



**YOUNGSTOWN
STATE
UNIVERSITY**

**BOARD OF TRUSTEES
INVESTMENT SUBCOMMITTEE**

**Anita A. Hackstedde, Chair
Capri S. Cafaro, Vice Chair
Molly S. Seals
James E. "Ted" Roberts
Rocco L. Core**

**Wednesday, March 6, 2019
10:00 a.m. or immediately following
previous meeting**

**Tod Hall
Board Meeting Room**

AGENDA

- A. Disposition of Minutes for Meetings Held September 5, 2018; and December 5, 2018**
- B. Old Business**
- C. Committee Item**

1. Discussion Items

- Tab C.1.a. a. March 6, 2019 Quarterly Portfolio Asset Allocation and Investment Performance Review**
Mike Shebak, Sarah Parker and John Colla will report.
- Tab C.1.b. b. Annual Disclosure of Trustee Relationships with University-Affiliated Financial Institutions**
Neal McNally, Vice President for Finance and Business Operations, will report.
- D. New Business**
- E. Adjournment**



March 6, 2019

**YOUNGSTOWN STATE
UNIVERSITY**



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Cleveland, Ohio 44114

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CLEARSTEAD FIRM UPDATE



\$20+ BILLION
ASSETS UNDER
ADVISEMENT



550+
PRIVATE CLIENTS



125+
INSTITUTIONAL
CLIENTS



36
STATES WITH CLIENT
REPRESENTATION



28
NUMBER OF
SHAREHOLDERS

OUTSOURCED AND DISCRETIONARY MANAGEMENT *CLEARSTEAD PRISM OCIO*

Our OCIO platform acts as a powerful extension to institutions, collaborating on a deep level to completely handle day-to-day management of investment portfolios after clearly defining objectives, quantifying risk, and creating benchmarks that continuously explain all results. Research drives our decision making, and we are quantitatively focused — tempered with the qualitative value of decades of experience and practical judgment.

INSTITUTIONAL ADVISORY

With a steady eye on the big picture coupled with a nimble, proactive approach, we objectively assess institution's portfolios to identify and implement sound investment strategies that ensure immediate fiduciary needs are met without shortchanging the future. We help to develop governance policies that guide spending and investments, ensuring institutions can focus squarely on their mission.

PRIVATE WEALTH MANAGEMENT

We focus on multi-generational planning that integrates clients' investment, tax, and planning pieces under one roof. Because Clearstead has robust and thorough tax planning and research capabilities, its advisors understand complex estate structures at a deep level, as well as the purpose of each entity within that structure. Strategy starts with our proprietary ClearSight analysis which uncovers tax savings and provides our financial team with customized investment insights to meet clients' cash flow and legacy planning needs.

401K AND RETIREMENT

Our time-tested, customized service model allows clients to focus on critical day-to-day human resource tasks while we ensure that the future of the plan's participants are a primary focus. In addition to helping educate plan's participants, we implement improved structures, investment policies, and fiduciary checklists — keeping compliance and performance at the forefront.

CONTENTS

2019 INITIATIVES

CAPITAL MARKETS UPDATE

NON-ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW

- FIXED INCOME REVIEW

ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW

2019 OVERSIGHT DASHBOARD

		1Q	2Q	3Q	4Q	Comments:
Strategic/ Administrative	Investment Policy Review				<input type="checkbox"/>	
	Strategic Asset Allocation Review				<input type="checkbox"/>	
	Peer Review				<input type="checkbox"/>	
	2020 Oversight Dashboard				<input type="checkbox"/>	
	STAR Ohio/Plus Annual Review			<input type="checkbox"/>		
Portfolio	Fixed Income Review	✓				
	Alternative Investments Review			<input type="checkbox"/>		
	Domestic Equity Review		<input type="checkbox"/>			
	International Equity Review		<input type="checkbox"/>			
	Active Equity Managers					Pending
Performance	Capital Markets Review	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Quarterly Performance Review	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	Fee Review			<input type="checkbox"/>		
	ORC Compliance Review			<input type="checkbox"/>		
	Clearstead Firm Update	✓				

Last Reviewed	
Investment Policy:	12/05/2018
Strategic Asset Allocation:	12/05/2018
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

SETTING THE STAGE

What Happened Last Quarter?



- Global markets were volatile: fears of a global slowdown, Fed policy, trade concerns
- S&P 500: Oct: -6.8%, Nov: +2.0%, Dec: -9.0%
- S&P 500 was down nearly 20% as of 12/24 from highs (recovered 10% by early Jan)
- Government bonds rallied: 10-Year U.S. Treasury: 3.06% (9/30), 2.69% (12/31)
- Spreads widened; government bonds outperformed corporate
- Active management struggled in an irrational market

Economic Outlook



- Signs of a global slowdown
- Expecting lower GDP growth and lower earnings growth in developed markets (but still growth)
- Global valuations are more attractive
- Continued political uncertainty in Europe

Where Should We be Focused?



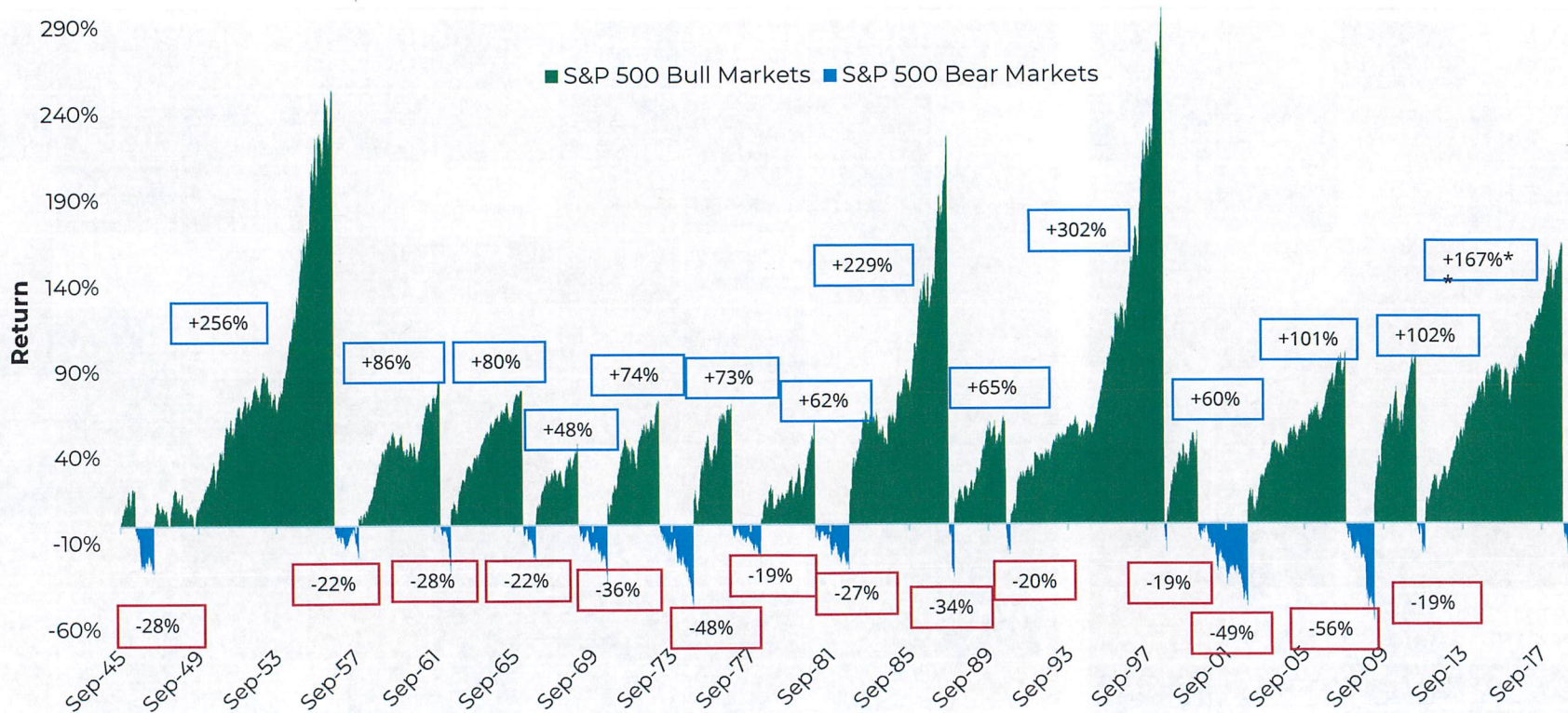
- Long-term nature of investments
- Short-term cash needs
- Portfolio diversification
- Disciplined investment approach

HISTORICAL ASSET CLASS RETURNS

2009	2010	2011	2012	2013	2014	2015	2016	2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	2018
Em Mkt 78.5%	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%	Glb Bond 4.5%	REITs 8.3%	Large Cap 7.7%	Glb Bond 1.9%	Cash 1.9%
Hi Yld 57.5%	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%	Em Mkt 1.4%	Sm/Mid 5.7%	Sm/Mid 4.7%	US Bonds 1.6%	US Bonds 0.0%
Sm/Mid 34.4%	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%	Cash 0.4%	Large Cap 3.4%	Hi Yld 2.4%	Cash 0.6%	Glb Bond -0.9%
Dev Intl 31.8%	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%	Hdg Fnds 0.3%	Hi Yld 1.0%	Dev Intl 1.4%	Hdg Fnds -4.4%	Hi Yld -2.3%
REITs 27.5%	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%	Sm/Mid -0.2%	Hdg Fnds 0.5%	REITs 0.7%	Hi Yld -4.7%	Hdg Fnds -3.5%
Large Cap 26.5%	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 -0.8%	Cash 0.5%	Cash 0.5%	REITs -6.1%	Large Cap -4.4%
Hdg Fnds 11.5%	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%	Hi Yld -0.9%	US Bonds -0.2%	Hdg Fnds 0.3%	Em Mkt -7.5%	REITs -4.4%
US Bonds 5.9%	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%	US Bonds -1.5%	Dev Intl -1.2%	US Bonds 0.0%	Dev Intl -12.5%	Sm/Mid -10.0%
Glb Bond 4.4%	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 -1.5%	Glb Bond -4.9%	Em Mkt -1.1%	Large Cap -13.5%	Dev Intl -13.8%
Cash 0.2%	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%	REITs -6.7%	Em Mkt -8.0%	Glb Bond -2.2%	Sm/Mid -18.5%	Em Mkt -14.6%

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 12/31/2018. Source: Zephyr Associates.

BULL VS. BEAR MARKETS

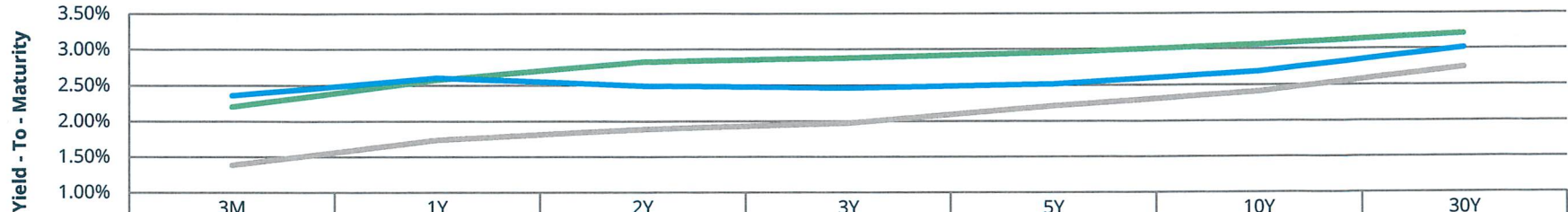


Since the end of WWII, the magnitude and the average duration of bull markets have exceeded those of bear markets, displaying the importance of staying invested in an appropriate strategic asset allocation over the long term.*

**Bear markets* include market environments experiencing drawdowns of 19% or more from peak to trough. **The cumulative returns up to the most recent peak, 9/20/2018. Past performance is no guarantee of future results. Source: Bloomberg. Data as of 12/31/2018.

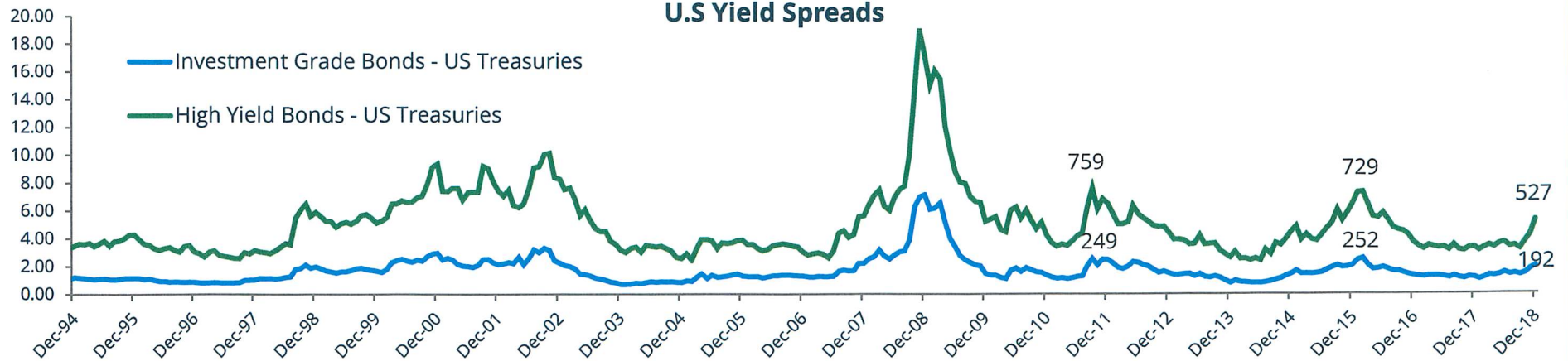
U.S. FIXED INCOME YIELDS AND SPREADS

US Treasury Yield Curve



	3M	1Y	2Y	3Y	5Y	10Y	30Y
12/31/2017	1.38%	1.74%	1.89%	1.97%	2.21%	2.41%	2.74%
9/30/2018	2.20%	2.57%	2.82%	2.88%	2.95%	3.06%	3.21%
12/31/2018	2.36%	2.60%	2.49%	2.46%	2.51%	2.69%	3.02%
QTD Change in Yield	0.16%	0.03%	-0.33%	-0.42%	-0.44%	-0.38%	-0.20%
YTD Change in Yield	0.98%	0.86%	0.60%	0.49%	0.30%	0.28%	0.28%

U.S. Yield Spreads



US Treasuries - BarCap US Govt 10-Yr Treasury; Investment Grade Bonds - BarCap BAA Corp; High Yield Bonds - BarCap US High Yield.
 Source: Bloomberg as of 12/31/2018
 Past performance is no guarantee of future results.



