</u>	<u>12/31/2018</u>	<u>Change</u>	<u>1-Year IRR</u>	<u>3-Year IRR</u>	<u>SI IRR</u>
Core	35% - 45%	36.2%	29.0%	36.2%	(7.1%)	27.3%	11.1%	10.9%
Value-Add	10% - 15%	44.6%	17.6%	13.8%	3.7%	21.9%	8.1%	7.7%
Opportunistic	30% - 40%	45.6%	42.9%	34.1%	8.8%	31.5%	17.3%	9.8%
RASS	10% - 15%	54.2%	10.2%	14.9%	(4.7%)	23.3%	10.0%	12.2%
Other Real Assets	0.0%	0.0%	0.3%	1.1%	(0.8%)	10.4%	7.0%	2.0%
<b>Real Estate Total</b>	<b>100%</b>	<b>43.9%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>(0.0%)</b>	<b>27.5%</b>	<b>12.8%</b>	<b>9.9%</b>

Source: State Street based on 12/31/21 valuations; TWR and TUCS as of 3/31/22

Note: Inception date of RE portfolio is April 2006

Note: Currency hedges and legal fees are included in the total aggregate IRR and TWR performance

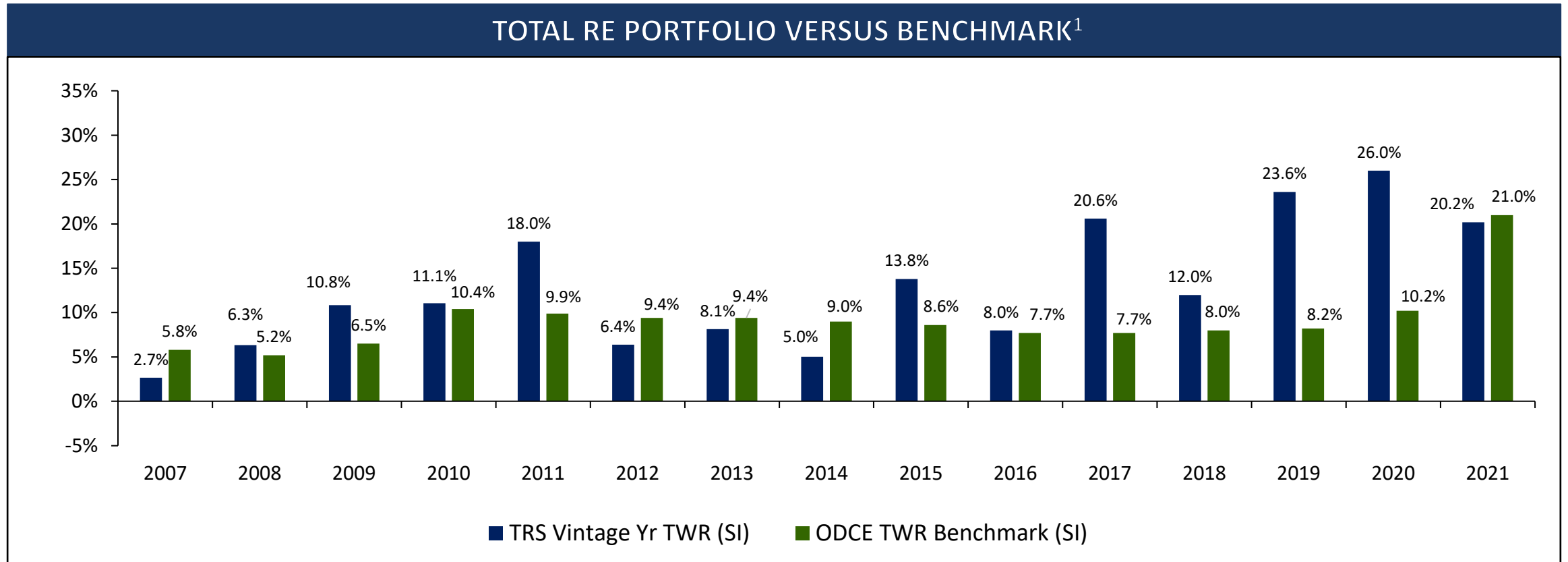
Note: RE Portfolio Leverage from General Partner reporting as of 9/30/21

