



PENNSYLVANIA STATE EMPLOYEES' RETIREMENT SYSTEM

REAL ESTATE QUARTERLY
PERFORMANCE REVIEW

FOURTH QUARTER 2022



TABLE OF CONTENTS

Presentation

- **Real Estate Quarterly Performance Report** 3
- **Real Estate Market & Portfolio Update** 11

Appendix

- **Investment Level Performance** 16
- **Real Estate Strategy Summaries** 21
- **Disclaimers & Disclosures** 24

1. REAL ESTATE QUARTERLY PERFORMANCE REPORT

As of December 31, 2022



PORTFOLIO PERFORMANCE SUMMARY

The table below displays trailing time period performance for the Pennsylvania State Employees' Retirement System ("PA SERS") Real Estate Portfolio as of December 31, 2022, along with select benchmarks

- **The policy benchmark is the NCREIF ODCE Index, which is comprised of open-end core real estate funds; we also show two additional real estate benchmarks and the S&P 500**
 - The NCREIF Property Index, a benchmark of unlevered core real estate returns
 - The CJA Non-Core Real Estate benchmark consists of non-core (value-add and opportunistic) closed-end real estate funds
- **The total real estate portfolio has generated a total net return of -1.4% year-to-date**
 - The portfolio has generated an annualized return of 7.1% over the trailing three years

Portfolio Performance	YTD	1 Year	3 Year	5 Year	10 Year	Inception
Pennsylvania SERS: Total Real Estate Portfolio	-1.4%	-1.4%	7.1%	5.3%	7.3%	7.1%
<i>Policy Benchmark: NFI-ODCE Index¹</i>	<i>6.6%</i>	<i>6.6%</i>	<i>9.0%</i>	<i>7.7%</i>	<i>9.1%</i>	<i>N/A</i>
<i>NCREIF Property Index²</i>	<i>5.5%</i>	<i>5.5%</i>	<i>8.1%</i>	<i>7.5%</i>	<i>8.8%</i>	<i>N/A</i>
<i>CJA Non-Core Real Estate Index³</i>	<i>2.7%</i>	<i>2.7%</i>	<i>10.5%</i>	<i>9.7%</i>	<i>11.8%</i>	<i>N/A</i>
<i>S&P 500 Index</i>	<i>-18.1%</i>	<i>-18.1%</i>	<i>7.7%</i>	<i>9.4%</i>	<i>12.6%</i>	<i>N/A</i>

Data as December 31, 2022. Sources include NCREIF, CJA, Manager data, and NEPC.

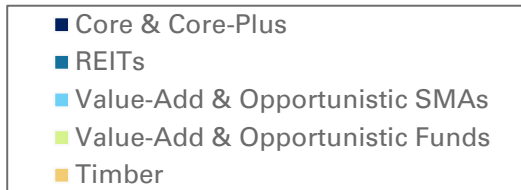
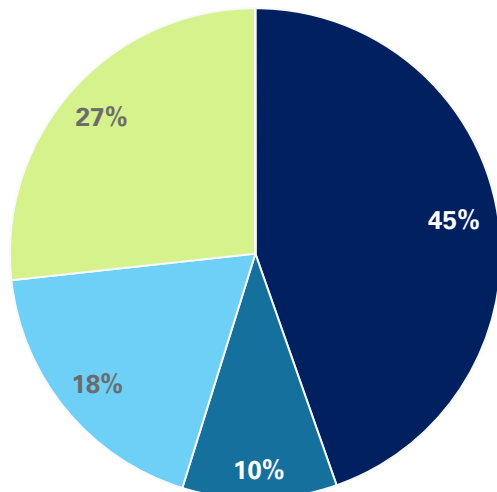
1. The NFI-ODCE Index represents pooled returns of open-end comingled core funds in the ODCE Index. The ODCE includes the effects of leverage, and returns shown are time-weighted and net of fees.
2. The NCREIF Property Index (NPI) represents property-level returns of institutionally-owned core real estate properties in the United States. The NPI is unlevered, and returns are time-weighted and gross of fees.
3. The CJA Benchmark represents pooled horizon internal rate of return (IRR) calculations, net of fees, across value-add and opportunistic real estate funds; this data is preliminary.
4. The timing and magnitude of fund cash flows are integral to the IRR performance. Benchmark indices that are time weighted measures should not be directly compared to dollar-weighted IRR calculations. Index data is continuously updated and is therefore subject to change.



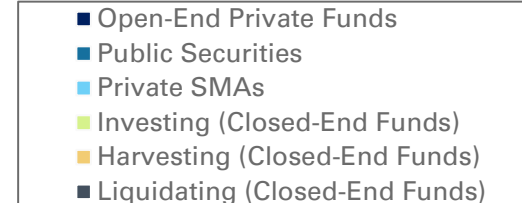
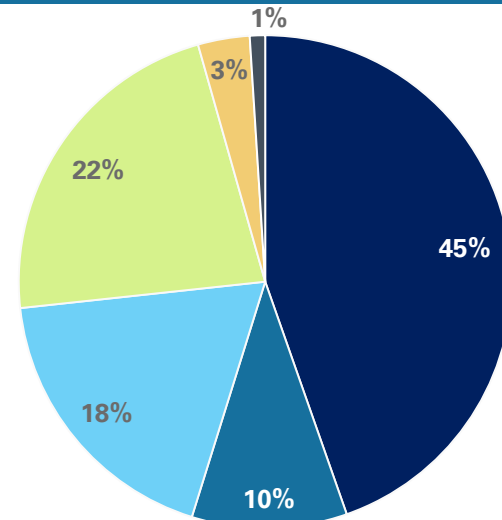
PORTFOLIO ALLOCATION OVERVIEW

- The charts below show PA SERS' real estate portfolio broken out by strategy and by investment structure, with closed-end funds further broken out by lifecycle stage
- As shown, approximately 55% of the portfolio is invested in Core, Core-Plus, and REITs
 - We anticipate the Value-Add and Opportunistic strategies to grow over time, in-line with the recently approved new sub-strategy targets

