



TEXAS TECH UNIVERSITY SYSTEM™

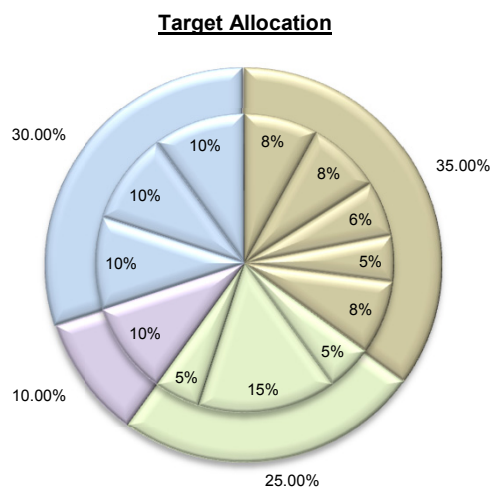
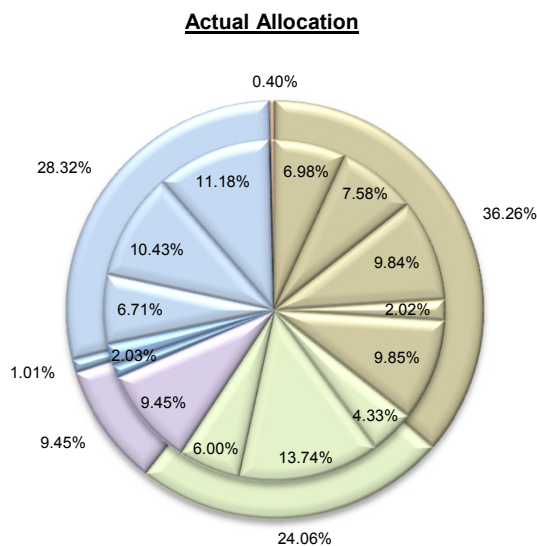
**Board of Regents Report for May 2016**

**Texas Tech University Endowment**

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**Asset Class Allocation: Actual vs. Target**



Asset Class	Sub-Asset Class	Actual \$ Allocation			Total % Allocation	Target % Allocation	Target Range		
		Physical	Synthetic	Total					
Equity	US Equity	0	70,198,277	70,198,277	6.98%	8%			
	Global Equity	76,261,960		76,261,960	7.58%	8%			
	Non US Developed Equity	16,212,614	82,824,645	99,037,259	9.84%	6%			
	Non US Emerging Markets Equity	20,279,739		20,279,739	2.02%	5%			
	Alternative Equity	99,127,274		99,127,274	9.85%	8%			
	<b>Sub-Total</b>		<b>211,881,587</b>	<b>153,022,922</b>	<b>364,904,508</b>	<b>36.26%</b>	<b>35%</b>	<b>30% - 40%</b>	
Debt	Sovereign/Investment Grade Bonds	0	43,581,250	43,581,250	4.33%	5%			
	Credit	138,213,770		138,213,770	13.74%	15%			
	Emerging Markets Debt	60,330,079		60,330,079	6.00%	5%			
	<b>Sub-Total</b>		<b>198,543,849</b>	<b>43,581,250</b>	<b>242,125,099</b>	<b>24.06%</b>	<b>25%</b>	<b>20% - 30%</b>	
<b>Liquid Real Assets</b>				<b>84,917,180</b>	<b>10,212,437</b>	<b>95,129,617</b>	<b>9.45%</b>	<b>10%</b>	<b>5% - 15%</b>
Cash & Alpha Pool	Cash	16,716,102	-27,985,428	-11,269,326	-1.12%				
	Cash Collateral	13,377,894	-13,377,894	0	0.00%				
	Collateral Held Elsewhere	5,970,000	-4,904,137	1,065,863	0.11%				
	Currency			0	0.00%				
	Alpha Pool	185,866,464	-165,453,287	20,413,178	2.03%				
	<b>Sub-Total</b>		<b>221,930,460</b>	<b>-211,720,746</b>	<b>10,209,714</b>	<b>1.01%</b>	<b>0%</b>	<b>0% - 10%</b>	
Private Investments	Private Equity	67,543,229		67,543,229	6.71%	10%			
	Private Credit	104,937,104		104,937,104	10.43%	10%			
	Private Real Assets	112,483,983		112,483,983	11.18%	10%			
	<b>Sub-Total</b>		<b>284,964,317</b>	<b>0</b>	<b>284,964,317</b>	<b>28.32%</b>	<b>30%</b>	<b>10% - 55%</b>	
<b>Liquidating</b>				<b>4,033,769</b>	<b>0</b>	<b>4,033,769</b>	<b>0.40%</b>	<b>0%</b>	
<b>Portfolio Hedge</b>				<b>0</b>	<b>4,904,137</b>	<b>4,904,137</b>	<b>0.49%</b>	<b>0%</b>	
<b>Total</b>				<b>1,006,271,161</b>	<b>0</b>	<b>1,006,271,161</b>	<b>100%</b>	<b>100%</b>	

\*Please see Appendix I (page 23) for details on composition of Russell synthetic exposure.

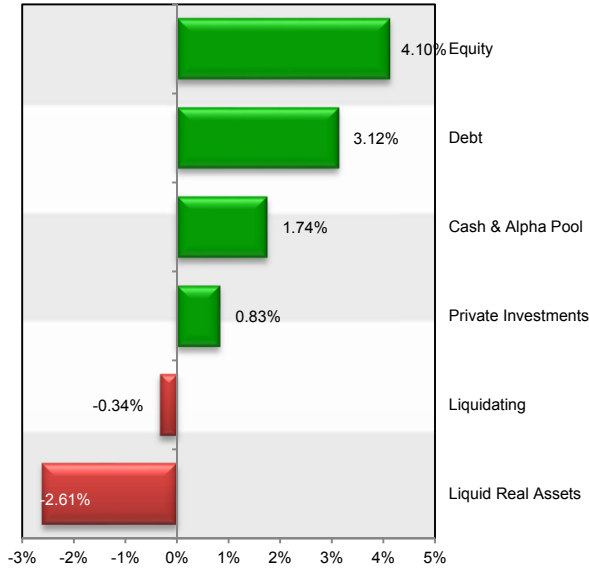
31st May 2016 (Preliminary)



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**Asset Class Performance: Actual vs. Policy**

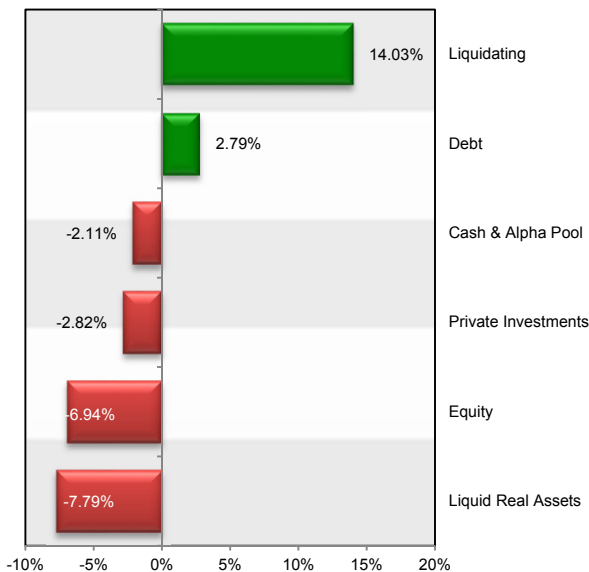
**QTD Performance**



Asset Class	Month				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	2.68%	1.34%	0.62%	2.23%	0.20%
Debt	1.27%	-0.21%	0.62%	1.22%	-1.34%
Liquid Real Assets	-2.09%	-1.13%	0.62%	-1.92%	0.55%
Cash & Alpha Pool	0.65%			0.53%	
Private Investments	0.46%			0.46%	0.00%
Liquidating	-0.99%			-0.99%	
Portfolio Hedge Contr.	-0.01%			-0.01%	
<b>Total</b>	<b>0.90%</b>	<b>0.86%</b>	<b>0.62%</b>	<b>0.96%</b>	<b>-0.21%</b>

Asset Class	QTD				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	3.94%	2.62%	1.94%	4.10%	1.79%
Debt	3.25%	-0.27%	1.94%	3.12%	-0.03%
Liquid Real Assets	-2.73%	-3.74%	1.94%	-2.61%	1.28%
Cash & Alpha Pool	1.85%			1.74%	
Private Investments	0.83%			0.83%	0.00%
Liquidating	-0.34%			-0.34%	
Portfolio Hedge Contr.	-0.02%			-0.02%	
<b>Total</b>	<b>1.84%</b>	<b>1.66%</b>	<b>1.94%</b>	<b>2.11%</b>	<b>0.75%</b>

**One Year Performance**



Asset Class	Calendar YTD				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	-0.57%	-0.02%	1.55%	0.75%	2.09%
Debt	3.46%	0.41%	1.55%	3.84%	5.87%
Liquid Real Assets	-3.35%	2.25%	1.55%	-3.20%	2.23%
Cash & Alpha Pool	1.50%			0.29%	
Private Investments	-0.37%			-0.37%	0.66%
Liquidating	-1.65%			-1.65%	
Portfolio Hedge Contr.	n/a			n/a	
<b>Total</b>	<b>0.49%</b>	<b>0.11%</b>	<b>1.55%</b>	<b>0.40%</b>	<b>2.71%</b>