**NON-ENDOWMENT ASSETS:
PERFORMANCE & ASSET ALLOCATION
REVIEW**

NON-ENDOWMENT PERFORMANCE REVIEW (AS OF 12/31/2018)

Non-Endowment Assets	Market Value (\$MM)	QTD	YTD	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	2018	2017	2016	Since Inception ⁴
Total Non-Endowment Assets	\$60.511	-3.9%	-1.5%	-1.5%	3.4%	2.5%	3.1%	3.5%	-1.5%	7.8%	4.0%	3.5%
<i>Benchmark¹</i>		-2.5%	-0.4%	-0.4%	2.5%	2.0%	2.4%	2.5%	-0.4%	5.4%	2.7%	2.8%
Operating & Short-Term Pool	\$9.272	0.6%	1.7%	1.7%	0.9%	0.6%	0.4%	-	1.7%	0.7%	0.3%	0.4%
<i>Benchmark²</i>		0.6%	1.9%	1.9%	1.0%	0.6%	0.5%	-	1.9%	0.8%	0.4%	0.4%
Long-Term Pool	\$51.239	-5.9%	-3.4%	-3.4%	3.8%	3.1%	4.4%	-	-3.4%	10.5%	4.9%	4.3%
<i>Benchmark³</i>		-5.0%	-2.3%	-2.3%	3.8%	3.1%	4.0%	-	-2.3%	9.3%	4.7%	3.9%

OPERATING & SHORT-TERM POOL: INVESTMENT YIELDS

JPMORGAN MONEY MARKET: 2.25%
 STAR OHIO: 2.54%
 STAR PLUS: 2.55% (UP TO \$2.5 MILLION)
 VANGUARD SHORT TERM FEDERAL FUND: 2.80%

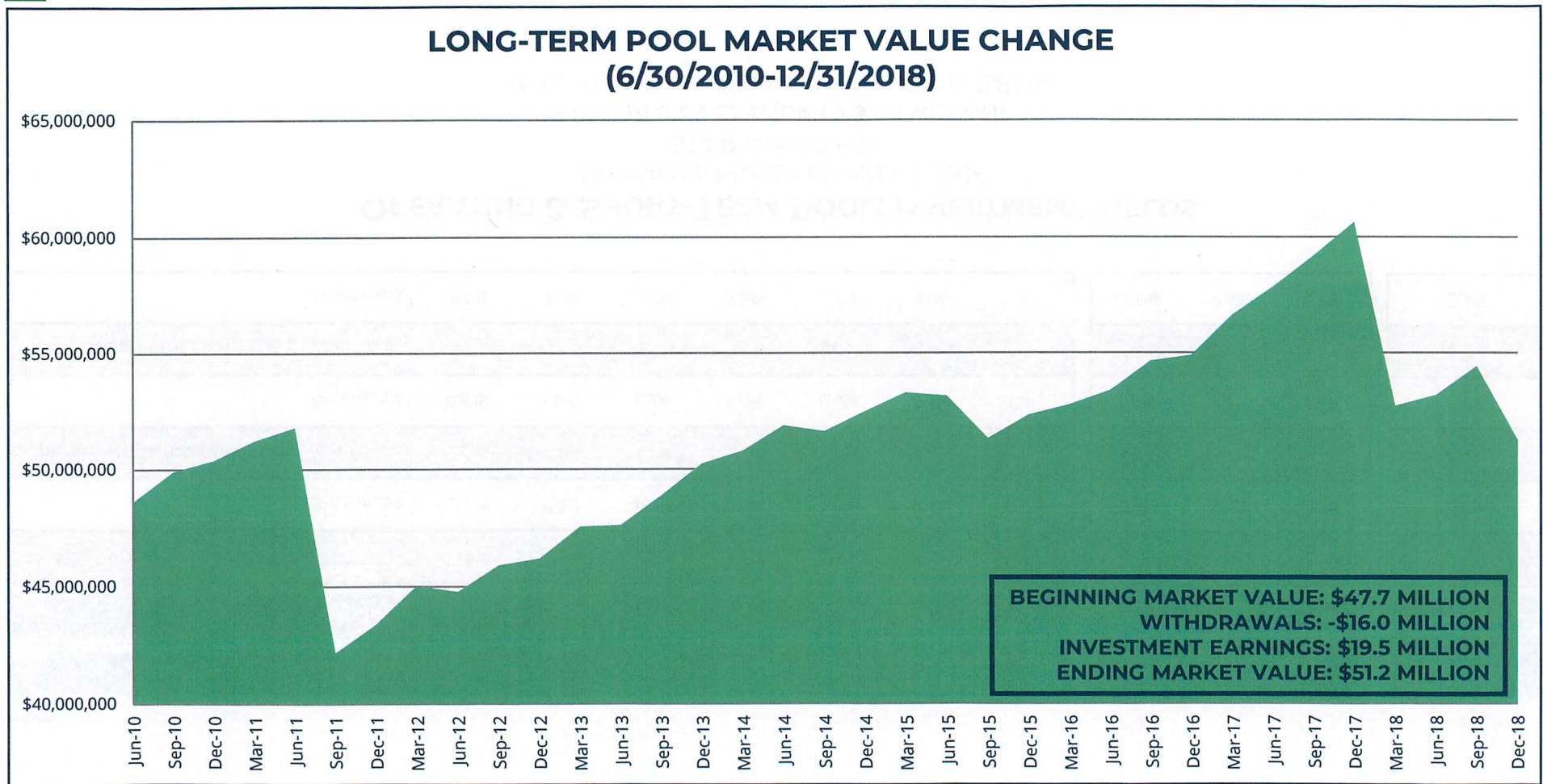
1) 5% BofA Merrill Lynch 91-Day T-Bill / 17% BofA Merrill Lynch US Corp & Gov 1-3 Yrs / 11% BBgBarc US Govt/Credit Int TR / 8% Total Alternatives Benchmark / 15% Russell 3000 / 4% MSCI EAFE Gross.

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	Compliance with Policy?	Investment Manager Comments
Short-Term Pool	<ul style="list-style-type: none"> 88% Cash 12% Short-Term Fixed Income 	<u>In Compliance</u>	Cash & cash equivalent investments with one short-term fixed income holding; modest return over time that has increased with recent Fed rate hikes (+0.6% 4Q18, +1.7% 2018); investments include Vanguard Short-Term Federal Fund, Star Plus and Star Ohio investments.
	<ul style="list-style-type: none"> Domestic Equity 26% International Equity 7% 	<p><u>In Compliance</u></p> <p>Underweight 1%</p> <p>Underweight 1%</p>	<p>Domestic Equity (-14.7% 4Q18, -5.7% 2018)</p> <p>Small cap manager Victory Integrity was affected by stock selection, more specifically in financials, technology and industrials, but maintains favorable results long-term (-20.3% 4Q18, -18.6% 2018); Loomis Sayles outpaced its respective benchmark and returned positive results for the year, benefitting from stock selection in the healthcare and consumer discretionary sectors (-19.1% 4Q18, +0.4% 2018).</p>
Long-Term Pool	<ul style="list-style-type: none"> Alternatives 15% Short-Term Fixed Income 30% Intermediate Fixed Income 22% 	<p>In-Line</p> <p>In-Line</p> <p>Overweight 2%</p>	<p>International Equity (-14.4% 4Q18, -17.8% 2018)</p> <p>William Blair International Growth had a challenging fourth quarter affected by stock selection across most sectors (-16.3% 4Q18, -17.7% 2018); Dodge & Cox was affected by its emerging markets exposure and underweight to defensive sectors (-12.4% 4Q18, -18.0% 2018).</p> <p>Alternatives (-5.6% 4Q18, -6.0% 2018)</p> <p>Diamond Hill was affected by its net long position in U.S. equity (-10.4% 4Q18, -6.9% 2018) while Wells Fargo (GMO) was affected by its approximately 30% exposure to emerging market debt & equity (-4.3% 4Q18, -5.6% 2018).</p> <p>Fixed Income (+0.7% 4Q18, +0.9% 2018)</p> <p>With volatile equity markets and the Fed raising rates four times in 2018, short-term, higher credit quality fixed income finished on top for the year (YSU Short-Term Bond +1.1% 4Q18, +1.6% 2018; DFA 5-Yr Global +1.2% 4Q18, +1.7% 2018).</p>

Manager details can be found in the Appendix.

CURRENT PORTFOLIO: NO RECOMMENDED CHANGES

Youngstown State University

As of January 28, 2019

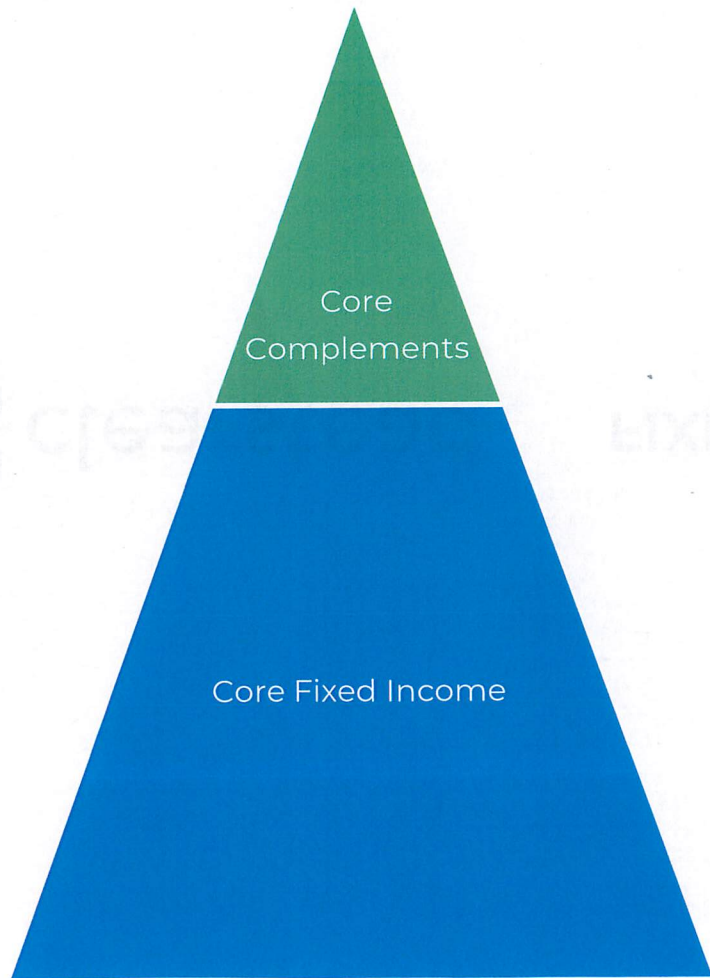
	Ticker	Market Value (current)	Percentage of Portfolio	Change	Market Value (post rebalance)	Percentage of Portfolio	Policy Target	Policy Range	Difference
Total Operating & Short Term		\$9,267,686	100.0%	\$0	\$9,267,686	100.0%	100.0%		
Operating Assets		\$8,178,722	88.2%		\$8,178,722	88.2%		60-100%	
JPMorgan 100% U.S. Treas. MM Instl	JTSXX	\$159,293	1.7%		\$159,293	1.7%			
Star Plus*	-	\$2,500,048	27.0%		\$2,500,048	27.0%			
Star Ohio*	-	\$5,519,381	59.6%		\$5,519,381	59.6%			
Short-Term Assets		\$1,088,964	11.8%		\$1,088,964	11.8%		0-40%	
Vanguard Short-Term Federal Adm	VSGDX	\$1,088,964	11.8%		\$1,088,964	11.8%			
Total Long Term Reserves Pool		\$52,727,221	100.0%	\$0	\$52,727,221	100.0%	100.0%		
Domestic Equity		\$14,372,770	27.3%		\$14,372,770	27.3%	27.0%	20-35%	0.3%
Vanguard Instl Index	VINIX	\$10,283,239	19.5%		\$10,283,239	19.5%			
Vanguard Mid Cap Index Inv	VIMSX	\$2,087,775	4.0%		\$2,087,775	4.0%			
Loomis Sayles Small Growth Instl	LSSIX	\$1,050,045	2.0%		\$1,050,045	2.0%			
Victory Integrity Small Cap Value Y	VSVIX	\$951,711	1.8%		\$951,711	1.8%			
International Equity		\$3,759,312	7.1%		\$3,759,312	7.1%	8.0%	0-15%	-0.9%
William Blair International Growth I	BIGIX	\$1,847,945	3.5%		\$1,847,945	3.5%			
Dodge & Cox International Stock	DODFX	\$1,911,367	3.6%		\$1,911,367	3.6%			
Alternatives		\$8,022,086	15.2%		\$8,022,086	15.2%	15.0%	0-20%	0.2%
JPMorgan Strategic Income Opps Fd	JSOSX	\$2,100,491	4.0%		\$2,100,491	4.0%			
Wells Fargo Adv Absolute Return I	WABIX	\$2,098,697	4.0%		\$2,098,697	4.0%			
Diamond Hill Long-Short Y	DIAYX	\$2,135,759	4.1%		\$2,135,759	4.1%			
Brookfield Global Real Estate	BLRIX	\$1,687,140	3.2%		\$1,687,140	3.2%			
Fixed Income		\$26,572,997	50.4%		\$26,572,997	50.4%	50.0%	35-75%	0.4%
YSU Short Term Bond	PCA SMA	\$11,284,959	21.4%		\$11,284,959	21.4%			
Lord Abbett Short Duration	LLDYX	\$2,331,677	4.4%		\$2,331,677	4.4%			
DFA Five-Year Global	DFGBX	\$1,868,307	3.5%		\$1,868,307	3.5%			
JPMorgan Core Bond Fund Sel	WOBDX	\$4,615,614	8.8%		\$4,615,614	8.8%			
YSU Intermediate Term Fixed	PCA SMA	\$4,025,311	7.6%		\$4,025,311	7.6%			
Prudential High Yield Bond R6	PHYQX	\$2,447,129	4.6%		\$2,447,129	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		\$61,994,907			\$61,994,907				

