



PENNSYLVANIA SERS

REAL ESTATE QUARTERLY
PERFORMANCE REVIEW – Q4 2021

JUNE 3, 2022



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1. REAL ESTATE QUARTERLY PERFORMANCE REPORT

As of December 31, 2021

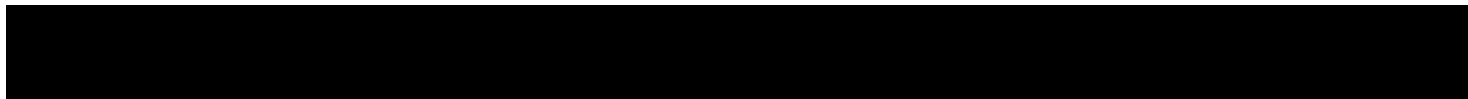


PORTFOLIO PERFORMANCE SUMMARY

The table below displays trailing time period performance for the Pennsylvania State Employees Retirement System (“PA SERS”) Real Estate Portfolio as of December 31, 2021, along with select benchmarks

- Real estate markets had a strong 2021, rebounding from the effects of the COVID-19 pandemic felt in 2020, with the PA SERS portfolio generating a 19.6% total return for the year
- The PA SERS real estate portfolio has generated an 11.3% return over the trailing three-year period

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Portfolio Performance	YTD	1 Year	3 Year	5 Year	10 Year	Inception
Total Pennsylvania State Employees Retirement System	19.6%	19.6%	11.3%	6.7%	8.4%	7.2%
<i>NFI-ODCE Index¹</i>	21.0%	21.0%	8.2%	7.7%	9.4%	N/A
<i>CJA Non-Core Real Estate Index²</i>	28.9%	28.9%	12.9%	12.4%	12.2%	N/A
<i>S&P 500 Index</i>	28.7%	28.7%	26.1%	18.5%	16.6%	N/A

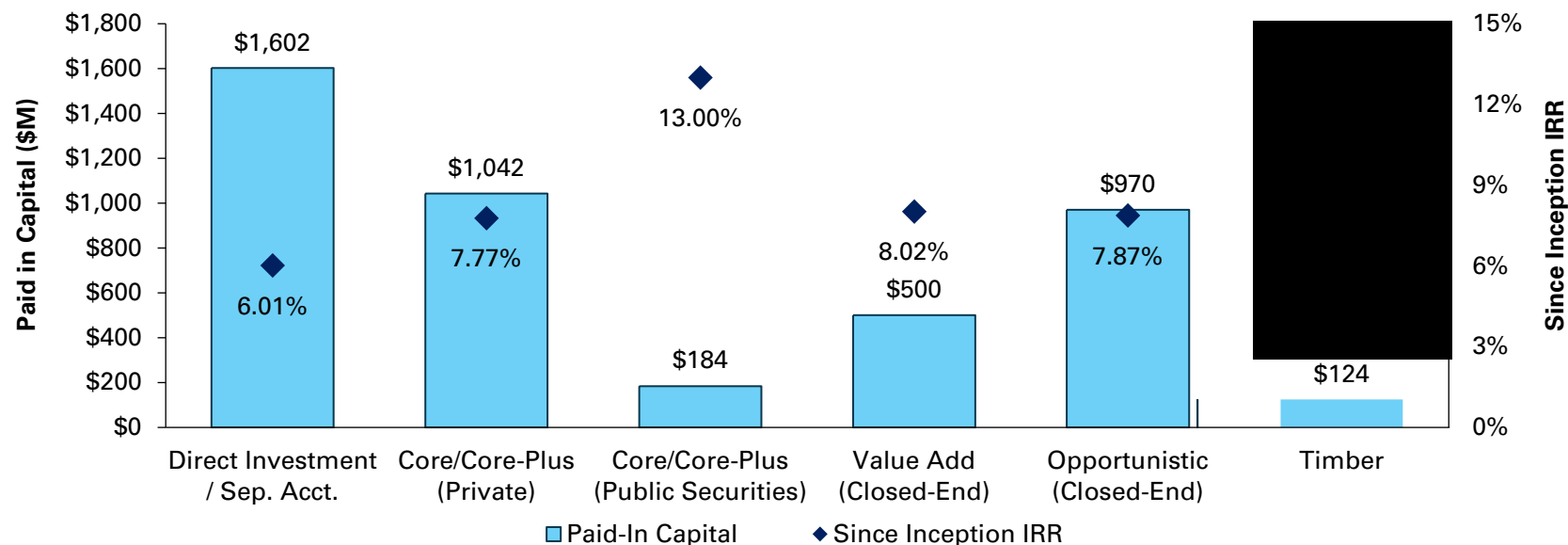
Data as of December 31, 2021. Sources include NCREIF, CJA, Manager data, and NEPC. Additional notes:

- NFI-ODCE Index represents pooled returns of open-end comingled core funds in the ODCE Index; returns shown are time-weighted, net of fees.
- CJA Non-Core Real Estate Index represents pooled horizon internal rate of return (IRR) calculations, net of fees, for value-add and opportunistic real estate strategies. CJA data is preliminary, retrieved on May 5, 2022 (final data as of December 31, 2021 is not yet available) and is subject to change.
- 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.
- Returns shown do not take into account risk/volatility of underlying strategies.