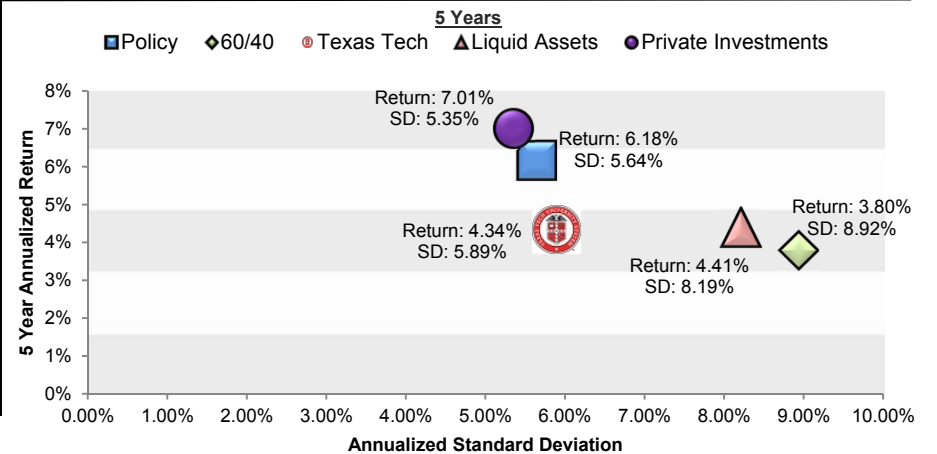
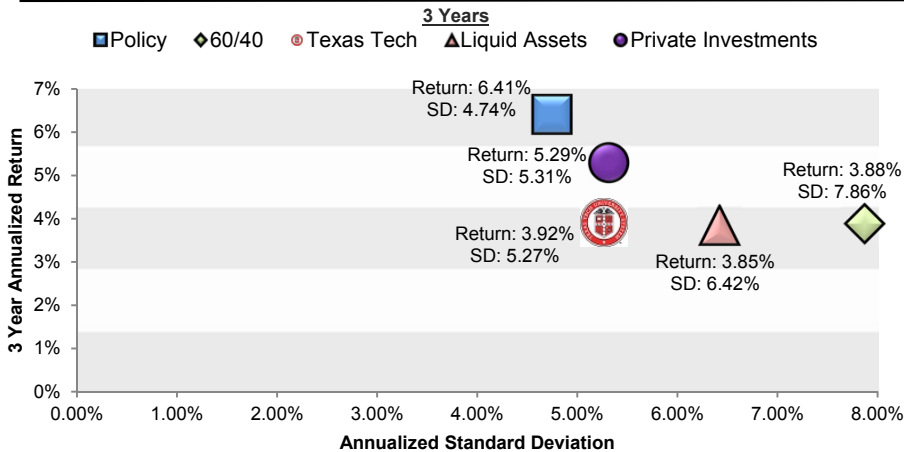
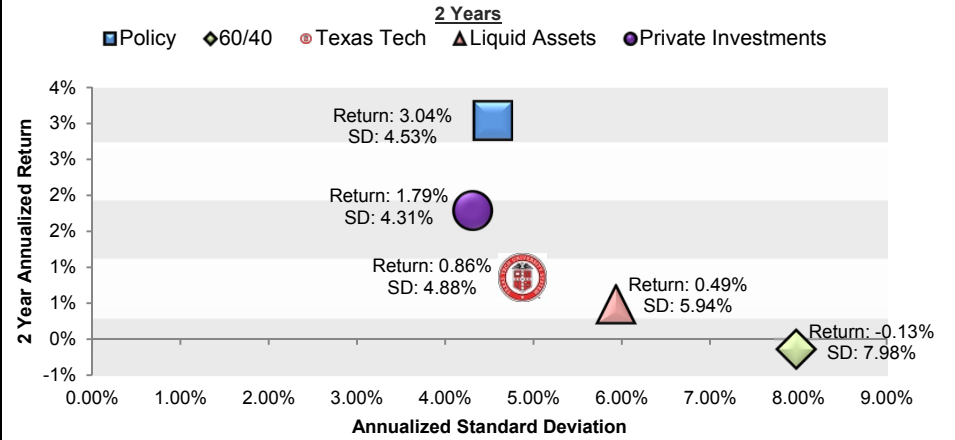
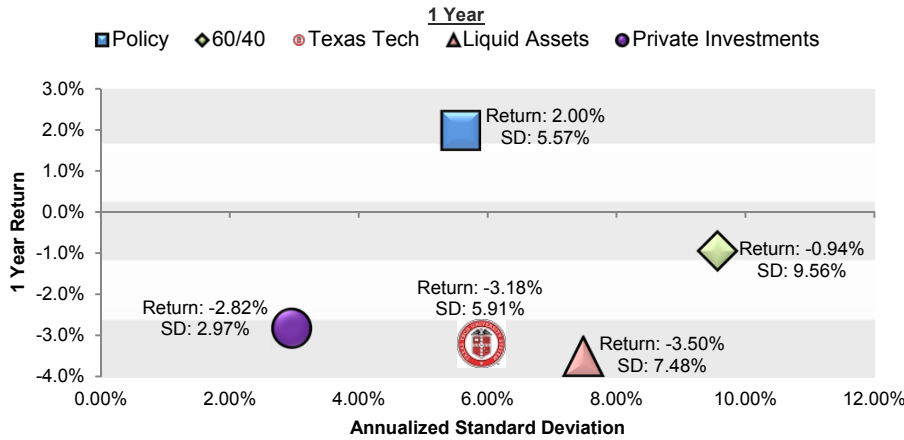
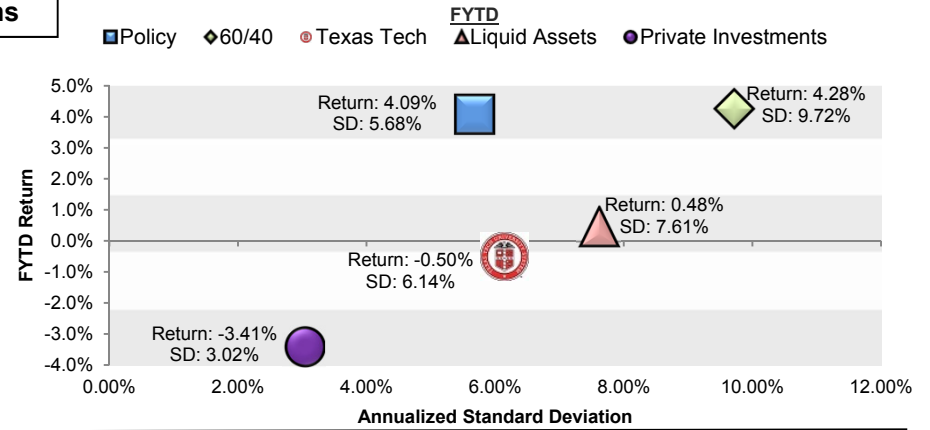
Asset Class	1 Year				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	-6.96%	-6.73%	-0.68%	-6.94%	-5.32%
Debt	2.88%	-0.47%	-0.68%	2.79%	5.32%
Liquid Real Assets	-8.93%	24.03%	-0.68%	-7.79%	5.11%
Cash & Alpha Pool	-0.56%			-2.11%	
Private Investments	-2.82%			-2.82%	6.19%
Liquidating	14.03%			14.03%	
Portfolio Hedge Contr.	n/a			n/a	
<b>Total</b>	<b>-2.58%</b>	<b>-3.33%</b>	<b>-0.68%</b>	<b>-3.18%</b>	<b>2.00%</b>



**Long Term Risk/Return of Endowment vs. 60/40 Portfolio & Policy Returns**

*Commentary*

- The Texas Tech portfolio is less volatile than the 60/40 portfolio over all time horizons.
- The Texas Tech portfolio outperforms the 60/40 portfolio over a 2 year, and 5 year time horizon.
- Volatility (measured by standard deviation) on the Texas Tech portfolio has decreased over the past 12 months compared with the annualized 5 year volatility.



### Risk Profile (VaR)

- The Texas Tech portfolio has a 5% chance of losing \$43 million (or more) in a month with a 1% chance of losing \$63 million (or more) in a month based on observed portfolio volatility.
- The Texas Tech portfolio has less value at risk than the 60/40 portfolio.

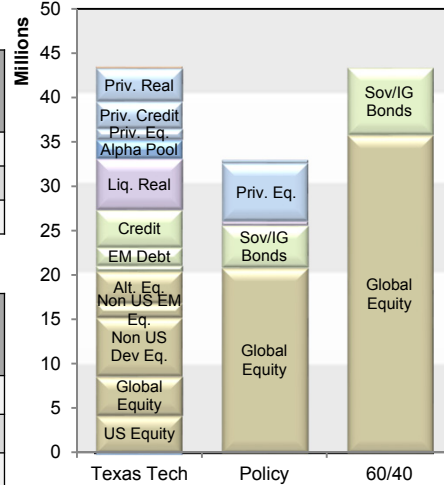
#### Value at Risk – One Month – 95% Confidence

##### Sub Asset Classes with large Value at Risk:

Sub-Asset Class	5% chance of losing \$
Non US Developed Equity	6,607,730
Long Commodities	5,766,689
Global Equity	4,407,503

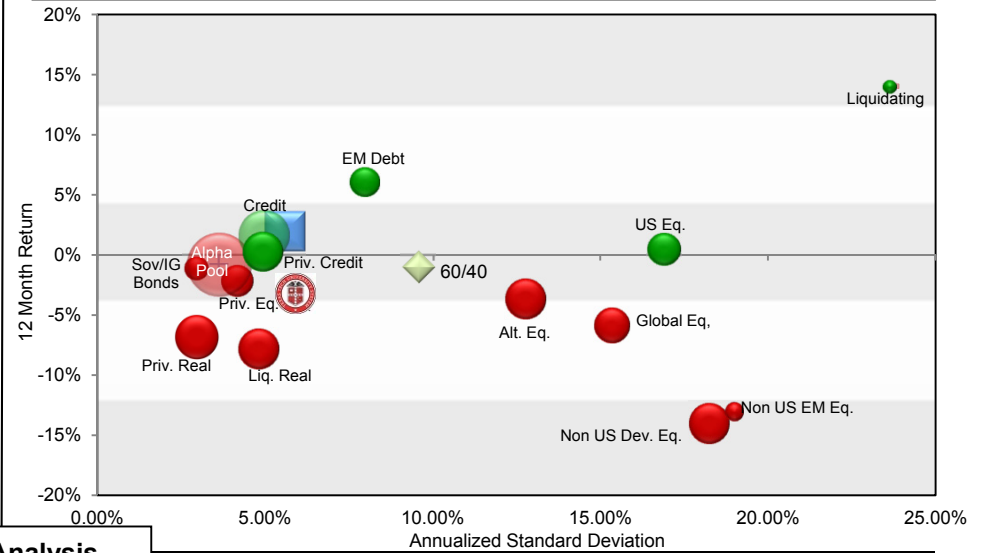
##### Sub Asset Classes with small Value at Risk:

Sub-Asset Class	5% chance of losing \$
Liquidating	220,215
Sovereign/Investment Grade Bonds	632,355
Private Equity	1,258,468



### Risk Profile

- EM Debt, Liquidating, and Credit have provided the highest risk adjusted returns over the last 12 months
- Private Real Assets, Liquid Real Assets, and Non US Developed Equity have generated the lowest risk adjusted returns over the last 12 months.



