YOUNGSTOWN STATE UNIVERSITY

BOARD OF TRUSTEES
INVESTMENT SUBCOMMITTEE

Wednesday, September 4, 2019	**Kilcawley Center**
1:30 p.m. or immediately following previous meeting	**President's Suites**

AGENDA

A. Disposition of Minutes for Meeting Held June 5, 2019

B. Old Business

C. Committee Item

1. Discussion Item

Tab C.1.a. **a. September 4, 2019 Quarterly Portfolio Asset Allocation and Investment Performance Review**
Mike Shebak, Sarah Parker and John Colla will report.

D. New Business

E. Adjournment

September 4, 2019

YOUNGSTOWN STATE UNIVERSITY

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CONTENTS

2019 OVERSIGHT DASHBOARD

		1Q	2Q	3Q	4Q	COMMENTS:
STRATEGIC / ADMINISTRATIVE	Investment Policy Review		✓			
	Strategic Asset Allocation Review		✓			
	Peer Review		✓			
	2020 Oversight Dashboard				☐	
	STAR Ohio/Plus Annual Review			✓		**Annual Review was completed in Q3**
	Financial Modeling					
PORTFOLIO	Fixed Income Review	✓				
	Alternative Investments Review			✓		
	Domestic Equity Review				☐	
	International Equity Review				☐	
	Active Equity Managers					**Pending**
PERFORMANCE	Capital Markets Review	✓	✓	✓	☐	
	Quarterly Performance Review	✓	✓	✓	☐	
OTHER	Fee Review			✓		
	ORC Compliance Review			✓		**Ongoing**
	ORC Guidelines Education		✓			
	Clearstead Firm Update	✓				

Last Reviewed

Investment Policy:	06/05/2019
Strategic Asset Allocation:	06/05/2019
Fee Review:	09/05/2018

Meeting Schedule

1Q:	March 6, 2019
2Q:	June 5, 2019
3Q:	September 4, 2019
4Q:	December 4, 2019

CAPITAL MARKETS UPDATE

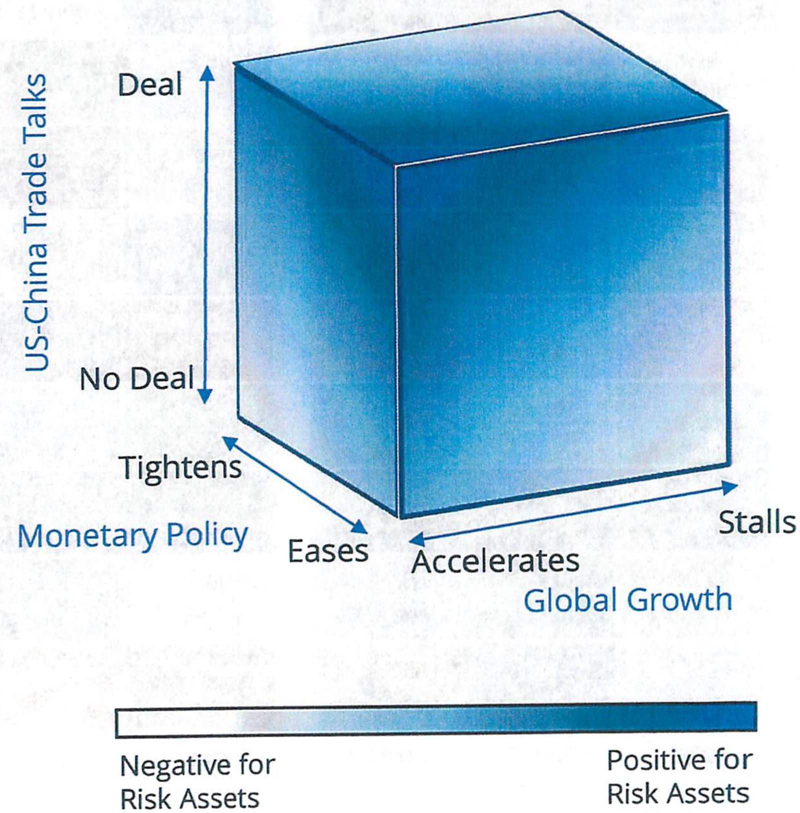
QUARTERLY THEMES

WHAT HAPPENED LAST QUARTER?

- Global markets were volatile but generated positive returns for the quarter
    - Q2 2019: S&P 500 +4.3%, MSCI EAFE +3.7%, MSCI EM +0.6%
    - YTD 2019: S&P 500 +18.5%, MSCI EAFE +14.0%, MSCI EM +10.6%
- Interest rates fell across all maturities; the expectation for lower interest rates became widespread
- The U.S. and China agreed to resume trade talks, but tensions still linger
- Slowing global economic growth remained a theme

WHAT IS ON OUR MINDS?

- Monetary policy – especially the Fed's meeting in July
- Trade discussions
- Low global growth persists; catalysts for significant improvement remain elusive
- Any shortfall to expectations is likely to reverse recent price momentum and investor sentiment



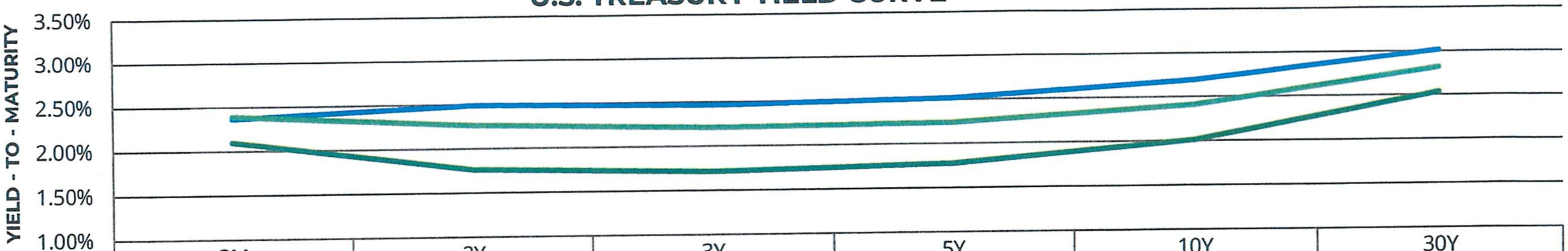
HISTORICAL ASSET CLASS RETURNS

2010	2011	2012	2013	2014	2015	2016	2017	2018	Q1 2019	Q2 2019	2019
REITs 27.6%	US Bonds 7.8%	REITs 20.1%	Sm/Mid 36.8%	REITs 27.2%	REITs 2.3%	Sm/Mid 17.6%	Em Mkt 37.3%	Cash 1.9%	REITs 16.7%	Large Cap 4.3%	Sm/Mid 19.3%
Sm/Mid 26.7%	REITs 7.3%	Em Mkt 18.2%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	Hi Yld 17.5%	Dev Intl 25.0%	US Bonds 0.0%	Sm/Mid 15.8%	Dev Intl 3.7%	REITs 18.8%
Em Mkt 18.9%	Glb Bond 5.2%	Dev Intl 17.3%	Dev Intl 22.8%	Sm/Mid 7.1%	US Bonds 0.6%	Large Cap 12.0%	Large Cap 21.8%	Glb Bond -0.9%	Large Cap 13.7%	Glb Bond 3.6%	Large Cap 18.5%
Hi Yld 15.2%	Hi Yld 4.4%	Sm/Mid 17.9%	Hdg Fnds 9.0%	US Bonds 6.0%	Cash 0.1%	Em Mkt 11.2%	Sm/Mid 16.8%	Hi Yld -2.3%	Dev Intl 10.0%	US Bonds 3.1%	Dev Intl 14.0%
Large Cap 15.1%	Large Cap 2.1%	Large Cap 16.0%	Hi Yld 7.4%	Hdg Fnds 3.4%	Hdg Fnds -0.3%	REITs 9.3%	Glb Bond 9.3%	Hdg Fnds -4.0%	Em Mkt 9.9%	Sm/Mid 3.0%	Em Mkt 10.6%
Dev Intl 7.8%	Cash 0.1%	Hi Yld 15.6%	REITs 3.2%	Hi Yld 2.5%	Dev Intl -0.8%	US Bonds 2.7%	REITs 9.3%	Large Cap -4.4%	Hi Yld 7.4%	Hi Yld 2.6%	Hi Yld 10.2%
US Bonds 6.6%	Sm/Mid -2.5%	Hdg Fnds 4.8%	Cash 0.1%	Cash 0.0%	Sm/Mid -2.9%	Glb Bond 1.9%	Hdg Fnds 7.8%	REITs -4.4%	Hdg Fnds 5.0%	REITs 1.8%	Hdg Fnds 6.3%
Glb Bond 6.1%	Hdg Fnds -5.7%	US Bonds 4.2%	US Bonds -2.0%	Em Mkt -2.2%	Hi Yld -4.6%	Dev Intl 1.0%	Hi Yld 7.5%	Sm/Mid -10.0%	US Bonds 2.9%	Hdg Fnds 1.6%	US Bonds 6.1%
Hdg Fnds 5.7%	Dev Intl -12.1%	Glb Bond 1.8%	Em Mkt -2.6%	Glb Bond -2.8%	Glb Bond -4.8%	Hdg Fnds 0.5%	US Bonds 3.5%	Dev Intl -13.8%	Glb Bond 1.4%	Cash 0.6%	Glb Bond 5.0%
Cash 0.1%	Em Mkt -18.4%	Cash 0.1%	Glb Bond -4.9%	Dev Intl -4.5%	Em Mkt -14.9%	Cash 0.3%	Cash 0.9%	Em Mkt -14.6%	Cash 0.6%	Em Mkt 0.6%	Cash 1.2%

Past performance is no guarantee of future results. Asset classes represented by: Large Cap – S&P 500 Index; Sm/Mid – Russell 2500 Index; Dev Intl – MSCI EAFE Index; Em Mkt – MSCI Emerging Markets Index; Hi Yld – Bank of America Merrill Lynch U.S. High Yield Master II; US Bonds – Barclays Capital U.S. Aggregate; Glb Bond – Barclays Capital Global Treasury ex US; REITs – NAREIT ALL REITs; Hdg Fnds – HFRI FOF: Diversified Index; Cash – Merrill Lynch 91-day Tbill .
Data as of 6/30/2019.
Source: Zephyr Associates.

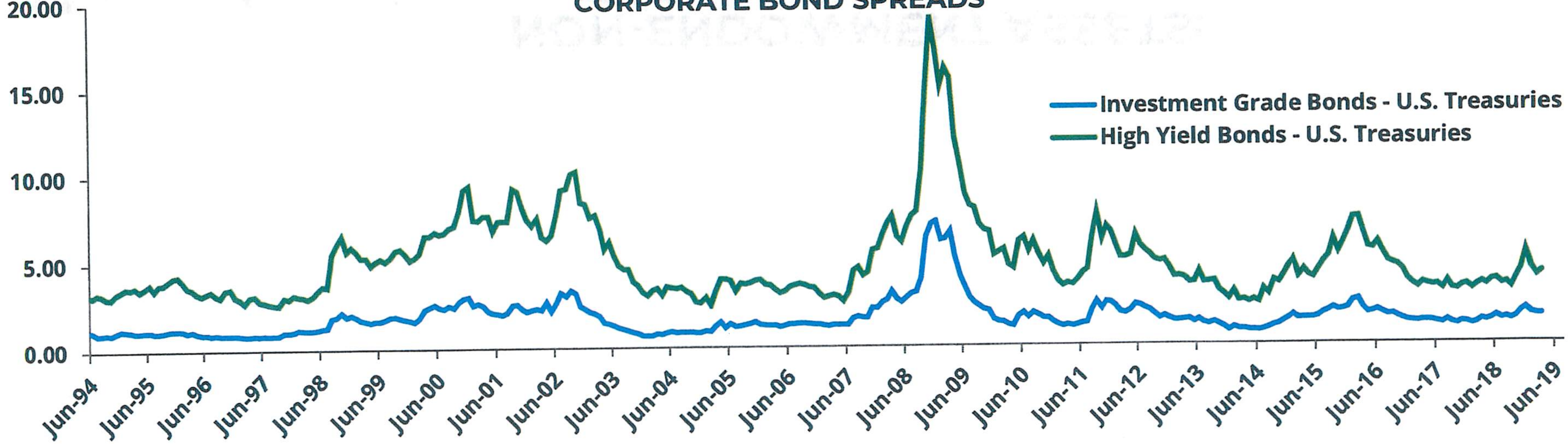
FIXED INCOME: YIELDS & CORPORATE SPREADS

U.S. TREASURY YIELD CURVE



	3M	2Y	3Y	5Y	10Y	30Y
12/31/2018	2.36%	2.49%	2.46%	2.51%	2.69%	3.02%
3/31/2019	2.39%	2.26%	2.21%	2.23%	2.41%	2.82%
6/30/2019	2.09%	1.76%	1.71%	1.77%	2.01%	2.53%

CORPORATE BOND SPREADS



US Treasuries – BarCap US Gov't 10-Yr Treasury; Investment Grade Bonds – BarCap BAA Corp; High Yield Bonds - BarCap US High Yield.
Source: Bloomberg. Data as of 6/30/2019.
Past performance is not a guarantee of future results.

NON-ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW

NON-ENDOWMENT PERFORMANCE REVIEW (AS OF 6/30/2019)

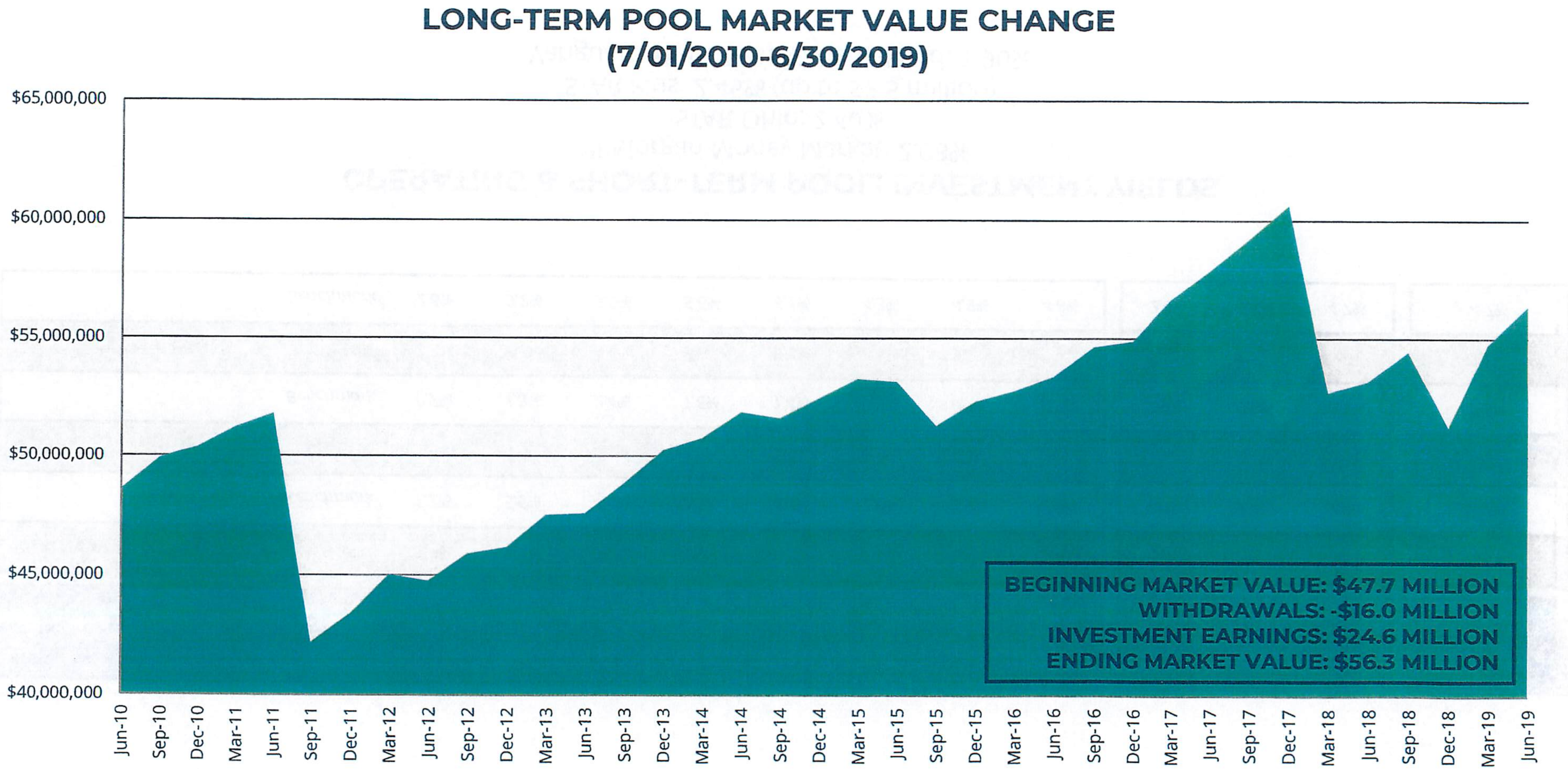
NON-ENDOWMENT ASSETS	MARKET VALUE ($MM)	QTD	YTD	1 YR	2 YR	3 YR	5 YR	7 YR	10 YR	2018	2017	2016	SINCE INCEPTION[4]
Total Non-Endowment Assets	$69.388	2.4%	7.3%	5.2%	4.8%	5.3%	3.5%	3.9%	3.9%	-1.5%	7.8%	4.0%	3.9%
	Benchmark[1]	*1.7%*	*5.6%*	*4.4%*	*3.9%*	*4.0%*	*2.8%*	*2.9%*	*2.9%*	*-0.4%*	*5.4%*	*2.7%*	*3.1%*
Operating & Short-Term Pool	$13.040	0.6%	1.3%	2.4%	1.7%	1.3%	0.8%	0.6%	-	1.7%	0.7%	0.3%	0.5%
	Benchmark[2]	*0.7%*	*1.3%*	*2.4%*	*1.8%*	*1.4%*	*0.9%*	*0.7%*	*0.5%*	*1.9%*	*0.8%*	*0.4%*	*0.5%*
Long-Term Pool	$56.348	2.9%	10.0%	6.0%	5.5%	6.5%	4.4%	5.3%	-	-3.4%	10.5%	4.9%	5.2%
	Benchmark[3]	*2.6%*	*9.2%*	*6.0%*	*5.6%*	*6.1%*	*4.3%*	*4.9%*	*4.8%*	*-2.4%*	*9.3%*	*4.7%*	*4.7%*