PERFORMANCE BY INVESTMENT STRATEGY

- In aggregate, current (active) investments in the portfolio, which are not fully liquidated, can be summarized in the following:



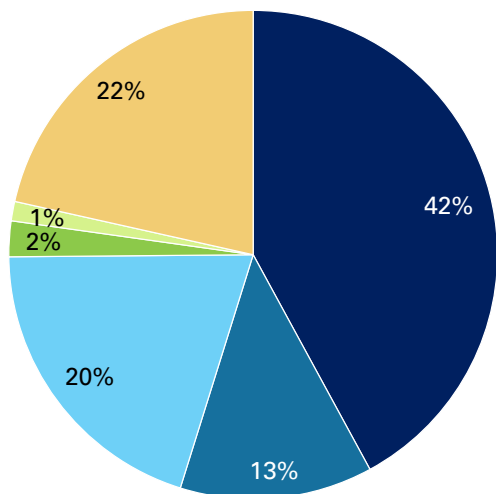
Investment Strategy	Commitment Amount	Paid-In Capital	Capital to be Funded	Cumulative Distributions	Current Valuation	Total Value	Net Gain / (Loss)	Call Ratio	DPI Ratio	TVPI Ratio	IRR (SI)
Direct Investment / Sep. Acct.	1,603,023,832	1,602,030,089	993,743	2,093,740,174				100%			6.01%
Core/Core-Plus (Private)	1,066,988,585	1,042,208,334	24,780,251	288,006,032				98%	0.28		7.77%
Core/Core-Plus (Public Securities)	183,616,773	183,616,773	0	36,168,336	380,916,863	417,085,199	233,468,426	100%	0.20	2.27	13.00%
Value Add (Closed-End)	649,240,253	499,740,189	149,500,064	465,831,012	226,388,536	692,219,548	176,031,092	77%	0.90	1.34	8.02%
Opportunistic (Closed-End)	1,243,589,122	969,629,633	273,959,489	922,128,376	480,973,565	1,403,101,941	414,138,323	78%	0.93	1.42	7.87%
Timber	124,231,969	124,231,969	0	247,282,576				100%			
Total (Active Funds)	4,870,690,534	4,421,456,987	449,233,548	4,053,156,506				91%	0.91		6.54%

Data as of December 31, 2021. Liquidated investments not shown. Returns shown do not take into account risk/volatility of underlying strategies.



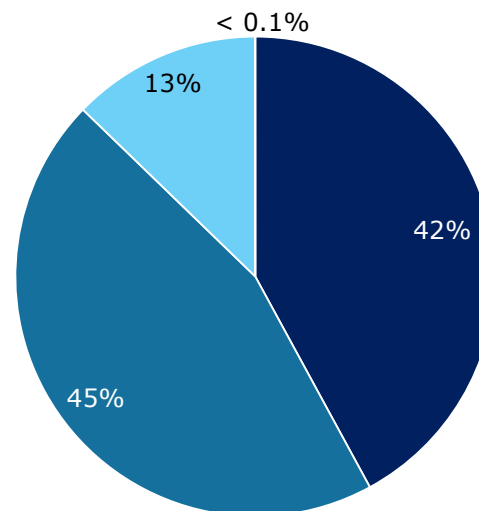
PORTFOLIO COMPOSITION

Allocation by Structure & Lifecycle



■ Open-End ■ Securities ■ Investing
■ Harvesting ■ Liquidating ■ Separate Account

Allocation by Strategy



■ Core/Core-Plus ■ Value-Add/Oppportunistic
■ Real Estate Securities ■ Natural Resources

Investment Structure / Lifecycle Stage	Commitment Amount	Paid-In Capital	Capital to be Funded	Cumulative Distributions	Current Valuation	Total Value	Net Gain / (Loss)	Call Ratio	DPI Ratio	TVPI Ratio	IRR (SI)
Open-End	1,066,988,585	1,042,208,334	24,780,251	288,006,032				98%	0.28		7.77%
Securities	183,616,773	183,616,773	0	36,168,336	380,916,863	417,085,199	233,468,426	100%	0.20	2.27	13.00%
Investing	946,265,842	552,244,345	394,021,497	134,742,285	598,666,450	733,408,736	174,089,014	58%	0.24	1.31	13.87%
Harvesting	139,663,402	129,993,425	9,669,978	155,270,692	70,409,193	225,679,885	93,234,262	93%	1.17	1.70	12.81%
Liquidating	806,900,130	787,132,051	19,768,079	1,097,946,410	38,286,458	1,136,232,868	322,846,140	98%	1.35	1.40	6.77%
Separate Account	1,727,255,801	1,726,262,058	993,743	2,341,022,750				100%			6.01%
Total (Active Funds)	4,870,690,534	4,421,456,987	449,233,548	4,053,156,506				91%	0.91		6.54%