*As of 12/31/2018



FIXED INCOME REVIEW

FIXED INCOME PORTFOLIO STRUCTURE



Characteristics	Investments	Current Strategies
<ul style="list-style-type: none"> • Diversification • Lower correlation to core fixed income • Enhanced yield • Credit risk • Currency risk 	<ul style="list-style-type: none"> • Emerging markets • High yield bonds • Bank loans • Tactical strategies • Inflation hedge (TIPS) • Global bonds 	<ul style="list-style-type: none"> • PGIM High Yield • Lord Abbett Short Duration Income • DFA 5-Yr Global Fixed Income

Characteristics	Investments	Current Strategies
<ul style="list-style-type: none"> • Hedge against equity volatility • Income and stability • Interest rate risk 	<ul style="list-style-type: none"> • Investment grade; gov't, corporate, and mortgages • Intermediate-term maturities 	<ul style="list-style-type: none"> • JPMorgan Core Bond • YSU Int-Term Bond • YSU Short-Term Bond

FIXED INCOME: INVESTMENT MANAGER PERFORMANCE

	% of Portfolio	Ending December 31, 2018								Calendar Years				
		2018 Q4 (%)	YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)	Inception (%)	Inception Date
Total Fixed Income	43.8	0.7	0.9	0.9	1.7	1.7	1.6	1.6	--	0.9	2.4	1.6	1.9	Jun-10
<i>Total Fixed Income Benchmark</i>		1.4	1.4	1.4	1.3	1.4	1.4	1.3	2.1	1.4	1.3	1.6	1.6	
JPMorgan Core Bond	7.6	1.7	0.2	0.2	2.0	2.1	2.4	2.2	3.9	0.2	3.8	2.3	0.0	Aug-17
<i>BBgBarc US Aggregate TR</i>		1.6	0.0	0.0	1.8	2.1	2.5	2.1	3.5	0.0	3.5	2.6	-0.1	
YSU Intermediate Term Bond	6.7	1.5	0.8	0.8	1.6	1.7	1.7	1.9	3.3	0.8	2.4	2.0	3.5	Mar-04
<i>BBgBarc US Govt/Credit Int TR</i>		1.7	0.9	0.9	1.5	1.7	1.9	1.7	2.9	0.9	2.1	2.1	3.2	
PGIM High Yield R6	3.9	-4.1	-1.2	-1.2	3.2	7.1	4.2	6.0	--	-1.2	7.8	15.3	3.2	Dec-16
<i>BBgBarc US High Yield TR</i>		-4.5	-2.1	-2.1	2.6	7.2	3.8	6.0	11.1	-2.1	7.5	17.1	2.6	
YSU Short Term Bond	18.7	1.1	1.6	1.6	1.4	1.3	1.0	1.1	1.8	1.6	1.1	1.1	2.4	Mar-04
<i>ICE BofAML 1-3 Yrs US Corp & Govt TR</i>		1.2	1.6	1.6	1.2	1.3	1.0	1.1	1.6	1.6	0.9	1.3	2.2	
Lord Abbett Short Duration Income I	3.8	0.5	1.4	1.4	2.1	2.7	2.1	2.7	4.5	1.4	2.7	4.0	1.6	Mar-18
<i>ICE BofAML 1-3 Yrs US Corp & Govt TR</i>		1.2	1.6	1.6	1.2	1.3	1.0	1.1	1.6	1.6	0.9	1.3	1.8	
DFA Five-Yr Global Fxd-Inc I	3.1	1.2	1.7	1.7	1.8	1.8	2.0	2.0	2.8	1.7	2.0	1.8	1.9	Jun-13
<i>FTSE WGBI 1-5 Yr Hdg USD</i>		1.5	2.1	2.1	1.6	1.6	1.5	1.5	1.7	2.1	1.1	1.5	1.5	

- Total Fixed Income Benchmark = 64% ICE BofAML 1-3 Yrs US Corp & Govt TR / 36% BBgBarc US Govt/Credit Int TR

FIXED INCOME: PORTFOLIO LOOK-THROUGH ANALYSIS

Current Portfolio	17.4%	15.3%	8.9%	42.7%	8.7%	7.0%	100.0%	
	JP Morgan Core Bond	YSU Int-Term Bond (PNC Capital Advisors)	PGIM High Yield	YSU Short- Term Bond (PNC Capital Advisors)	Lord Abbett Short Duration Income	DFA Five-Yr Global Fixed Income	Current Portfolio	BarCap Aggregate Bond Index
Expense Ratio	0.50%	0.15%	0.41%	0.15%	0.33%	0.27%	0.26%	
Strategy AUM (\$1,000,000)	\$28,196		\$7,300		\$41,690	\$14,400		
Current Wgtd. Avg. Coupon	3.60%		6.40%		4.05%	1.58%		3.20%
Yield to Maturity	3.18%	3.16%	8.20%	2.95%	4.25%	3.19%	3.62%	3.28%
Average Maturity	7.57	4.21	6.12	1.93	2.45	3.90	3.82	8.22
Effective Duration	5.70	3.75	4.50	1.83	2.04	3.68	3.18	5.87
Quality Issue							AA	
AAA	61%	58%	6%	64%	42%	24%	53%	73%
AA	6%	5%	0%	5%	8%	61%	9%	4%
A	12%	16%	0%	15%	9%	15%	13%	10%
BBB	14%	21%	6%	16%	29%	0%	16%	14%
BB	0%	0%	36%	0%	6%	0%	4%	0%
B	0%	0%	39%	0%	5%	0%	4%	0%
CCC & Below & Not Rated	7%	0%	13%	0%	2%	0%	3%	0%
U.S. Treasury	28%	40%	0%	34%	1.4%	0.0%	26%	39%
U.S. Agency	3%	7%	0%	5%	0.0%	0.0%	4%	3%
Invt. Grade Corporates	24%	48%	6%	54%	28.9%	0.0%	38%	24%
High Yield Corporates	0%	0%	83%	0%	9.3%	0.0%	8%	0%
Non-Agency ABS/CMOs	10%	0%	5%	0%	26.4%	0.0%	4%	1%
Non-Agency MBS/CMBS	7%	0%	0%	0%	29.7%	0.0%	4%	2%
Mort.-Passthrough	27%	3%	0%	6%	1.1%	0.0%	8%	28%
Leveraged/Bank Loans	0%	0%	4%	0%	1.9%	0.0%	1%	0%
Municipals	0%	0%	0%	0%	0.0%	0.0%	0%	1%
Non-U.S. Developed	1%	0%	1%	0%	0.6%	100.0%	7%	2%
Emerging Markets	0%	0%	2%	0%	0.0%	0.0%	0%	0%
Non-Dollar	0%	0%	0%	0%	0.0%	0.0%	0%	0%
Other	0%	1%	0%	0%	0.2%	0.0%	0%	0%
Cash	1%	1%	1%	1%	0.5%	0.0%	1%	0%

FIXED INCOME: PORTFOLIO INTEREST RATE SENSITIVITY

Portfolio Expected Returns

	Time					
	1 month	3 months	6 months	12 months	18 months	24 months
-0.5%	1.9%	2.5%	3.4%	5.2%	7.0%	8.8%
-0.25%	1.1%	1.7%	2.6%	4.4%	6.2%	8.0%
0.0%	0.3%	0.9%	1.8%	3.6%	5.4%	7.2%
0.25%	-0.5%	0.1%	1.0%	2.8%	4.6%	6.4%
0.5%	-1.3%	-0.7%	0.2%	2.0%	3.8%	5.7%
1.0%	-2.9%	-2.3%	-1.4%	0.4%	2.3%	4.1%
2.0%	-6.1%	-5.5%	-4.6%	-2.7%	-0.9%	0.9%

How to Read: A 50 bps increase in interest rates over a 1-year period would result in a total return of +2.0%, whereas the Barclays Aggregate Bond Index would return +0.3%.

BarCap Agg. Index Expected Returns

	Time					
	1 month	3 months	6 months	12 months	18 months	24 months
-0.5%	3.2%	3.8%	4.6%	6.2%	7.9%	9.5%
-0.25%	1.7%	2.3%	3.1%	4.7%	6.4%	8.0%
0.0%	0.3%	0.8%	1.6%	3.3%	4.9%	6.6%
0.25%	-1.2%	-0.6%	0.2%	1.8%	3.5%	5.1%
0.5%	-2.7%	-2.1%	-1.3%	0.3%	2.0%	3.6%
1.0%	-5.6%	-5.1%	-4.2%	-2.6%	-0.9%	0.7%
2.0%	-11.5%	-10.9%	-10.1%	-8.5%	-6.8%	-5.2%



ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW

ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION (AS OF 12/31/2018)

Endowment Assets	Market Value	Asset Allocation	Composition	QTD	YTD	1 Yr	2 Yr	3 Yrs	5 Yrs	2018	2017	2016
YSU Endowment Fund	\$9,953,072	69% Equity / 31% Fixed Income & Cash	Stocks, Bonds, Mutual Funds	-8.6%	-4.8%	-4.8%	4.3%	5.7%	5.4%	-4.8%	14.2%	8.5%
			<i>Benchmark¹</i>	-7.6%	-2.3%	-2.3%	5.6%	6.5%	6.2%	-2.3%	14.2%	8.3%
Kilcawley Center	\$105,767	60% Equity / 40% Fixed Income	Mutual Fund	-7.9%	-2.7%	-2.7%	5.2%	5.1%	3.6%	-2.7%	13.8%	4.9%
			<i>Benchmark¹</i>	-7.6%	-2.3%	-2.3%	5.6%	6.5%	6.2%	-2.3%	14.2%	8.3%
Alumni License Plate Account	\$47,289	60% Equity / 40% Fixed Income	Mutual Fund	-6.7%	-2.0%	-2.0%	4.0%	7.2%	5.7%	-2.0%	10.3%	13.8%
			<i>Benchmark¹</i>	-7.6%	-2.3%	-2.3%	5.6%	6.5%	6.2%	-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 page 28 in 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.



APPENDIX

ASSET ALLOCATION GUIDELINES COMPLIANCE

As of December 31, 2018

Total Plan Asset Allocation Policy	Range	Current
Operating & Short-Term Pool	25% - 50%	15%
Long Term/ Reserves Pool	50% - 75%	85%

Operating & Short-Term Pool	Range	Current
Operating Assets	60% - 100%	88%
Short-Term Assets	0% - 40%	12%

Long Term/ Reserves Pool	Target	Range	Current
Domestic Equity	27%	20% - 35%	26%
International Equity	8%	0% - 15%	7%
Total Equity	35%	25% - 45%	33%
Alternatives	15%	0%-20%	15%
Short-Term Fixed Income	30%	25% - 45%	30%
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 9/30/18 (\$)	Market Value 12/31/18 (\$)	% of Total Plan	% of Pool
Total University Assets		86,793,938	60,511,374	100.0	100.0
Total Operating & Short Term		32,366,424	9,272,571	15.3	100.0
JPMorgan 100% U.S. Tr Sec MM Inst	Cash	20,108,711	163,137	0.3	1.8
Star Plus	Cash	2,527,081	2,500,048	4.1	27.0
Vanguard Short-Term Federal Adm	US Fixed Income Short Term	1,075,573	1,090,005	1.8	11.8
STAR Ohio		8,655,058	5,519,381	9.1	59.5
Total Long Term/ Reserves Pool		54,427,514	51,238,803	84.7	100.0
Total Domestic Equity		15,831,208	13,503,744	22.3	26.4
Vanguard Institutional Index	US Stock Large Cap Core	11,265,052	9,740,867	16.1	19.0
Vanguard Mid Cap Index Inv	US Stock Mid Cap Core	2,278,123	1,925,409	3.2	3.8
Loomis Sayles Sm Growth Instl	US Stock Small Cap Growth	1,205,075	974,524	1.6	1.9
Victory Integrity Small Value Y	US Stock Small Cap Value	1,082,958	862,945	1.4	1.7
Total International Equity		4,139,298	3,543,999	5.9	6.9
William Blair International Growth I	International	2,095,607	1,753,426	2.9	3.4
Dodge & Cox Internat'l Stock	International	2,043,691	1,790,572	3.0	3.5
Total Alternatives		8,119,612	7,661,687	12.7	15.0
JPMorgan Strategic Income Opps Sel	Absolute Return	2,106,766	2,078,515	3.4	4.1
Wells Fargo Adv Absolute Return Instl	All Assets	2,118,314	2,026,797	3.3	4.0
Diamond Hill Long-Short Y	Long/Short Equity	2,241,282	2,007,202	3.3	3.9
Brookfield Global Listed Real Estate I	Global Real Estate	1,653,250	1,549,172	2.6	3.0
Total Fixed Income		26,337,340	26,529,317	43.8	51.8
JPMorgan Core Bond	US Fixed Income Core	4,521,630	4,607,438	7.6	9.0
YSU Intermediate Term Bond	US Fixed Income Core	3,988,956	4,035,762	6.7	7.9
PGIM High Yield R6	US Fixed Income High Yield	2,475,510	2,373,008	3.9	4.6
YSU Short Term Bond	US Fixed Income Short Term	11,199,709	11,325,796	18.7	22.1
Lord Abbett Short Duration Income I	US Fixed Income Short Term	2,313,071	2,326,059	3.8	4.5
DFA Five-Yr Global Fxd-Inc I	US Fixed Income Short Term	1,838,465	1,861,253	3.1	3.6
Total Cash & Cash Equivalents		56	57	0.0	0.0
PNC Govt MMkt	Global Fixed Income	56	57	0.0	0.0