OPERATING & SHORT-TERM POOL: INVESTMENT YIELDS

JPMorgan Money Market: 2.03%
STAR Ohio: 2.40%
STAR Plus: 2.45% (up to $2.5 million)
Vanguard Short Term Federal Fund: 1.90%

1) 5% BofA Merrill Lynch 91-Day T-Bill / 17% BofA Merrill Lynch US Corp & Gov 1-3 Yrs / 11% BBgBarc US Govt/Credit Int TR / 8% Total Alternatives Benchmark / 15% Russell 3000 / 4% MSCI EAFE Gross.
2) 95% BofA Merrill Lynch 91-Day T-Bill / 5% Barclays 1-3 Yr. Govt.
3) 27% Russell 3000 / 8% MSCI EAFE Gross / 15% Total Alternatives Benchmark / 30% BofA Merrill Lynch US Corp & Gov 1-3 Yrs /20% BBgBarc US Govt/Credit Int TR.
4) Inception date for Long-Term and Short-Term Pools: June 2010, Inception Date for Total Non-Endowment Assets: March 2004.

ATTRIBUTION OF MARKET VALUE CHANGE: LONG-TERM POOL



PERFORMANCE & ASSET ALLOCATION REVIEW

NON-ENDOWMENT ASSET POOL	CURRENT ASSET ALLOCATION	POLICY COMPLIANCE?	INVESTMENT MANAGER COMMENTARY
Short-Term Pool	• 91% Cash • 9% Short-Term Fixed Income	**In Compliance**	Cash & cash equivalent investments with one short-term fixed income holding; modest return over time (+0.6% 2Q19, +1.3% YTD); Investments include Vanguard Short-Term Federal Fund, Star Plus and Star Ohio investments.
Long-Term Pool	• Domestic Equity 27% • International Equity 7% • Alternatives 15% • Short-Term Fixed Income 29% • Int-Term Fixed Income 22%	**In Compliance** In-Line Underweight 1% In-Line Underweight 1% Overweight 2%	***Domestic Equity (+4.3% 2Q19, +19.0% YTD)*** Both small cap managers (Victory Integrity & Loomis Sayles) outpaced their respective benchmarks during the quarter benefitting from stock selection across most sectors, notably in financials and industrials (Victory +3.0% 2Q19, +15.6 YTD; Loomis +5.6% 2Q19, +21.6% YTD). ***International Equity (+4.0% 2Q19, +16.1% YTD)*** William Blair International Growth returned +5.1% during the quarter adding to its outperformance year-to-date (William Blair +19.4% YTD; MSCI ACWI ex US +3.0% 2Q19, +13.6% YTD), with its largest sources of relative return from stock selection in healthcare, financials, and industrials. ***Alternatives (+2.4% 2Q19, +10.0% YTD)*** Diamond Hill continued its strong performance in 2019 adding +6.9% in the second quarter; The alternatives portfolio has generated strong returns in the first half of 2019, up +10.0% year-to-date. ***Fixed Income (+2.1% 2Q19, +4.6% YTD)*** All fixed income managers were in-line or outpaced respective benchmarks during the quarter, benefitting from interest rates falling across the yield curve.

Manager details can be found in the Appendix.

CURRENT ALLOCATIONS (AS OF 7/29/2019)

YOUNGSTOWN STATE UNIVERSITY

AS OF JULY 29, 2019

	TICKER	MARKET VALUE (CURRENT)	PERCENTAGE OF PORTFOLIO	CHANGES	MARKET VALUE (POST REBALANCE)	PERCENTAGE OF PORTFOLIO	POLICY TARGET	POLICY RANGE	TACTICAL +/-
Total Operating & Short Term		**$9,338,611**	**100.0%**	***$0***	**$9,338,611**	**100.0%**	**100.0%**		
Operating Assets		**$8,219,268**	**88.0%**		**$8,219,268**	**88.0%**		**60-100%**	
JPMorgan 100% U.S. Treas. MM Instl	JTSXX	$98,982	1.1%		$98,982	1.1%			
Star Plus*	-	$2,531,495	27.1%		$2,531,495	27.1%			
Star Ohio*	-	$5,588,791	59.8%		$5,588,791	59.8%			
Short-Term Assets		**$1,119,343**	**12.0%**		**$1,119,343**	**12.0%**		**0-40%**	
Vanguard Short-Term Federal Adm	VSGDX	$1,119,343	12.0%		$1,119,343	12.0%			
Total Long Term Reserves Pool		**$56,662,407**	**100.0%**	***$0***	**$56,662,407**	**100.0%**	**100.0%**		
Domestic Equity		**$15,664,591**	**27.6%**		**$15,664,591**	**27.6%**	**27.0%**	**20-35%**	**0.6%**
Vanguard Instl Index	VINIX	$11,072,085	19.5%		$11,072,085	19.5%			
Vanguard Mid Cap Index Adm	VIMAX	$2,390,099	4.2%		$2,390,099	4.2%			
Loomis Sayles Small Growth Instl	LSSIX	$1,197,674	2.1%		$1,197,674	2.1%			
Victory Integrity Small Cap Value Y	VSVIX	$1,004,733	1.8%		$1,004,733	1.8%			
International Equity		**$4,110,413**	**7.3%**		**$4,110,413**	**7.3%**	**8.0%**	**0-15%**	**-0.7%**
William Blair International Growth I	BIGIX	$2,103,963	3.7%		$2,103,963	3.7%			
Dodge & Cox International Stock	DODFX	$2,006,450	3.5%		$2,006,450	3.5%			
Alternatives		**$8,469,662**	**14.9%**		**$8,469,662**	**14.9%**	**15.0%**	**0-20%**	**-0.1%**
JPMorgan Strategic Income Opps Fd	JSOSX	$2,141,749	3.8%		$2,141,749	3.8%			
Wells Fargo Adv Absolute Return I	WABIX	$2,164,767	3.8%		$2,164,767	3.8%			
Diamond Hill Long-Short Y	DIAYX	$2,372,304	4.2%		$2,372,304	4.2%			
Brookfield Global Real Estate	BLRIX	$1,790,842	3.2%		$1,790,842	3.2%			
Fixed Income		**$28,417,684**	**50.2%**		**$28,417,684**	**50.2%**	**50.0%**	**35-75%**	**0.2%**
YSU Short Term Bond		$11,602,729	20.5%		$11,602,729	20.5%			
Lord Abbett Short Duration	LLDYX	$2,663,880	4.7%		$2,663,880	4.7%			
DFA Five-Year Global	DFGBX	$1,924,762	3.4%		$1,924,762	3.4%			
JPMorgan Core Bond Fund Sel	WOBDX	$5,380,756	9.5%		$5,380,756	9.5%			
YSU Intermediate Term Fixed		$4,216,711	7.4%		$4,216,711	7.4%			
Prudential High Yield Bond R6	PHYQX	$2,628,846	4.6%		$2,628,846	4.6%			
Cash & Cash Equivalents		**$57**	**0.0%**		**$57**	**0.0%**	**0.0%**	**0-5%**	**0.0%**
Equity Account Cash	-	$57	0.0%		$57	0.0%			
Total University Assets		**$66,001,018**			**$66,001,018**				

*As of 6/30/2019

PERFORMANCE SUMMARY: ALTERNATIVE INVESTMENT MANAGERS

		Ending June 30, 2019								Calendar Years				
	% of Portfolio	2019 Q2 (%)	YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)	Inception (%)	Inception Date
Total Alternatives	12.1	2.4	10.0	5.3	3.4	4.8	--	--	--	-6.0	7.9	3.5	2.1	Mar-15
Total Alternatives Benchmark		*1.2*	*8.3*	*2.9*	*4.1*	*4.4*	--	--	--	*-4.3*	*8.4*	*1.5*	*2.3*	
JPMorgan Strategic Income Opps Sel	3.1	0.8	3.0	2.6	2.3	3.9	2.6	3.0	3.9	0.8	3.3	9.2	1.6	Sep-18
BBgBarc US Universal TR		*3.1*	*6.5*	*8.1*	*3.8*	*2.8*	*3.2*	*3.0*	*4.4*	*-0.3*	*4.1*	*3.9*	*7.8*	
Wells Fargo Adv Absolute Return Instl	3.1	1.5	7.0	2.7	2.9	5.1	1.6	3.9	--	-5.6	12.6	3.0	1.7	Mar-15
HFRI Fund of Funds Composite Index		*1.7*	*6.4*	*1.4*	*3.3*	*4.3*	*2.2*	*3.7*	*3.2*	*-4.0*	*7.8*	*0.5*	*1.9*	
Diamond Hill Long-Short Y	3.4	6.9	16.4	10.2	5.3	8.7	4.9	8.4	7.9	-6.9	6.0	10.5	5.5	Mar-15
HFRX Equity Hedge Index		*0.0*	*6.0*	*-4.2*	*0.9*	*3.2*	*0.7*	*2.7*	*1.4*	*-9.4*	*10.0*	*0.1*	*0.2*	
Brookfield Global Listed Real Estate I	2.6	-0.1	15.1	5.6	5.3	4.6	4.8	8.5	--	-8.1	10.1	6.3	4.9	Jul-17
FTSE NAREIT Developed TR USD		*-0.5*	*14.1*	*7.2*	*6.4*	*4.3*	*4.8*	*7.2*	*10.5*	*-5.6*	*10.4*	*4.1*	*5.7*	

ALTERNATIVE INVESTMENTS: ALTERNATIVE TO WHAT?

Alternatives often refer to strategies that are not a traditional buy-and-hold equity or fixed income and may often have one of more of the below characteristics.

TRADING MECHANISM

- Ability to engage in proprietary and complex trading strategies as a driver of returns
- Exposure to public and private markets
- Use of short positions, derivatives, etc.

LIQUIDITY CONSTRAINTS

- Monthly, quarterly, annual liquidity; sometimes multiple-year lockups
- Potential for illiquidity premium

FEE STRUCTURE

- Performance incentive fee
- Hurdle / preferred return rates
- High watermark
- Clawback provisions

ALPHA-FOCUSED

- Inefficient markets
- Active management (indexing is often not possible)
- Beta is not easily identifiable or often reduced in order to enhance alpha

ALTERNATIVE INVESTMENTS: BROAD CATEGORIES

Categorizing alternative investments is a formidable task because the degree of variability beyond "traditional investments" is expansive.

Below is a broad categorization of widely used alternatives.

LESS LIQUID

MORE LIQUID

ABSOLUTE RETURN

- Private Debt
- **Relative Value**
- Global Macro
- Merger Arbitrage

REAL ASSETS

- Private Infrastructure
- Private Real Estate
- Commodities
- **Public Real Estate (REITs)**

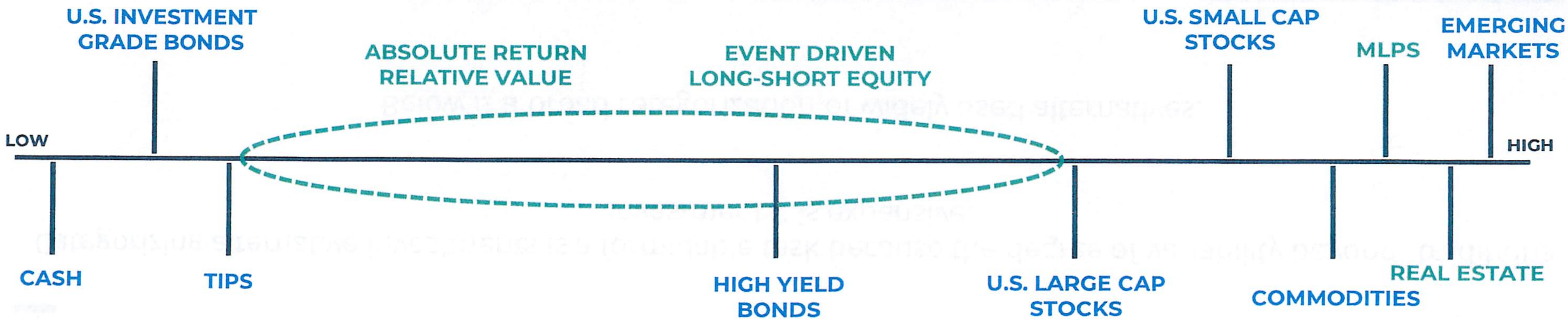
GROWTH STRATEGIES

- Private Equity
- Master Limited Partnerships- MLPs (Also a real asset)
- **Event Driven**
- **Equity Long-Short**

ALTERNATIVE INVESTMENTS: MANAGER CHARACTERISTICS

INVESTMENT NAME	INVESTMENT TYPE	PURPOSE / ROLE IN PORTFOLIO	OBJECTIVE	VOLATILITY PROFILE[1]	BETA (S&P 500)	CORRELATION WITH S&P 500	CORRELATION WITH BONDS
JPMORGAN STRATEGIC INCOME OPP	Abs Ret: Relative Value	Volatility mitigation, diversification	Cash + 2% to 8%	4.02%	0.17	0.58	0.12
WELLS FARGO ABSOLUTE RETURN (GMO)	Abs Ret / Gr: Event Driven	Volatility mitigation, diversification and growth	Inflation + 5%	6.94%	0.40	0.77	0.14
DIAMOND HILL LONG-SHORT	Growth: Long / Short	Growth, volatility mitigation	Equity-like returns with < volatility	12.81%	0.69	0.78	-0.11
BROOKFIELD GLOBAL REIT	Growth: REITs	Growth, yield, diversification	Global Real Estate exposure	12.49%	0.70	0.62	0.40

VOLATILITY SPECTRUM



1. The volatility profile is since inception through 5/31/2019, depending on the availability of the database. GMO – August 2003; Brookfield REITs – December 2011; JPMorgan Strat Inc Opp – November 2008; Diamond Hill Long-Short – July 2000.

