



PENNSYLVANIA SERS

REAL ESTATE QUARTERLY
PERFORMANCE REVIEW

THIRD QUARTER 2022



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1. REAL ESTATE QUARTERLY PERFORMANCE REPORT

As of September 30, 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 September 30, 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 C|A 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 0.2% year-to-date**
 - The portfolio has generated an annualized return of 8.2% over the trailing three years

Portfolio Performance	YTD	1 Year	3 Year	5 Year	10 Year	Inception
Pennsylvania SERS: Total Real Estate Portfolio	0.2%	6.5%	8.2%	6.2%	7.7%	7.1%
<i>Policy Benchmark: NFI-ODCE Index¹</i>	12.4%	21.0%	11.4%	9.3%	9.9%	N/A
<i>NCREIF Property Index²</i>	9.4%	16.1%	9.9%	8.6%	11.4%	N/A
<i>C A Non-Core Real Estate Index³</i>	2.7%	10.7%	11.0%	9.9%	11.2%	N/A
<i>S&P 500 Index</i>	-23.9%	-15.5%	8.2%	9.2%	11.7%	N/A

Data as September 30, 2022. Sources include NCREIF, C|A, Manager data, and NEPC.

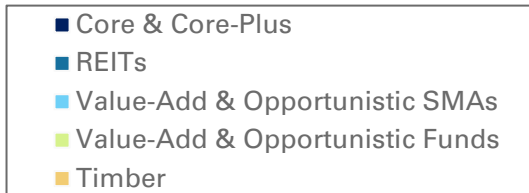
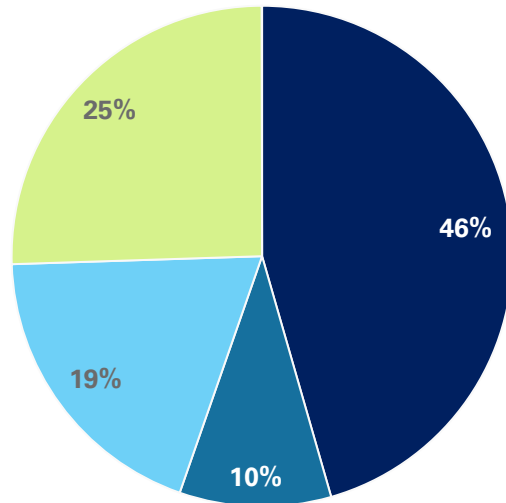
1. The NFI-ODCE Index represents pooled returns of open-end comingled core funds in the ODCE Index. The ODCE includes the effects of leverage, and returns shown are time-weighted and net of fees.
2. The NCREIF Property Index (NPI) represents property-level returns of institutionally-owned core real estate properties in the United States. The NPI is unlevered, and returns are time-weighted and gross of fees.
3. The C|A Benchmark represents pooled horizon internal rate of return (IRR) calculations, net of fees, across value-add and opportunistic real estate funds.
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.



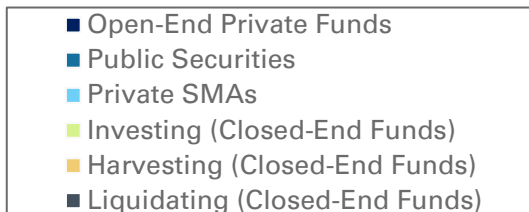
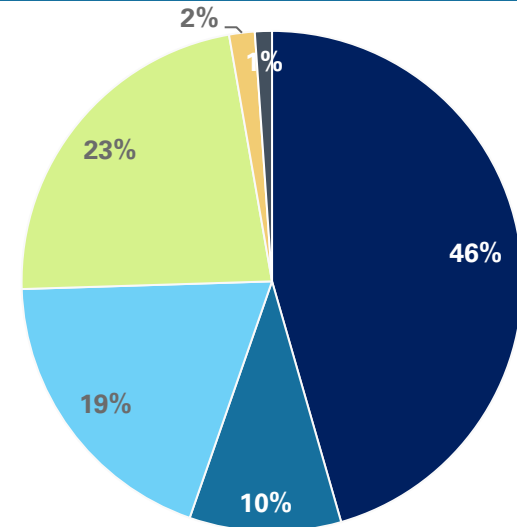
PORTFOLIO ALLOCATION OVERVIEW

- The charts below show 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 56% 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