PERFORMANCE REPORT CARD

	% of Portfolio	Ending December 31, 2018								Calendar Years			Inception (%)	Inception Date
		2018 Q4 (%)	YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)		
Total University Assets	100.0	-3.9	-1.5	-1.5	3.0	3.4	2.5	3.1	3.5	-1.5	7.8	4.0	3.5	Mar-04
<i>Total Policy Benchmark</i>		-2.5	-0.4	-0.4	2.5	2.5	2.0	2.4	2.5	-0.4	5.4	2.7	2.8	
Total Operating & Short Term	15.3	0.6	1.7	1.7	1.2	0.9	0.6	0.4	--	1.7	0.7	0.3	0.4	Jun-10
<i>Total Operating & Short Term Benchmark</i>		0.6	1.9	1.9	1.3	1.0	0.6	0.5	0.4	1.9	0.8	0.4	0.4	
JPMorgan 100% U.S. Tr Sec MM Inst	0.3	0.5	1.7	1.7	1.2	0.8	0.5	0.4	0.3	1.7	0.7	0.2	0.3	Sep-11
<i>ICE BofAML 91 Days T-Bills TR</i>		0.6	1.9	1.9	1.4	1.0	0.6	0.5	0.4	1.9	0.9	0.3	0.5	
Vanguard Short-Term Federal Adm	1.8	1.3	1.4	1.4	1.1	1.1	1.1	1.0	1.6	1.4	0.8	1.2	1.1	Sep-10
<i>BBgBarc US Govt 1-5 Yr TR</i>		1.7	1.5	1.5	1.1	1.1	1.1	0.9	1.4	1.5	0.7	1.0	1.1	
STAR Plus	4.1	0.6	1.8	1.8	1.3	1.0	--	--	--	1.8	0.7	0.4	0.7	Jan-14
<i>ICE BofAML 91 Days T-Bills TR</i>		0.6	1.9	1.9	1.4	1.0	0.6	0.5	0.4	1.9	0.9	0.3	0.6	
STAR Ohio	9.1	0.6	--	--	--	--	--	--	--	--	--	--	1.1	Jun-18
<i>ICE BofAML 91 Days T-Bills TR</i>		0.6	1.9	1.9	1.4	1.0	0.6	0.5	0.4	1.9	0.9	0.3	1.1	
Total Long Term/ Reserves Pool	84.7	-5.9	-3.4	-3.4	3.3	3.8	3.1	4.4	--	-3.4	10.5	4.9	4.3	Jun-10
<i>Total Long Term/ Reserves Fund Benchmark</i>		-5.0	-2.3	-2.3	3.3	3.8	3.1	4.0	4.1	-2.3	9.3	4.7	3.9	
Total Domestic Equity	22.3	-14.7	-5.7	-5.7	7.1	8.6	7.6	12.3	--	-5.7	21.6	11.7	13.0	Jun-10
<i>Russell 3000</i>		-14.3	-5.2	-5.2	7.1	9.0	7.9	12.5	13.2	-5.2	21.1	12.7	13.2	
Vanguard Institutional Index	16.1	-13.5	-4.4	-4.4	7.9	9.2	8.5	12.7	13.1	-4.4	21.8	11.9	13.3	Jun-10
<i>S&P 500</i>		-13.5	-4.4	-4.4	7.9	9.3	8.5	12.7	13.1	-4.4	21.8	12.0	13.4	
Vanguard Mid Cap Index Inv	3.2	-15.5	-9.3	-9.3	4.0	6.3	6.2	11.3	13.9	-9.3	19.3	11.2	10.9	Sep-10
<i>Vanguard Mid Cap Index Benchmark</i>		-15.5	-9.2	-9.2	4.1	6.4	6.2	11.4	13.9	-9.2	19.3	11.2	11.0	
Loomis Sayles Sm Growth Instl	1.6	-19.1	0.4	0.4	12.9	10.4	6.6	12.2	14.9	0.4	26.9	5.7	13.0	Sep-10
<i>Russell 2000 Growth</i>		-21.7	-9.3	-9.3	5.3	7.2	5.1	11.3	13.5	-9.3	22.2	11.3	11.2	
Victory Integrity Small Value Y	1.4	-20.3	-18.6	-18.6	-4.3	4.4	2.7	9.0	12.0	-18.6	12.4	24.4	9.4	Sep-10
<i>Russell 2000 Value</i>		-18.7	-12.9	-12.9	-3.1	7.4	3.6	9.6	10.4	-12.9	7.8	31.7	9.2	
Total International Equity	5.9	-14.4	-17.8	-17.8	2.0	2.2	-0.2	5.7	--	-17.8	26.6	2.7	3.0	Sep-10
<i>MSCI EAFE</i>		-12.5	-13.8	-13.8	3.8	2.9	0.5	5.8	6.3	-13.8	25.0	1.0	4.0	
<i>MSCI ACWI ex USA</i>		-11.5	-14.2	-14.2	4.5	4.5	0.7	4.8	6.6	-14.2	27.2	4.5	3.1	

PERFORMANCE REPORT CARD

	% of Portfolio	Ending December 31, 2018								Calendar Years			Inception (%)	Inception Date
		2018 Q4 (%)	YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)		
William Blair International Growth I	2.9	-16.3	-17.7	-17.7	3.2	1.3	0.2	5.8	8.2	-17.7	29.5	-2.5	5.1	Jun-12
<i>MSCI ACWI ex USA</i>		-11.5	-14.2	-14.2	4.5	4.5	0.7	4.8	6.6	-14.2	27.2	4.5	4.8	
Dodge & Cox Internat'l Stock	3.0	-12.4	-18.0	-18.0	0.8	3.2	-0.5	5.9	7.7	-18.0	23.9	8.3	3.7	Sep-10
<i>MSCI EAFE</i>		-12.5	-13.8	-13.8	3.8	2.9	0.5	5.8	6.3	-13.8	25.0	1.0	4.0	
Total Alternatives	12.7	-5.6	-6.0	-6.0	0.7	1.6	--	--	--	-6.0	7.9	3.5	-0.1	Mar-15
<i>Total Alternatives Benchmark</i>		-5.0	-4.3	-4.3	1.9	1.8	--	--	--	-4.3	8.4	1.5	0.6	
JPMorgan Strategic Income Opps Sel	3.4	-1.3	0.8	0.8	2.0	4.4	2.2	3.1	4.5	0.8	3.3	9.2	-1.3	Sep-18
<i>BBgBarc US Universal TR</i>		1.2	-0.3	-0.3	1.9	2.6	2.7	2.5	4.1	-0.3	4.1	3.9	1.2	
Wells Fargo Adv Absolute Return Instl	3.3	-4.3	-5.6	-5.6	3.1	3.1	1.1	--	--	-5.6	12.6	3.0	0.1	Mar-15
<i>HFRF Fund of Funds Composite Index</i>		-4.8	-3.9	-3.9	1.8	1.3	1.4	2.9	3.1	-3.9	7.8	0.5	0.5	
Diamond Hill Long-Short Y	3.3	-10.4	-6.9	-6.9	-0.7	2.9	3.0	6.5	6.6	-6.9	6.0	10.5	2.0	Mar-15
<i>HFRX Equity Hedge Index</i>		-8.6	-9.4	-9.4	-0.2	-0.1	-0.3	2.0	1.4	-9.4	10.0	0.1	-1.3	
Brookfield Global Listed Real Estate I	2.6	-6.3	-8.1	-8.1	0.6	2.5	4.9	8.5	--	-8.1	10.1	6.3	-3.4	Jul-17
<i>FTSE NAREIT Developed</i>		-5.7	-5.6	-5.6	2.1	2.7	4.3	7.3	9.7	-5.6	10.4	4.1	-1.7	
Total Fixed Income	43.8	0.7	0.9	0.9	1.7	1.7	1.6	1.6	--	0.9	2.4	1.6	1.9	Jun-10
<i>Total Fixed Income Benchmark</i>		1.4	1.4	1.4	1.3	1.4	1.4	1.3	2.1	1.4	1.3	1.6	1.6	
JPMorgan Core Bond	7.6	1.7	0.2	0.2	2.0	2.1	2.4	2.2	3.9	0.2	3.8	2.3	0.0	Aug-17
<i>BBgBarc US Aggregate TR</i>		1.6	0.0	0.0	1.8	2.1	2.5	2.1	3.5	0.0	3.5	2.6	-0.1	
YSU Intermediate Term Bond	6.7	1.5	0.8	0.8	1.6	1.7	1.7	1.9	3.3	0.8	2.4	2.0	3.5	Mar-04
<i>BBgBarc US Govt/Credit Int TR</i>		1.7	0.9	0.9	1.5	1.7	1.9	1.7	2.9	0.9	2.1	2.1	3.2	
PGIM High Yield R6	3.9	-4.1	-1.2	-1.2	3.2	7.1	4.2	6.0	--	-1.2	7.8	15.3	3.2	Dec-16
<i>BBgBarc US High Yield TR</i>		-4.5	-2.1	-2.1	2.6	7.2	3.8	6.0	11.1	-2.1	7.5	17.1	2.6	
YSU Short Term Bond	18.7	1.1	1.6	1.6	1.4	1.3	1.0	1.1	1.8	1.6	1.1	1.1	2.4	Mar-04
<i>ICE BofAML 1-3 Yrs US Corp & Govt TR</i>		1.2	1.6	1.6	1.2	1.3	1.0	1.1	1.6	1.6	0.9	1.3	2.2	
Lord Abbett Short Duration Income I	3.8	0.5	1.4	1.4	2.1	2.7	2.1	2.7	4.5	1.4	2.7	4.0	1.6	Mar-18
<i>ICE BofAML 1-3 Yrs US Corp & Govt TR</i>		1.2	1.6	1.6	1.2	1.3	1.0	1.1	1.6	1.6	0.9	1.3	1.8	

PERFORMANCE REPORT CARD

	% of Portfolio	2018 Q4 (%)	Ending December 31, 2018							Calendar Years			Inception (%)	Inception Date
			YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	2018 (%)	2017 (%)	2016 (%)		
DFA Five-Yr Global Fxd-Inc I	3.1	1.2	1.7	1.7	1.8	1.8	2.0	2.0	2.8	1.7	2.0	1.8	1.9	Jun-13
FTSE WGBI 1-5 Yr Hdg USD		1.5	2.1	2.1	1.6	1.6	1.5	1.5	1.7	2.1	1.1	1.5	1.5	
Total Cash & Cash Equivalents	0.0	0.5	--	--	--	--	--	--	--	--	--	--	1.4	Mar-18
ICE BofAML 91 Days T-Bills TR		0.6	1.9	1.9	1.4	1.0	0.6	0.5	0.4	1.9	0.9	0.3	1.5	
PNC Govt MMkt	0.0	0.5	--	--	--	--	--	--	--	--	--	--	1.4	Mar-18
ICE BofAML 91 Days T-Bills TR		0.6	1.9	1.9	1.4	1.0	0.6	0.5	0.4	1.9	0.9	0.3	1.5	

- 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 / 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 – 9% (5-10 Mutual Funds & ETFs)
- Stocks – 60% (45-60 U.S. Large Cap & Mid-Cap Stocks)
- Fixed Income Mutual Funds – 2% (Federated Total Return Bond)
- Bonds – 23% (10-20 Bonds, U.S. Corporate / Gov't / Asset Backed Debt)
- Cash – 6%

Kilcawley (PNC)

- Vanguard Balanced Index Fund (Adm) – 100%

Alumni License Plate (PNC)

