

**Annual Report on the Cash Pool Investments and Debt Programs
For the Fiscal Year Ending September 30, 2017**

In accordance with the Board of Governors Statutes (WSUCA) 2.73.03 and 2.73.04, the Administration presents the annual report of our cash pool investment and debt programs for the fiscal year ending September 30, 2017.

Cash Pool Investment Program

This annual report was prepared by Wayne State University's investment consultants, NEPC, LLC. At September 30, 2017, the cash pool was approximately \$362 million. The main objective is to generate income to support the budget while protecting principal and maintaining sufficient liquidity.

The cash pool represents the cash reserves and working capital of the University and experiences variability in inflows and outflows throughout the fiscal year. Inflows are largely dependent on tuition and fees, sponsored programs and state appropriations. Outflows are driven by general disbursements, payroll and debt service payments. The University has access to a \$35 million line of credit that is used periodically throughout the year to support liquidity needs due to the cyclical nature of cash flows.

The cash pool portfolio's investment returns were 1.7% for the fiscal year ending September 30, 2017. This beat the allocation index by 1.0%. Asset allocation is in compliance with the investment guidelines within the policy.

The portfolio has the following attributes at September 30, 2017:

- Average yield to maturity of 1.8%
- Average credit quality is A
- Average effective maturity is 2.7 years
- Effective duration is 2.1 years

The University is in compliance with credit risk, concentration of credit risk and interest rate risk policies.

The University continues to assess the portfolio's ability to achieve the appropriate balance between income needs and an acceptable level of risk.

Debt Program

The University uses debt to fund capital projects that support its Mission. In assessing the use of debt, other financing and revenue sources are considered as well, including State

Submitted by: William R. Decatur, Vice President, Finance and Business Operations

appropriations, philanthropy, project generating revenues, grant revenues and other sources.

The University's outstanding debt as of September 30, 2017 was \$413.6 million. In November, a private-public partnership with Corvias for on-campus student housing closed and subsequently allowed the University to defease approximately \$100 million of debt related to housing projects. As a result, the University's outstanding debt as of December 31, 2017 was \$300.2 million. Approximately \$12 million per year amortizes each year.

All debt in the portfolio is fixed rate debt. The weighted average life of the portfolio is 12 years and the average interest cost is 3.70%. All of the debt has a 10 year par call feature, with the exception of Series 2009B bonds which have a make whole call until 2019, when the call provision becomes a par call. The Series 2009B bonds are taxable Build America Bonds (BABs) and therefore a federal subsidy is received which makes the interest rate paid approximately equivalent to the tax-exempt interest rate that was available at the time of issuance.

The University has two basis swaps outstanding related to the Series 2015A bonds with a total notional amount of \$40.9 million as of December 31, 2017. The swaps have a combined positive mark-to-market of \$274 thousand as of December 31, 2017. The University has not had to post collateral. Since inception, the swaps have generated about \$1.9 million in cash receipts.

In support of our mission and consistent with the Five-Year Capital Outlay Plan and actions taken by the Board of Governors, the University plans to advance nine capital projects over the next twelve months. Funding for these projects will come from fundraising, state appropriations and bond proceeds. Approximately \$130 million par amount of debt will be issued to fund the following projects which are being recommended for Board approval.

- Hilberry Theatre
- Mike Ilitch School of Business
- STEM Project
- Data Center
- PLD to DTE
- Weight Room Addition
- Campus Health Center Relocation
- Art Gallery
- Relocation activities (STEM)

These bonds will be issued in the first quarter of calendar year 2018.

Submitted by: William R. Decatur, Vice President, Finance and Business Operations

Reports attached:

- Wayne State University Cash Pool Investment Performance Report
- Schedule of Long-Term Debt Outstanding
- Bond Debt Service Schedule



WAYNE STATE UNIVERSITY

Treasury Update

February 2, 2018

Long-Term Investment Program (Endowment)



The Wayne State University Foundation and Investment Committee oversees the Endowment assets

- The Wayne State University Foundation was established by the University's Board of Governors in 2000 to develop a centralized means of encouraging and managing financial support by private sources.
- The Foundation seeks to promote advocacy and generate meaningful financial support from private sources as an essential supplement to state appropriations, tuition and research related income.
- This private support allows the University to provide its students, faculty and researchers with opportunities for learning and discovery that otherwise would not be possible.
- The Investment Committee assists the Wayne State University Foundation Board with all investment related decisions, including policy and strategic planning, annual spending rate review, and oversight of the Outsourced Chief Investment Officer (OCIO)



The University has moved to a new Outsourced Chief Investment Officer (OCIO) model to manage the Foundation's Endowment portfolio

- The OCIO model offers many compelling advantages over the traditional model
 - The Investment Committee can focus more on strategy
 - Enhanced fiduciary oversight
 - More sophisticated portfolio designs are possible
 - Investment opportunity set is expanded, including increased access to private market investments
 - Risk management is enhanced
 - Opportunities for reduced investment manager fees
- Roles and responsibilities have been realigned to more efficiently manage the endowment portfolio
 - Foundation Board maintains oversight of the endowment portfolio
 - Foundation Investment Committee has detailed oversight of the endowment portfolio and the OCIO
 - Treasury Staff has oversight of operations of the endowment portfolio
 - OCIO manages the endowment in accordance with investment guidelines established by the Board, subject to the supervision of the Investment Committee



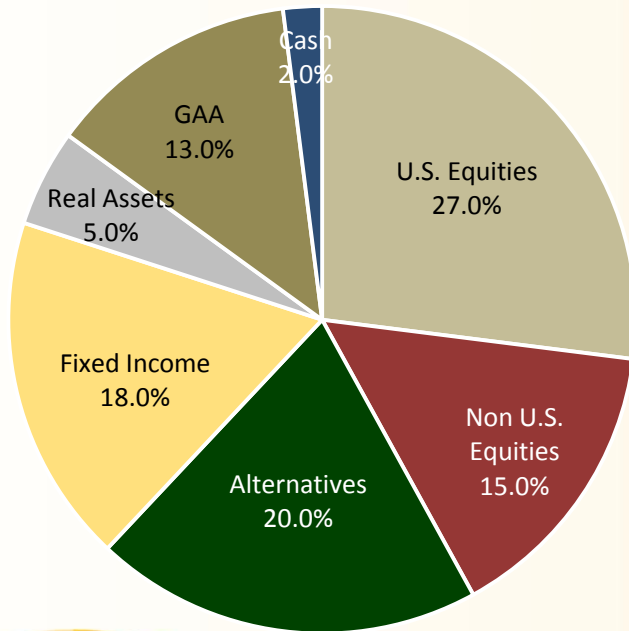
Strategic Investment Group (Strategic) was selected as the Foundation's Outsourced Chief Investment Officer

- Strategic has been partnering with the Foundation since October 2016
 - Pioneer in dedicated OCIO since 1987
 - Conflict free business model
 - \$35 billion assets under management
- Collaborating with the Foundation Board, Investment Committee and Treasury Staff, a new Investment Policy Statement (IPS) was designed to define financial objectives and risk parameters and provide the framework for asset allocation guidelines, benchmarks and risk control ranges
- Developed the active portfolio structure relative to that policy
 - Viewed as a “modern” investment approach and asset allocation
- Implementation of new portfolio substantially complete March 31, 2017, except the Private Equity allocation which will be funded over time by incremental commitments every three years
 - Seamless and smooth transition to new asset allocation
 - Current fiscal year results show improvement over prior fiscal year results

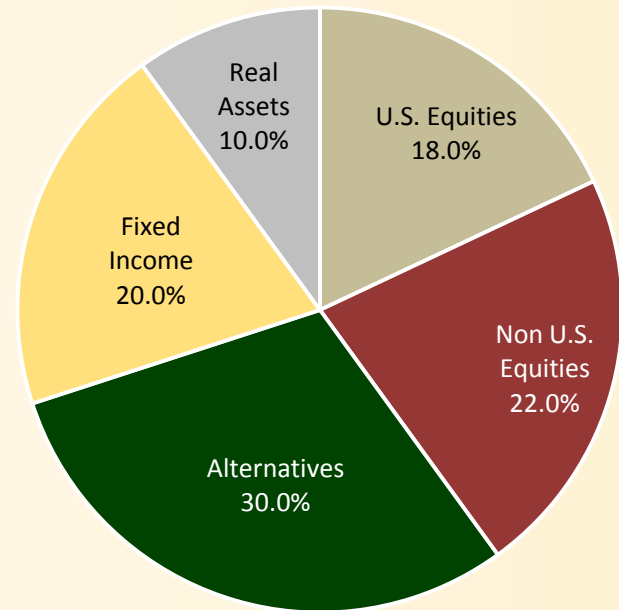


Current asset allocation modeled to improve performance while decreasing risk profile

Prior Policy Asset Allocation



Current Policy Asset Allocation



The current asset allocation reflects Strategic's overall philosophy and strategy

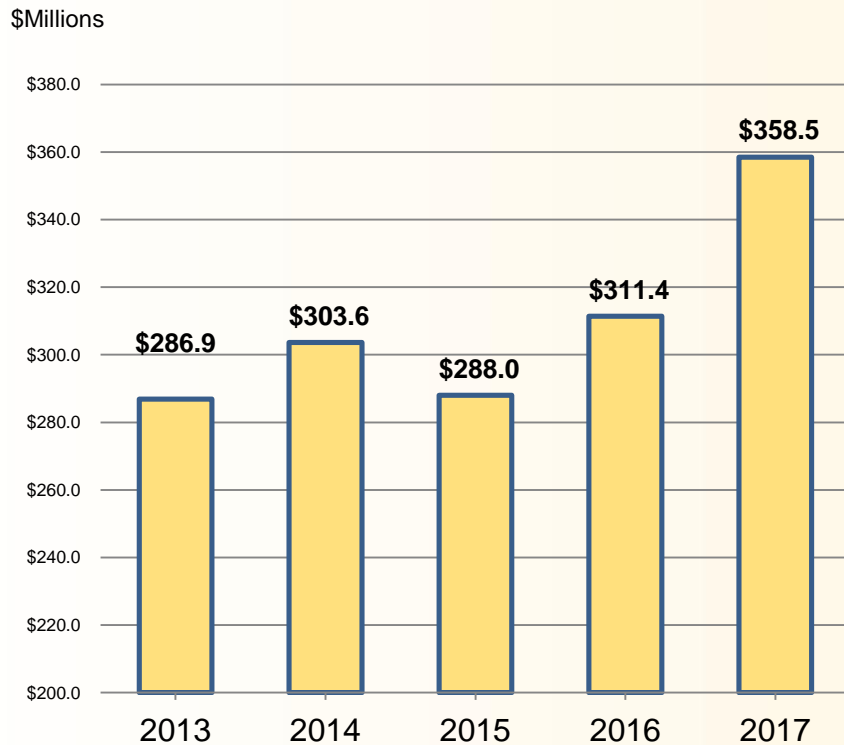
Asset Class	Change from Prior
U.S. Equity	↓ 9%
Non-U.S. Equity	↑ 7%
Alternatives	↑ 10%
Fixed Income	↑ 2%
Real Assets	↑ 5%
Global Asset Allocation	↓ 13%
Cash	↓ 2%

- Improved risk-adjusted returns due to a refined mix of market exposures (beta) and active management (alpha)
 - Capture illiquidity premium of private equity
 - Shift portfolio to asset classes and market segments that offer higher alpha, and decreasing passive investments
- Tactical or opportunistic asset allocation decisions are implemented directly at the portfolio level rather than through asset allocation funds



