

PENNSYLVANIA SERS



**REAL ESTATE SEMI-ANNUAL
PERFORMANCE REVIEW (2Q19)**

December 3, 2019



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

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**1. REAL ESTATE SEMI-ANNUAL
PERFORMANCE REPORT**
AS OF JUNE 30, 2019

NEPC, LLC

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 June 30, 2019, along with select benchmarks

- The real estate portfolio had a strong trailing 1-year return, generating a total return of 9.0%, substantially outperforming both the core and non-core benchmarks
- [REDACTED]
- The Plan’s Real Estate Performance is benchmarked against the NCREIF-ODCE Index (pool of open-end core funds) and ThomsonOne Benchmark (pool of closed-end value-add/opportunity funds), the two most widely used indices for real estate benchmarking
- The S&P 500 Index reflects one measure of opportunity cost of investing in real estate versus publicly traded common stocks

Portfolio Performance	YTD	1 Year	3 Year	5 Year	10 Year	Inception
Total Pennsylvania State Employees Retirement System	6.1%	9.0%	1.3%	4.7%	7.2%	7.1%
NFI-ODCE Index¹	2.0%	5.5%	6.6%	8.8%	8.9%	N/A
Thomson-One/Cambridge Real Estate Index²	4.0%	6.6%	9.5%	10.2%	10.1%	N/A
S&P 500 Index	18.5%	10.4%	14.2%	10.7%	14.7%	N/A

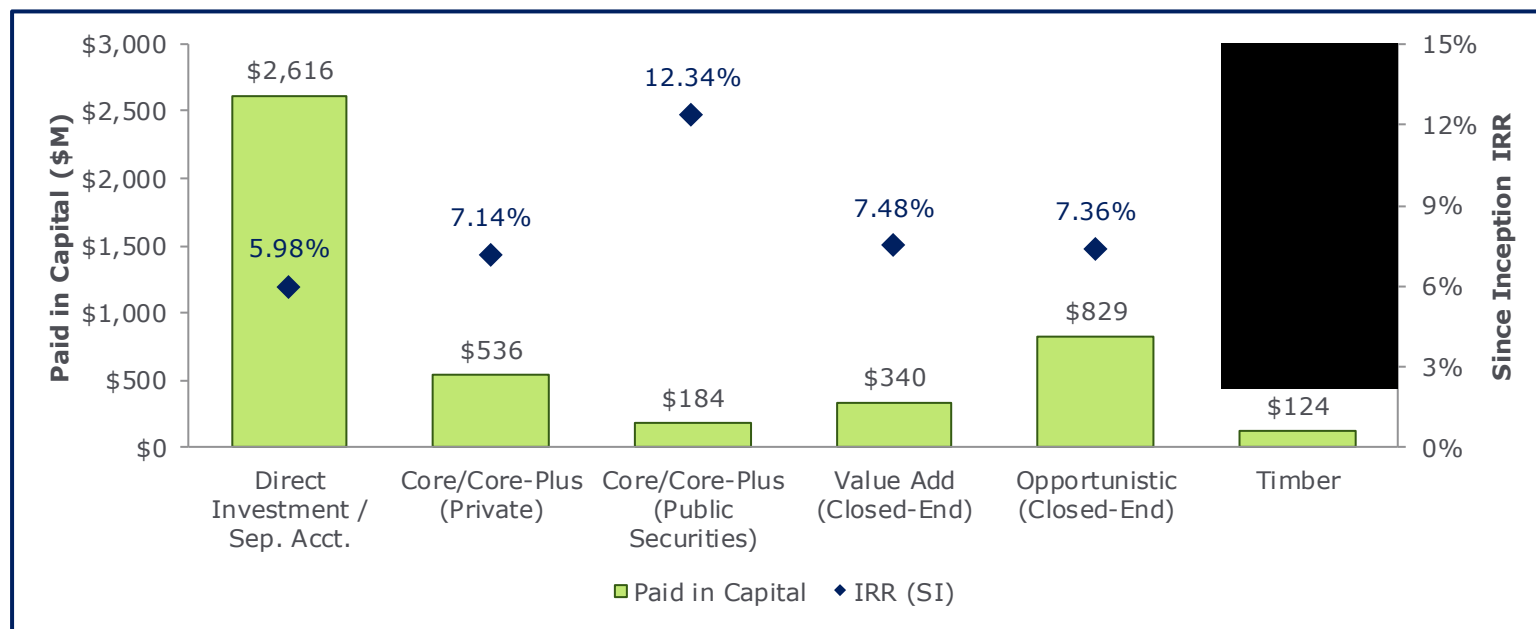
Data as of June 30, 2019. Sources include NCREIF, Thomson-One/Cambridge Associates, Manager data, and NEPC. Additional notes:

1. NFI-ODCE Index represents pooled returns of open-end comingled core funds in the ODCE Index; returns shown are time-weighted, net of fees.
2. Thomson-One/Cambridge Benchmark represents pooled horizon internal rate of return (IRR) calculations, net of fees, across 1,076 real estate funds (including value-add/opportunistic) from 1986 to 2018.
3. 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.
4. 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:



