



Investment Oversight

As at 31st March 2016 (Preliminary)



Investment Oversight

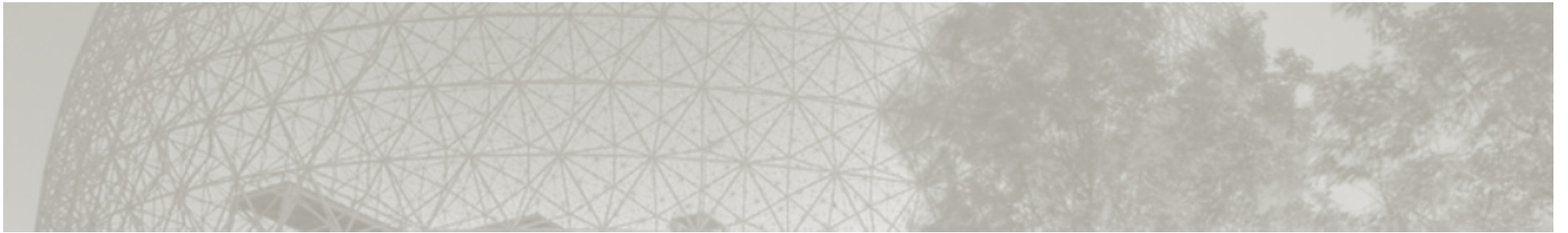
As at 31st March 2016

Dallas Police & Fire Pension System

Preliminary Contents

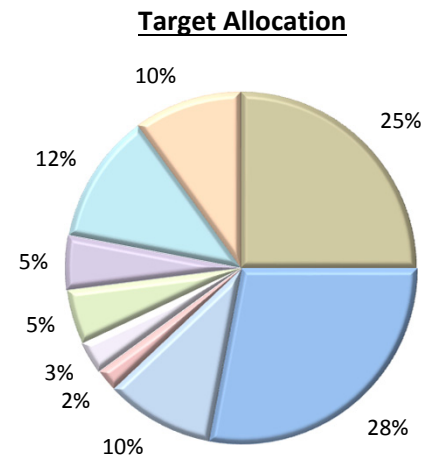
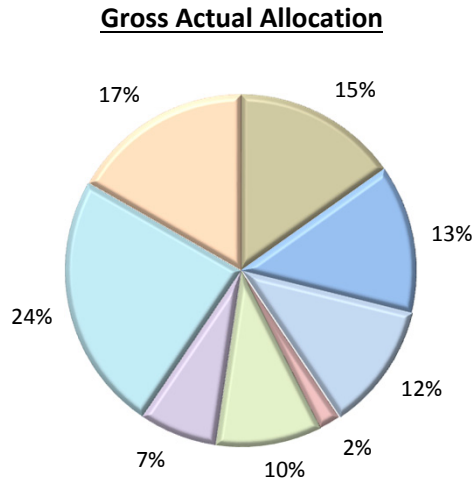


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March 2016 Snapshot

Preliminary
March 2016 Snapshot
Asset Allocation: Actual vs. Target



		Actual Allocation (\$)	Net Actual Allocation (%)	Gross Actual Allocation (%)	Target Allocation (%)	Target Range (%)
Liquid Assets						
Public Equity	Global Equity	443,529,728	16.33%	15.19%	20%	10% - 23%
	EM Equity	0	0.00%	0.00%	5%	0% - 8%
	Sub-Total	443,529,728	16.33%	15.19%	25%	
Fixed Income	Short-Term Core Bonds	0	0.00%	0.00%	2%	0% - 5%
	Global Bonds	134,175,349	4.94%	4.60%	3%	0% - 6%
	High Yield	157,117,753	5.78%	5.38%	5%	2% - 8%
	Bank Loans	50,529,116	1.86%	1.73%	6%	3% - 9%
	Structured Credit & Absolute Return	0	0.00%	0.00%	6%	0% - 9%
	EM Debt	57,173,762	2.10%	1.96%	6%	0% - 9%
Sub-Total	398,995,981	14.69%	13.66%	28%		
Asset Allocation	Risk Parity	221,848,535	8.17%	7.60%	5%	2% - 8%
	GTAA	120,690,437	4.44%	4.13%	3%	0% - 6%
	Absolute Return	0	0.00%	0.00%	2%	0% - 5%
	Sub-Total	342,538,972	12.61%	11.73%	10%	5% - 15%
Cash & Cash Equivalents		57,577,543	2.12%	1.97%	2%	0% - 5%
Liquid Real Assets		0	0.00%	0.00%	3%	0% - 6%
Liquid Assets Total		1,242,642,224	45.75%	42.56%	68%	
Private Assets						
Natural Resources		285,864,673	10.52%	9.79%	5%	3% - 10%
Infrastructure		209,436,749	7.71%	7.17%	5%	3% - 10%
Real Estate		693,484,075	25.53%	23.75%	12%	10% - 25%
Private Investments	Private Equity	399,740,874	14.72%	13.69%	5%	4% - 15%
	Private Debt	88,704,470	3.27%	3.04%	5%	2% - 7%
	Sub-Total	488,445,344	17.98%	16.73%	10%	
Private Assets Total		1,677,230,841	61.74%	57.44%	32%	
Gross Total		2,919,873,065	107%	100%	100%	
Plan Leverage Facility		(203,451,513)				
Net Total		2,716,421,552				

Preliminary
March 2016 Snapshot

Asset Allocation: Actual vs. Target (cont.)



		Actual Allocation (\$)	Net Actual Allocation (%)	Gross Actual Allocation (%)	Target Allocation (%)
Equities	Public Equity	443,529,728	16.33%	15.19%	25%
	Private Equity	399,740,874	14.72%	13.69%	5%
	Sub-Total	843,270,602	31.04%	28.88%	30%
Credit	Fixed Income	398,995,981	14.69%	13.66%	28%
	Private Debt	88,704,470	3.27%	3.04%	5%
	Sub-Total	487,700,451	17.95%	16.70%	33%
Real Assets	Liquid Real Assets	0	0.00%	0.00%	3%
	Infrastructure	209,436,749	7.71%	7.17%	5%
	Natural Resources	285,864,673	10.52%	9.79%	5%
	Real Estate	693,484,075	25.53%	23.75%	12%
	Sub-Total	1,188,785,497	43.76%	40.71%	25%
Other	Asset Allocation	342,538,972	12.61%	11.73%	10%
	Cash & Cash Equivalents	57,577,543	2.12%	1.97%	2%
	Sub-Total	400,116,515	14.73%	13.70%	12%
Gross Total		2,919,873,065	107%	100%	100%
Plan Leverage Facility		(203,451,513)			
Net Total		2,716,421,552			

* Funds in the Private Debt bucket are not actually held separately, but are bucketed as such for future trend purposes. For details on the funds that will be reclassified, see appendix IV (page 41).

Preliminary
March 2016 Snapshot
Public Securities Performance



Equity Holdings

March 2016 Estimated Values					
Holding	End NAV	Return	Benchmark	Benchmark Return	Alpha
Eagle Asset Management	51,768,252	6.93%	Russell 2000	7.98%	-1.05%
Mitchell Group	25,420,375	17.76%	Dow Jones Equal Weight US Oil & Gas	17.77%	-0.01%
OFI Global Institutional	118,060,375	5.83%	MSCI World	6.86%	-1.03%
Pyramis (Fidelity)	114,286,611	6.99%	MSCI ACWI	7.41%	-0.42%
RREEF	22,833,791	8.87%	FTSE EPRA/NAREIT	9.48%	-0.61%
Sustainable Asset Management	26,480,869	8.28%	MSCI World	6.86%	1.42%
Walter Scott	84,679,456	6.52%	MSCI ACWI	7.41%	-0.89%
Total	443,529,728	7.31%	MSCI ACWI	7.41%	-0.10%

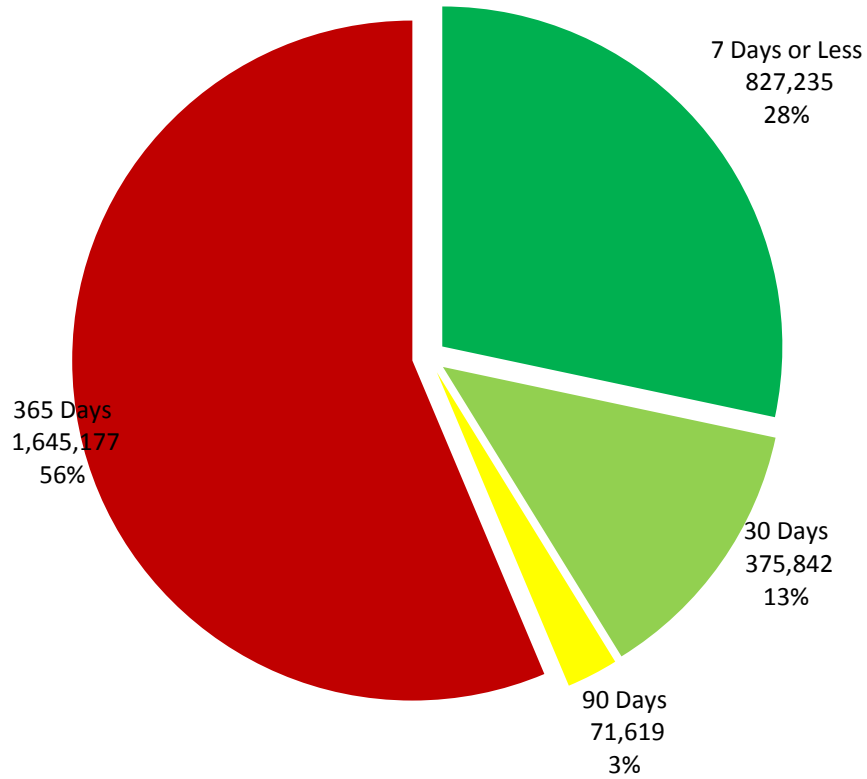
Fixed Income Holdings

March 2016 Estimated Values					
Holding	End NAV	Return	Benchmark	Benchmark	Alpha
Ashmore EM Debt Fund	39,564,631	2.13%	J.P. Morgan EMBI Global Core	3.33%	-1.20%
Ashmore EM Local CCY	17,609,131	9.78%	J.P. Morgan GBI-EM Core	8.97%	0.81%
Brandywine	91,476,777	5.07%	Barclays Global Aggregate	2.70%	2.37%
Loomis Sayles	112,883,227	6.01%	70% ML HY / 30% JPM EM	5.79%	0.23%
Loomis Sayles Sr. Floating Rate	50,529,116	3.21%	S&P/LSTA Leveraged Loan Index	2.32%	0.89%
Mondrian Investment Partners	42,698,572	3.46%	Barclays Global Aggregate	2.70%	0.76%
W.R. Huff High Yield	44,234,526	4.59%	Citi HY Index	4.28%	0.31%
Total	398,995,981	4.77%	Barclays Global Aggregate	2.70%	2.07%

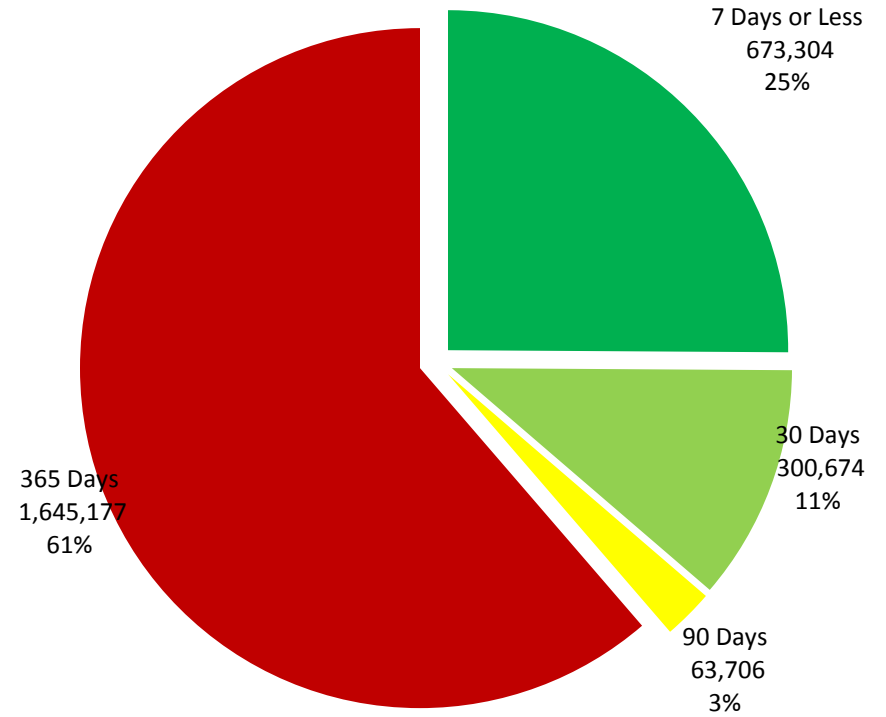
Preliminary March 2016 Snapshot Portfolio Liquidity



Normal Market Conditions



Stressed Scenario - 20% Market Drawdown



* Amounts detailed are in thousands, and are based on the gross asset value of the portfolio.

** Stressed scenario is a result of applying a 20% drawdown to the liquid portfolio.



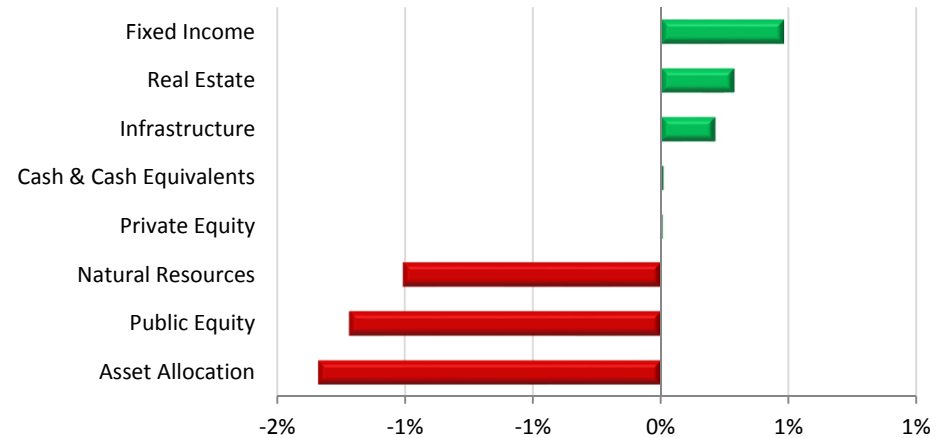
February 2016

Preliminary – Data as at February 2016 Asset Class Performance: Actual vs. Policy



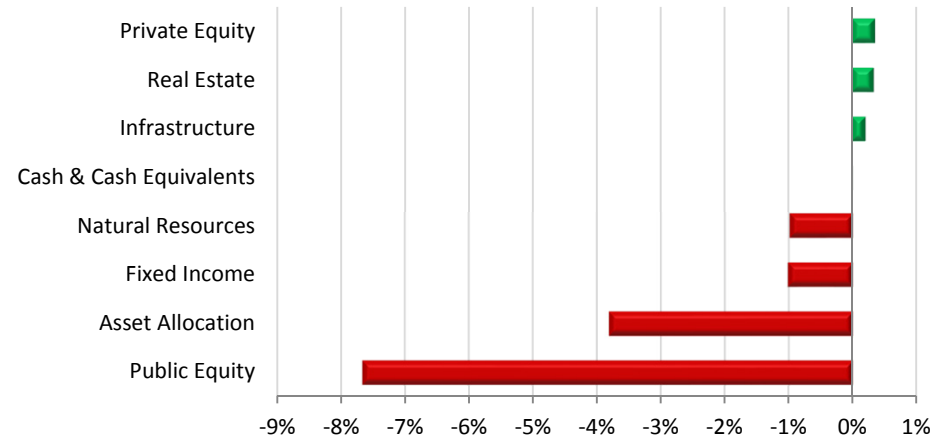
One Month Performance as at Feb. 2016

	One Month		
	DPFP Return	Policy Return (Beta)	Alpha
Public Equity	-1.22%	-0.69%	-0.53%
Fixed Income	0.48%	2.23%	-1.75%
Asset Allocation	-1.34%	0.24%	-1.58%
Cash & Cash Equivalents	0.01%	0.00%	0.01%
Natural Resources	-1.01%	0.00%	-1.01%
Infrastructure	0.21%	0.24%	-0.03%
Real Estate	0.28%	0.00%	0.28%
Private Equity	0.00%	0.03%	-0.03%
Total	-0.33%	0.31%	-0.64%
Total ex Real Estate	-0.48%	0.31%	-0.79%



Quarter-to-Date Performance as at Feb. 2016

	Quarter-to-Date		
	DPFP Return	Policy Return (Beta)	Alpha
Public Equity	-7.68%	-6.68%	-1.00%
Fixed Income	-1.03%	3.11%	-4.14%
Asset Allocation	-3.83%	0.68%	-4.51%
Cash & Cash Equivalents	0.01%	0.00%	0.01%
Natural Resources	-1.00%	0.00%	-1.00%
Infrastructure	0.21%	0.68%	-0.47%
Real Estate	0.33%	0.00%	0.33%
Private Equity	0.35%	-4.77%	5.12%
Total	-1.91%	-1.06%	-0.85%
Total ex Real Estate	-2.40%	-1.06%	-1.34%



* Please see Appendix I (page 36) for details on the policy indexes.

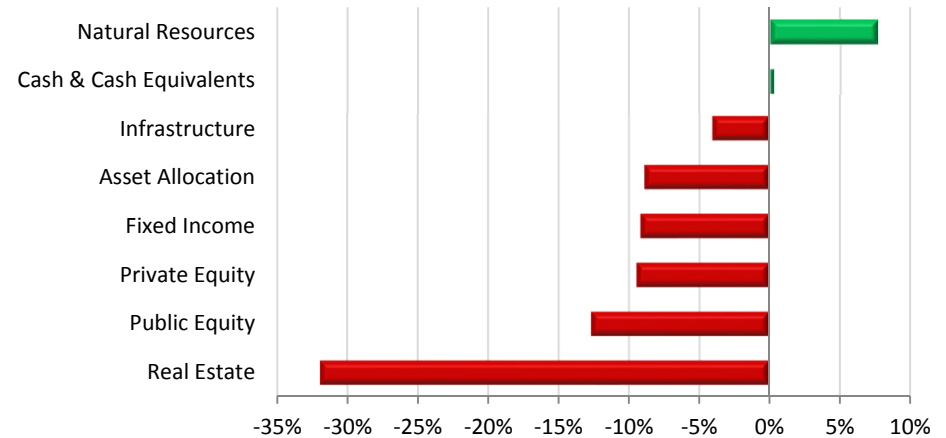
** Returns presented are calculated using custodian bank year-end source data and values, which do not include subsequent valuation adjustments completed for audit and actuarial purposes. Therefore, the returns shown here will differ from actuary calculated returns, as well as the official investment returns presented by NEPC.