- Vanguard Balanced Index Fund (Adm) – 100%

FEDERAL RESERVE UPDATE

Federal Reserve Board Members and Bank Presidents

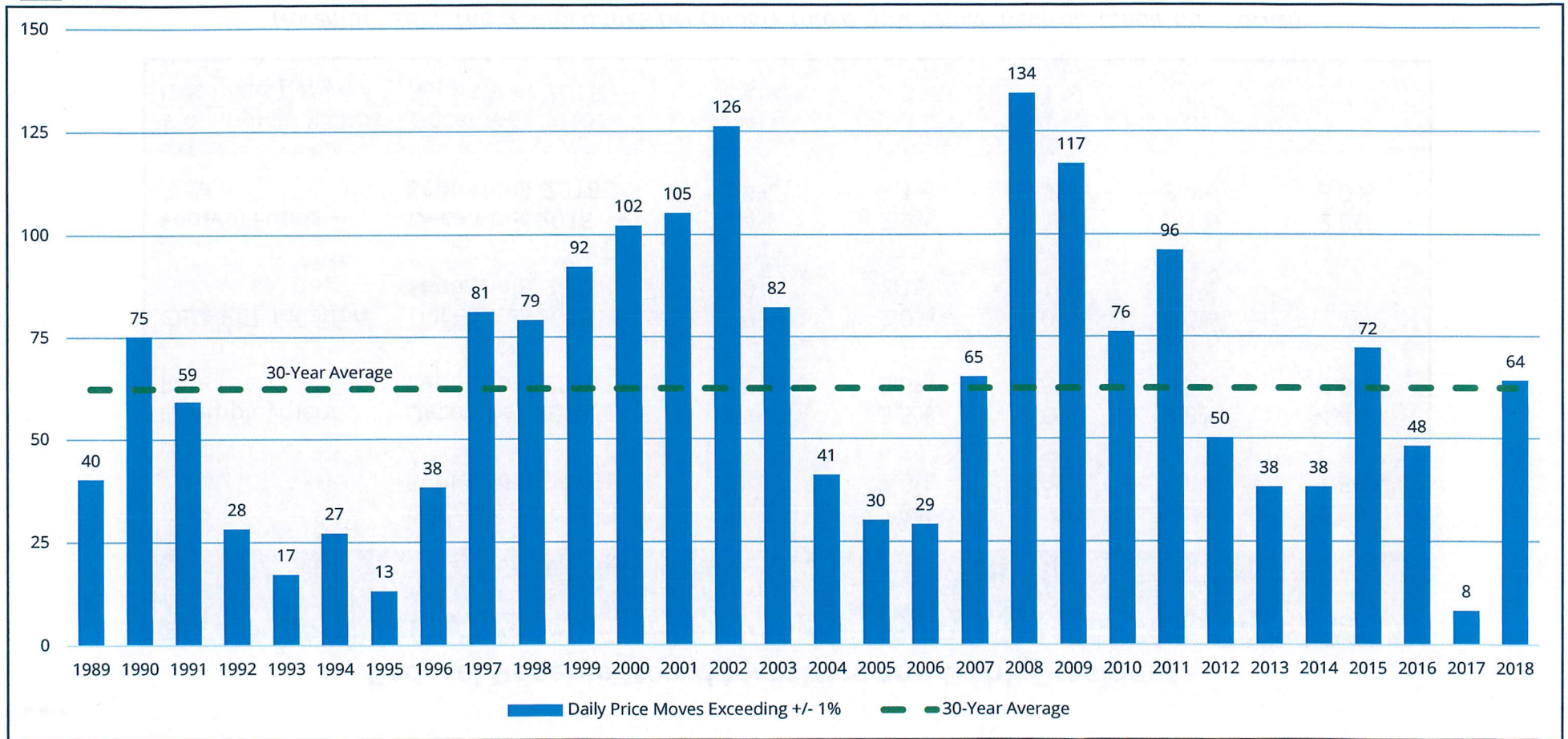
		2018	2019	2020	2021	Longer Run*
GDP	December 2018	3.0%	2.3%	2.0%	1.8%	1.9%
	September 2018	3.1%	2.5%	2.0%	1.8%	1.8%
Unemployment Rate	December 2018	3.7%	3.5%	3.6%	3.8%	4.4%
	September 2018	3.7%	3.5%	3.5%	3.7%	4.5%
Core PCE Inflation	December 2018	1.9%	2.0%	2.0%	2.0%	
	September 2018	2.0%	2.1%	2.1%	2.1%	
Federal Funds Rate	December 2018	2.4%	2.9%	3.1%	3.1%	2.8%
	September 2018	2.4%	3.1%	3.4%	3.4%	3.0%
# of implied 25 bps rate hikes per year	December 2018	4	2	1	0	
	September 2018	4	3	1	0	

November 28th: The central bank's benchmark rate is "just below" neutral. (Chairman Powell)

December 19th: The Fed signaled a more "patient" approach to further rate hikes after its ninth increase in December.

*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 12/19/2018

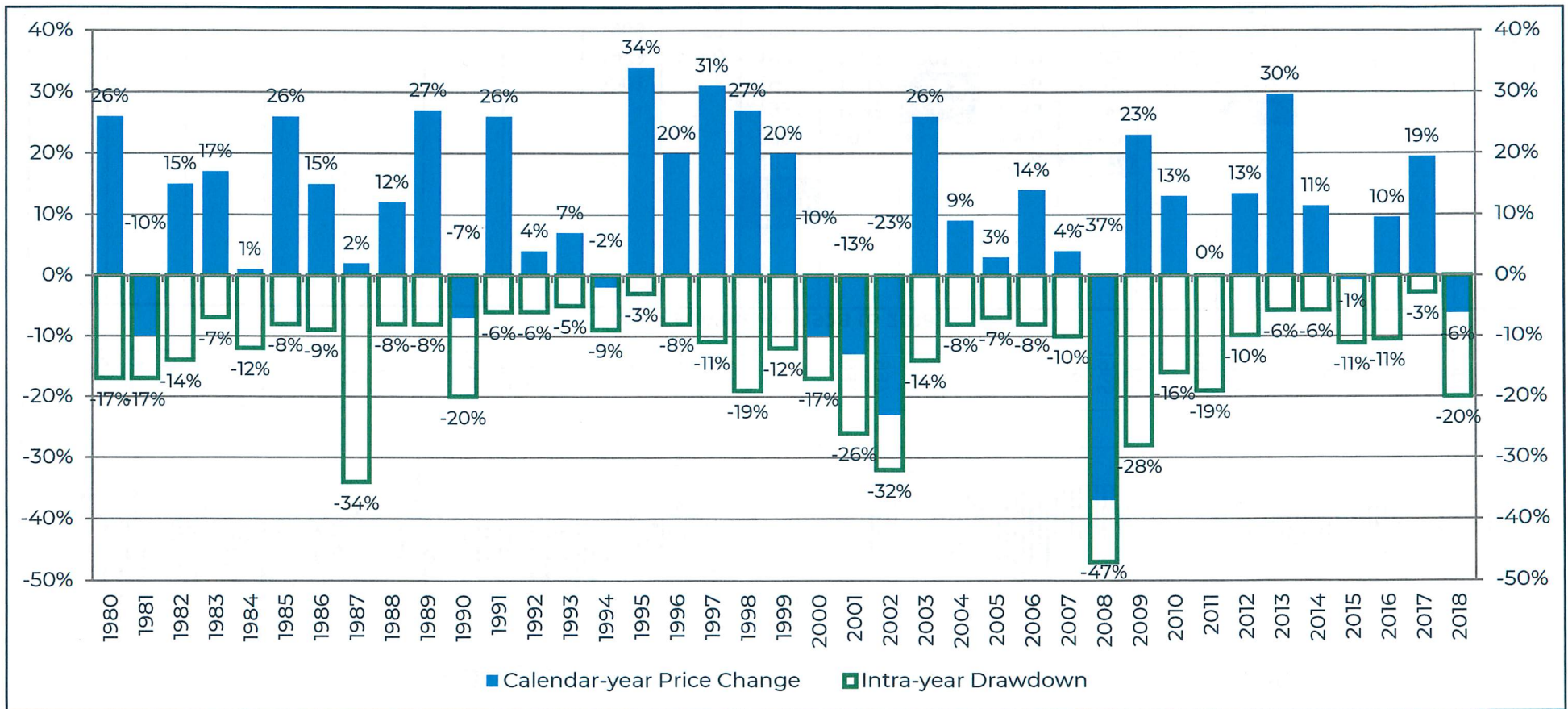
S&P 500 DAILY PRICE MOVES EXCEEDING 1% (+/-)



In 2018, the S&P 500 experienced 64 trading days with price moves exceeding 1% (+/-). This number of price moves was significantly higher relative to 2017 but in line with the long-term average.

Source: Bloomberg as of 12/31/2018. Past performance is no guarantee of future results.

ANNUAL S&P 500 PRICE RETURNS AND DRAWDOWNS



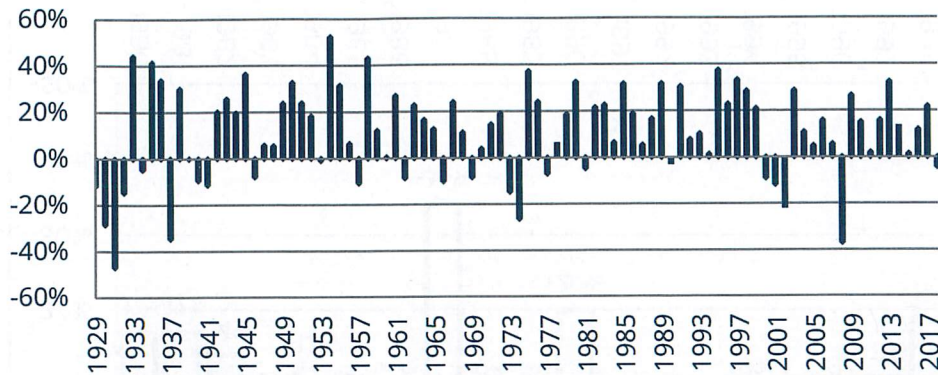
Average calendar-year price change: +9.7%
 Average intra-year drawdown: -13.6%

Past performance is not a guarantee of future results.
 Source: Bloomberg.
 Data as of 1/9/2019.