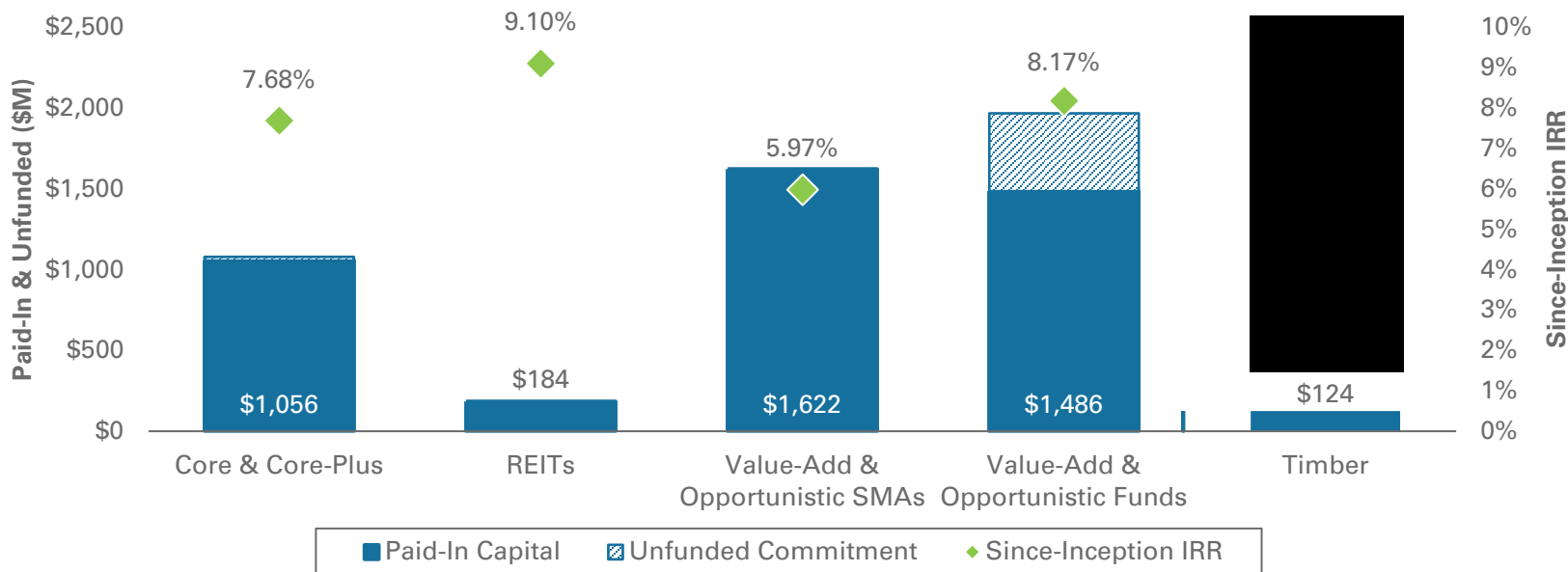
Allocation by Structure & Lifecycle Stage



Data as of September 30, 2022.

PERFORMANCE BY STRATEGY

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



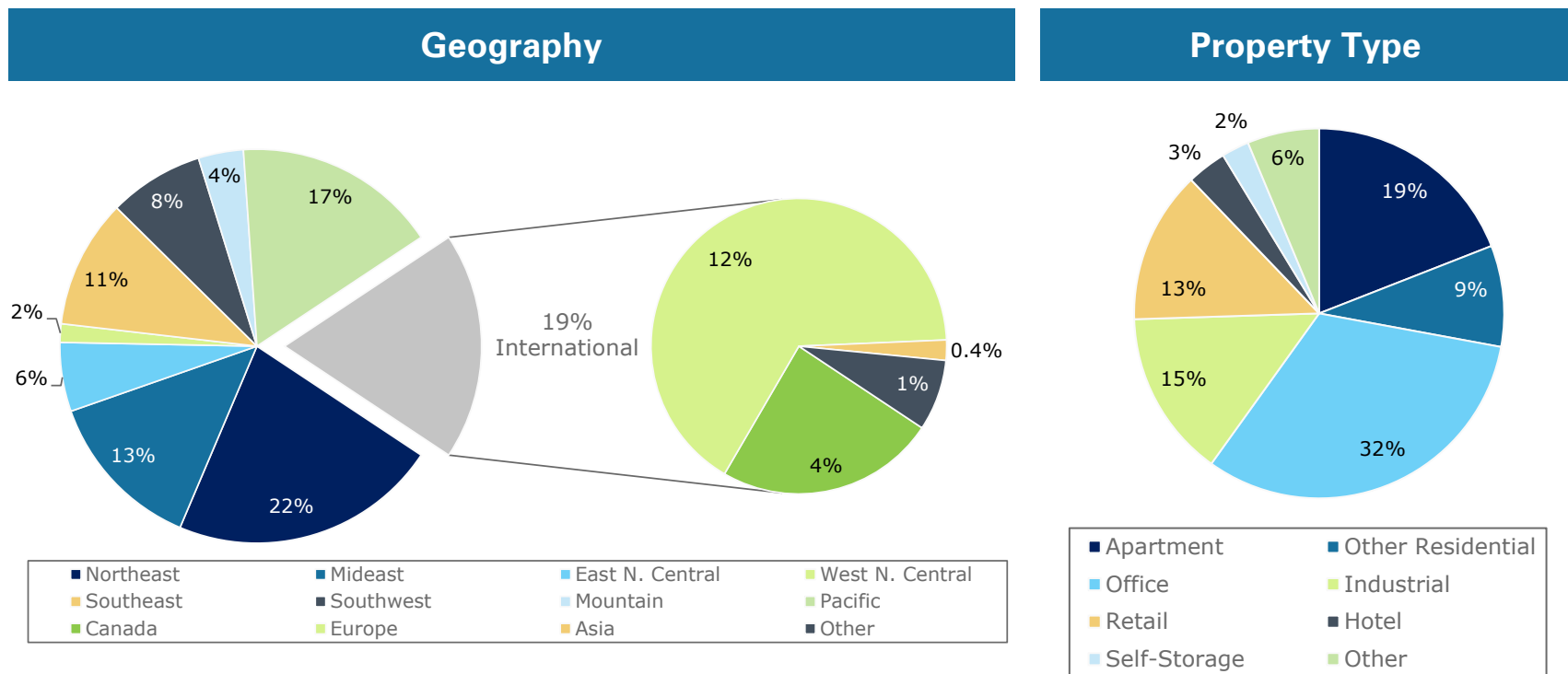
Investment Strategy	Commitment	Paid-In Capital	Unfunded Commitment	Cumulative Distributions	Valuation	Total Value	Net Benefit	Call Ratio	DPI Ratio	TVPI Ratio	IRR
Core & Core-Plus	1,075,594,221	1,056,253,278	21,424,387	326,933,559	1,291,221,906	1,618,155,465	561,902,187	98%	0.31x	1.53x	7.68%
REITs	183,616,773	183,616,773	0	36,168,336	277,441,061	313,609,397	129,992,624	100%	0.20x	1.71x	9.10%
Value-Add & Opportunistic SMAs	1,607,695,809	1,621,684,382	0	2,201,957,174				101%			5.97%
Value-Add & Opportunistic Funds	1,930,287,661	1,485,717,347	481,299,952	1,354,671,486	722,619,147	2,077,290,633	591,573,286	77%	0.91x	1.40x	8.17%
Timber	124,231,969	124,231,969	0	247,882,576				100%			
Total (Active Investments)	4,921,426,432	4,471,503,748	502,724,339	4,167,613,132				91%	0.93x		6.41%