Preliminary – Data as at February 2016
Asset Class Performance: Actual vs. Policy (cont.)



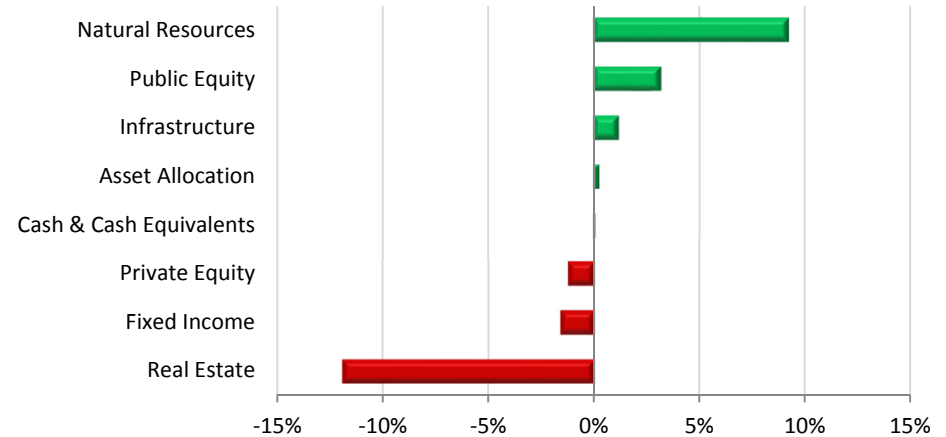
One Year Performance as at Feb. 2016

	One Year		
	DPFP Return	Policy Return (Beta)	Alpha
Public Equity	-12.68%	-12.32%	-0.36%
Fixed Income	-9.18%	0.83%	-10.02%
Asset Allocation	-8.90%	6.03%	-14.93%
Cash & Cash Equivalents	0.25%	0.00%	0.25%
Natural Resources	7.62%	12.25%	-4.64%
Infrastructure	-4.06%	6.03%	-10.10%
Real Estate	-31.91%	13.33%	-45.24%
Private Equity	-9.47%	-4.30%	-5.17%
Total	-15.72%¹	2.56%	-18.28%
Total ex Real Estate	-7.71%	0.63%	-8.33%



Three Year Performance as at Feb. 2016

	Three Year		
	DPFP Return	Policy Return (Beta)	Alpha
Public Equity	3.21%	3.67%	-0.47%
Fixed Income	-1.63%	-0.11%	-1.52%
Asset Allocation	0.30%	5.70%	-5.40%
Cash & Cash Equivalents	0.11%	0.00%	0.11%
Natural Resources	9.21%	12.78%	-3.56%
Infrastructure	1.21%	5.70%	-4.49%
Real Estate	-11.93%	12.04%	-23.96%
Private Equity	-1.27%	12.95%	-14.22%
Total	-2.24%	7.22%	-9.46%
Total ex Real Estate	1.68%	5.39%	-3.72%



¹ **Approximately two-thirds of the one year loss relates to the lagged returns from Q4 2014 for private investments. These losses were reflected in the 2014 CAFR and 1/1/15 actuarial valuation**

* Please see Appendix I (page 36) for details on the policy indexes.

** Returns presented are calculated using custodian bank year-end source data and values, which do not include subsequent valuation adjustments completed for audit and actuarial purposes. Therefore, the returns shown here will differ from actuary calculated returns, as well as the official investment returns presented by NEPC.

Preliminary – Data as at February 2016 Portfolio Attribution



Attribution Metrics

- Allocation refers to the proportion of the active return that can be attributed to tactical asset allocation decisions.
- Selection refers to the proportion of the active return that can be attributed to manager selection and subsequent performance of the selected managers.
- Interaction refers to the proportion of the active return that cannot be attributed solely to tactical asset allocation decisions or manager selection.

Preliminary – Data as at February 2016 Portfolio Attribution (cont.)



One Month as at Feb. 2016

Asset Class	Weights		Returns		Attribution			
	DPFP	Policy	DPFP	Policy	Allocation (1)	Selection (2)	Interaction (3)	Active Return (1+2+3)
Public Equity	15.43%	15.00%	-1.22%	-0.69%	0.00%	-0.08%	0.00%	-0.09%
Fixed Income	15.20%	15.00%	0.48%	2.23%	0.00%	-0.26%	0.00%	-0.26%
Asset Allocation	14.67%	20.00%	-1.34%	0.24%	0.00%	-0.32%	0.08%	-0.23%
Cash & Cash Equivalents	2.05%	0.00%	0.01%	0.00%	-0.01%	0.00%	0.00%	-0.01%
Natural Resources	10.61%	10.00%	-1.01%	0.00%	0.00%	-0.10%	-0.01%	-0.11%
Infrastructure	7.49%	10.00%	0.21%	0.24%	0.00%	0.00%	0.00%	0.00%
Real Estate	25.81%	15.00%	0.28%	0.00%	-0.03%	0.04%	0.03%	0.04%
Private Equity	17.40%	15.00%	0.00%	0.03%	-0.01%	0.00%	0.00%	-0.01%
Plan Leverage Facility	-8.66%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.03%
Total	100.00%	100.00%	-0.33%	0.31%	-0.02%	-0.72%	0.10%	-0.64%

Calendar YTD as at Feb. 2016

Asset Class	Weights		Returns		Attribution			
	DPFP	Policy	DPFP	Policy	Allocation (1)	Selection (2)	Interaction (3)	Active Return (1+2+3)
Public Equity	15.85%	15.00%	-7.68%	-6.68%	-0.06%	-0.15%	-0.01%	-0.23%
Fixed Income	15.12%	15.00%	-1.03%	3.11%	0.00%	-0.61%	0.00%	-0.61%
Asset Allocation	14.67%	20.00%	-3.83%	0.68%	-0.09%	-0.90%	0.24%	-0.76%
Cash & Cash Equivalents	2.50%	0.00%	0.01%	0.00%	0.03%	0.00%	0.00%	0.03%
Natural Resources	10.47%	10.00%	-1.00%	0.00%	0.00%	-0.10%	-0.01%	-0.10%
Infrastructure	7.38%	10.00%	0.21%	0.68%	-0.05%	-0.05%	0.01%	-0.08%
Real Estate	25.53%	15.00%	0.33%	0.00%	0.11%	0.05%	0.04%	0.19%
Private Equity	17.03%	15.00%	0.35%	-4.77%	-0.06%	0.77%	0.08%	0.79%
Plan Leverage Facility	-8.55%	0.00%	0.00%	0.00%	-0.09%	0.00%	0.00%	-0.09%
Total	100.00%	100.00%	-1.91%	-1.06%	-0.21%	-1.00%	0.36%	-0.85%

One Year as at Feb. 2016

Asset Class	Weights		Returns		Attribution			
	DPFP	Policy	DPFP	Policy	Allocation (1)	Selection (2)	Interaction (3)	Active Return (1+2+3)
Public Equity	20.60%	15.00%	-12.68%	-12.32%	-0.80%	-0.03%	0.05%	-0.78%
Fixed Income	14.21%	15.00%	-9.18%	0.83%	0.07%	-1.39%	0.05%	-1.27%
Asset Allocation	13.57%	20.00%	-8.90%	6.03%	-0.18%	-2.70%	0.77%	-2.11%
Cash & Cash Equivalents	1.73%	0.00%	0.25%	0.00%	-0.06%	0.00%	0.00%	-0.05%
Natural Resources	9.30%	10.00%	7.62%	12.25%	-0.14%	-0.38%	0.01%	-0.52%
Infrastructure	6.41%	10.00%	-4.06%	6.03%	-0.11%	-0.95%	0.37%	-0.70%
Real Estate	27.84%	15.00%	-31.91%	13.33%	1.29%	-6.86%	-6.27%	-11.84%
Private Equity	16.03%	15.00%	-9.47%	-4.30%	-0.05%	-0.92%	-0.22%	-1.18%
Plan Leverage Facility	-9.70%	0.00%	0.88%	0.00%	0.26%	0.00%	-0.09%	0.17%
Total	100.00%	100.00%	-15.72%	2.56%¹	0.29%	-13.24%	-5.33%	-18.28%

¹ Approximately two-thirds of the one year loss relates to the lagged returns from Q4 2014 for private investments. These losses were reflected in the 2014 CAFR and 1/1/15 actuarial valuation

* Please see Appendix II (page 37) for details on the attribution calculation and methodology.

Preliminary – Data as at February 2016

Asset Allocations: Monthly Changes



The total NAV of the portfolio at February 29th 2016 is **2,688,936,483**

- P&L of the portfolio decreased by \$9 million.
- \$11 million was added in contributions, \$29 million paid in benefits.
- No new managers were added during the month.
- No managers were liquidated during the month.
- Strategy with the largest cash net inflow in Feb: Real Estate
- Strategy with the largest cash net outflow in Feb: Fixed Income
- Over the past 12 months, the largest increase in allocation was in Natural Res.
- Over the past 12 months, the largest decrease in allocation was in Real Estate.

Top Performing Asset Classes

Asset Class	Performance (Feb.)	
	\$	%
Real Estate	1,984,660	0.28%
Fixed Income	1,969,365	0.48%
Infrastructure	425,344	0.21%

Top Performing Holdings

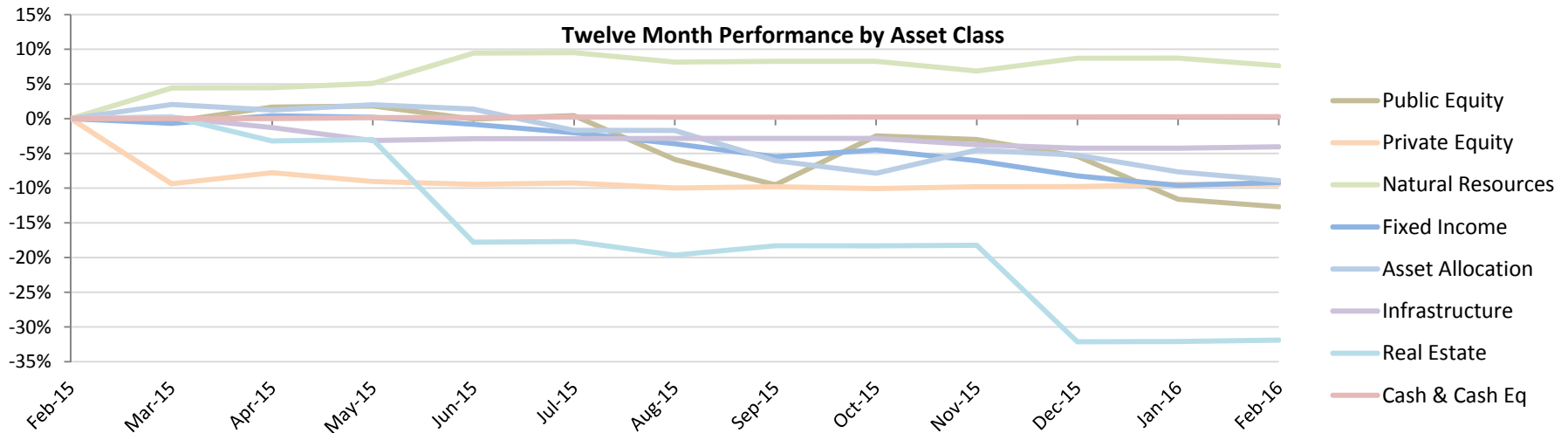
Holding	Performance (Feb.)	
	\$	%
Brandywine	1,624,252	1.90%
Lone Star RE III	1,028,255	5.13%
Mondrian Investment Partners	934,509	2.32%

Bottom Performing Asset Classes

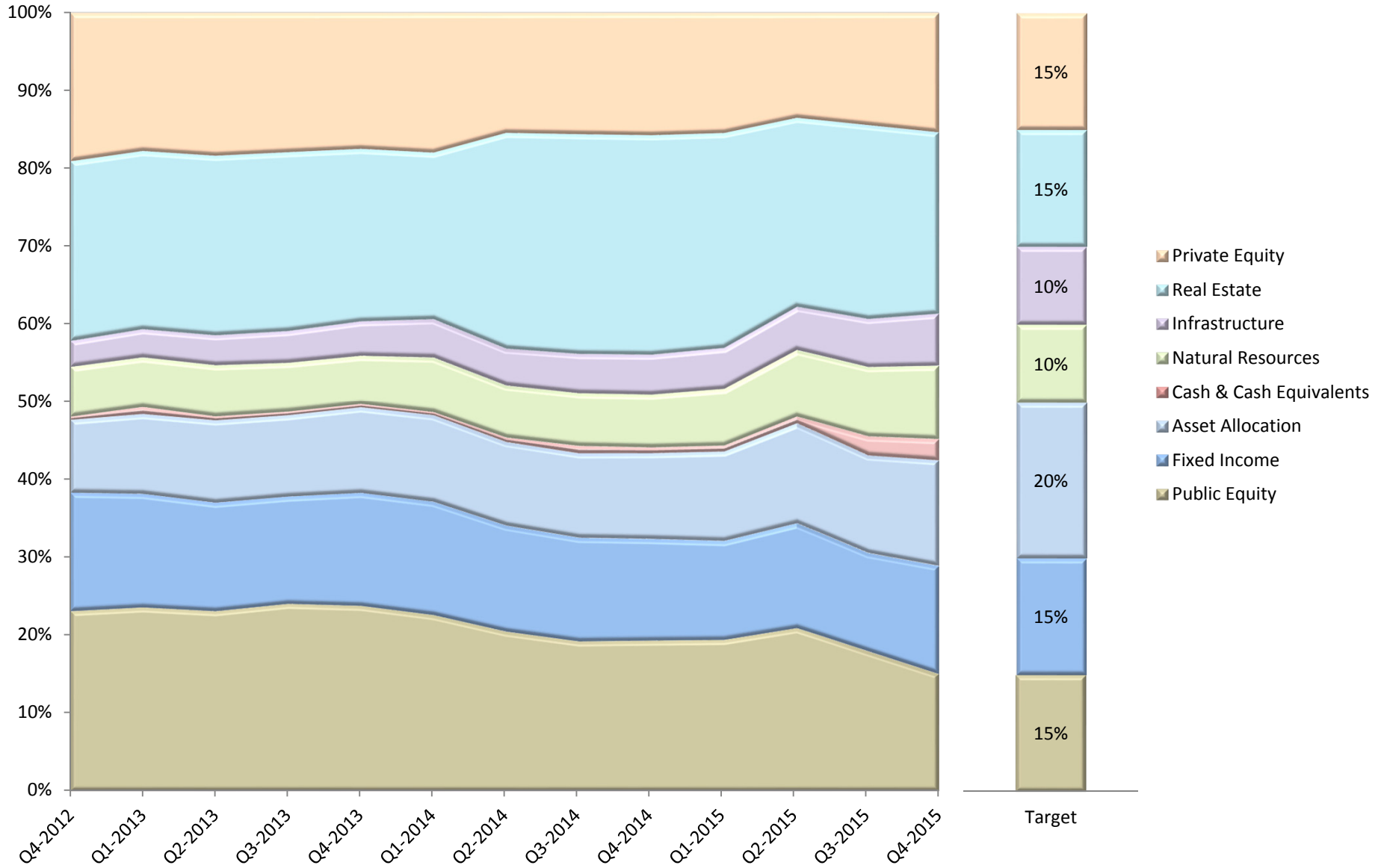
Asset Class	Performance (Feb.)	
	\$	%
Asset Allocation	(5,331,319)	-1.34%
Public Equity	(5,100,699)	-1.22%
Natural Resources	(2,902,581)	-1.01%

Bottom Performing Holdings

Holding	Performance (Feb.)	
	\$	%
GMO	(3,862,464)	-3.09%
BTG Pactual Asset Management	(2,902,581)	-3.53%
OFI Global Institutional	(2,154,624)	-1.89%



Preliminary – Data as at February 2016
Asset Allocations: Over Time (Quarterly)



Preliminary – Data as at February 2016 Long Term Plan Risk/Return vs Policy and 60/40

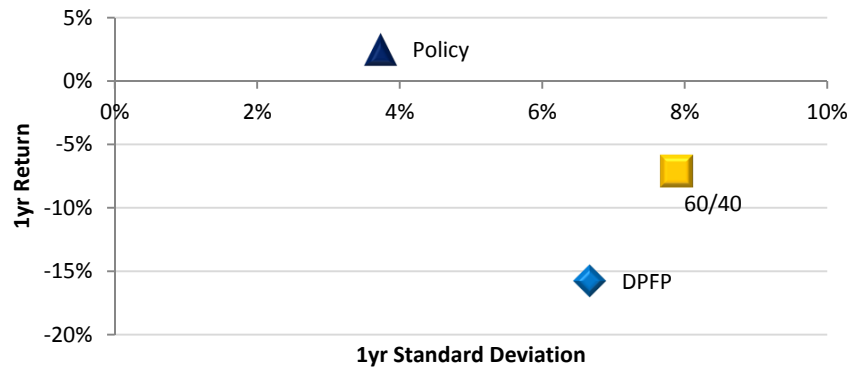


Trend Commentary

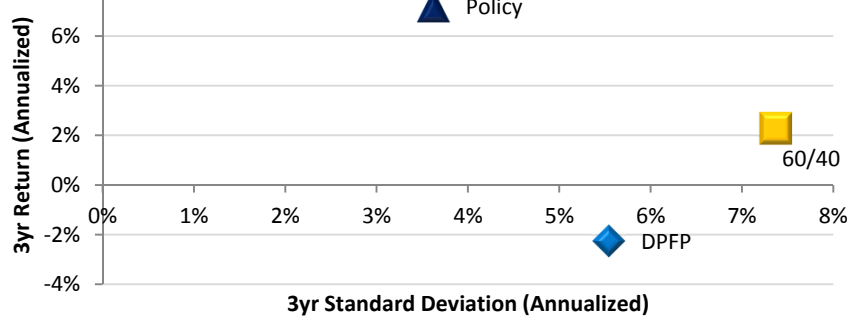
- The DPFP portfolio is less volatile than the 60/40 portfolio across all time horizons.
- The DPFP portfolio is less volatile than the Policy benchmark across the 5 year time horizon.