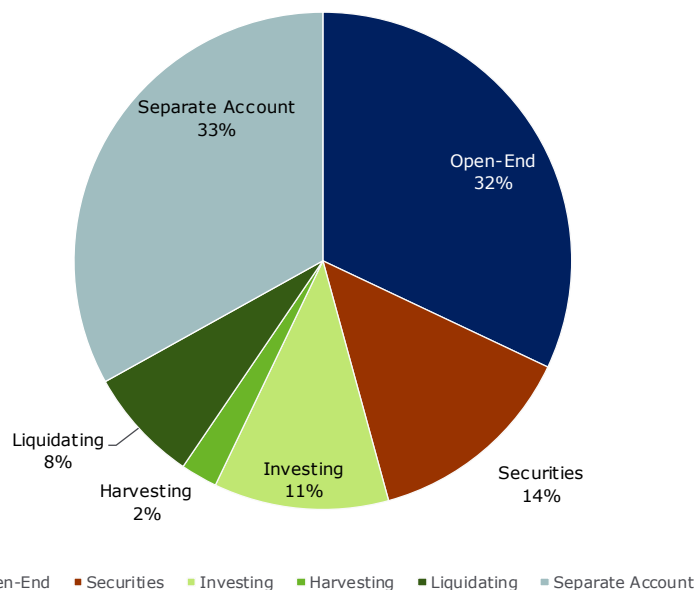
Investment Strategy (Active)	Commitment Amount	Paid in Capital	Capital to be Funded	Cumulative Distributions	Valuation	Total Value	Net Benefit	Call Ratio	DPI Ratio	TVPI Ratio	IRR (SI)
Direct Investment / Sep. Acct.	2,617,915,801	2,616,222,207	1,693,594	3,324,323,137	632,807,196	3,957,130,333	1,337,847,547	100%	1.27	1.51	5.98%
Core/Core-Plus (Private)	1,025,558,525	535,951,554	489,606,971	181,713,078	618,004,271	799,717,349	263,765,795	52%	0.34	1.49	7.14%
Core/Core-Plus (Public Securities)	183,616,773	183,616,773	0	36,168,336	264,952,776	301,121,112	117,504,339	100%	0.20	1.64	12.34%
Value Add (Closed-End)	624,414,747	339,643,988	284,770,760	361,672,405	114,844,428	476,516,834	120,951,883	54%	1.02	1.34	7.48%
Opportunistic (Closed-End)	1,061,477,955	829,220,565	232,257,390	920,157,793	294,134,063	1,214,291,856	369,681,157	78%	1.09	1.44	7.36%
Timber	124,231,969	124,231,969	0	242,367,376				100%	1.95		
Total (Active Funds)	5,637,215,770	4,628,887,055	1,008,328,715	5,066,402,125				82%	1.09		



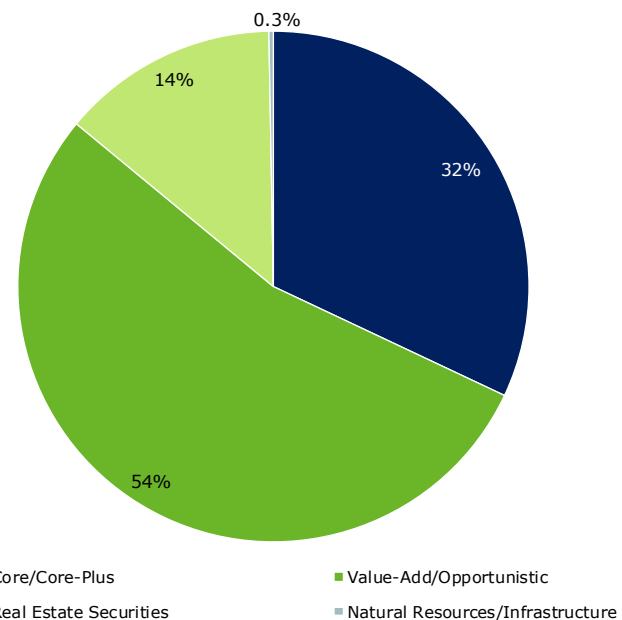
Data as of June 30, 2019. Liquidated investments not shown. Returns shown do not take into account risk/volatility of underlying strategies.