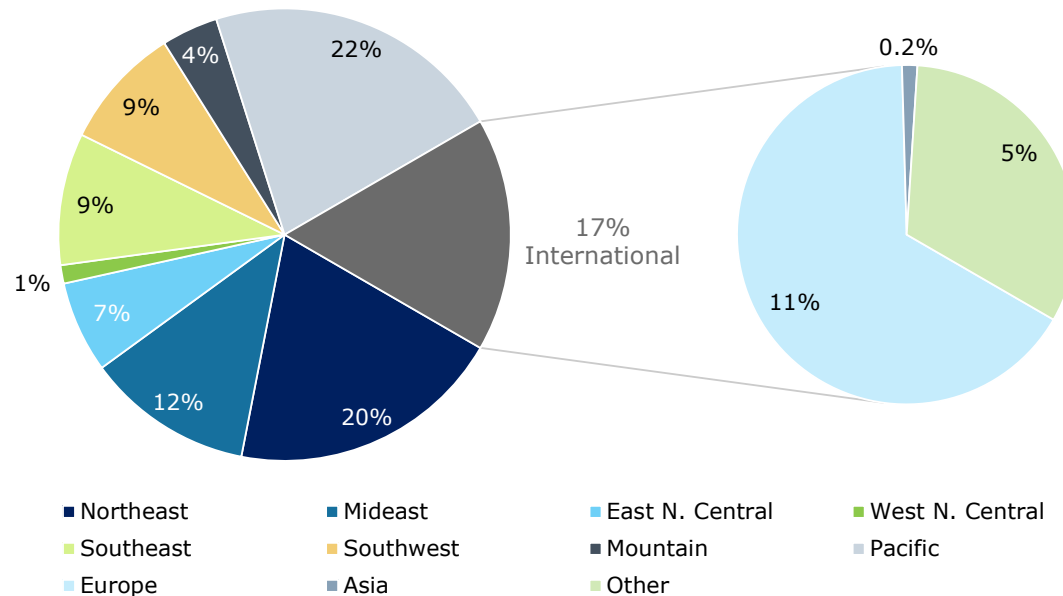


Data as of December 31, 2021. Liquidated investments not shown. Returns shown do not take into account risk/volatility of underlying strategies.

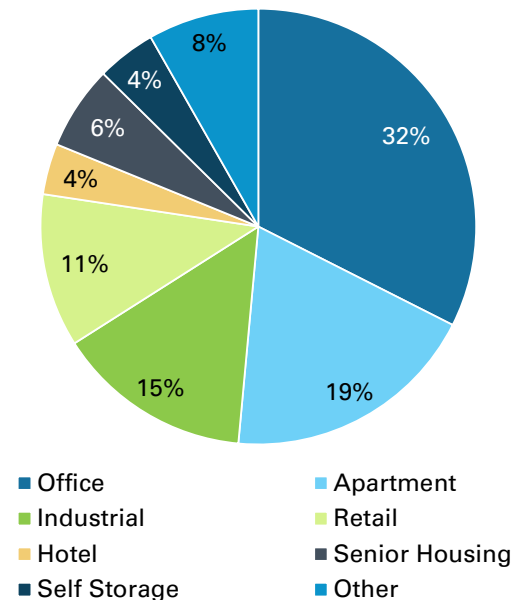
PORTFOLIO DIVERSIFICATION

- The Pennsylvania SERS real estate portfolio is broadly diversified by property type and geography within the U.S.
- 17% of the portfolio is now invested outside the US, primarily in Europe

Geography



Property Type

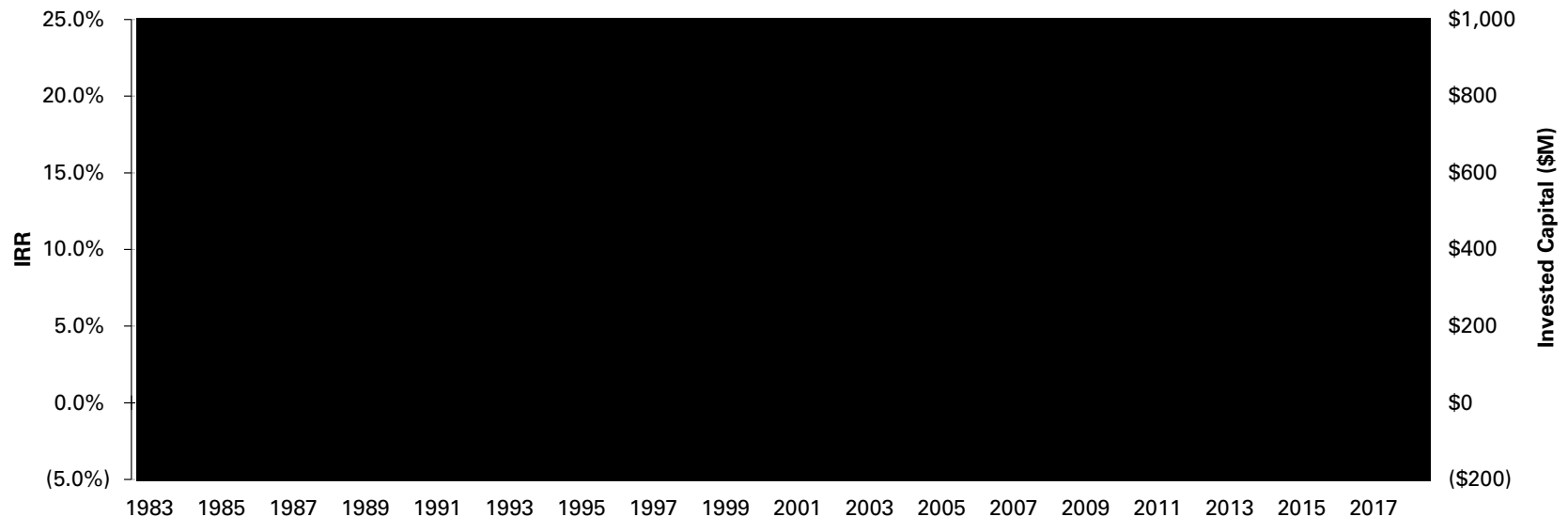


Data as of December 31, 2021. Underlying diversification data provided by the investment managers.