Data as of September 30, 2022. Liquidated investments not shown. Returns shown do not take into account risk/volatility of underlying strategies.

PORTFOLIO DIVERSIFICATION

- The Pennsylvania SERS real estate portfolio is broadly diversified by property type and geography within the U.S.
- 19% of the portfolio is now invested outside the US, primarily in Europe

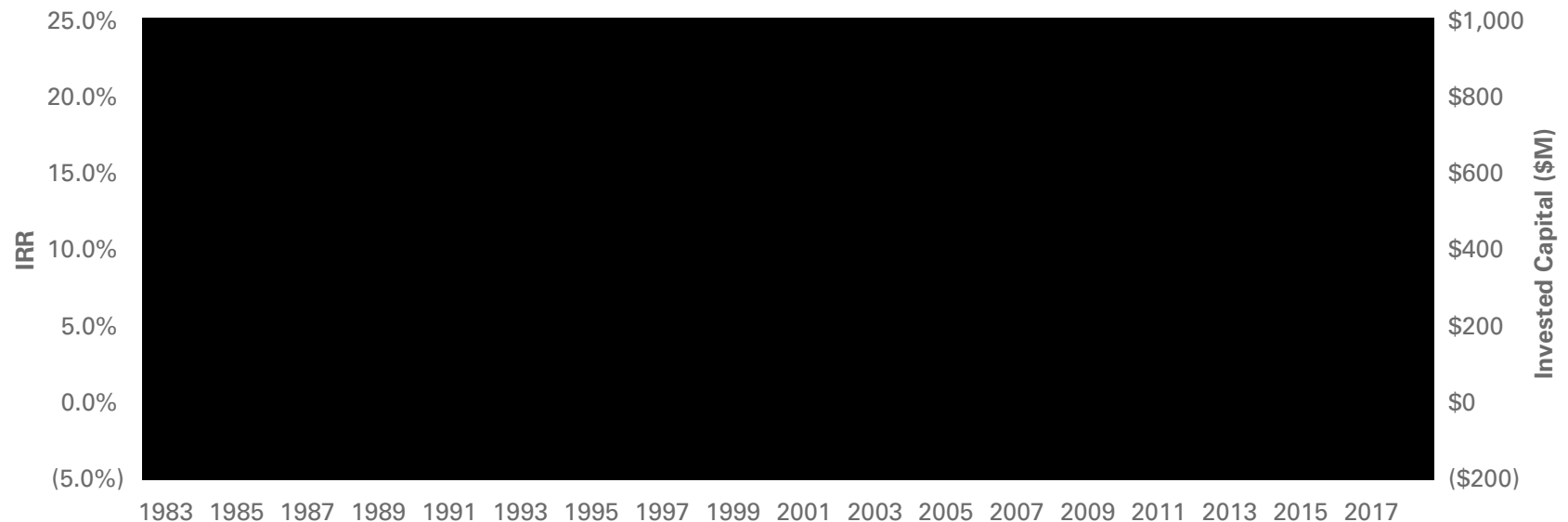


Data as of September 30, 2022. Underlying diversification data provided by the investment managers.

HISTORICAL PERFORMANCE BY VINTAGE

- The following chart illustrates capital invested and inception-to-date performance by vintage year as of September 30, 2022
 - Inconsistent pacing has negatively impacted portfolio performance
 - Staff and NEPC are focused on maintaining a consistent investment pacing schedule to mitigate the risk of heavy capital investments in poor vintage years