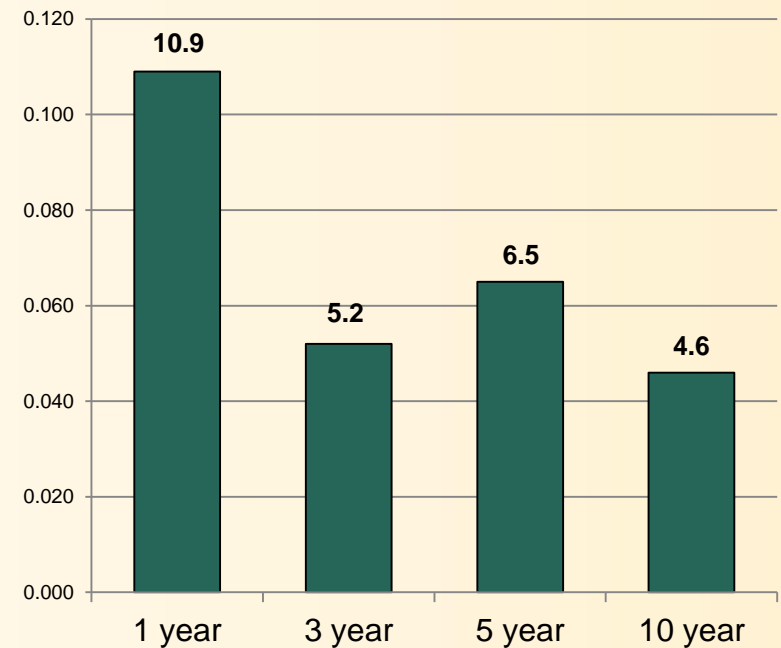
Foundation's Endowment Portfolio demonstrates steady growth and strong returns

Total Investments*



Performance

(net of fees)



*Common Trust Fund (CTF) Investments

Cash Pool Investment Program



The Cash Pool represents the cash reserves and working capital for the University

- The main objective is to generate income to support the budget while protecting principal and maintaining sufficient liquidity
- The cash pool portfolio investment returns were 1.7% for fiscal year ending September 30, 2017.
 - It's three year returns were 2.3% and it's five year returns were 2.1%.
- The portfolio has the following attributes (as of September 2017)
 - Average yield to maturity of 1.8%
 - Average credit quality is A
 - Average effective maturity is 2.7 years
 - Effective duration, which is a measure of principal sensitivity to changes in interest rates, is 2.1 years
- The portfolio generates income of approximately \$8.5M-\$9M annually, exclusive of unrealized gains/losses.



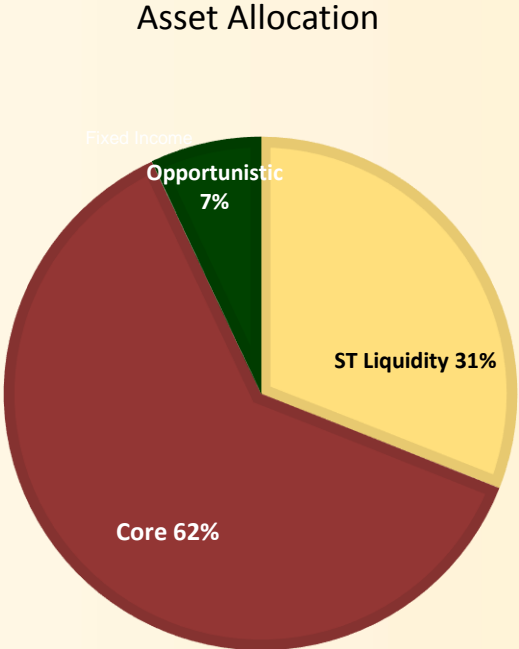
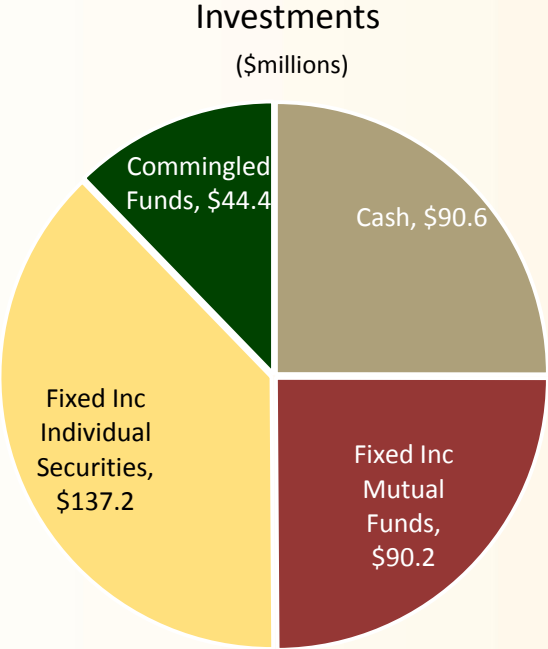
The Cash Pool is highly liquid and provides flexibility to meet cyclical cash flow needs

- The cash pool experiences variability in inflows and outflows throughout the fiscal year
- Because of cyclical cash flows, the value of the cash pool varies throughout the year
- The University has access to a \$35 million line of credit to support liquidity needs due to cyclical cash flows

Month End Cash Pool Balances
(including any Bank Loans)



Cash Pool Investments are highly liquid and support the University's mission



As of September 30, 2017

Debt Program



The University uses debt to support funding our Mission

- The University maintains a manageable debt portfolio
 - \$300.2 million in debt as of December 31, 2017
 - In December, approximately \$99 million of Housing debt was defeased
 - All fixed rate debt
 - Amortizing debt of approximately \$12 million per year over remaining life of outstanding bonds.
 - Weighted average life is 12 years
 - Average interest cost is 3.70%
- University credit ratings:
 - Moody's: Aa3 with an outlook of "negative"
 - S&P: "A+" with an outlook of "stable"
- The University has two basis swaps outstanding related to the Series 2015A bonds with a total notional amount of \$40.9 million as of December 31, 2017
 - Combined positive MTM value of \$274 thousand as of December 31, 2017
 - Since inception, the SWAPS have generated about \$1.9 million of cash receipts
 - The University has not had to post collateral



In support of our Mission and consistent with the Five-Year Capital Outlay Plan and actions taken by Board of Governors, the University plans to issue debt to fund various capital projects

- Funding for these projects will come from fundraising, State appropriations and bond proceeds
- Approximately \$130 million par amount of debt will be issued to fund approved capital project that further the Mission of the University
 - Mike Ilitch School of Business
 - STEM
 - PLD to DTE
 - Campus Health Center Relocation
 - Hilberry Theatre
 - Data Center
 - Weight Room
 - Art Gallery
- The bonds will be issued in the first quarter of calendar year 2018



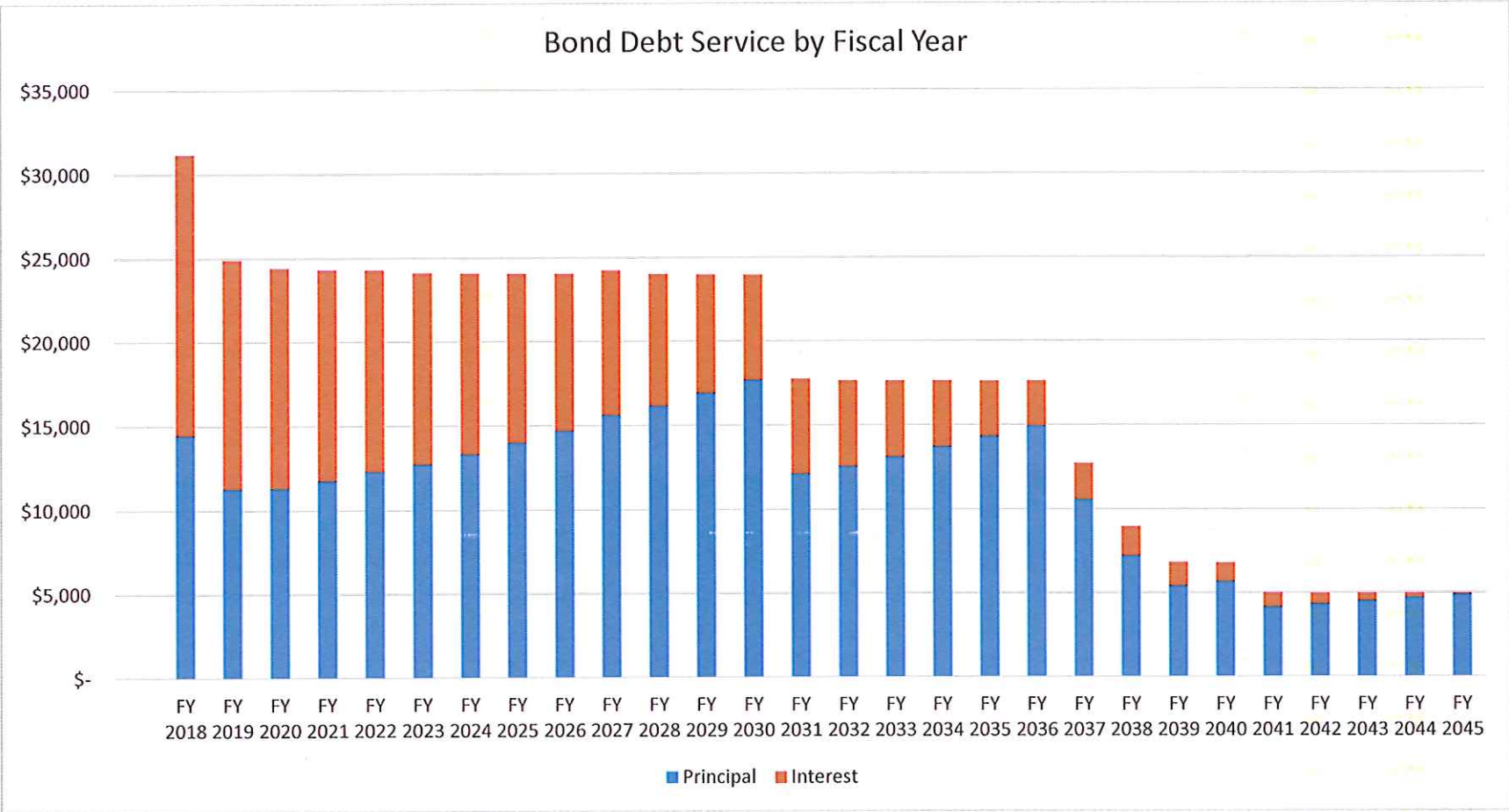
Wayne State University's Debt Portfolio

Long-Term Debt Outstanding (par amount)

(\$ thousands)	<u>Balance</u> <u>9/30/2017</u>	<u>Balance 12/31/17</u> <u>Post Defeasance</u>	Final Maturity	Type of Bond
Series 2016A	\$ 89,975	\$ 89,975	2037	Tax-exempt
Series 2016B	11,285	11,285	2037	Taxable
Series 2015A	49,820	48,300	2036	Tax-exempt
Series 2013A	80,870	79,375	2044	Tax-exempt
Series 2009A	61,060	36,505	2029	Tax-exempt
Series 2009B	26,230	25,500	2039	Taxable
Series 2008	88,485	4,555	2035	Tax-exempt
Series 2007A	820	-	2037	Tax-exempt
Series 2007B	4,220	4,220	2030	Taxable
Series 2006	-	-	2036	Tax-exempt
Series 2003B	845	435	2018	Taxable
	<u>\$ 413,610</u>	<u>\$ 300,150</u>		