FEE REVIEW: NON-ENDOWMENT ASSETS (AS OF 6/30/2019)

YOUNGSTOWN STATE UNIVERSITY INVESTMENTS
NON-ENDOWMENT ASSETS FEE REVIEW

	Market Value as of 6/30/2019	Estimated Annual Fee ($)	Expense Ratio (%)	Morningstar Category Average Fee (%)	Morningstar Institutional Average Fee (%)
Total Operating & Short Term					
JPMorgan 100% U.S. Tr Sec MM Inst	$3,798,547	$7,977	0.21%	n/a	n/a
Vanguard Short-Term Federal Adm	$1,121,446	$1,121	0.10%	0.75%	0.56%
STAR Plus	$2,531,495	$2,051	0.08%	n/a	n/a
STAR Ohio	$5,588,791	$4,527	0.08%	n/a	n/a
Total Operating & ST Investment Management Fee	$13,040,279	$15,676	0.02%		
Total Domestic Equity	**$15,297,271**	**$30,605**			
Vanguard Institutional Index	$10,769,987	$4,308	0.04%	0.95%	0.73%
Vanguard Mid Cap Index Inv	$2,344,826	$3,986	0.17%	1.08%	0.84%
Loomis Sayles Sm Growth Instl	$1,184,874	$11,138	0.94%	1.23%	1.04%
Victory Integrity Small Value Y	$997,584	$11,173	1.12%	1.24%	1.05%
Total International Equity	**$4,115,292**	**$36,398**			
William Blair International Growth I	$2,094,288	$23,665	1.13%	1.14%	0.98%
Dodge & Cox Internat'l Stock	$2,021,004	$12,732	0.63%	1.15%	0.94%
Total Alternatives	**$8,428,507**	**$89,432**			
JPMorgan Strategic Income Opps Sel	$2,139,888	$16,905	0.79%	1.21%	1.09%
Wells Fargo Adv Absolute Return Instl	$2,168,654	$24,506	1.13%	1.00%	1.08%
Diamond Hill Long-Short Y	$2,337,165	$31,084	1.33%	2.16%	1.62%
Brookfield Global Listed Real Estate I	$1,782,800	$16,937	0.95%	1.29%	1.03%
Total Fixed Income	**$28,506,665**	**$77,431**			
JPMorgan Core Bond	$5,389,999	$26,950	0.50%	0.81%	0.54%
YSU Intermediate Term Bond	$4,245,431	$6,368	0.15%	0.81%	0.54%
PGIM High Yield R6	$2,633,670	$11,061	0.42%	1.02%	0.79%
YSU Short Term Bond	$11,654,760	$17,482	0.15%	0.75%	0.49%
Lord Abbett Short Duration Income I	$2,663,333	$10,387	0.39%	0.75%	0.49%
DFA Five-Yr Global Fxd-Inc I	$1,919,472	$5,183	0.27%	0.83%	0.71%
Total Cash & Cash Equivalents	**$57**	**$0**			
PNC Govt MMkt	$57	$0	0.00%	n/a	n/a
Total LT/Reserves Pool Investment Management Fee	$56,347,792	$233,866	0.34%		
Total Assets	$69,388,071				
Clearstead Consulting Fees		$49,500	0.07%		
Trustee Fee (PNC)		$20,816	0.03%		
Total Non-Endowment Assets Fees		$319,858	0.46%		

Star Ohio fees estimates from the 2017 annual report.

ORC COMPLIANCE REVIEW (AS OF 6/30/2019)

	TOTAL NON-ENDOWMENT ORC 3345.05 DEFINED ASSETS*	% FROM SHORT-TERM POOL	% FROM LONG-TERM POOL
9/30/18	43%	36%	7%
12/31/18	24%	14%	11%
3/31/19	41%	33%	8%
6/30/19	27%	17%	10%
Average	*34%*	*25%*	*9%*

YSU is in line with the Ohio Revised Code 3345.05 Compliance requirements.

OHIO REVISED CODE 3345.05 COMPLIANCE	COMPLIANT
Over 25% of Total Portfolio in Cash Equivalents/Govt Securities (average amount over previous FY)	Yes
Investment policy adopted in public session	Yes
Quarterly Investment Committee meetings	Yes
Recommend changes to the Board's Investment Policy that assist in meeting the Committee's fiduciary duties	Yes
Retain an investment advisor who meets the qualifications	Yes

*A minimum of 25% of the average amount of the University's investment portfolio over the course of the previous fiscal year must be invested according to ORC guidelines (i.e. US government bonds, cash equivalents)

clearstead

ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW

ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION (AS OF 6/30/2019)

ENDOWMENT ASSETS	MARKET VALUE	ASSET ALLOCATION	COMPOSITION	QTD	YTD	1 YR	2 YR	3 YR	5 YR	2018	2017	2016
YSU Endowment Fund	$11.4 MM	73% Equity / 27% Fixed Income & Cash	Stocks, Bonds, Mutual Funds	**4.2%**	**14.4%**	9.5%	8.6%	8.9%	7.1%	-4.8%	14.2%	**8.5%**
			Benchmark[1]	*4.0%*	*13.6%*	*9.9%*	*9.1%*	*9.5%*	*7.7%*	*-2.3%*	*14.2%*	*8.3%*
Kilcawley Center	$119,784	60% Equity / 40% Fixed Income	Mutual Fund	3.6%	13.3%	8.7%	8.6%	9.2%	4.7%	-2.7%	13.8%	4.9%
			Benchmark[1]	*4.0%*	*13.6%*	*9.9%*	*9.1%*	*9.5%*	*7.7%*	*-2.3%*	*14.2%*	*8.3%*
Alumni License Plate Account	$57,125	60% Equity / 40% Fixed Income	Mutual Fund	3.5%	13.1%	9.4%	8.9%	9.2%	6.9%	**-2.0%**	10.3%	**13.8%**
			Benchmark[1]	*4.0%*	*13.6%*	*9.9%*	*9.1%*	*9.5%*	*7.7%*	*-2.3%*	*14.2%*	*8.3%*

COMPLIANCE

- Asset Allocation Guidelines: 70% Equities (60-80%) / 30% Cash & Fixed Income (20-40%)
  - YSU Endowment (In-Line)
  - Kilcawley Center (In-Line)
  - Alumni (In-Line)
- Equity & Fixed Income Guidelines
  - YSU Endowment (In-Line)
  - Kilcawley Center (In-Line)
  - Alumni (In-Line)

1) Benchmark: 60% S&P 500 / 40% BBgBarc US Aggregate.
See appendix for detail on holdings.
Kilcawley Center & Alumni License Plate accounts- Transition to PNC as custodian completed on 11/1/2017. Historical allocation to single stock and bond positions resulted in large differences relative to benchmark. Both accounts are now currently invested in one low cost, balanced Vanguard mutual fund.

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APPENDIX

EXECUTIVE SUMMARY

	Market Value 3/31/19 ($)	Market Value 6/30/19 ($)	% of Portfolio	2019 Q2 (%)	YTD (%)
	Ending June 30, 2019				
Total University Assets	83,687,856	69,388,069	100.0	2.4	7.3
Total Policy Benchmark				1.7	5.6
Total Operating & Short Term	28,922,130	13,040,280	18.8	0.6	1.3
Total Operating & Short Term Benchmark				0.7	1.3
Total Long Term/ Reserves Pool	54,765,726	56,347,789	81.2	2.9	10.0
Total Long Term/ Reserves Fund Benchmark				2.6	9.2
Total Domestic Equity	15,409,477	15,297,271	22.0	4.3	19.0
Russell 3000				4.1	18.7
Total International Equity	3,958,027	4,115,291	5.9	4.0	16.1
MSCI EAFE				3.7	14.0
Total Alternatives	8,229,335	8,428,506	12.1	2.4	10.0
Total Alternatives Benchmark				1.2	8.3
Total Fixed Income	27,168,830	28,506,664	41.1	2.1	4.6
Total Fixed Income Benchmark				1.9	3.5
Total Cash & Cash Equivalents	57	57	0.0	0.6	1.1
ICE BofAML 91 Days T-Bills TR				0.6	1.2

- *Total Policy Benchmark = 45% ICE BofAML 91 Days T-Bills TR / 17% ICE BofAML 1-3 Yrs US Corp & Govt TR / 11% BBgBarc US Govt/Credit Int TR / 8% Total Alternatives Benchmark / 15% Russell 3000 / 4% MSCI EAFE*
- *Total Operating & Short Term Benchmark = 95% ICE BofAML 91 Days T-Bills TR / 5% BBgBarc US Govt 1-3 Yr TR*
- *Total Long Term/ Reserves Fund Benchmark = 27% Russell 3000 / 8% MSCI EAFE / 15% Total Alternatives Benchmark / 30% ICE BofAML 1-3 Yrs US Corp & Govt TR / 20% BBgBarc US Govt/Credit Int TR*
- *Total Alternatives Benchmark = 25% FTSE NAREIT Developed TR USD / 75% HFRI Fund of Funds Composite Index*
- *Total Fixed Income Benchmark = 64% ICE BofAML 1-3 Yrs US Corp & Govt TR / 36% BBgBarc US Govt/Credit Int TR*

ASSET ALLOCATION GUIDELINES COMPLIANCE

As of June 30, 2019

Total Plan Asset Allocation Policy	Range	Current
Operating & Short-Term Pool	25% - 50%	19%
Long Term/ Reserves Pool	50% - 75%	81%

Operating & Short-Term Pool	Range	Current
Operating Assets	60% - 100%	91%
Short-Term Assets	0% - 40%	9%

Long Term/ Reserves Pool	Target	Range	Current
Domestic Equity	27%	20% - 35%	27%
International Equity	8%	0% - 15%	7%
Total Equity	35%	25% - 45%	34%
Alternatives	15%	0%-20%	15%
Short-Term Fixed Income	30%	25% - 45%	29%
Intermediate Fixed Income	20%	10% - 30%	22%
Cash & Cash Equivalents	0%	0% - 5%	0%

In Line   Within Tolerance   Review

SCHEDULE OF ASSETS

	Asset Class	Market Value 3/31/19 ($)	Market Value 6/30/19 ($)	% of Total Plan	% of Pool
Total University Assets		**83,687,856**	**69,388,069**	**100.0**	**100.0**
Total Operating & Short Term		**28,922,130**	**13,040,280**	**18.8**	**100.0**
JPMorgan 100% U.S. Tr Sec MM Inst	Cash	19,747,920	3,798,547	5.5	29.1
Star Plus	Cash	2,515,587	2,531,495	3.6	19.4
Vanguard Short-Term Federal Adm	US Fixed Income Short Term	1,104,681	1,121,446	1.6	8.6
STAR Ohio		5,553,942	5,588,791	8.1	42.9
Total Long Term/ Reserves Pool		**54,765,726**	**56,347,789**	**81.2**	**100.0**
Total Domestic Equity		**15,409,477**	**15,297,271**	**22.0**	**27.1**
Vanguard Institutional Index	US Stock Large Cap Core	11,070,942	10,769,987	15.5	19.1
Vanguard Mid Cap Index Inv	US Stock Mid Cap Core	2,247,393	2,344,826	3.4	4.2
Loomis Sayles Sm Growth Instl	US Stock Small Cap Growth	1,122,153	1,184,874	1.7	2.1
Victory Integrity Small Value Y	US Stock Small Cap Value	968,988	997,584	1.4	1.8
Total International Equity		**3,958,027**	**4,115,291**	**5.9**	**7.3**
William Blair International Growth I	International	1,992,327	2,094,288	3.0	3.7
Dodge & Cox Internat'l Stock	International	1,965,700	2,021,004	2.9	3.6
Total Alternatives		**8,229,335**	**8,428,506**	**12.1**	**15.0**
JPMorgan Strategic Income Opps Sel	Absolute Return	2,122,401	2,139,888	3.1	3.8
Wells Fargo Adv Absolute Return Instl	All Assets	2,135,619	2,168,654	3.1	3.8
Diamond Hill Long-Short Y	Long/Short Equity	2,186,325	2,337,165	3.4	4.1
Brookfield Global Listed Real Estate I	Global Real Estate	1,784,991	1,782,800	2.6	3.2
Total Fixed Income		**27,168,830**	**28,506,664**	**41.1**	**50.6**
JPMorgan Core Bond	US Fixed Income Core	4,741,191	5,389,999	7.8	9.6
YSU Intermediate Term Bond	US Fixed Income Core	4,138,035	4,245,431	6.1	7.5
PGIM High Yield R6	US Fixed Income High Yield	2,544,074	2,633,670	3.8	4.7
YSU Short Term Bond	US Fixed Income Short Term	11,480,907	11,654,760	16.8	20.7
Lord Abbett Short Duration Income I	US Fixed Income Short Term	2,371,614	2,663,333	3.8	4.7
DFA Five-Yr Global Fxd-Inc I	US Fixed Income Short Term	1,893,009	1,919,472	2.8	3.4
Total Cash & Cash Equivalents		**57**	**57**	**0.0**	**0.0**
PNC Govt MMkt	Global Fixed Income	57	57	0.0	0.0

ATTRIBUTION OF MARKET VALUE

TOTAL UNIVERSITY INVESTMENTS

	2018 Q3	2018 Q4	2019 Q1	Second Quarter	One Year
Beginning Market Value	$71,560,137	$86,793,938	$60,511,374	$83,687,856	$71,560,137
Contributions	$20,008,592	$49,622	$24,509,030	$9,281	$44,576,524
Withdrawals	-$6,108,683	-$23,274,386	-$5,009,030	-$16,009,281	-$50,401,380
Net Cash Flow	$13,899,908	-$23,224,764	$19,500,000	-$16,000,000	-$5,824,856
Net Investment Change	$1,333,893	-$3,057,800	$3,676,483	$1,700,212	$3,652,788
Ending Market Value	$86,793,938	$60,511,374	$83,687,856	$69,388,069	$69,388,069
Net Change	$15,233,801	-$26,282,564	$23,176,483	-$14,299,788	-$2,172,068

LONG-TERM POOL

	2018 Q3	2018 Q4	2019 Q1	Second Quarter	One Year
Beginning Market Value	$53,172,971	$54,427,514	$51,238,803	$54,765,726	$53,172,971
Contributions	$8,175	$7,495	$8,053	$7,745	$31,469
Withdrawals	-$8,267	-$7,495	-$8,053	-$7,745	-$31,560
Net Cash Flow	-$92	$0	$0	$0	-$92
Net Investment Change	$1,254,635	-$3,188,712	$3,526,923	$1,582,063	$3,174,910
Ending Market Value	$54,427,514	$51,238,803	$54,765,726	$56,347,789	$56,347,789
Net Change	$1,254,544	-$3,188,712	$3,526,923	$1,582,063	$3,174,818