Note: ODCE benchmark had 22.1% leverage as of 9/30/21

# Performance Summary

## TRS Vintage Year Comparison

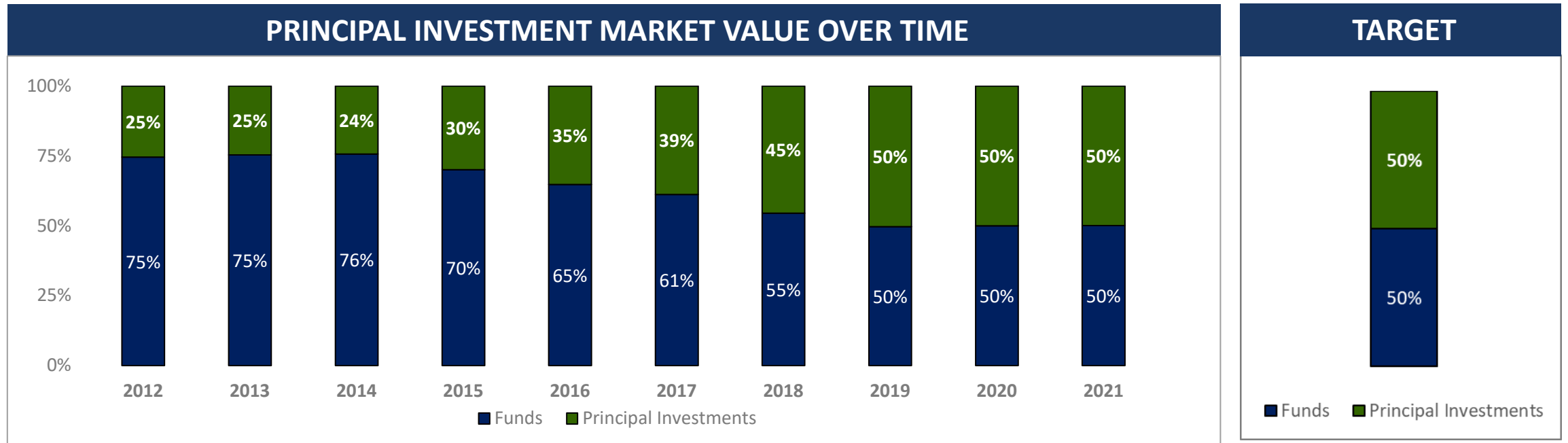
- RE's vintage year investments have outperformed the benchmark 10 out of the last 15 years
- Portfolio positioning and security selection the past five years have been successful



# Performance

## RE Principal Investments Program

- RE has maintained its target allocation of 50% Funds and 50% Principal Investments
- Committed approximately \$2.5 billion to Principal Investments in 2021