DEBT PROFILE - 2017 FISCAL YEAR END





NEPC, LLC

YOU DEMAND MORE. *So do we.*SM



Wayne State University Cash Pool

FYQ4 2017 Investment Performance Report

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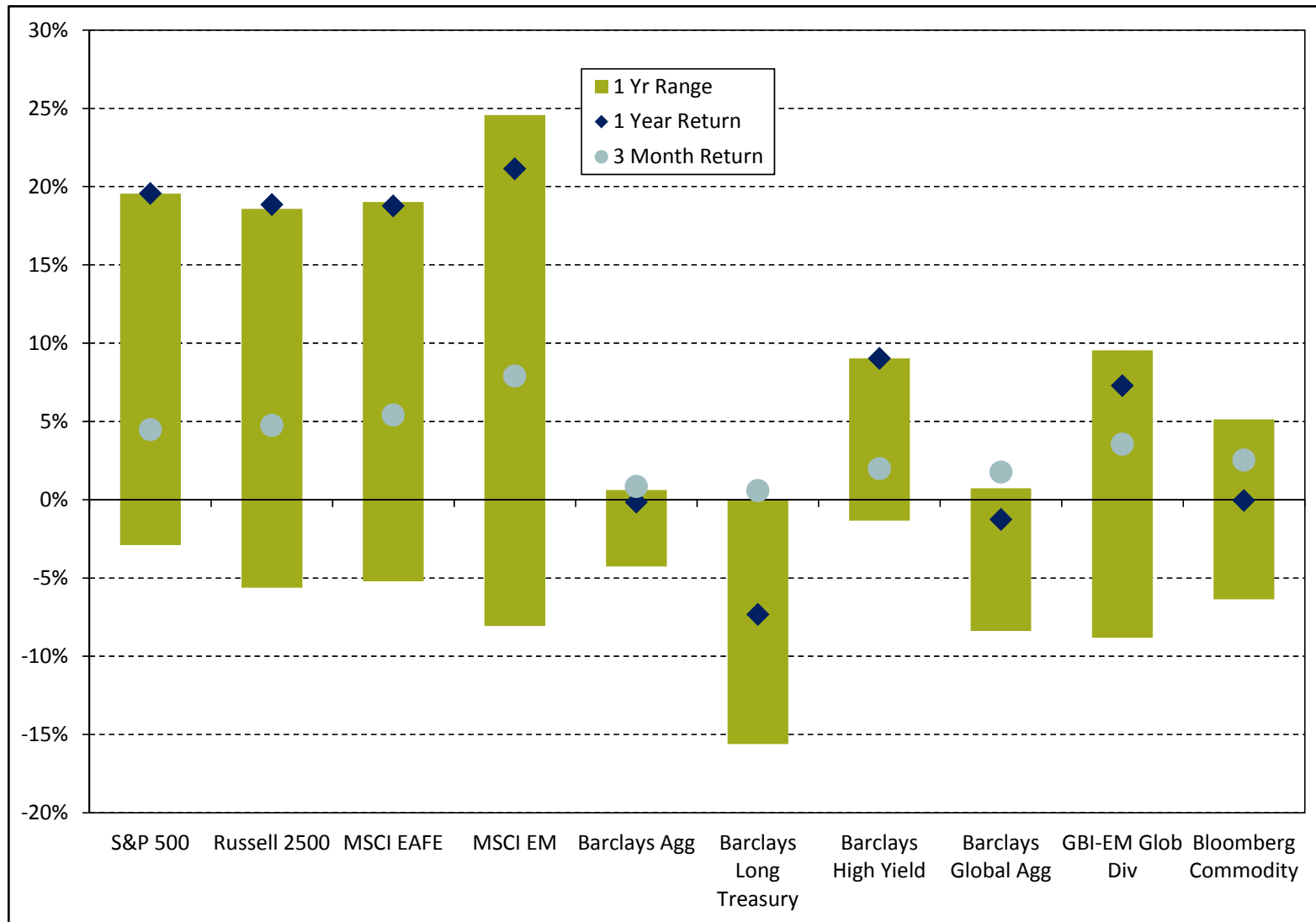
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

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Market Environment Update



Near Term Broad Market Performance Summary as of 09/30/2017



Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan
 *1 Yr Range: Represents range of cumulative high/low daily index returns for an investment made one year ago

Index Performance Summary as of 09/30/2017

	2009	2010	2011	2012	2013	2014	2015	2016	Q1	Q2	Q3	Sept	YTD
MSCI EM	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	11.4%	6.3%	7.9%	-0.4%	27.8%
MSCI EAFE	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	7.2%	6.1%	5.4%	2.5%	20.0%
MSCI ACWI	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	6.9%	4.3%	5.2%	1.9%	17.3%
JPM GBI-EM Global Div	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	6.5%	3.6%	3.6%	-0.3%	14.3%
S&P 500	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	6.1%	3.1%	4.5%	2.1%	14.2%
Russell 1000	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	6.0%	3.1%	4.5%	2.1%	14.2%
Russell 2500	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	3.8%	2.1%	4.7%	4.5%	11.0%
Russell 2000	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	2.5%	2.5%	5.7%	6.2%	10.9%
JPM EMBI Glob Div	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	3.9%	2.2%	2.6%	0.0%	9.0%
BC US Long Credit	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	1.7%	4.7%	2.2%	-0.2%	8.7%
BC US STRIPS 20+ Yr	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	1.8%	6.1%	0.7%	-2.8%	8.7%
BC US Govt/Cred Long	1.9%	10.2%	22.5%	8.8%	-8.8%	19.3%	-3.3%	6.7%	1.6%	4.4%	1.5%	-1.0%	7.7%
BC US Corporate HY	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	2.7%	2.2%	2.0%	0.9%	7.0%
BC Global Agg	-6.5%	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	1.8%	2.6%	1.8%	-0.9%	6.3%
CS Hedge Fund	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	2.1%	0.8%	0.6%	-	4.9%
BC Municipal	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	1.6%	2.0%	1.1%	-0.5%	4.7%
FTSE NAREIT Eqy REITs	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	1.2%	1.5%	0.9%	0.0%	3.7%
BC US Agg Bond	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	0.8%	1.4%	0.8%	-0.5%	3.1%
CS Leveraged Loan	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	1.2%	0.8%	1.1%	0.4%	3.0%
BC US Agg Interm	6.5%	6.1%	6.0%	3.6%	-1.0%	4.1%	1.2%	2.0%	0.7%	0.9%	0.7%	-0.4%	2.3%
BC TIPS	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	1.3%	-0.4%	0.9%	-0.6%	1.7%
BC US Govt/Cred 1-3 Yr	3.8%	2.8%	1.6%	1.3%	0.6%	0.8%	0.7%	1.3%	0.4%	0.3%	0.3%	-0.1%	1.1%
BBG Commodity	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	-2.3%	-3.2%	2.5%	-0.1%	-2.9%
Alerian MLP	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	3.9%	-6.4%	-3.0%	0.7%	-5.6%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse

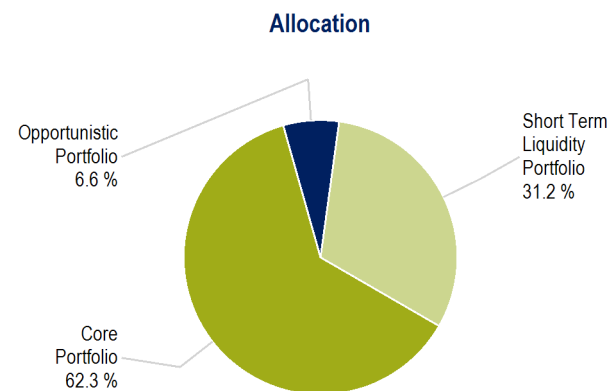


Portfolio Review



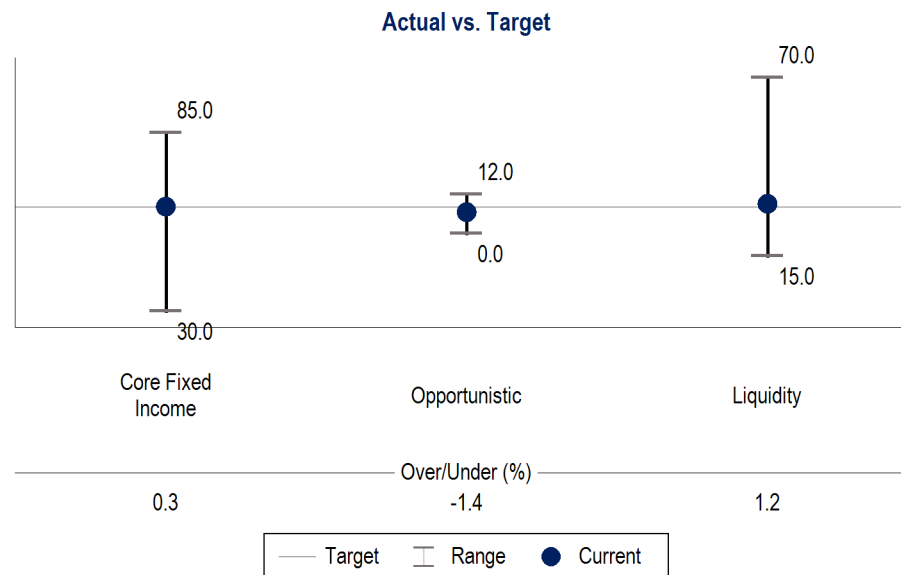
Total Fund Performance Summary

	Market Value	3 Mo	YTD	Fiscal YTD	2 Yrs	3 Yrs	4 Yrs	5 Yrs	Return	Since
Composite	\$362,359,496	0.8%	2.9%	1.7%	2.8%	2.3%	2.5%	2.1%	2.4%	Oct-11
Allocation Index		0.6%	2.2%	0.7%	2.0%	1.9%	1.9%	1.4%	1.5%	Oct-11
Composite - ex ST Liquidity	\$249,465,254	0.9%	3.5%	2.1%	3.2%	2.8%	3.0%	2.6%	3.0%	Oct-11
Allocation Index		0.7%	2.5%	0.9%	2.3%	2.3%	2.2%	1.7%	2.0%	Oct-11
Policy Index		0.6%	2.2%	0.8%	2.1%	2.0%	2.1%	1.7%	2.0%	Oct-11



Performance Commentary:

- The total portfolio returned 0.8%, but due to significant cash inflows ended the quarter at \$362.4 million, a \$44.7 million increase vs. the prior quarter end
 - Net inflows totaled \$44.2 million
 - Gain on investment totaled \$2.5 million
- The portfolio (ex ST Liquidity Portfolio) increased 0.9% during the quarter
- The total portfolio returned 1.7% over the Fiscal Year period, outperforming the Allocation Index by 1%.
- Asset allocations are within the ranges set by the policy



*Fiscal Year represents a 1-year period.

Total Fund Asset Growth Summary

	Last Three Months	One Year	Two Years	Three Years
Beginning Market Value	\$317,605,492	\$349,987,212	\$344,003,791	\$358,894,141
Net Cash Flow	\$42,231,349	\$6,668,090	-\$170,338	-\$20,496,379
Net Investment Change	\$2,522,655	\$5,704,195	\$18,526,043	\$23,961,734
Ending Market Value	\$362,359,496	\$362,359,496	\$362,359,496	\$362,359,496

Wayne State Cash Pool

Total Fund Performance Detail

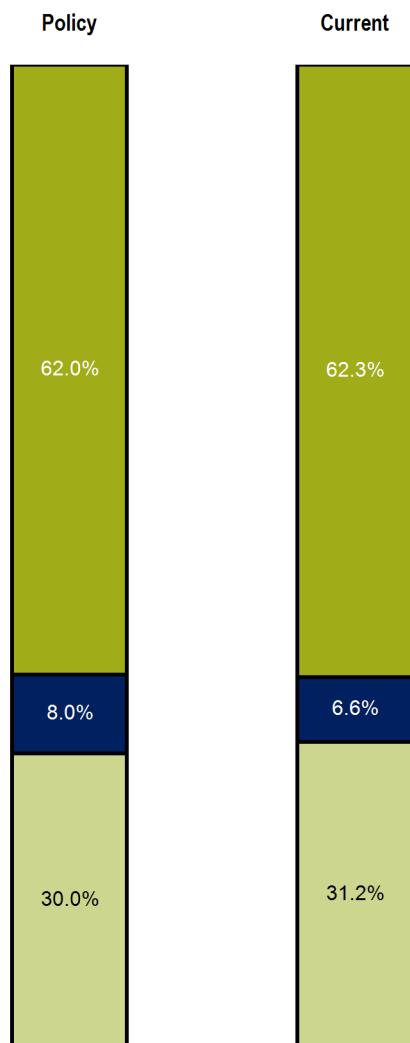
Performance Summary (Net)