PERFORMANCE REPORT CARD

	% of Portfolio	2019 Q2 (%)	YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)	Inception (%)	Inception Date
		Ending June 30, 2019								Calendar Years				
Total University Assets	**100.0**	**2.4**	**7.3**	**5.2**	**4.8**	**6.3**	**3.5**	**3.9**	**3.9**	**-1.5**	**7.6**	**4.0**	**3.9**	**Mar-04**
Total Policy Benchmark		*1.7*	*5.6*	*4.4*	*3.9*	*4.0*	*2.8*	*2.9*	*2.9*	*-0.4*	*5.4*	*2.7*	*3.1*	
Total Operating & Short Term	**18.8**	**0.6**	**1.3**	**2.4**	**1.7**	**1.3**	**0.8**	**0.6**	**--**	**1.7**	**0.7**	**0.3**	**0.5**	**Jun-10**
Total Operating & Short Term Benchmark		*0.7*	*1.3*	*2.4*	*1.8*	*1.4*	*0.9*	*0.7*	*0.5*	*1.9*	*0.8*	*0.4*	*0.5*	
JPMorgan 100% U.S. Tr Sec MM Inst	5.5	0.6	1.1	2.1	1.6	1.2	0.7	0.5	0.4	1.7	0.7	0.2	0.5	Sep-11
ICE BofAML 91 Days T-Bills TR		*0.6*	*1.2*	*2.3*	*1.8*	*1.4*	*0.9*	*0.6*	*0.5*	*1.9*	*0.9*	*0.3*	*0.6*	
Vanguard Short-Term Federal Adm	1.6	1.5	2.9	4.4	2.2	1.4	1.5	1.3	1.7	1.4	0.8	1.2	1.4	Sep-10
BBgBarc US Govt 1-5 Yr TR		*1.8*	*3.1*	*4.9*	*2.2*	*1.3*	*1.5*	*1.3*	*1.7*	*1.5*	*0.7*	*1.0*	*1.4*	
STAR Plus	3.6	0.6	1.3	2.4	1.7	1.3	0.9	--	--	1.8	0.7	0.4	0.8	Jan-14
ICE BofAML 91 Days T-Bills TR		*0.6*	*1.2*	*2.3*	*1.8*	*1.4*	*0.9*	*0.6*	*0.5*	*1.9*	*0.9*	*0.3*	*0.8*	
STAR Ohio	8.1	0.6	1.3	2.4	--	--	--	--	--	--	--	--	2.4	Jun-18
ICE BofAML 91 Days T-Bills TR		*0.6*	*1.2*	*2.3*	*1.8*	*1.4*	*0.9*	*0.6*	*0.5*	*1.9*	*0.9*	*0.3*	*2.3*	
Total Long Term/ Reserves Pool	**81.2**	**2.9**	**10.0**	**6.0**	**5.5**	**6.5**	**4.4**	**5.3**	**--**	**-3.4**	**10.5**	**4.9**	**5.2**	**Jun-10**
Total Long Term/ Reserves Fund Benchmark		*2.6*	*9.2*	*6.0*	*5.6*	*6.1*	*4.3*	*4.9*	*4.8*	*-2.4*	*9.3*	*4.7*	*4.7*	
Total Domestic Equity	**22.0**	**4.3**	**19.0**	**8.5**	**11.7**	**14.1**	**10.1**	**13.8**	**--**	**-5.7**	**21.6**	**11.7**	**14.4**	**Jun-10**
Russell 3000		*4.1*	*18.7*	*9.0*	*11.8*	*14.0*	*10.2*	*13.8*	*14.7*	*-5.2*	*21.1*	*12.7*	*14.6*	
Vanguard Institutional Index	15.5	4.3	18.5	10.4	12.3	14.2	10.7	13.9	14.7	-4.4	21.8	11.9	14.7	Jun-10
S&P 500		*4.3*	*18.5*	*10.4*	*12.4*	*14.2*	*10.7*	*14.0*	*14.7*	*-4.4*	*21.8*	*12.0*	*14.7*	
Vanguard Mid Cap Index Inv	3.4	4.3	21.8	7.7	9.9	12.3	8.8	13.3	15.2	-9.3	19.3	11.2	12.8	Sep-10
Vanguard Mid Cap Index Benchmark		*4.4*	*21.9*	*7.8*	*10.0*	*12.4*	*8.9*	*13.4*	*15.3*	*-9.2*	*19.3*	*11.2*	*12.9*	
Loomis Sayles Sm Growth Instl	1.7	5.6	21.6	6.5	16.5	18.7	11.2	14.4	16.5	0.4	26.9	5.7	14.7	Sep-10
Russell 2000 Growth		*2.7*	*20.4*	*-0.5*	*10.1*	*14.7*	*8.6*	*12.9*	*14.4*	*-9.3*	*22.2*	*11.3*	*12.9*	
Victory Integrity Small Value Y	1.4	3.0	15.6	-6.8	2.6	9.0	4.4	10.6	13.1	-18.6	12.4	24.4	10.6	Sep-10
Russell 2000 Value		*1.4*	*13.5*	*-6.2*	*3.0*	*9.8*	*5.4*	*10.3*	*12.4*	*-12.9*	*7.8*	*31.7*	*10.2*	
Total International Equity	**5.9**	**4.0**	**16.1**	**-0.2**	**2.7**	**9.0**	**1.8**	**7.4**	**--**	**-17.8**	**26.6**	**2.7**	**4.6**	**Sep-10**
MSCI EAFE		*3.7*	*14.0*	*1.1*	*3.9*	*9.1*	*2.2*	*7.3*	*6.9*	*-13.8*	*25.0*	*1.0*	*5.4*	
MSCI ACWI ex USA		*3.0*	*13.6*	*1.3*	*4.2*	*9.4*	*2.2*	*6.4*	*6.5*	*-14.2*	*27.2*	*4.5*	*4.5*	

PERFORMANCE REPORT CARD

		Ending June 30, 2019								Calendar Years				
	% of Portfolio	2019 Q2 (%)	YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)	Inception (%)	Inception Date
William Blair International Growth I	3.0	5.1	19.4	-0.1	5.4	8.8	3.1	7.4	8.4	-17.7	29.5	-2.5	7.4	Jun-12
MSCI ACWI ex USA		*3.0*	*13.6*	*1.3*	*4.2*	*9.4*	*2.2*	*6.4*	*6.5*	*-14.2*	*27.2*	*4.5*	*6.4*	
Dodge & Cox Internat'l Stock	2.9	2.8	12.9	-0.3	0.1	9.3	0.4	7.2	7.4	-18.0	23.9	8.3	5.0	Sep-10
MSCI EAFE		*3.7*	*14.0*	*1.1*	*3.9*	*9.1*	*2.2*	*7.3*	*6.9*	*-13.8*	*25.0*	*1.0*	*5.4*	
Total Alternatives	**12.1**	**2.4**	**10.0**	**5.3**	**3.4**	**4.8**	**--**	**--**	**--**	**-6.0**	**7.9**	**3.5**	**2.1**	**Mar-15**
Total Alternatives Benchmark		*1.2*	*8.3*	*2.9*	*4.1*	*4.4*	*–*	*–*	*–*	*-4.3*	*8.4*	*1.5*	*2.3*	
JPMorgan Strategic Income Opps Sel	3.1	0.8	3.0	2.6	2.3	3.9	2.6	3.0	3.9	0.8	3.3	9.2	1.6	Sep-18
BBgBarc US Universal TR		*3.1*	*6.5*	*8.1*	*3.8*	*2.8*	*3.2*	*3.0*	*4.4*	*-0.3*	*4.1*	*3.9*	*7.8*	
Wells Fargo Adv Absolute Return Instl	3.1	1.5	7.0	2.7	2.9	5.1	1.6	3.9	--	-5.6	12.6	3.0	1.7	Mar-15
HFRI Fund of Funds Composite Index		*1.7*	*6.4*	*1.4*	*3.3*	*4.3*	*2.2*	*3.7*	*3.2*	*-4.0*	*7.8*	*0.5*	*1.9*	
Diamond Hill Long-Short Y	3.4	6.9	16.4	10.2	5.3	8.7	4.9	8.4	7.9	-6.9	6.0	10.5	5.5	Mar-15
HFRX Equity Hedge Index		*0.0*	*6.0*	*-4.2*	*0.9*	*3.2*	*0.7*	*2.7*	*1.4*	*-9.4*	*10.0*	*0.1*	*0.2*	
Brookfield Global Listed Real Estate I	2.6	-0.1	15.1	5.6	5.3	4.6	4.8	8.5	--	-8.1	10.1	6.3	4.9	Jul-17
FTSE NAREIT Developed TR USD		*-0.5*	*14.1*	*7.2*	*6.4*	*4.3*	*4.8*	*7.2*	*10.5*	*-5.6*	*10.4*	*4.1*	*5.7*	
Total Fixed Income	**41.1**	**2.1**	**4.6**	**5.9**	**3.1**	**2.2**	**2.2**	**2.0**	**--**	**0.9**	**2.4**	**1.6**	**2.3**	**Jun-10**
Total Fixed Income Benchmark		*1.9*	*3.5*	*5.2*	*2.6*	*1.8*	*1.8*	*1.7*	*2.3*	*1.4*	*1.3*	*1.6*	*1.9*	
JPMorgan Core Bond	7.8	3.0	6.0	7.8	3.7	2.4	2.9	2.6	4.0	0.2	3.8	2.3	3.3	Aug-17
BBgBarc US Aggregate TR		*3.1*	*6.1*	*7.9*	*3.7*	*2.3*	*2.9*	*2.6*	*3.9*	*0.0*	*3.5*	*2.6*	*3.2*	
YSU Intermediate Term Bond	6.1	2.6	5.2	7.1	3.3	2.2	2.3	2.2	3.3	0.8	2.4	2.0	3.7	Mar-04
BBgBarc US Govt/Credit Int TR		*2.6*	*5.0*	*6.9*	*3.1*	*2.0*	*2.4*	*2.2*	*3.2*	*0.9*	*2.1*	*2.1*	*3.4*	
PGIM High Yield R6	3.8	3.5	11.0	8.9	5.9	8.1	5.3	6.7	--	-1.2	7.8	15.3	6.9	Dec-16
BBgBarc US High Yield TR		*2.5*	*9.9*	*7.5*	*5.0*	*7.5*	*4.7*	*6.4*	*9.2*	*-2.1*	*7.5*	*17.1*	*6.0*	
YSU Short Term Bond	16.8	1.5	2.9	4.6	2.4	1.8	1.5	1.4	1.7	1.6	1.1	1.1	2.5	Mar-04
ICE BofAML 1-3 Yrs US Corp & Govt TR		*1.5*	*2.7*	*4.3*	*2.3*	*1.6*	*1.5*	*1.3*	*1.6*	*1.6*	*0.9*	*1.3*	*2.3*	
Lord Abbett Short Duration Income I	3.8	1.7	3.7	4.9	3.1	2.9	2.5	2.8	3.9	1.4	2.7	4.0	4.3	Mar-18
ICE BofAML 1-3 Yrs US Corp & Govt TR		*1.5*	*2.7*	*4.3*	*2.3*	*1.6*	*1.5*	*1.3*	*1.6*	*1.6*	*0.9*	*1.3*	*3.7*	

PERFORMANCE REPORT CARD

	% of Portfolio	2019 Q2 (%)	YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)	Inception (%)	Inception Date
			Ending June 30, 2019							Calendar Years				
DFA Five-Yr Global Fxd-Inc I	2.8	1.4	3.1	4.7	2.6	1.7	2.2	2.1	3.0	1.7	2.0	1.8	2.3	Jun-13
FTSE WGBI 1-5 Yr Hdg USD		*1.5*	*2.7*	*4.5*	*2.7*	*1.9*	*1.8*	*1.7*	*1.9*	*2.1*	*1.1*	*1.5*	*1.8*	
Total Cash & Cash Equivalents	**0.0**	**0.6**	**1.1**	**2.1**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**2.0**	**Mar-18**
ICE BofAML 91 Days T-Bills TR		*0.6*	*1.2*	*2.3*	*1.8*	*1.4*	*0.9*	*0.6*	*0.5*	*1.9*	*0.9*	*0.3*	*2.2*	
PNC Govt MMkt	0.0	0.6	1.1	2.1	--	--	--	--	--	--	--	--	2.0	Mar-18
ICE BofAML 91 Days T-Bills TR		*0.6*	*1.2*	*2.3*	*1.8*	*1.4*	*0.9*	*0.6*	*0.5*	*1.9*	*0.9*	*0.3*	*2.2*	

- Total Policy Benchmark = 45% ICE BofAML 91 Days T-Bills TR / 17% ICE BofAML 1-3 Yrs US Corp & Govt TR / 11% BBgBarc US Govt/Credit Int TR / 8% Total Alternatives Benchmark / 15% Russell 3000 / 4% MSCI EAFE
- Total Operating & Short Term Benchmark = 95% ICE BofAML 91 Days T-Bills TR / 5% BBgBarc US Govt 1-3 Yr TR
- Total Long Term/ Reserves Fund Benchmark = 27% Russell 3000 / 8% MSCI EAFE / 15% Total Alternatives Benchmark / 30% ICE BofAML 1-3 Yrs US Corp & Govt TR / 20% BBgBarc US Govt/Credit Int TR
- Vanguard Mid Cap Index Benchmark = 100% CRSP US Mid Cap TR USD
- Total Alternatives Benchmark = 25% FTSE NAREIT Developed TR USD / 75% HFRI Fund of Funds Composite Index
- Total Fixed Income Benchmark = 64% ICE BofAML 1-3 Yrs US Corp & Govt TR / 36% BBgBarc US Govt/Credit Int TR

ENDOWMENT HOLDINGS

YSU ENDOWMENT (HUNTINGTON)

- Equity Mutual Funds – 11% (5-10 Mutual Funds & ETFs)
- Stocks – 62% (45-60 U.S. Large/Mid-Cap Stocks)
- Fixed Income Mutual Funds – 1% (Federated Total Return Bond)
- Bonds – 17% (10-20 Bonds, U.S. Corporate / Gov't / Asset Backed Debt)
- Cash – 9%

KILCAWLEY (PNC)

- Vanguard Balanced Index Fund (Adm) – 100%

ALUMNI LICENSE PLATE (PNC)

- Vanguard Balanced Index Fund (Adm) – 100%

FEE REVIEW: ENDOWMENT ASSETS (AS OF 6/30/2019)

YOUNGSTOWN STATE UNIVERSITY INVESTMENTS ENDOWMENT ASSETS FEE REVIEW	Market Value as of 6/30/2019	Estimated Annual Fee ($)	Annual Manager Fee (%)	Manager	Morningstar Institutional Average Fee (%)
YSU Endowment					
YSU Endowment Fund Fees	$11,359,885	$56,799	0.50%	Huntington	n/a
Kilcawley Center					
Vanguard Balanced Index Fund Adm	$119,784	$84	0.07%	-	-
Trustee Fee (PNC)		$36	0.03%		
Total Kilcawley Center Fees		$120	0.10%		
Alumni License Plate					
Vanguard Balanced Index Fund Adm	$57,125	$40	0.07%	-	-
Trustee Fee (PNC)		$17	0.03%		
Total Alumni License Plate Fees		$57	0.10%		

U.S. ECONOMIC PROJECTIONS

FEDERAL RESERVE BOARD MEMBERS AND BANK PRESIDENTS

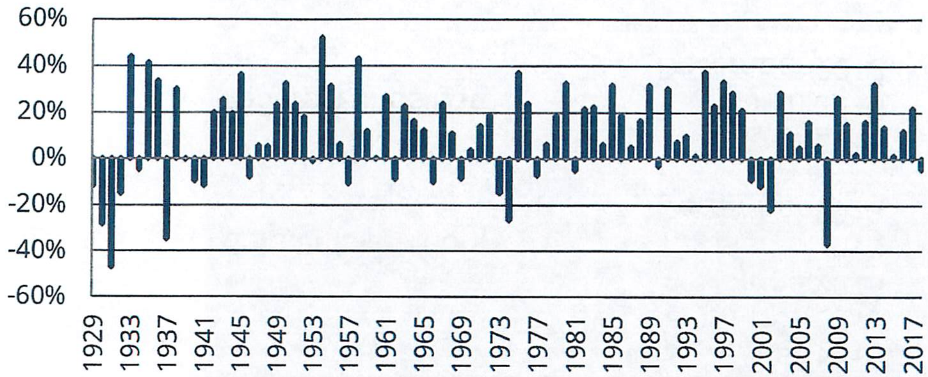
		2019	2020	2021	LONGER RUN*
GDP	June 2019 March 2019 December 2018	2.1% 2.1% 2.3%	2.0% 1.9% 2.0%	1.8% 1.8% 1.8%	1.9% 1.9% 1.9%
Unemployment Rate	June 2019 March 2019 December 2018	3.6% 3.7% 3.5%	3.7% 3.8% 3.6%	3.8% 3.9% 3.8%	4.2% 4.3% 4.4%
Core PCE Inflation	June 2019 March 2019 December 2018	1.8% 2.0% 2.0%	1.9% 2.0% 2.0%	2.0% 2.0% 2.0%	
Federal Funds Rate	June 2019 March 2019 December 2018	2.4% 2.4% 2.9%	2.1% 2.6% 3.1%	2.4% 2.6% 3.1%	2.5% 2.8% 2.8%
# of implied 25 bps rate changes per year	June 2019 March 2019 December 2018	0 0 2	Down 1 Up 1 Up 1	Up 1 0 0	

*Longer-run projections: The rates to which a policymaker expects the economy to converge over time – maybe in five or six years – in the absence of further shocks and under appropriate monetary policy.

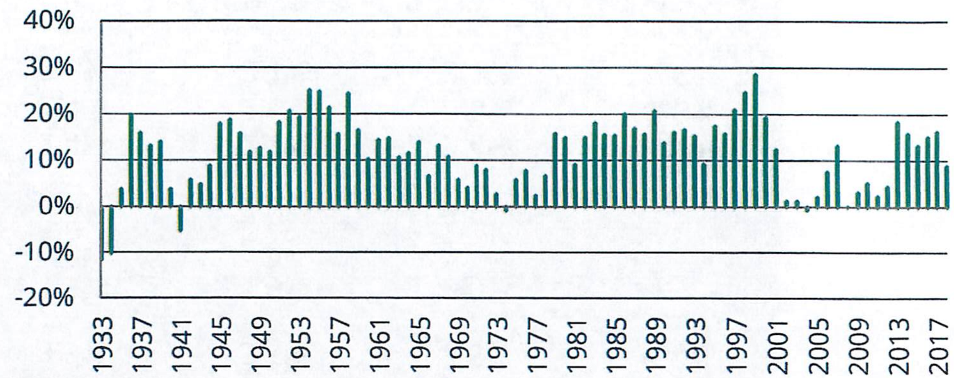
Source: Federal Reserve 6/19/2019.