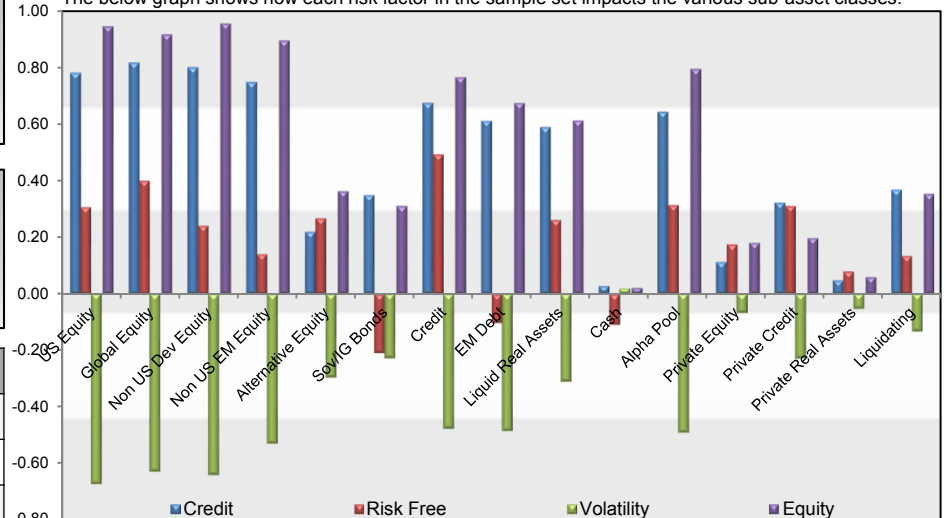
### Factor Analysis

- The model analyses historical returns of the portfolio against the returns and volatility of key indicators:
  - Credit is benchmarked against the High Yield North American CDX Index.
  - Risk-Free is benchmarked against the US 10 Year Treasury Bond.
  - Volatility is benchmarked against the VIX Index.
  - Equity Markets is benchmarked against the MSCI AC World IMI (Net).

- The model shows that performance and volatility of both the Texas Tech portfolio and a 60/40 portfolio are well explained by the 4 factor model.
- The Texas Tech portfolio exhibits a lower correlation to the Equity markets than the 60/40 and Policy portfolios, but a higher correlation to the risk free index.

Portfolio	Credit	Risk Free	Volatility	Equity	R <sup>2</sup>
Texas Tech	0.80	0.31	-0.62	0.93	0.78
60/40	0.80	0.18	-0.63	0.99	0.79
Policy	0.53	0.28	-0.59	0.71	0.67

The below graph shows how each risk factor in the sample set impacts the various sub-asset classes.



Factor Analysis is calculated using the monthly return over the period January 2009 – current month.

31<sup>st</sup> May 2016 (Preliminary)

# Equity

(Total NAV: \$364,904,508)



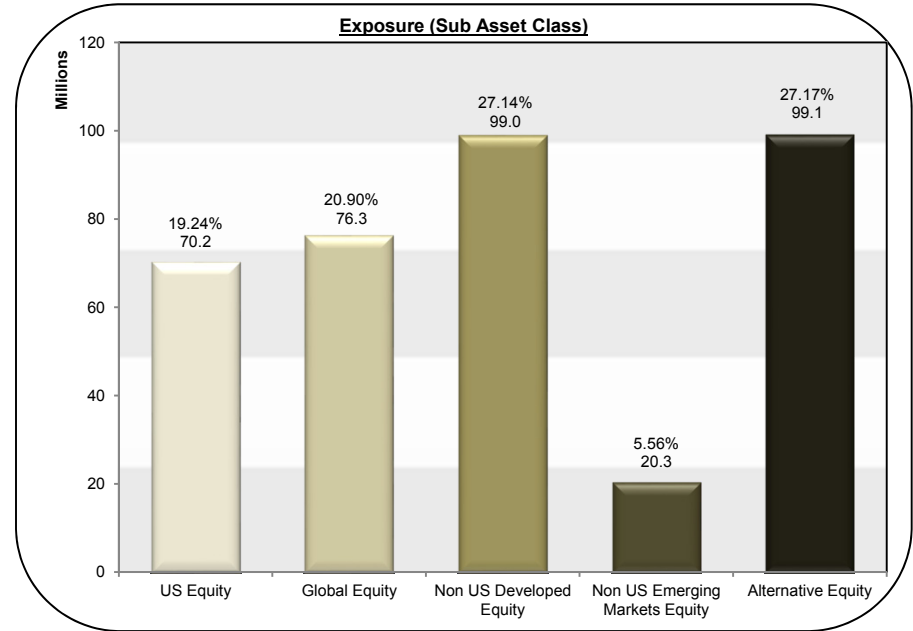
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## Overview and Risk Profile by Asset Class

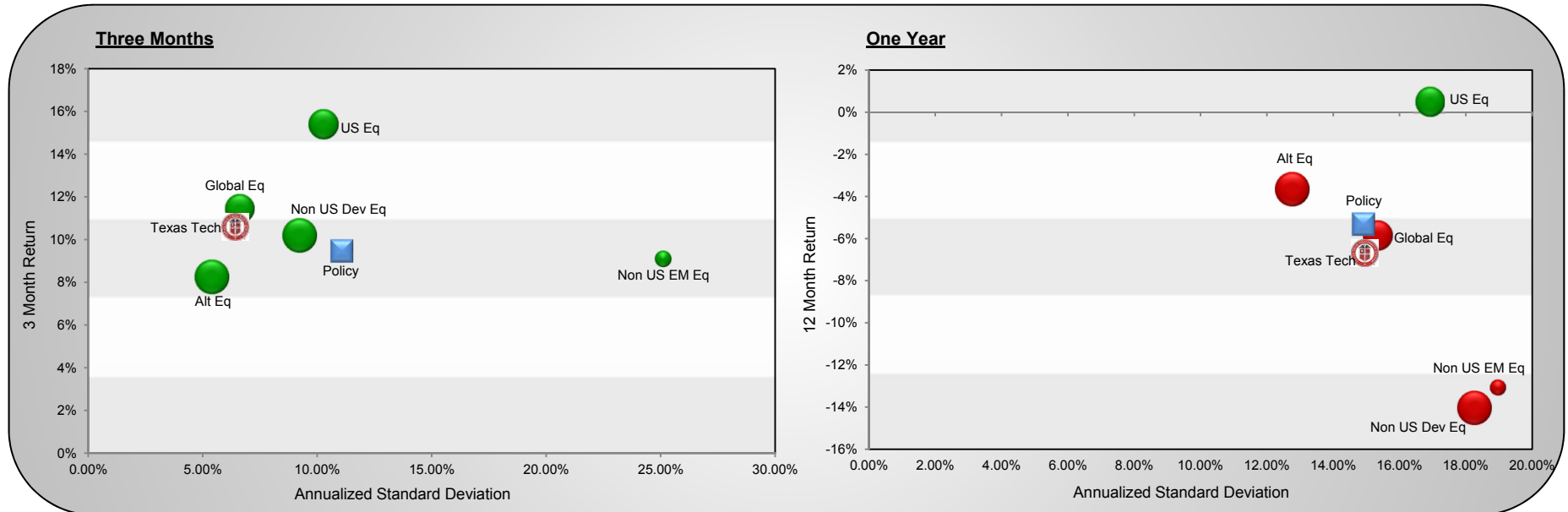
### Commentary

- The S&P 500 Index rallied for a third consecutive month, finishing May up 1.8%. The index closed the month at 2,097, up from April's 2,065, and traded briefly above the 2,100 level on the last day of the month. Impressively, the index is up 15.4% since its February 11th low, although it has been over a year (since May 21, 2015, at 2,131) since we've seen a new closing high.
- Equites around the world were mixed, though, and Europe and Asia generally outpaced emerging markets. The Nikkei finished up 3.4%, the Euro Stoxx 50 gained 2.9%, and the FTSE 100 etched out 0.3%. Detractors included the Hong Kong Hang Seng Index, which sold off 2.4%, and Latin American equities, which fared the worst (MSCI EM Latin America Index fell 6.3%). In Brazil, where President Dilma Rousseff was suspended from office as her impeachment vote started, the Bovespa finished down 10.1%.
- The Dow Jones Industrial Average celebrated its 120th birthday on May 26, 2016. Interestingly, General Electric (GE) is the only issue left from the original 1896 lineup. One share of GE, adjusted for splits going back to 1896, would be worth 4,608 shares today, and \$100 invested would be worth \$388,000 today (stock only)!
- Equity market volatility decreased month-over-month as the VIX closed May at 14.2, down from 15.7 at the end of April. The index trade in a tight range from 13.1 (May 27th) to 16.3 (May 19th) over the course of the month.

Source – Cliffwater



## Risk vs. Return (Sub Assets)



\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.

31<sup>st</sup> May 2016 (Preliminary)

# Debt

(Total NAV: \$242,125,099)