PORTFOLIO COMPOSITION

Allocation by Structure & Lifecycle



Allocation by Strategy



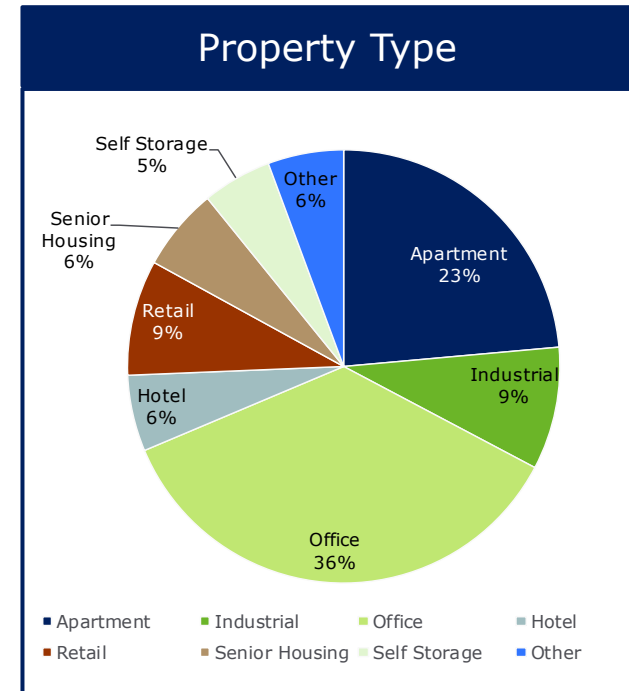
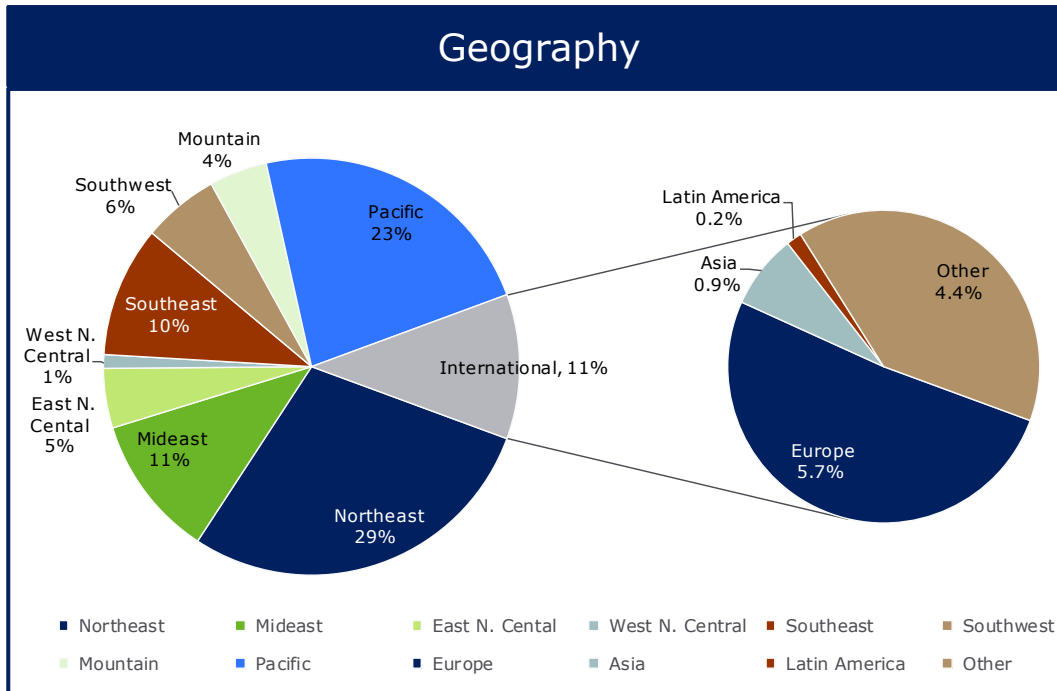
Structure / Lifecycle Stage	Commitment	Called Capital	Call Ratio	Uncalled Capital	Realized Value	Unrealized Value	Total Value	Gain / Loss	TVPI Ratio	DPI Ratio	RVPI
Open-End	1,025,558,525	535,951,554	52%	489,606,971	181,713,078	618,004,271	799,717,349	263,765,795	1.5x	0.3x	1.2x
Securities	183,616,773	183,616,773	100%	0	36,168,336	264,952,776	301,121,112	117,504,339	1.6x	0.2x	1.4x
Investing	455,145,833	200,163,633	44%	254,982,200	10,760,068	219,331,616	230,091,683	25,679,996	1.1x	0.1x	1.1x
Harvesting	89,663,402	64,794,451	72%	24,868,951	68,040,786	46,200,113	114,240,899	49,560,026	1.8x	1.1x	0.7x
Liquidating	941,083,467	903,906,469	96%	37,176,998	1,203,029,344					1.3x	
Separate Account	2,742,147,771	2,740,454,177	100%	1,693,594	3,566,690,513	638,267,489	4,204,958,002	1,461,443,247	1.5x	1.3x	0.2x
Total	5,637,215,770	4,628,887,055	82%	1,008,328,715	5,066,402,125					1.1x	



Data as of June 30, 2019. 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.
- Staff and NEPC have intentionally grown the portfolio's international exposure in recent years
 - 11% of the portfolio is now invested outside the US, with 5.7% in Europe