HISTORICAL S&P 500 RETURNS

S&P 500 Index - 1 Year Rolling Return



S&P 500 Index - 5 Year Rolling Returns



S&P 500 Index - 1928 to 2018

ANNUAL TOTAL RETURN (%)	Years
-45	1931
-40	
-35	2008
-30	1937
-25	1974, 1930
-20	2002
-15	
-10	2001, 1973, 1966, 1957, 1941, 1932, 1929
-5	2000, 1977, 1969, 1962, 1946, 1940
0	2018, 2015, 2011, 2005, 1994, 1990, 1981, 1970, 1960, 1953, 1939, 1934
5	2007, 1993, 1992, 1987, 1984, 1978, 1956, 1948, 1947
10	2016, 2014, 2010, 2004, 1971, 1968, 1965, 1959
15	YTD '19, 2012, 2006, 1988, 1986, 1979, 1972, 1964, 1952, 1944, 1942
20	2017, 1999, 1996, 1983, 1982, 1976, 1967, 1963, 1951, 1949
25	2009, 2003, 1998, 1991, 1961, 1943, 1938
30	2013, 1997, 1989, 1985, 1980, 1955, 1950, 1936
35	1995, 1975, 1945, 1928
40	1958, 1935, 1933
45	1954

Past performance is not a guarantee of future results.
Source: Bloomberg.

GLOBAL GROWTH – BOTTOMING OUT?

		Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	12M Trend
Global	Mfg	52.7	52.5	52.1	52.0	51.9	51.4	50.8	50.6	50.5	50.4	49.8	49.4	
	Serv	54.0	53.5	52.9	53.4	53.7	53.0	52.6	53.3	53.7	52.7	51.6	51.9	
US	Mfg	55.3	54.7	55.6	55.7	55.3	53.8	54.9	53.0	52.4	52.6	50.5	50.6	
	Serv	56.0	54.8	53.5	54.8	54.7	54.4	54.2	56.0	55.3	53.0	50.9	51.5	
Eurozone	Mfg	55.1	54.6	53.2	52.0	51.8	51.4	50.5	49.3	47.5	47.9	47.7	47.6	
	Serv	54.2	54.4	54.7	53.7	53.4	51.2	51.2	52.8	53.3	52.8	52.9	53.6	
UK	Mfg	53.9	52.9	53.7	51.1	53.3	54.3	52.8	52.1	55.1	53.1	49.4	48.0	
	Serv	53.5	54.3	53.9	52.2	50.4	51.2	50.1	51.3	48.9	50.4	51.0	50.2	
Japan	Mfg	52.3	52.5	52.5	52.9	52.2	52.6	50.3	48.9	49.2	50.2	49.8	49.3	
	Serv	51.3	51.5	50.2	52.4	52.3	51.0	51.6	52.3	52.0	51.8	51.7	51.9	
China	Mfg	50.8	50.6	50.0	50.1	50.2	49.7	48.3	49.9	50.8	50.2	50.2	49.4	
	Serv	52.8	51.5	53.1	50.8	53.8	53.9	53.6	51.1	54.4	54.5	52.7	52.0	
India	Mfg	52.3	51.7	52.2	53.1	54.0	53.2	53.9	54.3	52.6	51.8	52.7	52.1	
	Serv	54.2	51.5	50.9	52.2	53.7	53.2	52.2	52.5	52.0	51.0	50.2	49.6	
S. Korea	Mfg	48.3	49.9	51.3	51.0	48.6	49.8	48.3	47.2	48.8	50.2	48.4	47.5	

Global manufacturing is contracting and global trade growth has stalled.

- Manufacturing surveys point to contractions in the EU, UK, China, Japan, China, and Korea.
- Only the U.S. and India show slight manufacturing expansion

The services sector—typically more domestically oriented—are holding up thus far, as local job markets, retail sales, and consumer confidence have remained mildly positive.

Source: Bloomberg, JPMorgan/Markit Global PMI.

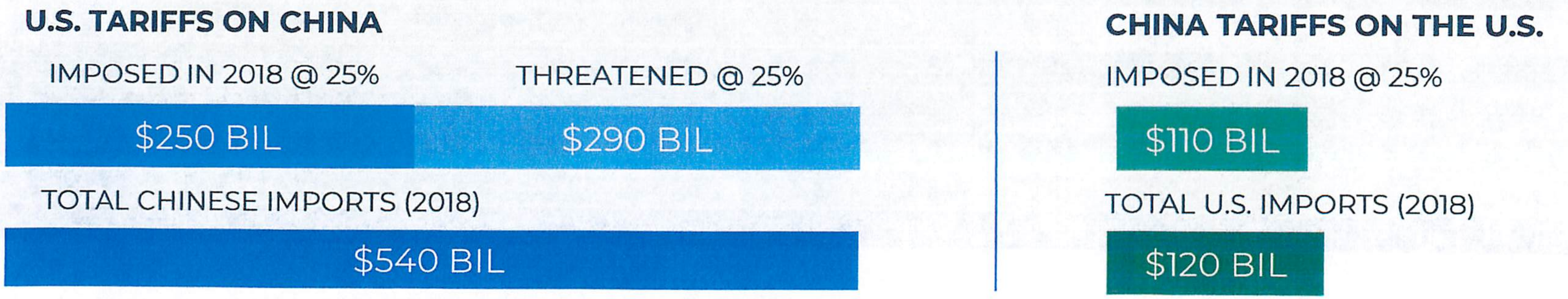
U.S. - CHINA TRADE TALKS – TALKS CONTINUE

Cease fire result from the G20 avoid the worst-case scenario: a no deal outcome and tariffs on all Chinese imports to the U.S.

- Trade talks will continue in the second half of 2019
- U.S. softened its policy on Huawei technologies—precise details are not fully clear
- Prospects for a comprehensive deal are uncertain
  - A win-win solution exists for both sides

    BUT
  - Much depends on Trumps political calculus/goals: *a win-win trade deal vs. railing against China*

U.S. - CHINA TRADE WAR STATUS QUO



Source: Clearstead, BBC.

CENTRAL BANKS BEING SUPPORTIVE TO GROWTH

KEY CENTRAL BANKS' EVOLVING MONETARY POLICY

	U.S. FED	ECB	BOJ	PBOC	BOE	BOI
Q2-2018	Contractionary	Easing	Easing	Contractionary	Contractionary	Contractionary
Q3-2018	Contractionary	Neutral	Easing	Neutral	Contractionary	Neutral
Q4-2018	Contractionary	Neutral	Easing	Easing	Neutral	Neutral
Q1-2019	Neutral	Easing	Easing	Easing	Neutral	Easing
Q2-2019	Easing	Easing	Easing	Easing	Neutral	Easing

GLOBAL TIGHTENING

GLOBAL EASING

REPRESENTS 75% OF GLOBAL GDP

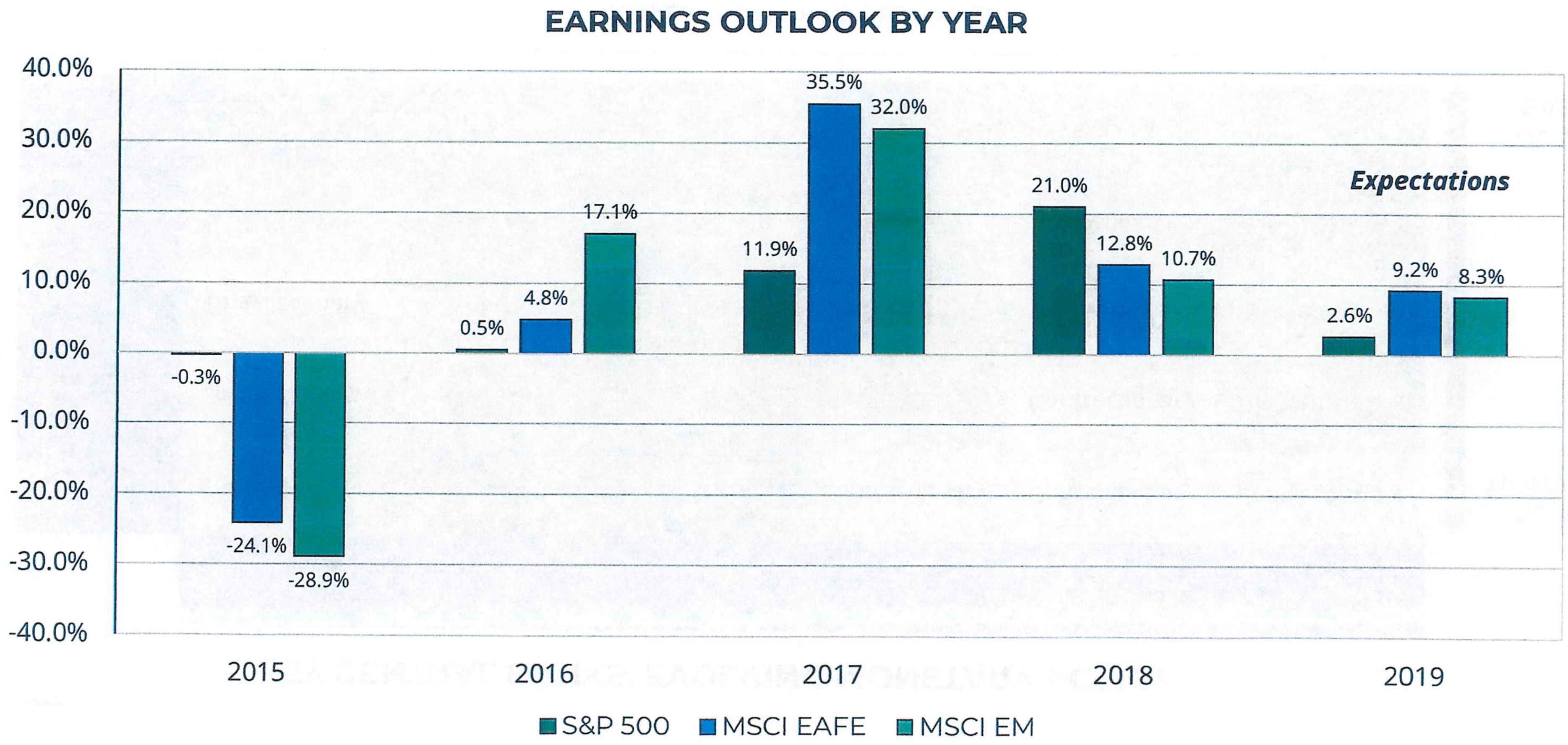
Central Banks are now uniformly oriented to re-stimulate/support global growth. The U.S. Fed was the final Central Bank to pivot to an easing orientation and currently markets have fully priced in a 25bp cut in late July.

Global money supply should expand modestly throughout the second half of 2019.

Fiscal expansions in China, the U.S., and Eurozone should further buttress growth.

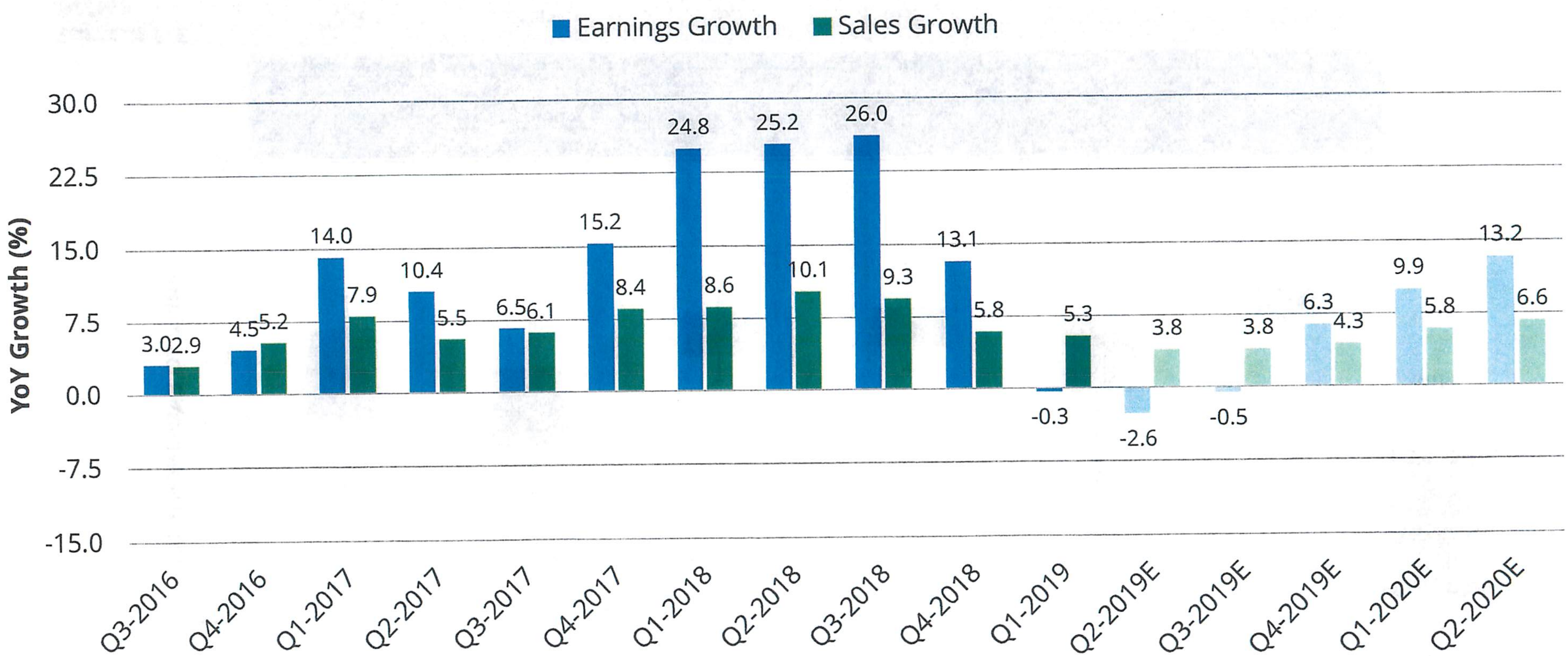
Source: Bloomberg, Clearstead.
Data as of 6/30/2019.

GLOBAL EARNINGS GROWTH



Sources: Bloomberg as of 6/30/2019 & FactSet as of 7/3/2019, Past performance is no guarantee of future results.

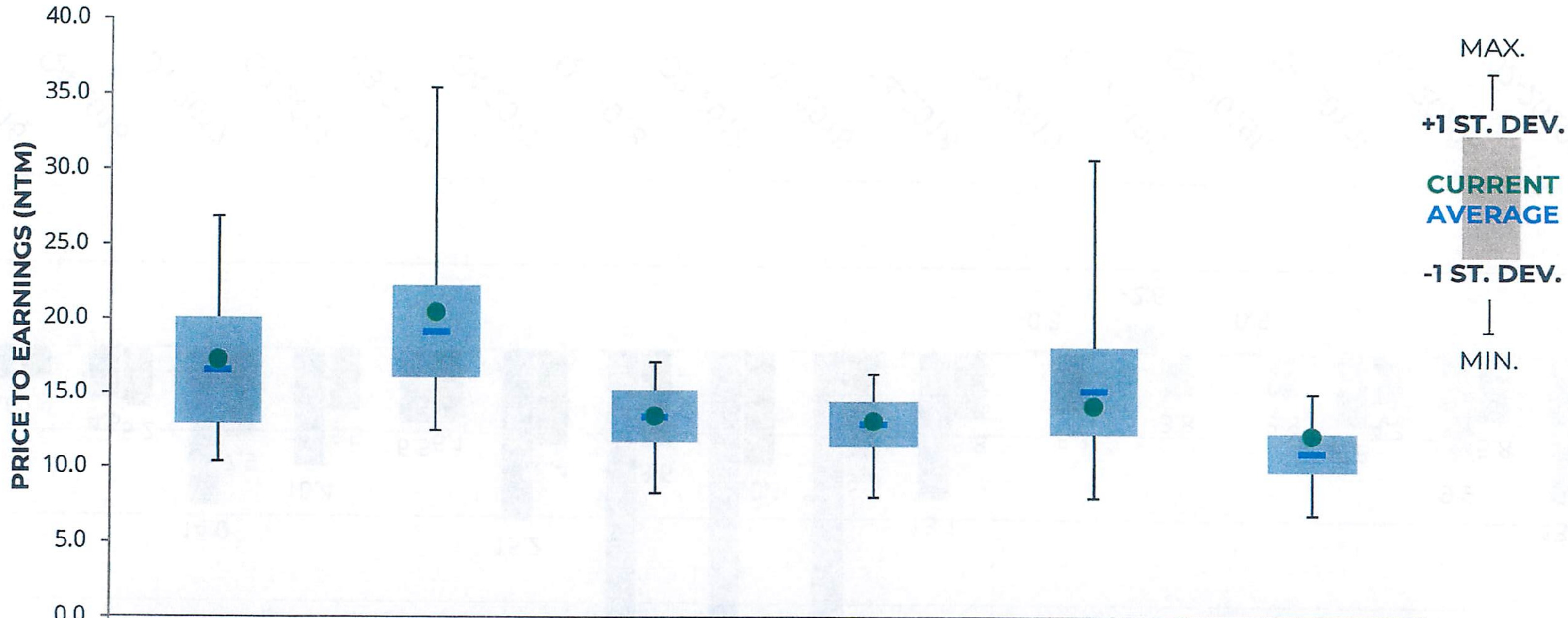
S&P 500 EARNINGS & REVENUE GROWTH



Estimates for Q2 2019 remain negative while Q3 2019 estimates have moved lower (from 0.0% in May to -0.5% in June) and are now negative as year-over-year numbers remain more difficult to beat. FY 2019 earnings growth estimates are 2.6% YoY.