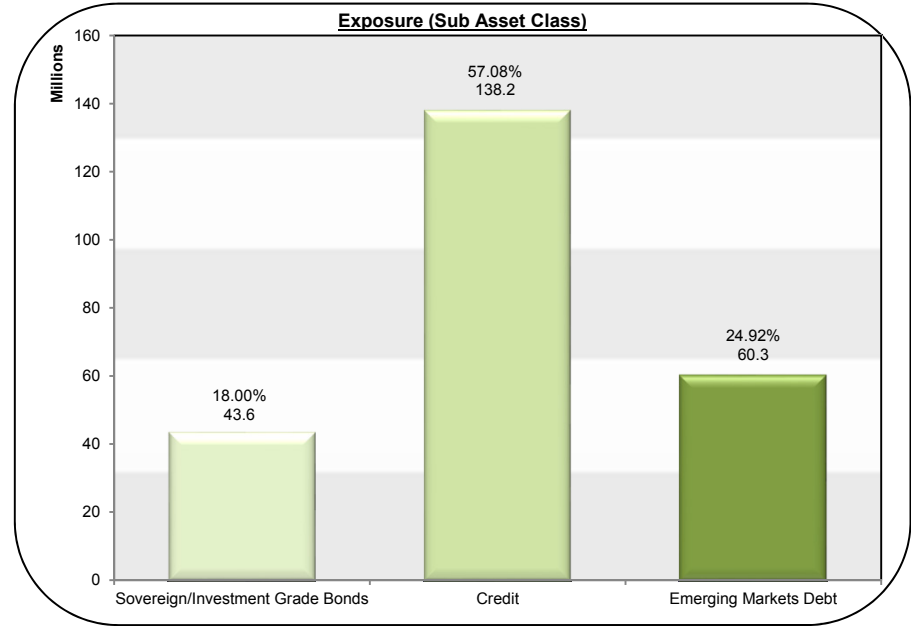
TEXAS TECH UNIVERSITY SYSTEM

## Overview and Risk Profile by Asset Class

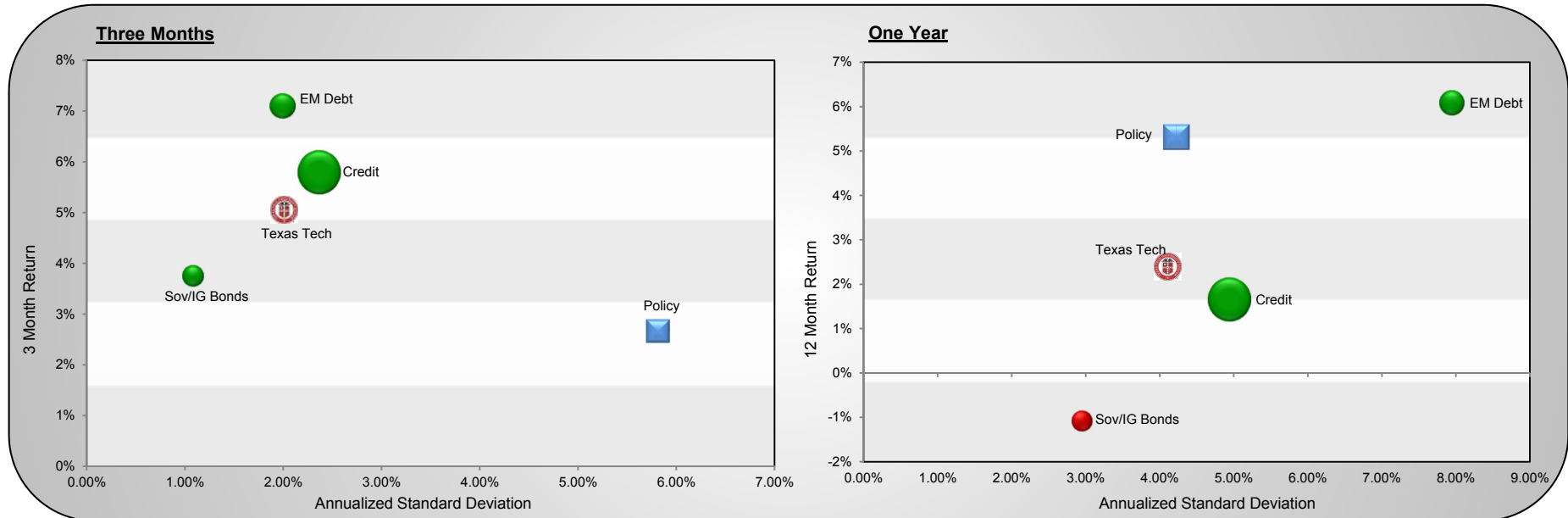
### Commentary

- Fixed income markets extended a historic rally in May that started in mid-February as a dovish central bank narrative, fears of a US recession fading and a rally in commodity prices drove risk assets higher. While US 10 Year yields closed the month at 1.84%, up a basis point from April's 1.83% close, German bonds rallied 13bps to 0.14% and Japanese 10Y bonds rallied 3bps to -0.11%. Credit rallied across the globe and as a result, fixed income-related non-sovereign securities posted positive returns for the month. In the US, the Barclays High Yield Corporate Bond Index was up 0.6% and loans also gained 0.9%.
- Over the course of May, market expectations for an interest rate hike during the June 14-15th FOMC meeting increased, spurred by comments from Fed officials, minutes the Fed's April meeting (released May 18) and quickening inflation. US 2 Year yields, which are more sensitive than US 10 Year yields to monetary policy, closed the month up 10 basis points at 0.88% from April's 0.78% close. The US 2/10 year yield curve has flattened to levels not seen since 2009.
- The amount of global sovereign debt with negative yields surpassed \$10 trillion for the first time in May, according to Fitch Ratings. Subzero bonds totaled \$7.3 trillion in long-term debt and \$3.1 trillion in short-term debt, spread across 14 countries, with Japan by far the largest source of negative-yielding bonds.
- Interestingly, negative-yielding bonds are not only found in sovereign debt markets. More than \$36 billion of European corporate bonds (including Johnson & Johnson, General Electric, LVMH Moët Hennessy Louis Vuitton and Philip Morris) with a short-term maturity currently trade with a sub-zero yield in secondary markets.

Source – Cliffwater



## Risk vs. Return (Sub Assets)



\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.



31<sup>st</sup> May 2016 (Preliminary)

# Liquid Real Assets

(Total NAV: \$95,129,617)



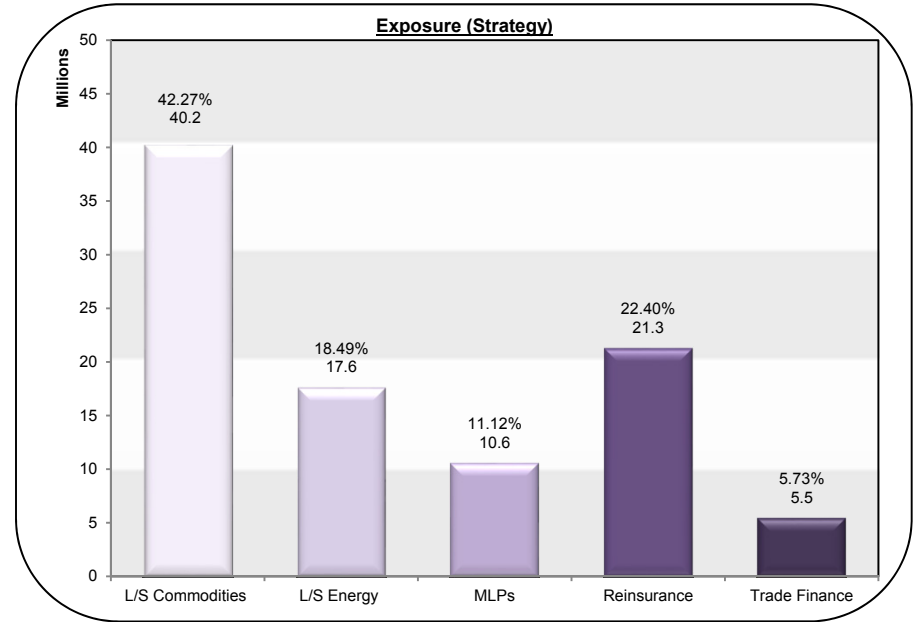
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## Overview and Risk Profile by Asset Class

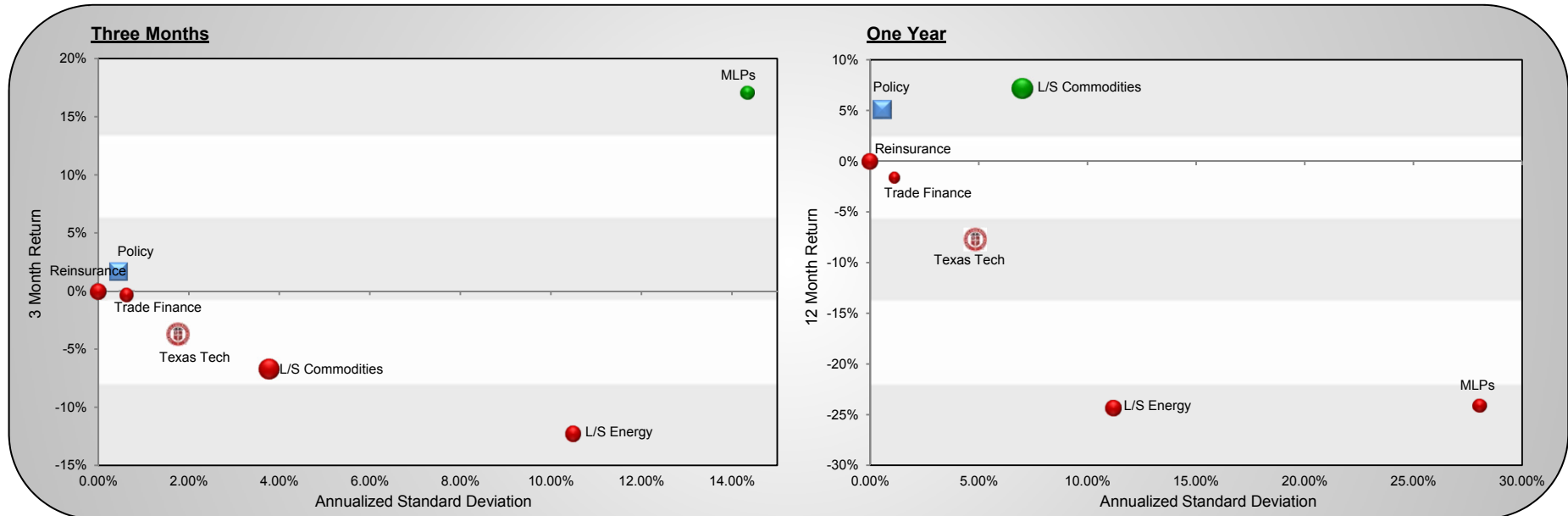
### Commentary

- Among the energy commodities, West Texas Intermediate (5.2% total return in the index) and Brent crude oil (4.1%) benefited further from expectations of faster economic growth, flat U.S. production and disruptions in Canada, Nigeria, Venezuela and elsewhere that reduced global supply by more than three million barrels per day. Natural gas (-1.5%) ended down only modestly after a late-month rally amid slower domestic production and a reduced storage surplus, from 47% to 35% above its five-year average.
- Precious metals retreated during the month. Gold (-5.8%) came under pressure due to the stronger U.S. dollar and heightened expectations for a Fed rate hike in the next few months. Gold buying in exchange-traded funds remained strong, however, as investors continued to hedge against global macro risks. Like gold, silver (-10.2%) traded lower, with additional pressure due to concerns of slowing demand from China.
- Continued weakness in China's manufacturing sector affected the base metals. Nickel (-10.9%) was the worst performer in the complex as investors flipped from net long to net short the metal. Copper (-8.2%) also declined, although a large stock draw from the Shanghai Futures Exchange, most likely seasonably driven, led some to conclude that the low prices are encouraging incremental demand in China. Traders appeared to abandon aluminum (-7.9%), which was hit with strong speculative selling, in favor of zinc (-0.9%), which saw an increase in speculative open interest and remained near a 12-month high.

Source – Cohen & Steers



## Risk vs. Return (Strategy)



\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.

