



Board of Regents Report

for February 2018

Texas Tech University System Endowment

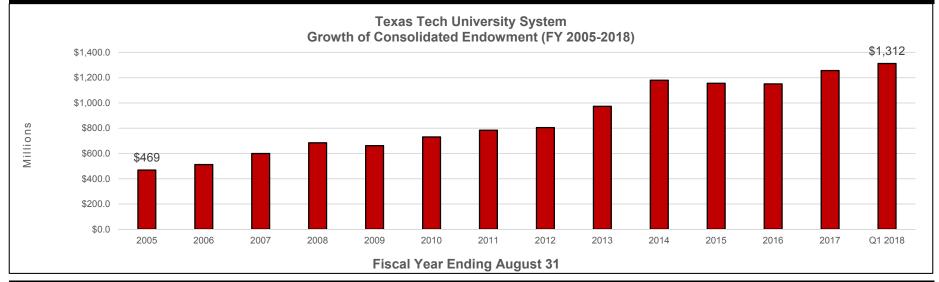


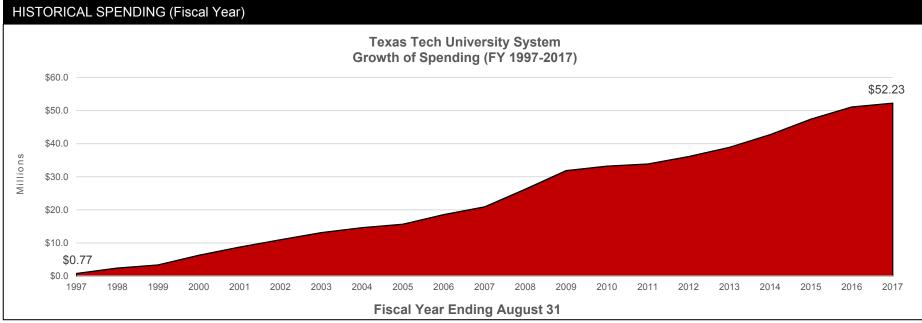
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Endowment Data





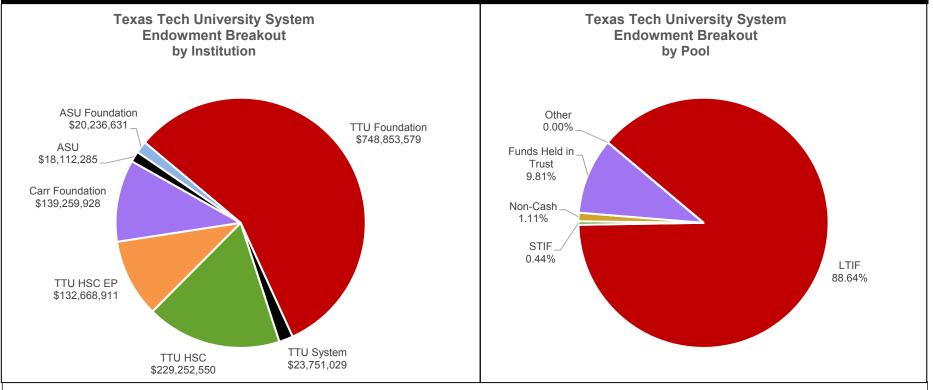


The 4.5% distribution rate has been realized every year since inception.



Endowment Data (cont.)