Source(s): FactSet (3/29/19)
Past performance is no guarantee of future results.

GLOBAL EQUITY VALUATIONS



	MSCI USA	MSCI USA SMALL	MSCI EAFE	MSCI ACWI EX USA	MSCI ACWI EX USA SMALL	MSCI EM
Current P/E (NTM)	17.2	20.4	13.5	13.1	14.1	12.1
Average P/E (NTM)	16.5	19.1	13.4	13.0	15.2	11.0

Source: Bloomberg as of 6/30/2019.
Average taken over full index history. MSCI USA- 1994 - Current; MSCI USA Small- 1994 - Current; MSCI EAFE- 2003 - Current; MSCI ACWI ex USA- 2003 - Current; MSCI ACWI ex USA Small- 1994 - Current; MSCI EM- 2003 - Current.

ALTERNATIVE INVESTMENTS:
CHALLENGES FACING TRADITIONAL ASSETS

- The Fed is done raising rates and yields have fallen across the intermediate and longer parts of the curve, while investors' need for yield has not changed
- It is prudent to find opportunities through actively managed alpha sources rather than through general beta exposure
- The use of alternatives expands the breadth of investments outside the traditional asset classes to find alpha opportunities and additional diversification benefits
- Equity return prospects remain uncertain as we progress closer to the end of the business cycle; market (beta) exposure can expect an elevated level of volatility

1980 – 2008	2008 – 2016	2016 – 2018	EXPECTATIONS
High interest rates, respectable yields in fixed income	Persistently and historically low yields for bonds	The Fed raised interest rates eight times bringing yields off lows	An accommodative Fed, cutting rates if needed to stimulate the economy
Interest rates fell consistently throughout, helping to appreciate bond prices	Interest rates continued to fall, compressing already low yields	A rising rate environment	A flatter yield curve, dictated by market sentiment and investors, pointing to lower growth and inflation expectations
With good U.S. GDP growth, the expectation of economic growth and equity market expansion remained robust	There are growth challenges on the Main Street. Highly accommodative central bank policies around the world ease liquidity and help to appreciate asset prices in capital markets	U.S. GDP growth increased, with 2018 benefitting from corporate tax reform; Global central banks remained accommodative and the Fed initiated a balance sheet reduction program	A slowing global economy and lower growth expectations for the U.S.; Fed has indicated they will end their balance sheet reduction program in the fall 2019 and could possibly cut rates

ALTERNATIVE INVESTMENTS: MYTHS & TRUTHS

ALTERNATIVES ARE A SINGLE ASSET CLASS (MYTH)

- Alternatives encompass many different strategies, vehicles, and characteristics
- Strategies exhibit different risk/return profiles. It is prudent to diversify among alternative investments

ALTERNATIVES INCREASE THE RISK OF AN OVERALL PORTFOLIO (MYTH)

- Among the wide variety of strategies within alternatives, some carry higher risks than traditional asset classes, while some actually help reduce volatility
- Strategies are carefully selected for construction of an alternatives allocation to help diversify systematic(market) risk in an overall portfolio

ALTERNATIVES ARE A BLACK-BOX WITH NO TRANSPARENCY (MYTH)

- Alternative managers offer different levels of transparency across the spectrum. Most alternative investments offer full transparency of investment process and holdings. Some less liquid alternatives restrict full transparency to protect proprietary systems that may give the manager an edge over their competitors

ALTERNATIVES ARE NOT REGULATED (MYTH)

- Although many alternative investments are not regulated under Investment Company Act of 1940 for their product offerings, most entities themselves are registered with the Securities and Exchange Commission (SEC) in the United States, and internationally, with regulatory bodies in their respective countries. It is important to note, however, that regulation by itself is no guarantee of "safety," and all investments require thorough due diligence

ALTERNATIVE INVESTMENTS:
VOLATILITY & DIVERSIFICATION SCALE (LIQUID VEHICLES)

MORE DIVERSIFYING

	HISTORICAL RISK MEASURES		
	STANDARD DEVIATION	BETA	CORRELATION
U.S. Equity	14.4%	1.00	1.00
International Emerging Markets Equity	21.6%	1.15	0.77
Public Real Estate	19.0%	1.09	0.82
International Developed Equity	16.6%	1.01	0.87
Diversifying Growth	8.1%	0.49	0.88
Opportunistic Fixed Income	8.1%	0.31	0.55
Absolute Return	4.5%	0.22	0.72
Intermediate-Term Fixed Income	3.2%	0.00	0.01
Short-Term Fixed Income	1.2%	-0.02	-0.29

Source: Clearstead Research. The relevant time period is from March 2005 to April 2019. Beta and Correlation is anchored to the Russell 3000 Index. The asset classes are represented by the following indices: U.S. Equity – Russell 3000; International Developed Equity – MSCI EAFE Net; International Emerging Markets Equity – MSCI EM Net; Real Assets – FTSE EPRA/NAREIT Developed Index; Diversifying Growth – HFRI Equity Hedge; Opportunistic Fixed Income – JPMorgan EMBI; Absolute Return – HFRI Relative Value; Intermediate-Term Fixed Income – Bloomberg Barclays U.S. Aggregate Index; Short-Term – Bloomberg Barclays U.S. Government: 1-3 Year Bond.

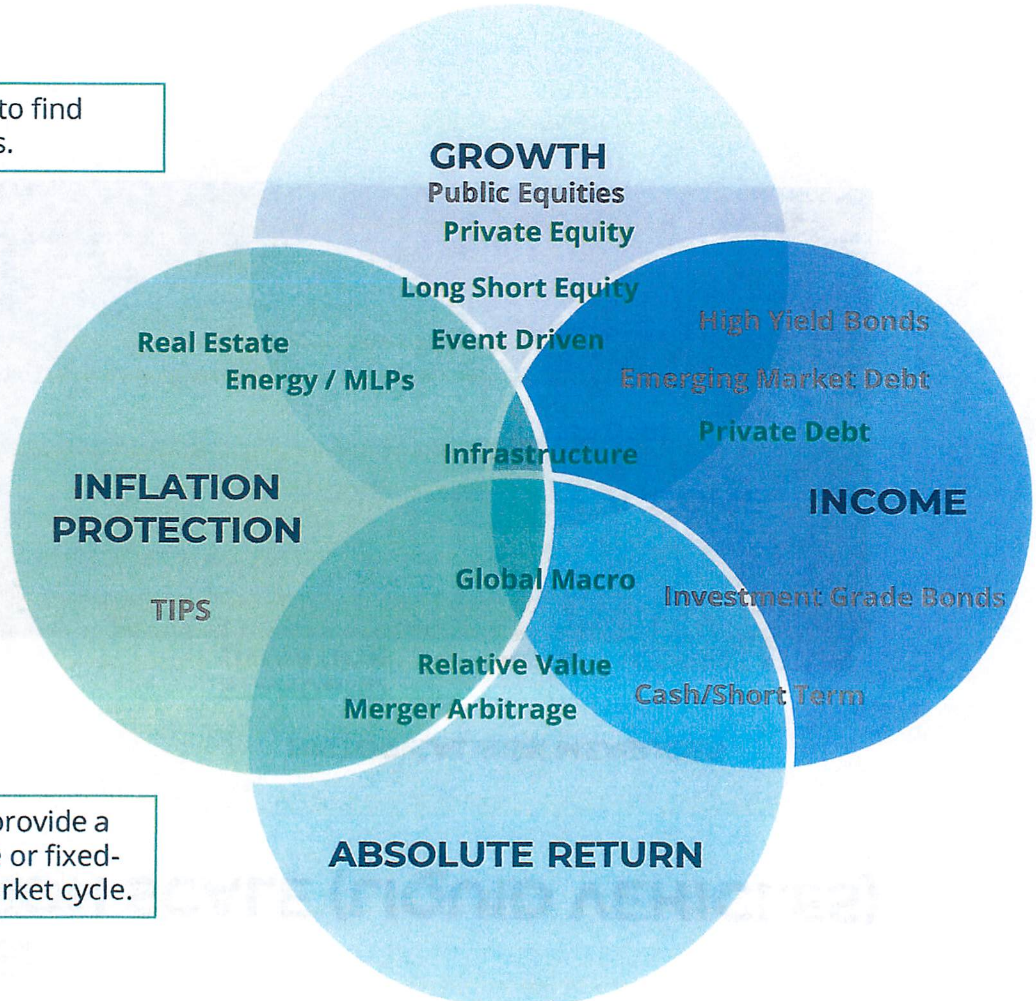
ALTERNATIVE INVESTMENTS: CLEARSTEAD'S PURPOSE-DRIVEN APPROACH

ALTERNATIVES HELP TO EXPAND THE INVESTABLE UNIVERSE

The **growth** alternatives aim to find additional alpha sources.

Real assets, such as real estate and MLPs, serve multiple functions through capital appreciation, **inflation protection**, and **income**.

The **absolute return** alternatives provide a hedging and diversification purpose or fixed-income-like characteristics over a market cycle.



ALTERNATIVE INVESTMENTS: STRATEGY DESCRIPTIONS

STRATEGIES	DESCRIPTION
PRIVATE EQUITY	Private equity is a large opportunity set of taking an ownership stake in a privately-owned company. Unlike public companies, there is less information about private companies, making them an "inefficient" investment. Such inefficiencies present an opportunity for an investment manager to add value by engaging with the private companies at a more intimate level, improving operations to increase the value of the business. Private investing spans the lifecycle of a company, from an early stage (venture capital) to mature businesses. There is potential for greater returns through manager skill and also a significant period of illiquidity, often 10 or more years.
PRIVATE DEBT (DIRECT LENDING)	Direct lending is loans made to borrowers, typically middle market companies, without a traditional bank intermediary. These loans are illiquid but can sometimes be traded on a secondary market. Loans that are non-sponsored (company does not have a private equity partner) typically have a higher interest rate than sponsored loans. These loans are often senior secured, floating rate (LIBOR +4%-10%), and can have pre-payment penalties that accrue to the investors. Investors may give up 3-10 years of liquidity for this strategy.
INFRASTRUCTURE	Infrastructure investments are made up of large-scale essential facilities and assets that societies depend on for economic activity. These assets can include transportation assets such as roads, railroads, seaports and airports; regulated assets such as electricity transmission lines, power plants; and gas and oil pipelines; and communication assets such as fiber optic lines and cellphone towers. Infrastructure assets generally provide strong cash flow yields and can serve as an inflation hedge. Most infrastructure investments are illiquid and can have a 10-20 year investment life.
REAL ESTATE	Real estate is a broad category that represents a wide range of assets including residential housing, industrial operations, malls, commercial office space, land, and hotels among others. These investments can be accessed through publicly traded REITs (real estate investment trusts) or through private funds which take on some of the private equity characteristics. Real estate investors earn returns from rental income, value improvements, and market appreciation. Real estate can also serve as an inflation hedge. Private real estate investments are often illiquid; public REITs are subject to equity market volatility.

ALTERNATIVE INVESTMENTS: STRATEGY DESCRIPTIONS

CATEGORIES	DESCRIPTION
LONG-SHORT EQUITY	Long-short equity is a strategy of buying favorable stocks and shorting unfavorable ones, based on manager philosophy and views. (Shorting a stock is making a bet that the stock price will go down and in turn provide a profit to the investor.) Long-short strategies reduce the sensitivity or beta to the market, but usually maintain a long-bias.
EVENT DRIVEN	Event driven is a strategy which looks to exploit opportunities that arise from corporate events, including mergers, acquisitions, spinoffs, bankruptcies, and restructurings. These events are often accompanied by significant pricing distortions that the markets may not understand. This category includes activist hedge funds, merger arbitrage, distressed situations, and other special situations strategies, and they can invest across the capital structure to take advantage of the mispricings that may result from the associated event.
GLOBAL MACRO	Global macro managers generally build strategies based around large-scale global projections. These strategies trade on a broad range of macroeconomic and geopolitical themes and can use derivatives, equity, fixed income, currency, and commodity markets to implement their views. Global macro strategies tend to be long volatility, offering defensiveness in portfolio construction. There is a degree of variability among the approaches utilized by managers, and therefore, risk/return expectations also may vary.
RELATIVE VALUE	Relative value is an investment approach focused on capturing discrepancies in the pricing relationship among similar securities. A manager will study securities that have historically had strong correlation and traded closely to one another. When there is a short-term deviation from this relationship, the manager will buy long the undervalued security and short the overvalued security, betting that the price gap will narrow and create a profit. These paired trades can occur in narrow industries between stocks, bonds from the same company, currency relationships, and commodities. This approach tends to carry lower risk as it has less dependency on the overall direction of markets.
MERGER ARBITRAGE	Merger arbitrage strategies take long positions in companies being acquired and short positions in acquirer hoping to capture the spread. The success of the trade is mostly predicated on the deal coming to fruition. Most merger arbitrage managers do not speculate on deals but rather wait for an announcement of a deal before taking a position. This strategy tends to be low risk and generally not dependent on the direction of the markets.
MLPS (ENERGY)	Master Limited Partnerships are publicly traded securities. By regulation, MLPs must distribute 90% of their income. As a results, MLPs generally have an attractive yield. Many MLPs are in the oil and gas industry which can result in short term volatility based on the underlying commodity price. However, most MLPs generate income from the volume moved through their pipes and are not directly impacted by the commodity price.

clearstead

DEFINITIONS & DISCLOSURES

DEFINITIONS & DISCLOSURES

Information provided is general in nature, is provided for informational purposes only, and should not be construed as investment advice. Any views expressed are based upon the data available at the time the information was produced and are subject to change at any time based on market or other conditions. Clearstead disclaims any liability for any direct or incidental loss incurred by applying any of the information in this presentation. All investment decisions must be evaluated as to whether it is consistent with their investment objectives, risk tolerance, and financial situation.

Past performance is no guarantee of future results. Investing involves risk, including risk of loss. Diversification does not ensure a profit or guarantee against loss.

All indices are unmanaged and performance of the indices includes reinvestment of dividends and interest income, unless otherwise noted. An investment cannot be made in any index.

Although bonds generally present less short-term risk and volatility than stocks, bonds do contain interest rate risk (as interest rates rise, bond prices usually fall and vice versa) and the risk of default, or the risk that an issuer will be unable to make income or principal payments. Additionally, bonds and short-term investments entail greater inflation risk, or the risk that the return of an investment will not keep up with increases in the prices of goods and services, than stocks.

Lower-quality debt securities generally offer higher yields, but also involve greater risk of default or price changes due to potential changes in the credit quality of the issuer. Any fixed income security sold or redeemed prior to maturity may be subject to loss.

The municipal market is volatile and can be significantly affected by adverse tax, legislative, or political changes and by the financial condition of the issuers of municipal securities. Interest rate increases can cause the price of a debt security to decrease. A portion of the dividends you receive may be subject to federal, state, or local income tax or may be subject to the federal alternative minimum tax. Generally, tax-exempt municipal securities are not appropriate holdings for tax advantaged accounts such as IRAs and 401(k)s.

Stock markets, especially foreign markets, are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments. Foreign securities are subject to interest-rate, currency-exchange-rate, economic, and political risks, all of which are magnified in emerging markets. The securities of smaller, less well-known companies can be more volatile than those of larger companies. Growth stocks can perform differently from the market as a whole and other types of stocks and can be more volatile than other types of stocks. Value stocks can perform differently than other types of stocks and can continue to be undervalued by the market for long periods of time.

The commodities industry can be significantly affected by commodity prices, world events, import controls, worldwide competition, government regulations, and economic conditions.

Changes in real estate values or economic conditions can have a positive or negative effect on issuers in the real estate industry, which may affect your investment.