Allocation by Strategy



Allocation by Structure & Lifecycle Stage

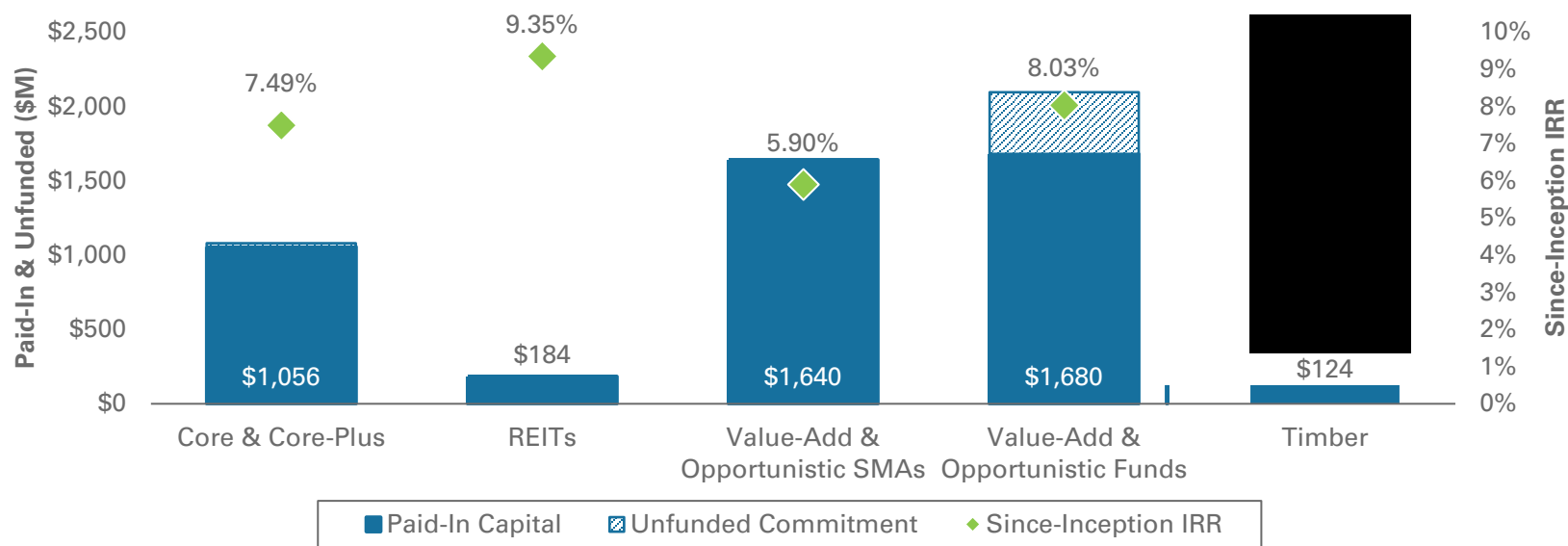


Data as of December 31, 2022.



PERFORMANCE BY STRATEGY

- The chart and table below shows the performance by strategy for all current (active, non-liquidated) investments in the PA SERS real estate portfolio



Investment Strategy	Commitment	Paid-In Capital	Unfunded Commitment	Cumulative Distributions	Valuation	Total Value	Net Benefit	Call Ratio	DPI Ratio	TVPI Ratio	IRR
Core & Core-Plus	1,077,509,983	1,056,487,030	23,340,149	340,610,264	1,273,569,530	1,614,179,794	557,692,765	98%	0.32x	1.53x	7.49%
REITs	183,616,773	183,616,773	0	36,168,336	290,532,256	326,700,592	143,083,819	100%	0.20x	1.78x	9.35%
Value-Add & Opportunistic SMAs	1,624,978,921	1,639,682,253	0	2,201,957,174				101%			5.90%
Value-Add & Opportunistic Funds	2,059,693,055	1,679,574,838	415,072,437	1,547,268,797	762,167,149	2,309,435,946	629,861,108	82%	0.92x	1.38x	8.03%
Timber	124,231,969	124,231,969	0	247,882,576				100%			
Total (Active Investments)	5,070,030,701	4,683,592,863	438,412,586	4,373,887,148				92%	0.93x		6.37%

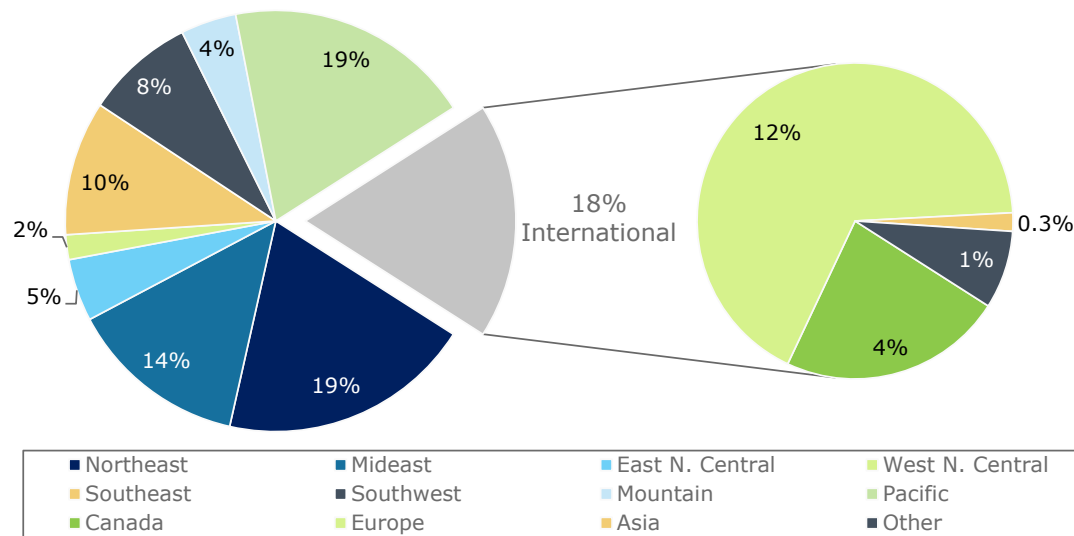


Data as of December 31, 2022. Liquidated investments not shown. Returns shown do not take into account risk/volatility of underlying strategies.

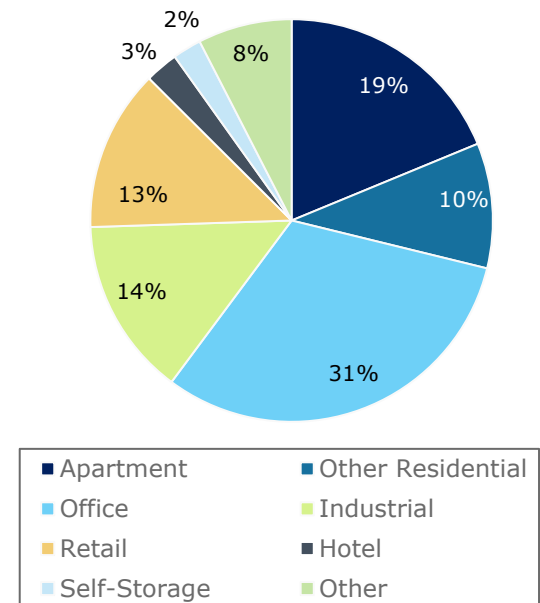
PORTFOLIO DIVERSIFICATION

- The PA SERS real estate portfolio is broadly diversified by property type and geography within the U.S.
- 18% of the portfolio is now invested outside the U.S., primarily in Europe