Commitments & Performance by Vintage Year

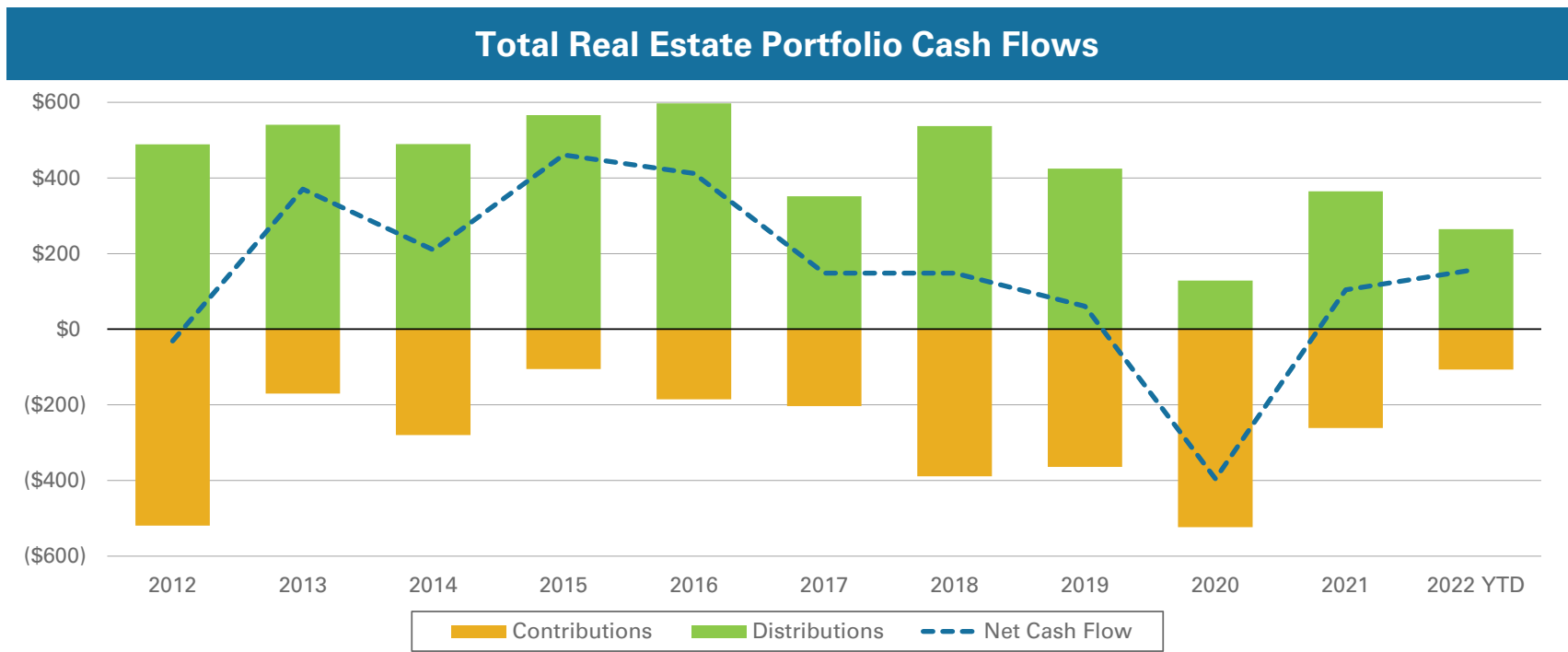


Data as of September 30, 2022. Offsetting cash flows have been excluded, such as assets that were transferred from one account to another.



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 and YTD
 - The portfolio was cash flow positive in eight of the last 10 full years, including in 2021
 - Through the first three quarters of 2022, distributions increased while contributions (i.e., capital calls) were muted



Data as of September 30, 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 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	29,318,832	20,712,589	0	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II, L.P.	2019	50,000,000	28,354,119	21,645,881	0	NM	NM	NM	NM	NM	NM
HotelAVE Separate Account	2018	63,048,685	63,048,685	0	20,191,396	38,562,102	58,753,498	(4,295,187)	0.32x	0.93x	(2.30%)
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	118,856,296	0	118,856,296	43,856,296	1.58x	1.58x	15.41%
Scout Fund II-A, L.P.	2016	30,000,000	30,000,000	0	605,865	31,054,605	31,660,470	1,660,470	0.02x	1.06x	1.09%
Total		318,048,685	236,253,576	81,826,530	139,653,557	137,898,077	277,551,634	41,298,058	0.59x	1.17x	7.95%

NM - Not Meaningful

Data as of September 30, 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 September 30, 2022. Therefore, it is possible that a firm may have been diverse-owned or diverse-led at the time of 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