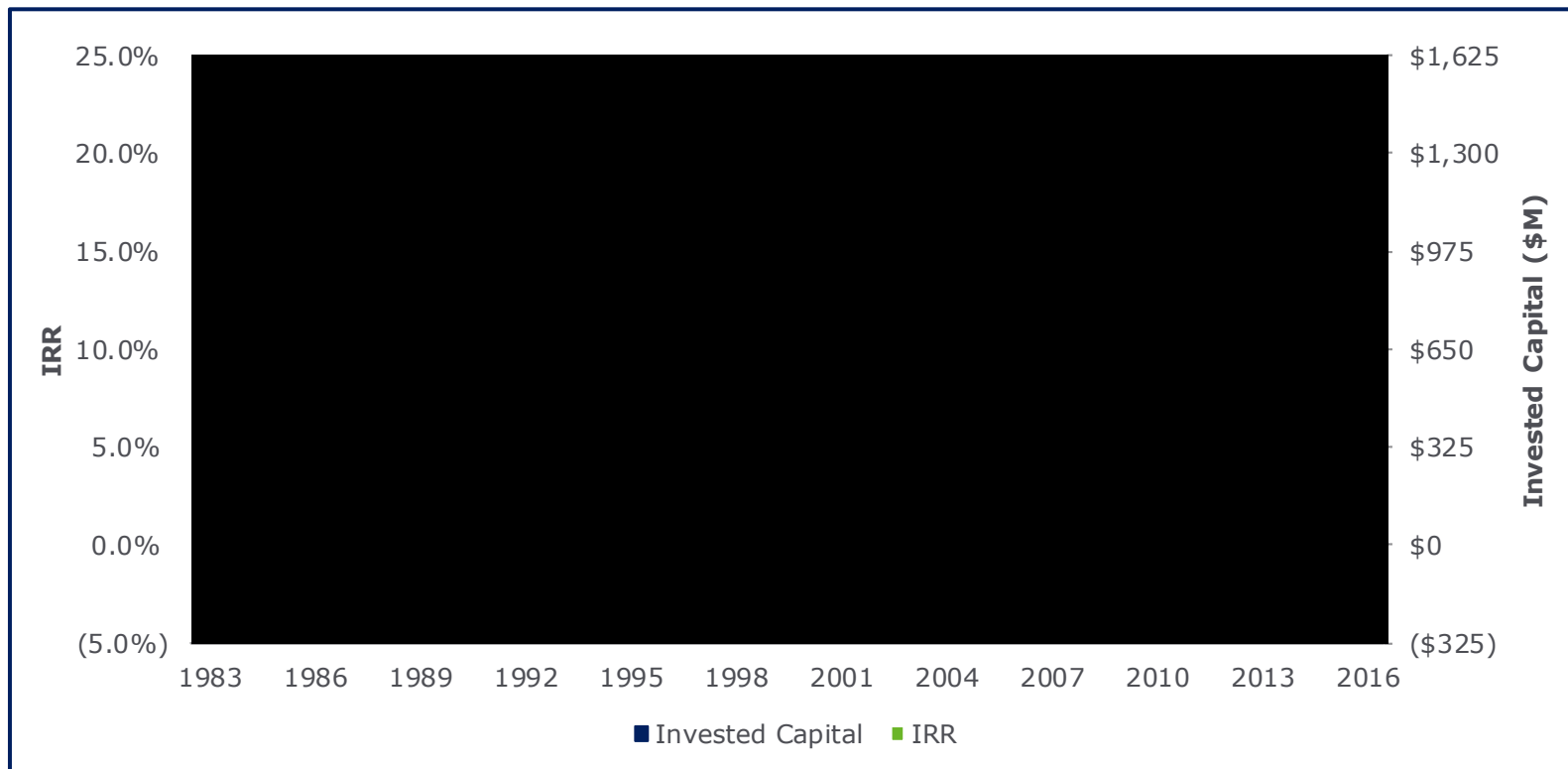


Data as of June 30, 2019. Breakouts provided by Managers.

HISTORICAL PERFORMANCE BY VINTAGE

The following chart illustrates capital invested and inception-to-date performance by vintage year as of June 30, 2019

- 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



Data as of June 30, 2019. Notes:

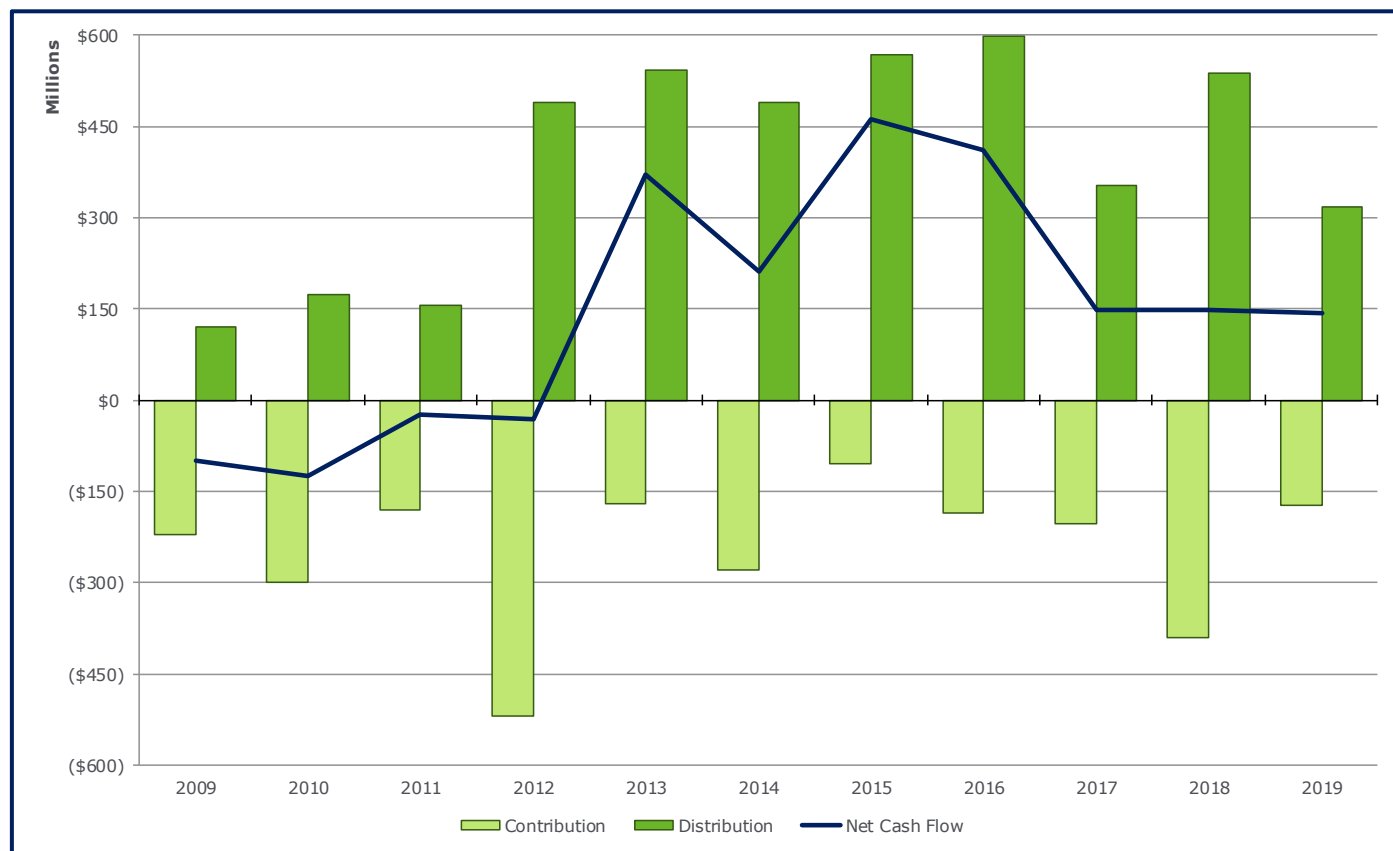
1. Vintage years 2017 and later are excluded as data is less meaningful.
2. For separate accounts, the date of initial commitment or investment is used as the vintage year.