Geography

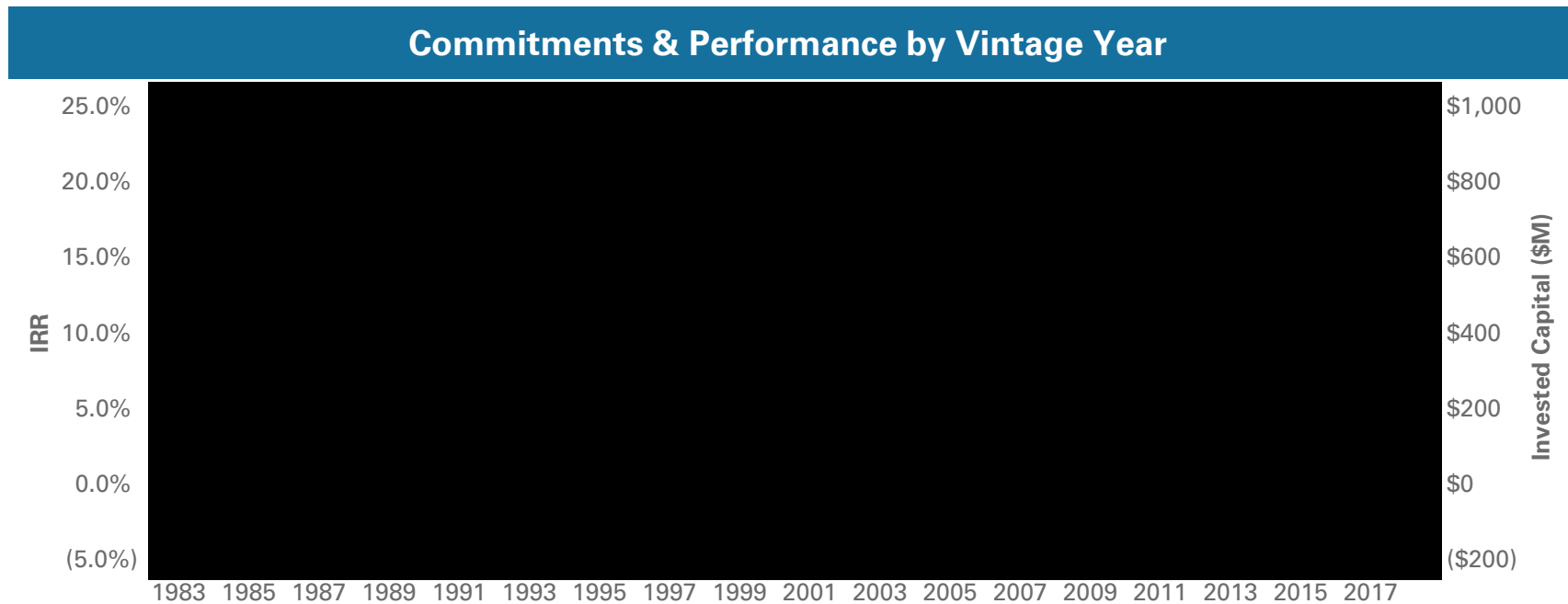


Property Type



HISTORICAL PERFORMANCE BY VINTAGE

- The following chart illustrates capital invested and inception-to-date performance by vintage year as of December 31, 2022
 - Inconsistent pacing has negatively impacted portfolio performance
 - The PA SERS Investment Office and NEPC are focused on maintaining a consistent investment pacing schedule to mitigate the risk of heavy capital investments in poor vintage years

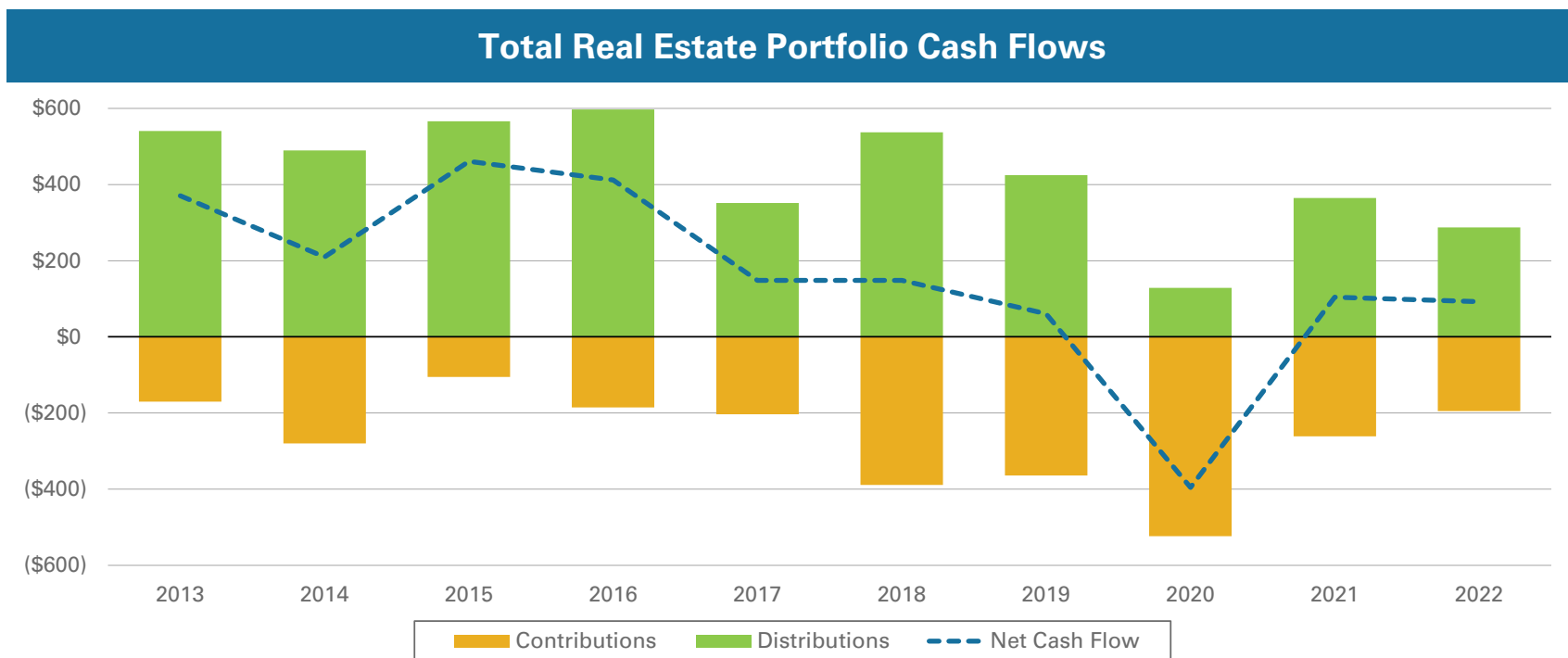


Data as of December 31, 2022. Notes: Vintage years 2020 and later are excluded as data is less meaningful. For separate accounts, the date of initial commitment or investment is used as the vintage year.