HISTORICAL PERFORMANCE BY VINTAGE

- The following chart illustrates capital invested and inception-to-date performance by vintage year as of December 31, 2021
 - 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

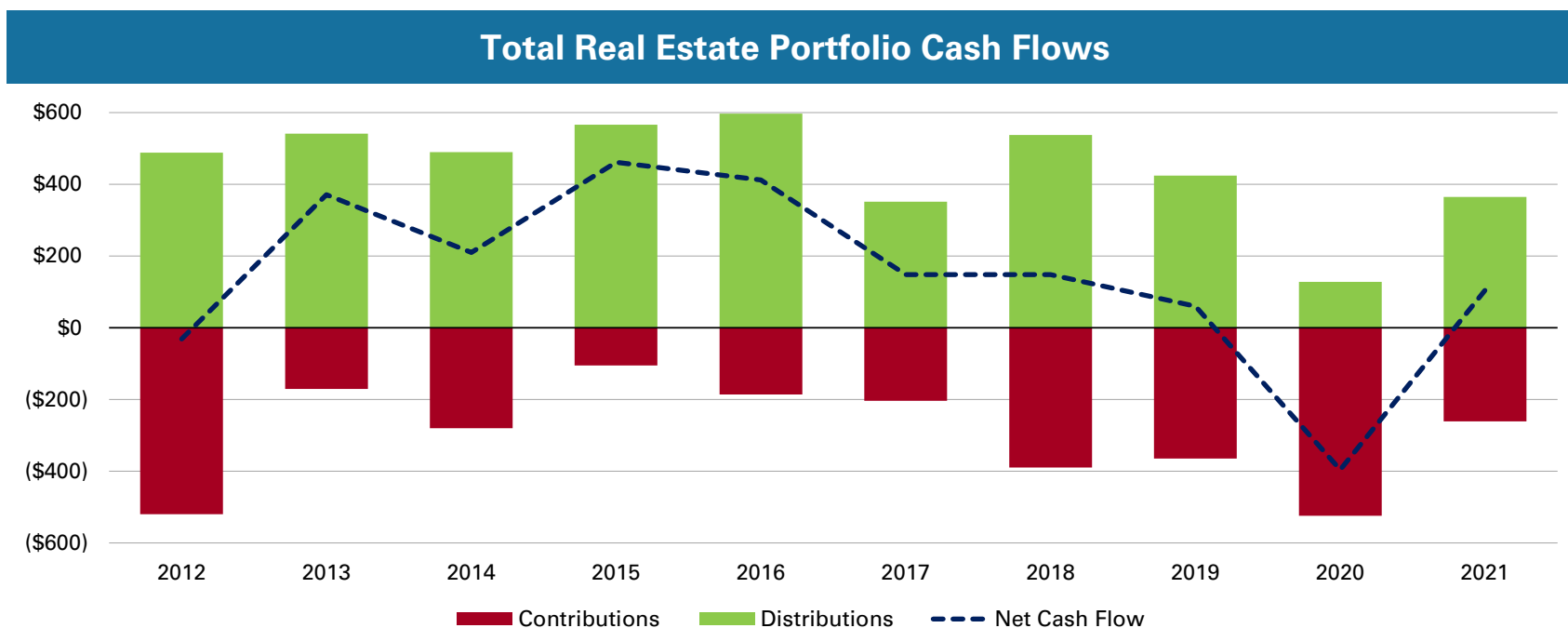


Data as of December 31, 2021. Notes: Vintage years 2019 and later are excluded as data is less meaningful. For separate accounts, the date of initial commitment or investment is used as the vintage year.



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 eight of the last 10 years, including in 2021
 - Distributions slowed in 2020, likely due in part to market disruptions arising from the COVID-19 pandemic, while capital calls continued



Data as of December 31, 2021. Offsetting cash flows have been excluded, such as assets that were transferred from one account to another.

2. REAL ESTATE MARKET & PORTFOLIO UPDATE



REAL ESTATE MARKET UPDATE

- **While NEPC does believe there are attractive opportunities in real estate today, it is important to not try and time the market**
 - A consistent annual investment pace is the best way to mitigate market timing risk
- **Real estate markets, both public and private, had a very strong 2021 after facing pandemic-driven challenges in the prior calendar year**
- **During the first quarter of 2022, private real estate continued to experience historically strong returns, while REITs pulled back slightly along with equity markets**
- **Real estate's strong performance continues to be largely been driven by the industrial and multifamily property types**
 - Both sectors are experiencing strong demand growth, resulting in record-high occupancy levels and strong income growth
 - Even in light of recent strong asset appreciation, NEPC observes that industrial and multifamily remain the top sectors where many managers are seeking to allocate capital
- **Real estate capital markets remain healthy, with debt capital widely available and substantial dry powder in the private markets**

REAL ESTATE PORTFOLIO UPDATE

- **Activity in the real estate portfolio has been limited in recent years, but NEPC believes that the real estate portfolio is currently well-positioned**
 - Asset allocation changes in 2019 and 2021 reduced the target allocation to real estate, thereby decreasing the expected annual commitment pace
 - In December 2021, a \$75 million commitment to LEM Multifamily Fund VI was approved
 - The real estate pacing plan calls for \$150 million of commitments to non-core (value-add and opportunistic) real estate for 2022
 - Much of the activity in prior years was focused on core-plus strategies which are open-ended and therefore do not require regular annual commitments
- **After experiencing some pandemic-driven challenges and uncertainty during 2020, the real estate portfolio has experienced strong performance in 2021**
 - The portfolio has outperformed its benchmark (the NFI-ODCE Index) over the trailing three-year time period