	Market Value (\$)	% of Portfolio	Ending September 30, 2017												Inception			
			3 Mo (%)	Rank	YTD (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Return (%)	Since
Composite	362,359,496	100.00	0.78	--	2.85	--	1.74	--	1.74	--	2.78	--	2.33	--	2.10	--	2.44	Oct-11
Allocation Index			0.63	--	2.15	--	0.75	--	0.75	--	2.02	--	1.95	--	1.43	--	1.52	Oct-11
Composite - ex ST Liquidity	249,465,254	68.84	0.93	--	3.46	--	2.12	--	2.12	--	3.25	--	2.77	--	2.55	--	3.01	Oct-11
Allocation Index			0.66	--	2.50	--	0.85	--	0.85	--	2.30	--	2.30	--	1.73	--	2.00	Oct-11
Policy Index			0.60	--	2.16	--	0.78	--	0.78	--	2.07	--	2.03	--	1.66	--	2.01	Oct-11
Core Portfolio	225,640,878	62.27	0.87	--	3.16	--	1.61	--	1.61	--	2.80	--	2.71	--	2.36	--	2.89	Oct-11
Baird Intermediate Gov/Credit	66,981,597	18.48	0.69	36	2.46	34	1.47	9	1.47	9	2.46	19	2.26	34	2.15	16	2.79	Jan-12
BBgBarc US Govt/Credit 1-5 Yr. TR			0.43	93	1.58	98	0.51	41	0.51	41	1.28	95	1.51	96	1.20	89	1.40	Jan-12
IR&M Intermediate Gov/Credit	70,194,967	19.37	0.94	9	3.60	5	1.66	7	1.66	7	3.25	7	2.92	6	2.73	4	3.48	Jan-12
BBgBarc US Govt/Credit Int TR			0.60	64	2.34	47	0.23	66	0.23	66	1.86	65	2.13	43	1.61	54	2.01	Jan-12
JPMorgan Core Bonds	35,002,740	9.66	0.94	29	3.66	26	0.69	35	0.69	35	2.76	56	2.99	36	2.37	38	2.84	Feb-12
BBgBarc US Aggregate TR			0.85	52	3.14	64	0.07	73	0.07	73	2.60	71	2.71	61	2.06	66	2.37	Feb-12
Doubleline Total Return	37,318,338	10.30	1.09	10	3.56	34	1.65	8	1.65	8	2.61	69	3.15	26	--	--	3.63	Oct-13
BBgBarc US Aggregate TR			0.85	52	3.14	64	0.07	73	0.07	73	2.60	71	2.71	61	--	--	3.02	Oct-13
Doubleline Low Duration	16,143,236	4.46	0.72	6	2.37	7	2.39	5	2.39	5	2.58	6	2.08	9	--	--	2.04	Feb-14
BBgBarc US Govt/Credit 1-3 Yr. TR			0.34	75	1.06	78	0.66	66	0.66	66	0.99	71	1.05	70	--	--	0.96	Feb-14
Opportunistic Portfolio	23,824,376	6.57	1.51	--	5.81	--	6.33	--	6.33	--	7.04	--	3.25	--	4.42	--	5.58	Jan-12
Loomis Sayles Fixed Income	14,468,742	3.99	1.68	1	7.55	1	6.96	1	6.96	1	8.33	1	3.34	42	5.03	1	6.51	Jan-12
BBgBarc US Aggregate TR			0.85	95	3.14	98	0.07	99	0.07	99	2.60	98	2.71	80	2.06	96	2.49	Jan-12
Sky Harbor Short Duration High Yield	9,355,634	2.58	1.26	86	4.28	89	5.69	88	5.69	88	5.95	93	3.13	94	--	--	2.62	Apr-14
BofA Merrill Lynch US 1-3 Year Cash Pay High Yield			1.40	81	5.51	79	8.24	47	8.24	47	9.66	33	6.24	14	--	--	5.32	Apr-14
Short Term Liquidity Portfolio	112,894,242	31.16	0.09	--	0.47	--	0.74	--	0.74	--	0.66	--	0.45	--	0.44	--	0.46	Oct-11
Comerica Cash	27,873,098	7.69	0.00	99	0.00	99	0.00	99	0.00	99	0.00	99	0.00	99	0.03	99	0.04	Oct-11
91 Day T-Bills			0.26	80	0.62	84	0.72	85	0.72	85	0.47	87	0.32	87	0.21	89	0.19	Oct-11
Fifth Third Cash	62,770,182	17.32	0.00	99	0.00	99	0.00	99	0.00	99	0.00	99	0.00	99	0.02	99	0.05	Oct-11
91 Day T-Bills			0.26	80	0.62	84	0.72	85	0.72	85	0.47	87	0.32	87	0.21	89	0.19	Oct-11
PIMCO Short-Term Fund	22,250,962	6.14	0.52	1	1.84	1	2.72	1	2.72	1	2.65	1	1.79	1	1.61	1	1.64	Sep-12
91 Day T-Bills			0.26	80	0.62	84	0.72	85	0.72	85	0.47	87	0.32	87	0.21	89	0.21	Sep-12

Returns longer than one year are annualized. *Policy Index is: 30%*(BC 1-3 Yr Gov/Credit)+30%*(BC Inter. Gov/Credit)+35%*(BC Aggregate)+5%*(ML 1-3 Yr High Yield).

*Fiscal Year represents 1-year period period.

Total Fund Asset Allocation vs. Policy Targets



Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Difference	Policy Range
Core Fixed Income	\$225,640,878	62.3%	62.0%	0.3%	30.0% - 85.0%
Baird Intermediate Gov/Credit	\$66,981,597	18.5%			
IR&M Intermediate Gov/Credit	\$70,194,967	19.4%			
JPMorgan Core Bonds	\$35,002,740	9.7%			
Doubleline Total Return	\$37,318,338	10.3%			
Doubleline Low Duration	\$16,143,236	4.5%			
Opportunistic	\$23,824,376	6.6%	8.0%	-1.4%	0.0% - 12.0%
Loomis Sayles Fixed Income	\$14,468,742	4.0%			
Sky Harbor Short Duration High Yield	\$9,355,634	2.6%			
Liquidity	\$112,894,242	31.2%	30.0%	1.2%	15.0% - 70.0%
Comerica Cash	\$27,873,098	7.7%			
Fifth Third Cash	\$62,770,182	17.3%			
PIMCO Short-Term Fund	\$22,250,962	6.1%			
Total	\$362,359,496	100.0%	100.0%		

Manager Information Summary

Manager	Investment Product	Portfolio	Style	Universe*	Date Funded
Comerica Cash	Cash	Short Term Liquidity	Cash Equivalent	Cash Management	n/a
Fifth Third Cash	Cash	Short Term Liquidity	Cash Equivalent	Cash Management	n/a
PIMCO Short-Term Fund	Short-Term Bond	Short Term Liquidity	Short Term Fixed Income	Cash Management	8/2012
Baird Intermediate Gov/Credit	Intermediate Bond	Core	Core Fixed Income	Interm. Duration Fixed Income	12/2011
IR&M Intermediate Gov/Credit	Intermediate Bond	Core	Core Fixed Income	Interm. Duration Fixed Income	12/2011
JPMorgan Core Bonds	Core Bond	Core	Core Fixed Income	Core Fixed Income	1/2012
DoubleLine Total Return Fund	MBS, Core Bond	Core	Core Fixed Income	Core Fixed Income	10/2013
DoubleLine Low Duration Fund	Low Duration - Core	Core	Core Fixed Income	Short Duration Fixed Income	2/2014
Loomis Sayles MSFD	Multi-sector Full Discretion	Opportunistic	Core-Plus Fixed Income	Core Plus Fixed Income	1/2012
Sky Harbor Short Duration High Yield	Limited Term High Yield	Opportunistic	High Yield	High Yield Fixed Income	4/2014

*eVestment (Net)

Manager Liquidity & Fee Summary

Manager	Investment Vehicle	Annual Fee (bps)	Current Benchmark	Redemption Policy
Comerica Cash	Cash Deposit	0	91 Day T-bill	Daily liquidity
Fifth Third Cash	Cash Deposit	0	91 Day T-bill	Daily liquidity
PIMCO Short-Term Fund	Mutual Fund	45	91 Day T-bill	Daily liquidity
Baird Intermediate Gov/Credit	Separate Account	30 bps on the first \$25 million 25 bps on the next \$25 million 20 bps on the next \$50 million 15 bps on the balance	BC 1-5 Year Govt/Credit index	Daily liquidity
IR&M Intermediate Gov/Credit	Separate Account	35 bps on the first \$25 million 30 bps on the next \$25 million 25 bps on the next \$25 million 20 bps on amounts over \$75 million	BC Intermediate Govt/Credit	Daily liquidity
JPMorgan Core Bonds	Commingled Fund	30 bps on the first \$75 million 25 bps on the next \$75 million 22.5 bps on the next \$150 million 15 bps on balance	BC Aggregate	Daily liquidity
DoubleLine Total Return Fund	Mutual Fund	46	BC Aggregate	Daily liquidity
DoubleLine Low Duration	Mutual Fund	46	BC 1-3 Year Govt/Credit index	Daily liquidity
Loomis Sayles MSFD	Mutual Fund	57	BC Aggregate	Daily liquidity
Sky Harbor Short Duration High Yield	Commingled Fund	32.5	ML High Yield 1-3 Yr	Monthly liquidity

Manager Detail

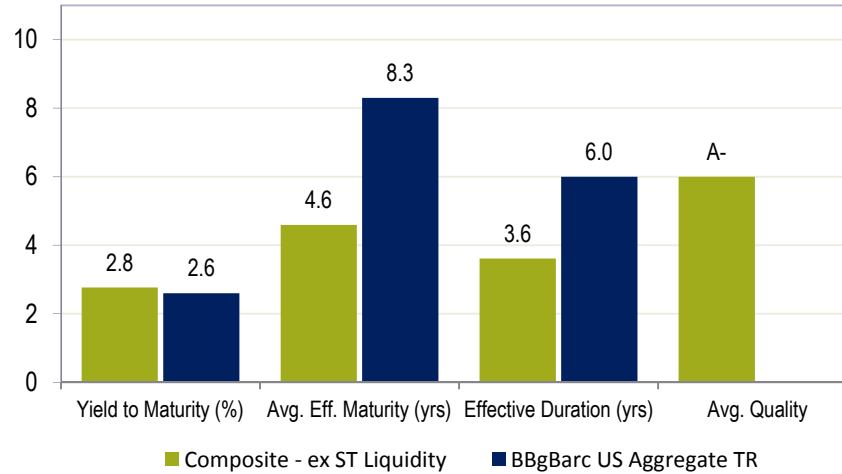


Manager Performance and Characteristics Summary

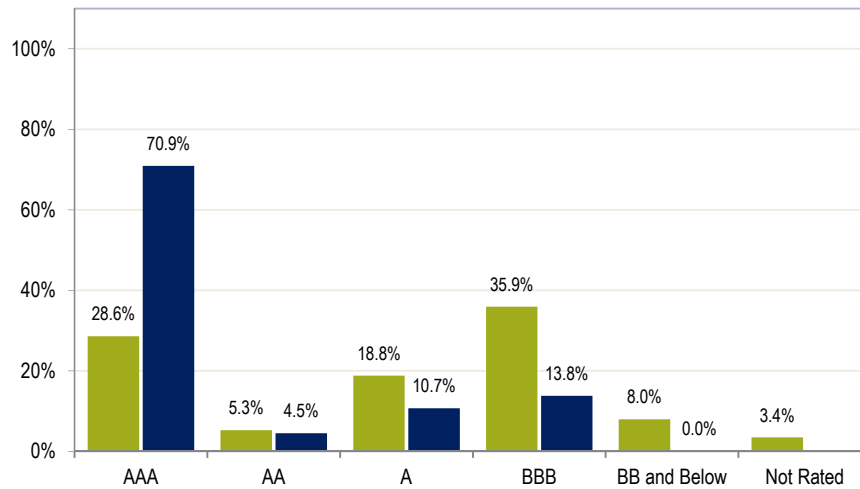
	Market Value(\$)	% of Portfolio	3 Mo (%)	1 Year (%)	Since Inception (%)	Estimated YTM (%)	Avg. Effective Maturity (Yrs)	Effective Duration (Yrs)	Average Quality
Composite	\$362,359,496	100.0%	0.80	1.70	2.40	1.8	2.7	2.1	A
Composite - ex ST Liquidity	\$249,465,254	68.8%	0.90	2.10	3.00	2.8	4.6	3.6	A-
Core Portfolio	\$225,640,878	62.3%	0.90	1.60	2.90	2.6	4.6	3.7	A
Baird Intermediate Gov/Credit	\$66,981,597	18.5%	0.70	1.50	2.80	2.3	2.9	2.8	A-
IR&M Intermediate Gov/Credit	\$70,194,967	19.4%	0.90	1.70	3.50	2.6	4.8	4.2	A-
JPMorgan Core Bonds	\$35,002,740	9.7%	0.90	0.70	2.80	2.9	7.5	5.5	A+
DoubleLine Total Return	\$37,318,338	10.3%	1.10	1.60	3.60	3.0	5.2	3.8	A
DoubleLine Low Duration	\$16,143,236	4.5%	0.70	2.40	2.00	2.5	2.8	1.4	A
Opportunistic Portfolio	\$23,824,376	6.6%	1.50	6.30	5.60	4.3	4.7	2.8	BB
Loomis Sayles Fixed Income	\$14,468,742	4.0%	1.70	7.00	6.50	3.7	5.5	3.6	BBB
Sky Harbor Short Duration High Yield	\$9,355,634	2.6%	1.30	5.70	2.60	5.2	3.5	1.5	B+
Liquidity Portfolio	\$112,894,242	31.2%	0.10	0.70	0.50	0.5	0.4	0.2	AA+
Comerica Cash	\$27,873,098	7.7%	-	-	-	0.0	0.0	0.0	AAA
Fifth Third Cash	\$62,770,182	17.3%	-	-	0.10	0.0	0.0	0.0	AAA
PIMCO Short-Term Fund	\$22,250,962	6.1%	0.50	2.70	1.60	1.7	1.3	0.6	A

