



TEXAS TECH UNIVERSITY SYSTEM™

Board of Regents Report

for November 2016

Texas Tech University System Endowment

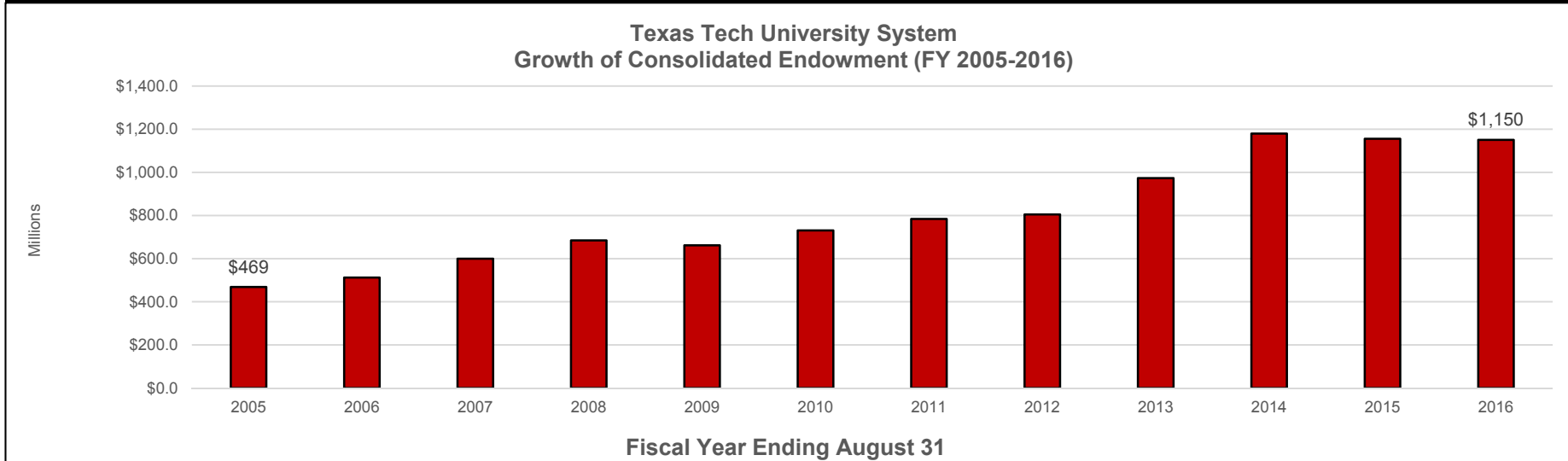
<u>Contents</u>	<u>Page</u>
Endowment Data	3
Endowment Liquidity	5
Market Data	6
Asset Class Allocation: Actual vs. Target	8
Asset Class Performance: Actual vs. Policy	9
Long Term Risk/Return of Endowment vs. 60/40 Portfolio and Policy Returns	10
Risk Profile	11
Appendix I – Sub-Asset Detail	12
Appendix II – Private Market Reports	13
Appendix III – Glossary	15



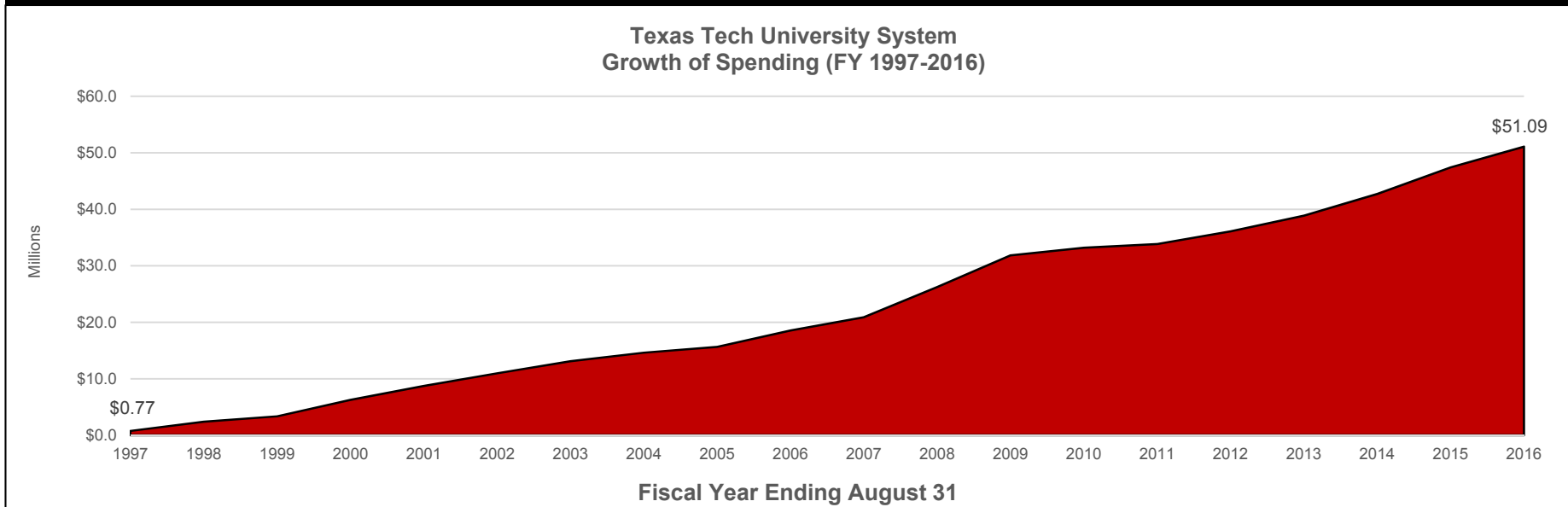
30th November 2016

Endowment Data

HISTORICAL MARKET VALUE (Fiscal Year)



HISTORICAL SPENDING (Fiscal Year)



The 4.5% distribution rate has been realized every year since inception.