LOOKING FORWARD

- **Changes to the sub-strategy target allocations within the real estate portfolio were approved at the April Investment Committee meeting:**

Sub-Strategy	Current Allocation	Old Target	New Target
Core / Core-Plus	42%	35%	25%
Value-Add & Opportunistic	45%	55%	70%
REITs	13%	10%	5%

- **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**
- **NEPC and Staff will continue to evaluate both re-ups with existing strategic partners and potential new relationships**
 - With well-established core/core-plus and REIT portions of the portfolio, we remain focused on value-add and opportunistic strategies
 - Exposures to core, core-plus, and REITs will be monitored and rebalanced (as necessary)



APPENDIX 1:

Investment Level
Performance
as of December 31, 2021

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	6.72%	18.28%	18.28%	8.18%				8.06%
Blackstone Real Estate Partners IV, L.P.	2003	25,000,000	2.51%	57.97%	57.97%	60.46%	9.90%	1.23%	6.70%	11.99%
Blackstone Real Estate Partners V, L.P.	2006	50,000,000	1.88%	89.09%	89.09%	18.29%	7.43%	9.99%	14.07%	10.73%
Blackstone Real Estate Partners VI, L.P.	2007	75,000,000	3.73%	5.10%	5.10%	9.66%	15.69%	7.44%	16.85%	12.71%
Blackstone Real Estate Partners VII, L.P.	2011	75,000,000	2.88%	39.27%	39.27%	7.68%	9.40%	9.40%	15.36%	15.34%
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 V, L.P.	1999	25,000,000								
BPG Investment Partnership VI, L.P.	2002	25,000,000								
BPG Investment Partnership VII, L.P.	2005	25,000,000								
BPG Investment Partnership VIII, L.P.	2007	15,588,238								
CenterSquare Real Estate Securities	2002	183,616,773	15.35%	40.22%	40.22%	19.40%	14.33%	13.02%	14.22%	13.00%
C-III Recovery Fund III, L.P.	2017	100,000,000								
Clerestory Small Cap Real Estate Fund I - TE, L.P.	2010	18,000,000								
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	NM	NM	NM	NM	NM	NM	NM	NM
HotelAVE Separate Account	2018	62,048,685	-8.29%	19.89%	19.89%	-4.61%				-2.29%
LaSalle Separate Account	1994	454,256,376	1.41%	1.13%	1.13%	-2.63%	4.74%	7.44%	11.89%	9.36%
Lasalle Takeover Account	2018	272,260,055	0.31%	13.56%	13.56%	20.53%				20.06%
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	4.25%	7.70%	7.70%	-4.06%	2.96%	3.18%		2.76%



Data as of December 31, 2021. Performance metrics calculated by NEPC based on data provided by the investment managers.

NM - Not Meaningful

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	9.87%	40.17%	40.17%	21.51%				19.95%
Oak Street Real Estate Capital Fund IV, L.P.	2017	100,000,000								
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 Net Lease Property Fund, L.P.	2018	309,743,743	NM	NM	NM	NM	NM	NM	NM	NM
PLA Residential Fund III, L.P.	2008	24,708,749								
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	164.30%	139.36%	139.36%	112.21%	18.79%	10.04%	17.17%	15.41%
Scout Fund II-A, L.P.	2016	30,000,000	1.82%	3.29%	3.29%	3.21%	5.96%			3.65%
Senior Housing Partners IV, L.P.	2011	20,799,516								
Senior Housing Partners V, L.P.	2015	50,000,000								
Senior Housing Partners VI, L.P.	2019	100,000,000	NM	NM	NM	NM	NM	NM	NM	NM
SRE Opportunity Fund III Select, L.P.	2018	50,000,000	NM	NM	NM	NM	NM	NM	NM	NM
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	4.80%	14.69%	14.69%	1.06%	3.85%	5.85%	7.44%	6.88%
ValStone Opportunity Fund V, LLC	2014	14,663,402	1.64%	6.68%	6.68%	7.09%	7.10%	7.84%		7.98%
Westbrook Real Estate Fund V, L.P.	2004	25,000,000	-1.34%	-17.87%	-17.87%	19.53%	8.18%	16.25%	20.56%	43.55%
Westbrook Real Estate Fund VI, L.P.	2006	35,000,000	-0.10%	-0.50%	-0.50%	-1.45%	1.16%	-0.32%	11.08%	0.23%
Westbrook Real Estate Fund VII, L.P.	2007	50,000,000	0.12%	1.58%	1.58%	-6.12%	-2.98%	1.37%	9.88%	2.23%
Westbrook Real Estate Fund VIII, L.P.	2009	50,000,000	-0.59%	-1.34%	-1.34%	-11.06%	-4.68%	-1.29%	7.55%	9.80%
Total			5.92%	19.60%	19.60%	11.35%	9.73%	9.48%	11.00%	6.54%



Data as of December 31, 2021. Performance metrics calculated by NEPC based on data provided by the investment managers.