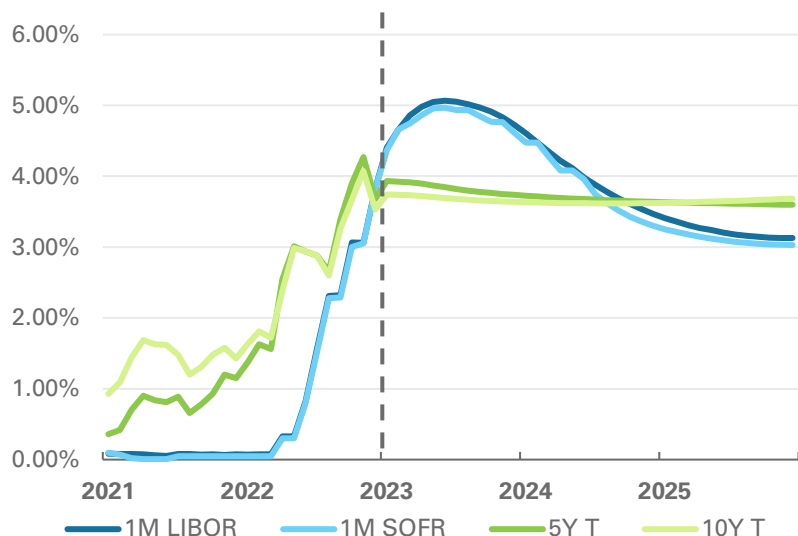


REAL ESTATE MARKET UPDATE

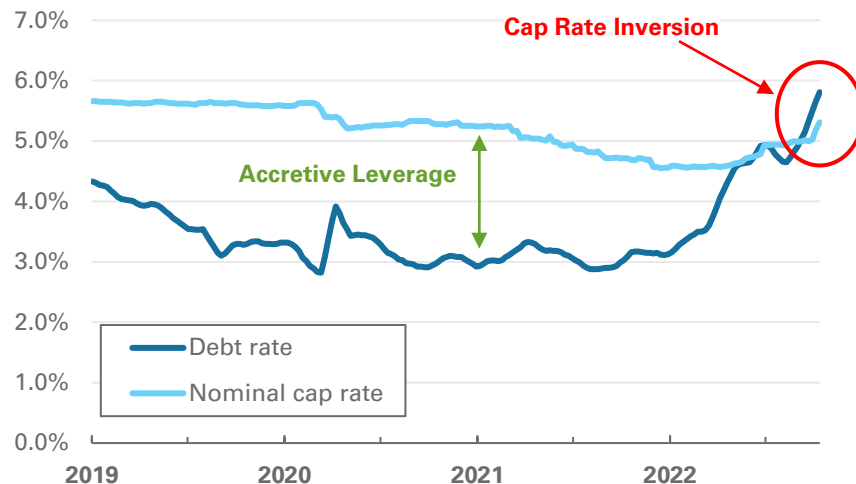
- **Private core real estate saw returns continue to moderate from all-time highs**
 - The ODCE posted a preliminary -5.0% gross return for Q4 (vs. long-term average of 2.2%)
 - This brings the trailing 1-year return in-line with historic averages at 7.5% (gross)
- **Fundamentals remain generally strong, but vary across property types**
 - Industrial and apartment properties continue to be the strongest performers, driven by continued demand growth and resulting rent growth
 - Apartments, industrial, and retail have all exhibited 10%+ NOI growth over the past year
 - Office vacancies continue to slowly increase as investors and tenants try to assess the future demand for office space
- **Interest rate increases continue to be absorbed by the market; driving cost of debt and cap rates higher**
 - Real estate transaction volumes remain low as investors digest rising rates and other macro trends and economic data
 - 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
- **REITs have followed the broader equity market; down nearly 30% year-to-date**
 - This divergence between public and private real estate is not uncommon over shorter time periods, as REITs tend to react more quickly to market changes

INTEREST RATE HIKES CREATE DOMINO EFFECT

Base Lending Rates Spiked



Leverage Became No Longer Accretive



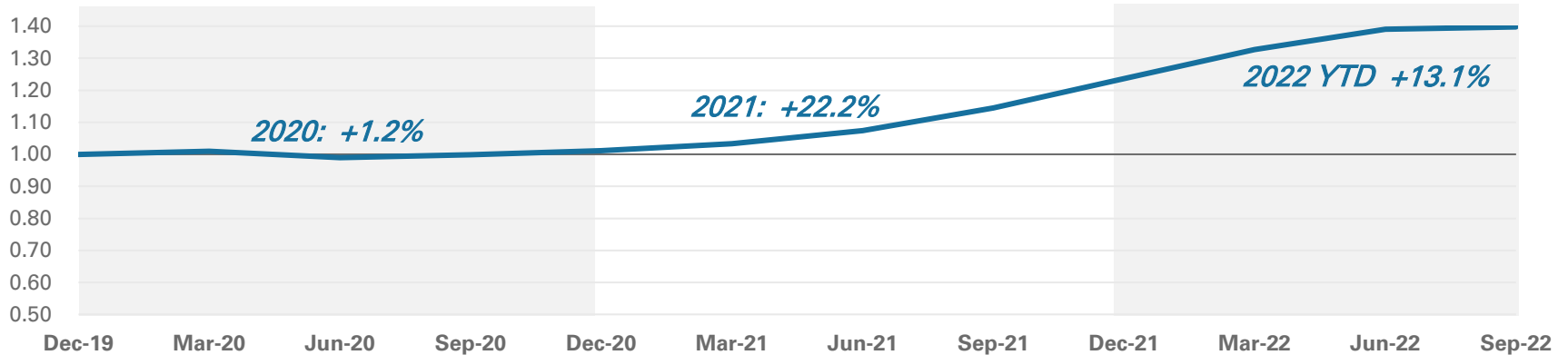
- Interest rate increases driven by the Fed's desire to tame inflation shocked real estate capital markets in 2022
- Base lending rates for real estate spiked as a result and increased over 4% with spreads also increasing, leading to all-in interest rates of 5.5% to 7.5% in the fourth quarter
- Cap rate inversion occurred mid-year and widened as interest rates continued to increase
- Higher interest rates are creating downward pressure on real estate values

PUBLIC REAL ESTATE REACTS FIRST

REITs have higher volatility but can be a leading indicator



Private real estate performance lags and is smoothed by appraisals



Sources: REIT returns represented by the FTSE NAREIT Equity REITs benchmark as of September 30, 2022, with data provided by Factset. Private real estate represents the NCREIF NFI-ODCE gross total return, value-weighted.