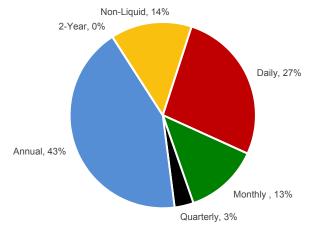


Summary of Endowment

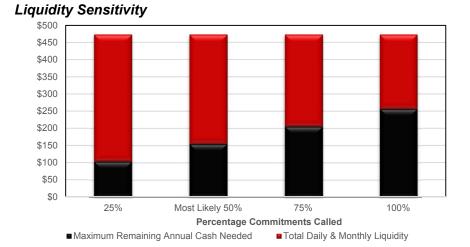
	TTU Foundation	TTU System	TTU HSC	TTU HSC EP	Carr Foundation	ASU	ASU Foundation	Total
LTIF	\$709,524,712	\$23,750,930	\$161,479,709	\$99,794,201	\$130,596,762	\$17,718,658	\$20,236,631	\$1,163,101,604
STIF	\$2,797,439	\$99	\$2,599,715	\$795	\$0	\$393,469	\$0	\$5,791,517
Non-Cash	\$4,320,795	\$0	\$1,534,309	\$0	\$8,663,166	\$0	\$0	\$14,518,270
Funds Held in Trust	\$32,210,633	\$0	\$63,638,816	\$32,873,916	\$0	\$0	\$0	\$128,723,364
Other	\$0	\$0	\$0	\$0	\$0	\$158	\$0	\$158
Total	\$748,853,579	\$23,751,029	\$229,252,550	\$132,668,911	\$139,259,928	\$18,112,285	\$20,236,631	\$1,312,134,913

LTIF Liquidity

LTIF Liquidity



LTIF		Liquidity
Daily	\$319,573,567	26.8%
Monthly	\$153,824,590	12.9%
Quarterly	\$39,350,477	3.3%
Annual	\$512,748,634	43.0%
2-Year	\$0	0.0%
Non-Liquid	\$168,133,854	14.1%
Total LTIF	\$1,192,438,683	100%



	<u>Commitment</u>	Capital Called	<u>Distributions</u>	<u>Account</u> <u>Balance</u>	<u>Remaining</u> Commitment
Private Equity	\$254,500,000	\$150,529,484	\$62,170,378	\$118,610,174	\$103,970,516
Private Credit	\$195,702,805	\$121,933,845	\$41,017,841	\$116,122,452	\$73,768,960
Private Real Assets	\$262,663,450	\$236,453,012	\$202,516,170	\$127,650,486	\$26,210,438
Total Illiquid Assets	\$712,866,255	\$508,916,341	\$305,704,389	\$362,383,112	\$203,949,914

Annual Spending \$53,600,000

Total Committed Funds \$257,549,914

25% Called	<u>Most Likely</u> 50% Called	75% Called	100% Called
\$104,587,479	\$155,574,957	\$206,562,436	\$257,549,914
22%	33%	44%	54%

Unfunded Commitments - Sensitivity Analysis

Maximum Remaining Annual Cash Needed Percentage of Daily & Monthly Liquidity

5 TEXAS TECH UNIVERSITY SYSTEM



Market Data

Benchmarks	Underlying	Weight	MTD Perf.	QTD Perf.	Calendar YTD	Fiscal YTD	Nacubo YTD	1 Year Perf.	3 Year Perf.	5 Year Perf.
Policy Benchmarks			-1.84%	0.40%	0.40%	5.29%	7.17%	12.40%	7.06%	8.21%
Equity	Global Index (MSCI ACWI)	35%	-4.17%	0.99%	0.99%	9.06%	12.45%	18.61%	8.47%	10.18%
Debt	Global Bonds (Barclays Global Agg)	25%	-0.89%	0.29%	0.29%	0.46%	3.16%	6.01%	2.45%	1.23%
Diversifying Assets	HFRX Global Hedge Fund	10%	-2.42%	-0.04%	-0.04%	2.07%	3.31%	4.26%	5.53%	4.85%
Private Investments	VE All PE Qtr Lag	27%	0.00%	0.00%	0.00%	7.52%	7.52%	16.74%	10.40%	13.04%
Private Investments	NCREIF	3%	0.00%	0.00%	0.00%	3.52%	3.52%	6.96%	9.38%	10.18%
Other Benchmarks										
Equity	S&P 500 Total Return		-3.69%	1.83%	1.83%	10.84%	13.46%	17.10%	11.14%	14.73%
Equity	Non US Developed Equity (MSCI EAFE)		-4.51%	0.28%	0.28%	7.12%	10.17%	20.13%	5.65%	7.06%
Equity	EM Equities (MSCI EMF)		-4.61%	3.34%	3.34%	10.58%	19.79%	30.51%	8.97%	5.02%
Debt	EM Bonds (JPM EM Bond Index)		-1.96%	-2.15%	-2.15%	-1.63%	0.72%	3.31%	5.51%	3.63%
Cash & Alpha Pool	90 Day T-Bills		0.13%	0.25%	0.25%	0.65%	0.83%	1.12%	0.52%	0.33%
Hedge Funds	HFRI FOF Composite		-1.33%	0.92%	0.92%	3.46%	5.38%	6.71%	2.30%	3.70%
Private Investments	Private Market Index (90% VE, 10% NCREIF)		0.00%	0.00%	0.00%	7.11%	7.11%	15.73%	10.31%	12.76%