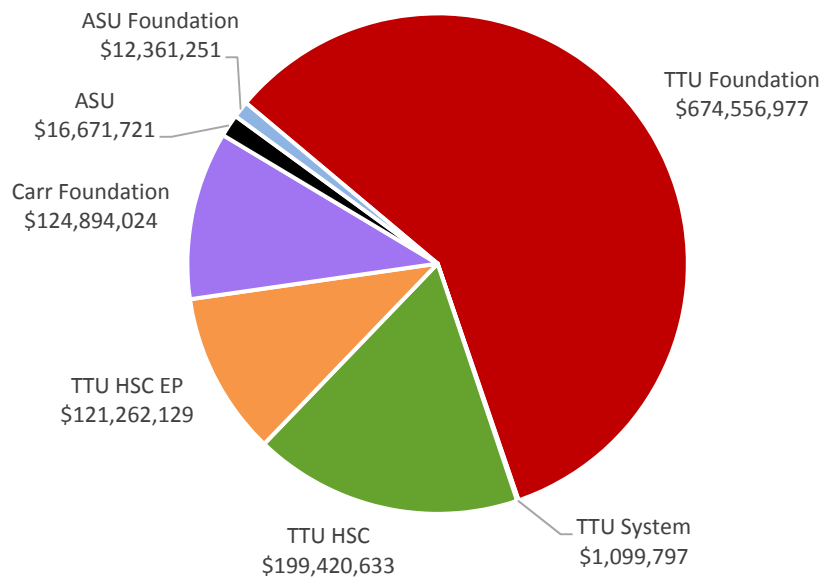


30th November 2016

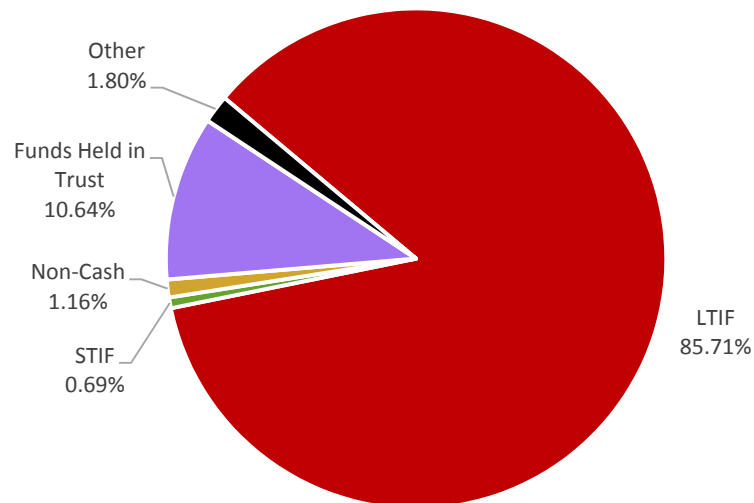
Endowment Data (cont.)

TOTAL ENDOWMENT (Fiscal Year 2016)

Texas Tech University System Endowment Breakout by Institution



Texas Tech University System Endowment Breakout by Pool



Summary of Endowment

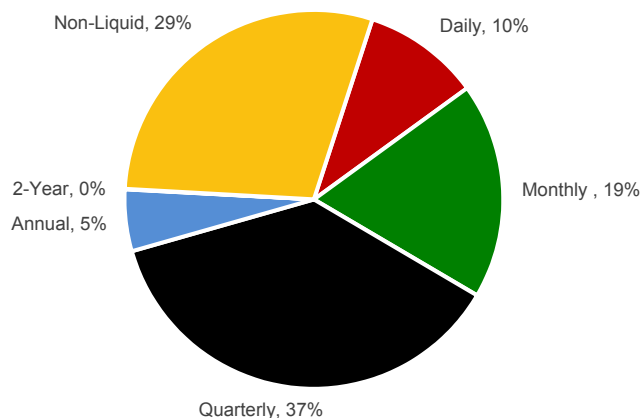
	TTU Foundation	TTU System	TTU HSC	TTU HSC EP	Carr Foundation	ASU	ASU Foundation	Total
LTIF	\$611,180,017	\$1,099,797	\$136,082,077	\$90,866,446	\$118,056,190	\$16,271,854	\$12,361,251	\$985,917,631
STIF	\$5,037,791	\$0	\$2,521,431	\$242	\$0	\$399,575	\$0	\$7,959,038
Non-Cash	\$5,037,564	\$0	\$1,439,974	\$0	\$6,837,834	\$0	\$0	\$13,315,372
Funds Held in Trust	\$32,607,123	\$0	\$59,377,151	\$30,395,442	\$0	\$0	\$0	\$122,379,716
Other	\$20,694,482	\$0	\$0	\$0	\$0	\$292	\$0	\$20,694,774
Total	\$674,556,977	\$1,099,797	\$199,420,633	\$121,262,129	\$124,894,024	\$16,671,721	\$12,361,251	\$1,150,266,531



30th November 2016

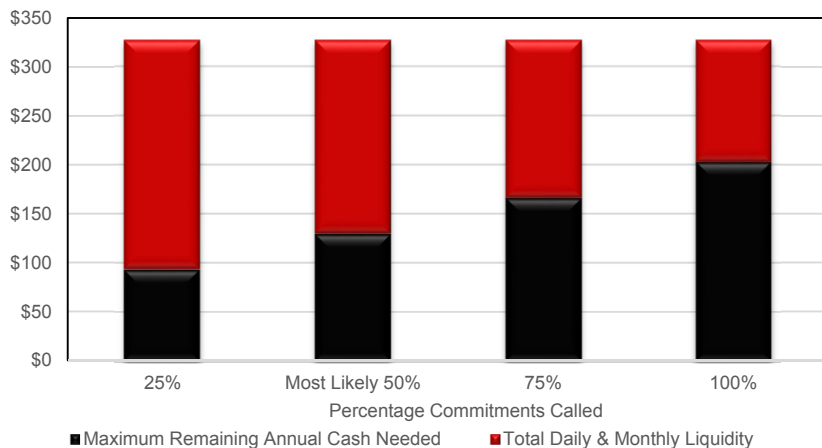
LTIF Liquidity

LTIF Liquidity



LTIF		Liquidity
Daily	\$106,210,676	10.0%
Monthly	\$196,110,456	18.5%
Quarterly	\$394,295,594	37.1%
Annual	\$55,819,475	5.3%
2-Year	\$518,063	0.0%
Non-Liquid	\$309,105,899	29.1%
Total LTIF	\$1,062,060,162	100%

Liquidity Sensitivity



	<u>Commitment</u>	<u>Capital Called</u>	<u>Distributions</u>	<u>Account Balance</u>	<u>Remaining Commitment</u>
Private Equity	\$207,000,000	\$114,886,641	\$58,974,584	\$80,812,174	\$92,113,359
Private Credit	\$151,603,248	\$121,949,424	\$24,960,455	\$126,989,764	\$29,653,824
Private Real Assets	\$286,698,950	\$262,699,386	\$184,600,817	\$119,567,073	\$23,999,564
Total Illiquid Assets	\$645,302,198	\$499,535,451	\$268,535,856	\$327,369,010	\$145,766,747
			Annual Spending		\$57,500,000
			Total Committed Funds		\$203,266,747

Unfunded Commitments - Sensitivity Analysis

	<u>25% Called</u>	<u>Most Likely 50% Called</u>	<u>75% Called</u>	<u>100% Called</u>
Maximum Remaining Annual Cash Needed	\$93,941,687	\$130,383,374	\$166,825,060	\$203,266,747
Percentage of Daily & Monthly Liquidity	29%	40%	51%	62%