LOOKING FORWARD

- **Changes to the sub-strategy target allocations within the real estate portfolio were approved at the April Investment Committee meeting**
 - NEPC believes that these changes should increase the total expected/targeted return for real estate portfolio while still maintaining strategic allocations to Core, Core-Plus, and REIT strategies
- **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
- **NEPC will continue to work with the Investment Office to identify potential investment opportunities in 2023**

Sub-Strategy	Current Allocation	Target Allocation
Core / Core-Plus	46%	25%
Value-Add & Opportunistic	44%	70%
REITs	10%	5%



APPENDIX 1:

Investment Level
Performance
as of September 30, 2022

ACTIVE INVESTMENTS

Investments			Trailing Period Returns (IRR) %							
Investment Name	Vintage Year	Commitment	QTD	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	SI IRR
Activum SG Fund VI L.P.	2019	50,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Activum SG Fund VI Pennsylvania Side-Car L.P.	2019	50,000,000	NM	NM	NM	NM	NM	NM	NM	NM
AG Asia Realty Fund, L.P.	2007	25,000,000								
Blackstone Property Partners, L.P.	2017	300,000,000	-0.89%	11.28%	18.78%	10.00%				9.25%
Blackstone Real Estate Partners IV, L.P.	2003	25,000,000	-0.58%	-9.85%	-5.71%	47.36%	12.87%	0.61%	6.84%	11.98%
Blackstone Real Estate Partners V, L.P.	2006	50,000,000	-0.49%	9.62%	10.22%	23.00%	4.17%	6.45%	13.68%	10.73%
Blackstone Real Estate Partners VI, L.P.	2007	75,000,000	-10.34%	-0.27%	4.01%	-1.31%	8.65%	12.58%	18.66%	12.71%
Blackstone Real Estate Partners VII, L.P.	2011	75,000,000	-3.05%	6.19%	9.47%	5.57%	7.23%	7.93%	14.69%	15.19%
Blackstone Real Estate Partners X, L.P.	2022	75,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II Sidecar L.P.	2019	50,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II, L.P.	2019	50,000,000	NM	NM	NM	NM	NM	NM	NM	NM
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	-10.39%	-27.16%	-15.98%	-1.01%	4.33%	5.01%	6.26%	9.10%
Colony Investors VIII, L.P.	2007	22,500,000								
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	-3.07%	-1.73%	-9.76%	-8.05%				-2.30%
LaSalle Separate Account	1994	457,193,866	-5.41%	-4.97%	-3.65%	-4.87%	5.10%	4.44%	12.00%	9.25%
LaSalle Takeover Account	2018	273,818,219	0.45%	4.20%	4.29%	14.48%				18.08%
LEM Multifamily Fund VI, L.P.	2022	75,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Lubert-Adler Real Estate Fund VII, L.P.	2014	25,000,000	0.52%	5.15%	9.89%	-3.25%	1.96%	3.75%		3.08%
Mesirow Financial Real Estate Value Fund III, L.P.	2018	25,000,000	1.21%	3.36%	14.44%	20.23%				16.65%

NM - Not Meaningful



Data as of September 30, 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
Oak Street Real Estate Capital Fund IV, L.P.	2017	100,000,000	0.96%	17.56%	28.98%	25.62%				21.84%
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	3.57%	10.95%	17.69%	18.17%				17.25%
Rockpoint Finance Fund I, L.P.	2007	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		-6.01%		61.28%	55.17%	42.26%	15.33%	15.41%
Scout Fund II-A, L.P.	2016	30,000,000	-8.32%	-9.54%	-7.89%	-3.28%	2.51%			1.09%
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	-0.20%	11.35%	16.85%	5.63%	4.62%	5.24%	7.27%	6.90%
ValStone Opportunity Fund V, LLC	2014	14,663,402	1.43%	7.32%	9.07%	7.74%	7.45%	8.01%		8.13%
Westbrook Real Estate Fund V, L.P.	2004	25,000,000	0.00%	25.28%	23.61%	17.76%	10.59%	4.65%	23.07%	43.55%
Westbrook Real Estate Fund VI, L.P.	2006	35,000,000	-0.06%	-0.40%	-0.48%	-0.28%	-0.96%	-0.61%	13.50%	0.23%
Westbrook Real Estate Fund VII, L.P.	2007	50,000,000	-0.19%	-0.16%	0.01%	-6.67%	-3.41%	-0.47%	9.50%	2.20%
Westbrook Real Estate Fund VIII, L.P.	2009	50,000,000	-0.18%	-0.67%	-1.25%	-10.22%	-4.81%	-2.95%	6.83%	9.64%
Total			-2.03%	0.22%	6.49%	8.26%	8.79%	7.96%	10.35%	6.41%