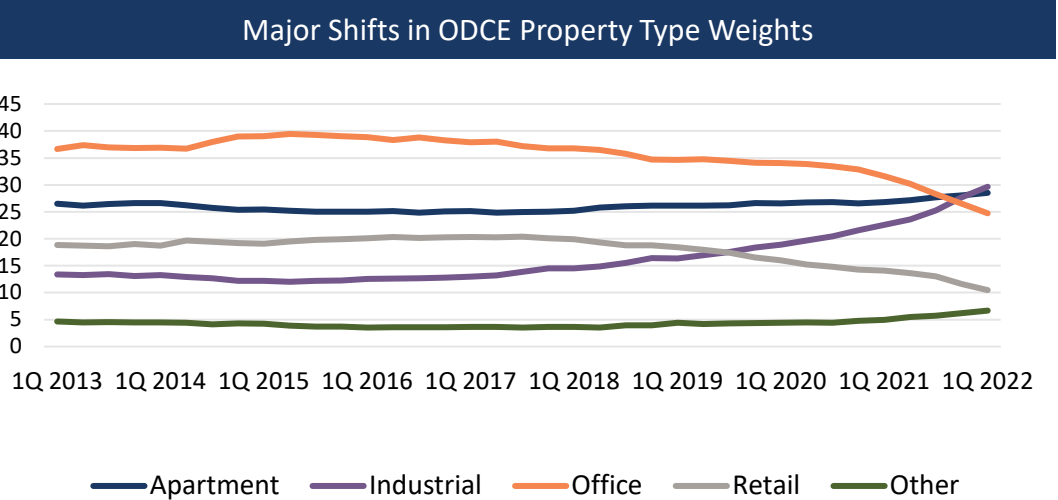
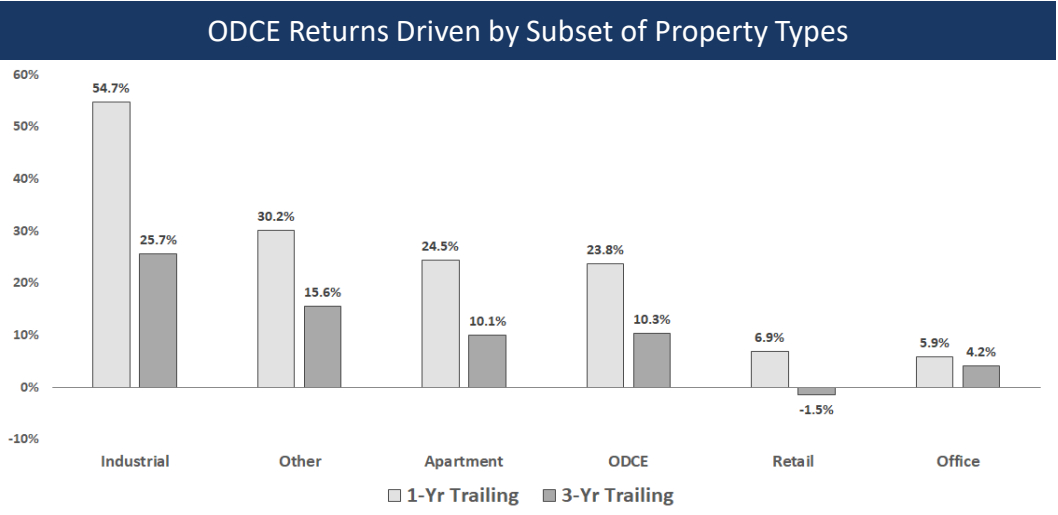