Note: Higher allocations to illiquid assets tend to deemphasize volatility due to the infrequency of marks received. This may be particularly acute in the case of the DPFP plan portfolio.

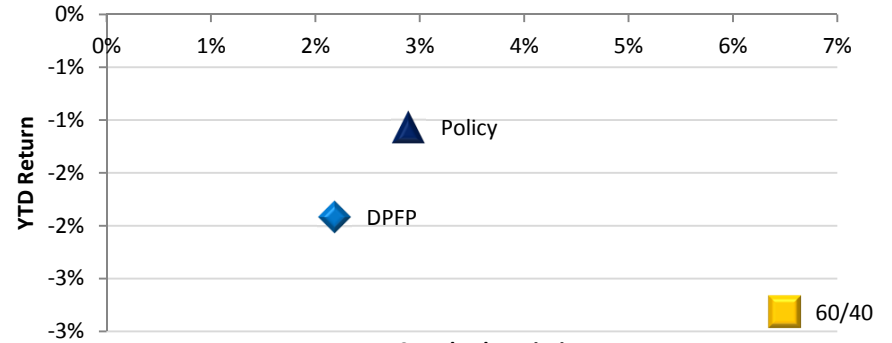
1 Year as at Feb. 2016



3 Year as at Feb. 2016

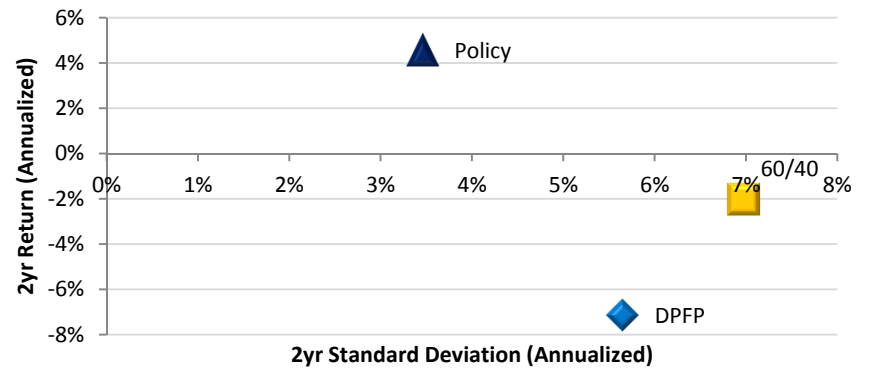


YTD as at Feb. 2016



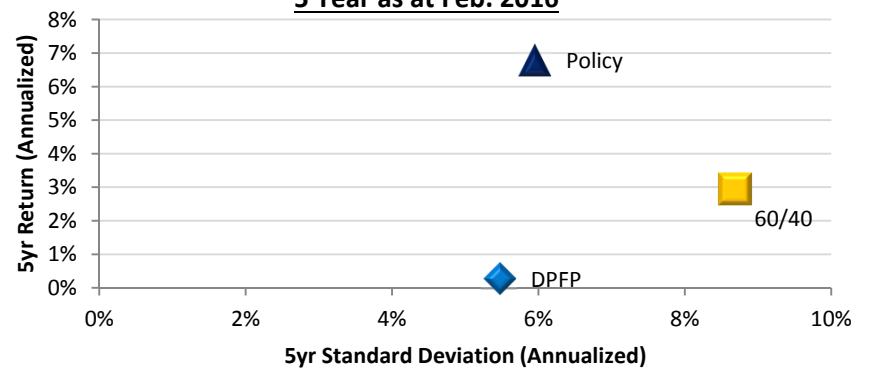
YTD Standard Deviation

2 Year as at Feb. 2016



2yr Standard Deviation (Annualized)

5 Year as at Feb. 2016



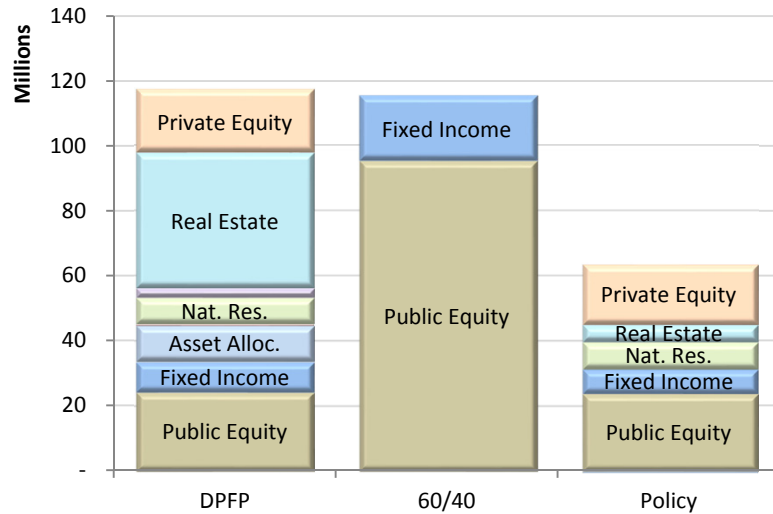
5yr Standard Deviation (Annualized)

* Please see Appendix I (page 36) for details on the composition of the 60/40 and Policy benchmarks.

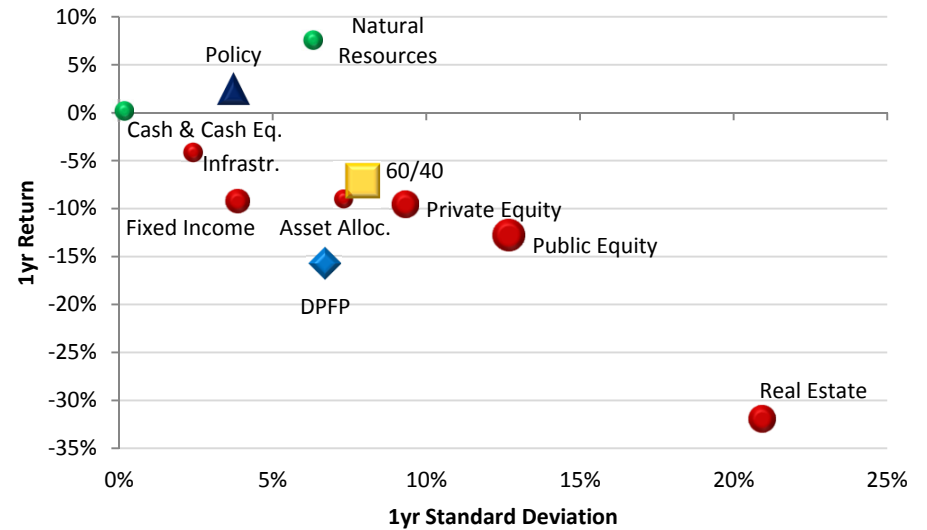
Preliminary – Data as at February 2016 Risk Profile



Five Year Value at Risk (95% Confidence Level) as at Feb. 2016

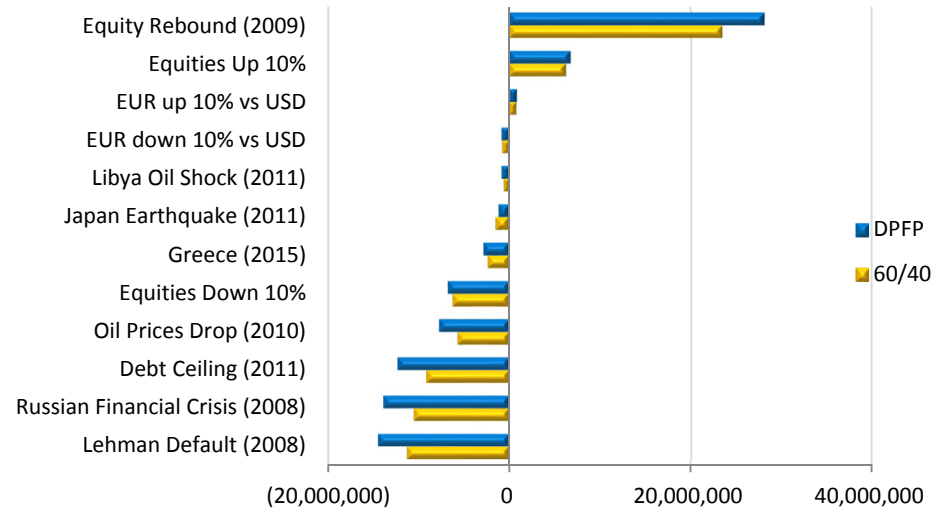


Asset Class Risk vs Return (Sharpe) as at Feb. 2016



Portfolio Stress Testing as at Feb. 2016

Scenario	P&L (\$)	P&L (%)
Equity Rebound (2009)	28,100,858	30.04%
Equities Up 10%	6,733,134	7.20%
EUR up 10% vs USD	831,877	0.89%
EUR down 10% vs USD	(831,874)	-0.89%
Libya Oil Shock (2011)	(850,137)	-0.91%
Japan Earthquake (2011)	(1,167,226)	-1.25%
Greece (2015)	(2,828,296)	-3.02%
Equities Down 10%	(6,733,134)	-7.20%
Oil Prices Drop (2010)	(7,688,371)	-8.22%
Debt Ceiling (2011)	(12,258,070)	-13.10%
Russian Financial Crisis (2008)	(13,821,372)	-14.78%
Lehman Default (2008)	(14,410,644)	-15.41%



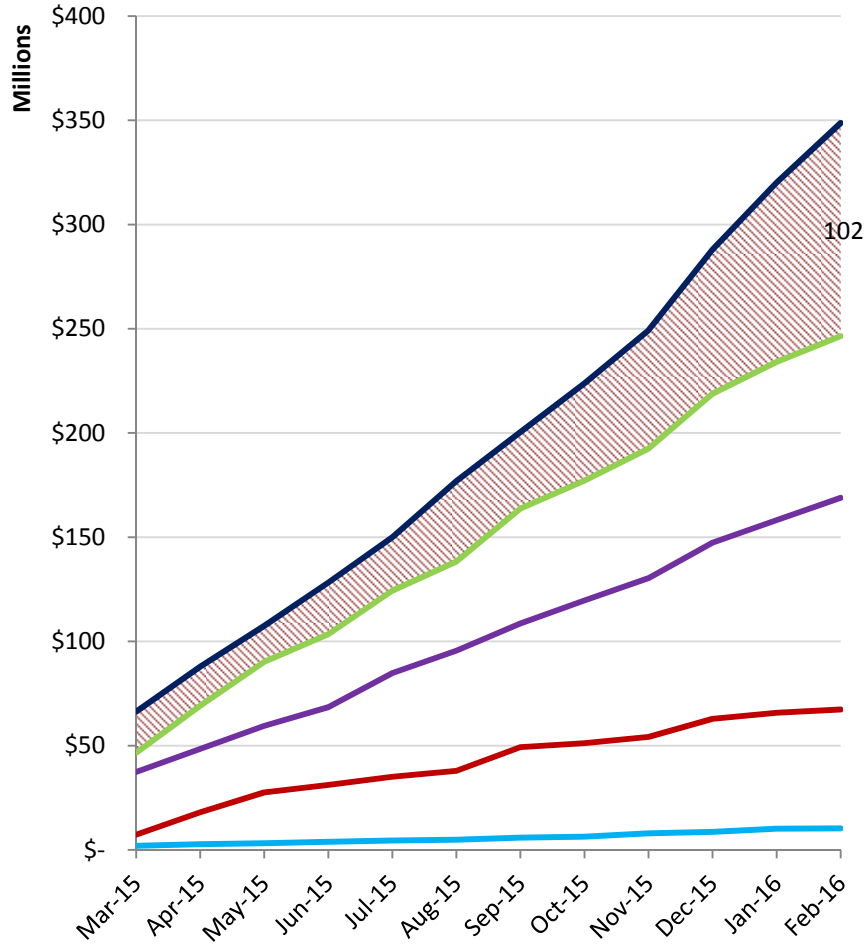
* Stress Test Scenarios and the proxy instruments used are detailed in Appendix I (page 36).

** Value at Risk on the DPFP portfolio is significantly higher than the policy, as realized losses and volatility are significant within the DPFP portfolio. This is particularly true in the case of the Real Estate Portfolio, which also contains leverage.

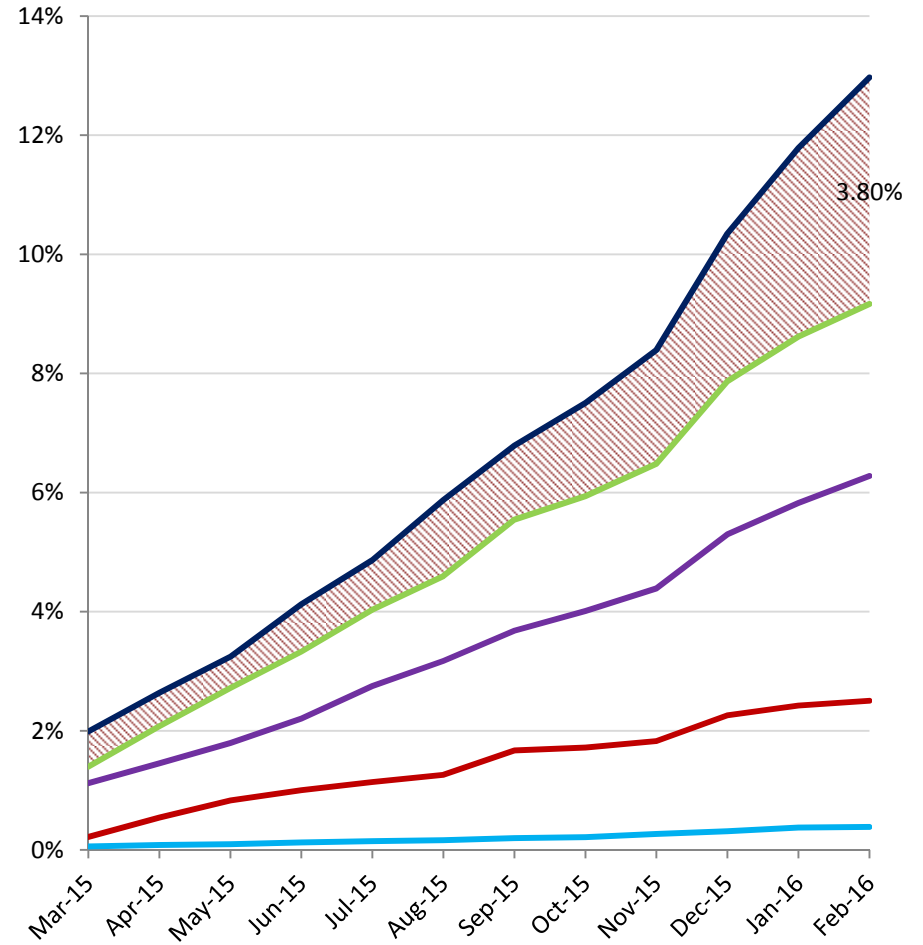
Preliminary – Data as at February 2016 Trailing 12 Month Funding Gap



Monthly Cumulative (\$)



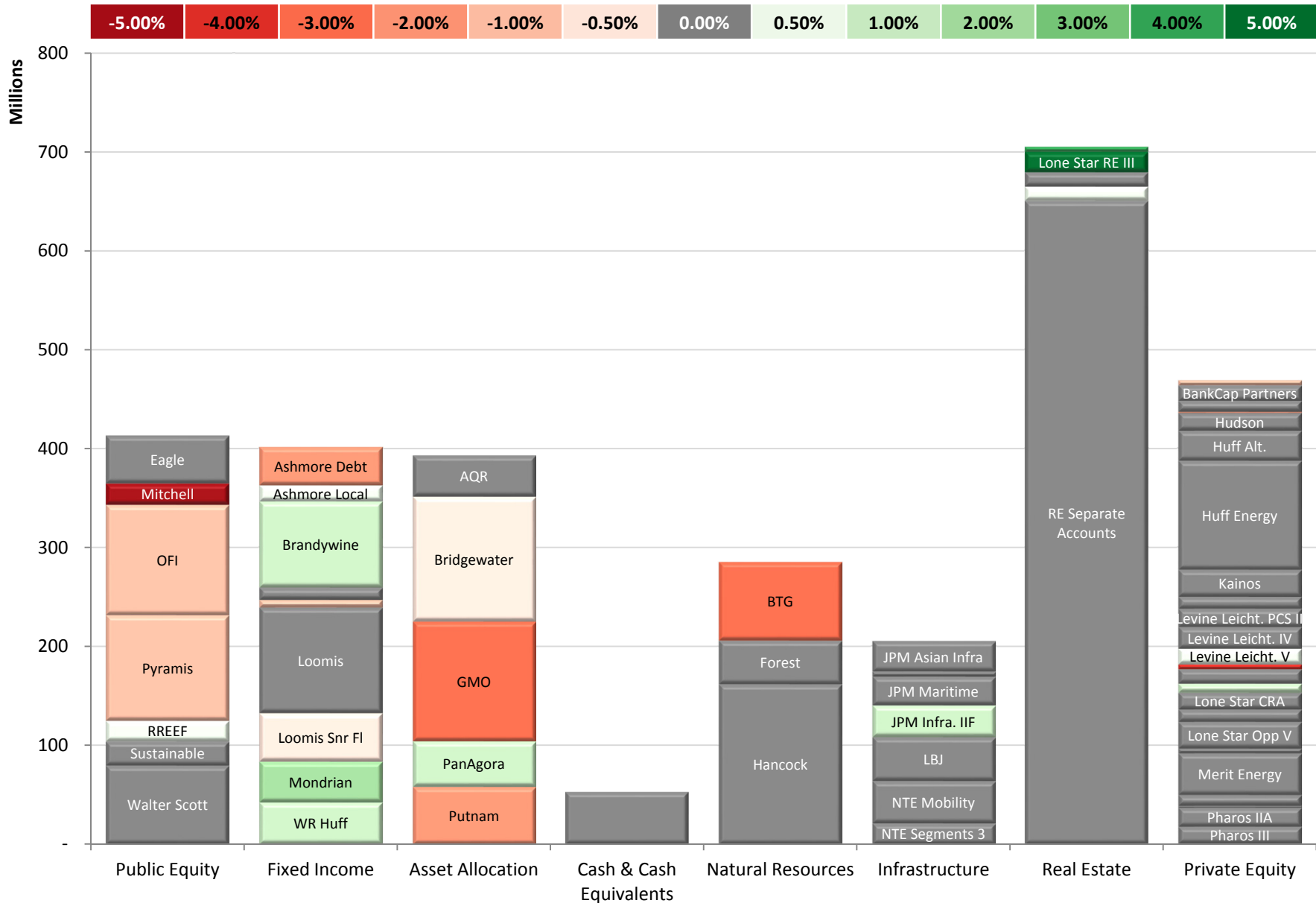
Monthly Cumulative (% of Plan NAV)