NM - Not Meaningful



Data as of September 30, 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	\$9,748,156	\$433,487,125	\$443,235,281	\$143,235,281	0.03	1.48	9.25%
Heitman America Real Estate Trust, L.P.	2007	\$100,000,000	\$0	\$102,083,444	\$94,568,377						
Henderson Park Enhanced Income Fund, SCSp	2019	\$340,291,953	\$21,424,387	\$318,867,566	\$65,810,167						
Oak Street Real Estate Capital Net Lease Property Fund, L.P.	2018	\$309,743,743	\$0	\$309,743,743	\$31,612,627	\$383,213,162	\$414,825,789	\$105,082,047	0.10	1.34	17.25%
Trumbull Property Fund, L.P.	1988	\$25,558,525	\$0	\$25,558,525	\$125,194,232	\$24,463,966	\$149,658,198	\$124,099,673	4.90	5.86	6.90%
Total Core/Core-Plus		\$1,075,594,221	\$21,424,387	\$1,056,253,278	\$326,933,559	\$1,291,221,906	\$1,618,155,465	\$561,902,187	0.31	1.53	7.68%
Value-Add/Oppportunistic SMAs											
Heitman Separate Account	1988	\$813,635,039	\$0	\$824,563,033	\$1,230,476,873						
HotelAVE Separate Account	2018	\$63,048,685	\$0	\$63,048,685	\$20,191,396	\$38,562,102	\$58,753,498	-\$4,295,187	0.32	0.93	-2.30%
LaSalle Separate Account	1994	\$457,193,866	\$0	\$460,254,445	\$778,848,456	\$165,167,847	\$944,016,303	\$483,761,859	1.69	2.05	9.25%
LaSalle Takeover Account	2018	\$273,818,219	\$0	\$273,818,219	\$172,440,449	\$314,015,429	\$486,455,878	\$212,637,659	0.63	1.78	18.08%
Total Value-Add/Oppportunistic SMAs		\$1,607,695,809	\$0	\$1,621,684,382	\$2,201,957,174						5.97%
REIT											
CenterSquare Real Estate Securities	2002	\$183,616,773	\$0	\$183,616,773	\$36,168,336	\$277,441,061	\$313,609,397	\$129,992,624	0.20	1.71	9.10%
Total REIT		\$183,616,773	\$0	\$183,616,773	\$36,168,336	\$277,441,061	\$313,609,397	\$129,992,624	0.20	1.71	9.10%
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	\$56,361,791	\$8,067,805	\$48,285,553	\$0	NM	NM	NM	NM	NM	NM
Activum SG Fund VI Pennsylvania Side-Car L.P.	2019	\$53,544,144	\$20,871,415	\$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	\$40,994,391	\$349,028	\$41,343,419	\$16,343,419	1.64	1.65	11.98%
Blackstone Real Estate Partners V, L.P.	2006	\$50,000,000	\$2,087,026	\$47,912,974	\$100,208,300	\$87,756	\$100,296,056	\$52,383,082	2.09	2.09	10.73%
Blackstone Real Estate Partners VI, L.P.	2007	\$75,000,000	\$3,680,925	\$71,600,414	\$153,141,400	\$1,714,675	\$154,856,075	\$83,255,661	2.14	2.16	12.71%
Blackstone Real Estate Partners VII, L.P.	2011	\$75,000,000	\$8,348,387	\$69,409,966	\$119,944,217	\$17,157,755	\$137,101,972	\$67,692,006	1.73	1.98	15.19%
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	\$20,712,589	\$29,318,832	\$0	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II, L.P.	2019	\$50,000,000	\$21,645,881	\$28,354,119	\$0	NM	NM	NM	NM	NM	NM
BPG Investment Partnership IX, L.P.	2012	\$25,000,000	\$696,591	\$24,189,456	\$40,087,976						
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	\$13,683,745	\$85,976,813	\$8,072,741						

NM - Not Meaningful



Data as of September 30, 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						
LEM Multifamily Fund VI, L.P.	2022	\$75,000,000	\$63,750,000	\$11,250,000	\$554,348	NM	NM	NM	NM	NM	NM
Lubert-Adler Real Estate Fund VII, L.P.	2014	\$25,000,000	\$625,000	\$24,375,000	\$13,463,917	\$15,002,710	\$28,466,626	\$4,091,626	0.55	1.17	3.08%
Mesirow Financial Real Estate Value Fund III, L.P.	2018	\$25,647,559	\$0	\$25,859,215	\$7,229,822	\$34,082,030	\$41,311,851	\$15,452,636	0.28	1.60	16.65%
Oak Street Real Estate Capital Fund IV, L.P.	2017	\$100,000,000	\$0	\$100,000,000	\$110,140,777	\$46,345,422	\$156,486,199	\$56,486,199	1.10	1.56	21.84%
Oak Street Real Estate Capital Fund V, L.P.	2020	\$50,000,000	\$22,540,000	\$27,456,863	\$7,234,372	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Fund VI, L.P.	2022	\$75,000,000	\$75,000,000	\$0	\$0	NM	NM	NM	NM	NM	NM
Rockpoint Finance Fund I, L.P.	2007	\$2,527,500	\$0	\$4,433,567	\$2,796,407				0.63		
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	\$45,855,835	\$25,396,310				0.55		
Rubicon First Ascent Sidecar	2021	\$20,000,000	\$15,147,611	\$4,852,389	\$0	NM	NM	NM	NM	NM	NM
Rubicon First Ascent, L.P.	2021	\$30,000,000	\$24,320,449	\$5,679,551	\$0	NM	NM	NM	NM	NM	NM
Scout Fund I-A, L.P.	2009	\$75,000,000	\$0	\$75,000,000	\$118,856,296	\$0	\$118,856,296	\$43,856,296	1.58	1.58	15.41%
Scout Fund II-A, L.P.	2016	\$30,000,000	\$0	\$30,000,000	\$605,865	\$31,054,605	\$31,660,470	\$1,660,470	0.02	1.06	1.09%
Senior Housing Partners V, L.P.	2015	\$45,727,881	\$4,590,192	\$41,137,690	\$4,886,698	\$53,646,876	\$58,533,573	\$17,395,884	0.12		
Senior Housing Partners VI, L.P.	2019	\$100,000,000	\$44,491,228	\$55,414,730	\$0	\$57,487,006	\$57,487,006	\$2,072,275	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	\$15,686,439	\$37,620,032	\$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	\$9,029,834	\$14,659,681	\$23,689,515	\$9,025,738	0.62	1.62	8.13%
Westbrook Real Estate Fund V, L.P.	2004	\$25,000,000	\$0	\$27,259,023	\$52,005,779	\$56,799	\$52,062,578	\$24,803,555	1.91	1.91	43.55%
Westbrook Real Estate Fund VI, L.P.	2006	\$35,000,000	\$0	\$38,550,099	\$38,837,150	\$143,766	\$38,980,916	\$430,817	1.01	1.01	0.23%
Westbrook Real Estate Fund VII, L.P.	2007	\$50,000,000	\$0	\$56,300,882	\$56,575,755	\$8,001,936	\$64,577,691	\$8,276,809	1.00	1.15	2.20%
Westbrook Real Estate Fund VIII, L.P.	2009	\$50,000,000	\$0	\$54,293,541	\$63,418,319	\$7,295,528	\$70,713,847	\$16,420,306	1.17	1.30	9.64%
Total Value Add/Oppportunistic		\$1,930,287,661	\$481,299,952	\$1,485,717,347	\$1,354,671,486	\$722,619,147	\$2,077,290,633	\$591,573,286	0.91	1.40	8.17%
Total		\$4,921,426,432	\$502,724,339	\$4,471,503,748	\$4,167,613,132				0.93		6.41%