CIO NOTES:

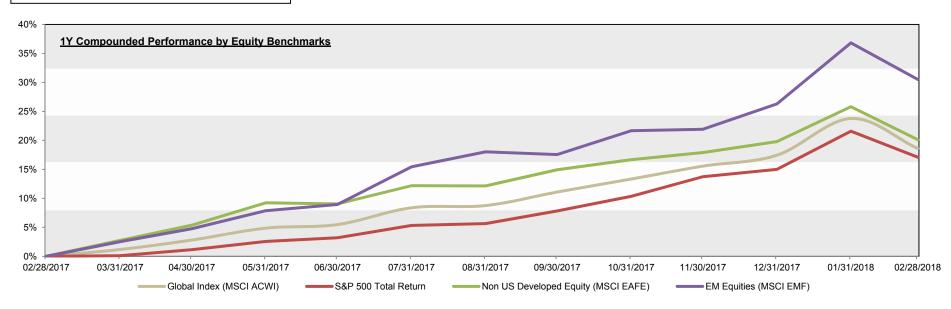
The beginning of the year was one of feast and then famine for the equity markets. Global equities had a tremendous rally of 7.32% in January only to have a harder sell off in February of roughly 9%. At the end of the month, global equities were essentially flat. Fortunately, this volatile event did not spill over into other asset classes and was contained in the equity markets.

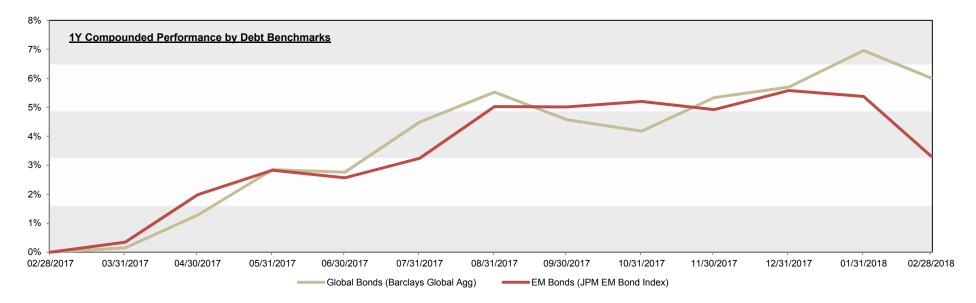
Events like these are not surprising given the change in central bank policy, the high valuations across asset classes, the position of the overall business cycle, and the elevation of geopolitical risk. The endowment has been intentionally positioned in such a way as to preserve capital when these down market events occur. During February, the endowment neutralized roughly 20% of the equity losses due to the tail hedges in the portfolio. These hedges were designed for more severe events, so it was nice to see them work in this relatively benign situation. The hedges also presented the opportunity to reinvest those proceeds when the market was down.

The LTIF public equity and debt portfolios have held up well over the NACUBO year. Public debt has had some headwinds which were not unexpected as those investments can be very lumpy. We expect public debt to make up for lost ground and add substantial out-performance by mid-year. The public diversifying portfolio is now on track and outperforming the benchmark. We have very high confidence that this will continue to add positive returns regardless of market conditions. Private assets still lag the benchmark as it takes time to realize the improvements made there over the past two years. Staff is optimistic we will start to realize these improvement this year, and we are very excited about the future of the private asset portfolio.