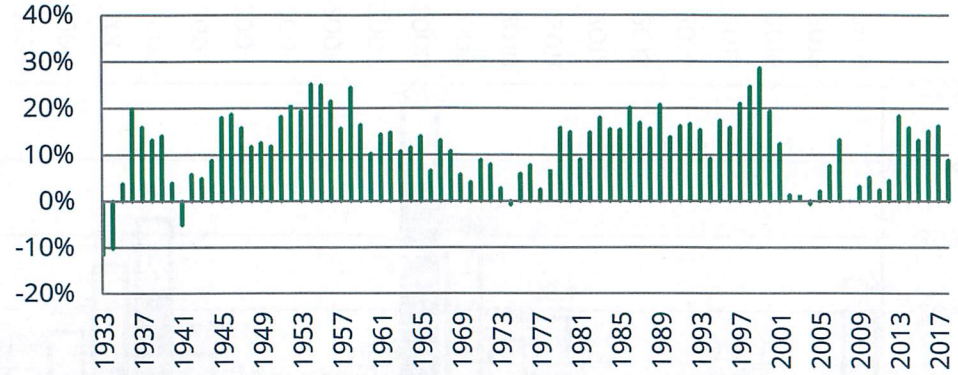


HISTORICAL S&P 500 RETURNS

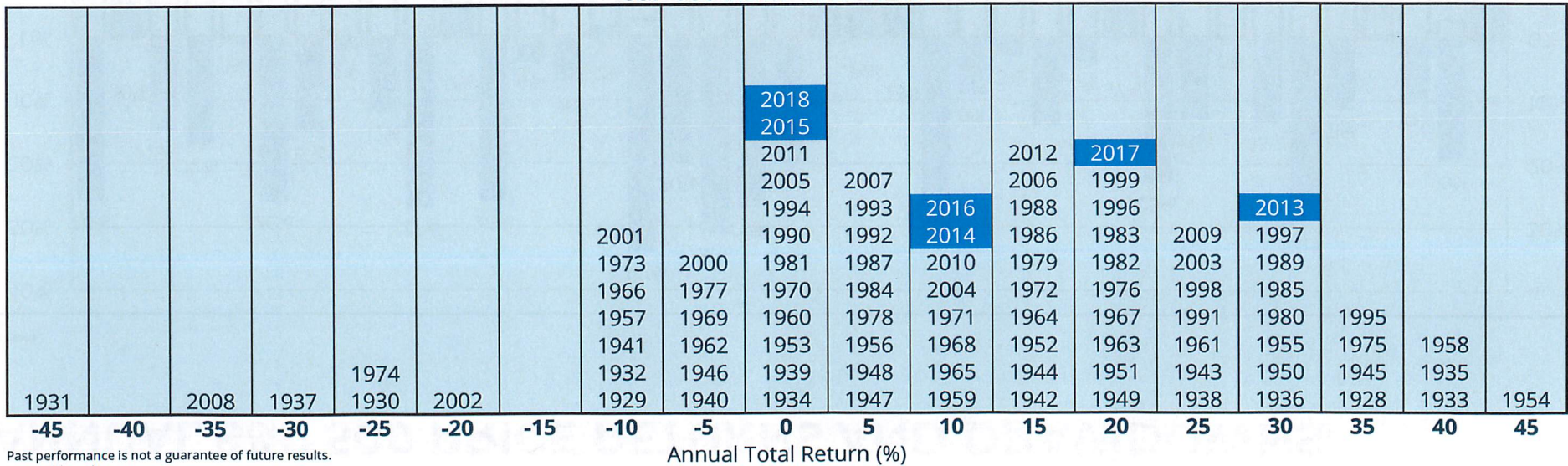
S&P 500 Index - 1 Year Rolling Return



S&P 500 Index - 5 Year Rolling Returns



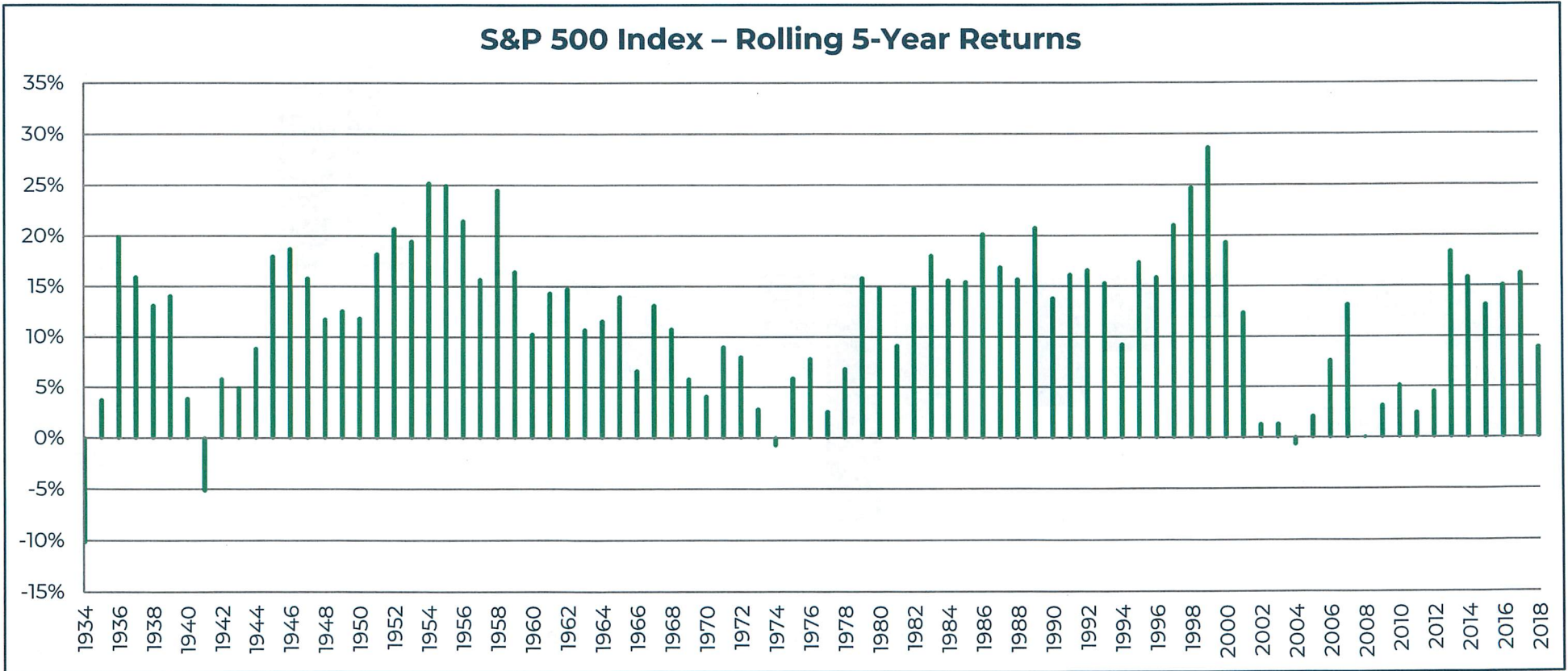
S&P 500 Index - 1928 to 2018



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



S&P 500 ROLLING 5-YEAR RETURNS

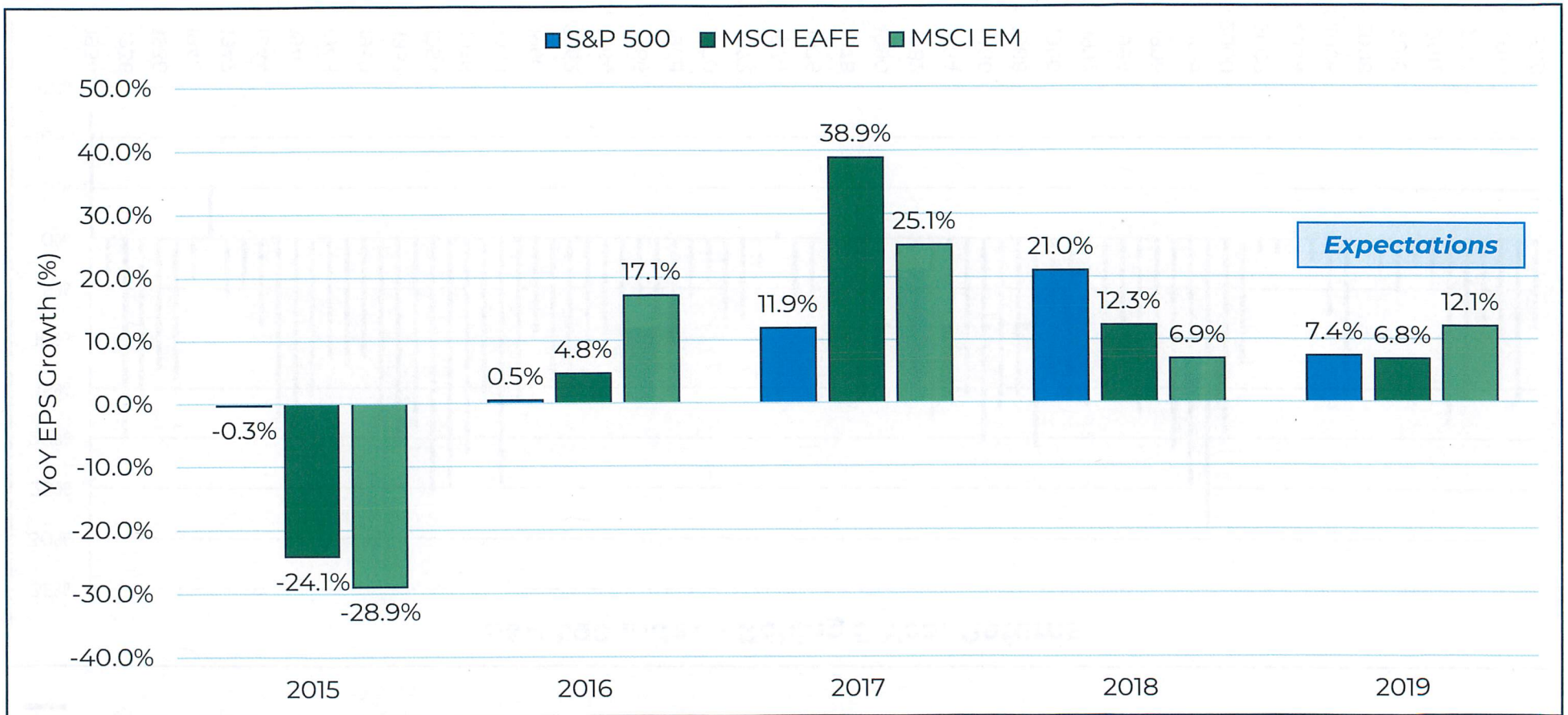


Equity returns show far less volatility over rolling 5-year periods

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



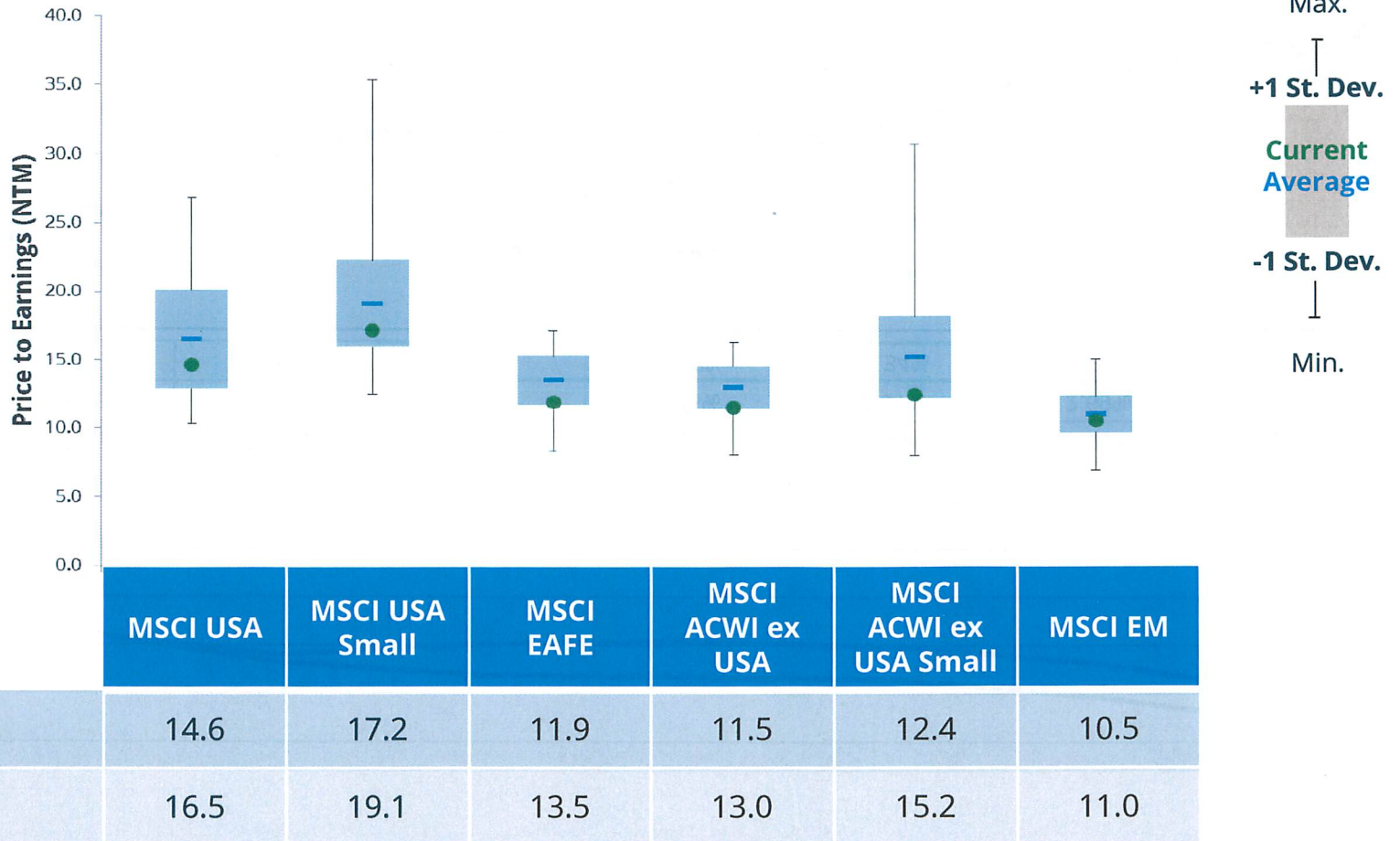
U.S. & FOREIGN EARNINGS GROWTH



Earnings are expected to grow in 2019

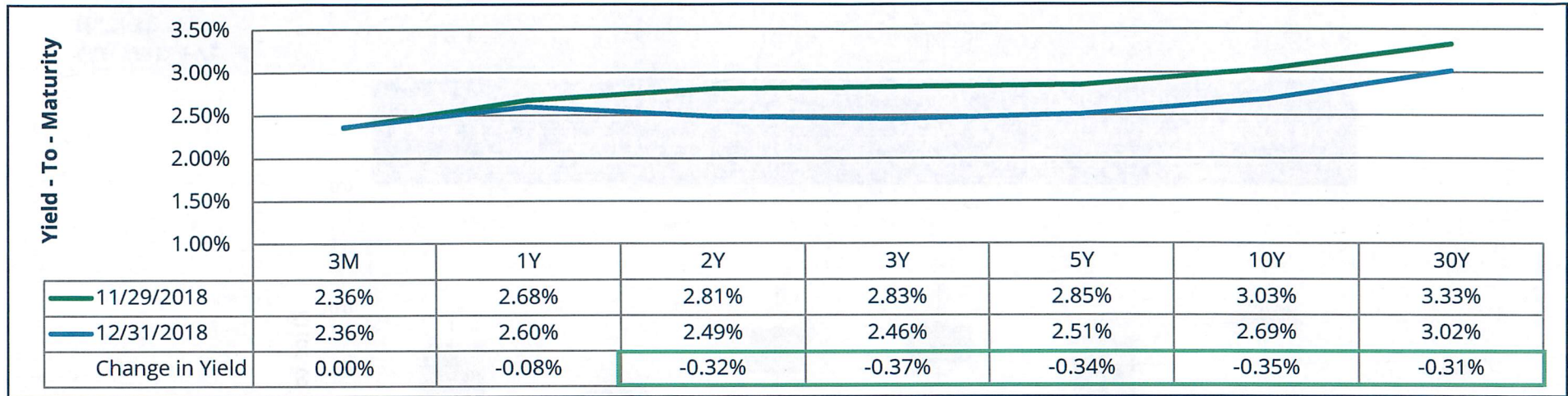
Past performance is not a guarantee of future results.
Sources: Bloomberg as of 12/31/2018 & FactSet as of 1/4/2019.

GLOBAL EQUITY VALUATIONS



Average taken over full index history.
Source: Bloomberg.
Data as of 12/31/2018.

FIXED INCOME: RISING YIELDS, TIGHT SPREADS



Past performance is not a guarantee of future results.
 Source: Bloomberg.
 Data as of 12/31/2018.