Funding Gap
 Benefit Payments
 Total Cash Inflows
 Dividends
 Interest
 Contributions

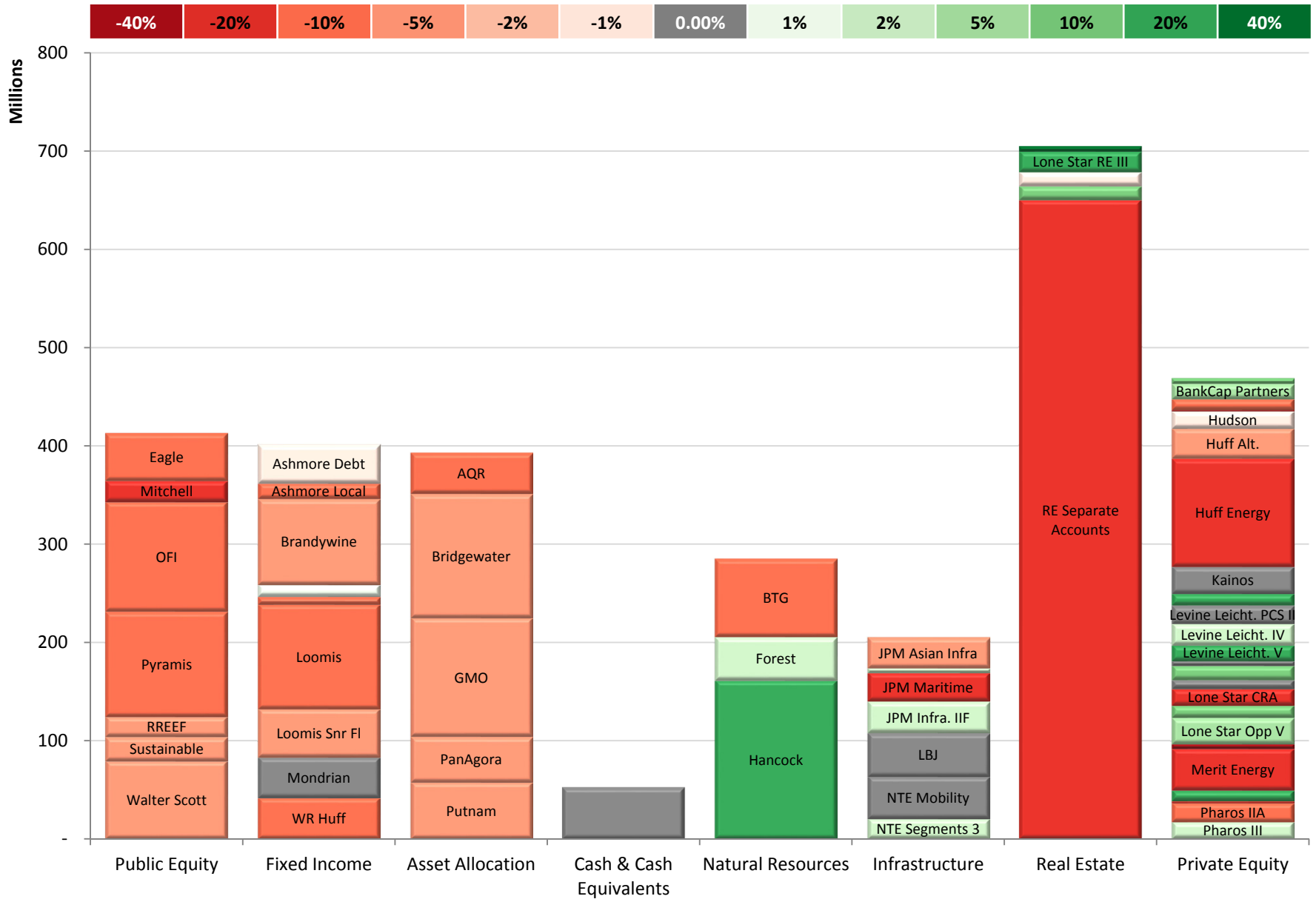
*53 accounts are contributing income to the above figures.

Preliminary – Data as at February 2016 One Month Performance Heat Map

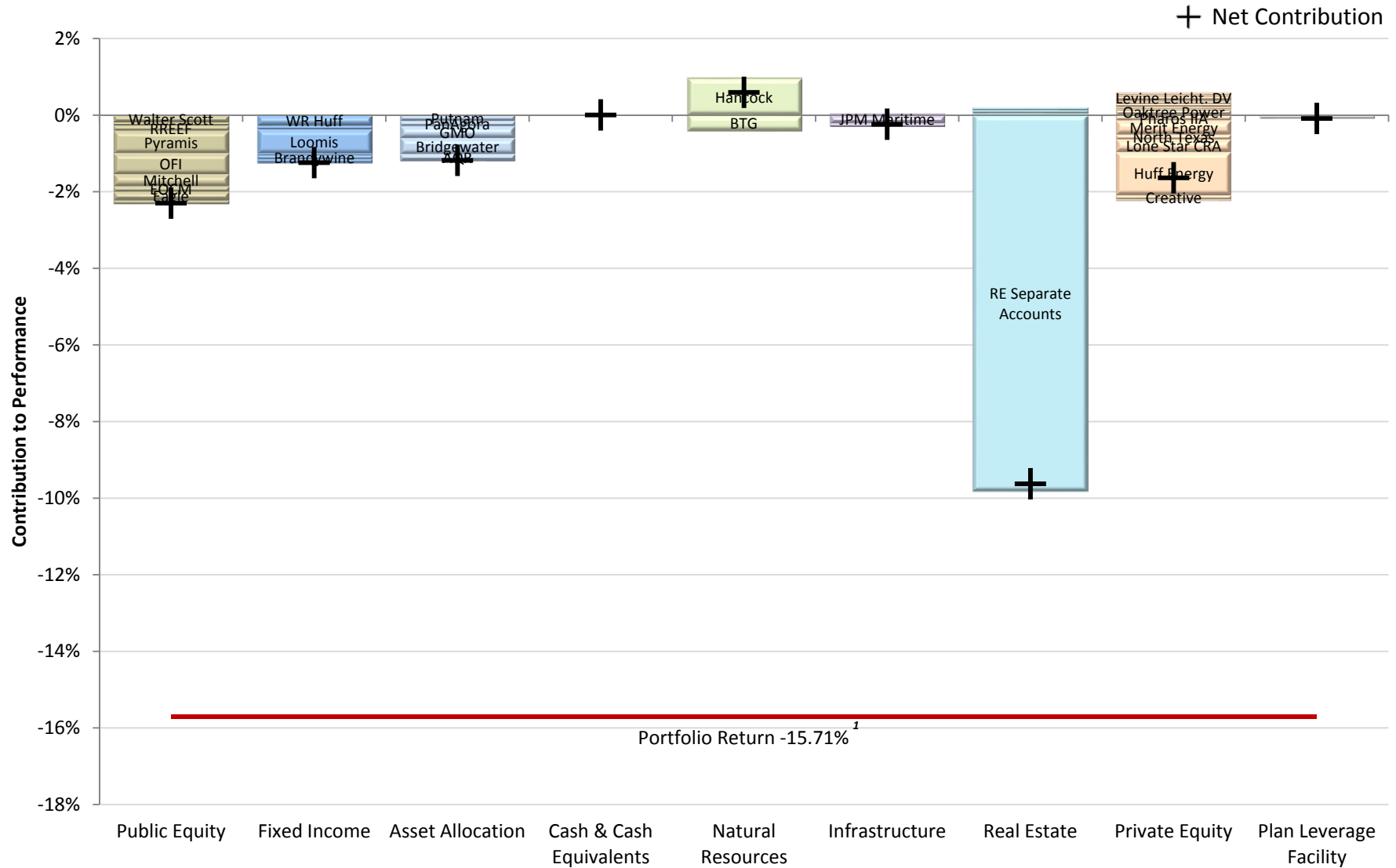


*Private assets only report on a quarterly basis therefore the one month return is often unchanged..

Preliminary – Data as at February 2016 Twelve Month Performance Heat Map



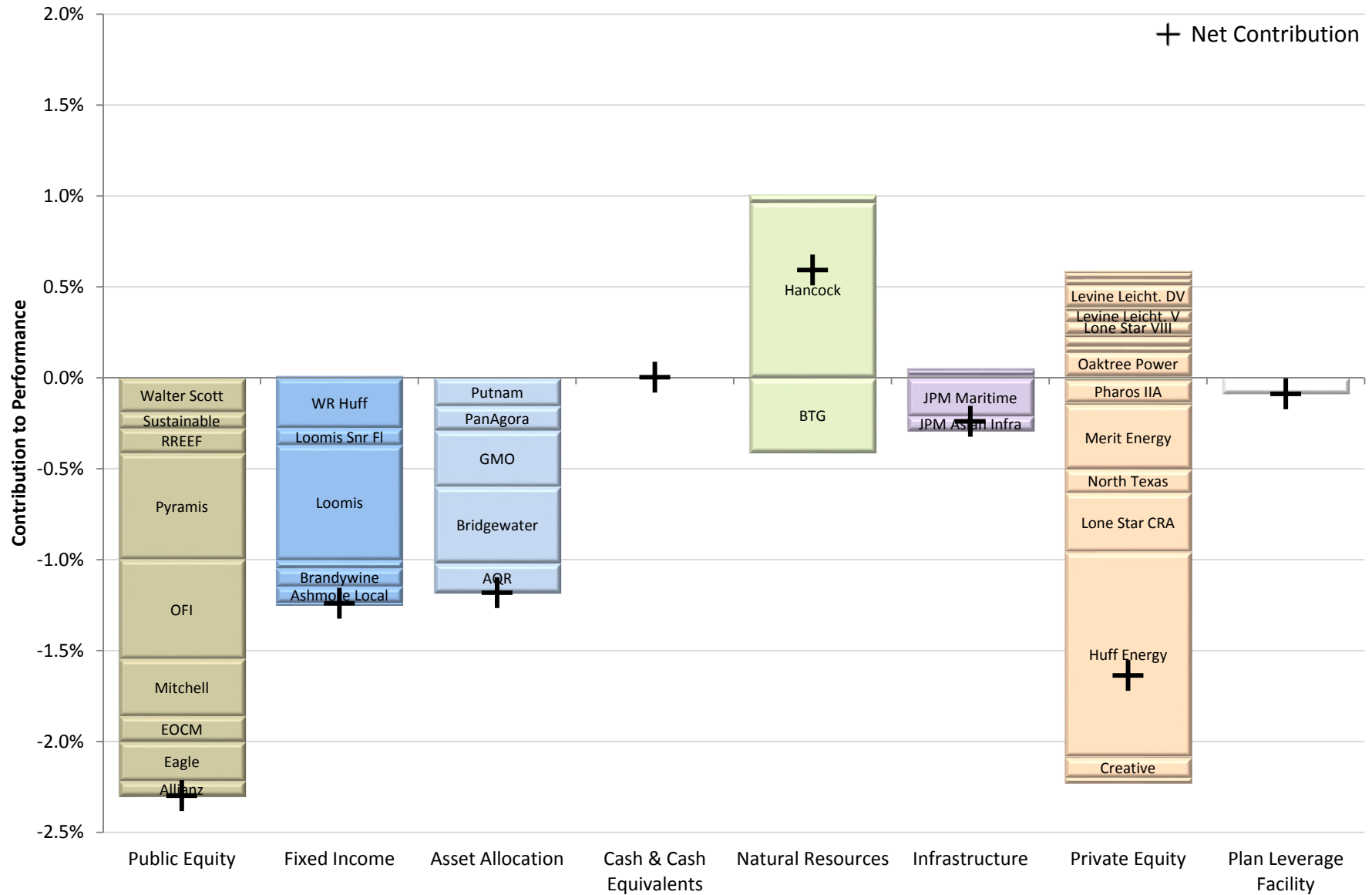
Preliminary – Data as at February 2016 Twelve Month Contribution to Performance



¹ Approximately two-thirds of the one year loss relates to the lagged returns from Q4 2014 for private investments. These losses were reflected in the 2014 CAFR and 1/1/15 actuarial valuation

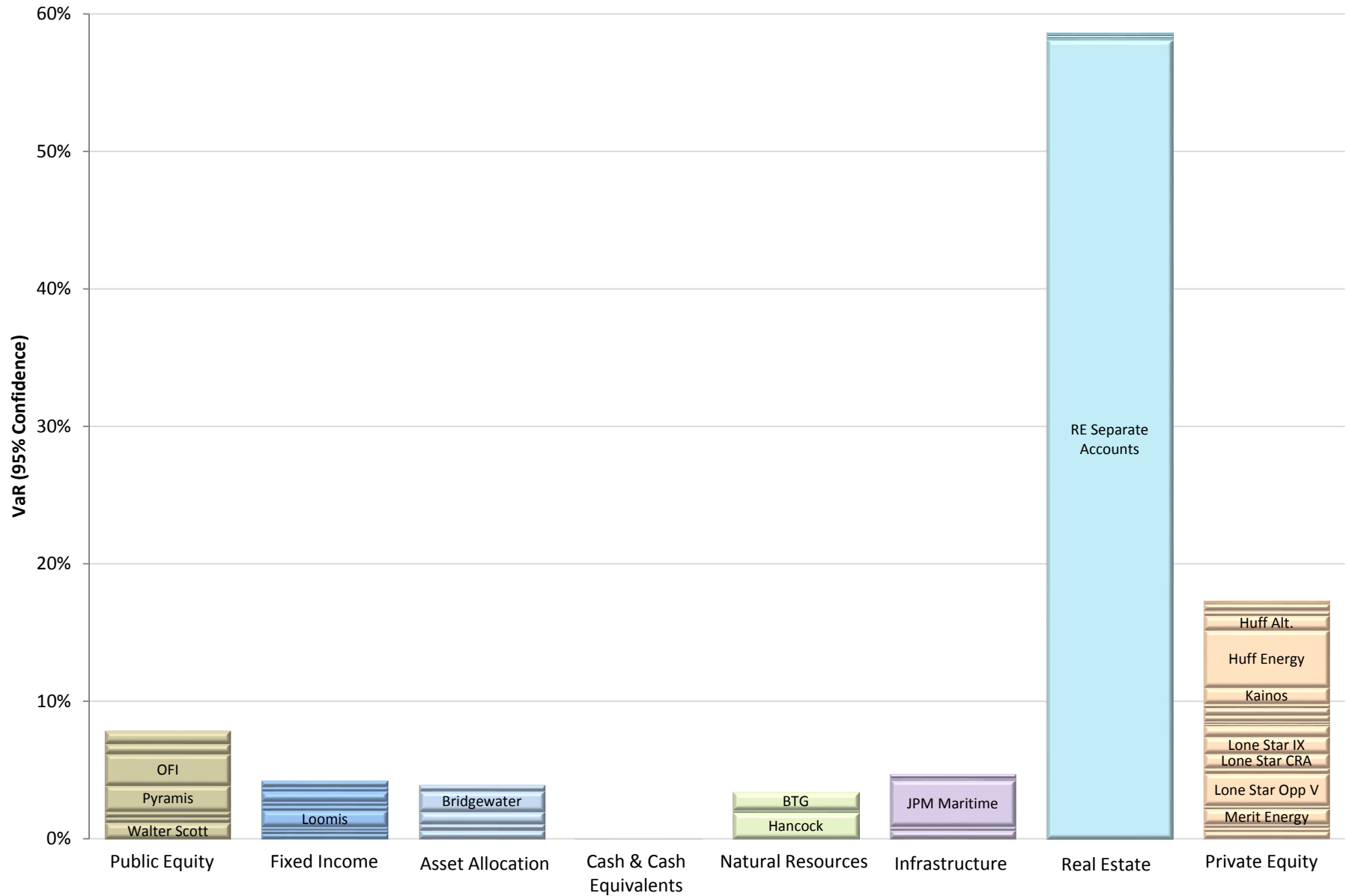
* Returns presented are calculated using custodian bank year-end source data and values, which do not include subsequent valuation adjustments completed for audit and actuarial purposes. Therefore, the returns shown here will differ from actuary calculated returns.