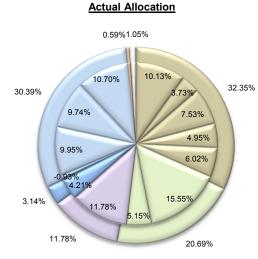


Market Data (cont.)



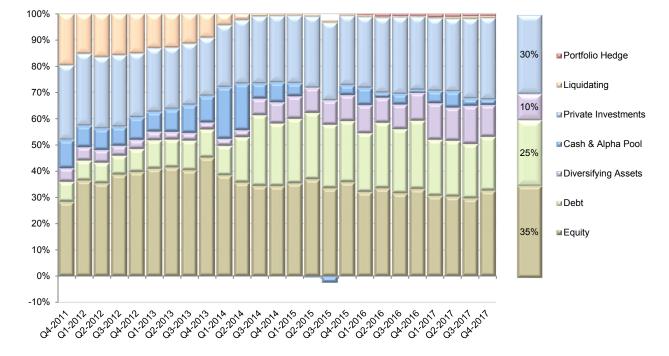


Asset Class Allocation: Actual vs. Target



Asset Class		Actual \$ Allocation	1	Total %	Target %	Target Range
A3361 01833	Physical	Synthetic	Total	Allocation	Allocation	rangeritange
Equity	135,191,980	250,617,950	385,809,930	32.35%	30%	30% - 40%
Debt	246,764,054	0	246,764,054	20.69%	25%	20% - 30%
Diversifying Assets	91,255,671	49,248,307	140,503,978	11.78%	15%	5% - 15%
Cash & Alpha Pool	344,058,083	-306,649,852	37,408,231	3.14%	0%	0% - 10%
Private Investments	362,383,112	0	362,383,112	30.39%	30%	10% - 55%
Liquidating	7,002,437	0	7,002,437	0.59%	0%	
Portfolio Hedge	5,783,345	6,783,596	12,566,941	1.05%	0%	
Total	1,192,438,683	0	1,192,438,683	100%	100%	







28th February 2018



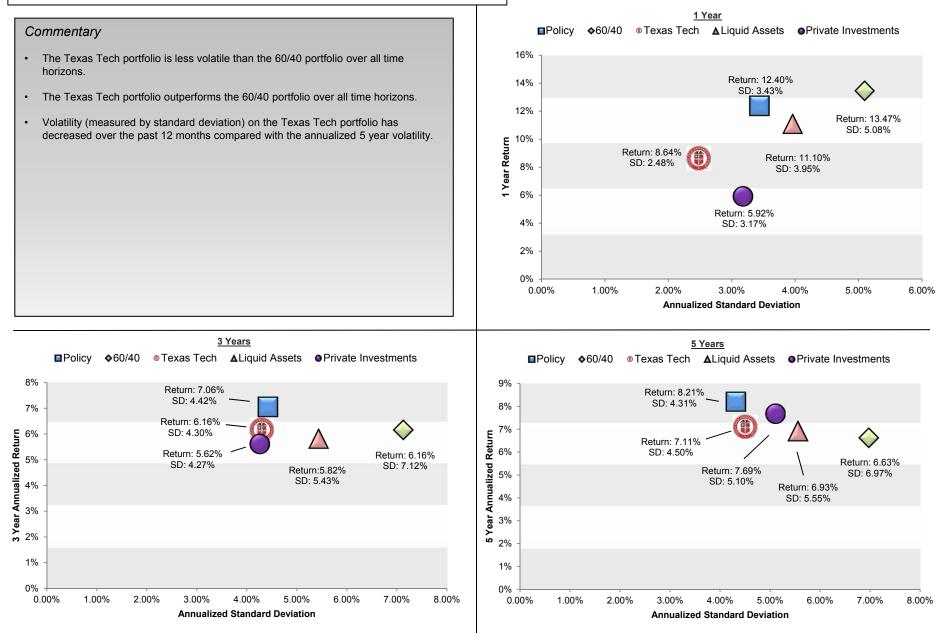
Asset Class Performance: Actual vs. Policy