# Cash & Alpha Pool

(Total NAV: \$10,209,714)



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31<sup>st</sup> May 2016 (Preliminary)

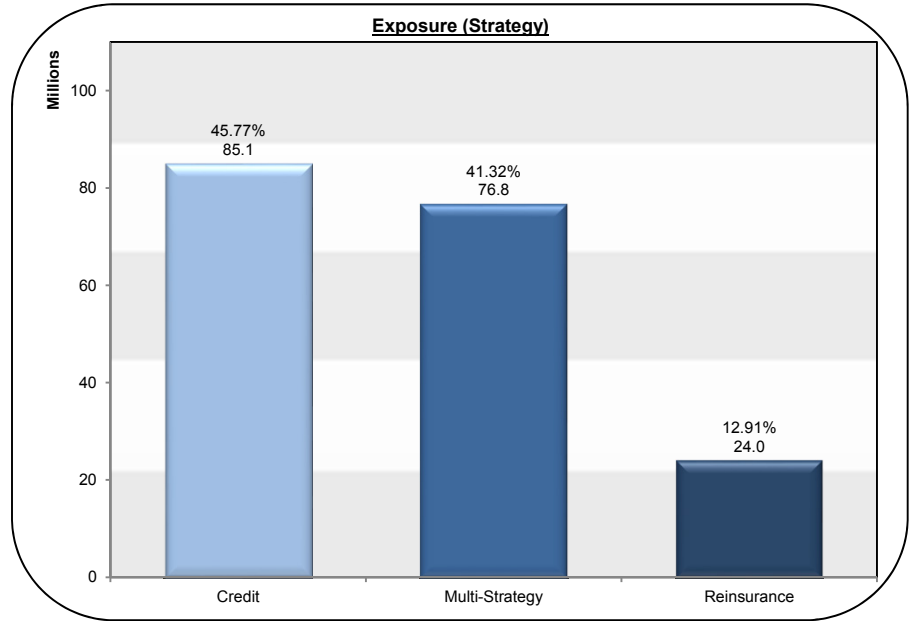
## Overview and Risk Profile by Asset Class

### Commentary

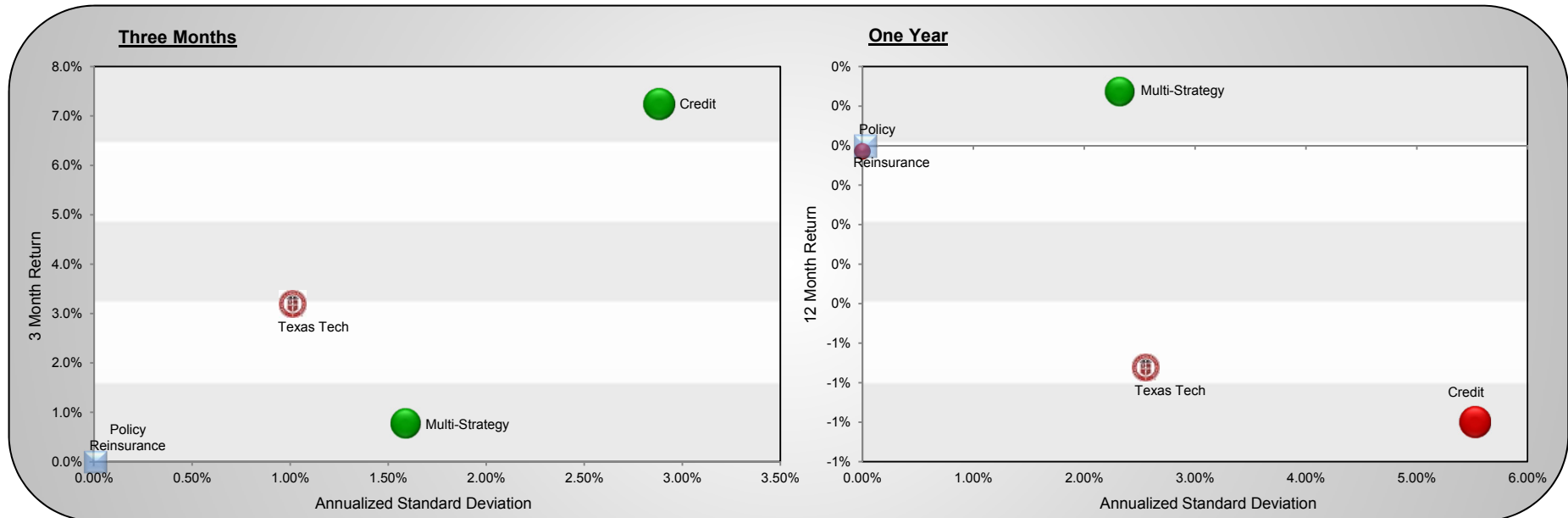
- In May, the HFRI Fund Weighted and Fund of Funds indices were up 0.4% and 0.2%, respectively. Hedge fund strategies continue to lag global markets year-to-date but alpha has stabilized and May was a strong month of alpha for many hedge fund strategies. However, there was a wide dispersion among strategies and managers.
- Headline HFR Equity (+0.8%) and Event Driven Strategies (+1.3%) had a strong May after a rough start year-to-date in 2016. Equity Long Short managers generated alpha on both sides of the portfolio while Event Driven managers added alpha through sector tilts and security selection. Net long biased managers outperformed more tightly-hedged peers as managers continue to rotate away from growth to value-oriented sectors.
- Credit (+1.0%) and Distressed (+2.1%) funds capitalized on the four month rally in high yield as oil prices rose to a six month high and capital markets remained active. Managers with long exposure to equities and higher beta credit (specifically CCC) generally outperformed in May, and some managers were able to generate modest gains on short positions due to tactical trading and idiosyncratic events.
- Relative Value (+1.1%) strategies, which generally perform best in low volatility markets, were able to capitalize on the decline in market volatility and the flattening of sovereign bond yield curves in the US, Europe, and Japan. Convertible arbitrage managers took advantage of new issuances and strong convertible bond valuations in the US and Europe.
- Global Macro (-1.1%) and Systematic Macro (-2.1%) both detracted in May. Systematic global macro strategies were adversely affected by renewed US Dollar strength and reversals in precious metals while discretionary macro funds were generally hurt by a combination of equity trading and mistimed interest rates positions.

Source – Preqin

### Exposure (Strategy)



### Risk vs. Return (Strategy)



\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.

31<sup>st</sup> May 2016 (Preliminary)

# Private Equity

(Total NAV: \$67,543,229)



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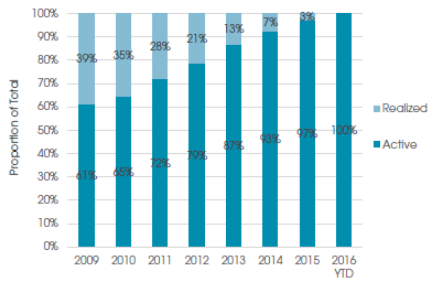
## Overview and Risk Profile by Asset Class

### Commentary

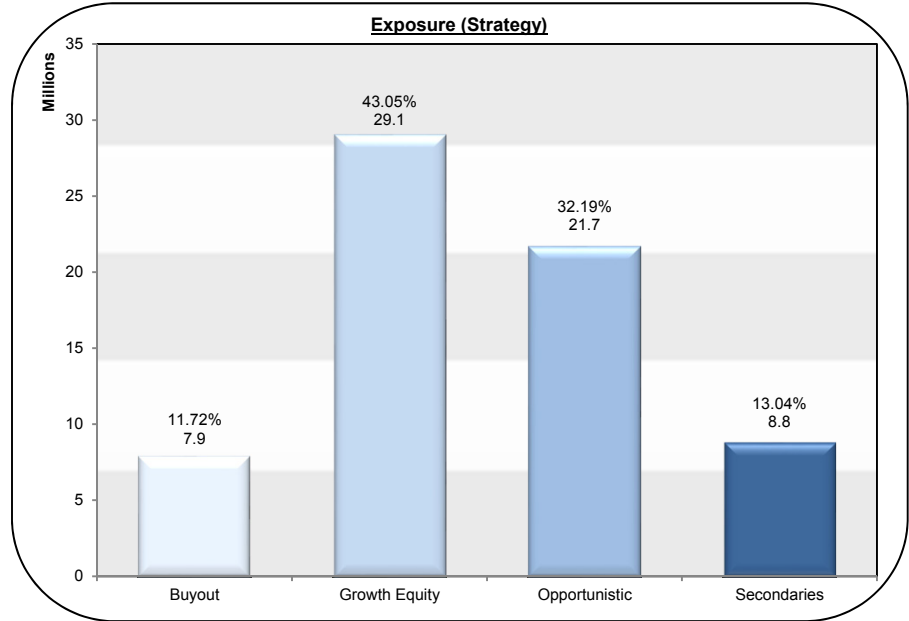
Source – Wall Street Journal

- When the Global Financial Crisis occurred, many private equity funds that bought assets at peak prices during the buyout boom were forced to hold onto investments due to poor exit conditions, causing distributions to LPs to shrink. In the years following the crisis, depressed pricing of companies provided opportunities for those private equity firms with capital to deploy. The exits of companies bought by these 2008-2010 vintage funds contributed to the record distributions witnessed over recent years. Interestingly, the majority of private equity-backed investments made as far back as 2009 have yet to be realized, indicating the potential for further distributions, should favorable exit conditions allow these investments to be realized.

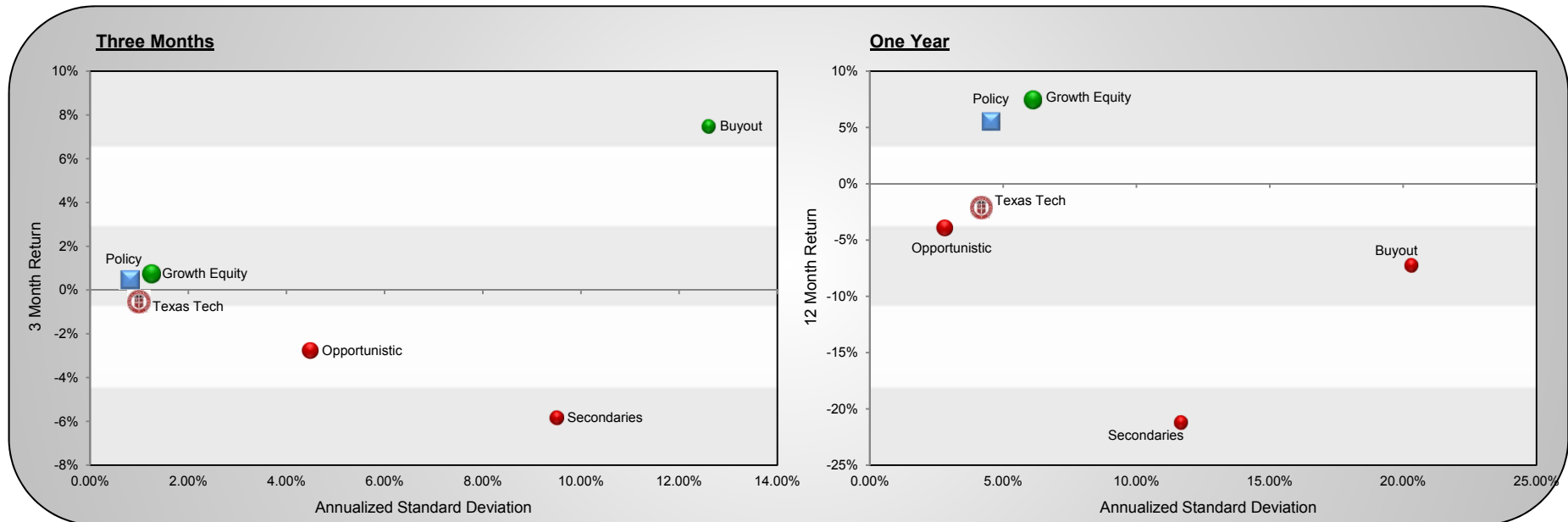
Fig. 5: Proportion of Active and Realized Private Equity-Backed Investments, 2009 - 2016 YTD (As at 22 April 2016)



Source – Preqin



## Risk vs. Return (Strategy)



\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.