30th November 2016**Market Data**

Benchmarks	Underlying	Weight	MTD Perf.	3 Mo. Perf.	Calendar YTD	Fiscal YTD	Nacubo YTD	1 Year Perf.	3 Year Perf.	5 Year Perf.
Policy Benchmarks			-0.56%	-1.86%	4.95%	-0.30%	1.52%	4.14%	4.98%	7.17%
Equity	MSCI AC World IMI (Net)	35%	1.09%	-0.87%	6.07%	-0.14%	4.65%	4.10%	3.12%	9.08%
Debt	Barclays Global Aggregate	25%	-3.97%	-6.64%	2.56%	-6.12%	-5.88%	3.10%	-0.23%	0.43%
Liquid Real Assets	CPI + 4%	10%	0.53%	1.22%	5.53%	1.84%	2.68%	5.76%	4.72%	5.05%
Private Investments	VE All PE Qtr Lag	27%	0.00%	0.00%	4.73%	3.98%	3.98%	3.31%	10.98%	10.71%
Private Investments	NCREIF	3%	0.00%	0.00%	6.13%	1.77%	1.77%	9.22%	11.30%	11.18%
Other Benchmarks										
Equity	S&P 500 Total Return		3.70%	1.81%	9.79%	1.83%	5.73%	8.06%	9.07%	14.45%
Equity	MSCI EAFE (Net)		-1.99%	-4.00%	-2.34%	-2.82%	2.18%	-3.66%	-2.22%	5.62%
Equity	MSCI EMF (Net)		-4.60%	-4.38%	10.94%	-3.15%	4.26%	8.47%	-3.10%	0.99%
Debt	JP Morgan EM Bond Index		-4.17%	-5.57%	8.63%	-5.25%	-2.04%	7.00%	5.29%	5.39%
Cash & Alpha Pool	90 Day T-Bills		0.04%	0.07%	0.28%	0.09%	0.14%	0.30%	0.12%	0.10%
Hedge Funds	HFRI FOF Composite		0.27%	-0.02%	-0.36%	0.32%	2.28%	-0.78%	1.34%	3.12%
Private Investments	Private Market Index (90% VE, 10% NCREIF)		0.00%	0.00%	4.87%	3.76%	3.76%	3.90%	11.01%	10.75%

CIO NOTES:

Global equity markets have been disappointing in 2016 with substantial sell offs in the first quarter leaving markets down nearly 10% over a few short weeks. As markets recovered, Brexit fears resulted in a second equity sell off in early Summer. With that said, the overall portfolio has performed very well considering those bouts of market volatility. For the month, quarter, Calendar YTD and 1 Year periods, the portfolio is outperforming the Policy Benchmark. This can be seen on page 9 of the report.

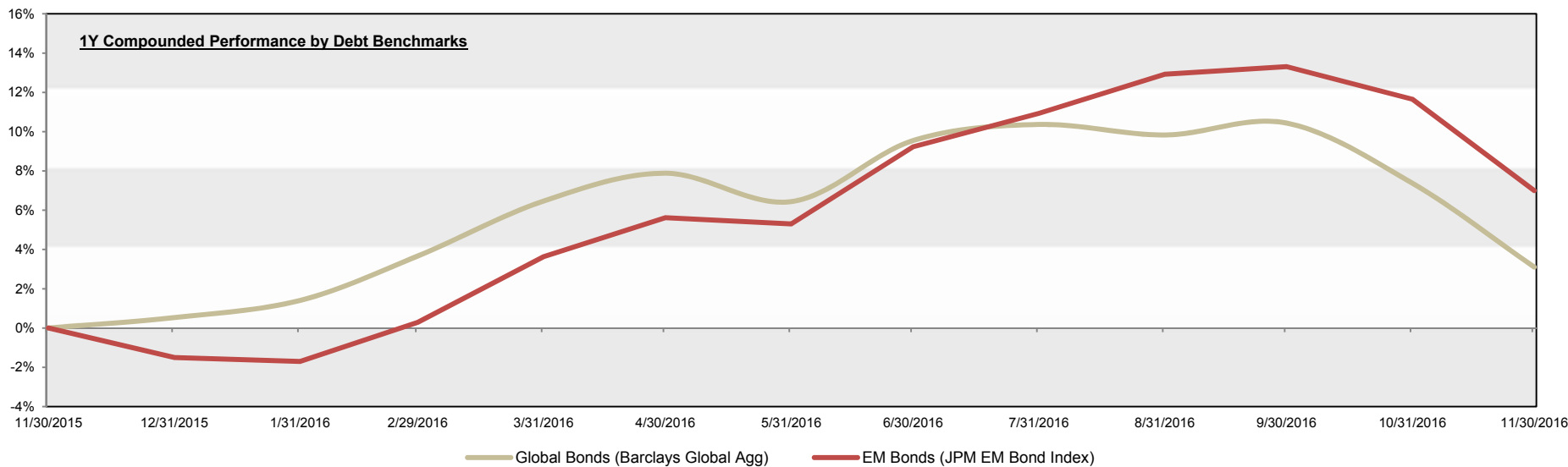
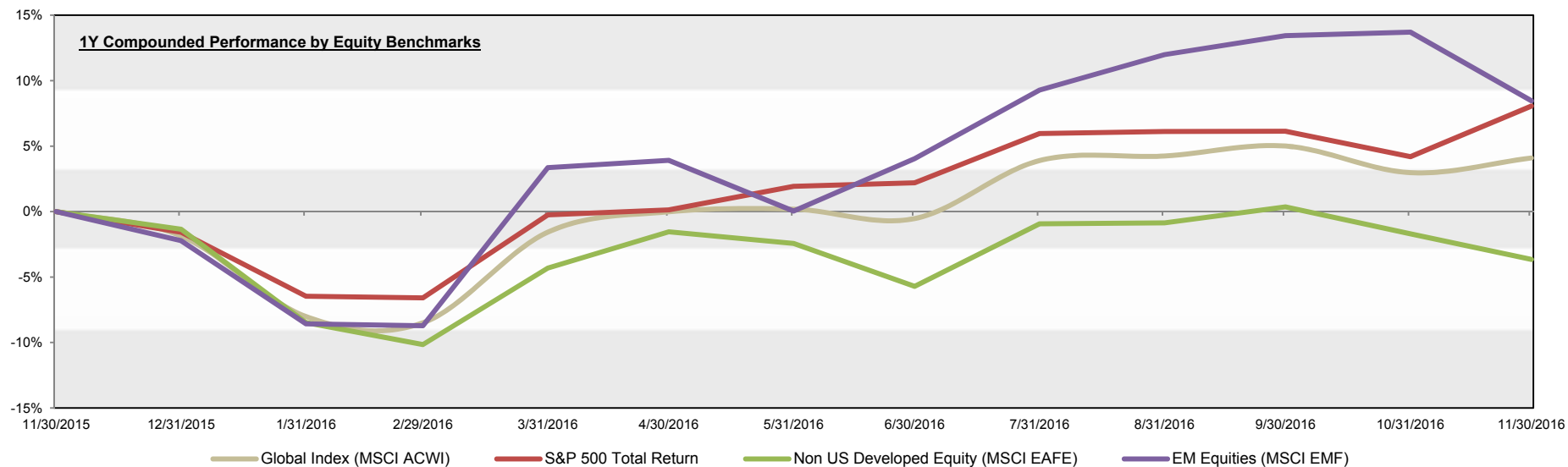
A big wind at our back this calendar year is from our public debt portfolio which has delivered 14.46% versus 2.56% for the benchmark. The charts on page 10 show the improvement. As you can see the portfolio is outperforming over the 1 year period, and importantly we very close to exceeding the benchmarks over the three and five year periods.

On the cautious front, there is mounting concern on how tight credit spreads have moved into 2017 and the valuation of equities, especially in the US. We continue to take action to monitor the risk of the portfolio and look for stable return strategies in light of these elevated risks.



30th November 2016

Market Data (cont.)