Index Definitions:

The **S&P 500 Index** is a broad-based market index, comprised of 500 large-cap companies, generally considered representative of the stock market as a whole. The **S&P 400 Index** is an unmanaged index considered representative of mid-sized U.S. companies. The **S&P 600 Index** is a market-value weighted index that consists of 600 small-cap U.S. stocks chosen for market size, liquidity and industry group representation.

The **Russell 1000 Value Index, Russell 1000 Index** and **Russell 1000 Growth Index** are indices that measure the performance of large-capitalization value stocks, large-capitalization stocks and large-capitalization growth stocks, respectively. The **Russell 2000 Value Index, Russell 2000 Index** and **Russell 2000 Growth Index** are indices that measure the performance of small-capitalization value stocks, small-capitalization stocks and small-capitalization growth stocks, respectively. The **Russell Midcap Value Index, Russell Midcap Index** and **Russell Midcap Growth Index** are indices that measure the performance of mid-capitalization value stocks, mid-capitalization stocks and mid-capitalization growth stocks, respectively. The **Russell 2500 Value Index, Russell 2500 Index** and **Russell 2500 Growth Index** measure the performance of small to mid-cap value stocks, small to mid-cap stocks and small to mid-cap growth stocks, respectively, commonly referred to as "smid" cap. The **Russell 3000 Value Index, Russell 3000 Index** and **Russell 3000 Growth Index** measure the performance of the 3,000 largest U.S. value stocks, 3,000 largest U.S. stocks and 3,000 largest U.S. growth stocks, respectively, based on total market capitalization.

The **Wilshire 5000 Index** represents the broadest index for the U.S. equity market, measuring the performance of all U.S. equity securities with readily available price data. The **Wilshire Micro Cap Index** is a market capitalization-weighted index comprised of all stocks in the Wilshire 5000 Index below the 2,501st rank.

The **MSCI EAFE (Europe, Australasia, Far East) Index** is designed to measure developed market equity performance, excluding the U.S. and Canada. The **MSCI Emerging Markets (EM) Index** is designed to measure global emerging market equity performance. The **MSCI World Index** is designed to measure global developed market equity performance. The **MSCI World Index Ex-U.S. Index** is designed to measure the equity market performance of developed markets and excludes the U.S. The **MSCI Europe Index** is an unmanaged index considered representative of developed European countries. The **MSCI Japan Index** is an unmanaged index considered representative of stocks of Japan. The **MSCI Pacific ex. Japan Index** is an unmanaged index considered representative of stocks of Asia Pacific countries excluding Japan.

The **U.S. 10-Year treasury Yield** is generally considered to be a barometer for long-term interest rates.

Merrill Lynch 91-day T-bill Index includes U.S. Treasury bills with a remaining maturity from 1 up to 3 months.

The Barclays Capital® (BC) U.S. Treasury Index is designed to cover public obligations of the U.S. Treasury with a remaining maturity of one year or more. The **BC Aggregate Bond Index** is an unmanaged, market value-weighted performance benchmark for investment-grade fixed-rate debt issues, including government, corporate, asset-backed, and mortgage-backed securities with maturities of at least one year. The **BC U.S. Credit Bond Index** is designed to cover publicly issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and quality requirements; bonds must be SEC-registered to qualify. The **BC U.S. Agency Index** is designed to cover publicly issued debt of U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government. The **BC CMBS Index** is designed to mirror commercial mortgage-backed securities of investment-grade quality (Baa3/BBB-/BBB- or above) using Moody's, S&P, and Fitch respectively, with maturity of at least one year. The **BC MBS Index** covers agency mortgage-backed pass-through securities (both fixed-rate and hybrid ARMs) issued by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC). The **BC U.S. Municipal Bond Index** covers the U.S. dollar-denominated, long-term tax-exempt bond market with four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds. The **BC TIPS Index** is an unmanaged market index made up of U.S. Treasury Inflation Linked Index securities. The **BC U.S. Government Bond Index** is a market value-weighted index of U.S. Government fixed-rate debt issues with maturities of one year or more. The **BC ABS Index** is a market value-weighted index that covers fixed-rate asset-backed securities with average lives greater than or equal to one year and that are part of a public deal; the index covers the following collateral types: credit cards, autos, home equity loans, stranded-cost utility (rate-reduction bonds), and manufactured housing. The **BC Global Aggregate Index** is composed of three sub-indices; the U.S. Aggregate Index, Pan-European Aggregate Index, and the Asian-Pacific Aggregate Index. In aggregate the index is created to be a broad-based measure of the performance of investment grade fixed rate debt on a global scale. The **BC US Corporate Long Aa Index** is an unmanaged index representing public obligations of U.S. corporate and specified foreign debentures and secured notes with a remaining maturity of 10 years or more. **The BC U.S. Corporate High-Yield Index** measures the market of USD-denominated, non-investment grade, fixed-rate, taxable corporate bonds. **The BC Intermediate Corporate Index** includes dollar-denominated debt from U.S. and non-U.S. industrial, utility, and financial institutions issuers with a duration of 1-10 years. The **BC U.S. Treasury Long Index** is an unmanaged index representing public obligations of the U.S. Treasury with a remaining maturity of one year or more. The **BC U.S. Government 10 Year Treasury Index** measures the performance of U.S. Treasury securities that have a remaining maturity of less than 10 years. The **BC BAA Corporate Index** measures the performance of the taxable Baa rated fixed-rate U.S. dollar-denominated corporate bond market. The **BC Global Treasury ex US Index** includes government bonds issued by investment-grade countries outside the United States, in local currencies, that have a remaining maturity of one year or more and are rated investment grade or higher. The **BC Emerging Market Bond Index** is an unmanaged index that total returns for external-currency-denominated debt instruments of the emerging markets. The **BC U.S. Securitized Bond Index** is a composite of asset-backed securities, collateralized mortgage-backed securities (ERISA-eligible) and fixed rate mortgage-backed securities. The **BC Quality Distribution AAA, B, and CC-D Indices** measure the respective credit qualities of U.S. corporate and specified foreign debentures and secured notes. The **BC Universal Index** represents the union of the U.S. Aggregate Index, the U.S. High Yield Corporate Index, the 144A Index, the Eurodollar Index, the Emerging Markets Index, and the non-ERISA portion of the CMBS Index. The **BC 1-3 Year Government Credit Index** is an unmanaged index considered representative of performance of short-term U.S. corporate bonds and U.S. government bonds with maturities from one to three years. The **BC Long-term Government Index** is an unmanaged index reflecting performance of the long-term government bond market. **The BC Intermediate Aggregate Index** measures the performance of intermediate-term investment grade bonds. **The BC Intermediate 1-3 Year Government/Credit Index** measures the performance of U.S. Dollar denominated U.S. Treasuries, government-related and investment grade U.S. corporate securities that have a remaining maturity of greater than one year and less than ten years.

The **Bank of America ML U.S. High Yield Index** tracks the performance of below investment grade US Dollar Denominated corporate bonds publicly issued in the US market. Qualifying bonds have at least one year remaining term to maturity, are fixed coupon schedule and minimum outstanding of $100 million.

The **HFRI Funds of Funds Index (HFRI FOF)** is an equal weighted index designed to measure the performance of hedge fund of fund managers. The more than 800 multi-strategy constituents are required to have at least $50 million in assets under management and a trading track record spanning at least 12 months. The index includes both on and offshore funds and all returns are reported in USD

The **NCREIF Property Index (NPI)** represents quarterly time series composite total rate of return measure of a very large pool of individual commercial real estate properties acquired in the private market. The index represents apartments, hotels, industrial properties, office buildings and retail properties which are at least 60% occupied and owned or controlled, at least in part by tax-exempt institutional investors or its designated agent. In addition these properties that are included must be investment grade, non-agricultural and income producing and all development projects are excluded. Constituents included in the NPI be valued at least quarterly, either internally or externally, using standard commercial real estate appraisal methodology. Each property must be independently appraised a minimum of once every three years.

The **FTSE NAREIT All REITs Index** is a market capitalization–weighted index that is designed to measure the performance of all tax–qualified Real Estate Investment Trusts (REITs) that are listed on the New York Stock Exchange, the American Stock Exchange, or the NASDAQ National Market List.

The **Dow Jones U.S. Select Real Estate Securities Index** is a float-adjusted market capitalization–weighted index of publicly traded real estate securities such as real estate investment trusts (REITs) and real estate operating companies (REOCs).

The **Cambridge PE Index** is a representation of returns for over 70% of the total dollars raised by U.S. leveraged buyout, subordinated debt and special situation managers from 1986 to December 2007. Returns are calculated based on the pooled time weighted return and are net of all fees. These pooled means represent the end to end rate of return calculated on the aggregate of all cash flows and market values reported by the general partners of the underlying constituents in the quarterly and annual reports.

The **University of Michigan Consumer Sentiment Index** is a consumer confidence index published monthly by the University of Michigan and Thomson Reuters. The index is normalized to have a value of 100 in December 1964.

VIX - The CBOE Volatility Index (VIX) is based on the prices of eight S&P 500 index put and call options.

Gold – represented by the dollar spot price of one troy ounce

WTI Crude – West Texas Intermediate is a grade of crude oil used as a benchmark in oil pricing.

The **Affordability Index** measures of a population's ability to afford to purchase a particular item, such as a house, indexed to the population's income

The **Homeownership %** is computed by dividing the number of owner-occupied housing units by the number of occupied housing units or households.

HFRI Emerging Markets: Asia ex-Japan, Global Index, Latin America Index, Russia/Eastern Europe Index: The constituents of the HFRI Emerging Markets Indices are selected according to their Regional Investment Focus only. There is no Investment Strategy criteria for inclusion in these indices. Funds classified as Emerging Markets have a regional investment focus in one of the following geographic areas: Asia ex-Japan, Russia/Eastern Europe, Latin America, Africa or the Middle East. **HFRI EH: Energy/Basic Materials** strategies which employ investment processes designed to identify opportunities in securities in specific niche areas of the market in which the Manager maintains a level of expertise which exceeds that of a market generalist. **HFRI EH: Equity Market Neutral** strategies employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. **HFRI EH: Quantitative Directional** strategies employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. **HFRI EH: Short-Biased** strategies employ analytical techniques in which the investment thesis is predicated on assessment of the valuation characteristics on the underlying companies with the goal of identifying overvalued companies. **HFRI EH: Technology/Healthcare** strategies employ investment processes designed to identify opportunities in securities in specific niche areas of the market in which the Manager maintain a level of expertise which exceeds that of a market generalist in identifying opportunities in companies engaged in all development, production and application of technology, biotechnology and as related to production of pharmaceuticals and healthcare industry. **HFRI ED: Distressed Restructuring** strategies which employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings. **HFRI ED: Merger Arbitrage** strategies which employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently engaged in a corporate transaction. **HFRI ED: Private Issue/Regulation D** strategies which employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are primarily private and illiquid in nature. **HFRI Macro: Systematic Diversified** strategies have investment processes typically as function of mathematical, algorithmic and technical models, with little or no influence of individuals over the portfolio positioning. **HFRI RV: Fixed Income - Asset Backed** includes strategies in which the investment thesis is predicated on realization of a spread between related instruments in which one or multiple components of the spread is a fixed income instrument backed physical collateral or other financial obligations (loans, credit cards) other than those of a specific corporation. **HFRI RV: Fixed Income - Convertible Arbitrage** includes strategies in which the investment thesis is predicated on realization of a spread between related instruments in which one or multiple components of the spread is a convertible fixed income instrument. **HFRI RV: Fixed Income - Corporate** includes strategies in which the investment thesis is predicated on realization of a spread between related instruments in which one or multiple components of the spread is a corporate fixed income instrument. **HFRI RV: Multi-Strategies** employ an investment thesis is predicated on realization of a spread between related yield instruments in which one or multiple components of the spread contains a fixed income, derivative, equity, real estate, MLP or combination of these or other instruments. **HFRI RV: Yield Alternatives Index** strategies employ an investment thesis is predicated on realization of a spread between related instruments in which one or multiple components of the spread contains a derivative, equity, real estate, MLP or combination of these or other instruments. Strategies are typically quantitatively driven to measure the existing relationship between instruments and, in some cases, identify attractive positions in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager.

The **Consumer Price Index (CPI)** is an inflationary indicator that measures the change in the cost of a fixed basket of products and services, including housing, electricity, food, and transportation. The CPI is published monthly. Unless otherwise noted, the CPI figure is as of the date this report is created.

The **Credit Suisse Leveraged Loan Index** is a market value–weighted index designed to represent the investable universe of the U.S. dollar–denominated leveraged loan market.

The **Dow Jones-UBS Commodity Index** measures the performance of the commodities market. It consists of exchange-traded futures contracts on physical commodities that are weighted to account for the economic significance and market liquidity of each commodity.

The **S&P 500 Value Index, Index S&P 500 Index** and **S&P 500 Growth Index** are a broad-based market indices that measure the performance of large-capitalization value companies, large-capitalization companies and large-capitalization growth companies, respectively. The **S&P 400 MidCap Value, Index S&P MidCap 400 Index** and **S&P 400 MidCap Growth Index** are indices that measure the performance of mid-sized value companies, mid-sized companies and mid-sized growth companies, respectively. The **S&P 600 SmallCap Index** is a market-value weighted index that consists of 600 small-cap U.S. stocks chosen for market size, liquidity and industry group representation. The **S&P 900 Index** combines the large-cap S&P 500 and the S&P MidCap 400. **S&P Completion Index TR** is a sub-index of the S&P Total Market Index (TMI), including all stocks eligible for the S&P TMI and excluding all current constituents of the S&P 500. **S&P Global Ex US Property Index** defines and measures the investable universe of publicly traded property companies domiciled in developed and emerging markets excluding the U.S.

The **Russell 1000 Value Index, Russell 1000 Index** and **Russell 1000 Growth Index** are indices that measure the performance of large-capitalization value stocks, large-capitalization stocks and large capitalization growth stocks, respectively. The **Russell 2000 Value Index, Russell 2000 Index** and **Russell 2000 Growth Index** are indices that measure the performance of small-capitalization value stocks, small-capitalization stocks and small-capitalization growth stocks, respectively. The **Russell Midcap Value Index, Russell Midcap Index** and **Russell Midcap Growth Index** are indices that measure the performance of mid-capitalization value stocks, mid-capitalization stocks and mid-capitalization growth stocks, respectively. The **Russell 2500 Value Index, Russell 2500 Index** and **Russell 2500 Growth Index** measure the performance of small to mid-cap value stocks, small to mid-cap stocks and small to mid-cap growth stocks, respectively, commonly referred to as "SMID" cap. The **Russell 3000 Value Index, Russell 3000 Index** and **Russell 3000 Growth Index** measure the performance of the 3,000 largest U.S. value stocks, 3,000 largest U.S. stocks and 3,000 largest U.S. growth stocks, respectively, based on total market capitalization. The **Russell Microcap Index** measures the performance of the microcap segment of the U.S. equity market. The **Russell Top 200 Value Index** measures the performance of the especially large cap segment of the U.S. equity universe represented by stocks in the largest 200 by market cap that exhibit value characteristics. The **Russell Developed ex-US Large Cap Index** measures the performance of the largest investable securities in developed countries globally, excluding companies assigned to the United States.

DEFINITIONS & DISCLOSURES

The **Wilshire 5000 Index** represents the broadest index for the U.S. equity market, measuring the performance of all U.S. equity securities with readily available price data. The **Wilshire Micro Cap Index** is a market capitalization-weighted index comprised of all stocks in the Wilshire 5000 Index below the 2,501st rank. The **Wilshire 4500 Index** is comprised of all stocks in the Wilshire 5000 minus the stocks in the S&P 500. The **Wilshire Real Estate Securities Index (RESI)** is comprised of publically traded real estate equity securities.