31st May 2016 (Preliminary)

# Private Credit

(Total NAV: \$104,937,104)



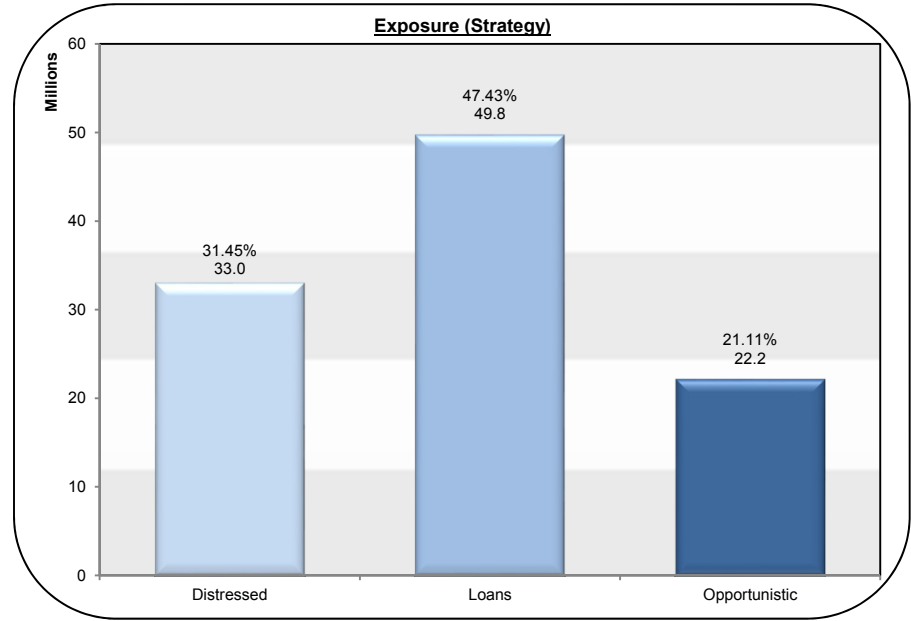
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## Overview and Risk Profile by Asset Class

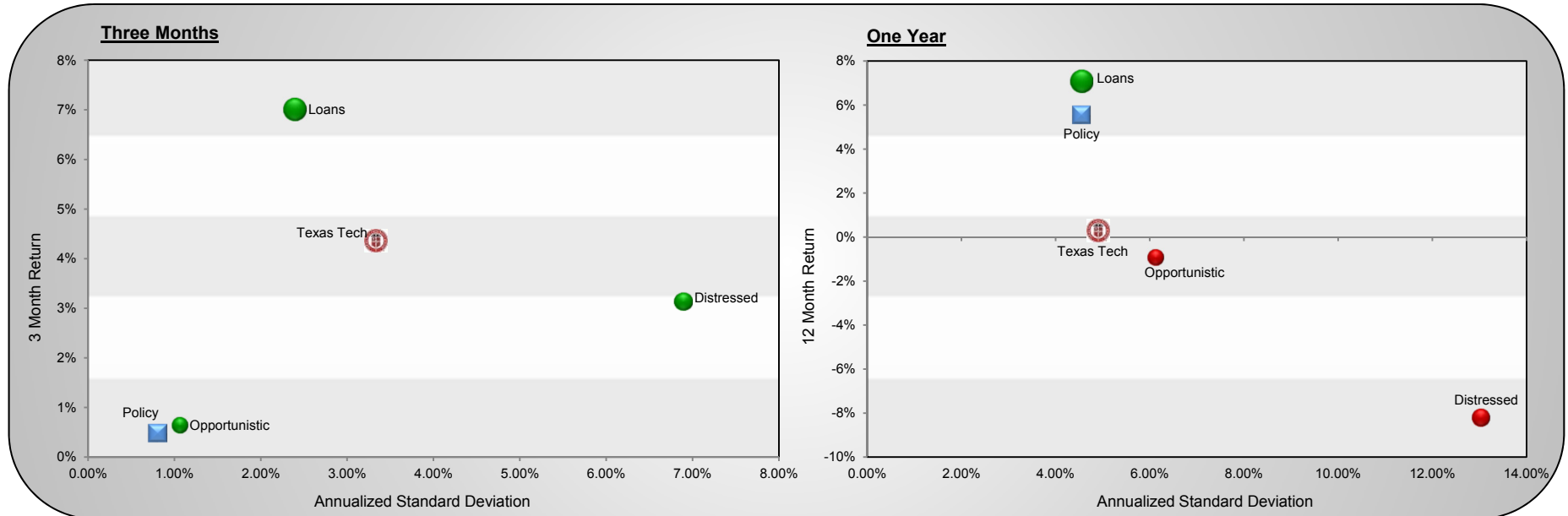
### Commentary

- Performance across credit hedge fund indices had another positive month in May with the HFRI ED: Distressed/Restructuring Index up 2.1% and the HFRI RV: Fixed Income-Corporate Index up 1.0%. Cliffwater saw mostly positive performance across credit managers as both long-biased and long/short managers generated positive results. Similar to April, there were positive outliers but very few negative outliers in May.
- Managers with long exposure to equities, higher beta credit (specifically CCC) generally outperformed in May. Long/short managers were able to limit losses on the short side, with some managers able to generate modest gains on short positions due to tactical trading and idiosyncratic events. Greek Government Bonds traded higher as the nation took steps to secure additional bailout funds and potential for future inclusion in the ECB's quantitative easing program. Municipal bonds also had a strong month.
- Credit managers are starting to take profits on positions initiated earlier in the year and re-setting short positions as spreads have tightened. Cash balances are starting to increase as managers look to build dry powder for the next pullback.
- Structured credit managers continued to benefit from a retracing of spreads off of the February wides. Commercial real estate remains less well bid as concerns remain over legacy loans with upcoming loan maturities and initiation of risk retention guidelines.
- High yield bonds generated positive performance for the fourth consecutive month in May (+0.9%) as oil prices rose to a six month high and capital markets remained active. Leveraged loans also had a positive month, up (0.9%). Once again, energy bonds (+3.3%) and CCC issuers (+2.2%) led the rally.

Source – Cliffwater



## Risk vs. Return (Strategy)



\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.

31<sup>st</sup> May 2016 (Preliminary)

# Private Real Assets

(Total NAV: \$112,483,983)

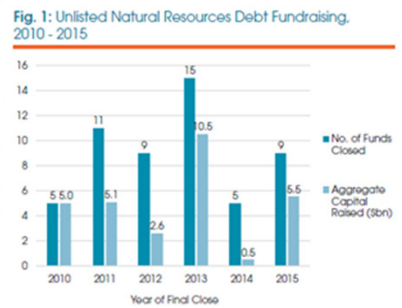


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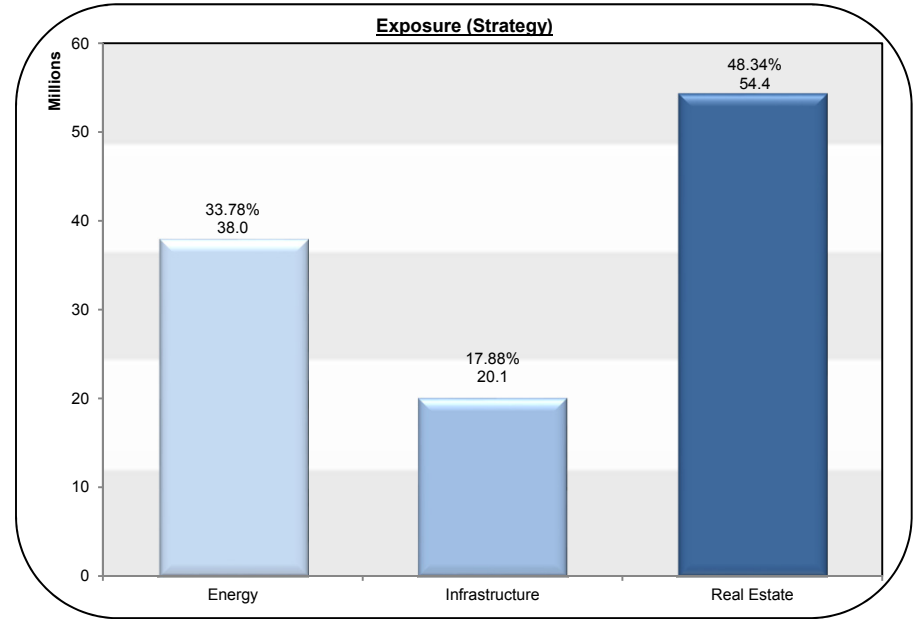
## Overview and Risk Profile by Asset Class