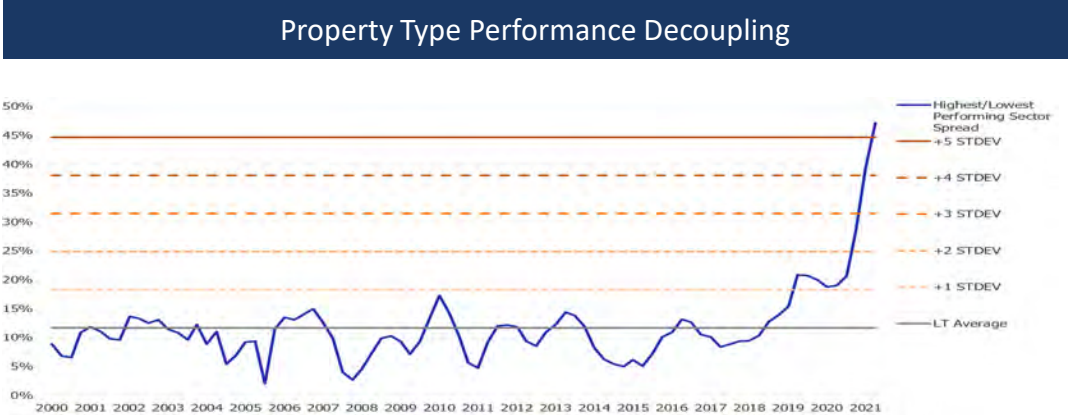
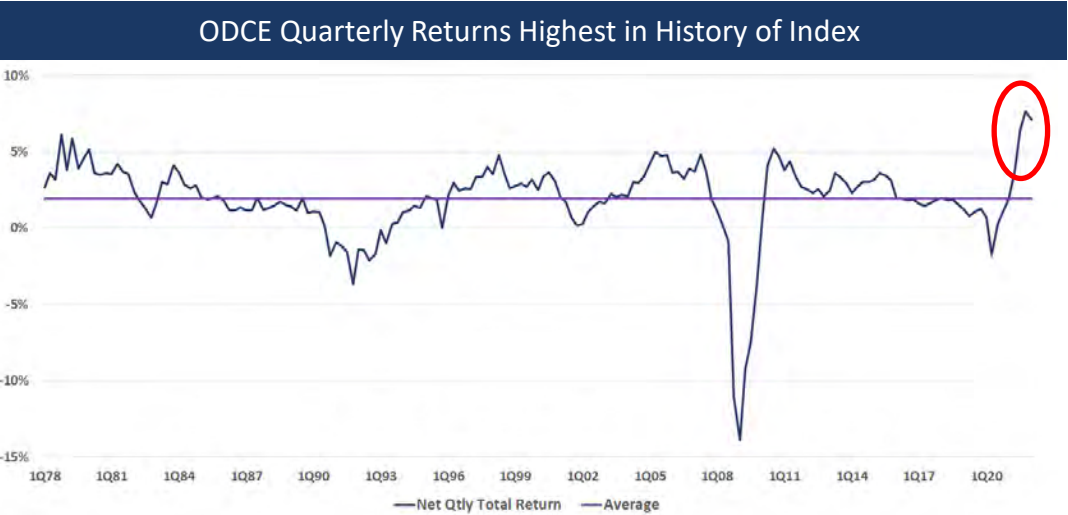