Note: Composite characteristics are calculated as market value weighted average of underlying manager characteristics
 Characteristics were obtained from eVestment, Morningstar or the managers directly

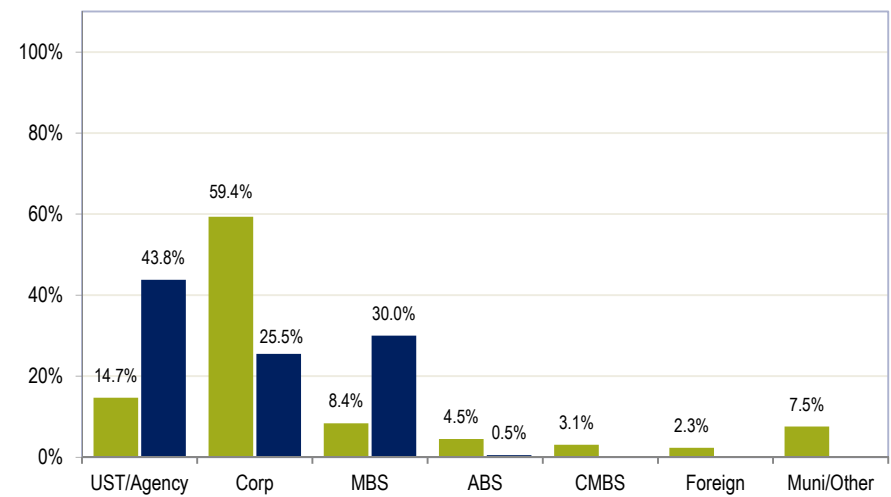
Characteristics



Quality Ratings

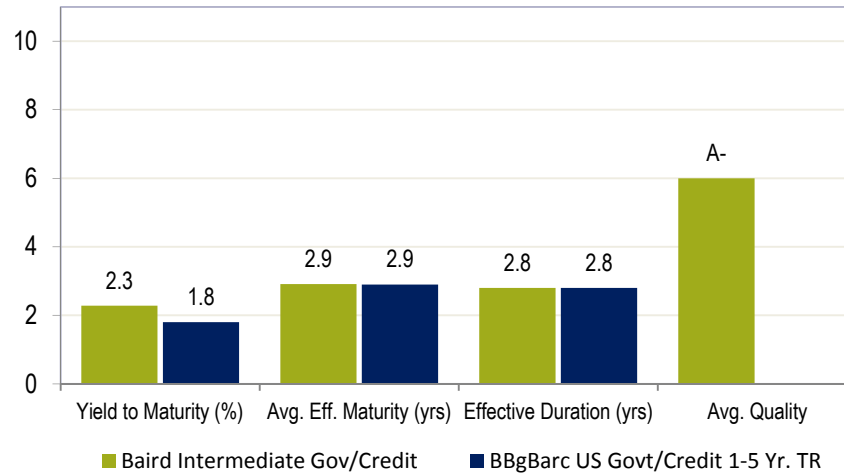


Sectors

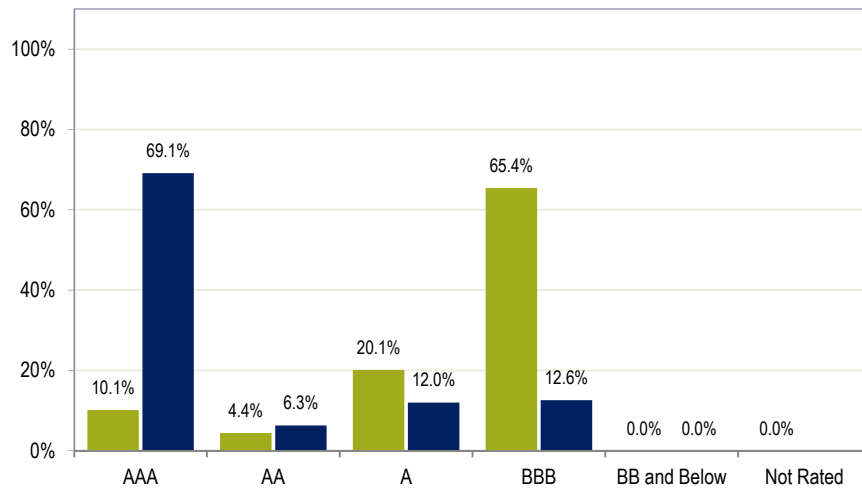


Baird Intermediate Gov/Credit (Separate Account)

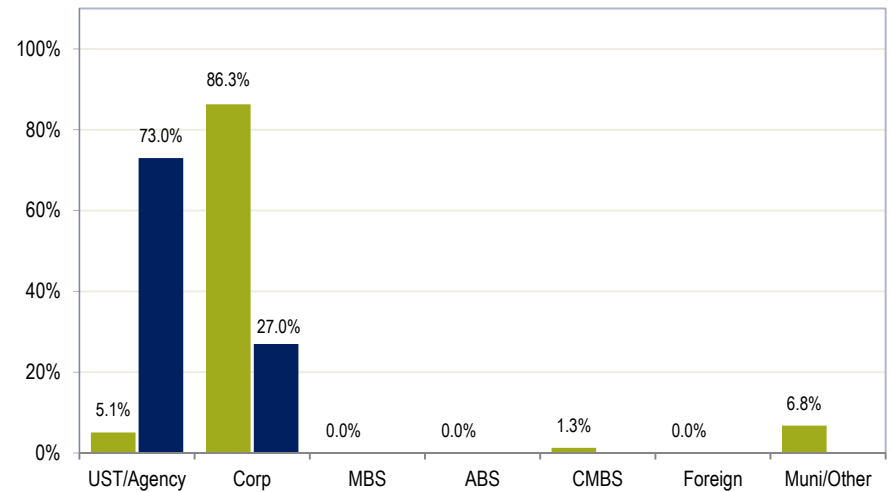
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Quality Ratings

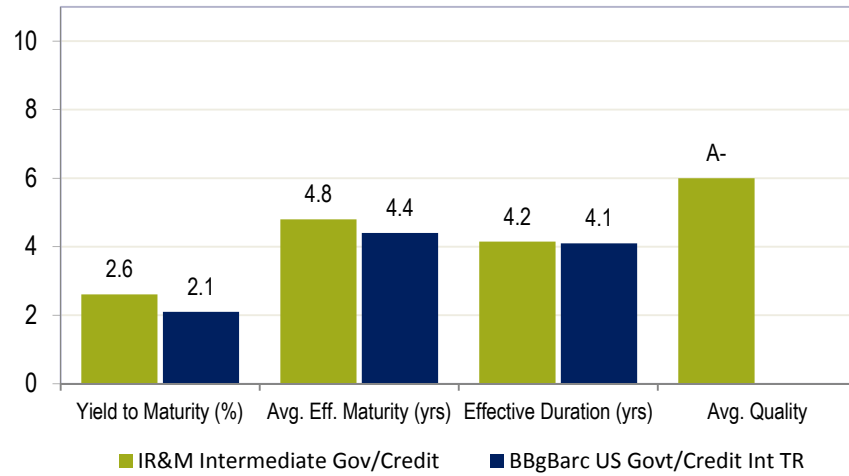


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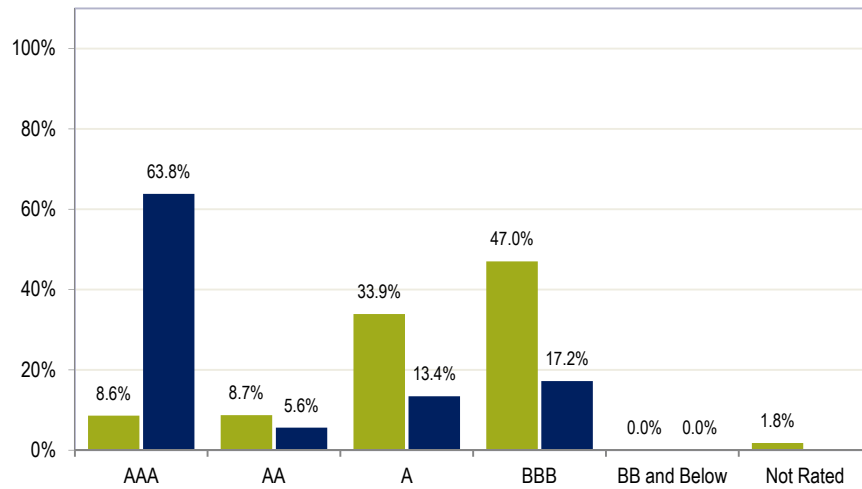


IR&M Intermediate Gov/Credit (Separate Account)

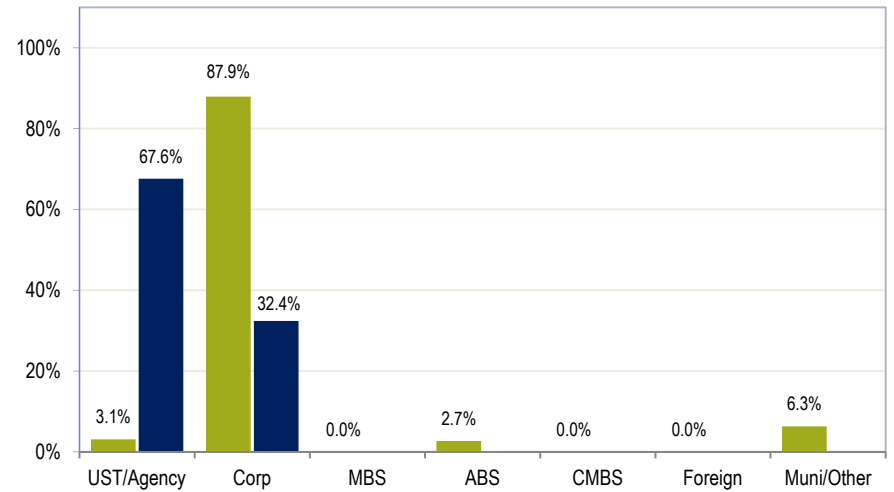
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Quality Ratings