SIGNALS OF SLOWER GROWTH

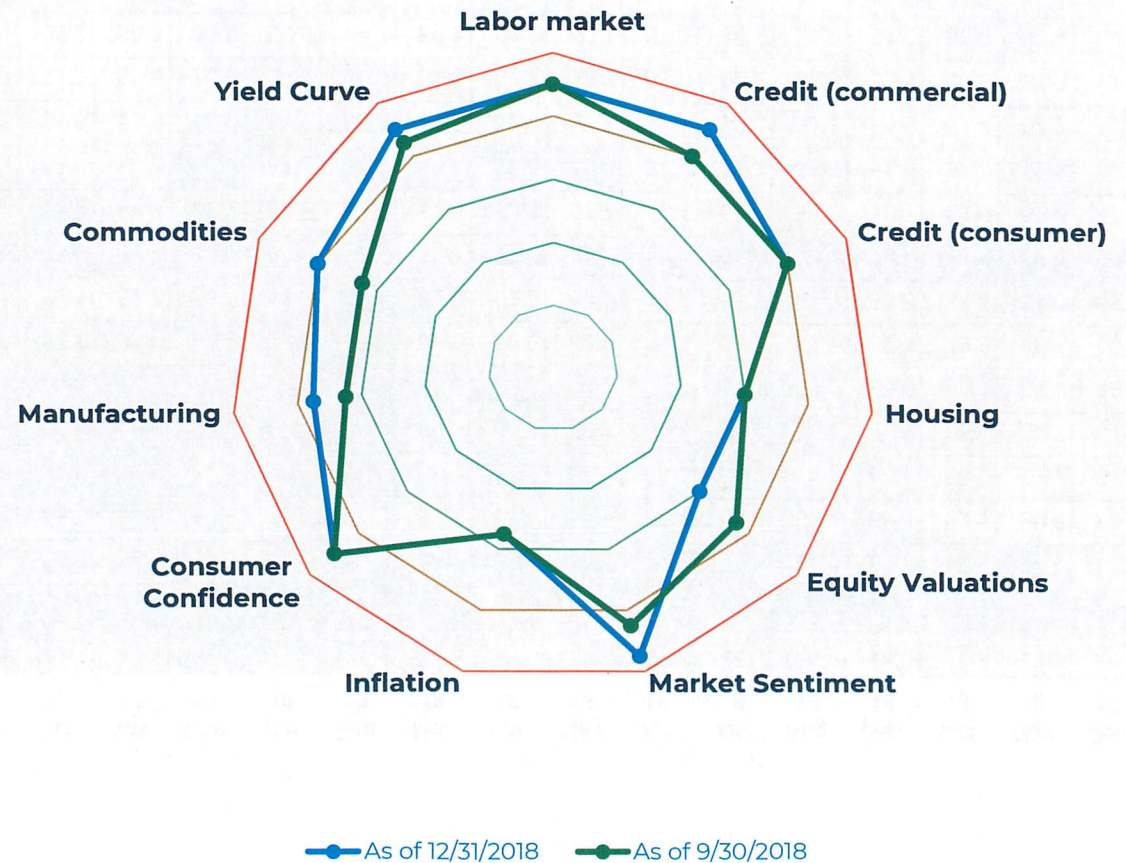
	Jan 17	Feb 17	Mar 17	Apr 17	May 17	June 17	July 17	Aug 17	Sep 17	Oct 17	Nov 17	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	July 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18
World	53.9	53.5	53.8	53.7	53.8	53.7	53.6	54.0	54.0	54.0	54.1	54.4	54.6	54.8	53.3	53.9	54.0	54.2	53.7	53.4	52.8	53.0	53.2	52.7
U.S.	56.4	57.6	55.4	57.5	56.9	57.4	54.2	55.7	59.9	59.9	57.5	56.3	59.8	59.6	58.9	56.9	58.6	59.2	56.0	58.8	61.4	60.0	60.5	57.2
Canada	53.5	54.7	55.5	55.9	55.1	54.7	55.5	54.6	55.0	54.3	54.4	54.7	55.9	55.6	55.7	55.5	56.2	57.1	56.9	56.8	54.8	53.9	54.9	53.6
U.K.	55.2	53.8	54.9	56.2	54.3	53.8	54.1	54.0	54.1	55.8	54.8	54.9	53.4	54.5	52.5	53.2	54.5	55.2	53.5	54.2	54.1	52.1	50.8	51.4
Eurozone	54.4	56.0	56.4	56.8	56.8	56.3	55.7	55.7	56.7	56.0	57.5	58.1	58.8	57.1	55.2	55.1	54.1	54.9	54.3	54.5	54.1	53.1	52.7	51.1
Germany	54.8	56.1	57.1	56.7	57.4	56.4	54.7	55.8	57.7	56.6	57.3	58.9	59.0	57.6	55.1	54.6	53.4	54.8	55.0	55.6	55.0	53.4	52.3	51.6
France	54.1	55.9	56.8	56.6	56.9	56.6	55.6	55.2	57.1	57.4	60.3	59.6	59.6	57.3	56.3	56.9	54.2	55.0	54.4	54.9	54.0	54.1	54.2	48.7
Italy	52.8	54.8	54.2	56.8	55.2	54.5	56.2	55.8	54.3	53.9	56.0	56.5	59.0	56.0	53.5	52.9	52.9	53.9	53.0	51.7	52.4	49.3	49.3	50.0
Greece	46.6	47.7	46.7	48.2	49.6	50.5	50.5	52.2	52.8	52.1	52.2	53.1	55.2	56.1	55.0	52.9	54.2	53.5	53.5	53.9	53.6	53.1	54.0	53.8
Ireland	59.3	57.8	56.9	61.1	59.5	57.6	57.0	58.2	57.6	56.0	57.7	60.2	59.0	56.8	53.7	57.6	57.7	58.1	56.8	58.4	58.4	56.1	56.6	55.5
Japan	52.3	52.2	52.9	52.6	53.4	52.9	51.8	51.9	51.7	53.4	52.2	52.2	52.8	52.2	51.3	53.1	51.7	52.1	51.8	52.0	50.7	52.5	52.4	52.0
Australia	51.2	59.3	57.5	59.2	54.8	55.0	56.7	54.1	53.1	53.1	54.3	55.5	54.2	54.3	55.4	55.3	55.6	52.9	52.3	52.0	52.5	52.0	53.9	52.9
EM	51.9	52.1	52.5	51.9	52.2	51.5	51.5	52.1	51.8	51.5	51.9	53.0	53.6	53.3	52.3	52.4	52.2	52.4	52.4	51.8	51.6	51.4	52.7	52.5
China	52.2	52.6	52.1	51.2	51.5	51.1	51.9	52.4	51.4	51.0	51.6	53.0	53.7	53.3	51.8	52.3	52.3	53.0	52.3	52.0	52.1	50.5	51.9	52.2
India	49.4	50.7	52.3	51.3	52.5	52.7	46.0	49.0	51.1	51.3	50.3	53.0	52.5	49.7	50.8	51.9	50.4	53.3	54.1	51.9	51.6	53.0	54.5	53.6
Russia	58.3	55.4	56.3	55.3	56.0	54.8	53.4	54.2	54.8	53.2	56.3	56.0	54.8	55.2	53.2	54.9	53.4	52.0	51.7	52.1	53.5	55.8	55.0	53.9
Brazil	44.7	46.6	48.7	50.4	50.4	48.5	49.4	49.6	51.1	49.5	48.9	48.8	50.7	53.1	51.5	50.6	49.7	47.0	50.4	47.8	47.3	50.5	51.6	52.4
S. Africa	51.3	50.5	50.7	50.3	50.2	49.0	50.1	49.8	48.5	49.6	48.8	48.4	49.0	51.4	51.1	50.4	50.0	50.9	49.3	47.2	48.0	46.9	48.2	49.0

Source: Bloomberg. The numbers represent the composite Purchasing Managers Index (PMI), unless otherwise indicated. PMI indicates the health of the economy, where a number above "50" indicates expansion and below "50" implies contraction. World (JPMorgan); U.S. (ISM); Canada, Eurozone, Germany, France, Greece, EM, Russia, Brazil (Markit); U.K. (Markit/CIPS); Italy (Markit/ADACI); Ireland (Investec); Japan, India (Nikkei); Australia (Australian Industry Group); China (Caixin); South Africa (Standard Bank). All numbers are "composite," both manufacturing and non-manufacturing, except for Canada, Greece, and Australia. The indices for those countries represent the manufacturing sector.

U.S. ECONOMY: A SNAPSHOT

The sudden onset of market volatility in October bled into the rest of the quarter, as investors reassessed equity valuations in the context of uncertainties that lie ahead. A part of the worry was for the slowing of the global economic growth and a possible contagion into the United States.

Fears of a global slowdown resulted in falling of commodity prices, manufacturing in the U.S. turned from a recent high, and the turbulence in the equity markets brought valuations down to more reasonable levels. Though we are exhibiting signs of later stages of the cycle, the fundamental areas of the economy, such as the labor market, housing, and the consumer remain supportive of growth.



Source: Clearstead Research.
The inner sections of the concentric hendecagon imply earlier stages of the economic cycle, with outer parts indicating later stages.

MARKET CONSIDERATIONS

Risks

The Fed continues to hike while the market underprices policy probability

Trade spat with China continues indefinitely; China slowdown accelerates

More political instability, including Brexit complications, disagreements within the E.U.



Mitigators

The Fed takes a pause from rate hikes in 2019

The trade talks between U.S. and China are successful; China recovers

Brexit negotiations finish as planned, and other international relations improve.

Now ten years into the current economic expansion, the risks to global economic growth seem to stem from the outside rather than inherent in the economic fundamentals.

HISTORICAL MARKET CORRECTIONS

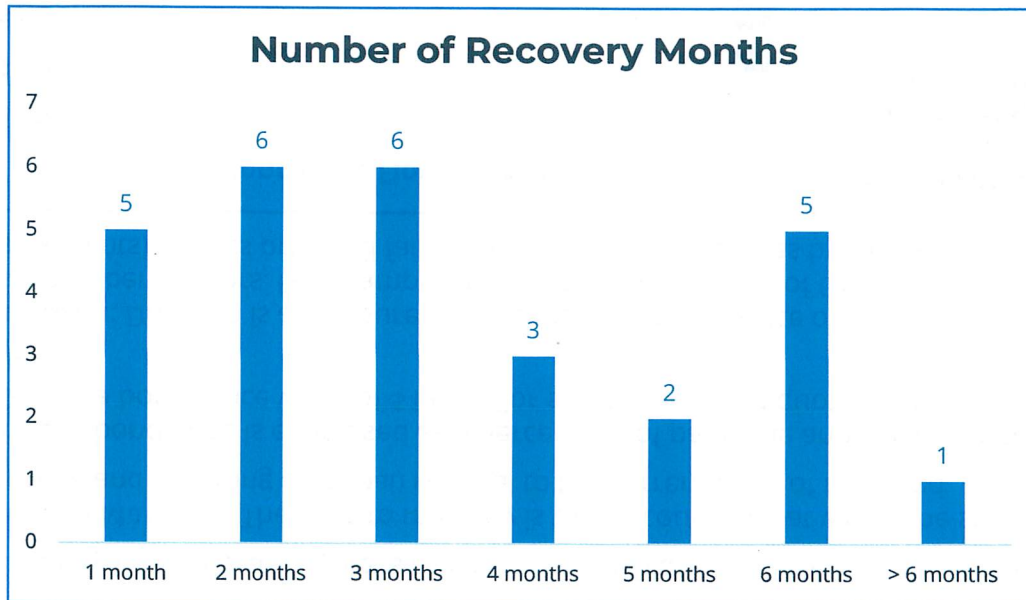
Peak to Trough	% decline (S&P 500)	# of months during correction	# of months to recover
February 1947 to May 1947	-14.7%	3	2
July 1947 to March 1948	-14.1%	8	2
June 1950 to July 1950	-14.0%	1	2
January 1953 to September 1953	-14.8%	8	6
August 1956 to February 1957	-14.8%	6	5
August 1959 to October 1960	-13.6%	14	3
August 1962 to October 1962	-10.5%	2	1
May 1965 to June 1965	-9.6%	1	3
September 1967 to March 1968	-10.1%	6	1
April 1971 to August 1971	-10.7%	4	6
September 1971 to November 1971	-11.0%	2	1
November 1974 to December 1974	-13.6%	1	2
July 1975 to September 1975	-14.1%	2	4
September 1976 to March 1978	-19.4%	18	6
September 1978 to November 1978	-13.6%	2	9
October 1979 to November 1979	-10.2%	1	3
February 1980 to March 1980	-17.1%	1	4
October 1983 to July 1984	-14.4%	9	6
July 1990 to October 1990	-19.9%	3	5
February 1997 to April 1997	-9.6%	2	1
July 1998 to August 1998	-19.3%	1	3
November 2002 to March 2003	-14.7%	4	2
April 2010 to July 2010	-16.0%	3	4
April 2011 to October 2011	-19.4%	6	3
October 2011 to November 2011	-9.8%	1	1
April 2012 to June 2012	-9.9%	2	3
December 2015 to February 2016	-13.0%	2	2
January 2018 to February 2018	-10.2%	1	6

Market corrections are out of investor control and can happen very quickly. As you can see on the table to the left, markets recover from these pullbacks, and the recovery can also be swift. Therefore, trying to time the market by making a call for the top or the bottom does not work. Instead, staying focused on the long-term strategy of a diversified portfolio is the key to navigating through market turbulence.

	% decline (S&P 500)	# of months during correction	# of months to recover
Averages	-13.7%	4.1	3.4

Source: FactSet, Standard and Poor's, Clearstead Research. The time period spans 1947 to 2018. "Correction" is defined as loss of 10% or greater but less than 20%. "Number of months to recover" describes the time period between the trough of the correction to achieving the previous peak in the index. Past performance does not guarantee future returns.

HISTORICAL MARKET CORRECTIONS



Market corrections are out of investor control and can happen very quickly. As you can see on the chart to the left, markets recover from these pullbacks, and the recovery can also be swift. Therefore, trying to time the market by making a call for the top or the bottom does not work. Instead, staying focused on the long-term strategy of a diversified portfolio is the key to navigating through market turbulence.