	QTD Performance					Month						QTD		
	1.48%	Equity	Asset Class	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy	Asset Class	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
	1.34%	Diversifying Assets	Equity	-2.72%	-4.18%	0.01%	-3.73%	-4.17%	Equity	1.48%	0.82%	0.79%	1.48%	0.99%
	1,22%	Debt	Debt	-1.00%			-1.00%	-0.89%	Debt	1.22%			1.22%	0.29%
	-	Debi	Diversifying Assets	0.18%	2.48%	0.01%	0.96%	-2.42%	Diversifying Assets	0.87%	1.44%	0.79%	1.34%	-0.04%
	0.63%	Cash & Alpha Pool	Cash & Alpha Pool	0.00%			0.00%		Cash & Alpha Pool	0.63%			0.63%	
			Private Investments	-0.28%			-0.28%	0.00%	Private Investments	-0.25%			-0.25%	0.00%
	-0.25% Private II		Portfolio Hedge Contri.				0.31%		Portfolio Hedge Contri.				0.31%	
-1.0	0% -0.5% 0.0% 0.5% 1.0% 1.5% 2.0	9%	Total	-0.64%	-3.31%	0.01%	-1.04%	-1.84%	Total	0.46%	0.74%	0.79%	0.82%	0.40%

One Year Performance]			C	alendar Y	ſD					1 Year		
20.75%	Equity	Asset Class	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy	Asset Class	Physical Return	Synthetic Overlay	Alpha Pool + Cash	Total Return	Policy
6.23%	Diversifying Assets	Equity	1.48%	0.82%	0.79%	1.48%	0.99%	Equity	18.78%	16.81%	4.89%	20.75%	18.61%
		Debt	1.22%		0.00%	1.22%	0.29%	Debt	3.77%	-0.22%	4.89%	3.87%	6.01%
5.92%	Private Investments	Diversifying Assets	0.87%	1.44%	0.79%	1.34%	-0.04%	Diversifying Assets	4.94%	4.61%	4.89%	6.23%	4.26%
4.00%	Cash & Alpha Pool	Cash & Alpha Pool	0.63%			0.63%		Cash & Alpha Pool	4.00%			4.00%	
		Private Investments	-0.25%			-0.25%	0.00%	Private Investments	5.92%			5.92%	15.73%
3.87%	Debt	Portfolio Hedge Contri.				0.31%		Portfolio Hedge Contri.				-0.17%	
0% 5% 10% 15% 20% 25	5%	Total	0.46%	0.74%	0.79%	0.82%	0.40%	Total	6.51%	14.13%	4.89%	8.64%	12.40%



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

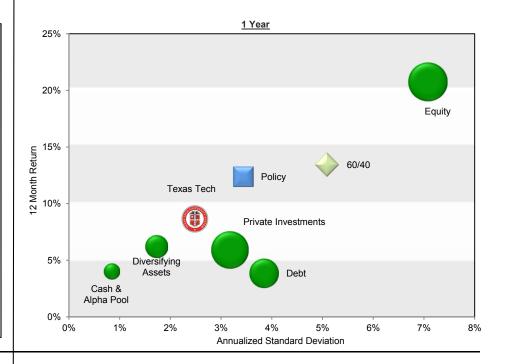


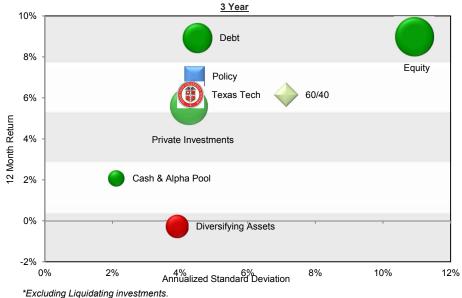
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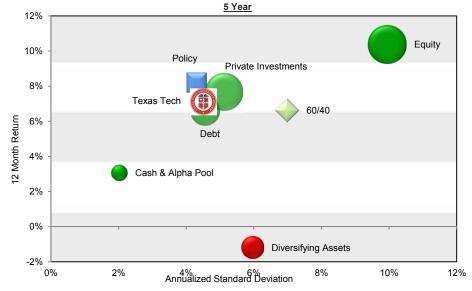
Risk Profile*