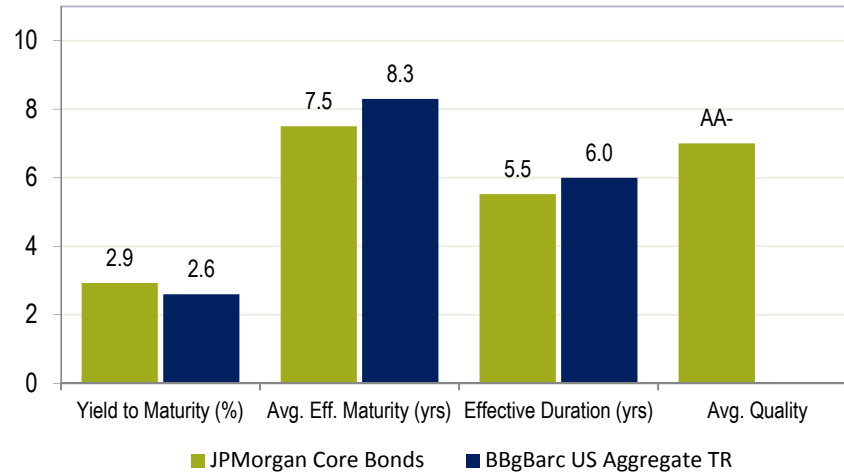


Sectors

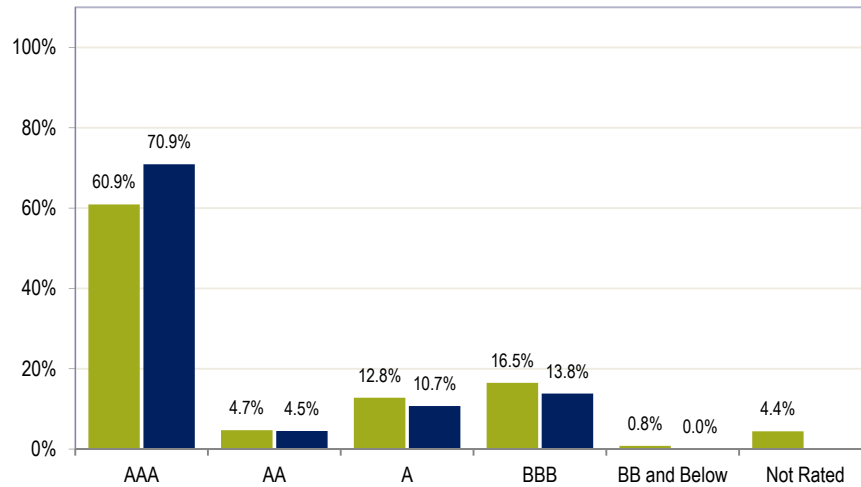


JP Morgan Core Bonds (Commingled Fund)

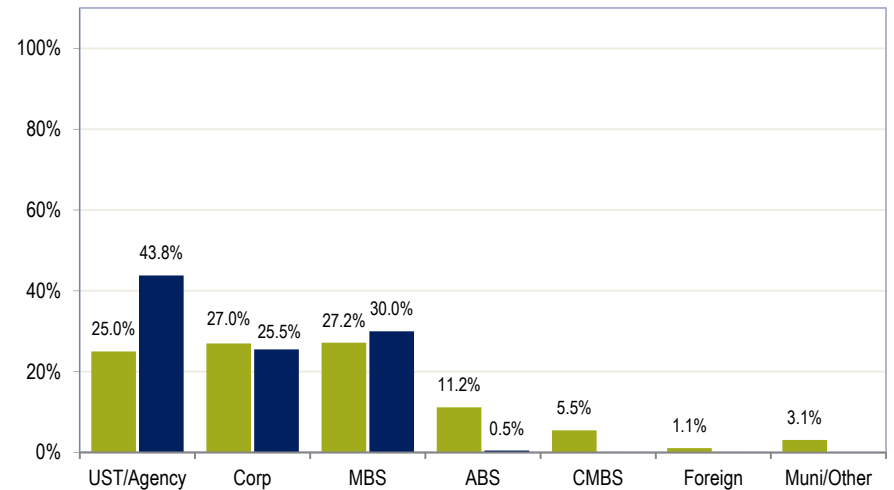
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Quality Ratings

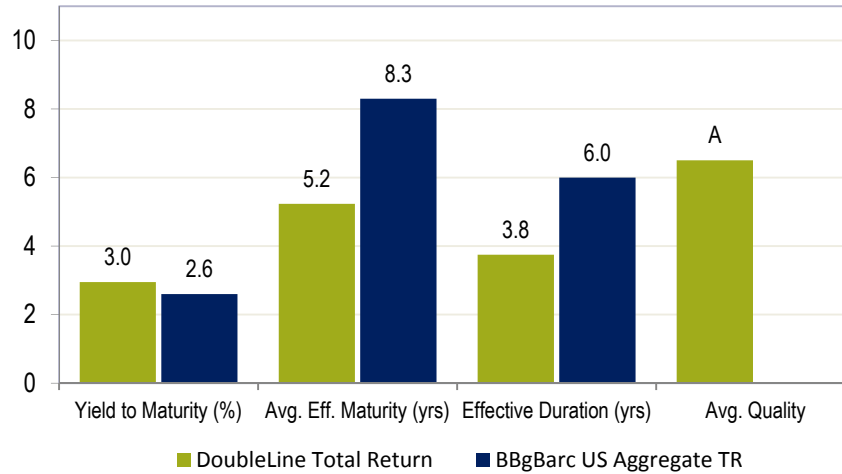


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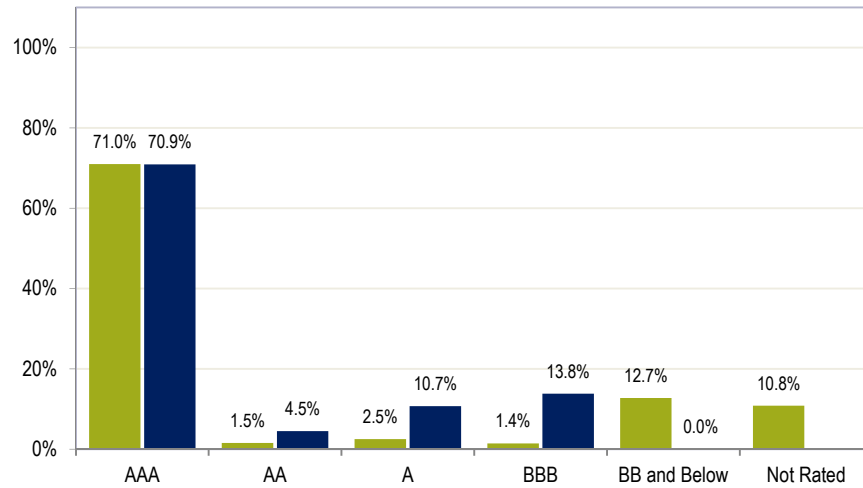


DoubleLine Total Return (Mutual Fund)

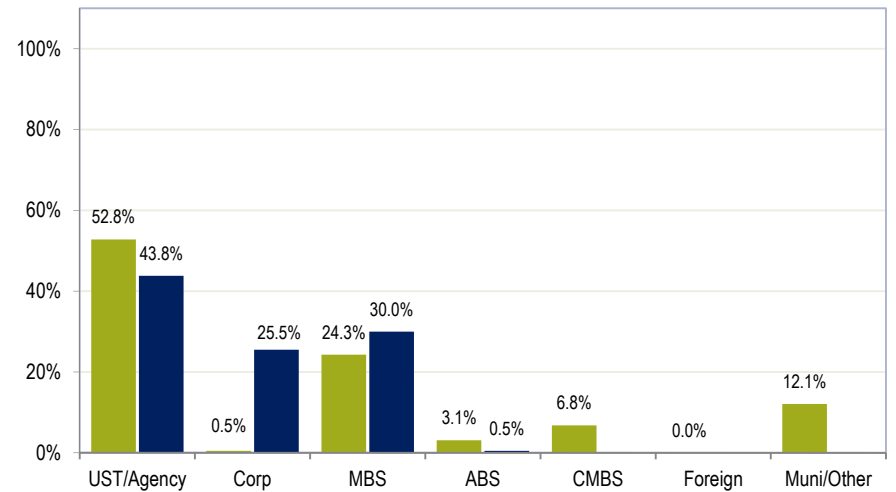
Characteristics



Quality Ratings

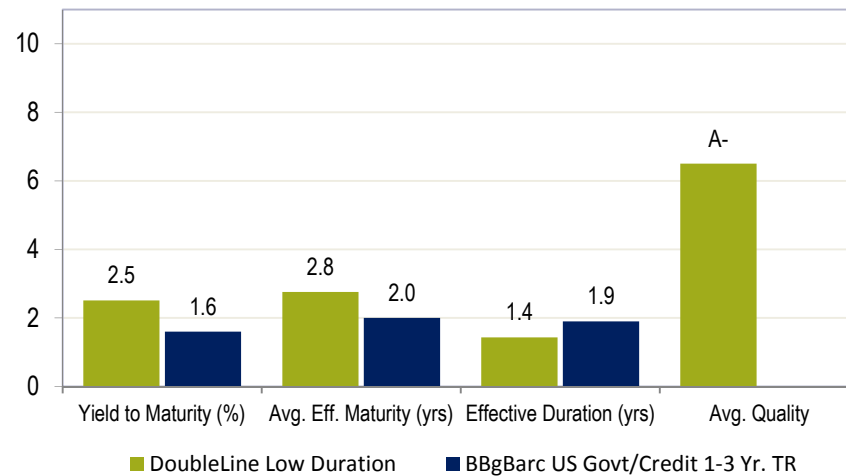


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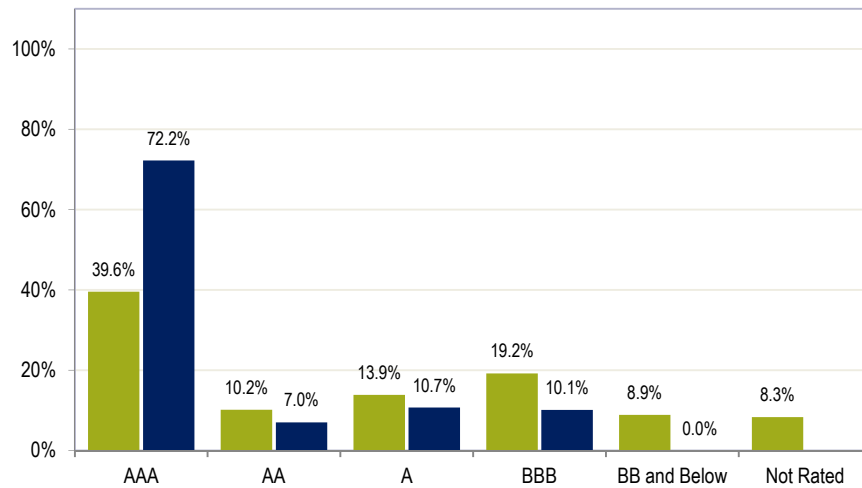


DoubleLine Low Duration (Mutual Fund)