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FIXED INCOME 101

What is a bond?: A bond is an investment in which an investor loans money to an entity (typically corporate or governmental) for a defined period of time. Interest is typically paid semi-annually and face value is paid at maturity.

Face Value: Face value is the money amount the bond will be worth at its maturity, and is also the reference amount the bond issuer uses when calculating interest payments.

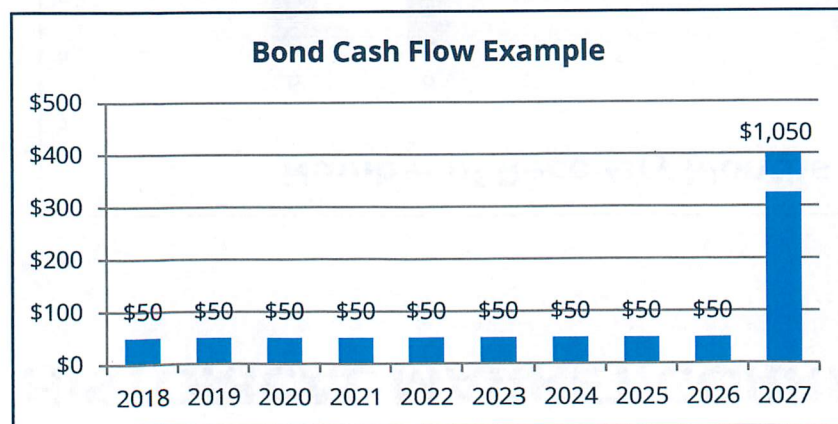
Coupon Rate: Coupon rate is the rate of interest the bond issuer will pay on the face value of the bond, expressed as an annual percentage. For example, a 5% coupon rate means that bondholders will receive $5\% \times \$1000$ face value = \$50 every year.

Maturity Date: Maturity date is the date on which the bond will mature and the bond issuer will pay the bond holder the face value.

Yield To Maturity: The yield to maturity is the discount rate at which the sum of all future cash flows (coupon income, reinvestment of coupon income, and maturing principal) is equal to the current price of the bond.

Price: A bond price is expressed as a percentage of par value and converted to a point scale. Par value is generally set at 100, representing 100% of a bond's face value of \$1,000. For example, a bond quoted at 99 is trading at 99% of face value, meaning the cost of buying each bond is \$990.

Duration: Duration is a measure of the sensitivity of the price of a fixed-income investment to a change in interest rates. Duration is expressed as a number of years. For example, if a bond has a duration of 6 years its price will rise about 6% if its yield drops by a percentage point (100 basis points), and its price will fall by about 6% if its yield rises by that amount.



Bond Example

Face Value: \$1,000
Coupon: 5% (\$50/ annually)
Maturity: 12/31/2027



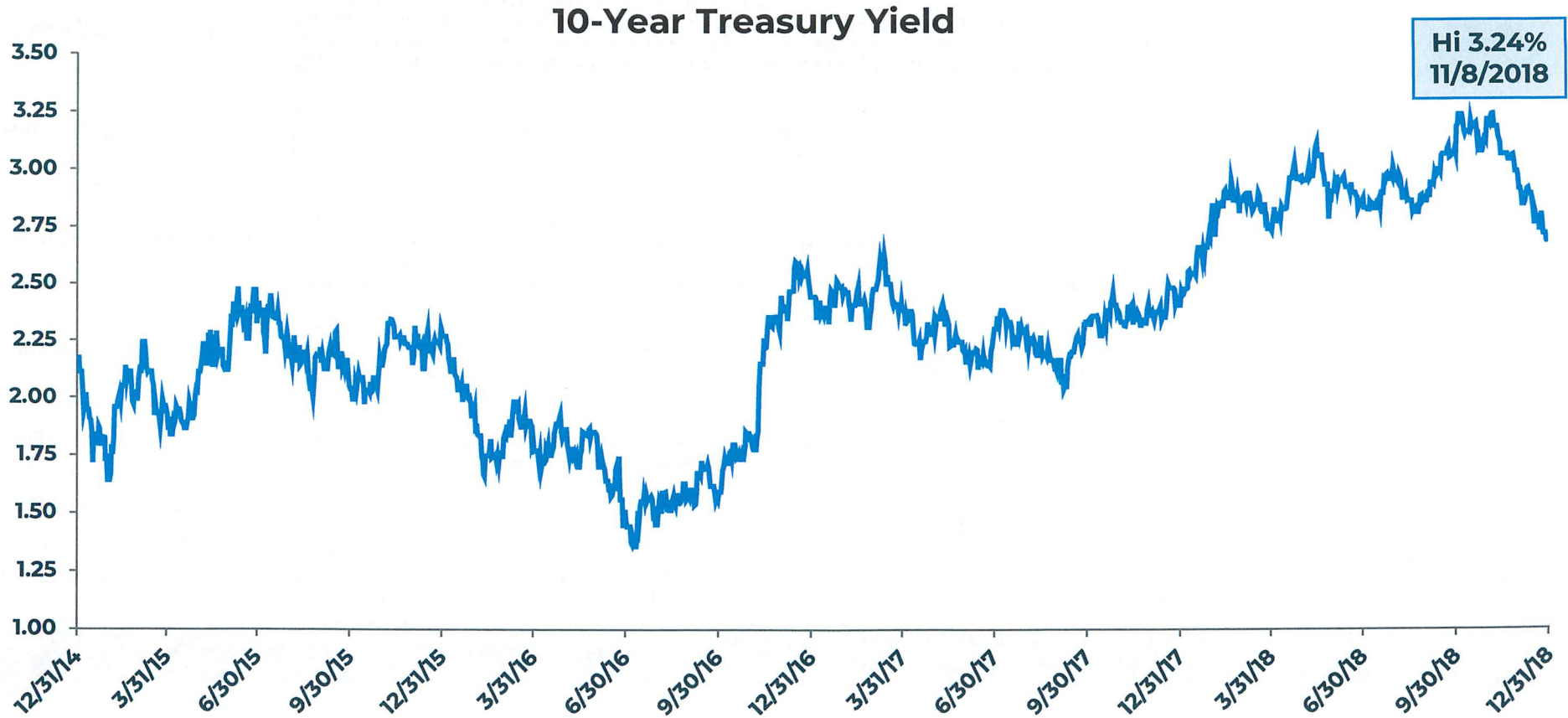
If Bond is Trading at 105 (premium)

Price: \$1,050
Yield-to-maturity: 4.4%
Duration: 7.5

If Bond is Trading at 95 (discount)

Price: \$950
Yield-to-maturity: 5.7%
Duration: 7.4

FIXED INCOME: US TREASURY YIELD



Past performance is no guarantee of future results.
Source: Bloomberg.
Data as of 12/31/2018.



FIXED INCOME OPPORTUNITY SET

Type	Description	Duration	Current Yield
U.S. Core Bonds	Core bond strategies is the name given to bond funds that act as the centerpiece of a bond portfolio. They are generally well diversified with US investment grade corporate, government, and agency bonds with maturities up to 30 years.	6.2	3.3%
Short-Term Bonds	Short-term bond strategies are generally well diversified with US investment grade corporate, government, and agency bonds with maturities less than five years.	1.9	2.8%
TIPS	A Treasury inflation protected security (TIPS) refers to a treasury security that is indexed to inflation. TIPS are considered a low credit risk investment since they are backed by the U.S. government. The par value of the bond adjusts with inflation.	7.7	3.1%
Global Bonds	Global bond strategies generally include global investment grade debt from twenty+ local currency markets, including the US. Global bond strategies invested in government related, corporate and securitized fixed rate securities from predominantly developed but also emerging market issuers.	7.1	2.0%
Emerging Markets Debt	Emerging market bonds are debt securities issued by countries with developing economies as well as corporations within those nations. Emerging markets typically includes debt issued from over 25 countries including China, Russia, South Africa, Brazil, and Poland. Emerging debt can be US dollar based or in local currency. The bonds are both investment grade and high-yield issuers. Holding bonds in local currency adds currency risk and volatility.	6.7	7.1%
High Yield Bonds	High yield bonds are high coupon paying with a lower credit rating than investment-grade corporate bonds. High yield issuers are more vulnerable to economic and credit risk, which leads to a higher default rate. The underlying companies tend to be capital-intensive firms with higher debt ratios.	4.4	8.0%
Floating Rate Loans	These high yield strategies generally invest in senior secured floating rate loans ("Senior Loans") issued by non-investment grade companies. The interest rate on these loans are typically adjusted quarterly from a spread over London Interbank Offered Rate (LIBOR). Given the floating nature of the loans, duration of these securities are low. The investor accepts credit risk rather than duration risk.	0.5	8.1%
Tactical Strategies	This is an investment approach that does not require the strategy to adhere to a specific mandate. The investment parameters are generally set wide for the investment manager to make judgements on sectors, duration, quality, domicile, and currency. The investor is relying on the skill of the manager to navigate markets.	n/a	n/a

Duration and yield are as of 12/31/2018 using the following indexes: Bloomberg Barclays Govt/Credit 1-3 Yr, 10-Year TIP, Bloomberg Barclays Agg., Bloomberg Global Agg., Bloomberg US Corp. High Yield, Credit Suisse Leveraged Loan, JPMorgan Emerging Markets Bond



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 issue, 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 growth 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 growth 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 growth 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 growth 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 Miero 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 Ex-U.S.** 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 (Ba3/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 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: Retail Credit Cards, auto, home equity (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 U.S. 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 (EMSA-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 U.S. Dollar Denominated corporate bonds publicly issued in the U.S. 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% owned and 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, 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, Global Index, Latin America Index, Europe Index.
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 maintains 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 EH: 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 Issuance/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 physically 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: 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 Alternative 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 inflation 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 growth 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 growth companies, and mid-sized growth companies, respectively. The **S&P 600 SmallCap Value Index, Index S&P 600 SmallCap Index and S&P 600 SmallCap Growth Index** are indices that measure the performance of small to mid-cap value stocks, small to mid-cap growth 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 1000 Value Index, Russell 1000 Index and Russell 1000 Growth Index** are indices that measure the performance of large-capitalization value stocks, large-capitalization growth 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 growth 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 growth 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 growth 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 ACWI (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 developed and emerging markets, excluding the U.S. 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, Australasia, 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 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 TIPX 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-B Indexes** measure the respective credit qualities of U.S. corporate and specified foreign debentures and secured notes. The **BC Unvernal 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 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. Treasury, 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 US 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 US 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 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 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 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 three years.

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 144As 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 credits securities from the Multiverse represented in US Dollars on a hedged basis. The **BC Long AA US 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 Convertible 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 & Gov 1-3 Yr 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+ 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 **CHI 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 **CI Group 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 **CI Group WGBI Index** is a market capitalization weighted bond index consisting of the government bond markets of the multiple countries. The **CI Group 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 **CI Group 3-Month U.S. Treasury Bill Index** performance is a return 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 **JPMorgan GBI Global ex-US Index** represents the total return performance of major non-U.S. bond markets.

The **HFRF Funds of Funds Index (HFRF FOF)** is an equal weighted index designed to measure the performance of hedge fund of funds 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. **HFRF 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. **HFRF 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 (TD) 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, 2005, 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.

These reports are not to be construed as an offer or the solicitation of an offer to buy or sell securities mentioned herein. Information contained in these reports are based on sources and data believed reliable. The information used to construct these reports was received via a variety of sources. These reports are for informational purposes only and are not intended to satisfy any compliance or regulatory conditions set forth by any governing body of the securities industry. These reports do not take the place of any brokerage statements, any fund company statements, or tax forms. You are urged to compare this report with the statement you receive from your custodian covering the same period. Differences in positions may occur due to reporting dates used and whether certain assets are not maintained by your custodian. There may also be differences in the investment values shown due to the use of differing valuation sources and methods. Past performance is no guarantee of future results. Investing involves risk, including risk of loss. Diversification does not ensure a profit or guarantee asset gains.

This evaluation report has been prepared for the exclusive use of a specific client and no part of it may be used by any investment manager without permission of that client and Clearstead. Evaluation of investment managers covers both quantitative and qualitative aspects. In addition to the investment performance evaluation, we monitor ownership structure, track key-employee information, and hold regular meetings with each investment management organization employed by our clients.

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.

A current copy of Hartland & Co.'s ADV-Part 2 is available to all clients upon request.



Disclosure of Relationships with University-Affiliated Financial Institutions
Updated January 2019

In accordance with Youngstown State University policy 3356-3-10, Investment of the University's Non-Endowment and Endowment Funds, members of the Board of Trustees are required to disclose relationships, beyond the ordinary customer relationships, with the financial institutions involved with the University's non-endowment and endowment funds. Please disclose the nature of any relationships with the institutions listed below.

The financial institutions involved with the Non-Endowment Funds are as follows:

- PNC _____
- Clearstead _____
- J.P. Morgan _____
- State Treasury Asset Reserve of Ohio (STAR Ohio) _____
- Vanguard _____
- Lord Abbett _____
- Loomis Sayles _____
- Victory _____
- William Blair _____
- Dodge & Cox _____
- Dimensional Fund Advisors (DFA) _____
- Wells Fargo _____
- Diamond Hill _____
- Brookfield _____
- Prudential _____
- I have no business or familial relationship with the above institutions that require disclosure

The Financial Institutions involved with the Endowment Funds are as follows:

- PNC _____
- Huntington National Bank _____
- Clearstead _____
- Vanguard _____
- I have no business or familial relationship with the above institutions that require disclosure

SIGNED: _____ DATED: _____

For audit and compliance purposes, please return completed form to YSU, Tod Hall 214, Office of the Vice President for Finance & Business Operations by May 1, 2019.