NM - Not Meaningful

PERFORMANCE BY STRATEGY

Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Core												
Heitman America Real Estate Trust, L.P.	2007	\$100,000,000	\$0	\$100,000,000		\$90,038,510						
Trumbull Property Fund, L.P.	1988	\$25,558,525	\$0	\$25,558,525	\$0	\$119,829,011	\$27,191,282	\$147,020,293	\$121,461,768	4.69	5.75	6.88%
Total Core		\$125,558,525	\$0	\$125,558,525		\$209,867,521						
Core Plus												
Blackstone Property Partners, L.P.	2017	\$300,000,000	\$0	\$300,000,000	\$0	\$1,744,007	\$396,982,685	\$398,726,692	\$98,726,692	0.01	1.33	8.06%
Henderson Park Enhanced Income Fund, SCSp	2019	\$331,686,317	\$24,780,251	\$306,906,066	NM	\$57,092,536	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Net Lease Property Fund, L.P.	2018	\$309,743,743	\$0	\$309,743,743	NM	\$19,301,968	NM	NM	NM	NM	NM	NM
Total Core Plus		\$941,430,060	\$24,780,251	\$916,649,809		\$78,138,511						
REIT												
CenterSquare Real Estate Securities	2002	\$183,616,773	\$0	\$183,616,773	\$0	\$36,168,336	\$380,916,863	\$417,085,199	\$233,468,426	0.20	2.27	13.00%
Total REIT		\$183,616,773	\$0	\$183,616,773	\$0	\$36,168,336	\$380,916,863	\$417,085,199	\$233,468,426	0.20	2.27	13.00%
Timber												
Forest Separate Account	1992	\$124,231,969	\$0	\$124,231,969		\$247,282,576						
Total Timber		\$124,231,969	\$0	\$124,231,969		\$247,282,576						
Value Add												
Blue Moon Senior Housing II Sidecar L.P.	2019	\$50,000,000	\$20,712,589	\$29,287,411	NM	\$0	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II, L.P.	2019	\$50,000,000	\$25,325,884	\$24,674,116	NM	\$0	NM	NM	NM	NM	NM	NM
BPG Investment Partnership IX, L.P.	2012	\$25,000,000	\$696,591	\$24,303,409		\$38,042,815						
BPG Investment Partnership V, L.P.	1999	\$24,136,964	\$0	\$24,136,964		\$43,949,316						
BPG Investment Partnership VI, L.P.	2002	\$24,543,712	\$0	\$24,543,712		\$42,799,870						
BPG Investment Partnership VII, L.P.	2005	\$25,000,000	\$0	\$25,000,000		\$17,373,933						
BPG Investment Partnership VIII, L.P.	2007	\$14,912,018	\$0	\$14,912,018		\$20,055,778						
LEM Multifamily Fund VI, L.P.	2022	\$75,000,000	\$75,000,000	\$0	NM	\$0	NM	NM	NM	NM	NM	NM
Lubert-Adler Real Estate Fund VII, L.P.	2014	\$25,000,000	\$625,000	\$24,375,000	\$0	\$12,485,655	\$15,207,330	\$27,692,985	\$3,317,985	0.51	1.14	2.76%
Mesirow Financial Real Estate Value Fund III, L.P.	2018	\$25,647,559	\$0	\$25,647,559	\$211,656	\$1,541,774	\$38,615,675	\$40,157,450	\$14,298,235	0.06	1.55	19.95%
Oak Street Real Estate Capital Fund IV, L.P.	2017	\$100,000,000	\$0	\$100,000,000		\$74,730,857						
Oak Street Real Estate Capital Fund V, L.P.	2020	\$50,000,000	\$27,140,000	\$22,860,000	NM	\$6,037,338	NM	NM	NM	NM	NM	NM
Westbrook Real Estate Fund V, L.P.	2004	\$25,000,000	\$0	\$25,000,000	\$2,259,023	\$52,005,779	\$45,337	\$52,051,116	\$24,792,093	1.91	1.91	43.55%
Westbrook Real Estate Fund VI, L.P.	2006	\$35,000,000	\$0	\$35,000,000	\$3,550,099	\$37,571,397	\$1,412,124	\$38,983,521	\$433,422	0.97	1.01	0.23%
Westbrook Real Estate Fund VII, L.P.	2007	\$50,000,000	\$0	\$50,000,000	\$6,267,285	\$55,818,180	\$8,738,929	\$64,557,109	\$8,289,824	0.99	1.15	2.23%
Westbrook Real Estate Fund VIII, L.P.	2009	\$50,000,000	\$0	\$50,000,000	\$4,260,354	\$63,418,319	\$7,311,176	\$70,729,495	\$16,469,141	1.17	1.30	9.80%
Total Value Add		\$649,240,253	\$149,500,064	\$499,740,189	\$16,448,267	\$465,831,012	\$226,388,536	\$692,219,548	\$176,031,092	0.90	1.34	8.02%

NM - Not Meaningful

Data as of December 31, 2021. Performance metrics calculated by NEPC based on data provided by the investment managers. Note that "Additional Fees" includes paid-in capital that does *not* reduce the unfunded commitment amount; this may include, among other items, management fees which are paid outside of the fund commitment, taxes, and closing interests paid to LPs in earlier closes. A negative number in this column indicates that SERS received (rather than paid-in) capital; a negative number is typically, though not exclusively, due to SERS receiving closing interests from LPs in later closes.