All MSCI indices are gross, defined as With Gross Dividends: Gross total return indices reinvest as much as possible of a company's dividend distributions. The reinvested amount is equal to the total dividend amount distributed to persons residing in the country of the dividend-paying company. Gross total return indices do not, however, include any tax credits. The **MSCI EAFE (Europe, Australasia, Far East) Gross Index** is designed to measure developed market equity performance, excluding the U.S. and Canada. The **MSCI Emerging Markets (EM) Gross Index** is designed to measure global emerging market equity performance. The **MSCI World Gross Index** is designed to measure global developed market equity performance. The **MSCI World Index Ex-U.S. Gross Index** is designed to measure the equity market performance of developed markets and excludes the U.S. The **MSCI Europe Gross Index** is an unmanaged index considered representative of developed European countries. The **MSCI Japan Gross Index** is an unmanaged index considered representative of stocks of Japan. The **MSCI Pacific ex. Japan Gross Index** is an unmanaged index considered representative of stocks of Asia Pacific countries excluding Japan. The **MSCI AC (All Country) Asia ex Japan Gross Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of Asia, excluding Japan. The **MSCI ACWI Gross Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. The **MSCI ACWI ex USA Gross Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets, excluding US. The **MSCI ACWI ex US Small Cap Growth Gross Index** is a market capitalization weighted total return index measured in U.S. dollars based on share prices and reinvested net dividends that is designed to measure the equity market performance of the small cap growth segments of developed and emerging markets, excluding the U.S.. The **MSCI Canada Gross Index** is designed to measure the performance of the large and midcap segments of the Canada market. The **MSCI EAFE Small Cap Gross Index** measures the performance of small cap stocks in European, Australasian, and Far Eastern markets. The **MSCI EAFE Value Gross Index** is a market capitalization-weighted index that monitors the performance of value stocks from Europe, Australasia, and the Far East. The **MSCI EM Latin America Gross Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of emerging markets in Latin America. The **MSCI Pacific Free ex Japan Gross Index** measures the performance of the Australian, Hong Kong, New Zealand, and Singapore equity markets. The **MSCI World Small Cap Gross Index** is designed to measure the equity market performance of the small cap segment of developed markets. The **MSCI US Small Cap 1750 Gross Index** represents the universe of small capitalization companies in the US equity market. The **MSCI US Mid Cap 450 Index** represents the universe of medium capitalization companies in the US equity market. The **MSCI US Mid Cap Value Index** represents the value companies of the MSCI US Mid Cap 450 Index. The **MSCI US Prime Market 750 Index** represents the universe of large and medium capitalization companies in the US equity market. The **MSCI US Prime Market Value Index** represents the value companies of the MSCI US Prime Market 750 Index. The **MSCI US Prime Market Growth Index** represents the growth companies of the MSCI US Prime Market 750 Index

The **Barclays Capital® (BC) U.S. Treasury Index** is designed to cover public obligations of the U.S. Treasury with a remaining maturity of one year or more. The **BC Aggregate Bond Index** is an unmanaged, market value-weighted performance benchmark for investment-grade fixed-rate debt issues, including government, corporate, asset-backed, and mortgage-backed securities with maturities of at least one year. The **BC U.S. Credit Bond Index** is designed to cover publicly issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and quality requirements; bonds must be SEC-registered to qualify. The **BC U.S. Agency Index** is designed to cover publicly issued debt of U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government. The **BC CMBS Index** is designed to mirror commercial mortgage-backed securities of investment-grade quality (Baa3/BBB-/BBB- or above) using Moody's, S&P, and Fitch respectively, with maturity of at least one year. The **BC MBS Index** covers agency mortgage-backed pass-through securities (both fixed-rate and hybrid ARMs) issued by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC). The **BC U.S. Municipal Bond Index** covers the U.S. dollar-denominated, long-term tax-exempt bond market with four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds. The **BC US TIPS Index** is an unmanaged market index made up of U.S. Treasury Inflation Linked Index securities. The **BC U.S. Government Bond Index** is a market value-weighted index of U.S. Government fixed-rate debt issues with maturities of one year or more. The **BC ABS Index** is a market value-weighted index that covers fixed-rate asset backed securities with average lives greater than or equal to one year and that are part of a public deal; the index covers the following collateral types: credit cards, autos, home equity loans, stranded-cost utility (rate-reduction bonds), and manufactured housing. The **BC Global Aggregate Index** is composed of three sub-indices; the U.S. Aggregate Index, Pan-European Aggregate Index, and the Asian-Pacific Aggregate Index. In aggregate the index is created to be a broad-based measure of the performance of investment grade fixed rate debt on a global scale. The **BC US Corporate Long Aa Index** is an unmanaged index representing public obligations of U.S. corporate and specified foreign debentures and secured notes with a remaining maturity of 10 years or more. The **BC U.S. Corporate High-Yield Index** measures the market of USD-denominated, non-investment grade, fixed-rate, taxable corporate bonds. The **BC Intermediate Corporate Index** includes dollar-denominated debt from U.S. and non-U.S. industrial, utility, and financial institutions issuers with a duration of 1-10 years. The **BC U.S. Treasury Long Index** is an unmanaged index representing public obligations of the U.S. Treasury with a remaining maturity of one year or more. The **BC U.S. Government 10 Year Treasury Index** measures the performance of U.S. Treasury securities that have a remaining maturity of less than 10 years. The **BC BAA Corporate Index** measures the performance of the taxable Baa rated fixed-rate U.S. dollar-denominated corporate bond market. The **BC Global Treasury ex US Index** includes government bonds issued by investment-grade countries outside the United States, in local currencies, that have a remaining maturity of one year or more and are rated investment grade or higher. The **BC Emerging Market Bond Index** is an unmanaged index that total returns for external-currency-denominated debt instruments of the emerging markets. The **BC U.S. Securitized Bond Index** is a composite of asset-backed securities, collateralized mortgage-backed securities (ERISA-eligible) and fixed rate mortgage-backed securities. The **BC Quality Distribution AAA, B, and CC-D Indices** measure the respective credit qualities of U.S. corporate and specified foreign debentures and secured notes. The **BC Universal Index** represents the union of the U.S. Aggregate Index, the U.S. High Yield Corporate Index, the 144A Index, the Eurodollar Index, the Emerging Markets Index, and the non-ERISA portion of the CMBS Index. The **BC 1-3 Year Government Credit Index** is an unmanaged index considered representative of performance of short-term U.S. corporate bonds and U.S. government bonds with maturities from one to three years. The **BC 1-5 Year Government Credit Index** is an unmanaged index considered representative of performance of short-term U.S. corporate bonds and U.S. government bonds with maturities from one to five years. The **BC Long-term Government Index** is an unmanaged index reflecting performance of the long-term government bond market. The **BC Intermediate Aggregate Index** measures the performance of intermediate-term investment grade bonds. The **BC Intermediate 1-3 Year Government/Credit Index** measures the performance of U.S. Dollar denominated U.S. Treasuries, government-related and investment grade U.S. corporate securities that have a remaining maturity of greater than one year and less than ten years. The **BC U.S. 1-3 Year Government Bond Index** is composed of treasury bond and agency bond and agency bond indices that have maturities of one to three years. The **BC U.S. 1-5 Year Government Bond Index** is composed of treasury bond and agency bond and agency bond indices that have maturities of one to five years. The **BC 1-3 Year US Treasury Index** measures the performance of U.S. Treasury securities that have a maturity between 1 to 3 years. . The **BC Government Credit Index** measures the performance of U.S. Government and corporate bonds rated investment grade or better, with maturities of at least one year.

The **BC High Yield Index** covers the universe of fixed rate, non-investment grade debt. Pay-in-kind (PIK) bonds, Eurobonds, and debt issues from countries designated as emerging markets (e.g., Argentina, Brazil, Venezuela, etc.) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included. Original issue zeroes, step-up coupon structures, and 144-As are also included. The **BC Intermediate Government Index** measures the performance of intermediate U.S. government securities. The **BC Intermediate Government/Credit Bond Index** measures the performance of intermediate term U.S. government and corporate bonds. The **BC U.S. Long Term Corporate Index** measures the performance of investment-grade, fixed-rate, taxable securities issued by industrial, utility, and financial companies, with maturities greater than 10 years. The **BC Global Credit Hedged USD Index** contains investment grade and high yield credit securities from the Multiverse represented in US Dollars on a hedged basis. The **BC Long A+ U.S. Credit Index** measures the performance of investment grade corporate debt and agency bonds that are dollar denominated and have a maturity of greater than 10+ years. The **BC U.S. Gov/Credit 5-10 Year Index** includes all medium and larger issues of U.S. government, investment-grade corporate, and investment-grade international dollar-denominated bonds that have maturities between 5 and 10 years and are publicly issued.

The **Cambridge U.S. Private Equity Index** is a representation of returns for over 70% of the total dollars raised by U.S. leveraged buyout, subordinated debt and special situation managers from 1986 to December 2007. Returns are calculated based on the pooled time weighted return and are net of all fees. These pooled means represent the end to end rate of return calculated on the aggregate of all cash flows and market values reported by the general partners of the underlying constituents in the quarterly and annual reports. Please Note: the performance of this index lags by 1 quarter.

The **Bank of America (BofA) Merrill Lynch (ML) 91-day T-bill Index** includes U.S. Treasury bills with a remaining maturity from 1 up to 3 months. The **BofA ML U.S. High Yield Master Index & Bank of America ML U.S. High Yield Master II Indices** track the performance of below investment grade US Dollar Denominated corporate bonds publicly issued in the US market. Qualifying bonds have at least one year remaining term to maturity, are fixed coupon schedule and minimum outstanding of $100 million. The **BofA ML All US Convertibles Index** consists of convertible bonds traded in the U.S. dollar denominated investment grade and non investment grade convertible securities sold into the U.S. market and publicly traded in the United States. The **BofA ML US Corp & Govt 1-3 Yrs Index** tracks the performance of U.S. dollar-denominated investment grade government and corporate public debt issued in the U.S. domestic bond market with at least 1 yr and less than 3 yrs remaining to maturity, including U.S. Treasury, U.S. agency, foreign government, supranational and corporate securities. The **BofA ML U.S. High-Yield BB-B Constrained Index** is a modified market capitalization-weighted index of U.S. dollar-denominated, below-investment-grade corporate debt publicly issued in the U.S. domestic market. The **BofA Merrill Lynch US Year Treasury 1-3 Year Index** tracks the performance of the direct sovereign debt of the U.S. Government having a maturity of at least one year and less than three years. The **BofA ML Treasuries 1 Year Index** tracks the performance of the direct sovereign debt of the U.S. Government having a maturity of at least one year. The **BofA ML treasury Current 2 Year Index** tracks the most recently issued 2-year U.S. Treasury note. The **BofA ML CMBS Fixed Rate AAA Index** is a subset of the BofA ML U.S. Fixed Rate CMBS Index including all securities rated AAA. The **BofA ML U.S. Fixed Rate CMBS Index** tracks the performance of U.S. dollar-denominated investment-grade fixed rate commercial mortgage-backed securities publicly issued in the U.S. domestic market. The **BofA ML U.S. Dollar 3-Month LIBOR Index** represents the London interbank offered rate (LIBOR) with a constant 3-month average maturity.

The **Citi Select MLP Index** is a USD denominated, price return index, comprised of the common units of up to 30 of the most liquid master limited partnerships in the Energy Sector. The **Citigroup World Government Bond Index (WGBI) 1-5 Year Hedged USD Index** is a comprehensive measure of the total return performance of the government bond markets of approximately 22 countries with maturities ranging from one to five years. The **Citigroup WGBI Index** is a market capitalization weighted bond index consisting of the government bond markets of the multiple countries. The **Citigroup WGBI ex US Index** is a market capitalization weighted bond index consisting of the government bond markets of the multiple countries, excluding the U.S.. The **Citigroup 3-Month U.S. Treasury Bill Index** performance is an average of the last 3-Month Treasury Bill issues.

The **NCREIF Property Index (NPI)** represents quarterly time series composite total rate of return measure of a very large pool of individual commercial real estate properties acquired in the private market. The index represents apartments, hotels, industrial properties, office buildings and retail properties which are at least 60% occupied and owned or controlled, at least in part by tax-exempt institutional investors or its designated agent. In addition these properties that are included must be investment grade, non-agricultural and income producing and all development projects are excluded. Constituents included in the NPI be valued at least quarterly, either internally or externally, using standard commercial real estate appraisal methodology. Each property must be independently appraised a minimum of once every three years. Please Note: the performance of this index lags by 1 quarter. The **NCREIF Timberland Index** is a quarterly time series composite return measure of investment performance of a large pool of individual timber properties acquired in the private market for investment purposes only.

The **Ibbotson Intermediate Government Bond Index** is measured using a one-bond portfolio with a maturity near 5 years.

The **JP Morgan Emerging Markets Bond Index Plus (EMBI+) Index** tracks total returns for traded external debt instruments (external meaning foreign currency denominated fixed income) in the emerging markets. The **JPMorgan GBI Global ex-US Index** represents the total return performance of major non-U.S. bond markets.

The **HFRI Funds of Funds Index (HFRI FOF)** is an equal weighted index designed to measure the performance of hedge fund of fund managers. The more than 800 multi-strategy constituents are required to have at least $50 million in assets under management and a trading track record spanning at least 12 months. The index includes both on and offshore funds and all returns are reported in USD. **HFR Relative Value Index** tracks investment managers who maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types. Fixed income strategies are typically quantitatively driven to measure the existing relationship between instruments and, in some cases, identify attractive positions in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager. RV position may be involved in corporate transactions also, but as opposed to ED exposures, the investment thesis is predicated on realization of a pricing discrepancy between related securities, as opposed to the outcome of the corporate transaction. **HFRI Fund of Funds Conservative Index** is an equal-weighted index representing funds or funds that invest with multiple managers focused on consistent performance and lower volatility via absolute strategies. **HFRI ED: Merger Arbitrage** strategies which employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently engaged in a corporate transaction.

The **FTSE All-World ex US Index** comprises large and midcap stocks providing coverage of developed and emerging markets, excluding the US. The **FTSE NAREIT Developed Index** is a global market capitalization weighted index composed of listed real estate securities from developed market countries in North America, Europe, and Asia. The **FTSE NAREIT Developed ex U.S. Index** is a global market capitalization weighted index composed of listed real estate securities from developed market countries in North America, Europe, and Asia, excluding the U.S.. The **FTSE High Dividend Yield Index** comprises stocks that are characterized by higher-than average dividend yields, and is based on the US component of the FTSE Global Equity Index Series (GEIS). The **FTSE NAREIT All REITs Index** is a market capitalization–weighted index that is designed to measure the performance of all tax–qualified Real Estate Investment Trusts (REITs) that are listed on the New York Stock Exchange, the American Stock Exchange, or the NASDAQ National Market List. The **FTSE NAREIT Equity REIT Index** is an unmanaged index reflecting performance of the U.S. real estate investment trust market.

The **Consumer Price Index (CPI)** is an inflationary indicator that measures the change in the cost of a fixed basket of products and services, including housing, electricity, food, and transportation. The CPI is published monthly. Please Note: the performance of this index lags by 1 month.

The **Credit Suisse Leveraged Loan Index** is a market value–weighted index designed to represent the investable universe of the U.S. dollar–denominated leveraged loan market. The **Dow Jones (DJ) UBS Commodity Index** measures the performance of the commodities market. It consists of exchange-traded futures contracts on physical commodities that are weighted to account for the economic significance and market liquidity of each commodity. The **DJ U.S. Total Stock Market Index** is an all-inclusive measure composed of all U.S. equity securities with readily available prices. The **DJ U.S. Completion Total Stock Market Index** is a subset of the DJ U.S. Total Stock Market Index that excludes components of the S&P 500. The **Dow Jones U.S. Select Real Estate Securities Index** is a float-adjusted market capitalization–weighted index of publicly traded real estate securities such as real estate investment trusts (REITs) and real estate operating companies (REOCs).

The **Dow Jones Target Date (Today, 2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055) Indices** were created to benchmark portfolios of stocks, bonds and cash. Each index is made up of composite indices representing these three asset classes. The asset class indices are weighted differently within each target date index depending on the time horizon. Each month, the allocations among the asset class indices are rebalanced to reflect an increasingly conservative asset mix.

The **Morningstar Lifetime Allocation Index** series consists of 13 indexes (Income, 2000, 20005, 2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055) available in three risk profiles: aggressive, moderate, and conservative. The indexes are built on asset allocation methodologies developed by Ibbotson Associates, a leader in asset allocation research and a Morningstar company since 2006. The Indexes provide pure asset-class exposure to global equities, global fixed-income, commodities, and Treasury Inflation-Protected Securities (TIPS) by using existing Morningstar indexes as allocation building blocks. The portfolio allocations are held in proportions appropriate to the U.S. investor's number of years until retirement. The Conservative, Moderate and Aggressive risk profiles are for investors who are comfortable with below-average exposure to equity market volatility, investors who are comfortable with average exposure to equity market volatility and well-funded investors who are comfortable with above average exposure to equity market volatility, respectively.

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The data presented in this report have been calculated on a time-weighted rate of return basis. All returns are net of investment advisory fees, but gross of Clearstead advisory fees and custodian fees, unless otherwise labeled. The deduction of Clearstead advisory fees and custodian fees would have the effect of decreasing the indicated investment performance.

The performance data shown represent past performance. Past performance is not indicative of future results. Current performance data may be lower or higher than the performance data presented.

Returns for periods longer than one year are annualized. Each number is independently rounded.

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