Preliminary – Data as at February 2016
Twelve Month Contribution to Performance
excluding Real Estate



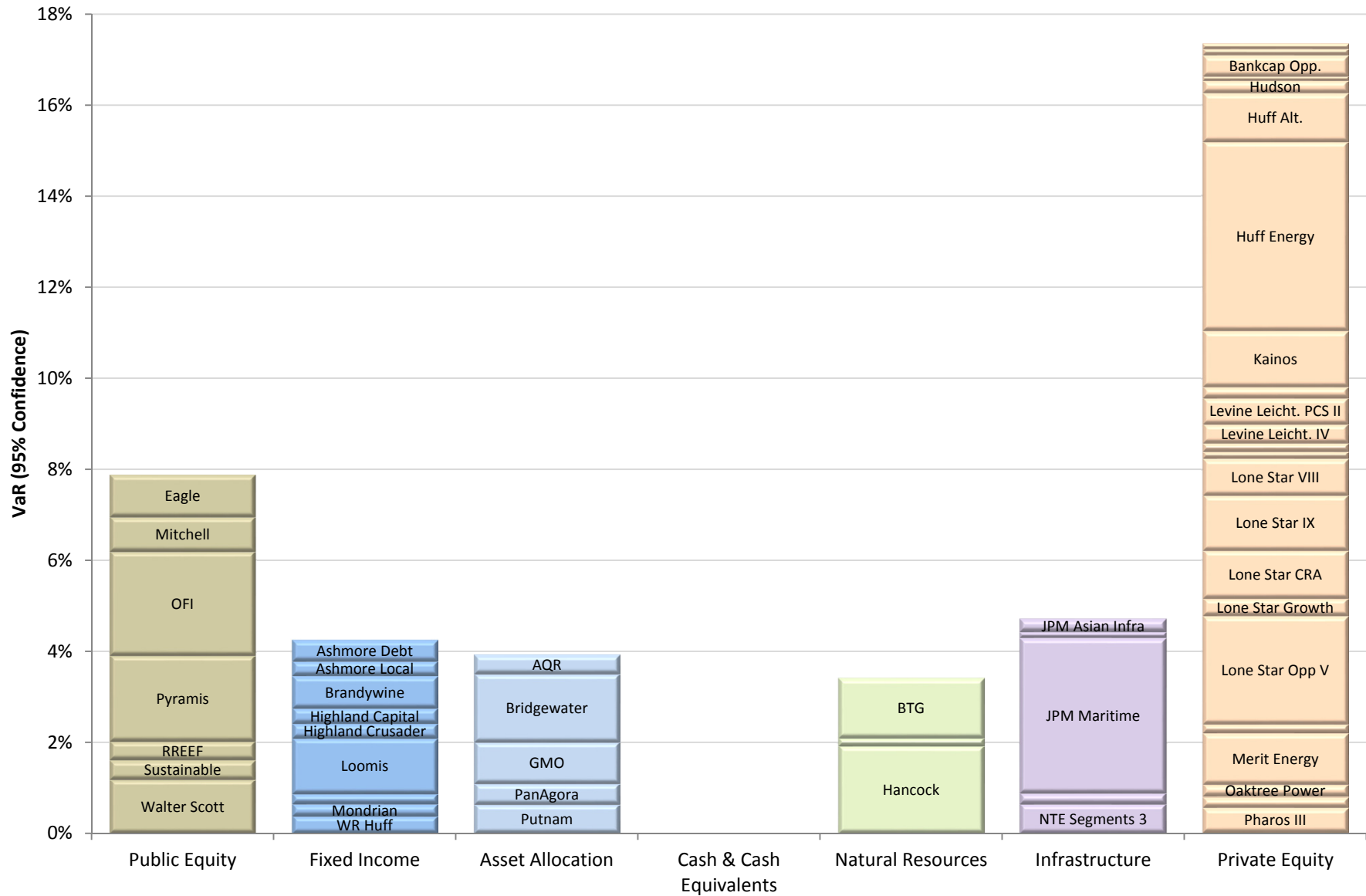
* Returns presented are calculated using custodian bank year-end source data and values, which do not include subsequent valuation adjustments completed for audit and actuarial purposes. Therefore, the returns shown here will differ from actuary calculated returns.

Preliminary – Data as at February 2016
Five Year Contribution to Risk



* VaR is expressed, on a position basis, as a percentage of the total portfolio VaR.

Preliminary – Data as at February 2016
Five Year Contribution to Risk
excluding Real Estate



* VaR is expressed, on a position basis, as a percentage of the total portfolio VaR.

Preliminary – Data as at February 2016 Public Equity Overview

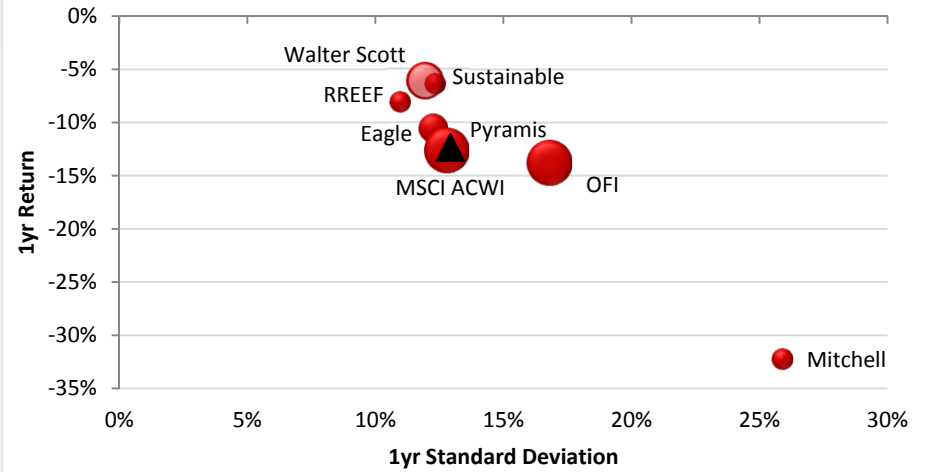


Commentary

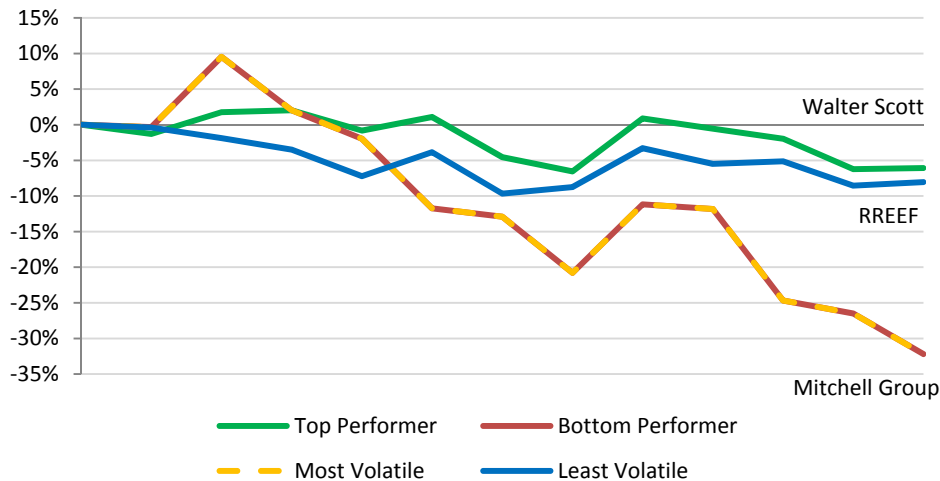
- The first two weeks in February continued the dismal trend of January which represented the worst start to a year since 2009. However, driven by better-than-expected macro data (ISM manufacturing, retail sales) and an uptick in crude oil prices, the S&P rallied off of its February 11 lows to finish the month down just 0.1% (YTD -5.1%).
- International markets saw similar V-shaped price action in February although many still finished deep in the red: Nikkei -8.4%, Euro Stoxx -3.2%, Shanghai -2.3%, and the MSCI Emerging Markets Index -0.2%. The first half of the month was weighted down by a familiar story: slowing global growth and a continued decline in oil prices.
- China's central bank eased monetary policy on the last day of February, cutting the reserve requirement ratio by 50 basis points to 16.5% and injecting an estimated \$100 billion worth of long-term cash into the economy to cushion the pain from job layoffs and bankruptcies in industries plagued by overcapacity. However, this failed to stimulate equity markets as Chinese bourses were down between 2 and 5% for the month.
- February's S&P intraday price action was particularly pronounced as about half of the days moved up or down at least 1%. Equity market volatility remained elevated throughout the month and the VIX closed February at 20.6, up slightly from 20.2 at the end of February.

Source – Cliffwater

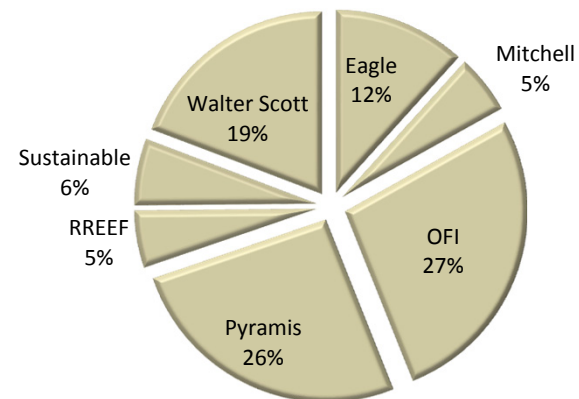
Manager Risk vs Return (Sharpe) as at Feb. 2016



Twelve Month Compounded Performance as at Feb. 2016



Exposure by Manager as at Feb. 2016



Preliminary – Data as at February 2016 Fixed Income Overview

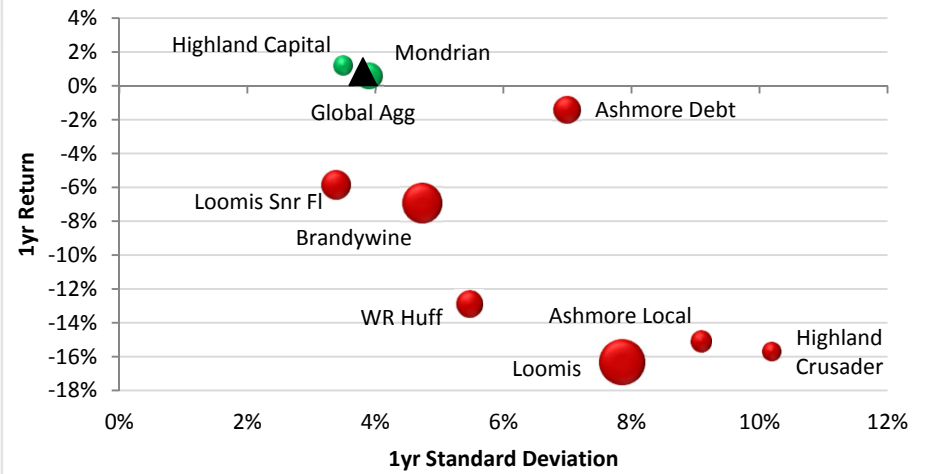


Commentary

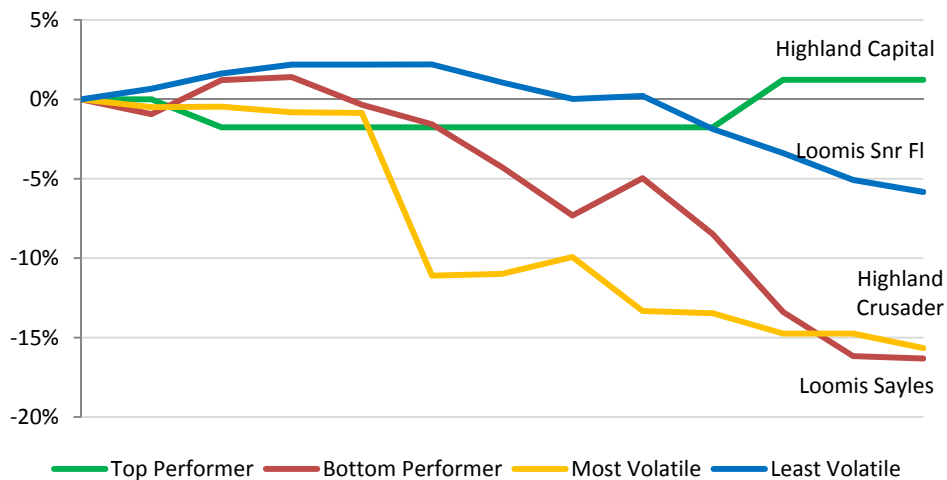
- February's overall decline in investor sentiment led to a continuation of January's flight-to-safety in global fixed income and gold. The Japanese 10-year government bond yield moved into negative territory for the first time in history, the 10-Year US Treasuries rallied 19bps to 1.73%, German bunds rallied 23bps to 0.06%, and gold gained 10.1% to \$1,238.74.
- Turbulence in the stock markets is generally good for fixed income, and February saw the Barclays Capital Aggregate Bond Index and the Barclays Capital US Corporate High Yield Index gain 0.7% and 0.6%, respectively. February's positive return in High Yield ended a painful three month stretch of negative returns. Leveraged Loans declined 0.4%, though, and 2016 represents the second worst start in High Yield and Levered Loans indices since inception of the indices (only 2008 was worse). The indices continue to be plagued by default risk in the energy sector rose and weak inflation.
- The US Dollar's multi-month rally reversed course in February, depreciating against other major currencies (-7.0% vs. Japanese Yen, -3.1% vs. Canadian Dollar, -0.4% vs. Euro). Only the British pound was an exception, as the US Dollar strengthened 2.3% against the Sterling amidst Brexit fears: the UK set a vote for June 23, 2016 to decide if the country would leave the European Union.
- The major investor concerns of 2015 – slowing global growth, an oversupply of oil, escalating emerging market debt, and stagnant inflation – continue to weigh heavily on the market as participants try to time the path of the Fed's interest rate hiking cycle. By the middle of February, markets had nearly priced out even a single Fed hike in 2016, which had seemed like a market certainty just a few weeks prior.

Source – Cliffwater

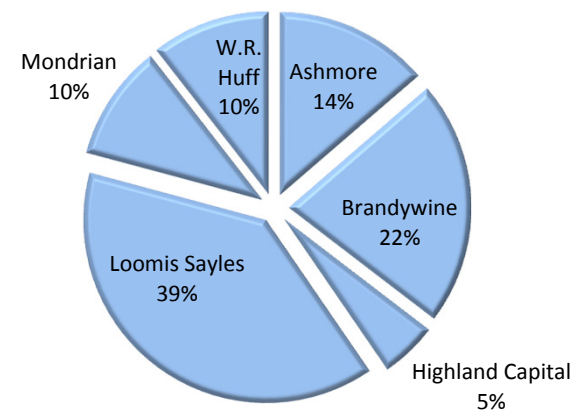
Manager Risk vs Return (Sharpe) as at Feb. 2016



Twelve Month Compounded Performance as at Feb. 2016



Exposure by Manager as at Feb. 2016



Preliminary – Data as at February 2016 Asset Allocation Overview

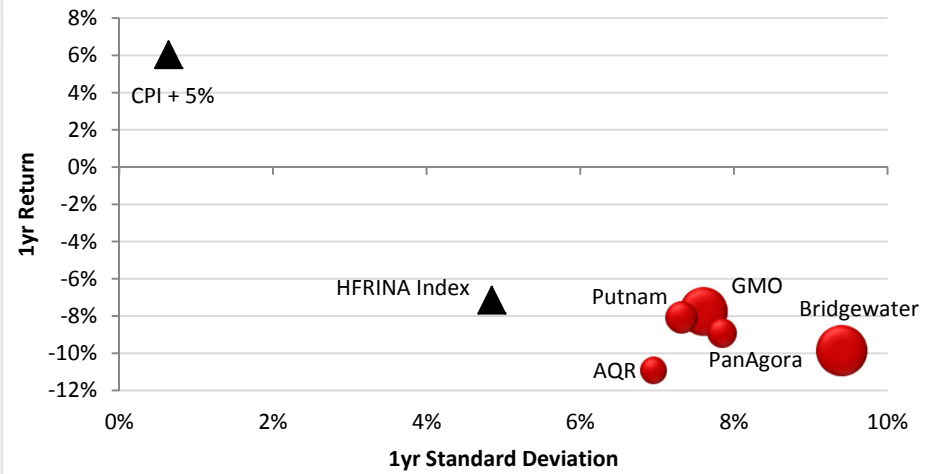


Commentary

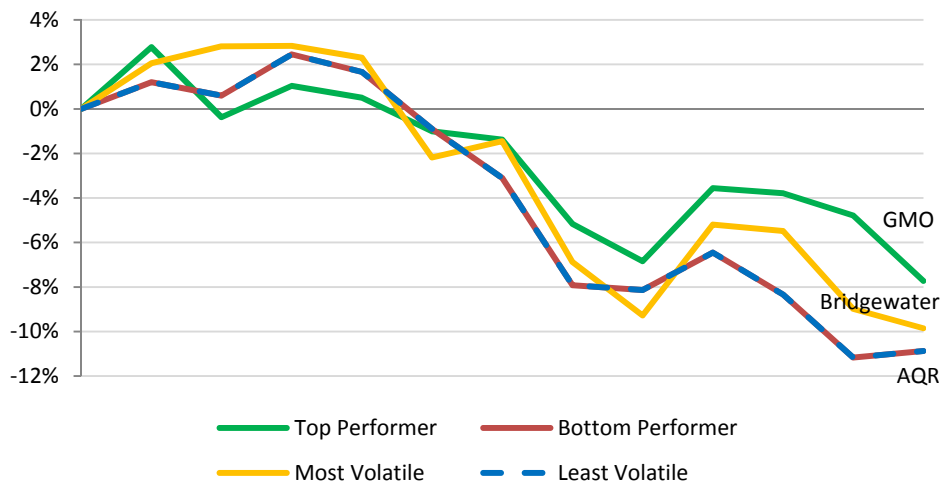
- In February, the HFRI Fund Weighted and Fund of Funds indices were up 0.16% and down 1.27%, respectively. Overall hedge fund returns were disappointing considering the opportunities available during bouts of global volatility, but there was a wide dispersion among strategies and managers.
- Equity Strategies (-0.28%) and Even Driven Strategies (-0.25%) entered February with reduced gross and net exposures and were able to withstand February's market movements better than during January's rout. However, both Equity and Event Driven managers were impacted by downside beta capture and negative alpha.
- Credit strategies (-0.65%) held up marginally better than Distressed (-1.22%) Credit funds, who continue to be hurt by losses in the high yield energy space.
- Relative Value (-0.48%) strategies, which generally perform best in low volatility markets, were challenged by continued market dislocations, but fixed income arbitrage and long volatility market neutral managers were both able to generate positive returns for the month.
- Global Macro (+1.55%) and Systematic Macro (+2.84%) were bright spots for hedge fund portfolios for the second month in a row. Systematic managers generally capitalized on the long fixed income and short oil trends while discretionary managers profited from fixed income flatteners but had mixed results with US Dollar trades.