10-YEAR CASH FLOWS

- The chart below illustrates the capital invested, distributed, and net cash flows for the real estate portfolio over the past 10 calendar years
 - The portfolio was cash flow positive in nine of the last 10 years, including in 2022
 - Both contributions (i.e., capital calls) and distributions slowed in 2022 relative to 2021; however, net cash flows (distributions less contributions) were similar year-over-year



Data as of December 31, 2022. Offsetting cash flows have been excluded, such as assets that were transferred from one account to another.

ACTIVE DIVERSE-LED INVESTMENTS

- The table below displays the since-inception performance of active (non-liquidated) investments managed by diverse-owned and diverse-led investment management firms in the PA SERS real estate portfolio

Investment Name	Vintage Year	Commitment	Paid-In Capital	Unfunded Commitment	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI Ratio	TVPI Ratio	IRR
Blue Moon Senior Housing II Sidecar L.P.	2019	50,000,000	40,718,832	9,312,589	0	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II, L.P.	2019	50,000,000	40,125,681	9,874,319	0	NM	NM	NM	NM	NM	NM
HotelAVE Separate Account	2018	63,048,685	63,048,685	0	20,191,396	36,071,583	56,262,979	(6,785,706)	0.32x	0.89x	(3.53%)
Rubicon First Ascent Sidecar	2021	20,000,000	4,852,389	15,147,611	0	NM	NM	NM	NM	NM	NM
Rubicon First Ascent, L.P.	2021	30,000,000	5,679,551	24,320,449	0	NM	NM	NM	NM	NM	NM
Scout Fund I-A, L.P.	2009	75,000,000	75,000,000	0	118,863,364	0	118,863,364	43,863,364	1.58x	1.58x	15.41%
Scout Fund II-A, L.P.	2016	30,000,000	30,000,000	0	605,865	23,017,157	23,623,022	(6,376,978)	0.02x	0.79x	(4.51%)
Total		318,048,685	259,425,138	58,654,968	139,660,625	142,277,118	281,937,743	22,512,605	0.54x	1.09x	4.88%

NM - Not Meaningful

Data as of December 31, 2022. NEPC defines "diverse-owned" as a firm that's at least 50% owned by an under-represented group and "diverse-led" as a firm that's 33% to 50% owned by an under-represented group. The funds listed on this page are those which NEPC has identified as diverse-owned or diverse-led as of December 31, 2022. Therefore, it is possible that a firm may have been diverse-owned or diverse-led at the time of PA SERS's commitment but is no longer, and therefore is excluded from this list. While NEPC has exercised reasonable professional care in preparing this information, we cannot guarantee the accuracy of all source information.



2. REAL ESTATE MARKET & PORTFOLIO UPDATE

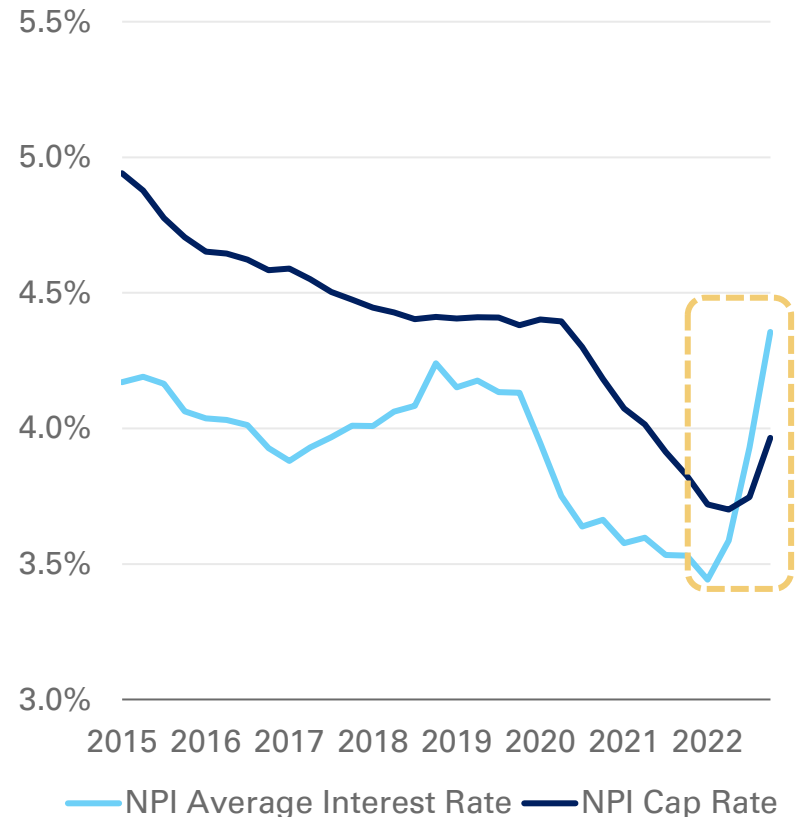


REAL ESTATE MARKET UPDATE

- **Private core real estate saw negative returns continue in the first quarter**
 - The ODCE posted a -3.2% gross return for Q1 (vs. long-term average of 2.2%)
 - This brings the trailing 1-year return down to -3.1%
- **The market is continuing to adjust to the changing interest rate environment**
 - Cap rates (real estate yields) have not reacted as quickly to the spike in interest rates, thus the decline in asset values has been lagged
 - Strong fundamentals (occupancy, rent growth, etc.) provide some counterbalance to the effects of rising interest rates (i.e., income growth can offset yield expansion)
 - Rising interest rates also increase the cost of financing real estate investments
- **Real estate transaction markets remain muted**
 - Wide bid-ask spreads result in relatively few transactions over the past several quarters
- **Fundamentals remain generally strong, but vary across property types**
 - Industrial, retail, and apartment properties continue to report positive NOI growth, driven by healthy (stable or declining) vacancy rates
 - Office vacancies continue to rise as investors and tenants try to assess the future demand for office space