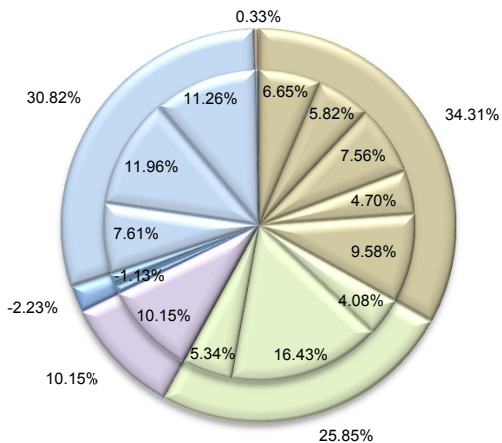




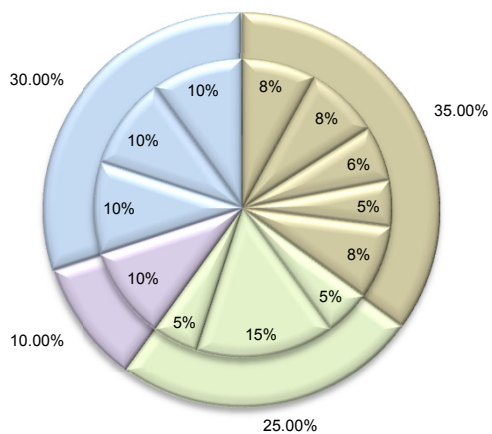
30th November 2016

Asset Class Allocation: Actual vs. Target

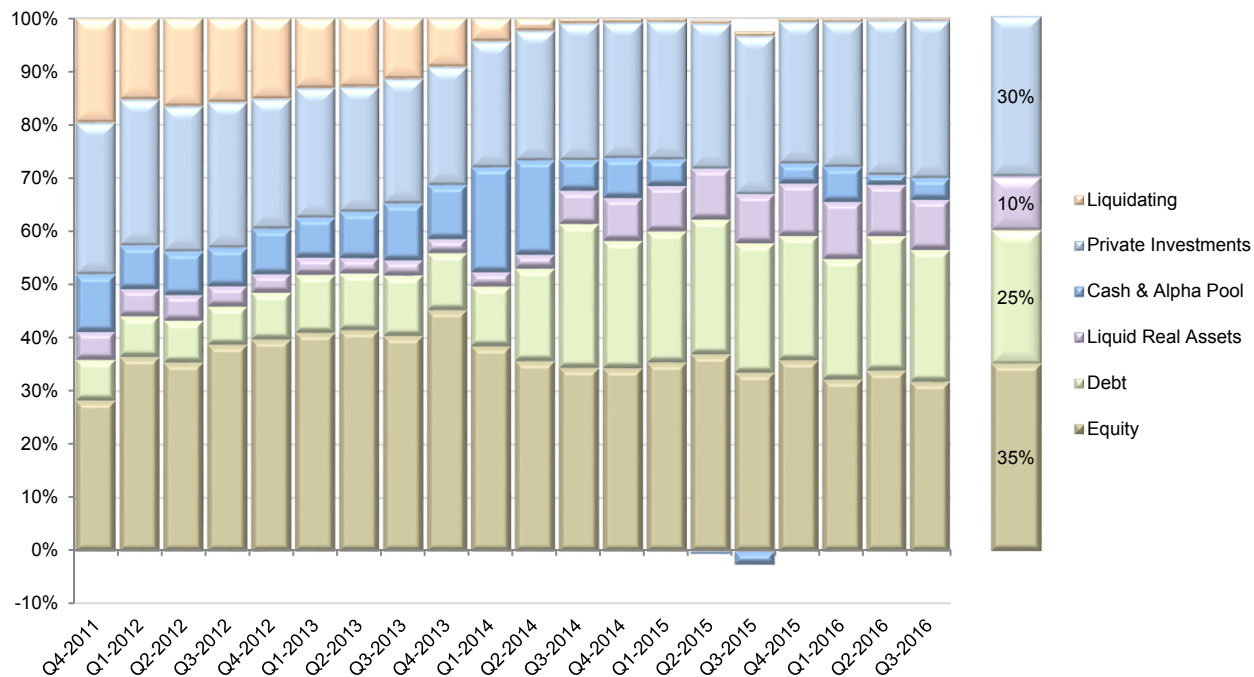
Actual Allocation



Target Allocation



Asset Class	Actual \$ Allocation			Total % Allocation	Target % Allocation	Target Range
	Physical	Synthetic	Total			
Equity	202,664,841	161,676,387	364,341,229	34.31%	35%	30% - 40%
Debt	231,174,914	43,362,500	274,537,414	25.85%	25%	20% - 30%
Liquid Real Assets	96,697,080	11,068,511	107,765,591	10.15%	10%	5% - 15%
Cash & Alpha Pool	200,670,236	-224,385,652	-23,715,416	-2.23%	0%	0% - 10%
Private Investments	327,369,010	0	327,369,010	30.82%	30%	10% - 55%
Liquidating	3,484,080	0	3,484,080	0.33%	0%	
Portfolio Hedge	0	8,278,254	8,278,254	0.78%	0%	
Total	1,062,060,162	0	1,062,060,162	100%	100%	

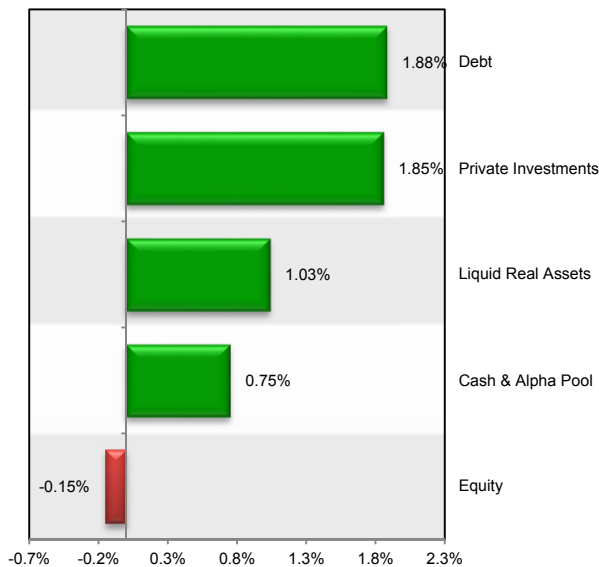




30th November 2016

Asset Class Performance: Actual vs. Policy

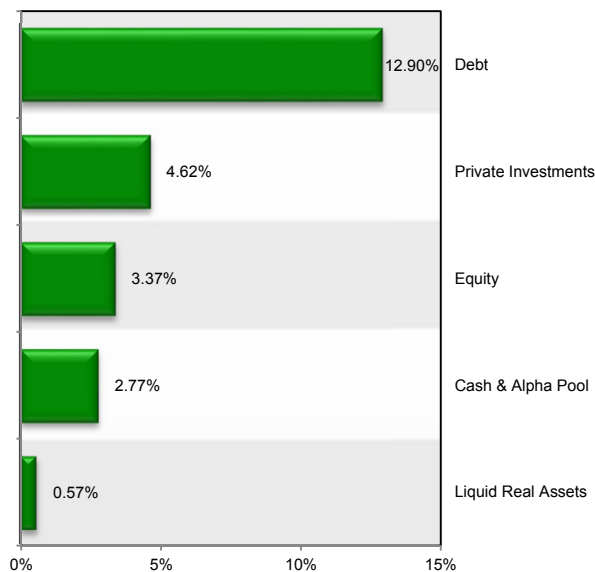
QTD Performance



Asset Class	Month				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	1.07%	0.79%	0.11%	1.00%	1.09%
Debt	0.23%	-0.39%	0.11%	0.15%	-3.97%
Liquid Real Assets	0.85%	3.86%	0.11%	1.16%	0.53%
Cash & Alpha Pool	0.11%			0.11%	
Private Investments	1.74%			1.74%	0.00%
Portfolio Hedge Contr.	0.03%			0.03%	
Total	0.89%	0.69%	0.11%	0.90%	-0.56%