Source – Cliffwater

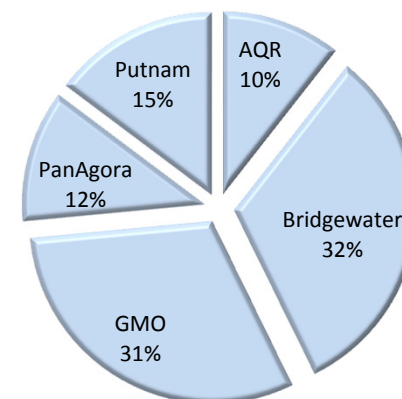
Manager Risk vs Return (Sharpe) as at Feb. 2016



Twelve Month Compounded Performance as at Feb. 2016



Exposure by Manager as at Feb. 2016



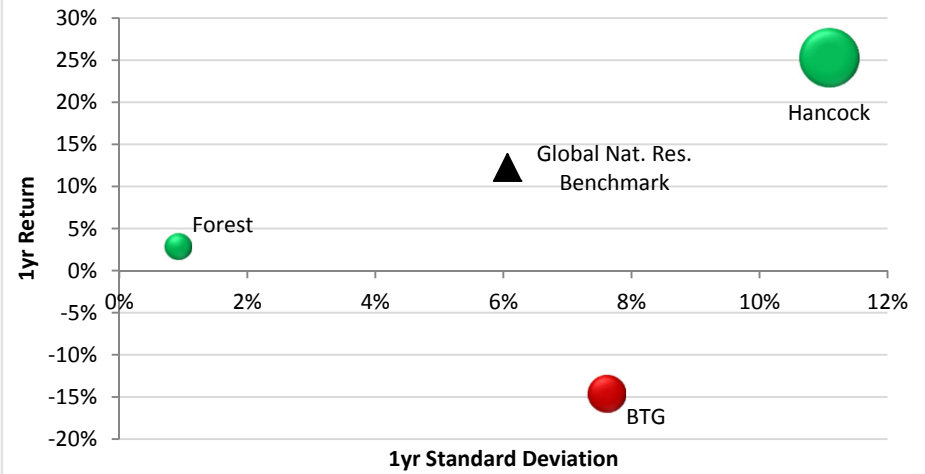
Preliminary – Data as at February 2016 Natural Resources Overview



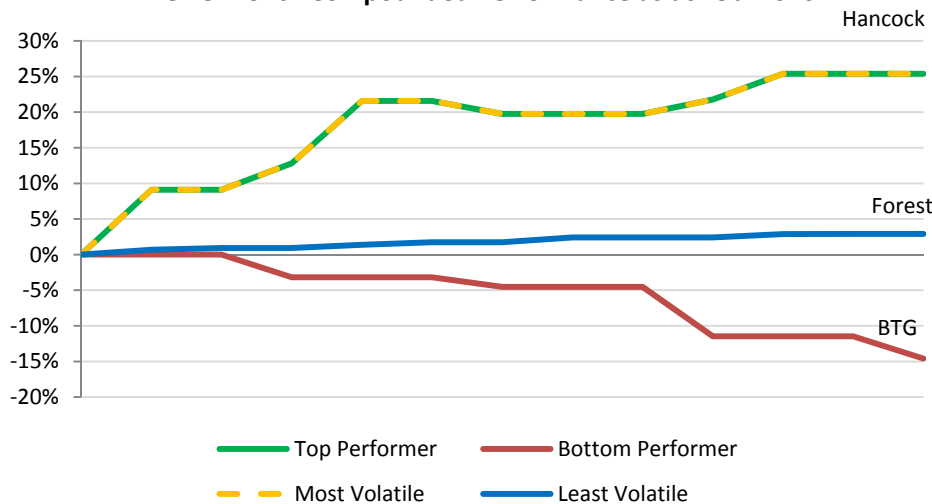
Commentary

- The energy sector experienced wide price swings during the month. Natural gas prices (-25.8% total return in the index) fell to a 17-year low as inventories climbed to 29% above their five-year average due to warmer weather, resulting in much lower-than-expected withdrawals. Crude oil prices likewise initially declined sharply on economic concerns along with near-record inventories resulting from resilient U.S. oil production. However, crude oil prices rebounded in the second half of the month on better-than-expected U.S. economic reports and expectations that key oil exporters will soon agree to production ceilings. North Sea Brent crude (-0.7%) outperformed West Texas Intermediate (-6.8%), pushing the spread between the two contracts to its widest level in three months. Surplus conditions also impacted gasoline (-5.8%), which declined despite strong demand stemming from an all-time high for U.S. vehicle miles driven.
 - Precious metals experienced additional buying interest as investors looked to safe havens during the volatile month. Gold (10.6%) climbed to its highest level in more than a year, while silver (4.6%), which is used in industrial applications as well as a store of value, trailed.
 - Base metals largely improved during the month with the help of stimulus measures from China, accompanied by positive economic data from the country, including strong commodity import numbers and better-than-expected loan/credit data. Zinc (8.4%) led the advance, trailed by aluminum (3.3%) and copper (3.0%). Nickel (-1.3%) fell amid rumors that the Indonesian government is considering reversing course on its export ban on unprocessed ore, which would result in increased supply in an already oversupplied market.
- Source – Cohen and Steers*

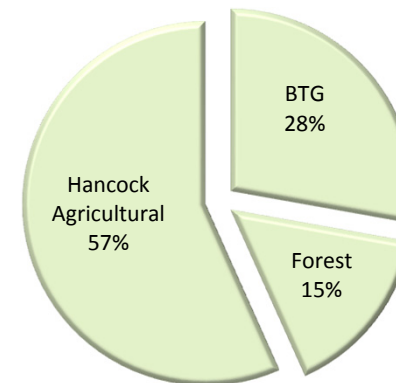
Manager Risk vs Return (Sharpe) as at Feb. 2016



Twelve Month Compounded Performance as at Feb. 2016



Exposure by Manager as at Feb. 2016



* Global Natural Resources Benchmark is the weighted average of NCREIF Farmland Single Use Perm/Mature Crops All and NCREIF Timberland South.

Preliminary – Data as at February 2016 Infrastructure Overview

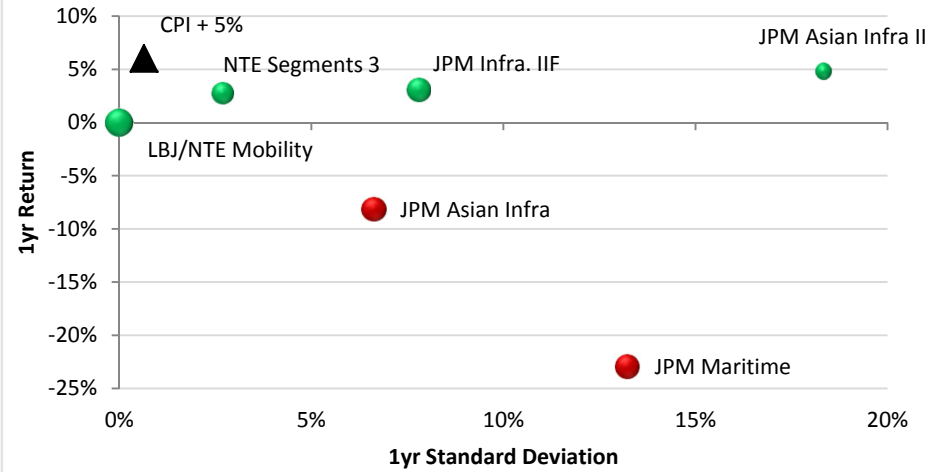


Commentary

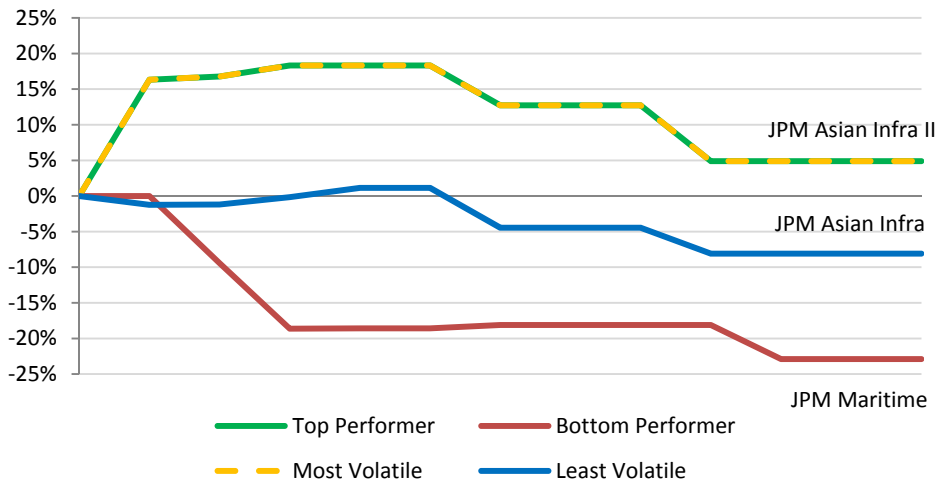
- Global listed infrastructure produced positive returns in the month amid a decline in the broader equity market. Investors continued to favor the infrastructure asset class for its predictable qualities in an unsettled economic climate. While the more defensive subsectors generally performed well in the context of continued slow economic growth, several economically sensitive infrastructure subsectors also advanced in the period.
- Freight rails (6.6% total return in the index) rebounded following January's decline, aided in large part by better-than expected year-over-year volume comparisons. In contrast, passenger railways (-8.7%), which are all non-U.S. companies in the index, declined on lower economic expectations as well as for company-specific reasons. Groupe Eurotunnel, for instance, would be adversely impacted by a Brexit and is relatively highly levered at a time when balance sheet strength is of increasing importance to investors.
- Airports (1.7%) and toll roads (1.0%) advanced. Toll roads were largely influenced by Transurban, as the subsector's largest member reported solid first-half results. Also, OHL Mexico climbed nearly 26% on continued strong results and the expected conclusion of an investigation into governance issues related to contract negotiations with the Mexican government.
- Pipelines (1.6%) displayed additional signs of stabilization during the month. Funding needs remain an issue for some companies and the subsector's cost of capital has risen. However, investors saw encouraging signs that capital is still available to companies and the industry continued to take steps to shore up its balance sheets. And while most midstream companies have minimal exposure to changes in the price of oil, investors took comfort in the rebound in crude prices in the second half of the month.

Source – Cohen and Steers

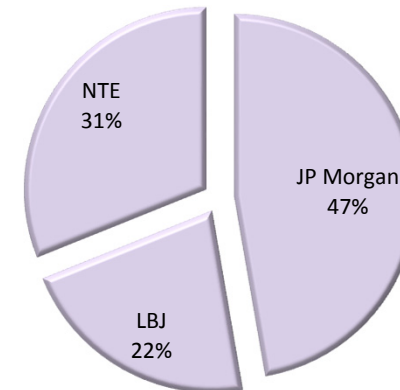
Manager Risk vs Return (Sharpe) as at Feb. 2016



Twelve Month Compounded Performance as at Feb. 2016



Exposure by Manager as at Feb. 2016



Preliminary – Data as at February 2016 Real Estate Overview

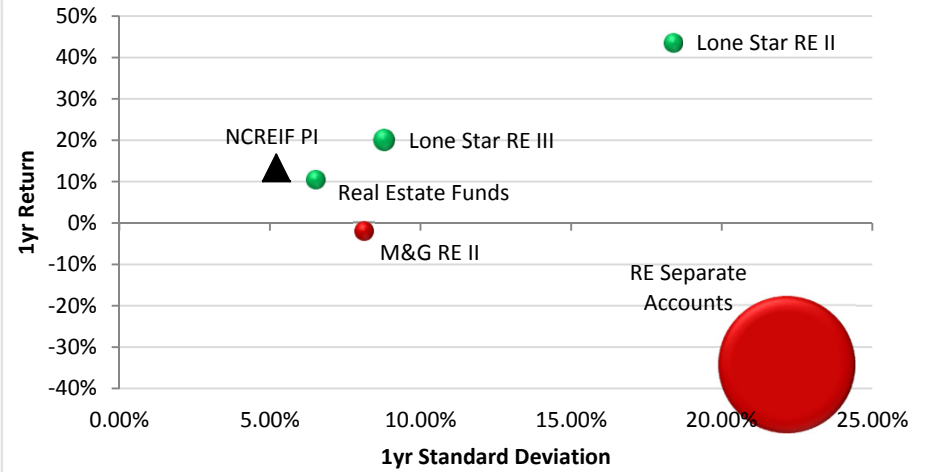


Commentary

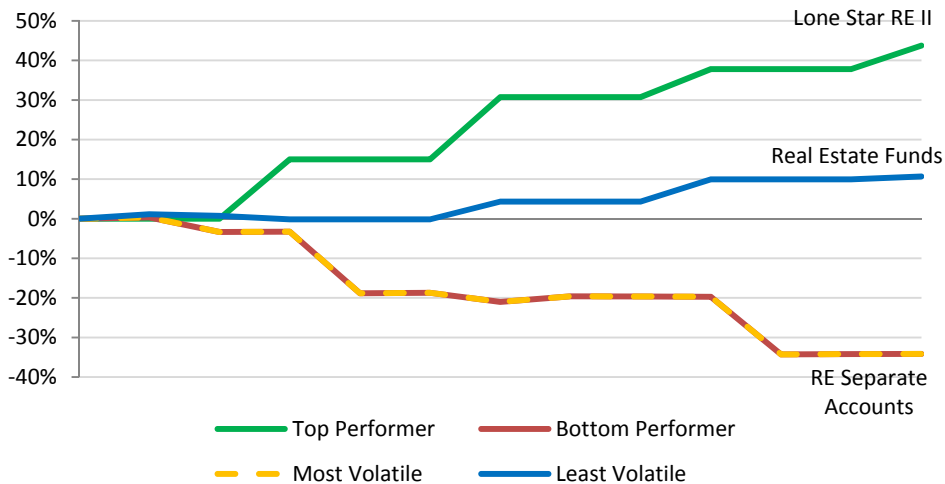
- U.S. REITs had a modest decline in February, a volatile but ultimately flat period for equities. Markets broadly fell through the middle of the month amid plummeting oil prices and disappointing global economic data. As oil stabilized and U.S. data firmed, these trends reversed, sending equity and debt markets higher to mostly recover earlier losses. Interest rates ended the period lower, with the yield on the 10-year Treasury note declining from 1.9% to 1.7%, as expectations for a rate hike in the near term lessened.
- Performance varied by property type. In general, investors shifted away from higher-growth companies that outperformed in 2015 toward lower-growth names with lower stock valuations. Hotels (7.6% total return) were the best performers in February, rallying from depressed levels even as room revenues continued to disappoint. Host Hotels was a standout, aided by an earnings report that exceeded expectations. Free-standing retail REITs (3.4%) also advanced, favored for their relatively stable and above average dividend yields in a period of low and declining bond yields.
- Self storage companies, by far the strongest performers over the past year, declined 3.6% overall. Despite some apparent profit taking, the backdrop for the sector remained strong, characterized by rising demand, limited new supply and ample opportunities for expansion. Office REITs fell 2.6%, reflecting concerns about employment trends in central business districts, in particular with regard to financial services tenants.

Source – Cohen and Steers

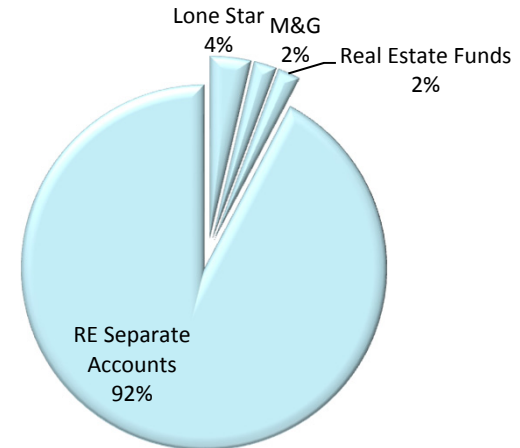
Manager Risk vs Return (Sharpe) as at Feb. 2016



Twelve Month Compounded Performance as at Feb. 2016



Exposure by Manager as at Feb. 2016



Preliminary – Data as at February 2016

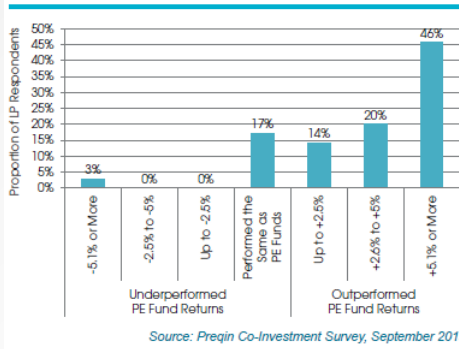
Private Equity Overview



Commentary

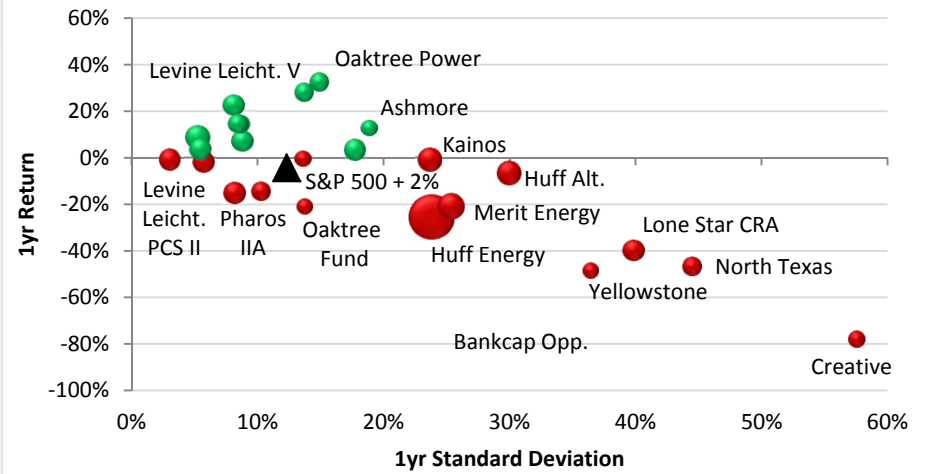
- For the majority of LPs that have seen co-investment positions produce positive returns, there has been a notable level of outperformance when compared to private equity fund returns. Eighty percent of LPs have acknowledged an outperformance, with 46% witnessing returns that are in excess of 5% greater than those in the standard private equity fund arrangements. It is worth mentioning that many LPs stated that it was too early to tell in regards to coinvestment returns.