PERFORMANCE BY STRATEGY (CONTINUED)

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Direct Investment												
Heltman Separate Account	1988	\$813,635,039	\$0	\$813,635,039		\$1,122,259,873						
HotelAVE Separate Account	2018	\$62,548,685	\$0	\$62,548,685		\$20,191,396	\$38,738,642	\$58,930,038		0.32	0.94	-2.29%
LaSalle Separate Account	1994	\$454,580,053	\$0	\$454,580,053		\$778,848,456	\$171,103,850	\$949,952,306		1.70	2.08	9.36%
LaSalle Takeover Account	2018	\$272,260,055	\$993,743	\$271,266,312		\$172,440,449	\$298,857,862	\$471,298,311		0.64	1.74	20.06%
Total Direct Investment		\$1,603,023,832	\$993,743	\$1,602,030,089		\$2,093,740,174						6.01%
Opportunistic												
Activum SG Fund VI L.P.	2019	\$57,983,908	\$27,574,616	\$30,409,292	NM	\$0	NM	NM	NM	NM	NM	NM
Activum SG Fund VI Pennsylvania Side-Car L.P.	2019	\$57,634,375	\$31,181,406	\$26,452,969	NM	\$0	NM	NM	NM	NM	NM	NM
AG Asia Realty Fund, L.P.	2007	\$25,000,000	\$1,500,000	\$23,500,000		\$27,062,500				1.15		
Blackstone Real Estate Partners IV, L.P.	2003	\$25,000,000	\$0	\$25,000,000	\$0	\$40,652,252	\$740,160	\$41,392,412	\$16,392,412	1.63	1.66	11.99%
Blackstone Real Estate Partners V, L.P.	2006	\$50,000,000	\$2,087,026	\$47,912,974	\$0	\$98,509,742	\$1,727,611	\$100,237,353	\$52,324,378	2.06	2.09	10.73%
Blackstone Real Estate Partners VI, L.P.	2007	\$75,000,000	\$3,680,925	\$71,319,075	\$281,339	\$152,713,210	\$2,148,166	\$154,861,376	\$83,260,962	2.13	2.16	12.71%
Blackstone Real Estate Partners VII, L.P.	2011	\$75,000,000	\$8,348,387	\$66,651,613	\$2,565,776	\$98,052,388	\$37,119,247	\$135,171,635	\$65,954,245	1.42	1.95	15.34%
C-III Recovery Fund III, L.P.	2017	\$100,000,000	\$24,595,257	\$75,404,743		\$1,463,737						
Clerestory Small Cap Real Estate Fund I - TE, L.P.	2010	\$18,000,000	\$2,771,044	\$15,228,956		\$15,184,892						
Colony Investors VIII, L.P.	2007	\$22,500,000	\$844,200	\$21,655,800		\$8,350,233						
PLA Residential Fund III, L.P.	2008	\$24,708,749	\$0	\$24,708,749		\$13,459,628	\$0	\$13,459,628		0.54		
Rockpoint Finance Fund I, L.P.	2007	\$2,527,500	\$0	\$2,527,500		\$2,538,994				0.57		
Rockpoint Real Estate Fund II, L.P.	2005	\$34,138,784	\$0	\$34,138,784		\$31,202,182				0.83		
Rockpoint Real Estate Fund III, L.P.	2007	\$50,632,887	\$4,241,165	\$46,391,722		\$68,151,141				1.34		
Rockpoint Real Estate Fund V, L.P.	2015	\$50,000,000	\$8,663,087	\$41,336,913		\$17,273,148				0.38		
Rubicon First Ascent Sidecar	2021	\$20,000,000	\$20,000,000	\$0	NM	\$0	NM	NM	NM	NM	NM	NM
Rubicon First Ascent, L.P.	2021	\$30,000,000	\$28,500,000	\$1,500,000	NM	\$0	NM	NM	NM	NM	NM	NM
Scout Fund I-A, L.P.	2009	\$75,000,000	\$0	\$75,000,000	\$0	\$118,686,554	\$180,598	\$118,867,152	\$43,867,152	1.58	1.58	15.41%
Scout Fund II-A, L.P.	2016	\$30,000,000	\$0	\$30,000,000	\$0	\$605,865	\$34,328,682	\$34,934,547	\$4,934,547	0.02	1.16	3.65%
Senior Housing Partners IV, L.P.	2011	\$20,799,516	\$0	\$20,799,516		\$37,857,176	\$0	\$37,857,176		1.82		
Senior Housing Partners V, L.P.	2015	\$50,000,000	\$8,862,310	\$41,137,690		\$3,216,633	\$52,415,997	\$55,632,630		0.08		
Senior Housing Partners VI, L.P.	2019	\$100,000,000	\$56,566,347	\$43,433,653	NM	\$0	NM	NM	NM	NM	NM	NM
SRE Opportunity Fund III Select, L.P.	2018	\$50,000,000	\$24,900,000	\$25,100,000	NM	\$16,872,933	NM	NM	NM	NM	NM	NM
SRE Opportunity Fund III, L.P.	2018	\$50,000,000	\$15,000,000	\$35,000,000		\$13,000,000						
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		\$71,362,628						
Starwood Opportunity Fund VI, L.P.	2001	\$50,000,000	\$0	\$50,000,000		\$51,927,126						
ValStone Opportunity Fund V, LLC	2014	\$14,663,402	\$0	\$14,663,402	\$375	\$6,689,834	\$15,857,008	\$22,546,842	\$7,883,065	0.46	1.54	7.98%
Total Opportunistic		\$1,243,589,122	\$273,959,489	\$969,629,633	\$19,333,985	\$922,128,376	\$480,973,565	\$1,403,101,941	\$414,138,323	0.93	1.42	7.87%
Total		\$4,870,690,533	\$449,233,547	\$4,421,456,986		\$4,053,156,506				0.91		6.54%