Asset Class	QTD				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	-1.24%	0.35%	0.73%	-0.15%	-0.87%
Debt	2.36%	-0.54%	0.73%	1.88%	-6.64%
Liquid Real Assets	0.47%	6.95%	0.73%	1.03%	1.22%
Cash & Alpha Pool	0.75%			0.75%	
Private Investments	1.85%			1.85%	0.00%
Portfolio Hedge Contr.	-0.07%			-0.07%	
Total	0.97%	0.54%	0.73%	1.00%	-1.86%

One Year Performance



Asset Class	Calendar YTD				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	3.55%	2.69%	5.23%	5.83%	6.07%
Debt	15.77%	0.22%	5.23%	14.46%	2.56%
Liquid Real Assets	-3.52%	21.75%	5.23%	-1.34%	5.53%
Cash & Alpha Pool	5.34%			4.09%	
Private Investments	8.09%			8.09%	4.87%
Portfolio Hedge Contr.	n/a			n/a	
Total	7.02%	2.98%	5.23%	6.77%	4.95%

Asset Class	1 Year				
	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
Equity	1.90%	-0.47%	4.57%	3.37%	4.10%
Debt	14.26%	0.08%	4.57%	12.90%	3.10%
Liquid Real Assets	-4.04%	30.56%	4.57%	0.57%	5.76%
Cash & Alpha Pool	4.81%			2.77%	
Private Investments	4.62%			4.62%	3.90%
Portfolio Hedge Contr.	n/a			n/a	
Total	5.23%	0.96%	4.57%	5.45%	4.14%

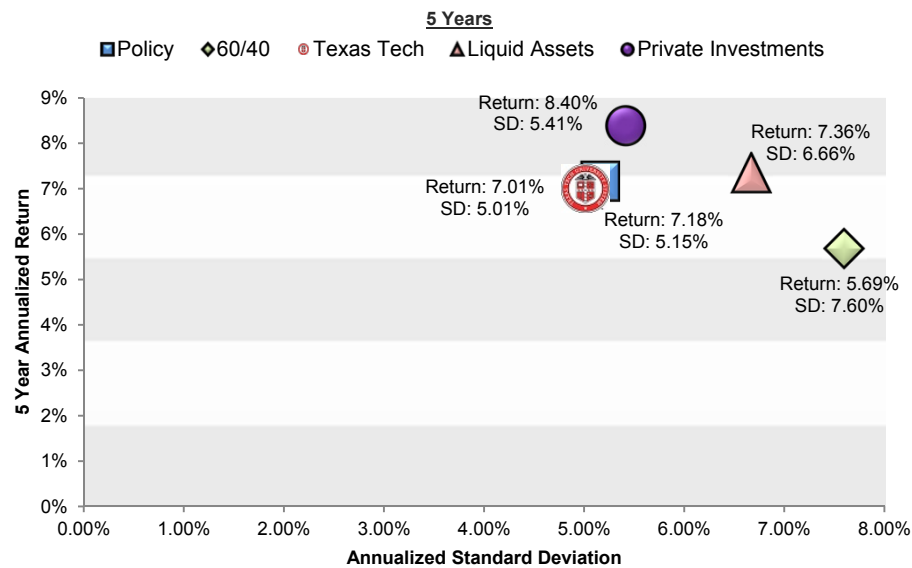
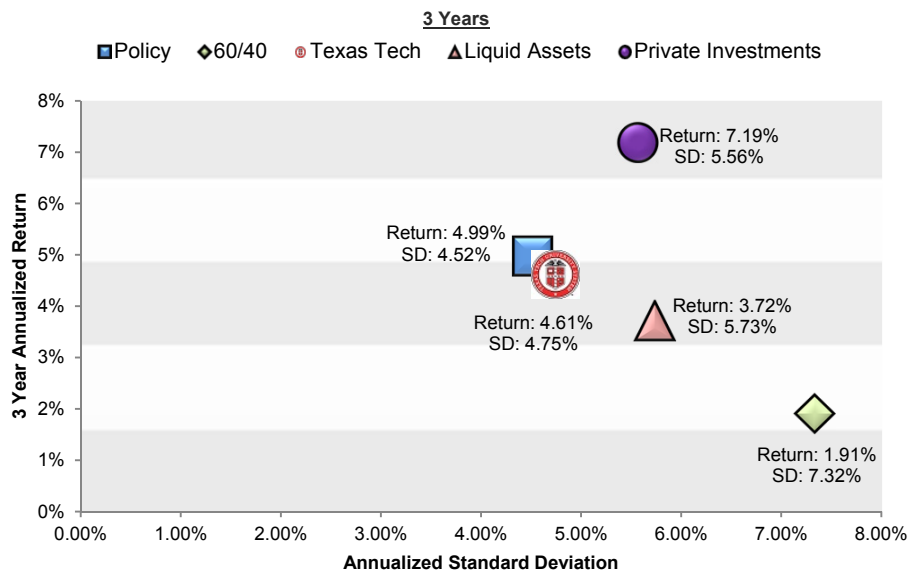
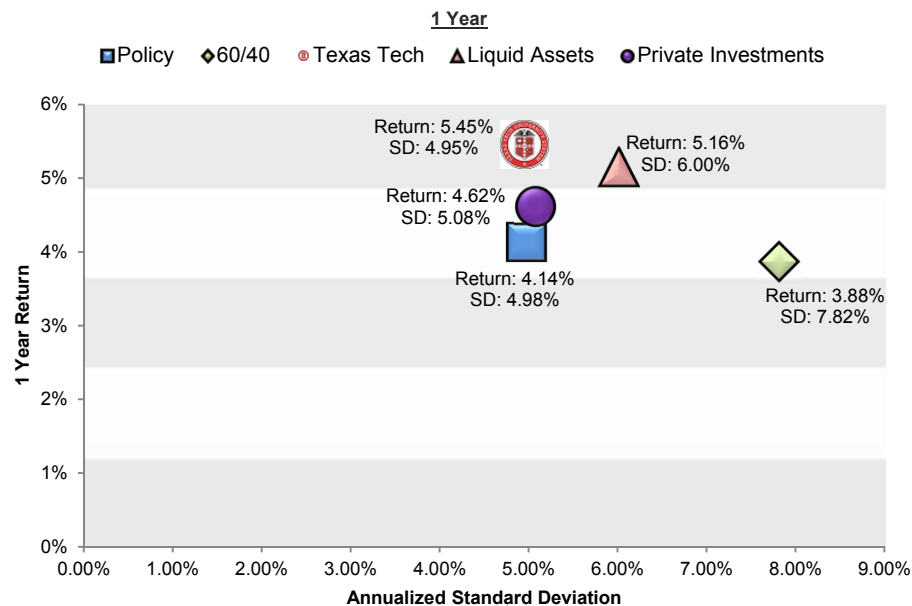


30th November 2016

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 all time horizons.
- Volatility (measured by standard deviation) on the Texas Tech portfolio has decreased over the past 12 months compared with the annualized 5 year volatility.