Fig. 2.12: Performance of Past Co-Investments Compared to Private Equity Fund Returns

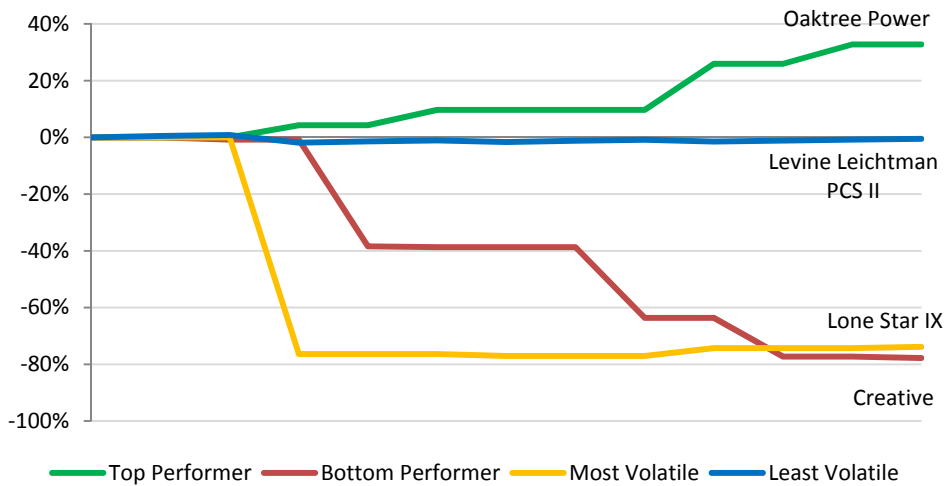


Source – Preqin

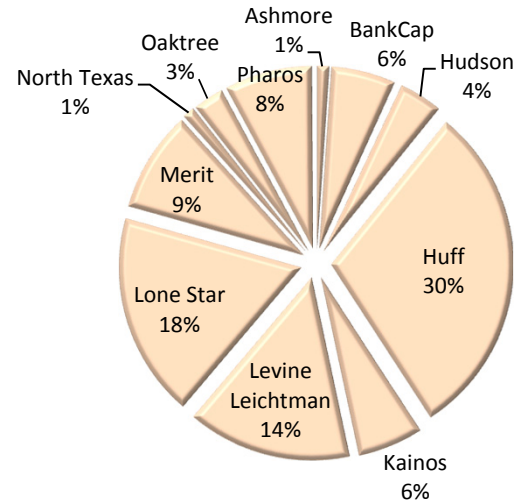
Manager Risk vs Return (Sharpe) as at Feb. 2016



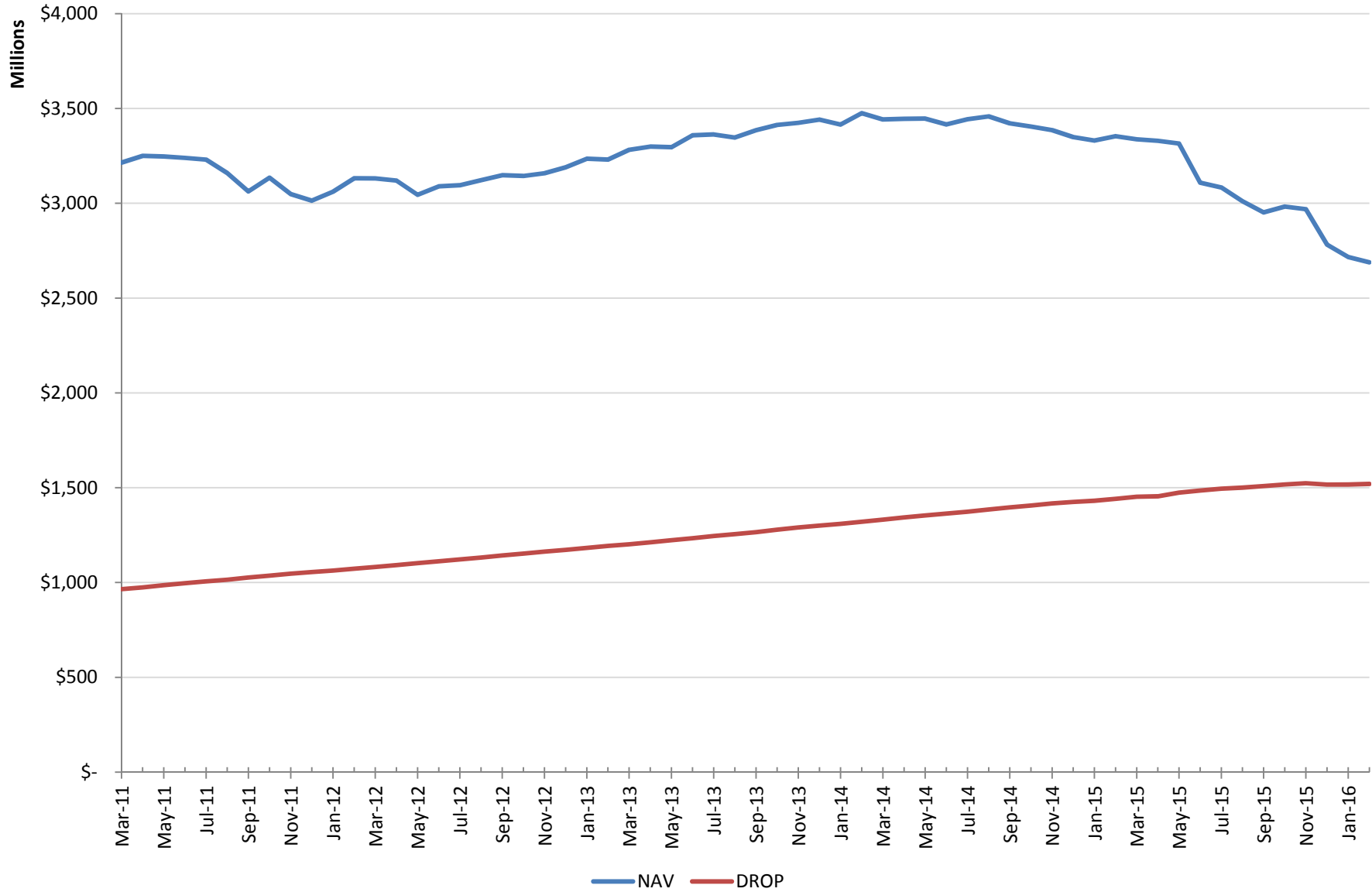
Twelve Month Compounded Performance as at Feb. 2016



Exposure by Manager as at Feb. 2016

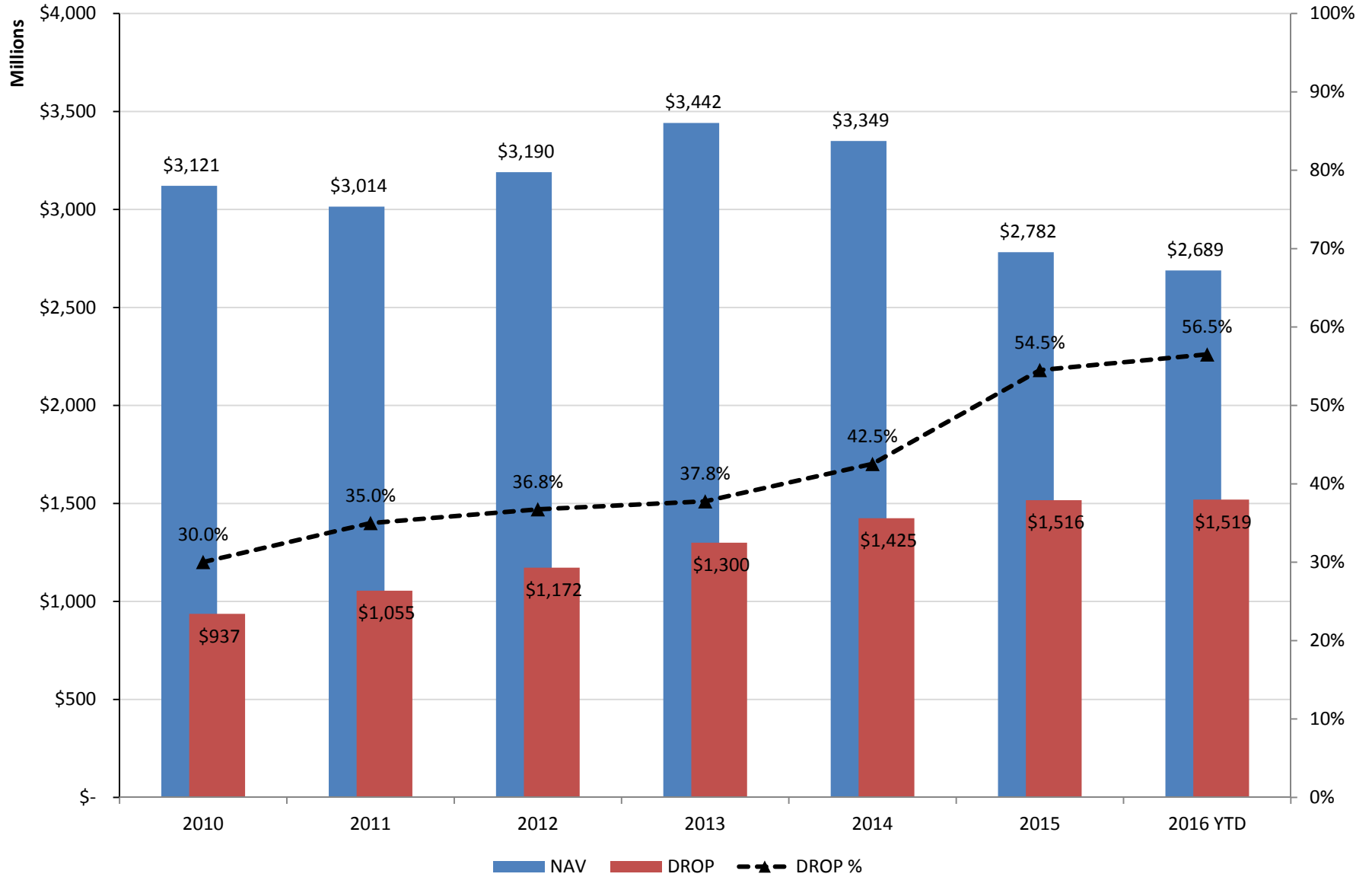


Preliminary – Data as at February 2016 Monthly NAV & Drop Balances



*On a rolling five year basis.

Preliminary – Data as at February 2016
DROP as % of NAV



Preliminary – Data as at February 2016 Manager Overview



Fund	Inception Date	Current Exposure	Net Allocation (%)	1M	3M	YTD	1yr	2yr	3yr	5yr
Portfolio	Jun 1996	\$ 2,688,936,483		-0.33%	-7.26%	-1.91%	-15.71% ¹	-7.11%	-2.24%	0.28%
Plan Leverage Facility	Mar 2014	\$ (235,314,513)		0.00%	0.00%	0.00%	0.88%	1.57%	n/a	n/a
Public Equity	Jul 2006	\$ 413,321,888	15.37%	-1.22%	-9.97%	-7.68%	-12.68%	-4.28%	3.21%	3.24%
<i>MSCI ACWI</i>				-0.69%	-8.36%	-6.68%	-12.32%	-2.89%	3.67%	3.71%
Allianz EcoTrends	Nov 2008	\$ 16,079	0.00%	0.05%	5.81%	-1.39%	-4.36%	-6.75%	4.23%	2.59%
Eagle Asset Management	Feb 2005	\$ 48,411,952	1.80%	0.33%	-10.03%	-6.27%	-10.50%	-0.61%	7.82%	6.63%
Mitchell Group	Oct 2001	\$ 21,587,145	0.80%	-7.76%	-23.10%	-9.97%	-32.19%	-24.68%	-12.44%	-8.93%
OFI Global Institutional	Oct 2007	\$ 111,559,880	4.15%	-1.89%	-12.74%	-11.68%	-13.74%	-3.57%	4.82%	5.16%
Pyramis (Fidelity)	Mar 2002	\$ 106,817,803	3.97%	-1.49%	-9.52%	-7.59%	-12.55%	-2.55%	4.74%	4.44%
RREEF	Feb 1999	\$ 20,973,421	0.78%	0.54%	-2.70%	-3.08%	-8.04%	3.77%	3.77%	5.88%
Sustainable Asset Management	Nov 2008	\$ 24,456,441	0.91%	0.33%	-6.72%	-4.39%	-6.36%	-2.52%	6.38%	5.57%
Walter Scott	Dec 2009	\$ 79,499,167	2.96%	0.16%	-5.55%	-4.20%	-6.08%	0.01%	4.71%	6.07%
Fixed Income	Jul 2006	\$ 401,218,237	14.92%	0.48%	-3.33%	-1.03%	-9.18%	-4.35%	-1.63%	2.55%
<i>Barclays Global Aggregate</i>				2.23%	3.66%	3.11%	0.83%	-1.00%	-0.11%	1.36%
Ashmore EM Debt Fund	Feb 2005	\$ 38,741,024	1.44%	-2.04%	-4.71%	-4.91%	-1.37%	-1.75%	-1.91%	2.86%
Ashmore EM Local CCY	Mar 2011	\$ 16,151,741	0.60%	0.50%	-0.86%	1.39%	-15.09%	-9.92%	-10.94%	-3.97%
Brandywine	Oct 2004	\$ 87,065,953	3.24%	1.90%	1.57%	2.46%	-6.90%	-1.42%	-1.46%	2.48%
Highland Capital Management	Jan 2007	\$ 12,432,015	0.46%	0.00%	3.04%	0.00%	1.23%	1.36%	9.27%	12.13%
Highland Crusader Fund	Jul 2003	\$ 7,774,300	0.29%	-1.08%	-2.54%	-1.08%	-15.66%	-6.30%	-3.63%	11.04%
Loomis Sayles	Oct 1998	\$ 106,543,191	3.96%	-0.18%	-8.55%	-3.38%	-16.32%	-7.61%	-1.54%	1.98%
Loomis Sayles Sr. Floating Rate	Jan 2014	\$ 48,956,226	1.82%	-0.80%	-4.04%	-2.54%	-5.84%	-1.67%	n/a	n/a
Mondrian Investment Partners	Oct 2003	\$ 41,269,164	1.53%	2.32%	3.31%	2.75%	0.62%	-0.27%	-0.25%	0.92%
W.R. Huff High Yield	Jun 1996	\$ 42,284,623	1.57%	1.47%	-5.00%	-1.13%	-12.88%	-7.32%	-3.32%	1.10%
Asset Allocation	Jul 2007	\$ 393,176,394	14.62%	-1.34%	-4.58%	-3.83%	-8.90%	0.07%	0.30%	3.18%
<i>CPI + 5%</i>				0.24%	0.97%	0.68%	6.03%	5.48%	5.70%	6.43%
AQR	Oct 2013	\$ 41,701,039	1.55%	0.33%	-4.72%	-2.77%	-10.87%	-2.41%	n/a	n/a
Bridgewater	Sep 2007	\$ 126,293,670	4.70%	-0.96%	-4.91%	-4.62%	-9.86%	1.42%	0.37%	6.30%
GMO	Sep 2007	\$ 121,052,943	4.50%	-3.09%	-4.32%	-4.10%	-7.73%	-1.19%	0.75%	3.50%
PanAgora	Nov 2013	\$ 46,043,113	1.71%	1.92%	-1.56%	-0.28%	-8.87%	3.63%	n/a	n/a
Putnam	Dec 2009	\$ 58,085,629	2.16%	-2.10%	-6.55%	-5.00%	-8.04%	-1.89%	-0.42%	2.79%
Cash & Cash Equivalents		\$ 52,703,780	1.96%	0.01%	0.02%	0.01%	0.25%	0.06%	0.11%	-0.90%

¹ Approximately two-thirds of the one year loss relates to the lagged returns from Q4 2014 for private investments. These losses were reflected in the 2014 CAFR and 1/1/15 actuarial valuation

Preliminary – Data as at February 2016 Manager Overview (cont.)



Fund	Inception Date	Current Exposure	Net Allocation (%)	1M	3M	YTD	1yr	2yr	3yr	5yr
Natural Resources	Apr 2015	\$ 285,204,817	10.61%	-1.01%	0.71%	-1.00%	7.62%	8.79%	9.21%	8.70%
<i>"Global Nat. Res. Benchmark"</i>				0.00%	2.12%	0.00%	12.25%	9.50%	12.78%	8.43%
BTG Pactual Asset Management	Oct 2006	\$ 79,356,793	2.95%	-3.53%	-3.53%	-3.53%	-14.60%	-5.52%	-7.67%	-4.35%
Forest Investment Associates	Jan 1992	\$ 44,240,892	1.65%	0.00%	0.48%	0.02%	2.91%	6.71%	6.10%	3.71%
Hancock Agricultural	Dec 2002	\$ 161,607,131	6.01%	0.00%	2.97%	0.00%	25.39%	19.53%	22.19%	20.07%
Infrastructure	Jul 2012	\$ 204,892,839	7.62%	0.21%	-0.32%	0.21%	-4.06%	-1.19%	1.21%	0.94%
<i>CPI + 5%</i>				0.24%	0.97%	0.68%	6.03%	5.48%	5.70%	6.43%
JP Morgan Asian Infrastructure	Aug 2008	\$ 30,856,182	1.15%	0.00%	0.00%	0.00%	-8.10%	-1.04%	-1.04%	1.89%
JP Morgan Asian Infrastructure II	Mar 2014	\$ 4,858,294	0.18%	0.00%	0.00%	0.00%	4.88%	-8.46%	n/a	n/a
JP Morgan Global Maritime	Jun 2010	\$ 29,092,589	1.08%	0.00%	-5.84%	0.00%	-22.90%	-3.58%	18.54%	-80.86%
JP Morgan Infrastructure IIF	Oct 2007	\$ 32,054,033	1.19%	1.34%	1.34%	1.34%	3.09%	1.06%	3.48%	4.49%
LBJ Infrastructure Group Holdings	Jun 2010	\$ 44,346,035	1.65%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NTE Mobility Partners	Dec 2009	\$ 42,625,545	1.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NTE Segments 3	Sep 2013	\$ 21,060,163	0.78%	0.00%	2.79%	0.00%	2.79%	1.80%	n/a	n/a
Real Estate	Mar 1985	\$ 705,060,041	26.22%	0.28%	-16.72%	0.33%	-31.91%	-19.88%	-11.93%	-7.17%
<i>NCREIF PI</i>				0.00%	2.91%	0.00%	13.33%	12.57%	12.04%	12.18%
Lone Star RE II	Jul 1994	\$ 5,012,628	0.19%	4.31%	4.31%	4.31%	43.75%	55.78%	40.98%	n/a
Lone Star RE III	Sep 2011	\$ 20,800,106	0.77%	5.13%	5.13%	5.13%	20.11%	n/a	n/a	n/a
M&G Real Estate Debt Fund II, LP	May 2014	\$ 14,507,542	0.54%	0.03%	-5.74%	-3.73%	-1.87%	-0.76%	n/a	n/a
RE Separate Accounts		\$ 650,436,775	24.19%	0.10%	-17.97%	0.23%	-34.13%	-22.40%	-14.20%	-9.01%
Real Estate Funds		\$ 14,302,989	0.53%	0.65%	0.65%	0.65%	10.69%	5.62%	5.09%	5.41%

* P&F Holdings returns are based on assets transferred into the account. Write-downs and write-ups have contributed to exaggerated performance.