NM - Not Meaningful



Data as of September 30, 2022. Performance metrics calculated by NEPC based on data provided by the investment managers.



APPENDIX 2:

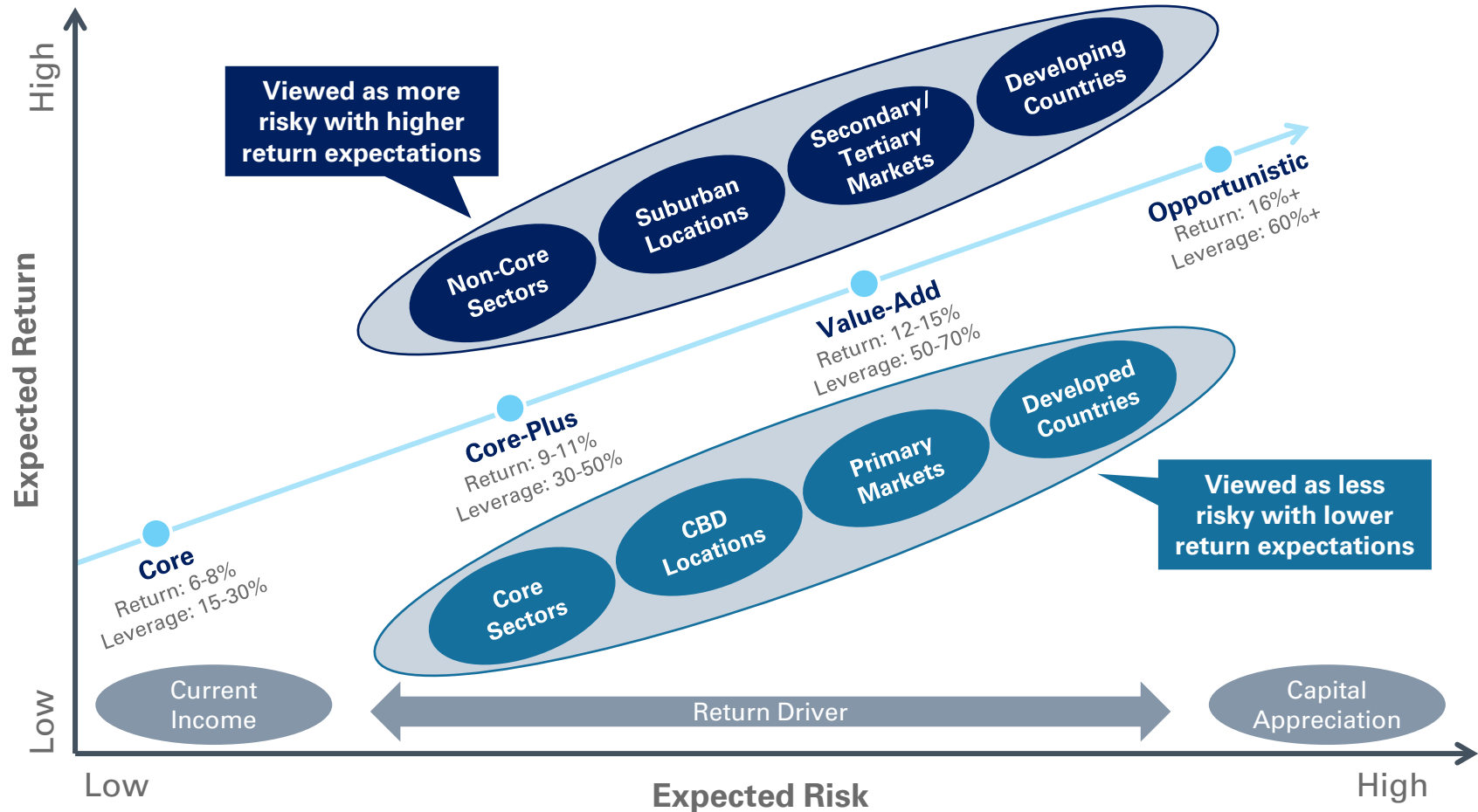
Real Estate Strategy Summaries

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





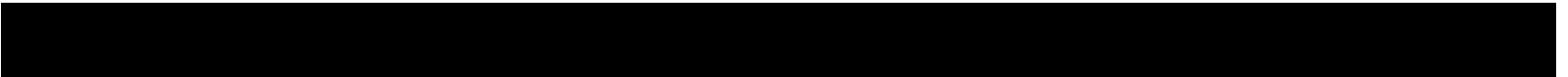
APPENDIX 3: Disclaimers & Disclosures

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