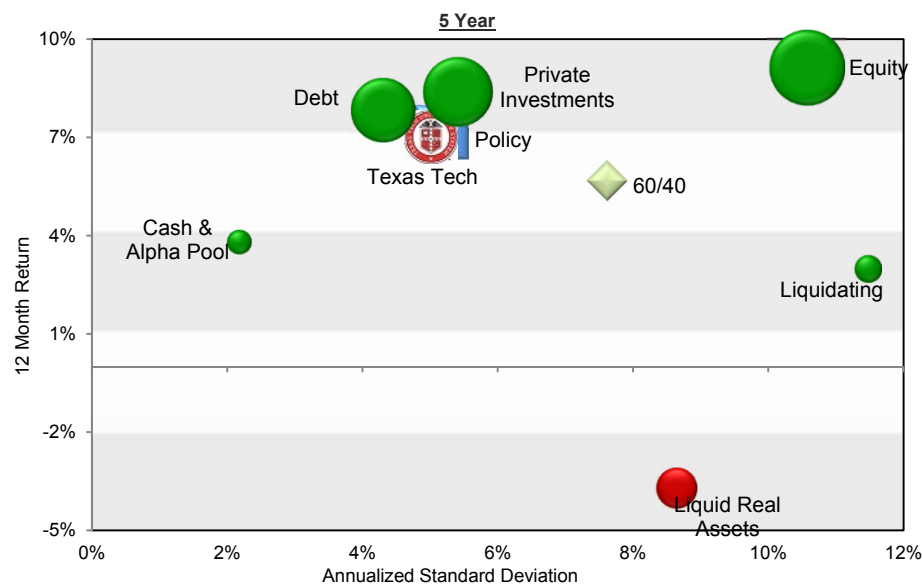
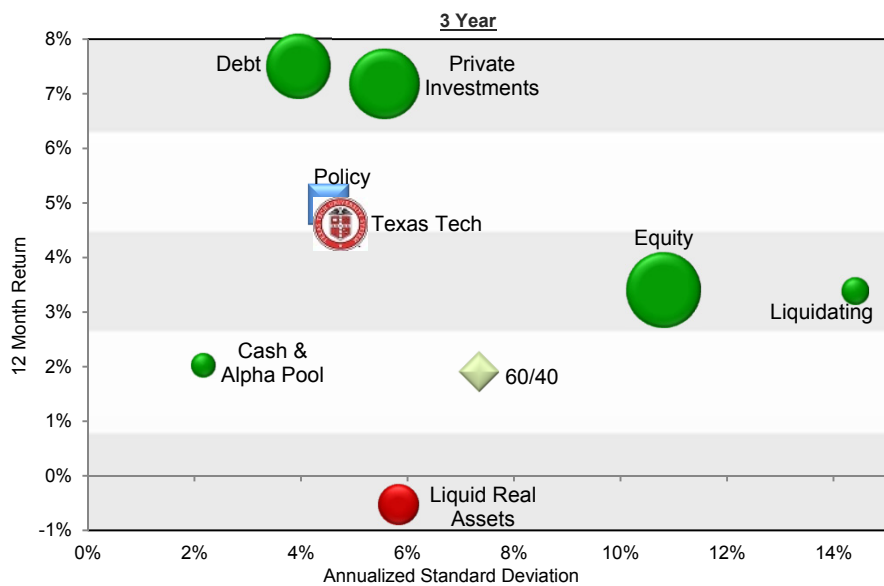
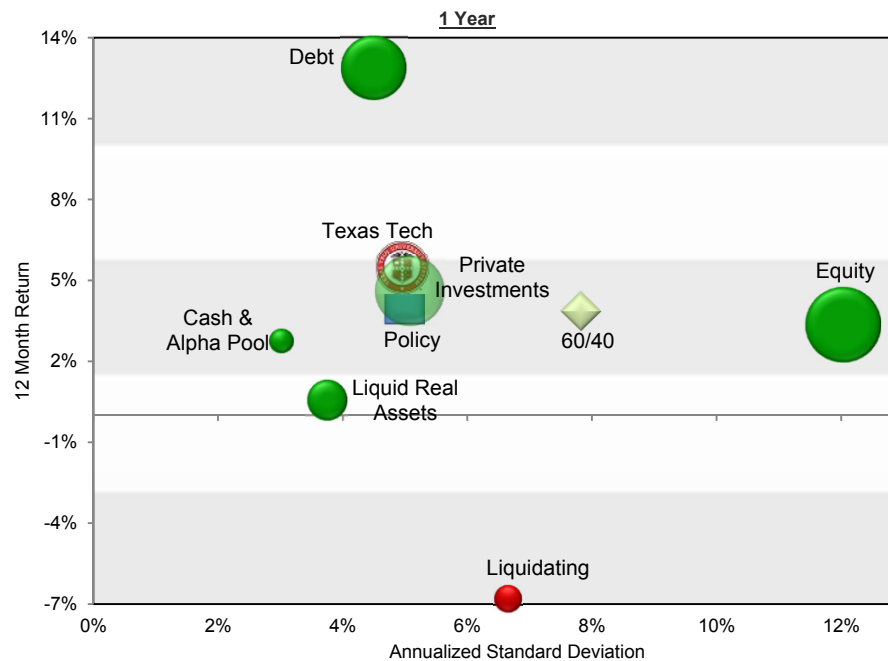