NM - Not Meaningful

Data as of December 31, 2021. Performance metrics calculated by NEPC based on data provided by the investment managers. Note that "Additional Fees" includes paid-in capital that does *not* reduce the unfunded commitment amount; this may include, among other items, management fees which are paid outside of the fund commitment, taxes, and closing interests paid to LPs in earlier closes. A negative number in this column indicates that SERS received (rather than paid-in) capital; a negative number is typically, though not exclusively, due to SERS receiving closing interests from LPs in later closes.





APPENDIX 2:

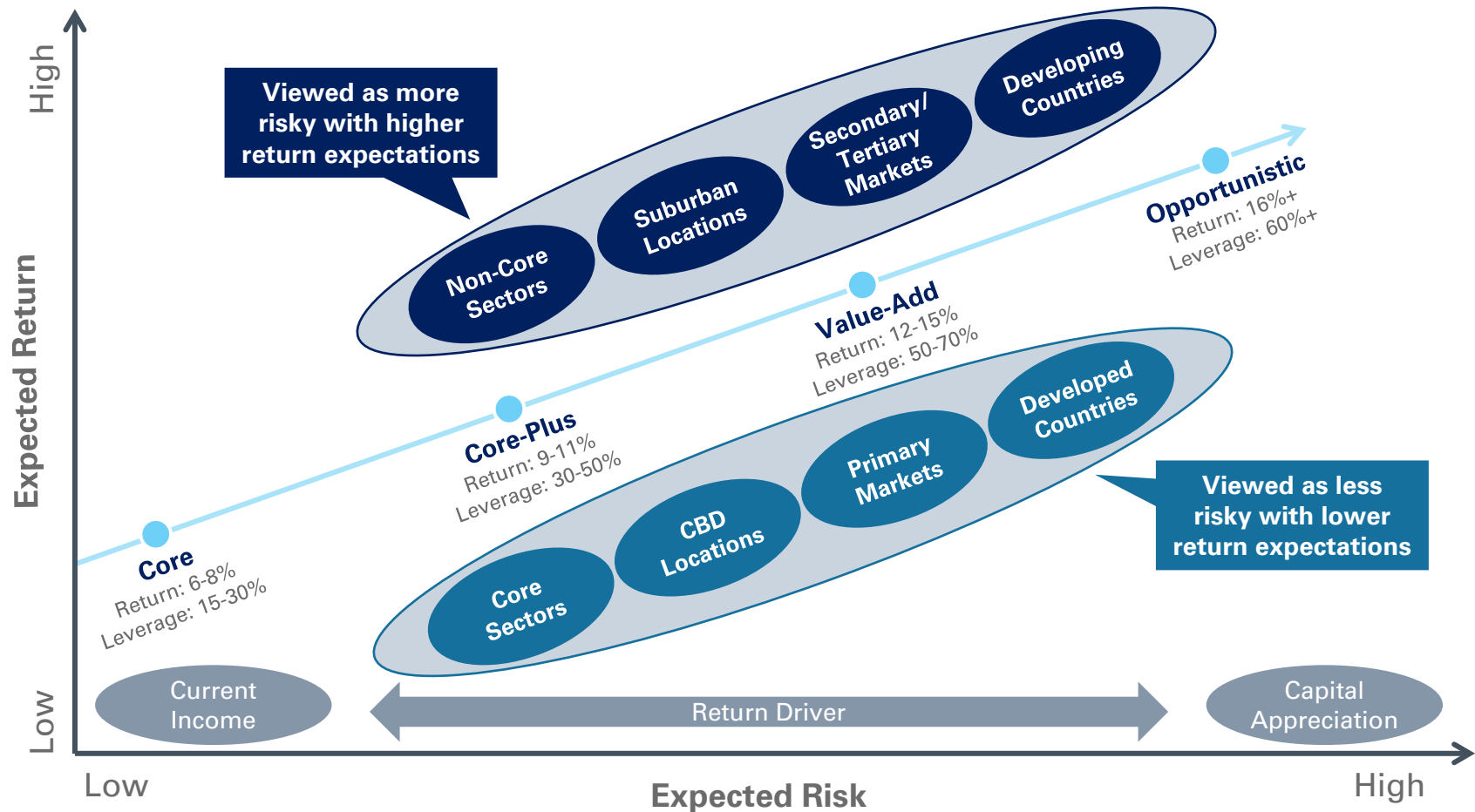
Real Estate Strategy Summaries

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

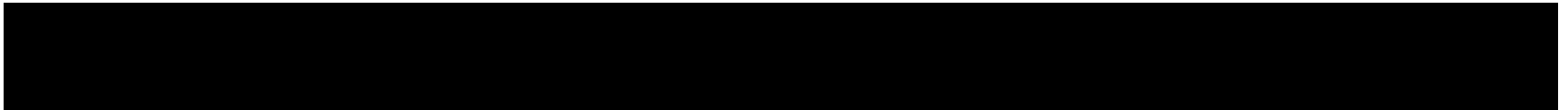


DISCLAIMER

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