Commentary

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









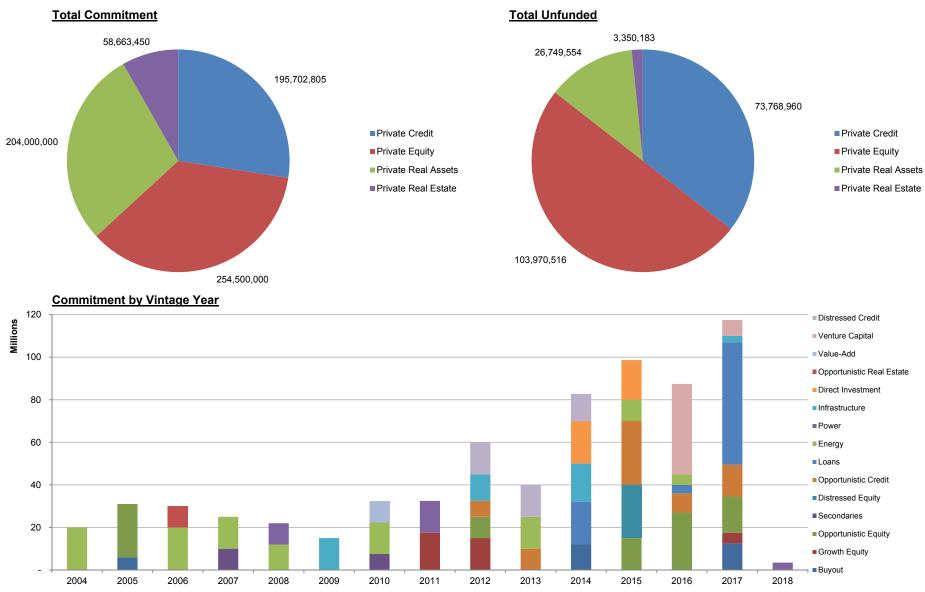
28th February 2018

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	1,192,438,683	-1.04%	0.82%	0.82%	4.76%	6.66%	8.64%	6.16%	7.11%
Policy		-1.84%	0.40%	0.40%	5.29%	7.17%	12.40%	7.06%	8.21%
Portfolio Hedge Contribution	12,566,941	0.31%	0.31%	0.31%	0.05%	0.05%	-0.17%	n/a	n/a
Equity	385,809,930	-3.73%	1.48%	1.48%	10.66%	15.06%	20.75%	8.99%	10.38%
Equity Policy Benchmark (MSCI ACWI)		-4.17%	0.99%	0.99%	9.06%	12.45%	18.61%	8.47%	10.18%
US Equity	120,789,940	-3.79%	2.55%	2.55%	13.61%	17.14%	21.04%	13.79%	14.53%
Benchmark: S&P 500 Total Return		-3.69%	1.83%	1.83%	10.84%	13.46%	17.10%	11.14%	14.73%
Global Equity	44,512,683	-3.38%	2.74%	2.74%	6.90%	11.13%	19.35%	7.77%	12.74%
Benchmark: MSCI ACWI (Net)		-4.17%	0.99%	0.99%	9.06%	12.45%	18.61%	8.47%	10.18%
Non US Developed Equity	89,752,754	-4.24%	-0.09%	-0.09%	7.60%	11.04%	19.43%	5.14%	7.70%
Benchmark: MSCI EAFE (Net)		-4.51%	0.28%	0.28%	7.12%	10.17%	20.13%	5.65%	7.06%
Non US Emerging Markets Equity	59,017,453	-5.42%	2.13%	2.13%	12.75%	23.89%	36.54%	14.82%	9.07%
Benchmark: MSCI EMF (Net)		-4.61%	3.34%	3.34%	10.58%	19.79%	30.51%	8.97%	5.02%
Alternative Equity	71,737,099	-1.78%	0.29%	0.29%	10.46%	14.13%	15.71%	8.87%	8.45%
Benchmark: MSCI ACWI (Net)		-4.17%	0.99%	0.99%	9.06%	12.45%	18.61%	8.47%	10.18%
Debt	246,764,054	-1.00%	1.22%	1.22%	1.80%	3.97%	3.87%	8.93%	6.62%
Debt Policy Benchmark (Barclays Global Agg)		-0.89%	0.29%	0.29%	0.46%	3.16%	6.01%	2.45%	1.23%
Sovereign/Investment Grade Bonds	-	n/a	n/a	n/a	n/a	n/a	0.10%	2.54%	2.34%
Benchmark: Barclays Global Aggregate		-0.89%	0.29%	0.29%	0.46%	3.16%	6.01%	2.45%	1.23%
Credit	185,396,445	0.13%	1.73%	1.73%	2.96%	4.53%	2.48%	9.93%	8.23%
Benchmark: Barclays Global Aggregate		-0.89%	0.29%	0.29%	0.46%	3.16%	6.01%	2.45%	1.23%
Emerging Markets Debt	61,367,609	-4.26%	-0.34%	-0.34%	-1.46%	2.24%	7.53%	10.68%	6.89%
Benchmark: JP Morgan EM Bond Index		-1.96%	-2.15%	-2.15%	-1.63%	0.72%	3.31%	5.51%	3.63%
Diversifying Assets	140,503,978	0.96%	1.34%	1.34%	4.26%	4.42%	6.23%	-0.27%	-1.18%