30th November 2016

Risk Profile

Commentary

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



30th November 2016**Appendix I – Sub-Asset Detail**

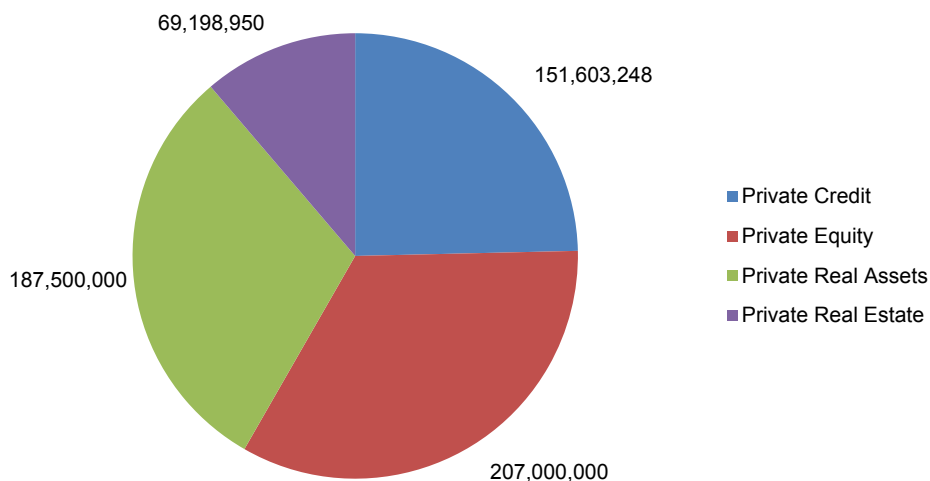
Fund	Current Exposure	MTD Perf.	QTD Perf.	Calendar YTD	Fiscal YTD	Nacubo YTD	1 Year Perf.	3 Year Perf.	5 Year Perf.
TOTAL	1,062,060,162	0.90%	1.00%	6.77%	2.58%	5.95%	5.45%	4.61%	7.01%
Policy		-0.56%	-1.86%	4.95%	-0.30%	1.52%	4.14%	4.99%	7.18%
Portfolio Hedge	8,278,254	0.03%	-0.07%	n/a	-0.08%	-0.26%	n/a	n/a	n/a
Equity	364,341,229	1.00%	-0.15%	5.97%	1.05%	7.47%	3.56%	3.48%	9.20%
<i>Equity Policy Benchmark (MSCI ACWI)</i>		1.09%	-0.87%	6.07%	-0.14%	4.65%	4.10%	3.12%	9.08%
US Equity	70,591,674	2.91%	1.75%	16.11%	2.84%	8.29%	12.88%	8.08%	12.99%
<i>Benchmark: S&P 500 Total Return</i>		3.70%	1.81%	9.79%	1.83%	5.73%	8.06%	9.07%	14.45%
Global Equity	61,817,290	1.16%	-2.97%	2.74%	-1.74%	5.27%	1.36%	5.19%	14.06%
<i>Benchmark: MSCI ACWI (Net)</i>		1.09%	-0.87%	6.07%	-0.14%	4.65%	4.10%	3.12%	9.08%
Non US Developed Equity	80,251,111	-0.45%	0.54%	2.28%	2.15%	9.10%	-1.49%	-0.61%	6.72%
<i>Benchmark: MSCI EAFE (Net)</i>		-1.99%	-4.00%	-2.34%	-2.82%	2.18%	-3.66%	-2.22%	5.62%
Non US Emerging Markets Equity	49,962,266	-2.61%	-1.90%	11.65%	-0.11%	8.39%	11.11%	1.09%	3.32%
<i>Benchmark: MSCI EMF (Net)</i>		-4.60%	-4.38%	10.94%	-3.15%	4.26%	8.47%	-3.10%	0.99%
Alternative Equity	101,718,887	2.49%	0.29%	2.76%	1.92%	7.29%	0.65%	2.18%	7.91%
<i>Benchmark: MSCI ACWI (Net)</i>		1.09%	-0.87%	6.07%	-0.14%	4.65%	4.10%	3.12%	9.08%
Debt	274,537,414	0.15%	1.88%	14.47%	4.20%	8.37%	12.92%	7.54%	7.86%
<i>Debt Policy Benchmark (Barclays Global Agg)</i>		-3.97%	-6.64%	2.56%	-6.12%	-5.88%	3.10%	-0.23%	0.43%
Sovereign/Investment Grade Bonds	43,362,500	-0.28%	0.19%	5.71%	1.33%	2.71%	5.06%	3.49%	3.79%
<i>Benchmark: Barclays Global Aggregate</i>		-3.97%	-6.64%	2.56%	-6.12%	-5.88%	3.10%	-0.23%	0.43%
Credit	174,463,874	0.14%	2.70%	13.28%	4.47%	9.88%	12.23%	5.88%	9.52%
<i>Benchmark: Barclays Global Aggregate</i>		-3.97%	-6.64%	2.56%	-6.12%	-5.88%	3.10%	-0.23%	0.43%
Emerging Markets Debt	56,711,040	0.53%	1.31%	22.12%	6.41%	9.65%	19.31%	10.33%	9.21%
<i>Benchmark: JP Morgan EM Bond Index</i>		-4.17%	-5.57%	8.63%	-5.25%	-2.04%	7.00%	5.29%	5.39%
Liquid Real Assets	107,765,591	1.16%	1.03%	-1.10%	1.57%	2.96%	0.64%	-0.53%	-3.70%
<i>Benchmark: CPI + 4%</i>		0.53%	1.22%	5.53%	1.84%	2.68%	5.76%	5.26%	5.38%
Cash & Alpha Pool	(23,715,416)	0.11%	0.75%	5.34%	1.80%	3.49%	4.81%	2.89%	4.34%
Cash	23,005,198	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.19%
Cash Collateral	10,991,762	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	n/a	n/a
Collateral Held Elsewhere	5,840,000	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	n/a	n/a
Adjustments for Synthetic Exposure	(224,385,652)								
Alpha Pool	160,833,277	0.14%	0.91%	6.83%	2.26%	4.48%	6.00%	4.01%	6.32%
<i>Benchmark: HFRI FOF Index</i>		0.27%	-0.02%	-0.36%	0.32%	2.28%	-0.78%	1.34%	3.12%
Liquidating	3,484,080	0.99%	-0.38%	-0.71%	-0.98%	0.99%	-6.77%	3.40%	3.00%
Private Investments	327,369,010	1.74%	1.85%	8.09%	4.18%	5.63%	4.62%	7.19%	8.40%
<i>Benchmark: Private Market Index (90% VE, 10% NCREIF)</i>		0.00%	0.00%	4.87%	3.76%	3.76%	3.90%	11.01%	10.75%
Private Equity	80,812,174	4.04%	3.96%	7.59%	5.47%	4.65%	2.54%	7.99%	8.77%
Private Credit	126,989,764	0.52%	1.37%	10.34%	2.74%	4.27%	5.65%	6.53%	10.25%
Private Real Assets	119,567,073	1.51%	0.99%	6.28%	4.83%	7.77%	4.87%	6.87%	6.83%