### Commentary

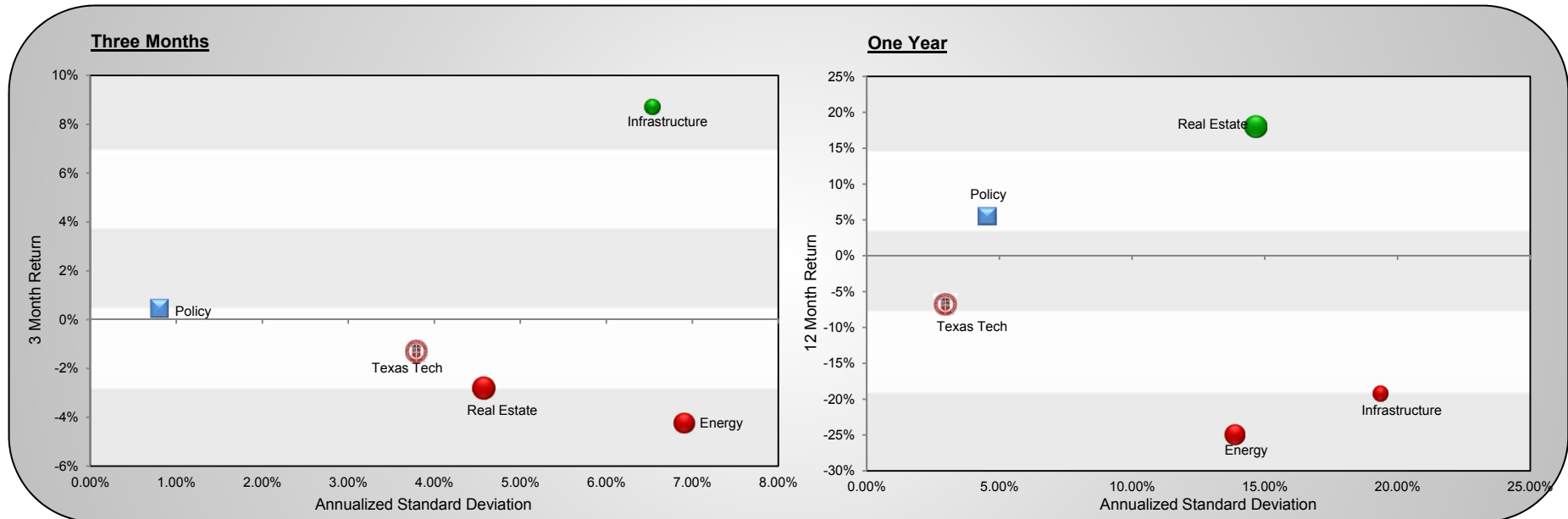
- Since 2010, 54 unlisted natural resources funds that invest in debt have reached a final close, raising a combined \$29.2bn in aggregate capital. Of this, the majority (\$23.2bn) was raised by funds with a primary focus on energy companies, including those involved in the extraction, processing, storage and transportation of oil, natural gas and other non-renewables, as well as renewable energy sources including solar panels and hydropower. This may be explained by the shale gas boom in the US, which increased demand for debt financing at the same time as some traditional lenders tried to bolster their balance sheets. As the commodity cycle has turned, distressed investors have also seen opportunities in the sector, where the subsoil assets held by companies can potentially prove valuable even in the event of debt restructuring.



Source – Preqin



### Risk vs. Return (Strategy)



\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.

31<sup>st</sup> May 2016 (Preliminary)

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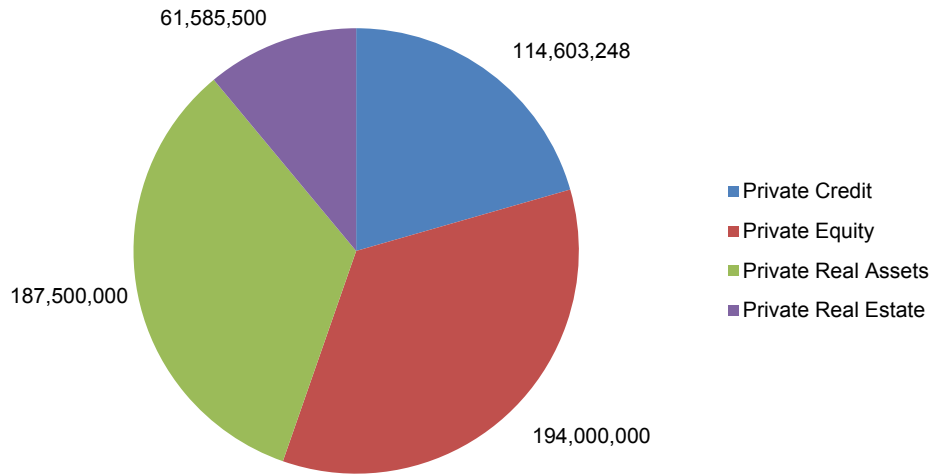
<b>Appendix I – Sub-Asset Detail</b>
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Fund	Current Exposure	MTD Perf.	3 Mo. Perf.	Calendar YTD	Fiscal YTD	Nacubo YTD	1 Year Perf.	3 Year Perf.	5 Year Perf.
<b>TOTAL</b>	<b>1,006,271,161</b>	<b>0.96%</b>	<b>4.29%</b>	<b>0.40%</b>	<b>-0.50%</b>	<b>-2.49%</b>	<b>-3.18%</b>	<b>3.92%</b>	<b>4.34%</b>
Policy		-0.21%	4.34%	2.71%	4.09%	2.02%	2.00%	6.41%	6.18%
Portfolio Hedge	4,904,137	-0.01%	0.00%	n/a	n/a	n/a	n/a	n/a	n/a
<b>Equity</b>	<b>364,904,508</b>	<b>2.39%</b>	<b>10.60%</b>	<b>0.88%</b>	<b>0.77%</b>	<b>-4.72%</b>	<b>-6.69%</b>	<b>4.84%</b>	<b>5.56%</b>
US Equity	70,198,277	4.20%	15.33%	6.83%	8.80%	2.35%	0.81%	9.04%	8.59%
<i>Benchmark: S&amp;P 500 Total Return</i>		1.80%	9.12%	3.57%	8.12%	3.72%	1.72%	11.06%	11.67%
Global Equity	76,261,960	3.54%	11.46%	-0.60%	-0.85%	-3.79%	-5.84%	8.77%	11.98%
<i>Benchmark: MSCI ACWI (Net)</i>		0.20%	9.49%	2.09%	3.19%	-3.17%	-5.32%	5.31%	5.23%
Non US Developed Equity	99,037,259	-0.01%	10.12%	-2.16%	-2.63%	-9.40%	-13.53%	1.31%	2.35%
<i>Benchmark: MSCI EAFE (Net)</i>		-0.91%	8.59%	-1.10%	-1.70%	-7.04%	-9.68%	2.00%	2.12%
Non US Emerging Markets Equity	20,279,739	-3.24%	8.84%	-0.64%	1.61%	-11.84%	-14.41%	-2.51%	-2.06%
<i>Benchmark: MSCI EMF (Net)</i>		-3.73%	9.60%	2.32%	-0.10%	-15.43%	-17.63%	-4.95%	-4.83%
Alternative Equity	99,127,274	4.19%	8.29%	-0.69%	-1.90%	-3.75%	-3.65%	3.01%	8.33%
<i>Benchmark: MSCI ACWI (Net)</i>		0.20%	9.49%	2.09%	3.19%	-3.17%	-5.32%	5.31%	5.23%
<b>Debt</b>	<b>242,125,099</b>	<b>1.12%</b>	<b>5.06%</b>	<b>3.45%</b>	<b>3.02%</b>	<b>3.26%</b>	<b>2.39%</b>	<b>3.93%</b>	<b>5.64%</b>
Sovereign/Investment Grade Bonds	43,581,250	0.41%	3.43%	1.97%	-0.03%	-0.53%	-1.15%	1.91%	2.82%
<i>Benchmark: Barclays Global Aggregate</i>		-1.34%	2.67%	5.87%	5.43%	5.78%	5.32%	1.41%	1.20%
Credit	138,213,770	1.14%	5.80%	2.20%	1.28%	1.85%	1.66%	4.07%	7.07%
<i>Benchmark: Barclays Global Aggregate</i>		-1.34%	2.67%	5.87%	5.43%	5.78%	5.32%	1.41%	1.20%
Emerging Markets Debt	60,330,079	1.59%	7.11%	6.68%	9.53%	8.35%	6.10%	4.28%	6.42%
<i>Benchmark: JP Morgan EM Bond Index</i>		-0.30%	5.00%	6.91%	7.07%	6.35%	4.55%	3.35%	5.71%
<b>Liquid Real Assets</b>	<b>95,129,617</b>	<b>-1.92%</b>	<b>-3.68%</b>	<b>-2.96%</b>	<b>-2.66%</b>	<b>-5.59%</b>	<b>-7.71%</b>	<b>-3.10%</b>	<b>-6.89%</b>
<i>Benchmark: CPI + 4%</i>		0.55%	1.71%	2.23%	3.72%	4.53%	5.11%	5.14%	5.34%
<b>Cash &amp; Alpha Pool</b>	<b>10,209,714</b>	<b>0.65%</b>	<b>3.20%</b>	<b>1.50%</b>	<b>0.06%</b>	<b>-0.47%</b>	<b>-0.56%</b>	<b>2.33%</b>	<b>3.31%</b>
Cash	16,716,102	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.21%
Cash Collateral	13,377,894	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	n/a	n/a
Collateral Held Elsewhere	5,970,000	0.00%	0.00%	0.00%	n/a	n/a	n/a	n/a	n/a
Adjustments for Synthetic Exposure	(211,720,746)								
Alpha Pool	185,866,464	0.77%	4.52%	1.90%	-0.05%	-0.65%	-0.77%	3.27%	4.82%
<i>Benchmark: HFRI FOF Index</i>		0.61%	1.83%	-2.07%	-3.16%	-4.90%	-5.89%	1.62%	1.47%
<b>Liquidating</b>	<b>4,033,769</b>	<b>-0.99%</b>	<b>0.65%</b>	<b>-1.65%</b>	<b>-8.62%</b>	<b>13.13%</b>	<b>14.03%</b>	<b>3.79%</b>	<b>0.76%</b>
<b>Private Investments</b>	<b>284,964,317</b>	<b>0.46%</b>	<b>0.98%</b>	<b>-0.37%</b>	<b>-3.41%</b>	<b>-3.85%</b>	<b>-2.82%</b>	<b>5.29%</b>	<b>7.01%</b>
<i>Benchmark: Private Market Index (90% VE, 10% NCREIF)</i>		0.00%	0.66%	0.66%	3.42%	3.42%	6.19%	12.14%	11.82%
Private Equity	67,543,229	-0.15%	-0.53%	-1.88%	-3.83%	-4.47%	-2.11%	7.19%	7.59%
Private Credit	104,937,104	0.70%	4.36%	3.61%	0.66%	-0.15%	0.30%	7.21%	7.10%
Private Real Assets	112,483,983	0.61%	-1.29%	-3.20%	-7.18%	-7.18%	-6.78%	2.06%	6.24%

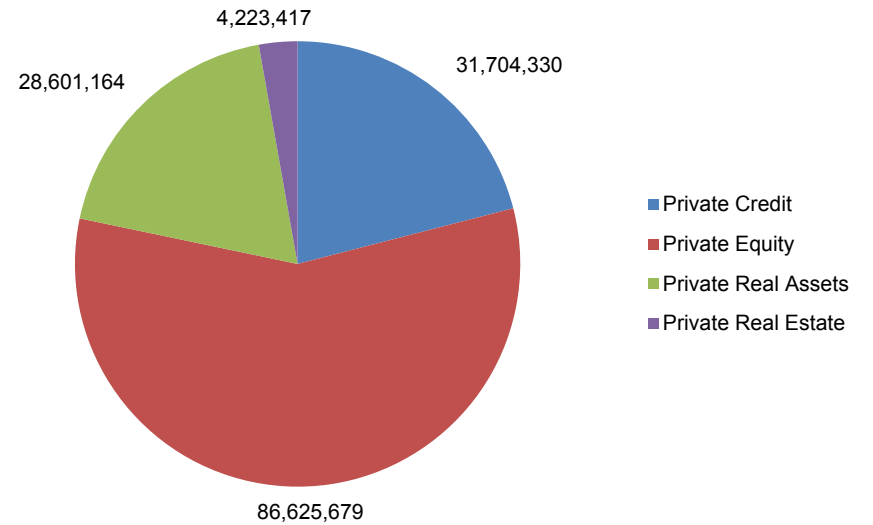
\*Performance is calculated using time weighted Cash on Cash returns. This is an industry standard and allows direct comparison between manager returns and policy returns.