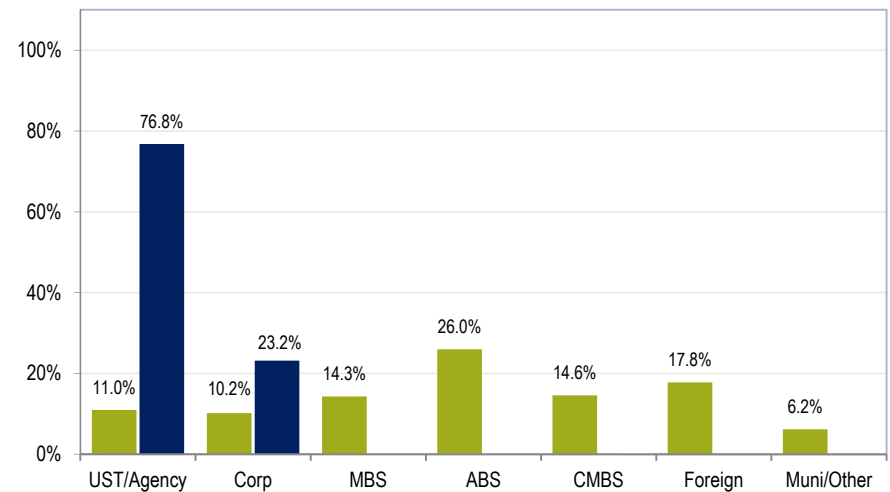
Characteristics



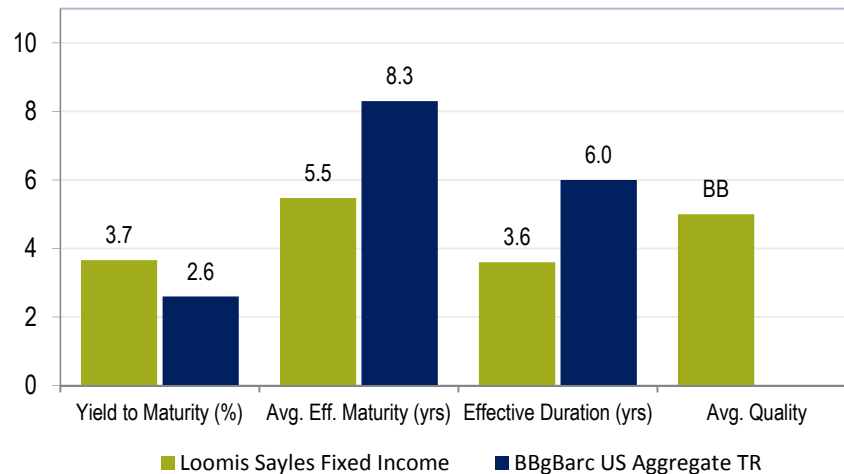
Quality Ratings



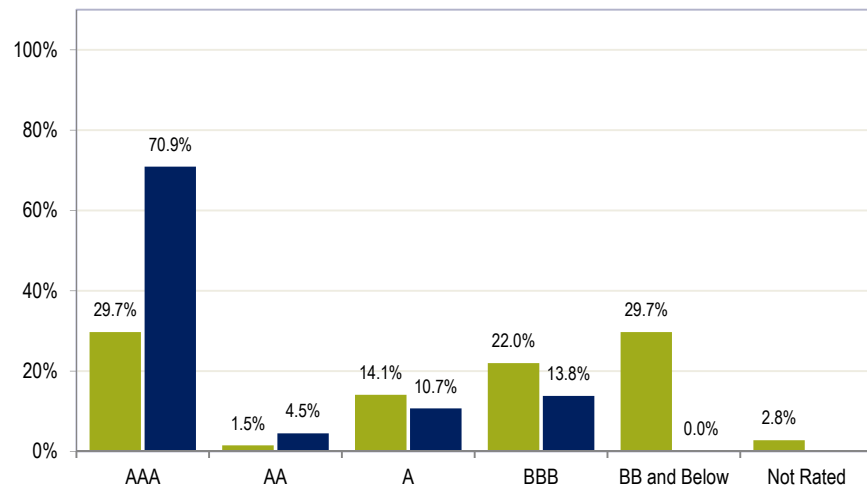
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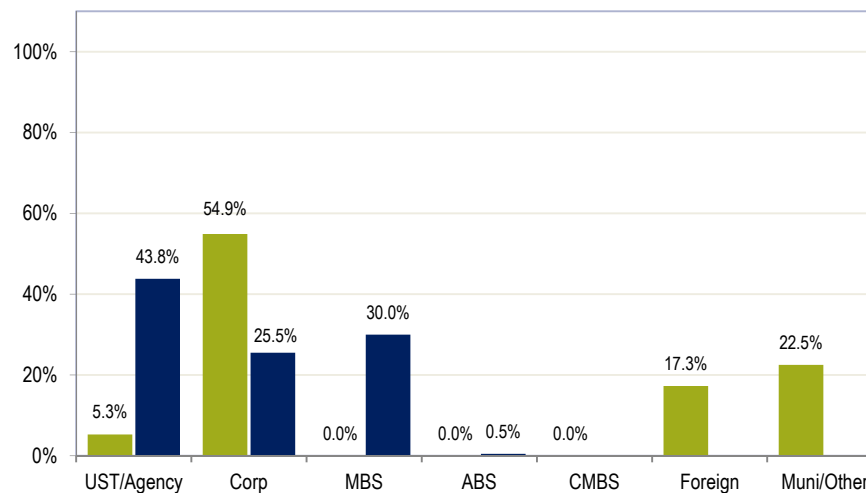
Characteristics



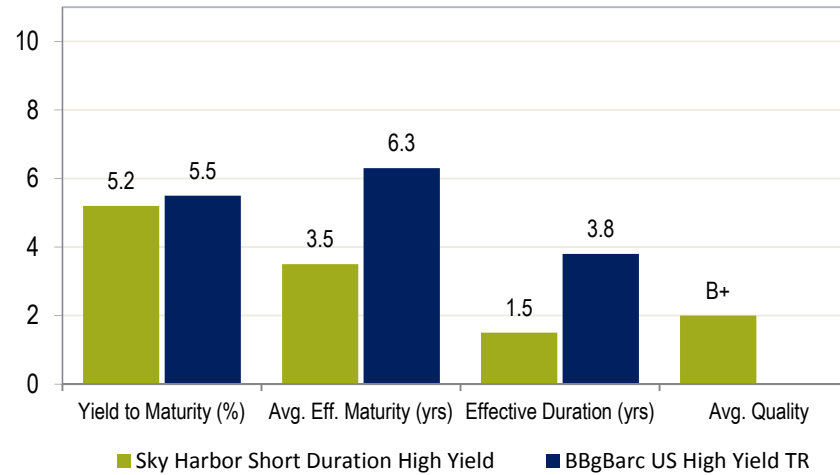
Quality Ratings



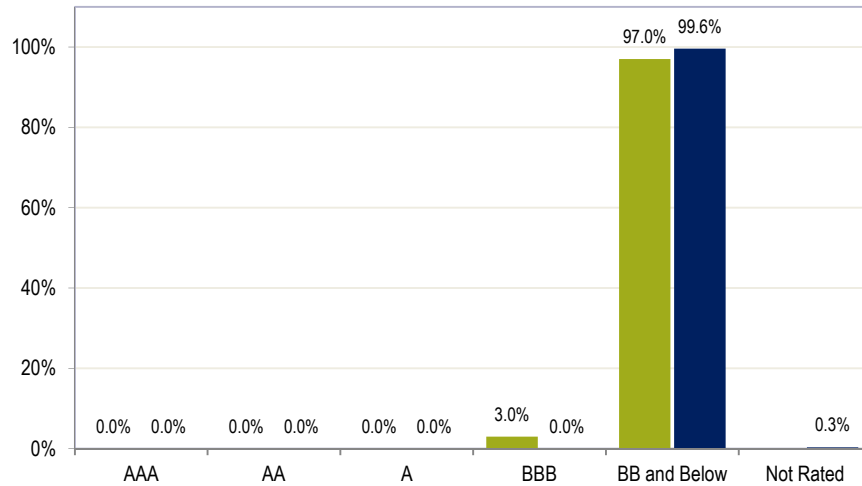
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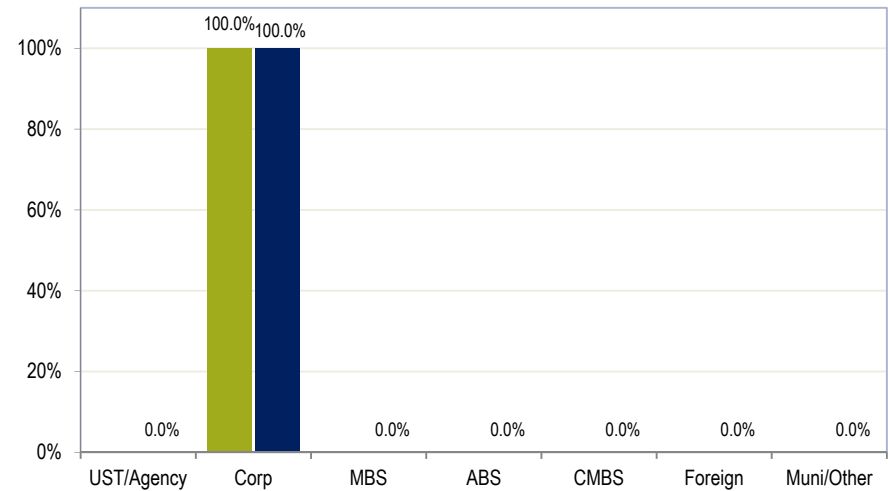
Characteristics



Quality Ratings



Sectors



*Barclays High Yield Index was used as a comparison benchmark due to the unavailability of the BofA ML High Yield 1-3 Year data

Market Review



- **The US economy is experiencing an extended economic growth cycle**
 - US consumers and a tightening labor market are driving the US economy
 - Growth recovery in Europe and the emerging markets reinforces US economic conditions
 - Stable economic growth is a positive backdrop but expected risk asset returns are subdued
- **Federal Reserve monetary policy remains on a gradual normalization path**
 - Markets continue to price in a slow pace for Fed rate hikes over the next 36 months
 - The Fed will begin to shrink a \$4.5T balance sheet, longer-term impact is untested
 - Chair Yellen’s uncertain tenure may stoke market unease as her term expires in Feb. 2018
- **China is modestly tightening financial conditions to slow credit growth and manage an orderly transition to a consumer led economy**
 - Markets have responded positively to the PBOC’s management of a more stable yuan
 - While capital outflow pressure has reversed, currency devaluation remains a tail risk
 - Continued credit expansion and real estate development risk inflating asset price bubbles
- **Globalization backlash is disrupting the political and economic orthodoxy**
 - Conditions driving anti-establishment political sentiment have not subsided and risks stemming from globalization backlash likely lead to higher levels of currency volatility
 - Changes to US trade policy under the current administration remain uncertain and an aggressive protectionist policy would represent a material risk to global markets

- **Trim US equity gains as US equity markets continue to rally**
 - Expanding valuations have driven recent gains and profit margins sit near all-time highs
- **Maintain overweight exposure to non-US developed market equities**
 - We believe a multi-year earnings recovery offers the potential for an elevated return
- **Emerging Market Equities continue to warrant a market overweight**
 - Fundamentals support an overweight relative to index weights (e.g. 15% to 20%)
- **Allocate to TIPS as inflation expectations are priced attractively**
 - Preserve US duration exposure with a bias to TIPS over core bonds
- **Reduce high yield bonds with credit spreads below long-term medians**
 - Credit spreads for high yield debt do not adequately compensate investors for its risk
- **For tactical investors, look to fund emerging local debt from risk assets**
 - Valuations for many emerging market currencies remain attractive despite the recent rally
- **Add macro hedge fund strategies for portfolio diversification benefits**
 - Systematic strategies tend to exhibit low correlation to equity markets
- **For opportunistic investors, look to add long volatility exposure**
 - Strategy implementation is very selective and requires a skilled portfolio management team

Extended US Economic Cycle

US recession concerns are muted

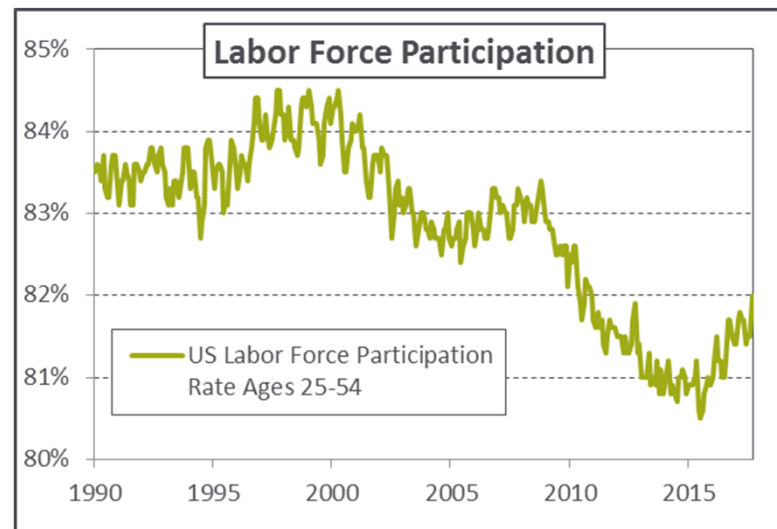
The US economy appears on a path of slow but steady growth as excess capacity is gradually absorbed by the economy

The labor market recovery has been strong but slack remains as many have yet to return to the workforce