---

This slide was intentionally left blank.

# Spotlight – Real Estate Benchmark

## TRS RE Portfolio Outperforming Historic ODCE Benchmark Returns

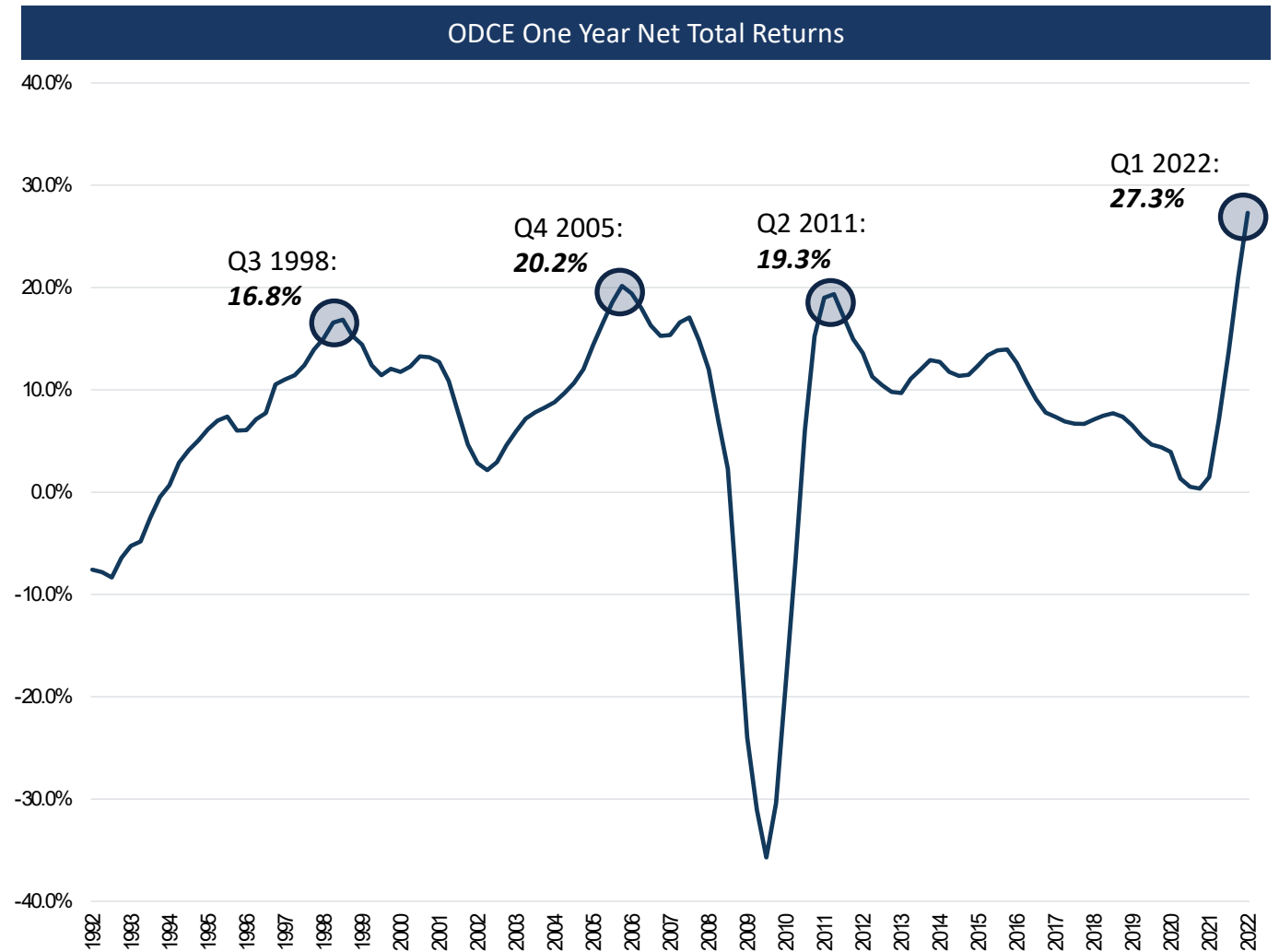




# Spotlight – Real Estate Benchmark

## ODCE Peak returns & subsequent performance

- Over the last 30 years, cycle peak returns (trailing 4Q) shown on chart on right
  - ODCE net returns tend to decelerate following peak, rather than fall off cliff
- PREA Consensus return forecasts for real estate as of Q2 2022 are 11.7% for 2022, 8.6% for 2023, and 7.9% for 2024
- Today's inflationary environment favors real estate, which benefits from rent growth & increased replacement costs



# Summary: Accomplishments and Priorities

RE

## 2021 Accomplishments

- Performance
  - TRS RE portfolio exceeded benchmark on 1yr, 3yr, and 5yr periods
    - TRS TWR outperformed by 700 bps, 470 bps, and 460 bps, respectively, over 1yr, 3yr, and 5yr periods
    - TUCS peer percentile is 19<sup>th</sup>, 18<sup>th</sup>, and 12<sup>th</sup> for respective periods
- Team Update
  - Hired 3 full-time team members in 2021; 1 as Senior Associate and 2 Analysts
- Maintained allocation of 50% to Funds and 50% to Principal Investments
- Capital Plan (as of 12/31/2021): Committed \$3.7 billion toward a \$3.2 billion plan
  - \$1.0 billion to Funds
  - \$2.5 billion to Principal Investments
  - \$0.2 billion to Emerging Managers