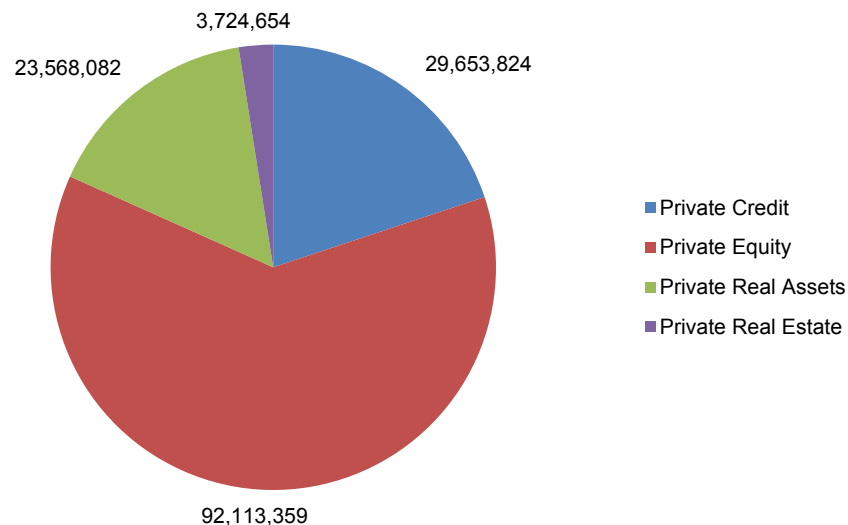
30th November 2016

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

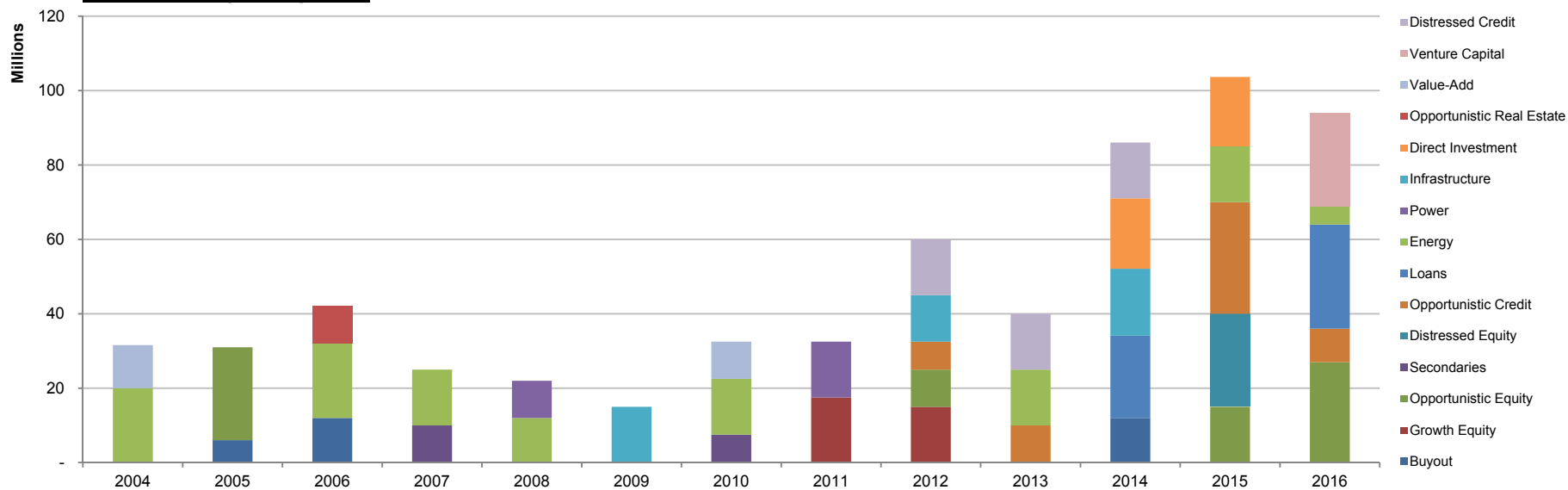
Total Commitment



Total Unfunded



Commitment by Vintage Year



Data provided by Texas Tech University System
 Reported valuations use latest available statements ranging from June 2016 to November 2016
 Adjusted Valuations include all cashflows through November 2016

30th November 2016**Appendix II - Private Markets Report (as of November 2016) - Performance Analysis by Asset Class & Strategy Type****Performance by Asset Class**

Asset Class	# of Funds	Commitment	Funded	Paid-In Capital	Distributions	% Drawn	Reported Valuation	Adjusted Valuation	IRR	MOC
Private Equity	15	\$207,000,000	\$114,886,641	\$119,397,649	\$58,974,584	58%	\$80,103,622	\$80,531,395	4.61%	1.17
Private Credit	12	\$151,603,248	\$121,949,424	\$125,691,052	\$24,960,455	83%	\$117,695,054	\$120,949,453	8.04%	1.16
Private Real Assets	13	\$187,500,000	\$164,642,423	\$175,771,396	\$157,204,821	94%	\$68,221,431	\$67,832,887	13.63%	1.29
Private Real Estate	5	\$69,198,950	\$68,258,454	\$68,416,787	\$26,193,852	99%	\$51,216,977	\$51,041,977	3.74%	1.13
Total	45	\$615,302,198	\$469,736,942	\$489,276,884	\$267,333,712	80%	\$317,237,084	\$320,355,712	7.75%	1.20

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	\$21,777,399	\$22,762,222	\$20,086,832	76%	\$7,939,237	\$7,939,237	5.35%	1.23
	Distressed Equity	1	\$25,000,000	\$5,625,000	\$5,625,000	\$638,982	23%	\$8,226,766	\$8,226,766	108.16%	1.58
	Growth Equity	2	\$32,500,000	\$19,507,298	\$22,054,559	\$3,269,710	68%	\$20,420,712	\$20,491,814	3.39%	1.08
	Opportunistic Equity	6	\$77,000,000	\$49,552,828	\$49,805,299	\$22,582,946	65%	\$35,255,569	\$35,538,116	4.11%	1.17
	Secondaries	2	\$17,500,000	\$16,410,991	\$17,025,569	\$12,396,114	97%	\$7,304,134	\$6,360,133	2.39%	1.10
	Venture Capital	1	\$25,000,000	\$2,013,125	\$2,125,000	\$0	9%	\$957,204	\$1,975,329	-11.64%	0.93
	Total	15	\$207,000,000	\$114,886,641	\$119,397,649	\$58,974,584	58%	\$80,103,622	\$80,531,395	4.61%	1.17
Private Credit	Distressed Credit	3	\$45,000,000	\$41,281,472	\$41,410,540	\$15,125,202	92%	\$32,924,306	\$32,924,306	6.22%	1.16
	Loans	4	\$50,103,248	\$50,024,589	\$50,582,673	\$4,786,000	101%	\$54,964,540	\$54,964,540	10.26%	1.18
	Opportunistic Credit	5	\$56,500,000	\$30,643,363	\$33,697,839	\$5,049,253	60%	\$29,806,208	\$33,060,607	8.15%	1.13
	Total	12	\$151,603,248	\$121,949,424	\$125,691,052	\$24,960,455	83%	\$117,695,054	\$120,949,453	8.04%	1.16
Private Real Assets	Energy	8	\$117,000,000	\$103,564,419	\$108,527,525	\$108,384,576	93%	\$33,397,732	\$33,024,321	14.00%	1.32
	Infrastructure	3	\$45,500,000	\$39,470,744	\$44,819,865	\$40,069,609	99%	\$24,686,948	\$24,671,815	29.30%	1.44
	Power	2	\$25,000,000	\$21,607,260	\$22,424,006	\$8,750,636	90%	\$10,136,751	\$10,136,751	-6.27%	0.84
	Total	13	\$187,500,000	\$164,642,423	\$175,771,396	\$157,204,821	94%	\$68,221,431	\$67,832,887	13.63%	1.29
Private Real Estate	Direct Investment	2	\$37,613,450	\$39,373,050	\$39,373,050	\$8,611,934	105%	\$39,425,376	\$39,425,376	16.23%	1.22
	Opportunistic Real Estate	1	\$10,000,000	\$9,745,230	\$9,745,230	\$0	97%	\$3,801,618	\$3,801,618	-12.18%	0.39
	Value-Add	2	\$21,585,500	\$19,140,174	\$19,298,507	\$17,581,918	89%	\$7,989,983	\$7,814,983	5.31%	1.32
	Total	5	\$69,198,950	\$68,258,454	\$68,416,787	\$26,193,852	99%	\$51,216,977	\$51,041,977	3.74%	1.13



30th November 2016

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