RATE HIKES LEAD TO CAP RATE INVERSION

COST OF DEBT INCREASED FASTER THAN CAP RATES

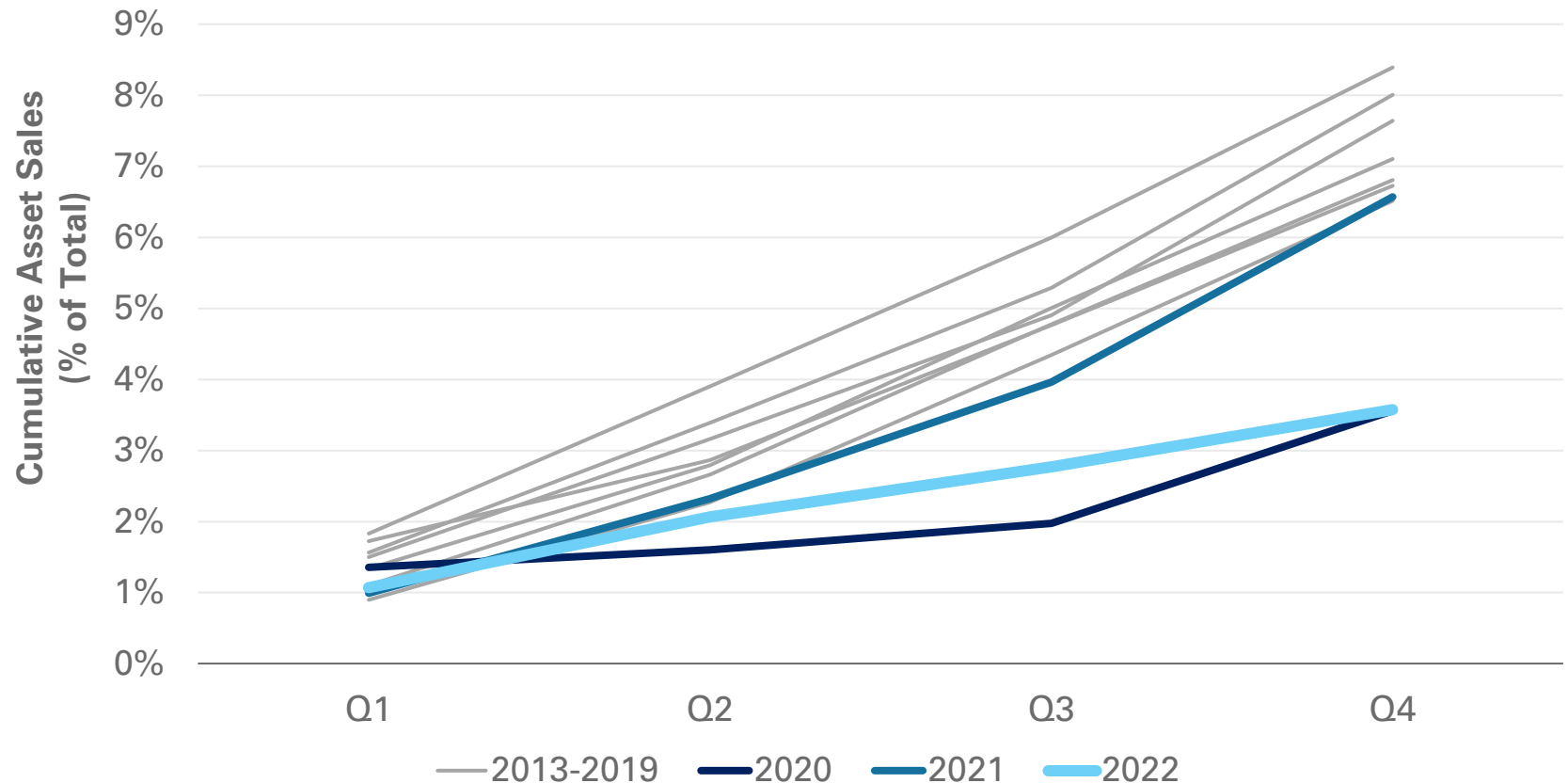


Source: US Federal Reserve, yield on U.S. Treasury securities at 5-year constant maturity. NCREIF NPI average interest rate for all levered properties, average cap rate for all properties. All data shown through December 31, 2022.



TRANSACTION VOLUMES SLOWED IN 2022

TEPID CORE ASSET SALES VOLUMES AS CAP RATES ADJUST



Source: NCREIF. Sale volumes shown as percentage of total assets in NCREIF Property Index which were sold during each period.



LOOKING FORWARD

- **NEPC will continue to work with the PA SERS Investment Office to implement the strategic investment plan for the real estate portfolio, including:**
 - Shifting the underlying strategy mix to the new targets approved in 2022, a process which we anticipate occurring over several years
 - Identifying potential investment opportunities for 2023 value-add and opportunistic commitments
 - We will seek strategies that will both complement the PA SERS portfolio and capitalize on the current market environment
- **Best practices for private market investments include maintaining annual commitment pacing, even through periods of uncertainty**
 - It is the manager’s job to navigate the market and identify attractive investment opportunities

Sub-Strategy	Current Allocation	Target Allocation
Core / Core-Plus	45%	25%
Value-Add & Opportunistic	45%	70%
REITs	10%	5%



APPENDIX 1:

Investment Level
Performance
as of December 31, 2022

ACTIVE INVESTMENTS

Investments		
Investment Name	Vintage Year	Commitment
Activum SG Fund VI L.P.	2019	50,000,000
Activum SG Fund VI Pennsylvania Side-Car L.P.	2019	50,000,000
AG Asia Realty Fund, L.P.	2007	25,000,000
Blackstone Property Partners, L.P.	2017	300,000,000
Blackstone Real Estate Partners IV, L.P.	2003	25,000,000
Blackstone Real Estate Partners V, L.P.	2006	50,000,000
Blackstone Real Estate Partners VI, L.P.	2007	75,000,000
Blackstone Real Estate Partners VII, L.P.	2011	75,000,000
Blackstone Real Estate Partners X, L.P.	2022	75,000,000
Blue Moon Senior Housing II Sidecar L.P.	2019	50,000,000
Blue Moon Senior Housing II, L.P.	2019	50,000,000
BPG Investment Partnership IX, L.P.	2012	25,000,000
BPG Investment Partnership VI, L.P.	2002	25,000,000
BPG Investment Partnership VII, L.P.	2005	25,000,000
C-III Recovery Fund III, L.P.	2017	100,000,000
CenterSquare Real Estate Securities	2002	183,616,773
Colony Investors VIII, L.P.	2007	22,500,000
Fillmore West Fund, L.P.	2008	30,000,000
Forest Separate Account	1992	124,231,969
Heitman America Real Estate Trust, L.P.	2007	100,000,000
Heitman Separate Account	1988	813,635,039
Henderson Park Enhanced Income Fund, SCSp	2019	300,000,000
HotelAVE Separate Account	2018	63,048,685
LaSalle Separate Account	1994	457,660,836
LaSalle Takeover Account	2018	290,634,361
LEM Multifamily Fund VI, L.P.	2022	75,000,000
Lubert-Adler Real Estate Fund VII, L.P.	2014	25,000,000

Trailing Period Returns (IRR) %							
QTD	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	SI IRR
NM	NM	NM	NM	NM	NM	NM	NM
-6.25%	4.44%	4.44%	6.91%				7.28%
-11.37%	-18.86%	-18.86%	41.14%	13.45%	2.49%	8.03%	11.97%
91.55%	24.83%	24.83%	24.77%	5.39%	7.17%	14.70%	10.73%
-6.13%	-5.56%	-5.56%	-6.24%	6.56%	16.21%	19.35%	12.70%
-5.98%	2.93%	2.93%	4.62%	5.56%	7.71%	14.23%	15.03%
NM	NM	NM	NM	NM	NM	NM	NM
NM	NM	NM	NM	NM	NM	NM	NM
NM	NM	NM	NM	NM	NM	NM	NM
4.72%	-23.73%	-23.73%	0.84%	4.99%	5.31%	6.75%	9.35%
-6.46%	-8.09%	-8.09%	-10.64%				-3.53%
-6.15%	-10.86%	-10.86%	-6.36%	3.24%	4.19%	11.53%	9.17%
-5.73%	-1.95%	-1.95%	12.42%				16.09%
NM	NM	NM	NM	NM	NM	NM	NM
-8.73%	-3.62%	-3.62%	-6.05%	0.20%	2.66%		2.11%

NM - Not Meaningful



Data as of December 31, 2022. Performance metrics calculated by NEPC based on data provided by the investment managers.