## 2022 Priorities

- Commit approximately \$4.6 billion with at least 50% in Principal Investments
- Real Estate Portfolio Framework
  - Implement long-term strategic plan for RE portfolio using current holdings data, performance attribution, and house views for major property types and alternative sectors
- Build the Fleet
  - Targeting 3 new FTE additions to the RE team in 2022, as well as a summer intern
    - Successfully added 2 full-time members and 1 intern in June 2022
    - Active posting for mid-level hire in mid/late summer 2022
- Organizational Structure
  - Formalizing roles and responsibilities
- Active Portfolio Management
  - Engage GP for debt consulting project across RE portfolio
  - Review and determine secondary sale and club deal opportunities

# APPENDIX

# Organization

## RE Team



**Grant Walker\***  
**Senior Director**  
*BBA, Baylor*  
*MBA, St. Edwards*



**Craig Rochette, CFA, CAIA\***  
**Director**  
*BS, University of Arizona*



**Jennifer Wenzel\***  
**Director**  
*BBA, UT Austin*



**Matt Halstead\***  
**Director**  
*BBA, UT Austin*  
*MPA, UT Austin*



**Brendan Cooper\***  
**Director**  
*BA, Carleton College*  
*MS, University of Minnesota*



**Jared Morris, CFA\***  
**Director**  
*BBA, Texas A&M*  
*MS, Texas A&M*



**Catherine Beaudoin**  
**Investment Manager**  
*BBA, Duke*



**Elliott Fry, CFA**  
**Investment Manager**  
*BBA, University of Georgia*  
*MBA, Columbia*



**Lucas McNulty**  
**Senior Associate**  
*BA, Bates College*  
*MS, New York University*



**Tucker McCrabb**  
**Associate**  
*BBA, Babson College*



**Luke Luttrell**  
**Associate**  
*BBA, Abilene Christian*  
*JD/MBA, Texas Tech*



**Samuel Givray**  
**Associate**  
*BA, Cornell University*



**Thomas Maguire**  
**Senior Analyst**  
*BBA, University of Wisconsin - Madison*



**Rodney Herenton**  
**Analyst**  
*BA, Stanford University*



**Claudia Harkins**  
**Analyst**  
*BBA, MS, University of Wisconsin-Madison*



**Ellory Tippen**  
**Analyst**  
*BA, MS, UT Austin*



**George Zhang**  
**Analyst**  
*BS, Washington University*  
*MS, Harvard University*



**Gracie Marsh**  
**Program Analyst**  
*BA, UC Davis*

### TRS LONDON (REAL ESTATE)



**Kimberly Carey**  
**Director, TRICOT Lead**  
*BA, Texas A&M*



**Chase Lewis**  
**Senior Analyst**  
*BBA, UT Austin*

# RE Strategy Definitions

---

## Core

- Institutional quality, best-located and best-leased assets in the market in each of the traditional property types (office, multifamily, retail, industrial)
- Typical leverage is up to 50% loan-to-value (LTV)
- 35% - 45% allocation target

## Value-Add

- Return-enhancing strategies executed at the property level designed to enhance value through execution of one or more of the following strategies: lease-up, rehabilitation, repositioning
- Typical leverage is 50% to 65% LTV
- 10% - 15% allocation target

## Opportunistic

- Broad range of risk and return via opportunity funds, specialized investments, and mezzanine debt or equity with the majority of strategies involving some level of development or distress
- Typical leverage is 70% LTV and higher
- 30% - 40% allocation target

## Real Assets Special Situations (RASS)

- Publicly traded shares of listed REITs (Real Estate Investment Trusts) and REOCs (Real Estate Operating Companies) or other real asset related entities, public or private real asset debt
- 10% - 15% allocation target

## Other Real Estate (ORE)

- Land and other opportunistic investments providing inflation protection with relatively low expected volatility

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.

---

This slide was intentionally left blank.