Benchmark: HFRXGL Index		-2.42%	-0.04%	-0.04%	2.07%	3.31%	4.26%	5.53%	4.85%
Cash & Alpha Pool	37,408,231	0.00%	0.63%	0.63%	2.34%	3.24%	4.00%	2.09%	3.07%
Cash	29,453,827	0.04%	0.12%	0.12%	0.81%	1.08%	1.30%	0.53%	0.32%
Cash Collateral	80,763,676	0.09%	0.16%	0.16%	0.39%	0.50%	0.60%	0.27%	n/a
Collateral Held Elsewhere	5,010,000	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	n/a	n/a
Adjustments for Synthetic Exposure	(306,649,852)								
Alpha Pool	228,830,580	0.00%	0.95%	0.95%	3.37%	4.69%	5.80%	3.99%	4.96%
Benchmark: HFRI FOF Index		-1.33%	0.92%	0.92%	3.46%	5.38%	6.71%	2.30%	3.70%
Liquidating	7,002,437	-6.39%	-16.59%	-16.59%	-23.96%	-14.98%	111.96%	37.98%	21.21%
Private Investments	362,383,112	-0.28%	-0.25%	-0.25%	4.59%	5.23%	5.92%	5.62%	7.69%
Benchmark: Private Market Index (90% VE, 10% NCREIF)		0.00%	0.00%	0.00%	7.11%	7.11%	15.73%	10.31%	12.76%
Private Equity	118,610,174	-0.32%	0.31%	0.31%	3.00%	3.32%	3.48%	3.74%	7.32%
Private Credit	116,122,452	0.50%	1.34%	1.34%	5.14%	5.45%	7.63%	6.48%	8.91%
Private Diversifying Assets	127,650,486	-0.93%	-2.09%	-2.09%	5.53%	6.73%	6.54%	5.85%	6.89%



Appendix VII - Private Markets Report (as of February 2018) - Total Commitment



Data provided by Texas Tech University System

Reported valuations use latest available statements ranging from September 2017 to February 2018 Adjusted Valuations include all cashflows through February 2018



Appendix VII - Private Markets Report (as of February 2018) - 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	TVPI
Private Equity		19	\$254,500,000	\$150,529,484	\$156,712,516	\$62,170,378	62%	\$118,946,631	\$118,124,966	4.80%	1.15
Private Credit		15	\$195,702,805	\$121,933,845	\$126,425,324	\$41,017,841	65%	\$95,432,655	\$108,919,493	7.11%	1.19
Private Real Assets		16	\$204,000,000	\$179,188,521	\$195,213,928	\$182,923,499	96%	\$73,505,758	\$76,130,472	14.05%	1.33
Private Real Estate		4	\$58,663,450	\$57,264,491	\$58,712,804	\$19,592,671	100%	\$51,669,670	\$47,752,619	3.80%	1.15
Total		54	\$712,866,255	\$508,916,341	\$537,064,572	\$305,704,389	75%	\$339,554,714	\$350,927,550	8.20%	1.23