ACTIVE INVESTMENTS (CONTINUED)

Investments			Trailing Period Returns (IRR) %							
Investment Name	Vintage Year	Commitment	QTD	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	SI IRR
Mesirow Financial Real Estate Value Fund III, L.P.	2018	25,000,000	0.62%	4.01%	4.01%	18.32%				15.73%
Oak Street Real Estate Capital Fund IV, L.P.	2017	100,000,000	2.61%	21.63%	21.63%	25.25%	21.82%			21.53%
Oak Street Real Estate Capital Fund V, L.P.	2020	50,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Fund VI, L.P.	2022	75,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Net Lease Property Fund, L.P.	2018	309,743,743	2.81%	14.08%	14.08%	17.44%				16.62%
OCM Real Estate Opportunities Fund A, L.P.	1996	50,000,000								
OCM Real Estate Opportunities Fund II, L.P.	1998	50,000,000								
Rockpoint Real Estate Fund II, L.P.	2005	35,000,000								
Rockpoint Real Estate Fund III, L.P.	2007	50,000,000								
Rockpoint Real Estate Fund V, L.P.	2015	50,000,000								
Rubicon First Ascent Sidecar	2021	20,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Rubicon First Ascent, L.P.	2021	30,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Scout Fund I-A, L.P.	2009	75,000,000		-4.43%	-4.43%	69.70%	63.47%	66.14%	16.18%	15.41%
Scout Fund II-A, L.P.	2016	30,000,000	-25.88%	-32.95%	-32.95%	-12.81%	-5.17%			-4.51%
Senior Housing Partners V, L.P.	2015	45,727,881								
Senior Housing Partners VI, L.P.	2019	100,000,000								
SRE Opportunity Fund III Select, L.P.	2018	50,000,000								
SRE Opportunity Fund III, L.P.	2018	50,000,000								
Starwood Global Opportunity Fund VII-A, L.P.	2006	35,000,000								
Starwood Global Opportunity Fund VIII, L.P.	2009	50,000,000								
Starwood Opportunity Fund VI, L.P.	2001	50,000,000								
Trumbull Property Fund, L.P.	1988	25,558,525	-5.41%	5.93%	5.93%	4.47%	3.47%	4.49%	7.06%	6.87%
ValStone Opportunity Fund V, LLC	2014	14,663,402	-2.67%	4.98%	4.98%	3.65%	6.79%	7.22%		7.67%
Westbrook Real Estate Fund V, L.P.	2004	25,000,000	-1.96%	22.82%	22.82%	-4.12%	11.71%	5.39%	23.80%	43.55%
Westbrook Real Estate Fund VI, L.P.	2006	35,000,000	1.74%	-0.02%	-0.02%	-0.29%	-0.87%	-0.52%	14.58%	0.23%
Westbrook Real Estate Fund VII, L.P.	2007	50,000,000	-13.79%	-13.58%	-13.58%	-8.65%	-5.74%	-2.74%	9.35%	1.94%
Westbrook Real Estate Fund VIII, L.P.	2009	50,000,000	-4.89%	-5.54%	-5.54%	-10.55%	-6.52%	-3.94%	6.85%	9.49%
Total			-1.64%	-1.41%	-1.41%	7.10%	7.91%	7.43%	9.87%	6.37%

NM - Not Meaningful



Data as of December 31, 2022. Performance metrics calculated by NEPC based on data provided by the investment managers.

PERFORMANCE BY STRATEGY

Investments		Commitments		Cash Flows		Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Core/Core-Plus											
Blackstone Property Partners, L.P.	2017	\$300,000,000	\$0	\$300,000,000	\$12,459,298	\$403,700,719	\$416,160,017	\$116,160,017	0.04	1.39	7.28%
Heitman America Real Estate Trust, L.P.	2007	\$100,000,000	\$0	\$102,317,196	\$96,160,831						
Henderson Park Enhanced Income Fund, SCSp	2019	\$342,207,715	\$23,340,149	\$318,867,566	\$68,326,580						
Oak Street Real Estate Capital Net Lease Property Fund, L.P.	2018	\$309,743,743	\$0	\$309,743,743	\$37,784,994	\$387,716,105	\$425,501,099	\$115,757,357	0.12	1.37	16.62%
Trumbull Property Fund, L.P.	1988	\$25,558,525	\$0	\$25,558,525	\$125,878,560	\$22,489,036	\$148,367,597	\$122,809,072	4.93	5.81	6.87%
Total Core/Core-Plus		\$1,077,509,983	\$23,340,149	\$1,056,487,030	\$340,610,264	\$1,273,569,530	\$1,614,179,794	\$557,692,765	0.32	1.53	7.49%
Value-Add/Oppportunistic SMAs											
Heitman Separate Account	1988	\$813,635,039	\$0	\$825,277,792	\$1,230,476,873						
HotelAVE Separate Account	2018	\$63,048,685	\$0	\$63,048,685	\$20,191,396	\$36,071,583	\$56,262,979	-\$6,785,706	0.32	0.89	-3.53%
LaSalle Separate Account	1994	\$457,660,836	\$0	\$460,721,415	\$78,848,456	\$155,462,235	\$934,310,691	\$473,589,276	1.69	2.03	9.17%
LaSalle Takeover Account	2018	\$290,634,361	\$0	\$290,634,361	\$172,440,449	\$312,331,437	\$484,771,886	\$194,137,525	0.59	1.67	16.09%
Total Value-Add/Oppportunistic SMAs		\$1,624,978,921	\$0	\$1,639,682,253	\$2,201,957,174						5.90%
REIT											
CenterSquare Real Estate Securities	2002	\$183,616,773	\$0	\$183,616,773	\$36,168,336	\$290,532,256	\$326,700,592	\$143,083,819	0.20	1.78	9.35%
Total REIT		\$183,616,773	\$0	\$183,616,773	\$36,168,336	\$290,532,256	\$326,700,592	\$143,083,819	0.20	1.78	9.35%
Timber											
Forest Separate Account	1992	\$124,231,969	\$0	\$124,231,969	\$247,882,576						
Total Timber		\$124,231,969	\$0	\$124,231,969	\$247,882,576						
Value Add/Oppportunistic											
Activum SG Fund VI L.P.	2019	\$57,086,034	\$9,113,105	\$47,964,496	\$201,212						
Activum SG Fund VI Pennsylvania Side-Car L.P.	2019	\$55,410,460	\$22,737,731	\$32,672,729	\$0	NM	NM	NM	NM	NM	NM
AG Asia Realty Fund, L.P.	2007	\$25,000,000	\$1,500,000	\$23,500,000	\$27,487,500				1.17		
Blackstone Real Estate Partners IV, L.P.	2003	\$25,000,000	\$0	\$25,000,000	\$41,002,682	\$301,379	\$41,304,061	\$16,304,061	1.64	1.65	11.97%
Blackstone Real Estate Partners V, L.P.	2006	\$50,000,000	\$2,087,026	\$47,912,974	\$100,295,603	\$60,939	\$100,356,542	\$52,443,568	2.09	2.09	10.73%
Blackstone Real Estate Partners VI, L.P.	2007	\$75,000,000	\$3,680,925	\$71,600,414	\$153,454,797	\$1,302,910	\$154,757,707	\$83,157,292	2.14	2.16	12.70%
Blackstone Real Estate Partners VII, L.P.	2011	\$75,000,000	\$8,348,387	\$69,409,966	\$120,589,217	\$15,500,750	\$136,089,967	\$66,680,001	1.74	1.96	15.03%
Blackstone Real Estate Partners X, L.P.	2022	\$75,000,000	\$75,000,000	\$0	\$0	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II Sidecar L.P.	2019	\$50,000,000	\$9,312,589	\$40,718,832	\$0	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II, L.P.	2019	\$50,000,000	\$9,874,319	\$40,125,681	\$0	NM	NM	NM	NM	NM	NM
BPG Investment Partnership IX, L.P.	2012	\$25,000,000	\$696,591	\$24,189,456	\$40,249,266						
BPG Investment Partnership VI, L.P.	2002	\$24,543,712	\$0	\$24,543,712	\$44,831,120						
BPG Investment Partnership VII, L.P.	2005	\$25,000,000	\$0	\$24,985,519	\$17,497,341						
C-III Recovery Fund III, L.P.	2017	\$100,000,000	\$10,844,979	\$88,815,579	\$8,471,944						