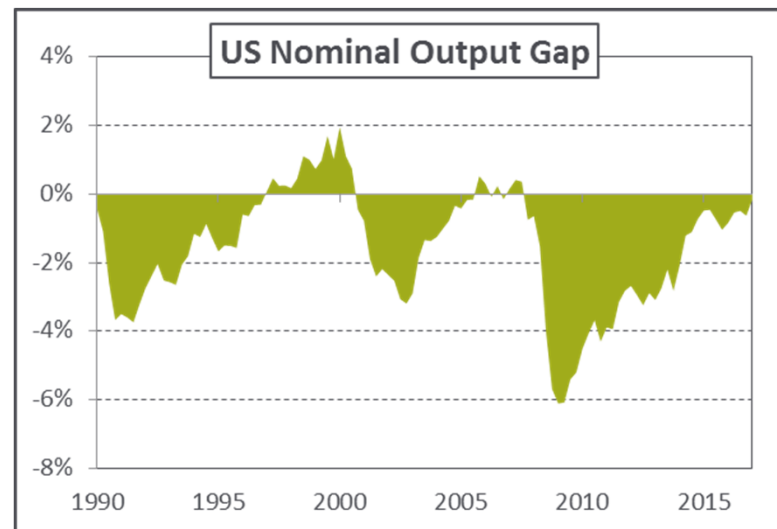
US household balance sheets have room to expand and support further consumer spending gains

Improvement of economic conditions in Europe and emerging markets reinforce US economic gains as global growth factors synchronize

US corporate profitability is near all time highs and may be a challenge for companies to sustain



Source: FRED



Source: Congressional Budget Office, Bloomberg

Federal Reserve Gradualism

The Federal Reserve is expected to slowly increase interest rates

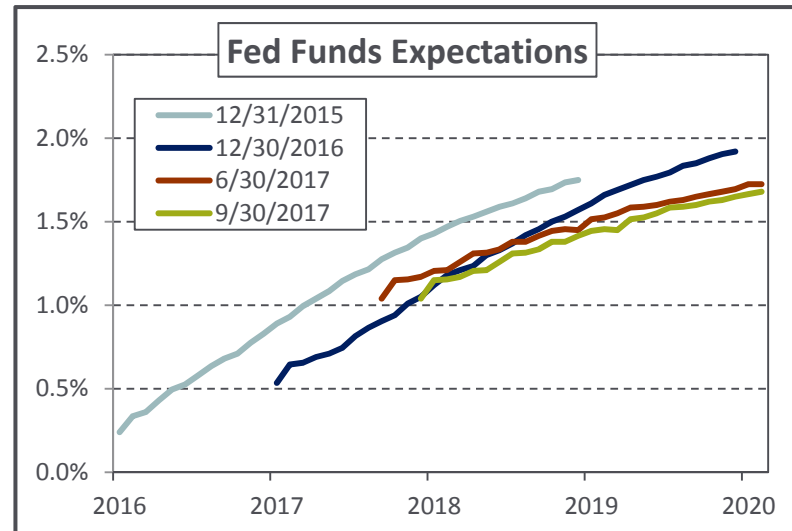
Expected path of Fed policy through 2020 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling has grown

A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

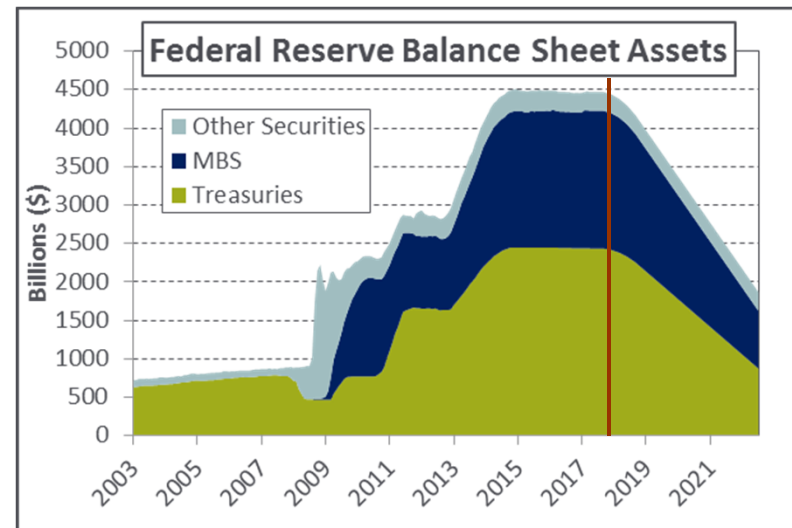
The Fed will begin to reduce its balance sheet in October of 2017

The balance sheet will gradually shrink over time by tapering the reinvestment of maturing securities

The reinvestment of maturing securities will follow a specific schedule that is based on both time and dollar value



Source: Fed, Bloomberg



Source: Fed, Bloomberg, NEPC

Forecast based on the June Fed Minutes: MBS assumes \$4B per month for 3-month intervals over 12 months with a \$20B cap; Treasuries assume \$6B per month for 3-month intervals over 12 months with a \$30B cap; Other Securities are assumed to stay constant

China Transitions

China is the global growth engine but faces fundamental transitions

China's economic transition is pivoting from a production to a service and consumption based economy

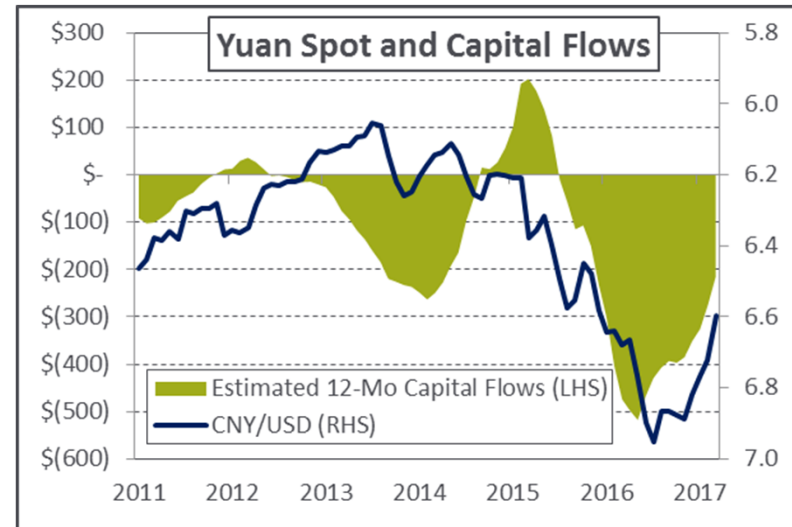
Fixed investment is required to sustain the production based economy and support labor force migration

Any disruption to these transitions will have global repercussions due to China's role in the global economy

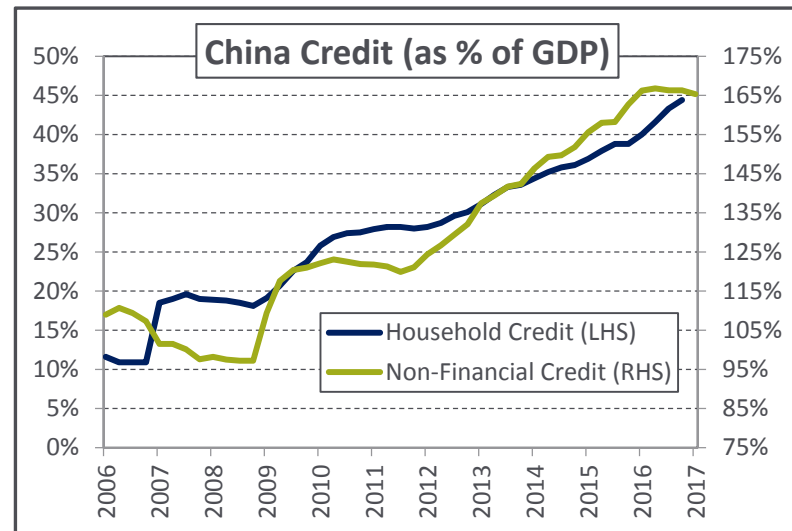
China's government is negotiating a balance between deleveraging and near term economic growth

Unrestrained growth in credit and real estate markets pose a systematic risk

Concerns of capital outflows have forced greater intervention from the central bank to limit currency movements



Source: China Foreign Exchange Trade System, Bloomberg



Source: Bank for International Settlements

Globalization Backlash

Uneven economic growth and wage gains have fueled political discontent in the developed world

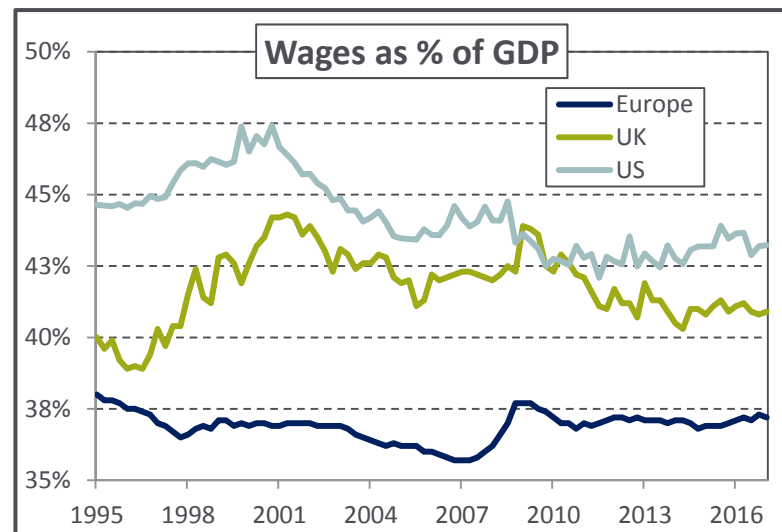
Election results in France and the UK have assuaged fears of political gridlock in Europe – but political conventions have been meaningfully challenged

Despite election outcomes structural issues that stoked unease in Europe remain unresolved

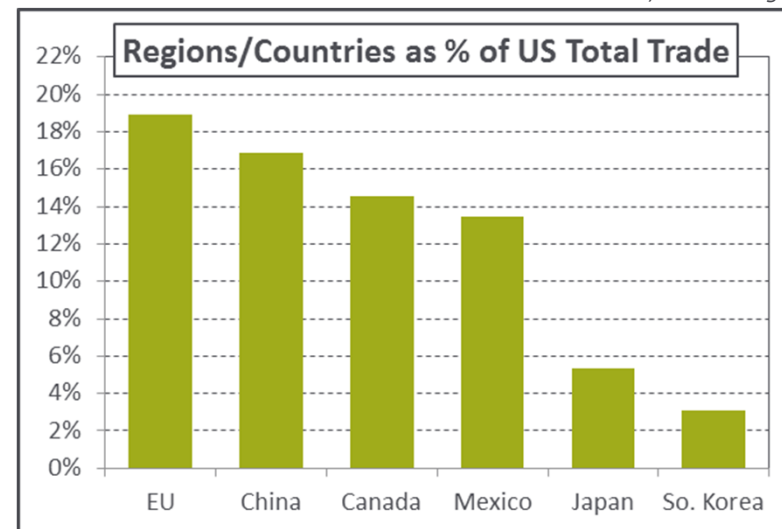
Major shifts in US trade policy have not materialized in 2017

However, a US move to an aggressive protectionist policy would represent a material risk to global markets

Markets have taken to interpreting the administrations rhetoric with a grain of salt but ongoing NAFTA negotiations are a concern



Source: Eurostat, Bloomberg



Source: IMF, Bloomberg

Appendix



- **Composite**
 - Calculated by taking the actual asset class weights times the actual manager return
 - Compared to the allocation index, it measures the effectiveness of the managers (i.e., value added by employing active management)

- **Allocation Index**
 - Calculated by taking the actual asset class weights times the return of the respective passive benchmark
 - Compared to the policy index, it measures the effectiveness of deviating from policy target weights (i.e., asset allocation decisions)

- **Policy Index**
 - Calculated by taking the policy target asset class weights times the return of the respective passive benchmark
 - Measures the effectiveness of plan structure
 - Policy effective 1/1/2012 – Present:
 - 30% Barclays Capital 1-3 Year Gov/Credit
 - 30% Barclays Capital Intermediate Gov/Credit
 - 35% Barclays Capital Aggregate
 - 5% Merrill Lynch 1-3 Year High Yield

- **NEPC uses, as its data source, the plan's custodian bank or fund service company, and NEPC relies on those sources for security pricing, calculation of accruals, and all transactions, including income payments, splits, and distributions. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **The Investment Performance Analysis (IPA) is provided as a management aid for the client's internal use only. Portfolio performance reported in the IPA does not constitute a recommendation by NEPC.**
- **Information in this report on market indices and security characteristics is received from sources external to NEPC. While efforts are made to ensure that this external data is accurate, NEPC cannot accept responsibility for errors that may occur.**
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