** "Real Estate Funds" includes LSF III – VI, LSREF, Hearthstone and Olympus funds.

Investment Oversight

As at 31st March 2016

Dallas Police & Fire Pension System

Preliminary – Data as at February 2016
Manager Overview (cont.)



Fund	Inception Date	Current Exposure	Net Allocation (%)	1M	3M	YTD	1yr	2yr	3yr	5yr
Private Equity	Oct 2005	\$ 468,673,001	17.43%	0.00%	0.38%	0.35%	-9.47%	-3.42%	-1.27%	1.27%
S&P 500 + 2%				0.03%	-6.11%	-4.77%	-4.30%	6.17%	12.95%	12.32%
Ashmore GSSF IV	Oct 2007	\$ 4,998,181	0.19%	-1.20%	15.41%	14.51%	12.87%	-1.29%	-6.22%	-10.41%
BankCap Partners	Feb 2007	\$ 15,674,335	0.58%	0.00%	0.00%	0.00%	7.47%	2.27%	2.14%	-0.39%
BankCap Opportunity Fund	Aug 2013	\$ 11,114,580	0.41%	0.00%	0.00%	0.00%	-14.24%	-32.28%	n/a	n/a
Creative Attractions	Dec 2012	\$ 1,085,223	0.04%	-2.28%	-38.91%	-2.28%	-77.78%	-74.27%	-59.67%	n/a
Hudson Clean Energy	Aug 2009	\$ 17,977,837	0.67%	0.00%	0.00%	0.00%	-1.61%	1.91%	-11.65%	-5.25%
Huff Alternative Fund	Jun 2001	\$ 30,390,587	1.13%	0.00%	0.00%	0.00%	-6.50%	-2.35%	4.42%	-7.79%
Huff Energy Fund LP	Dec 2005	\$ 110,127,486	4.10%	0.00%	0.00%	0.00%	-25.22%	-12.31%	-9.54%	-4.25%
Kainos Capital Partners	Jan 2014	\$ 27,241,869	1.01%	0.00%	0.00%	0.00%	-0.70%	15.00%	n/a	n/a
Levine Leichtman Capital Partners Deep Value	Oct 2006	\$ 12,229,062	0.45%	0.49%	1.70%	0.49%	28.50%	12.68%	-2.22%	3.20%
Levine Leichtman Capital Partners PCS II	Feb 2012	\$ 18,444,408	0.69%	0.31%	0.98%	0.64%	-0.50%	-1.16%	5.62%	n/a
Levine Leichtman Capital Partners IV	Apr 2008	\$ 21,797,591	0.81%	0.21%	0.79%	0.59%	3.53%	6.56%	10.97%	20.70%
Levine Leichtman Capital Partners V	Aug 2013	\$ 15,936,776	0.59%	0.55%	1.73%	0.88%	22.75%	13.68%	n/a	n/a
Lone Star Fund VII, LP	Jul 2011	\$ 4,835,350	0.18%	-4.41%	-4.41%	-4.41%	-0.12%	19.12%	54.28%	n/a
Lone Star Fund VIII, LP	Jun 2013	\$ 14,602,510	0.54%	-0.39%	-0.39%	-0.39%	14.72%	29.75%	n/a	n/a
Lone Star Fund IX, LP	Apr 2015	\$ 9,257,699	0.34%	1.69%	1.77%	1.73%	n/a	n/a	n/a	n/a
Lone Star CRA	Jul 2008	\$ 16,699,959	0.62%	0.00%	0.00%	0.00%	-39.63%	-11.24%	2.71%	19.50%
Lone Star Growth Capital	Dec 2006	\$ 12,707,831	0.47%	0.00%	0.00%	0.00%	14.82%	-10.61%	0.70%	6.42%
Lone Star Opportunities V	Jan 2012	\$ 26,715,249	0.99%	0.00%	0.18%	0.18%	8.77%	7.00%	37.74%	n/a
North Texas Opportunity Fund	Aug 2000	\$ 5,046,915	0.19%	0.00%	0.00%	0.00%	-46.58%	-17.91%	-16.51%	-10.45%
Merit Energy E, F, G, H	Oct 2004	\$ 41,999,379	1.56%	0.00%	0.00%	0.00%	-20.69%	-1.99%	-1.18%	-0.74%
Oaktree Power Opportunities Fund III	Apr 2011	\$ 10,842,435	0.40%	0.00%	5.42%	5.42%	32.74%	14.75%	21.35%	n/a
Oaktree Fund IV & 2x Loan Fund	Jan 2002	\$ 1,972,896	0.07%	0.00%	-8.57%	-8.57%	-20.72%	-9.13%	-5.61%	-2.15%
Pharos IIA	Aug 2005	\$ 19,295,670	0.72%	0.00%	0.00%	0.00%	-14.87%	-7.00%	-0.15%	5.68%
Pharos III	Dec 2012	\$ 17,071,470	0.63%	0.00%	2.22%	0.00%	3.81%	-3.89%	-21.08%	n/a
Yellowstone Capital	Sep 2008	\$ 607,703	0.02%	0.00%	0.00%	0.00%	-48.16%	-53.29%	-41.99%	-33.25%

Preliminary – Data as at February 2016
Appendix I – Stress Test Scenarios, Proxies,
Policy Composition



Stress Test Scenarios

Scenario/Stress	Calculation Period	Description
Debt Ceiling Crisis & Downgrade (2011)	07/22/2011 - 08/08/2011	Debt ceiling crisis that led to USA credit downgrade. This stress scenario describes a 17-day period starting from 7/22/2011 when the market began to react to debt ceiling impasse. 8/8/2011 is the first business day after the downgrade announcement.
Equities Down 10%	Stress Test	Global market factors down 10%.
Equities Up 10%	Stress Test	Global market factors up 10%.
Equity Markets Rebound (2009)	03/04/2009 - 06/01/2009	Global equity markets rebound following 2008 drawdown.
EUR down 10% vs. USD	Stress Test	FX rate shift. EUR weakens 10% to USD.
EUR up 10% vs. USD	Stress Test	FX rate shift. EUR strengthens 10% to USD.
Greek Financial Crisis (2015)	06/22/2015 - 07/08/2015	Athens resistance via referendum and ultimately agreement to rush through long-resisted economic reforms, imposed by its creditors, in a bid to stay in the Eurozone
Lehman Default (2008)	09/15/2008 - 10/14/2008	Month immediately following default of Lehman Brothers in 2008.
Libya Oil Shock (2011)	02/14/2011 - 02/23/2011	Civil war in Libya breaks out on February 15th 2011, causing oil prices to surge.
Oil Prices Drop (2010)	05/03/2010 - 05/20/2010	The price of oil drops 20% due to concerns over how European countries would reduce budget deficits in the wake of the European economic crisis.
Russian Financial Crisis (2008)	08/07/2008 - 10/06/2008	War with Georgia and rapidly declining oil prices raise fears of an economic recession within the region.

Stress Test Proxies

Asset Class	Proxy
Public Equity	iShares MSCI ACWI ETF
Fixed Income	SPDR Barclays High Yield Bond ETF
Asset Allocation	Powershares Senior Loan Portfolio ETF
Cash & Cash Equivalents	n/a
Natural Resources	IQ ARB Global Resources ETF
Infrastructure	SPDR S&P Global Infrastructure ETF
Real Estate	Schwab US REIT ETF
Private Equity	iShares S&P 500 ETF

*Proxies for stress tests are chosen based on correlation analysis of index returns to tradeable ETFs.

Policy Composition

Asset Class	Benchmark	Weight
Public Equity	MSCI ACWI	15%
Fixed Income	Barclays Global Aggregate	15%
Asset Allocation	90 Day T-Bill + 6%	20%
Cash & Cash Equivalents	n/a	0%
Natural Resources	Global Nat. Res. Benchmark	10%
Infrastructure	CPI + 5%	10%
Real Estate	NCREIF PI	15%
Private Equity	S&P 500 + 2%	15%

* 60/40 Portfolio is defined as 60% MSCI ACWI, 40% Barclays Global Aggregate.

Attribution details

Single period attribution uses arithmetic attribution per the Brinson Model

$$\text{Asset Allocation} = \sum_j (w_j^p - w_j^b) \times (r_j^b - r_{total}^b)$$

$$\text{Stock Selection} = \sum_j w_j^b \times (r_j^p - r_j^b)$$

$$\text{Interaction} = \sum_j (w_j^p - w_j^b) \times (r_j^p - r_j^b)$$

$$\text{Total Value Added} = (r_{total}^p - r_{total}^b)$$

where

$$\begin{aligned} w_j^p &= \text{Weight of Portfolio component } j \\ w_j^b &= \text{Weight of Benchmark component } j \\ r_j^p &= \text{Return of Portfolio component } j \\ r_j^b &= \text{Return of Benchmark component } j \\ r_{total}^p &= \text{Total Return of Portfolio} \\ r_{total}^b &= \text{Total Return of Benchmark} \end{aligned}$$

Multi period attribution is calculated using the Frongello model to produce the cumulative effects of attribution across multiple periods.

$$F_{itb} = G_{itb} \left(\prod_{j=1}^{t-1} (1 + R_j) \right) + \bar{R}_t \left(\sum_{j=1}^{t-1} F_{ijb} \right)$$

In the Frongello method, each original attribute (G_{itb}) is scaled by the portfolio total return through the prior period ($1+R_j$) and the current period return of the benchmark (\bar{R}_t) compounds with the total return due to that attribute through the prior period (F_{ijb})

* For the one month attribution, the weights displayed on page 12 are the beginning weights for the period. For the Calendar YTD and One Year weights, they are the average of the beginning weights over the period

Preliminary – Data as at February 2016

Appendix III – Investment Terms & Performance Statistics



Active Premium: A measure of the investment’s annualized return minus the benchmark’s annualized return

Alpha: Return generated by the manager that is not explained by the returns of the benchmark. A measure of a fund’s performance beyond what its benchmark would predict

Annual Return: The annual rate at which an investment would have grown, if it had grown at a steady rate. Also called “Compound Annual Growth Rate” (CAGR), or the “Compound Rate of Return Annualized” (Compound RoR)

Annual Volatility: A statistical measure of the dispersion of returns around the average (mean) return. Often used as a measure of investment risk with a higher value indicating higher risk

Arbitrage: The simultaneous purchase and sale of an asset in order to profit from a difference in the price

Beta: A measure of the risk of the fund relative to the benchmark. Beta describes the sensitivity of the investment to benchmark movements where the benchmark is always assigned a beta of 1.0

Calmar Ratio: A return/risk ratio calculated over the last three year period as [annual compounded return / (Maximum Drawdown)]

Capital Commitment: Every investor in a private equity fund commits to investing a specified sum of money in the fund partnership over a specified period of time.

Capital Distribution: The returns that an investor in a private equity fund receives; the income and capital realized from investments less expenses and liabilities

Carried Interest: The share of profits that the fund manager is due once it has returned the cost of investment to investors

Catch up: A clause that allows the general partner to take, for a limited period of time, a greater share of the carried interest than would normally be allowed. This continues until the time when the carried interest allocation, as agreed in the limited partnership, has been reached.

Clawback: Ensures that a general partner does not receive more than its agreed percentage of carried interest over the life of the fund

Correlation: A measure between +1 and -1 that explains the degree to which the returns of the fund and a benchmark are related

Down Capture: Measures how much of the benchmark’s return the fund captures when the benchmark is negative

Down Number: The percentage of the time the fund was down when the benchmark was down

Drawdown: When a private equity firm has decided where it would like to invest, it will approach its own investors in order to draw down the money. The money will already have been pledged to the fund but this is the actual act of transferring the money so that it reaches the investment target

Excess Kurtosis: Measures the distribution of observed data around the mean with an emphasis on “outlier” data, both positive and negative

Exit: The means by which a fund is able to realize its investment in a company – by an initial public offering, a trade sale, selling to another private equity firm or a company buy-back

Fundraising: The process by which a private equity firm solicits financial commitments from limited partners for a fund

Preliminary – Data as at February 2016

Appendix III – Investment Terms & Performance Statistics (cont.)



General Partner: This can refer to the top-ranking partner(s) at a private equity firm as well as the firm managing the private equity fund

Gross Exposure: Aggregate of long and short investment positions in relation to the Net Asset Value (NAV)

Holding Period: The length of time that an investment is held

Information Ratio: The Active Premium divided by the Tracking Error. This measure explicitly relates the degree by which an investment has beaten the benchmark to the consistency by which the investment has beaten the benchmark

Internal Rate of Return: A time-weighted return expressed as a percentage that uses the present sum of cash drawdowns (money invested), the present value of distributions (money returned from investments) and the current value of unrealized investments and applies a discount

Leverage: Increasing exposure to markets (both long and short) by borrowing or the use of derivatives

Limited Partnership: The standard vehicle for investment in private equity funds

Long Position: Owning a security

Management Fee: The annual fee paid to the general partner

Max Drawdown: The largest percentage loss of Net Asset Value (NAV) as measured from peak-to-trough

Net Exposure: Difference between the long and short positions, representing the exposure to market fluctuations

Preferred Return: This is the minimum amount of return that is distributed to the limited partners until the time when the general partner is eligible to deduct carried interest

Omega Ratio: The weighted gain/loss ratio relative to the average monthly historical return; captures the effects of extreme returns and conveys the preference for positive volatility versus negative volatility

Sharpe Ratio: A return/risk ratio calculated as: $[(\text{annual compounded return} - \text{risk-free rate}) / (\text{annual volatility of returns})]$

Skewness: A measure of the symmetry of return distribution, as compared with a normal (bell-shaped) distribution

Sortino Ratio: A return/risk ratio calculated as such: $[(\text{annual compounded return} - \text{minimum acceptable return (MAR)}) / (\text{downside deviation of returns below MAR})]$. This ratio was developed to differentiate between good (upside) and bad (downside) volatility

Standard Deviation: Measures the dispersal or uncertainty in a random variable (in this case, investment returns). It measures the degree of variation of returns around the mean (average) return

Short Position: Selling a security

Tracking Error: A measure of the unexplained portion of an investments performance relative to a benchmark

Preliminary – Data as at February 2016
Appendix III – Investment Terms &
Performance Statistics (cont.)



Up Capture: Measures the percentage of the benchmark's return the fund captures when the benchmark is positive

Up Number: The percentage of the time the fund was up when the benchmark was up

Value at Risk (VAR): The maximum loss that can be expected within a specified holding period with a specified confidence level

Preliminary – Data as at February 2016
Appendix IV – Private Debt

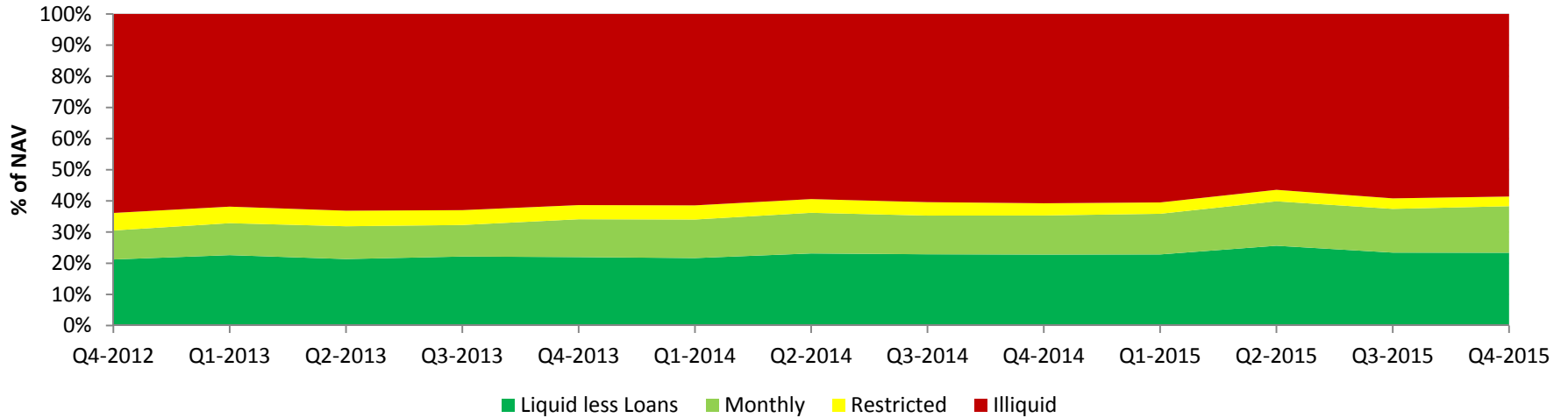


Investment	Current Classification	Future Classification
Levine Leichtman Capital Partners Deep Value	Private Equity	Private Debt
Levine Leichtman Capital Partners PCS II	Private Equity	Private Debt
Lone Star Fund VII, LP	Private Equity	Private Debt
Lone Star Fund VIII, LP	Private Equity	Private Debt
Lone Star Fund IX, LP	Private Equity	Private Debt
Oaktree Fund IV & 2x Loan Fund	Private Equity	Private Debt

Preliminary – Data as at February 2016
Appendix V – Liquidity Over Time (Quarterly)



Liquidity Over Time (% of NAV)



Liquidity Over Time (\$ Value)