NM - Not Meaningful



Data as of December 31, 2022. Performance metrics calculated by NEPC based on data provided by the investment managers.

PERFORMANCE BY STRATEGY (CONTINUED)

Investments		Commitments		Cash Flows		Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Value Add/Oppportunistic (Continued)											
Colony Investors VIII, L.P.	2007	\$22,500,000	\$844,200	\$21,655,800	\$8,350,233						
Fillmore West Fund, L.P.	2008	\$29,342,336	\$0	\$29,342,336	\$32,056,514						
LEM Multifamily Fund VI, L.P.	2022	\$75,000,000	\$49,500,000	\$25,500,000	\$554,348						
Lubert-Adler Real Estate Fund VII, L.P.	2014	\$25,000,000	\$625,000	\$24,375,000	\$13,463,917						
Mesriow Financial Real Estate Value Fund III, L.P.	2018	\$25,647,559	\$0	\$25,859,215	\$7,493,823						
Oak Street Real Estate Capital Fund IV, L.P.	2017	\$100,000,000	\$0	\$100,000,000	\$112,250,408						
Oak Street Real Estate Capital Fund V, L.P.	2020	\$50,000,000	\$11,840,000	\$38,156,863	\$10,405,270						
Oak Street Real Estate Capital Fund VI, L.P.	2022	\$75,000,000	\$75,000,000	\$0	\$0						
OCM Real Estate Opportunities Fund A, L.P.	1996	\$50,000,000	\$0	\$50,000,000	\$82,741,548						
OCM Real Estate Opportunities Fund II, L.P.	1998	\$50,000,000	\$0	\$50,000,000	\$73,028,362						
Rockpoint Real Estate Fund II, L.P.	2005	\$34,138,784	\$0	\$37,446,828	\$31,202,182				0.83		
Rockpoint Real Estate Fund III, L.P.	2007	\$50,632,887	\$4,241,165	\$50,675,144	\$68,151,141				1.34		
Rockpoint Real Estate Fund V, L.P.	2015	\$50,000,000	\$8,663,087	\$45,964,284	\$25,396,310				0.55		
Rubicon First Ascent Sidecar	2021	\$20,000,000	\$15,147,611	\$4,852,389	\$0						
Rubicon First Ascent, L.P.	2021	\$30,000,000	\$24,320,449	\$5,679,551	\$0						
Scout Fund I-A, L.P.	2009	\$75,000,000	\$0	\$75,000,000	\$118,863,364				1.58	1.58	15.41%
Scout Fund II-A, L.P.	2016	\$30,000,000	\$0	\$30,000,000	\$605,865				0.02	0.79	-4.51%
Senior Housing Partners V, L.P.	2015	\$45,727,881	\$4,590,192	\$41,137,690	\$4,886,698				0.12		
Senior Housing Partners VI, L.P.	2019	\$100,000,000	\$28,812,425	\$71,093,533	\$0				0.00		
SRE Opportunity Fund III Select, L.P.	2018	\$50,000,000	\$20,462,500	\$29,677,486	\$18,329,003						
SRE Opportunity Fund III, L.P.	2018	\$50,000,000	\$13,186,439	\$40,120,032	\$13,863,561						
Starwood Global Opportunity Fund VII-A, L.P.	2006	\$35,000,000	\$0	\$35,000,000	\$27,295,581						
Starwood Global Opportunity Fund VIII, L.P.	2009	\$50,000,000	\$4,643,719	\$45,356,281	\$72,256,025						
Starwood Opportunity Fund VI, L.P.	2001	\$50,000,000	\$0	\$50,153,525	\$51,927,126						
ValStone Opportunity Fund V, LLC	2014	\$14,663,402	\$0	\$14,663,777	\$9,229,834						
Westbrook Real Estate Fund V, L.P.	2004	\$25,000,000	\$0	\$27,259,023	\$52,005,779				0.63	1.59	7.67%
Westbrook Real Estate Fund VI, L.P.	2006	\$35,000,000	\$0	\$38,550,099	\$38,837,150				1.91	1.91	43.55%
Westbrook Real Estate Fund VII, L.P.	2007	\$50,000,000	\$0	\$56,311,878	\$56,575,755				1.01	1.01	0.23%
Westbrook Real Estate Fund VIII, L.P.	2009	\$50,000,000	\$0	\$54,304,745	\$63,418,319				1.00	1.13	1.94%
Westbrook Real Estate Fund VIII, L.P.	2009	\$50,000,000	\$0	\$54,304,745	\$63,418,319				1.17	1.30	9.49%
Total Value Add/Oppportunistic		\$2,059,693,055	\$415,072,437	\$1,679,574,838	\$1,547,268,797	\$762,167,149	\$2,309,435,946	\$629,861,108	0.92	1.38	8.03%
Total		\$5,070,030,701	\$438,412,586	\$4,683,592,863	\$4,373,887,148				0.93		6.37%

NM - Not Meaningful



Data as of December 31, 2022. Performance metrics calculated by NEPC based on data provided by the investment managers.