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 (and YTD 2019)

- The portfolio has been cash flow positive since 2013
- Drawdowns have increased in recent years, a trend which may continue in the near-term as recent commitments will call capital and the portfolio continues to grow



Data as of June 30, 2019. Offsetting cash flows have been excluded, such as assets that were transferred from one account to another.

2. REAL ESTATE PORTFOLIO CONSTRUCTION UPDATE

NEPC, LLC

2019 REAL ESTATE PORTFOLIO UPDATE

- **In 2019, Staff and NEPC continued the portfolio repositioning that had been underway for the past several years**
- **New commitments in 2019 followed several target themes and initiatives:**
 - Focus on strategic partnerships with high quality managers
 - Expand the allocation to non-US real estate
 - Favor core-plus strategies over core
 - Allocate to attractive niche sectors
- **Looking ahead, the real estate pacing and strategic plan will be updated and presented to the Investment Committee**
 - This update (likely to be presented in Q1 2020) will provide more details on the objectives and expectations of the real estate portfolio going forward, and will incorporate the new asset allocation budget

PORTFOLIO ACTIVITY SUMMARY

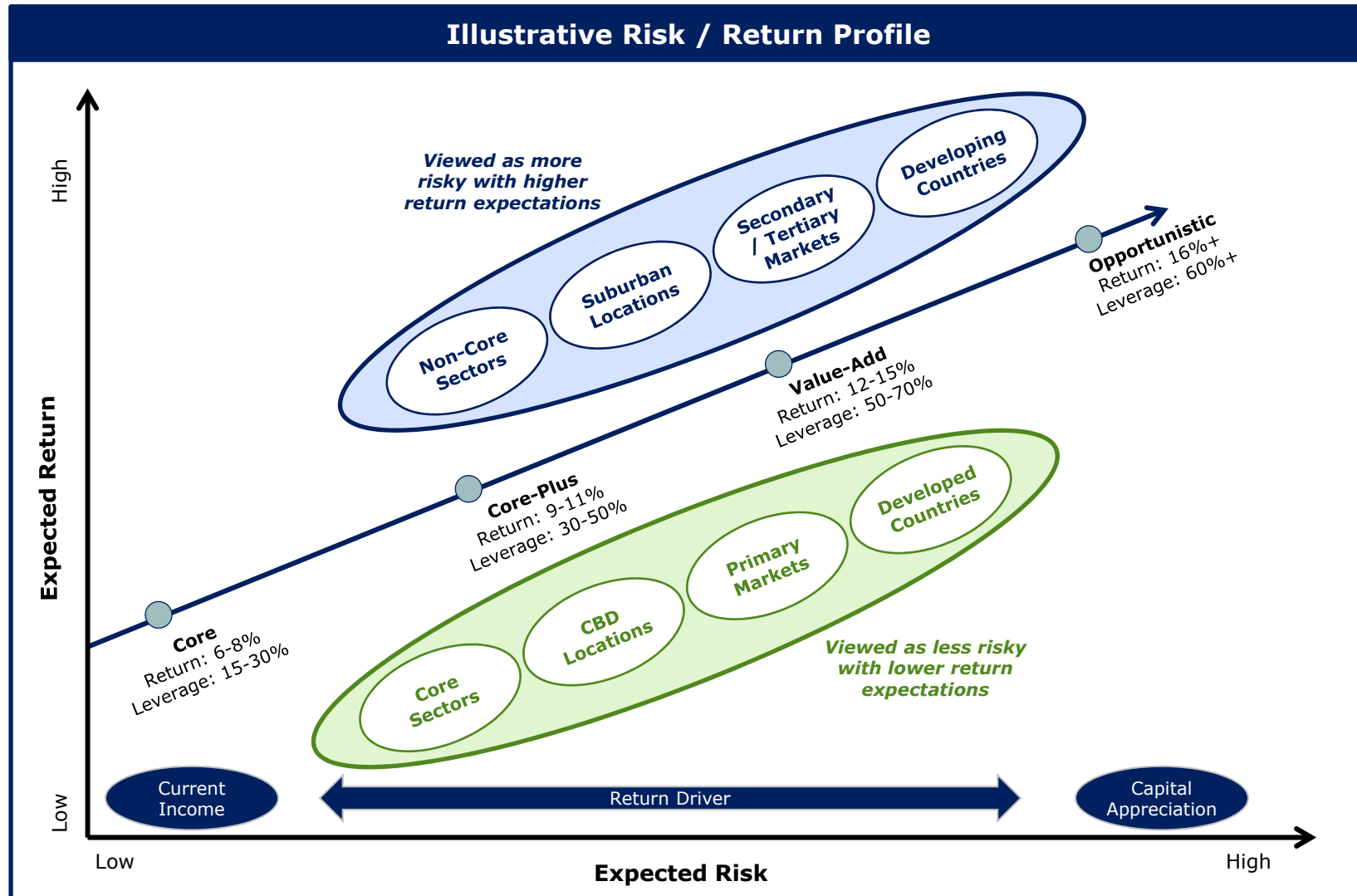
Real Assets Portfolio Sub-Strategy	Core/Core Plus	Value-Add/ Opportunistic	RE Securities	Real Assets (Timber, Infrastructure, etc.)
Return Profile	Income Driven	Income + Capital Appreciation	Income + Capital Markets	Various
<i>Current Exposure (NAV) (as of 6/30/19)</i>	32%	54%	14%	< 1%
<i>Current Target Allocation</i>	35% +/- 20%	55% +/- 15%	10% +/- 10%	0-20%
<i>2019 YTD Activity</i>	Henderson Park Enhanced Income (\$300M) (European Core+)	Blue Moon Senior Housing II (\$100M) Prudential Senior Housing VI (\$100M) Activum SG VI (€100M)	Maintained Allocation	Timber portfolio liquidation continued