Performance by Strategy Type

Asset Class	Strategy	# of Funds	Commitment	Funded	Paid-In Capital	Distributions	% Drawn	Reported Valuation	Adjusted Valuation	IRR	TVPI
	Buyout	3	\$30,500,000	\$25,429,809	\$26,675,195	\$9,124,020	87%	\$20,251,884	\$20,251,884	5.78%	1.10
	Distressed Equity	1	\$25,000,000	\$5,149,992	\$5,149,992	\$1,162,372	21%	\$6,095,776	\$6,095,776	24.22%	1.41
	Growth Equity	3	\$37,500,000	\$24,677,072	\$28,010,174	\$6,823,182	75%	\$27,426,826	\$26,914,369	6.87%	1.20
Private Equity	Opportunistic Equity	7	\$94,000,000	\$64,526,129	\$65,044,438	\$31,014,051	69%	\$45,954,393	\$43,748,713	3.93%	1.15
	Secondaries	2	\$17,500,000	\$16,406,432	\$17,102,042	\$13,944,445	98%	\$5,388,947	\$5,312,731	2.68%	1.13
	Venture Capital	3	\$50,000,000	\$14,340,050	\$14,730,675	\$102,308	29%	\$13,828,805	\$15,801,493	10.67%	1.08
	Total	19	\$254,500,000	\$150,529,484	\$156,712,516	\$62,170,378	62%	\$118,946,631	\$118,124,966	4.80%	1.15
	Distressed Credit	3	\$42,750,000	\$40,119,345	\$40,248,413	\$20,598,106	94%	\$28,111,054	\$28,111,054	5.85%	1.21
Private Credit	Loans	6	\$81,452,805	\$43,228,492	\$43,787,221	\$9,832,332	54%	\$33,382,675	\$42,809,374	9.72%	1.20
	Opportunistic Credit	6	\$71,500,000	\$38,586,008	\$42,389,690	\$10,587,403	59%	\$33,938,926	\$37,999,065	6.63%	1.15
	Total	15	\$195,702,805	\$121,933,845	\$126,425,324	\$41,017,841	65%	\$95,432,655	\$108,919,493	7.11%	1.19
	Energy	8	\$112,000,000	\$107,498,737	\$113,850,389	\$116,676,416	102%	\$36,268,723	\$34,748,548	13.87%	1.34
	Infrastructure	4	\$48,500,000	\$41,144,621	\$49,957,486	\$56,018,796	103%	\$20,971,481	\$21,616,370	29.38%	1.55
Private Real Assets	Power	3	\$28,500,000	\$25,362,399	\$26,223,289	\$10,228,287	92%	\$11,092,903	\$14,592,903	-1.79%	0.95
	Opportunistic Real Assets	1	\$15,000,000	\$5,182,764	\$5,182,764	\$0	35%	\$5,172,651	\$5,172,651	0.00%	0.00
	Total	16	\$204,000,000	\$179,188,521	\$195,213,928	\$182,923,499	96%	\$73,505,758	\$76,130,472	14.05%	1.33
	Direct Investment	2	\$38,663,450	\$39,709,817	\$41,101,630	\$12,571,399	106%	\$40,795,042	\$37,382,991	9.10%	1.22
Private Real Estate	Opportunistic Real Estate	1	\$10,000,000	\$10,000,000	\$10,000,000	\$0	100%	\$3,618,165	\$3,618,165	-11.68%	0.36
	Value-Add	1	\$10,000,000	\$7,554,674	\$7,611,174	\$7,021,272	76%	\$7,256,463	\$6,751,463	12.45%	1.81
	Total	4	\$58,663,450	\$57,264,491	\$58,712,804	\$19,592,671	100%	\$51,669,670	\$47,752,619	3.80%	1.15

<u> Appendix III – Glossary</u>

Major Asset Classes

15 TEXAS TECH UNIVERSITY SYSTEM

<u>Alpha Pool:</u> 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