**Appendix II - Private Markets Report (as of May 2016) - Total Commitment**

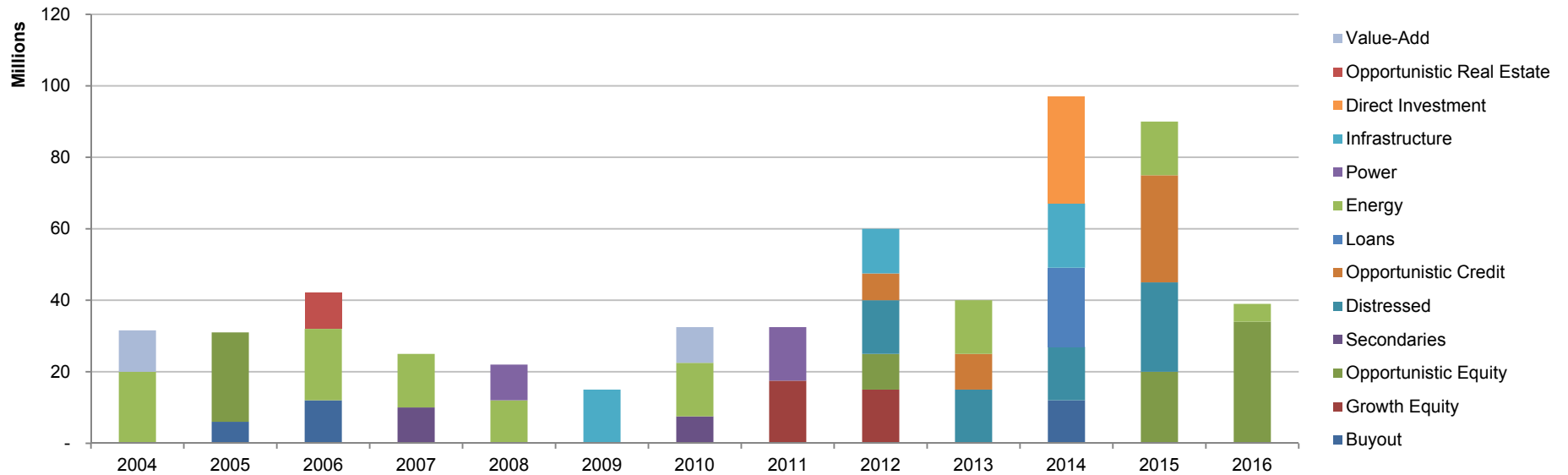
**Total Commitment**



**Total Unfunded**



**Commitment by Vintage Year**



Data provided by Texas Tech University System  
 Reported valuations use latest available statements ranging from June 30<sup>th</sup>, 2015 to May 31<sup>st</sup>, 2016.  
 Adjusted Valuations include all cashflows through May 2016



### Appendix II - Private Markets Report (as of May 2016) - Performance Analysis by Strategy Type & Asset Class

#### Performance by Strategy Type

Asset Class	Strategy	# of Funds	Commitment	Funded	Paid-In Capital	Distributions	% Drawn	Reported Valuation	Adjusted Valuation	IRR	MOC
Private Equity	Buyout	3	\$30,000,000	\$21,161,270	\$22,064,316	\$20,028,311	74%	\$6,524,856	\$6,524,856	5.74%	1.09
	Distressed	1	\$25,000,000	\$1,875,000	\$1,875,000	\$402,706	8%	\$1,405,048	\$1,405,048	-4.44%	0.96
	Growth Equity	2	\$32,500,000	\$19,535,580	\$21,854,983	\$3,231,843	67%	\$18,420,184	\$20,103,761	4.07%	1.08
	Opportunistic Equity	6	\$89,000,000	\$48,386,110	\$48,582,138	\$19,856,947	55%	\$31,297,004	\$34,642,765	-2.26%	0.98
	Secondaries	2	\$17,500,000	\$16,416,361	\$16,972,790	\$11,225,064	97%	\$9,325,104	\$9,400,104	5.07%	1.28
	<b>Total</b>	<b>14</b>	<b>\$194,000,000</b>	<b>\$107,374,321</b>	<b>\$111,349,227</b>	<b>\$54,744,871</b>	<b>57%</b>	<b>\$66,972,196</b>	<b>\$72,076,534</b>	<b>3.99%</b>	<b>1.14</b>
Private Credit	Distressed	3	\$45,000,000	\$41,281,472	\$41,410,540	\$12,795,698	92%	\$33,110,991	\$33,110,991	1.19%	1.03
	Loans	2	\$22,103,248	\$22,024,589	\$22,582,673	\$3,706,000	102%	\$19,847,017	\$21,882,845	-3.05%	0.97
	Opportunistic Credit	4	\$47,500,000	\$19,592,857	\$22,498,275	\$4,503,763	47%	\$20,382,782	\$20,830,330	-0.76%	0.99
	<b>Total</b>	<b>9</b>	<b>\$114,603,248</b>	<b>\$82,898,918</b>	<b>\$86,491,488</b>	<b>\$21,005,461</b>	<b>75%</b>	<b>\$73,340,790</b>	<b>\$75,824,166</b>	<b>5.91%</b>	<b>1.12</b>
Private Real Assets	Energy	8	\$117,000,000	\$100,227,984	\$104,880,274	\$104,692,527	90%	\$25,373,503	\$30,158,742	14.29%	1.31
	Infrastructure	3	\$45,500,000	\$37,641,206	\$42,854,609	\$37,515,638	94%	\$9,951,895	\$10,131,837	40.52%	1.83
	Power	2	\$25,000,000	\$21,607,260	\$22,424,006	\$8,750,636	90%	\$8,198,728	\$8,198,728	-4.88%	0.91
	<b>Total</b>	<b>13</b>	<b>\$187,500,000</b>	<b>\$159,476,450</b>	<b>\$170,158,889</b>	<b>\$150,958,801</b>	<b>91%</b>	<b>\$43,524,126</b>	<b>\$48,489,307</b>	<b>12.72%</b>	<b>1.24</b>
Private Real Estate	Direct Investment	1	\$30,000,000	\$28,472,719	\$30,624,032	\$762,234	102%	\$34,654,392	\$38,258,409	23.47%	1.27
	Opportunistic Real Estate	1	\$10,000,000	\$9,745,230	\$9,745,230	\$0	97%	\$4,133,038	\$4,133,038	-11.93%	0.42
	Value-Add	2	\$21,585,500	\$19,144,134	\$19,278,467	\$16,701,878	89%	\$9,513,506	\$8,063,506	2.20%	1.12
	<b>Total</b>	<b>4</b>	<b>\$61,585,500</b>	<b>\$57,362,083</b>	<b>\$59,647,729</b>	<b>\$17,464,112</b>	<b>97%</b>	<b>\$48,300,936</b>	<b>\$50,454,953</b>	<b>3.91%</b>	<b>1.14</b>

#### Performance by Asset Class

Asset Class	# of Funds	Commitment	Funded	Paid-In Capital	Distributions	% Drawn	Reported Valuation	Adjusted Valuation	IRR	MOC
Private Equity	14	\$194,000,000	\$107,374,321	\$111,349,227	\$54,744,871	57%	\$66,972,196	\$72,076,534	3.99%	1.14
Private Credit	9	\$114,603,248	\$82,898,918	\$86,491,488	\$21,005,461	75%	\$73,340,790	\$75,824,166	5.91%	1.12
Private Real Assets	13	\$187,500,000	\$159,476,450	\$170,158,889	\$150,958,801	91%	\$43,524,126	\$48,489,307	12.72%	1.24
Private Real Estate	4	\$61,585,500	\$57,362,083	\$59,647,729	\$17,464,112	97%	\$48,300,936	\$50,454,953	3.91%	1.14
<b>Total</b>	<b>40</b>	<b>\$557,688,748</b>	<b>\$407,111,772</b>	<b>\$427,647,333</b>	<b>\$244,173,245</b>	<b>77%</b>	<b>\$232,138,048</b>	<b>\$246,844,960</b>	<b>6.91%</b>	<b>1.17</b>





31<sup>st</sup> May 2016 (Preliminary)

## Appendix III – Glossary

### **Major Asset Classes**

Alpha Pool: Investments that tend to be uncorrelated with “traditional” stock and bond investments. Not technically an asset class, but rather an investment construct within a \*portable alpha framework

Cash & Equivalents: Cash and short term investments held in lieu of cash and readily converted into cash within a short time span (i.e., CDs, commercial paper, Treasury bills, etc.)

Global Debt: Investments in debt instruments located in developed markets, may include various credit, mortgage-backed and emerging markets debt securities

Global Equity: Investments in companies domiciled in developed market countries and may include opportunistic investments in emerging market countries

Liquidating: The residual investment in terminated managers

Liquid Real Assets: Liquid investments in strategies whose values are sensitive to inflation

Private Equity: Investments in equity securities and debt in operating companies that are not publicly traded on a stock exchange

Private Real Assets: Investments in equity securities and debt in operating companies that are not publicly traded on a stock exchange and whose strategies are sensitive to inflation

### **Sub-Asset Classes**

Alternative Equity: Investments in companies globally through both long and short positions and may include non-equity instruments such as fixed income, commodities, CDS, options, etc.

Credit: Investments in companies, often stressed or distressed, principally through the debt portion of capital structure

Emerging Market Debt: Investments in debt securities in emerging market countries, primarily in three categories - external sovereign, local sovereign, and corporate debt

Emerging Market Equity: Investments in companies located in emerging market countries

Investment Grade Bonds: Investments in investment grade rated debt securities

Non-US Developed Equity: Investments in companies domiciled in developed market countries

US Equity: Investments in companies domiciled in the US



31<sup>st</sup> May 2016 (Preliminary)

**Appendix III – Glossary (cont.)**

***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

**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



31<sup>st</sup> May 2016 (Preliminary)

**Appendix III – Glossary (cont.)**

**Investment Terms/Performance Statistics (cont.)**

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

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