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



Notes:

- Debt-related strategies can span the illustrative risk / return spectrum depending on the specific strategy
- Manager-specific risk, operations and leverage can skew expected risk / return profile



APPENDIX 1:
INVESTMENT LEVEL PERFORMANCE
AS OF JUNE 30, 2019

NEPC, LLC

ACTIVE INVESTMENTS

Investments			Trailing Period Returns (IRR) %							
Investment Name	Vintage Year	Commitment	QTD	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Since Inception
AG Asia Realty Fund, L.P.	2007	25,000,000								
Apollo Real Estate Investment Fund III, L.P.	1998	50,000,000								
Blackstone Property Partners, L.P.	2017	300,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Blackstone Real Estate Partners IV, L.P.	2003	25,000,000								11.83%
Blackstone Real Estate Partners V, L.P.	2006	50,000,000								10.71%
Blackstone Real Estate Partners VI, L.P.	2007	75,000,000								12.77%
Blackstone Real Estate Partners VII, L.P.	2011	75,000,000								16.67%
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								
C-III Recovery Fund III, L.P.	2017	100,000,000	NM	NM	NM	NM	NM	NM	NM	NM
CenterSquare Real Estate Securities	2002	183,616,773	1.81%	18.46%	16.98%	9.18%	11.15%	11.72%	20.02%	12.34%
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	59,048,685	NM	NM	NM	NM	NM	NM	NM	NM
LaSalle Separate Account	1994	444,715,936	-0.06%	-1.37%	9.55%	8.63%	10.68%	13.96%	13.38%	9.70%
Lasalle Takeover Account	2018	236,217,434	NM	NM	NM	NM	NM	NM	NM	NM
LEM Real Estate High-Yield Debt & Preferred Equity Fund III, L.P.	2013	25,000,000	5.16%	7.61%	17.33%	18.11%	20.47%			23.67%
Lowe GTO Separate Account	2012	349,069,212								
Lowe Separate Account	1994	715,229,496								
Lubert-Adler Real Estate Fund VII, L.P.	2014	25,000,000	0.21%	1.29%	9.65%	8.92%				7.32%
Mesirow Financial Real Estate Value Fund III, L.P.	2018	25,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Fund IV, L.P.	2017	100,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Net Lease Property Fund, L.P.	2018	300,000,000	NM	NM	NM	NM	NM	NM	NM	NM
PLA Residential Fund III, L.P.	2008	29,654,968								
PLA Retail Fund I, L.P.	2006	25,000,000								
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								



Data as of June 30, 2019.

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	Since Inception
Scout Fund I-A, L.P.	2009	75,000,000	129.86%	135.08%	140.93%	-7.21%	0.82%	16.28%	18.19%	15.31%
Scout Fund II-A, L.P.	2016	30,000,000	NM	NM	NM	NM	NM	NM	NM	NM
Senior Housing Partners IV, L.P.	2011	25,000,000								
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	NM	NM	NM	NM	NM	NM	NM	NM
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	-3.90%	-3.28%	0.59%	4.33%	7.01%	7.68%	7.67%	6.93%
ValStone Opportunity Fund V, LLC	2014	14,663,402	-0.13%	3.36%	8.05%	4.64%				8.41%
Westbrook Real Estate Fund V, L.P.	2004	25,000,000	16.50%	16.31%	15.90%	4.43%	34.29%	24.01%	10.93%	43.59%
Westbrook Real Estate Fund VI, L.P.	2006	35,000,000	-4.33%	-1.68%	-1.38%	-0.72%	0.74%	13.06%	1.61%	0.24%
Westbrook Real Estate Fund VII, L.P.	2007	50,000,000	0.17%	0.48%	0.52%	0.94%	5.11%	11.67%	9.15%	2.98%
Westbrook Real Estate Fund VIII, L.P.	2009	50,000,000	0.11%	0.37%	1.14%	3.41%	5.56%	9.08%		11.50%
Total										



Data as of June 30, 2019.

NM - Not Meaningful

PERFORMANCE BY STRATEGY

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
Core												
Heitman America Real Estate Trust, L.P.	2007	\$100,000,000	\$0	\$100,000,000		\$76,516,263						
Trumbull Property Fund, L.P.	1988	\$25,558,525	\$0	\$25,558,525	\$0	\$104,908,574	\$39,619,354	\$144,527,928	\$118,969,403	4.10	5.65	6.93%
Total Core		\$125,558,525	\$0	\$125,558,525		\$181,424,837						
Core Plus												
Blackstone Property Partners, L.P.	2017	\$300,000,000	\$0	\$300,000,000	NM	\$0	NM	NM	NM	NM	NM	NM
Henderson Park Enhanced Income Fund, SCSp	2019	\$300,000,000	\$206,000,000	\$94,000,000	NM	\$0	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Net Lease Property Fund, L.P.	2018	\$300,000,000	\$283,606,971	\$16,393,029	NM	\$288,241	NM	NM	NM	NM	NM	NM
Total Core Plus		\$900,000,000	\$489,606,971	\$410,393,029		\$288,241						
Direct Investment												
Heitman Separate Account	1988	\$813,635,039	\$0	\$813,635,039		\$1,092,759,873						
HotelAVE Separate Account	2018	\$59,048,685	\$0	\$59,048,685	NM	\$2,000,000	NM	NM	NM	NM	NM	NM
LaSalle Separate Account	1994	\$444,715,936	\$0	\$444,715,936		\$778,848,456	\$172,769,569	\$951,618,025	\$503,841,511	1.74	2.13	9.70%
Lasalle Takeover Account	2018	\$236,217,434	\$1,693,594	\$234,523,840	NM	\$9,885,602	NM	NM	NM	NM	NM	NM
Lowe GTO Separate Account	2012	\$349,069,212	\$0	\$349,069,212		\$369,841,373						
Lowe Separate Account	1994	\$715,229,496	\$0	\$715,229,496		\$1,070,987,833						
Total Direct Investment		\$2,617,915,801	\$1,693,594	\$2,616,222,207		\$3,324,323,137						
REIT												
CenterSquare Real Estate Securities	2002	\$183,616,773	\$0	\$183,616,773		\$36,168,336	\$264,952,776	\$301,121,112	\$117,504,339	0.20	1.64	12.34%
Total REIT		\$183,616,773	\$0	\$183,616,773		\$36,168,336						
Timber												
Forest Separate Account	1992	\$124,231,969	\$0	\$124,231,969		\$242,367,376						
Total Timber		\$124,231,969	\$0	\$124,231,969		\$242,367,376						
Value Add												
Blue Moon Senior Housing II Sidecar L.P.	2019	\$50,000,000	\$50,000,000	\$0	NM	\$0	NM	NM	NM	NM	NM	NM
Blue Moon Senior Housing II, L.P.	2019	\$50,000,000	\$50,000,000	\$0	NM	\$0	NM	NM	NM	NM	NM	NM
BPG Investment Partnership IX, L.P.	2012	\$25,000,000	\$696,591	\$24,303,409		\$35,343,863						
BPG Investment Partnership V, L.P.	1999	\$24,136,964	\$0	\$24,136,964		\$43,926,194						
BPG Investment Partnership VI, L.P.	2002	\$24,543,712	\$0	\$24,543,712		\$41,584,267						
BPG Investment Partnership VII, L.P.	2005	\$25,000,000	\$0	\$25,000,000		\$12,588,893						
BPG Investment Partnership VIII, L.P.	2007	\$15,588,238	\$676,220	\$14,912,018		\$19,916,719						
Lubert-Adler Real Estate Fund VII, L.P.	2014	\$25,000,000	\$2,179,554	\$22,820,446	\$0	\$7,410,076	\$21,422,456	\$28,832,532	\$6,012,086	0.32	1.26	7.32%
Mesirov Financial Real Estate Value Fund III, L.P.	2018	\$25,145,833	\$13,744,059	\$11,401,774	NM	\$253,922	NM	NM	NM	NM	NM	NM
Oak Street Real Estate Capital Fund IV, L.P.	2017	\$100,000,000	\$67,474,336	\$32,525,664	NM	\$2,385,099	NM	NM	NM	NM	NM	NM
Senior Housing Partners VI, L.P.	2019	\$100,000,000	\$100,000,000	\$0	NM	\$0	NM	NM	NM	NM	NM	NM
Westbrook Real Estate Fund V, L.P.	2004	\$25,000,000	\$0	\$25,000,000	\$2,200,785	\$44,485,779	\$6,398,065	\$50,883,844	\$23,683,059	1.64	1.87	43.59%
Westbrook Real Estate Fund VI, L.P.	2006	\$35,000,000	\$0	\$35,000,000	\$3,550,099	\$37,571,397	\$1,416,505	\$38,987,902	\$437,803	0.97	1.01	0.24%
Westbrook Real Estate Fund VII, L.P.	2007	\$50,000,000	\$0	\$50,000,000	\$6,006,377	\$52,787,877	\$13,993,211	\$66,781,088	\$10,774,711	0.94	1.19	2.98%
Westbrook Real Estate Fund VIII, L.P.	2009	\$50,000,000	\$0	\$50,000,000	\$4,080,480	\$63,418,319	\$10,211,546	\$73,629,865	\$19,549,385	1.17	1.36	11.50%
Total Value Add		\$624,414,747	\$284,770,760	\$339,643,988		\$361,672,405						



Data as of June 30, 2019.

NM - Not Meaningful

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
Opportunistic												
AG Asia Realty Fund, L.P.	2007	\$25,000,000	\$1,500,000	\$23,500,000		\$25,187,500				1.07		
Apollo Real Estate Investment Fund III, L.P.	1998	\$50,000,000	\$0	\$50,000,000		\$74,963,869						
Blackstone Real Estate Partners IV, L.P.	2003	\$25,000,000	\$0	\$25,000,000	\$0	\$39,658,595	\$864,075	\$40,522,670	\$15,522,670	1.59	1.62	11.83%
Blackstone Real Estate Partners V, L.P.	2006	\$50,000,000	\$2,087,026	\$47,912,974	\$0	\$95,150,783	\$4,191,872	\$99,342,655	\$51,429,681	1.99	2.07	10.71%
Blackstone Real Estate Partners VI, L.P.	2007	\$75,000,000	\$3,680,925	\$71,319,075	\$281,339	\$146,966,874	\$7,632,508	\$154,599,382	\$82,998,968	2.05	2.16	12.77%
Blackstone Real Estate Partners VII, L.P.	2011	\$75,000,000	\$10,496,700	\$64,503,300	\$1,592,492	\$80,900,158	\$46,218,449	\$127,118,607	\$61,022,815	1.22	1.92	16.67%
C-III Recovery Fund III, L.P.	2017	\$100,000,000	\$56,316,190	\$43,683,810	NM	\$0	NM	NM	NM	NM	NM	NM
Clerestory Small Cap Real Estate Fund I - TE, L.P.	2010	\$18,000,000	\$2,771,044	\$15,228,956		\$14,848,913						
Colony Investors VIII, L.P.	2007	\$22,500,000	\$844,200	\$21,655,800		\$7,962,017						
LEM Real Estate High-Yield Debt & Preferred Equity Fund III, L.P.	2013	\$25,000,000	\$21,992,807	\$3,007,193	\$0	\$22,077,013	\$3,282,969	\$25,359,982	\$22,352,788	7.34	8.43	23.67%
PLA Residential Fund III, L.P.	2008	\$29,654,968	\$4,946,219	\$24,708,749		\$13,444,991	\$734,735	\$14,179,726	-\$10,529,023	0.54		
PLA Retail Fund I, L.P.	2006	\$2,271,117	\$0	\$2,271,117		\$8,162,626	\$450,673	\$8,613,299	\$6,342,182	3.59		
Rockpoint Finance Fund I, L.P.	2007	\$2,527,500	\$0	\$2,527,500		\$2,106,094				0.48		
Rockpoint Real Estate Fund II, L.P.	2005	\$34,138,784	\$0	\$34,138,784		\$30,679,156				0.82		
Rockpoint Real Estate Fund III, L.P.	2007	\$50,632,887	\$4,241,165	\$46,391,722		\$66,888,445				1.32		
Rockpoint Real Estate Fund V, L.P.	2015	\$50,000,000	\$13,062,181	\$36,937,819		\$5,062,127				0.13		
Scout Fund I-A, L.P.	2009	\$75,000,000	\$0	\$75,000,000	\$0	\$116,533,142	\$1,061,688	\$117,594,830	\$42,594,830	1.55	1.57	15.31%
Scout Fund II-A, L.P.	2016	\$30,000,000	\$2,369,921	\$27,630,079	NM	\$391,698	NM	NM	NM	NM	NM	NM
Senior Housing Partners IV, L.P.	2011	\$22,089,297	\$1,289,781	\$20,799,516		\$17,562,020	\$20,749,753	\$38,311,774	\$17,512,257	0.84		
Senior Housing Partners V, L.P.	2015	\$50,000,000	\$11,015,513	\$38,984,487		\$2,667,222	\$46,709,511	\$49,376,732	\$10,392,246	0.07		
SRE Opportunity Fund III Select, L.P.	2018	\$50,000,000	\$50,000,000	\$0	NM	\$0	NM	NM	NM	NM	NM	NM
SRE Opportunity Fund III, L.P.	2018	\$50,000,000	\$41,000,000	\$9,000,000	NM	\$0	NM	NM	NM	NM	NM	NM
Starwood Global Opportunity Fund VII-A, L.P.	2006	\$35,000,000	\$0	\$35,000,000		\$25,486,147						
Starwood Global Opportunity Fund VIII, L.P.	2009	\$50,000,000	\$4,643,719	\$45,356,281		\$68,465,826						
Starwood Opportunity Fund VI, L.P.	2001	\$50,000,000	\$0	\$50,000,000		\$51,782,742						
ValStone Opportunity Fund V, LLC	2014	\$14,663,402	\$0	\$14,663,402	\$375	\$3,209,834	\$16,526,990	\$19,736,824	\$5,073,047	0.22	1.35	8.41%
Total Opportunistic		\$1,061,477,955	\$232,257,390	\$829,220,565		\$920,157,793						
Total		\$5,637,215,770	\$1,008,328,715	\$4,628,887,055		\$5,066,402,125						



APPENDIX 2: DISCLAIMERS & DISCLOSURES

NEPC, LLC

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.**
- **This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.**



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