APPENDIX 2:

Real Estate Strategy Summaries

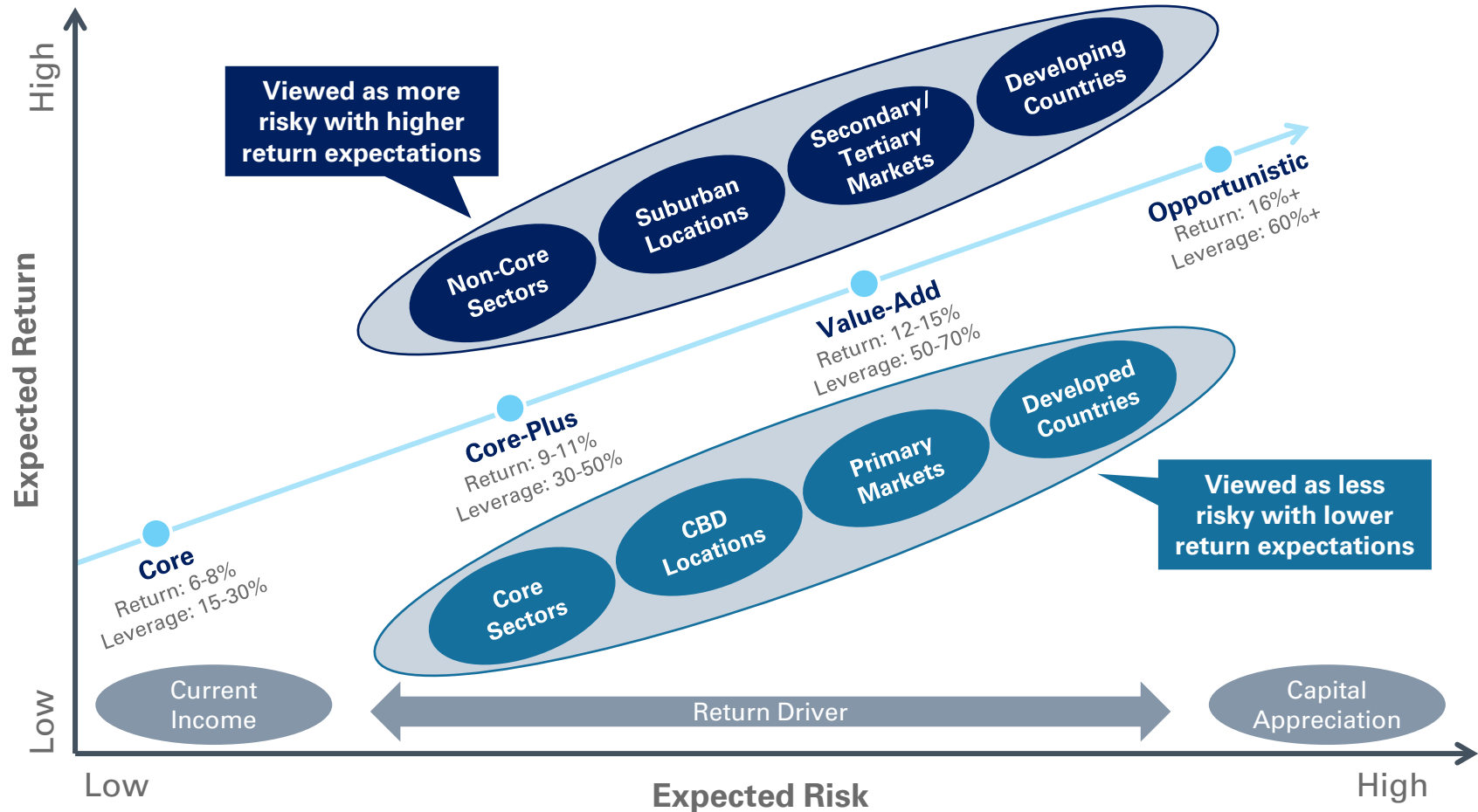


SPECTRUM OF REAL ESTATE INVESTMENT STRATEGIES

	Real Estate Investment Style / Overview	Investment Strategy	Portfolio Role	Considerations
Core Strategies	Core / Core-Plus <ul style="list-style-type: none"> Return driver: income Primary vehicle: open-end funds Historical avg. returns: 7-8% / 8%-10% Leverage: 15-40% / 40%-50% Hold period: long-term 	Stabilized income producing assets	<ul style="list-style-type: none"> Current income Broad exposure to commercial real estate (asset class beta) Inflation protection 	<ul style="list-style-type: none"> Vehicles are semi-liquid (entrance/exit queues) Limited alpha producing opportunities
	RE Securities <ul style="list-style-type: none"> Return driver: income Primary vehicle: REIT funds Historical avg. returns: 7-9% Leverage: 30-50% Hold period: long-term 	Stabilized income producing assets	<ul style="list-style-type: none"> Current income (dividends) Long-term exposure to commercial real estate (beta) Long-term inflation protection 	<ul style="list-style-type: none"> Volatility Equity correlation
Non-Core Strategies	Value-Add <ul style="list-style-type: none"> Return driver: income/appreciation Primary vehicle: varies Historical avg. returns: 8-10% Leverage: 40-70% Hold period: 3-5 years 	Properties requiring lease-up, repositioning, renovation or rehabilitation	<ul style="list-style-type: none"> Provides part current income and capital appreciation Some inflation protection 	<ul style="list-style-type: none"> Vehicles are semi-liquid or illiquid Vintage year is important Higher leverage vs. core Poor benchmarks
	Opportunistic <ul style="list-style-type: none"> Return driver: appreciation Primary vehicle: closed-end funds Historical avg. returns: 10-12% Leverage: 60%+ Hold period: varies 	Distressed investments, recapitalizations, development, etc.	<ul style="list-style-type: none"> Real estate alpha through capital appreciation with minimal current income 	<ul style="list-style-type: none"> Vehicles are illiquid Vintage year is important High leverage Poor benchmarks

RELATIVE EXPECTED RISK RETURN PROFILE

ILLUSTRATIVE RISK / RETURN PROFILE





APPENDIX 3:

Disclaimers & Disclosures



DISCLAIMER

Past performance is no guarantee of future results.

The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information used to prepare this report was obtained directly from the investment managers or custodians, and market index data was provided by other external sources. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.



ALTERNATIVE INVESTMENT DISCLOSURES

In addition, it is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds, real estate and private equity:

1. Performance can be volatile and investors could lose all or a substantial portion of their investment
2. Leverage and other speculative practices may increase the risk of loss
3. Past performance may be revised due to the revaluation of investments
4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
6. These funds are not subject to the same regulatory requirements as registered investment vehicles
7. Managers may not be required to provide periodic pricing or valuation information to investors
8. These funds may have complex tax structures and delays in distributing important tax information
9. These funds often charge high fees
10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy