



Quarterly Investment Performance Analysis

Wyoming State Treasurer's Office

Period Ended: December 31, 2018





Memorandum

To	Wyoming State Loan and Investment Board
From	RVK, Inc.
Subject	Investment Performance Analysis – Summary of Contents
Date	December 31, 2018

To assist in your review of the Investment Performance Analysis for the quarter ended December 31, 2018, we have provided below an outline and summary of the information contained within each section of this report.

MEMORANDUM – Investment Performance Analysis Commentary

- This two-page memo provides a written summary of significant observations regarding performance of the State's Funds and an overview of performance during the quarter for each of the State's asset classes.

TAB 1 – Market Environment

- This section is intended to review capital markets in general (i.e. not specific to Wyoming), and includes a written summary of events during the quarter, including economic influences and review of equity and bond markets as a whole. This section also includes various charts and exhibits displaying key characteristics of major market indices representing the broad range of available asset classes, including alternative investments such as absolute return and real estate. Also included is an asset class summary that describes the structure of each of the State's composites. Lastly, this section includes a review of the benchmarks referenced within the quarterly report.

TAB 2 – Total Fund

- This section provides an overview of all of the State's investments, both permanent and non-permanent. Exhibits include an outline of the aggregate asset allocation – by manager, by investment fund, by asset class, and compared to peers. This section also includes Total Fund performance compared to other plan sponsors and highlights the risk and return profile of the State.

TAB 3 – Investment Funds

- This section details the asset allocation versus target of each of the State's investment funds. In addition, a summary page highlighting the performance of each fund compared to the respective actual allocation index is included.

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TAB 4 – Total Equity

- This section summarizes the State's allocation to traditional equity managers – both domestic and international – and details the performance of each manager versus both their corresponding benchmark as well as their direct peer universe. Attribution pages are also incorporated, which outline the allocation by sector (or region) for each sub-composite and the corresponding performance.

TAB 5 – Alternative Assets

- This section includes allocation and performance information for the State's alternative investments, which include real estate, absolute return, and private equity strategies.

TAB 6 – Total Fixed Income

- Similar to the equity section, this section summarizes the allocation to and performance of each of the State's fixed income managers, including the internally managed portfolio. Characteristics pages are also included for each sub-composite.

TAB 7 – Cash and Cash Equivalents

- This two-page summary outlines the performance of the State's cash portfolios compared to current T-Bill rates and a custom blended index for JP Morgan.

Tab 8 – Investment Manager Profile Pages

- This section contains a number of portfolio characteristic pages for the State's investment managers, including historical strategy performance prior to the State's investment. These pages include such characteristics as risk, upside/downside capture, market capitalization, allocation by sector and more.

TAB 9 – Investment Policy Objective Review

- The section provides a compliance check for the Total Fund, and for each individual manager portfolio, versus the guidelines and expectations outlined in the State's Master Investment Policy and Sub-Policies.

APPENDIX

- The appendix includes a glossary, providing definitions and other information on data included throughout the report, including financial terms and ratios, indices, and peers groups. The addendum page in the appendix includes important comments specific to Wyoming regarding market value, performance, and allocation information provided throughout the report.

WYOMING STATE TREASURER’S OFFICE

FOURTH QUARTER 2018

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Memorandum

To	Wyoming State Loan and Investment Board
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Outlined below please find a summary of significant observations regarding performance of the State's Funds for the period ended December 31, 2018. We hope this summary will facilitate your review of our Investment Performance Analysis Report.

The Total Fund returned -2.6% net of fees during the fourth quarter as risk assets produced negative returns during the quarter. Long-term performance for the Total Fund remains strong, with the State earning returns of 4.4% and 5.6% per annum over the trailing seven- and ten-year periods.

Absolute results were negative for most of the State's investment pools, with all nine modestly underperforming their respective benchmarks during the quarter. The State's non-permanent funds with larger strategic allocations to fixed income investments generated higher returns on both an absolute and relative basis compared to the State's permanent funds.

The Bloomberg US Aggregate Bond Index increased by 1.6% as the yield curve flattened materially in the fourth quarter. Diversification away from core US bonds detracted from relative results as most fixed income segments underperformed US Treasuries. However, this diversification continues to provide a benefit to absolute and relative returns over longer-term periods. The Internal Intermediate Gov't Fixed Income portfolio generated the highest absolute return among the State's fixed income managers in the fourth quarter, returning 1.9%. Credit fixed income generated the lowest absolute return among fixed income sectors, returning -3.1% as investors sought the safety of Treasuries during the volatile market conditions. Emerging markets debt generated positive absolute returns during the quarter, but composite performance underperformed its benchmark by 1.0%. The State's core fixed income managers kept pace with the broad market index, collectively returning 1.5%.

US equity markets delivered negative returns across market capitalizations and styles during the fourth quarter. Major US equity indices finished the quarter in negative territory, with the Russell 3000 Index returning -14.3% for the quarter. The State's US equity composite returned -14.6% during the fourth quarter, modestly trailing the broad market index. State Street All Cap outperformed the broad market index by 0.8%. Epoch returned -15.5%, underperforming the Russell 3000 Index by 1.2%, as holdings within health

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care and financials detracted from results.

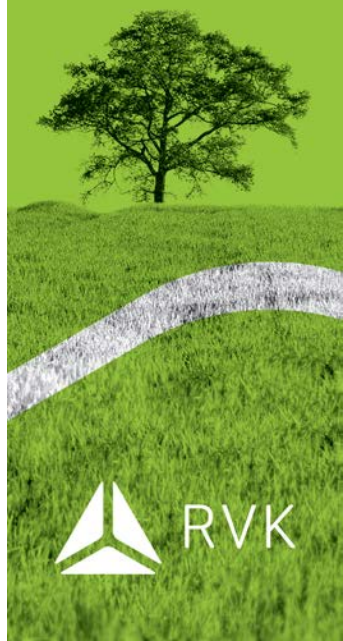
Developed international markets underperformed emerging markets during the quarter, with the MSCI EAFE Index returning -12.5% and the MSCI Emerging Markets Index returning -7.5%. The State's international equity composite returned -12.1% during the quarter, underperforming the MSCI ACW Ex US Index by 0.7%. Passively managed strategies within the State's international equity portfolio kept pace with their respective benchmarks, while Fisher and Arrowstreet trailed their respective benchmarks by 1.9% and 1.4%, respectively.

Mixed assets, including preferred stock, MLPs, and convertible bonds, generated negative absolute returns during the quarter. Cohen & Steers returned -3.5% but outperformed its benchmark by 2.1%. Harvest returned -20.8% as MLPs fell sharply in the fourth quarter. Allianz, the State's convertible bonds manager, generated a return of -9.3%, keeping pace with its benchmark.

Core real estate continued a trend of delivering modest, positive returns and ended the 2018 calendar year as the best performing asset class by a wide margin. The capital appreciation component of returns decreased slightly from the prior quarter, but the income component remains in line with historical levels. The State's core real estate composite earned 1.7% in the fourth quarter, keeping pace with the NCREIF ODCE Index.

The Diversified Hedge Funds composite returned -2.3% during the quarter, outperforming the HFRI FOF Comp Index by 2.7%. Grosvenor Diversified Hedge Funds and Internal Diversified Hedge Funds returned -3.9% and 0.0%, respectively. The PAAMCO - Jackalope Fund returned -1.8% during the quarter, also outperforming the index.

Capital Markets Review



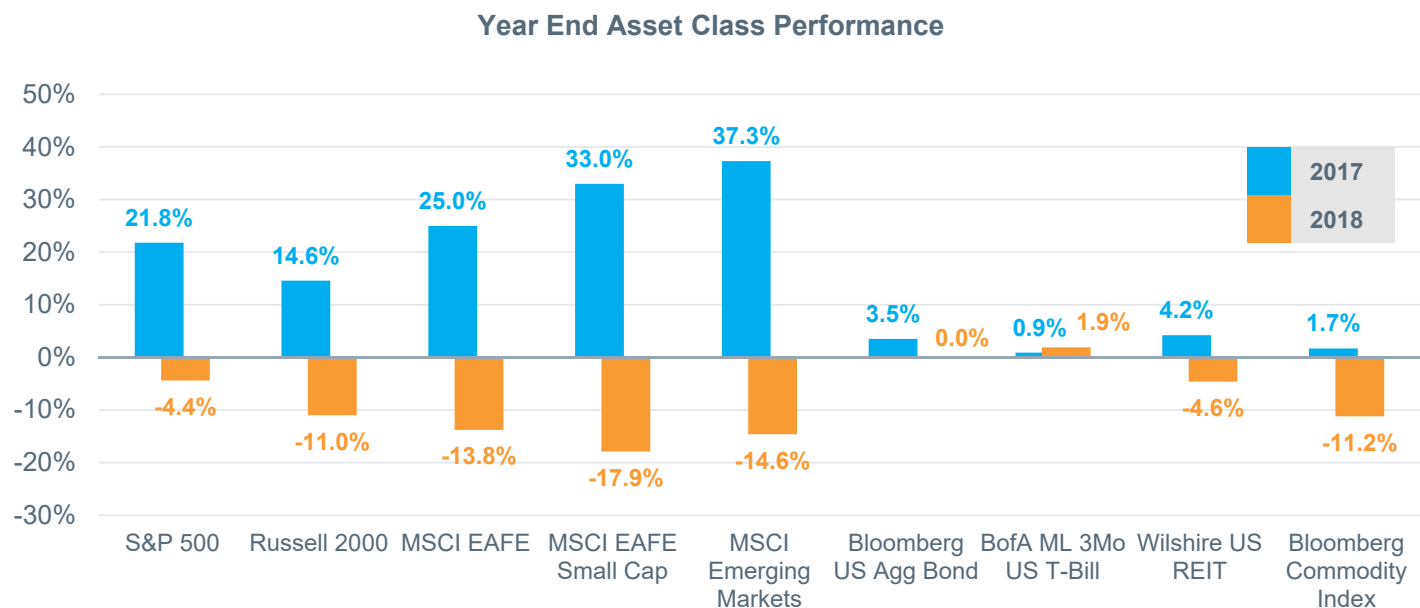
Executive Summary

Preface: 2017

- 2017 was a picturesque year for markets, characterized by low volatility and strong returns.
- Many asset classes were bolstered by synchronized global growth, strong corporate profits, and prolonged accommodative monetary policy.

2018

- A year later and there is a stark contrast. So what happened?



Objective

- The following presentation provides a holistic review of 2018, distilling major capital market themes that occurred throughout the year.
- Specifically, we review broad economic conditions, market volatility, and take a deep-dive into the fourth quarter. We also highlight key themes for 2019.

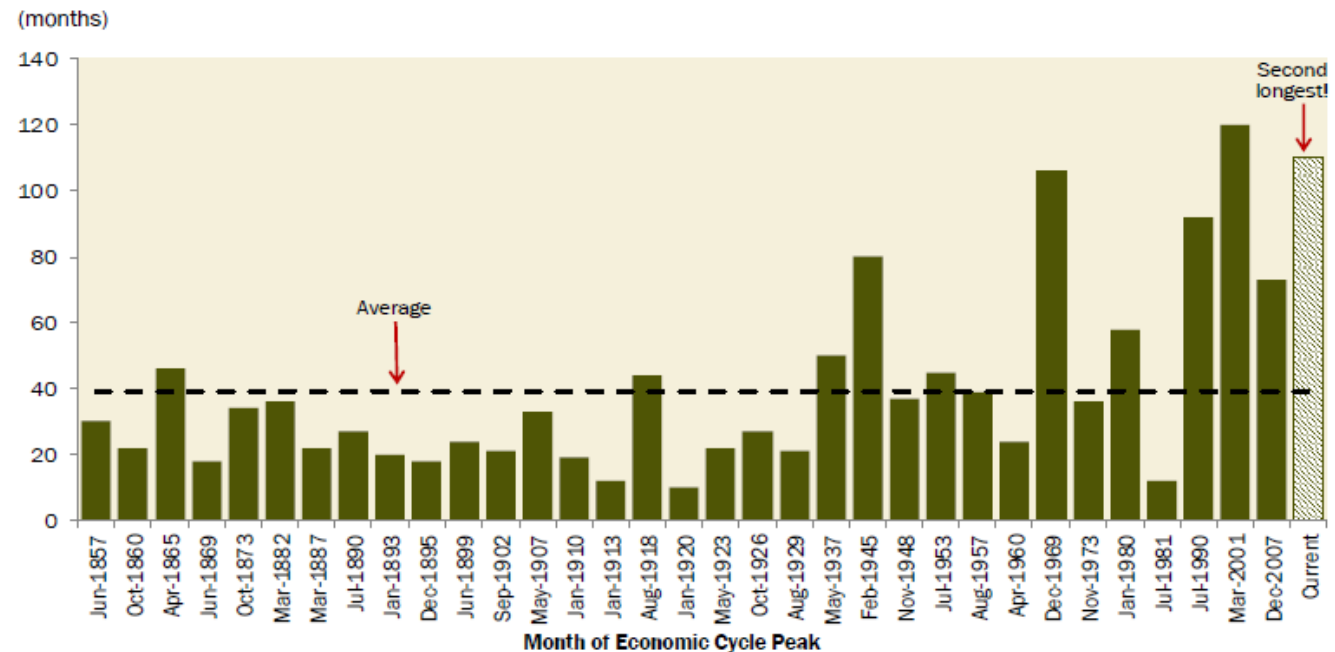
Macroeconomic Conditions

Economic Cycles

Current Cycle

- The general consensus is that the US economy (along with other developed nations) is finally decelerating, with growth expectations tapering off throughout the transition.

United States: Duration of Economic Expansions



Source: Gluskin Sheff + Associates Inc., based off of National Bureau of Economic Research data. As of November 30, 2018.

Key Takeaways

- A mature economy, combined with liquidity tightening as the Fed removes monetary stimulus, can lead to even slower growth and increase downside risk potential.
- Cyclical changes in the economy can create short-term friction for investors, but they should not take precedent over longer-term secular themes when focusing on portfolio construction.

2018 High Level Review

2018 – Overview

Notable Statistics: Year in Review

- Solid global GDP growth at 3.7%.
- Earning growth, propped up by the tax stimulus, was a key driver for US equity markets.
- First trillion dollar company (Apple).
- Federal Reserve: 4 rate hikes throughout the year.

Market Movements: Year in Review

- Aside from a hiccup in February, most markets were able to regain ground throughout the second and third quarters.
- US equity markets did well leading up to the fourth quarter. The rest of the world did not keep pace with the US, but international developed countries were able to post modest gains over the summer, while emerging countries felt more pressure from trade war tensions and unfavorable exchange rates.

Market Performance (%)

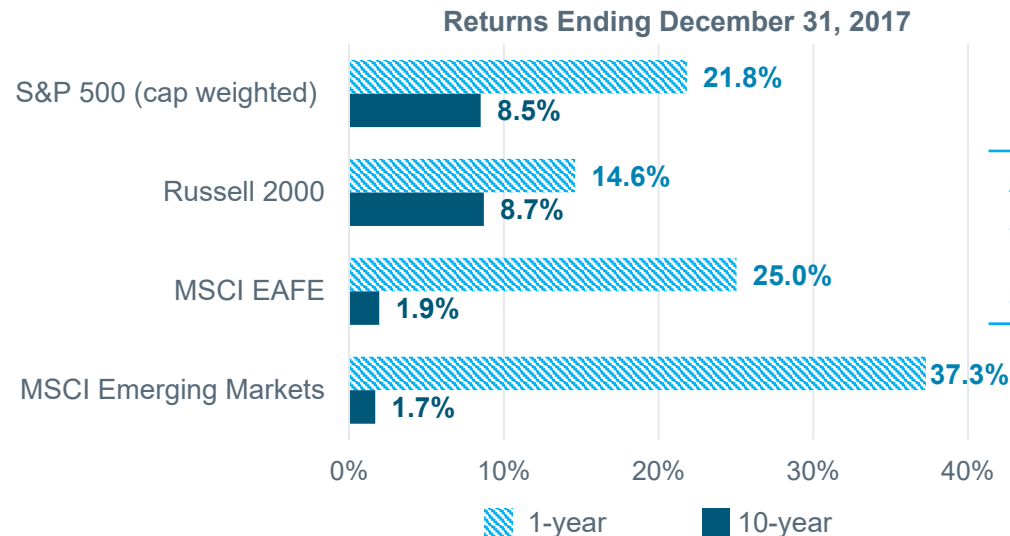
		Monthly		-----Monthly Returns-----			
	Dec 31 2017 YTD	Feb 2018	Sep 30 2018 YTD	Oct 2018	Nov 2018	Dec 2018	Dec 31 2018 YTD
S&P 500 (cap weighted)	21.8	-3.7	10.6	-6.8	2.0	-9.0	-4.4
Russell 2000	14.6	-3.9	11.5	-10.9	1.6	-11.9	-11.0
MSCI EAFE	25.0	-4.5	-1.4	-8.0	-0.1	-4.9	-13.8
MSCI Emerging Markets	37.3	-4.6	-7.7	-8.7	4.1	-2.7	-14.6
Bloomberg US Agg Bond	3.5	-0.9	-1.6	-0.8	0.6	1.8	0.0
US 30 Yr Treasury	2.7	3.1	3.2	3.4	3.3	3.0	3.0
Bloomberg Commodity Index	1.7	-1.7	-2.0	-2.2	-0.6	-6.9	-11.2

2018 High Level Review

2018 – A Year of Mean Reversion

Equity Markets: Long-Term Perspective

- For equity markets in particular, 2018 could be viewed as a year of mean reversion.
- 2017 market returns were well above historical norms. Even without headline events, the sustainability of this growth was bound to come under pressure.



Against this backdrop, 2018 year-end market performance may not seem as severe.

Economic Data: Can Good get Better?

- A healthy economy, strong job market, high corporate earnings, and relatively low interest rates may appear inconsistent with the negative stock market performance, particularly during the fourth quarter.
- However, economic data tends to be backward looking while capital markets are forward-looking.

Economic Indicators:

- The unemployment rate is at its lowest since 1969
- 115 consecutive months of manufacturing expansion

Concern for Future Outlook:

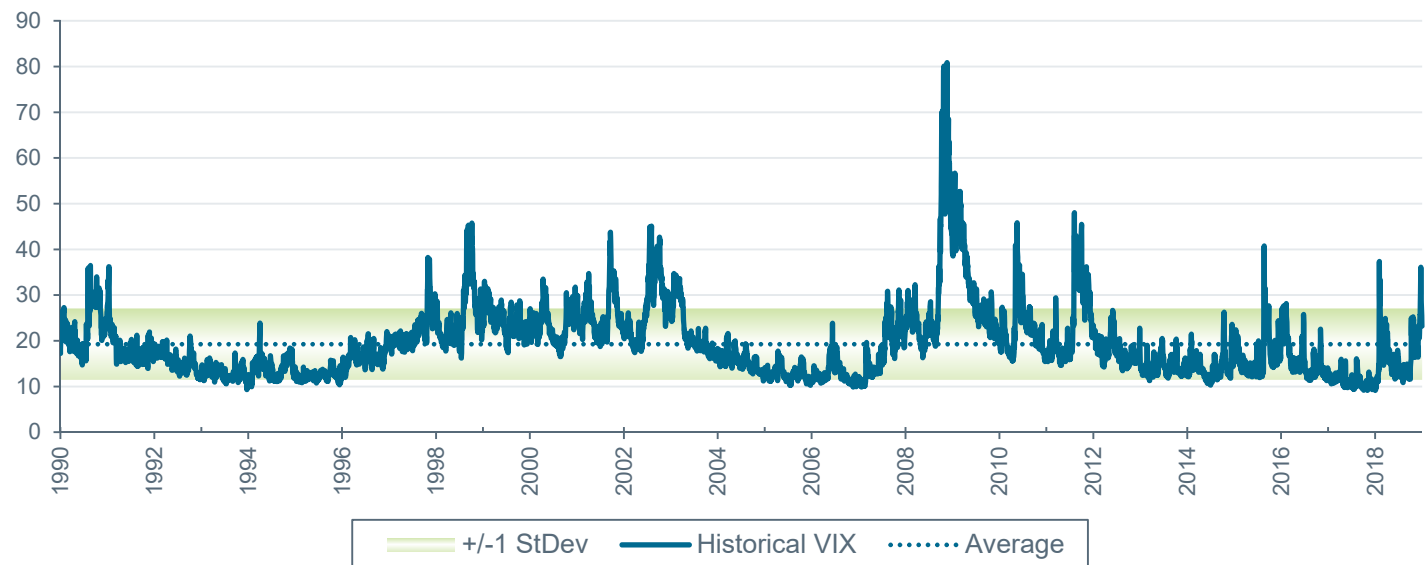
Is there still room for meaningful improvement?

Market Volatility

Historical Context

Long-Term Average of the VIX Index

- Volatility has been subdued since the Financial Crisis due to accommodative monetary policy.
- Prior to 2018, there were long periods of very low volatility compared to historical standards, with a handful of episodic occurrences largely influenced by macro events (e.g. China growth worries in 2015 and Brexit in 2016).



Volatility in Post-Crisis Bull Market

- While volatility was often lower than historical norms since 2009, price changes were not completely absent from the market.

	2013	2014	2015	2016	2017	2018
Number of S&P 500 Price Changes Greater than 1%	38	38	72	48	8	64

- From a historical volatility perspective, 2017 was more of an outlier than 2018.

Source: RVK calculations based on CBOE and Standard & Poor's data.

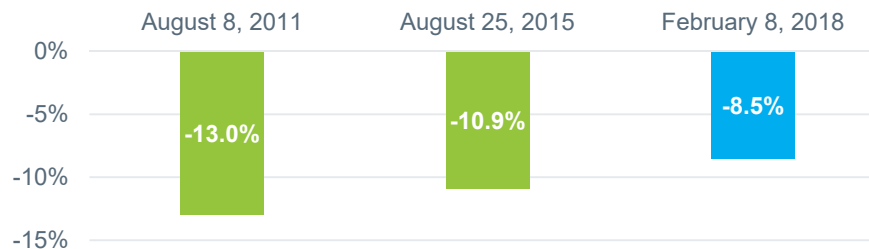
Market Volatility

February Deep Dive

February Market Volatility

- After a strong 2017, markets exhibited fragility in February 2018, with the S&P 500 Index dropping 10.2% by the close of February 8th.
- We noted in our memo that this was the largest 5-day market correction since 2015, coming after over 400 days without a 5% or greater correction.

**Three Largest 5-day Corrections for the S&P 500 Index
since market bottom in 2009**



Note:

While the S&P 500 returned -3.7% for the month of February, it was up 2.7% year-to-date through June 30, 2018.

Source: RVK calculations based on Standard & Poor's data.

Drivers Behind Volatility

- At the beginning of the month, the Labor Department's job's report sparked concerns about wages and inflation, which was received poorly by the markets.
- The drawdown was further exacerbated by the trading mechanics of short volatility products.

Short Volatility Refresh: Our February memo also discussed how short volatility strategies were another contributing factor to the correction. Short volatility products are inverse bets on market volatility, i.e. they profit when a volatility index, such as the VIX, goes down. In a low volatility environment, they can provide consistent positive returns.

However, they are very susceptible to volatility spikes and when the VIX increased 116% on February 5th, these strategies plummeted. Many of the available products were also concentrated in US equity volatility indices, further adding to the downward pressure during the month.
- With short volatility strategies, the market correction transitioned from an information-based trade surrounding economic data to a liquidity trade unrelated to asset or economic fundamentals.

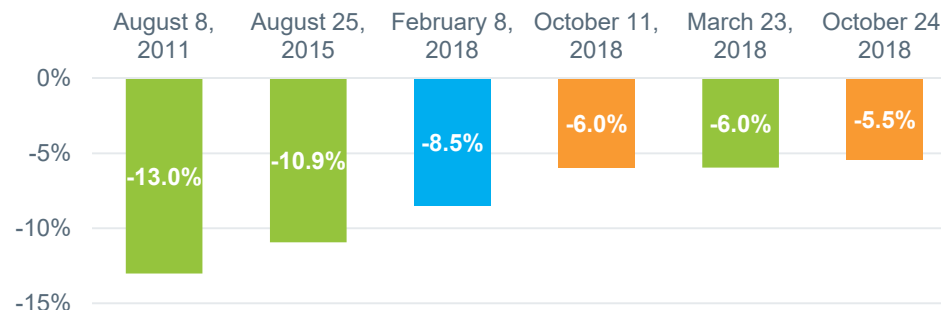
Market Volatility

October Deep Dive

October Market Volatility

- From a high on September 20th through October 26th, the S&P 500 index declined by more than 9%, and finished the month of October down -6.8% after enduring two large drawdowns about a week apart.

Largest 5-day Corrections for the S&P 500 Index since market bottom in 2009



Source: RVK calculations based on Standard & Poor's data.

Well Cited Drivers

- The US-China trade war is the most often cited source of negative pressure on the stock market.
 - As these are the two largest economies in the world, any disruption can have a ripple effect throughout the world.
- The yield curve has also been another source of dismay, with its continued flattening and anticipation of inversion.
 - Historically, recessions have been preceded by an inverted yield curve, although inversion does not guarantee a recession.

Key Takeaways

- China trade talks may have been the catalyst for the October market downturn.
- However, this then prompted the market to reprice future expectations of many factors that were already percolating:
 - Higher interest rates
 - Lower earning expectations for 2019
 - Maturing economic cycles around the globe

Fourth Quarter Highlights

2018 Q4 – The Fed

Central Bank Influence: Mixed Messages

- Against a backdrop of tweets and trade wars, it was the Federal Reserve that seemed to have an inordinate influence on the markets during the fourth quarter of 2018.
- While rate hikes were anticipated, the inconsistent messaging seemed to amplify other concerns that were already on the periphery.

	Oct ¹	Nov	Dec
Tone	Hawkish	Dovish	???
FOMC Meeting Highlights	<p>“...we may go way past neutral. But we are a long way from neutral at this point” – Chairman Powell Oct 3rd</p> <p>“Interest rates...remain just below the broad range of estimates of the level that would be neutral for the economy — that is, neither speeding up nor slowing down growth” – Chairman Powell Nov 28th</p> <p>1. Fed lowered expected rate hikes in 2019 from 3 (announced in September 2018) down to 2 2. Balance Sheet woes: “It will be substantially smaller than it is now” – Chairman Powell Dec 19th</p>		
Federal Funds Rate (Target)	2.25% (↑ 0.25%)	2.25% (no change)	2.50% (↑ 0.25%)
Market Reaction	Negative	Favorable	Negative

- Growth concerns were a strong undercurrent throughout the fourth quarter, but the Fed also played a crucial role. Sequential FOMC meetings with somewhat contrasting messages spurred negative sentiment as the market struggled to interpret the Fed’s direction. Renewed interest in the balance sheet also gave the impression that the Fed was going to be less accommodative going forward.

Notes: “FOMC” stands for Federal Open Market Committee.

¹ Actual FOMC meeting was occurred between September 25-26.

2019 Market Outlook

Potential Themes

Global Growth Projections

- Global growth is expected to slow:

IMF Growth Expectations



Notes from the International Monetary Fund's ("IMF") most recent Economic Outlook:

- Global growth forecasts were modestly reduced from the October Outlook due to "carry over from softer momentum in the second half of 2018."
- The report also indicated that "escalation of trade tensions beyond those already incorporated in the forecast remains a key source of risk."
- Other global risks on the horizon include: "no-deal" withdrawal of the United Kingdom from the European Union and a larger than expected slowdown in China's economy.

Source: IMF, World Economic Outlook Update, January 21, 2019.

Corporate Earnings (US)

- The corporate tax cut that helped lift stocks in 2018 will not be a significant contributor going forward. Corporate earnings will instead have to rely on profit margins and organic company growth, potentially making companies even more susceptible in an environment of uncertainty.

Recession Probability

- A recent Reuters poll of economists showed that the median predicted probability of a recession within the next year is 20%, while the probability of a recession within the next two years rose above 40%.

2019 Market Outlook

Potential Themes

The Fed: Major Factor for Markets in 2019

- The main concern is how the Fed will handle a two variable experiment involving short-term interest rates and balance sheet reduction.

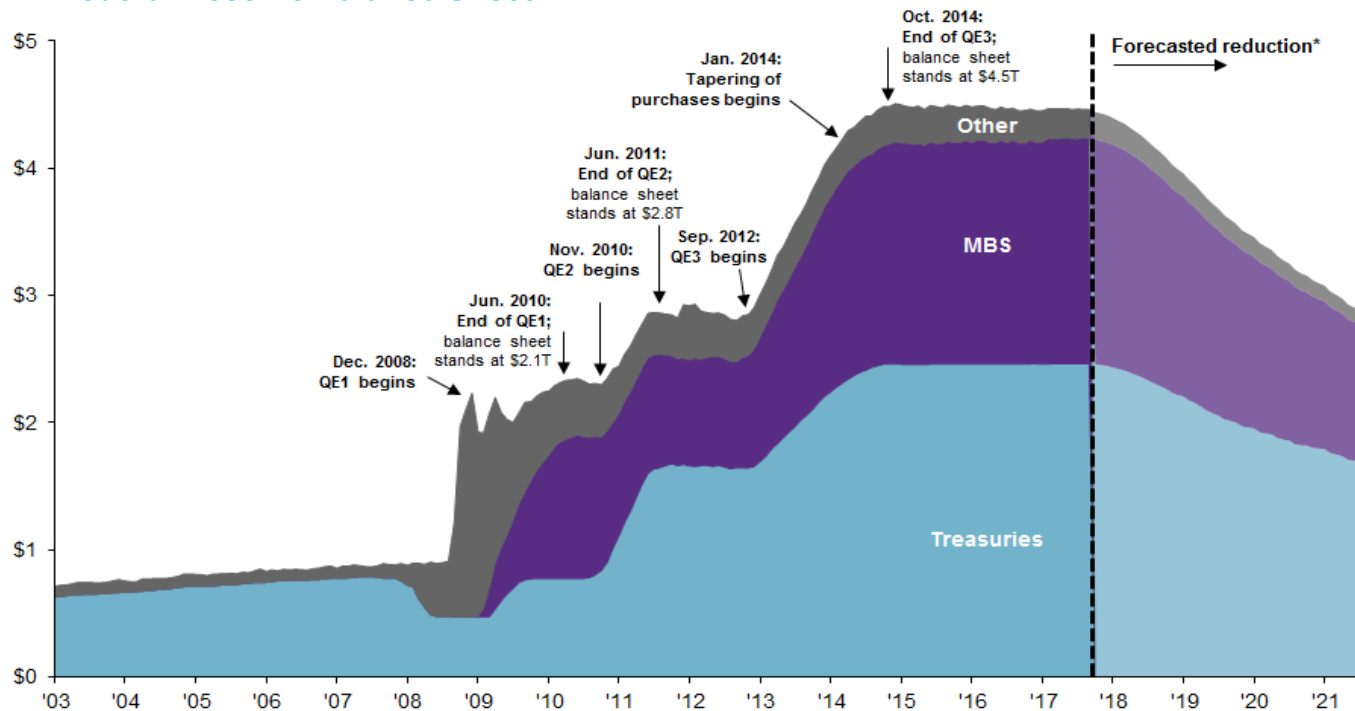
Quantitative Tightening Refresh:

Since the Financial Crisis, the Fed accumulated approximately \$4.5 trillion in assets, mainly composed of US Treasuries and mortgage-backed securities ("MBS"), from their large-scale asset purchasing program, Quantitative Easing.

In October 2017, the Fed began Quantitative Tightening to reduce the size of their balance sheet. Maturing securities were no longer being replaced to remain on the balance sheet, resulting in an "auto-pilot" roll-off of \$50 billion per month.

- Quantitative Easing was unprecedented monetary policy, and the unwinding of that policy, Quantitative Tightening, will be unprecedented as well.

Federal Reserve Balance Sheet



Federal Funds Rate Expectations¹

	2019	2020
FOMC Yr-End Est.	2.88%	3.13%
Market Expectations ¹	2.53%	2.39%
Federal Funds Rate (12/31/2018)		2.40%
FOMC Long-Run Projection		2.75%

¹Per JP Morgan, data as of 12/19/18.
Source: JP Morgan Guide to the Markets 1Q 2019.

Annual Asset Class Performance

As of December 31, 2018

Calendar Year Performance												Annualized Statistics (01/2006 - 12/2018)			
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	CYTD (As of 12/18)		Return	Standard Deviation	Sharpe Ratio
<div>Best</div> <div>↑</div> <div>↓</div> <div>Worst</div>	5.24	78.79	35.17	15.99	18.64	38.82	14.07	15.02	21.95	27.19	12.32	US Equity Custom Index - US All Cap	7.63	14.19	0.51
	3.06	49.13	26.85	14.47	16.83	32.39	13.88	13.33	21.31	21.83	8.35	S&P 500 Index - US Large Cap	7.75	14.14	0.52
	-5.22	45.12	21.74	14.26	16.76	32.39	13.69	5.65	13.11	21.13	6.72	Rusell 2000 Index - US Small Cap	6.93	18.87	0.39
	-6.46	45.01	16.77	11.11	16.35	29.75	12.50	5.47	12.74	17.52	1.87	International Equity Custom Index - International	2.64	17.02	0.17
	-10.01	32.46	16.36	7.84	16.00	24.96	11.82	1.38	11.96	15.21	0.18	Cambridge US PE Index - Private Equity	12.00	9.63	1.11
	-21.37	27.17	15.68	3.49	16.00	21.08	11.22	0.55	10.69	14.65	0.01	NCREIF ODCE Index - Core Real Estate	6.92	8.15	0.72
	-22.61	26.46	15.06	2.11	14.96	15.29	9.42	0.48	10.44	13.70	-0.59	NCREIF Property Index - Value-Added Real Estate	7.63	6.10	1.05
	-23.62	26.46	15.06	2.11	13.36	13.94	7.66	0.18	9.94	9.11	-4.09	HFRI FOF Comp Index	2.04	5.09	0.19
	-26.11	21.98	14.99	0.66	10.94	10.98	5.97	-0.27	8.77	7.77	-4.25	ICE BofAML All Cnvrts Index (All Qual) - Convertibles	6.95	11.72	0.53
	-33.79	13.41	13.11	-1.16	10.77	8.96	4.89	-1.47	7.97	7.62	-4.38	S&P U.S. Preferred Stock Index	4.45	16.93	0.27
	-35.73	11.47	10.82	-1.75	10.54	4.22	3.37	-3.24	4.50	6.96	-5.24	S&P MLP Index (TR)	6.64	18.80	0.37
	-37.00	5.93	9.28	-4.18	4.95	0.12	2.95	-4.41	2.65	5.20	-6.21	Bloomberg US Agg Bond Index - Fixed Income	3.94	3.14	0.87
	-37.00	1.17	6.54	-5.18	4.79	-0.17	0.18	-5.66	1.94	3.54	-11.01	Credit Custom Index - Fixed Income	5.04	6.53	0.60
	-37.46	-16.85	5.70	-5.72	4.21	-2.02	-3.87	-14.92	0.51	0.84	-11.67	JPM GBI-EM Gbl Dvf'd Index (USD) - EMD	4.67	12.43	0.34
	-43.06	-29.76	0.73	-13.71	0.26	-8.98	-5.72	-35.07	0.38	-5.58	-14.20	JP Morgan Cash Custom Index - Cash Equiv	1.50	0.57	1.25

The Cambridge US Private Equity Index is shown for informational purposes only. Due to availability of data, current quarter performance assumes a 0.00% return. Calculations are based on a quarterly periodicity.

ASSET CLASS SUMMARY

US Equity: The **US Equity** structure employs a core-satellite approach, which gains passive, low-cost beta exposure at its core and active management only where the highest conviction strategies can add value – All Cap. The core component of the portfolio utilizes passive management coupled with low beta, minimum volatility strategies that are intended to outperform a market-capitalization weighted index at a similar absolute risk level. Active management in the All Cap space provides investment managers the flexibility to adjust for valuations across market capitalizations. The single Small Cap investment manager is an exchange-traded fund designed to track the Small Cap market benchmark.

International Equity: The **International Equity** structure follows an ACWI Ex US approach, which offers coverage of the broad international equity market, including developed and emerging markets. The International Equity portfolio is comprised of both passive and active management styles. The mix of passive and active management helps to minimize costs, while striving to maximize the probability of alpha generation at a similar absolute risk level.

Private Equity: The **Private Equity** asset class has primarily been accessed through fund of funds and customized fund of one structures. Investments also include exposure to direct co-investments and secondaries. Recent commitments within this asset class have added global diversification to the portfolio.

Real Estate: The **Real Estate** portfolio currently consists of Core and Non-Core Real Estate investments. The overall asset class structure has remained relatively conservative with regard to asset types and the use of financial leverage. Core Real Estate has historically been focused on diversified US markets, while Non-Core Real Estate investments allow the portfolio to take advantage of real estate market fundamentals. Recent commitments within Non-Core Real Estate have added global diversification through European-focused investments.

Diversified Hedge Funds: The **Diversified Hedge Funds** structure historically consisted of multi-Hedge Fund of Fund investments. In 2015, the portfolio began a transition to a core-satellite approach, utilizing a single Fund of Fund manager and satellite direct Hedge Funds. Initial funding was completed in July 2018 for a custom fund of one, consisting of a discretionary multi-strategy FoF portfolio and a non-discretionary portfolio of direct hedge funds managed by the Treasurer's Office. An increase in the use of direct Hedge Funds is anticipated to lower external management expenses and allow for greater control over the program.

Convertible Bonds: The **Convertible Bonds** portfolio consists of a single, specialized investment manager. The portfolio focuses on convertible issuers that demonstrate the ability to improve fundamental characteristic and attempts to participate in the majority of the upside, while limiting the downside of the underlying equity to nearly half.

Preferred Stock: The **Preferred Stock** portfolio consists of a single, specialized preferred stock investment manager. The portfolio invests in a diversified portfolio of preferred securities including exchange-traded and over-the-counter preferreds and contingent convertibles (CoCos). The investment team seeks to take advantage of the various term structures of preferreds in order to optimize the yield and interest rate sensitivity of the portfolio.

MLPs: The **MLPs** portfolio consists of a single, specialized investment manager. The portfolio investment objective is to deliver both high yield and stable growth through the disciplined application of its fundamental bottom-up analysis as well as its trading strategies and investments in MLP and energy infrastructure assets.

Fixed Income: The **Fixed Income** portfolio employs a core-satellite approach. Serving as “the anchor” to the portfolio, Core Fixed Income aims to preserve capital, by providing relatively “safe” investments and stable income. The Internally Managed Portfolio also provides liquidity and safety of capital. Treasury Inflation Protected Securities (“TIPS”) provide passive protection against expected changes in inflation. The satellite portfolios serve as dedicated specialists. Credit Fixed Income provides diversification from traditional fixed income investments and the potential for enhanced return. The custom credit portfolios are largely driven by allocations to bank loans, high yield fixed income securities, and investment grade credit. Investments in Emerging Market Debt (Local Currency) diversify US Dollar exposure and provide opportunities to capitalize on global growth trends. Opportunistic Fixed Income is employed to capitalize on severe market dislocations, such as European Debt.

INDEX GLOSSARY

MSCI ACW: The **MSCI All Country World Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. The index consists of the 23 developed countries that make up the MSCI World Index as well as the following emerging market countries: *Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Qatar, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates.*

Russell 3000: The **Russell 3000 Index** is a market-capitalization weighted index of 3,000 widely held equity securities designed to measure performance of the entire US stock market.

US Equity Custom Index: The **US Equity Custom Index** consists of the S&P 500 Index (Cap Wtd) through September 2014 and the Russell 3000 Index thereafter.

State Street All Cap Custom Index: The **State Street All Cap Custom Index** consists of 69% Russell 3000 Index, 24% FTSE RAFI US 1000 Index, and 7% MSCI USA Minimum Volatility Index.

S&P 500: The **S&P 500 Index (Cap Wtd)** is a commonly recognized, market-capitalization weighted index of 500 widely held equity securities designed to measure broad US equity performance.

Russell 2000: The **Russell 2000 Index** measures the performance of the small-cap segment of the US equity market. It includes approximately 2,000 of the smallest securities by market cap from the Russell 3000 Index.

International Equity Custom Index: The **International Equity Custom Index** consists of the MSCI EAFE Index through July 2010 and the MSCI ACW Ex US Index thereafter.

MSCI EAFE: The **MSCI EAFE (Europe, Australasia, Far East) Index** is designed to measure equity market performance of 21 developed countries, excluding the US & Canada: *Australia, Austria, Belgium, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom.*

MSCI ACW Ex US: The **MSCI ACW (All Country World) Ex US Index** consists of large cap and mid cap representation within the same countries that comprise the MSCI ACW Index, excluding the United States.

MSCI ACW Ex US IM: The **MSCI ACW (All Country World) Ex US Investable Market Index** consists of large cap, mid cap, and small cap representation within the same countries that comprise the MSCI ACW Index, excluding the United States.

FTSE All World Ex US: The **FTSE All World Ex US Index** is a free float-adjusted market capitalization weighted index that is comprised of large- and mid-cap stocks providing coverage of Developed and Emerging Markets excluding the US. The index is derived from the FTSE Global Equity Index Series (GEIS), which covers 98% of the world's investable market capitalization.

S&P US Preferred Stock: The **S&P US Preferred Stock Index** covers the US market of capital stock that pays dividends at a specified rate and has a preference over common stock in the payment of dividends and the liquidation of assets.

S&P MLP: The **S&P MLP Index** is a float-adjusted, cap-weighted index of energy MLPs and publicly traded limited liability companies, which have a similar legal structure to MLPs and share the same tax benefits. Constituents must have a minimum float-adjusted market cap of USD 300 million.

ICE BofAML All Convertibles: The **ICE BofA Merrill Lynch All Convertibles Index (All Qualities)** is a market capitalization-weighted index of domestic corporate convertible securities that are convertible to common stock.

NCREIF ODCE: The **NCREIF ODCE (Open End Diversified Core) Index** is an index of investment returns reporting on both a historical and current basis the results of 36 open-end commingled funds pursuing a core investment strategy, some of which have performance histories dating back to the 1970s. The NCREIF ODCE Index is capitalization-weighted and performance is time-weighted.

NCREIF Property: The **NCREIF Property Index** prepared by the National Council of Real Estate Investment Fiduciaries is a quarterly time series composite return measure for over 6,000 individual commercial real estate properties acquired in the private market for investment purposes. Total performance represents returns from appreciation and income, and includes multi-family, office, retail, and industrial properties.

HFRI FOF Comp Index: The **HFRI FOF (Fund of Funds) Comp Index** average is created by Hedge Fund Research, Inc. and contains over 800 funds of hedge funds that are each invested in multiple investment strategies.

Bloomberg US Agg Bond: The **Bloomberg US Aggregate Bond Index** covers the US dollar-denominated, investment-grade, fixed-rate, taxable bond market of SEC-registered securities: US Treasury and agency bonds, domestic corporate debt, and mortgage-backed securities.

Bloomberg US Agg Int Index: The **Bloomberg US Aggregate Intermediate Index** covers the subsection of the Bloomberg US Aggregate Bond Index with remaining maturities between one and ten years.

C.S. McKee Custom Index: The **C.S. McKee Custom Index** consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter.

PIMCO Custom Index: The **PIMCO Custom Index** consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Credit Custom Index: The **Credit Custom Index** consists of 20% Bloomberg US Credit Index, 20% ICE BofA Merrill Lynch US High Yield Master II Constrained Index, and 60% S&P/LSTA Leveraged Loan Index.

S&P/LSTA Leveraged Loan: The **S&P/LSTA Leveraged Loan Index** reflects the market-weighted performance of institutional leveraged loans in the US loan market.

CS Western European Hi Yld: The **Credit Suisse Western European High Yield Index** is designed to mirror the investable universe of the Western European high yield debt market. The index includes issues denominated in \$US and Western European currencies.

JPMorgan GBI-EM Gbl Dv'd: The **JPMorgan GBI-EM Global Diversified Total Return Index (Unhedged)** is a global emerging markets index that consists of regularly traded, liquid fixed-rate, domestic currency government bonds.

Bloomberg US Trsy: US TIPS: The **Bloomberg US Treasury: US TIPS Index** is an unmanaged index that consists of inflation-protected securities issued by the US Treasury.

Bloomberg US Govt/Credit: Long Trm Bond: The **Bloomberg US Gov't/Credit Long Term Bond Index** covers the non-securitized component of the US Aggregate Index, with maturities of 10 years or more. It includes investment grade, US dollar-denominated, fixed-rate Treasuries, government-related and corporate securities.

Bloomberg US Govt: Long Trm Bond: The **Bloomberg US Gov't Long Term Bond Index** covers public US government obligations with remaining maturities of ten years or more.

Bloomberg US Credit: Long Trm Bond: The **Bloomberg US Credit Long Term Bond Index** covers public US investment grade corporate bonds with remaining maturities of ten years or more.

Bloomberg US Govt: Int Trm Bond: The **Bloomberg US Gov't Intermediate Term Bond Index** covers public US government obligations with remaining maturities between one and ten years.

Bloomberg US Corp Int Trm Bond: The **Bloomberg US Corporate Intermediate Term Bond Index** covers US investment grade corporate bonds with remaining maturities between one and ten years.

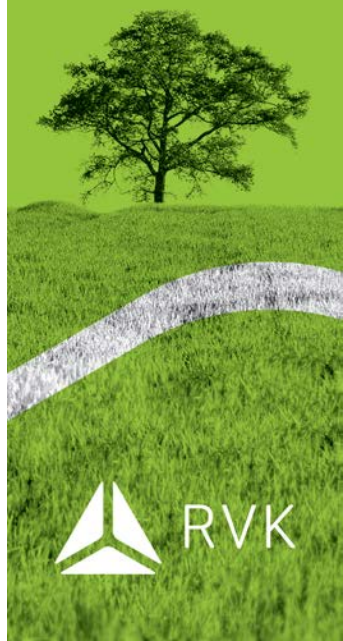
Bloomberg US Gov't/Credit 1-3 Yr Bond Index: The **Bloomberg US Gov't/Credit 1-3 Year Bond Index** covers all medium and larger issues of U.S. government, investment-grade corporate, and investment-grade international dollar-denominated bonds that have maturities of between one and three years and are publicly issued.

Bloomberg US Gov't 1-3 Yr Bond Index: The **Bloomberg US Gov't 1-3 Year Bond Index** covers public US government obligations with remaining maturities between one and three years.

Bloomberg US Credit 1-3 Yr Bond Index: The **Bloomberg US Credit 1-3 Year Bond Index** covers public investment-grade corporate, and investment-grade international dollar-denominated bonds that have maturities of between one and three years.

JP Morgan Blended Index: The **JP Morgan Blended Index** consists of an equal-weighted allocation to the ICE BofAML 1-3 Year US Treasury Index, ICE BofAML 1-3 Year Agencies Index, and ICE BofAML 0-3 Year Weighted Average Life Mortgage Index.

Total Fund



Wyoming State Treasurer's Office
Asset Allocation, Performance & Schedule of Investable Assets

As of December 31, 2018

Asset Allocation & Performance			
	Allocation		Performance (%)
	Market Value (\$)	%	FYTD
Total Fund	20,153,521,320	100.00	-1.43
US Equity Composite	1,401,265,987	6.95	-9.09
State Street All Cap	1,025,583,500	5.09	-7.55
Epoch	236,091,409	1.17	-10.26
UW Portfolio Mgmt Program	1,323,962	0.01	-8.79
Internal Equity Russell 2000	138,267,116	0.69	N/A
Int'l Equity Composite	1,824,039,468	9.05	-11.09
Internal International Equity Portfolio	146,137,638	0.73	-10.58
Northern Trust	968,887,999	4.81	-10.67
Fisher Investments	377,491,691	1.87	-12.27
Arrowstreet	331,522,141	1.64	-11.21
Preferred Stock Composite	83,114,119	0.41	-2.01
Cohen & Steers Preferred Stock	83,114,119	0.41	-2.01
Convertible Bonds Composite	472,527,227	2.34	-4.34
Allianz Global Investors	472,527,227	2.34	-4.34
MLPs Composite	343,690,238	1.71	N/A
Harvest Fund Advisors	343,690,238	1.71	N/A
Private Equity Composite	585,806,732	2.91	N/A
Access Venture Partners II	4,623,887	0.02	N/A
Cheyenne Equity Capital Fund, L.P.	243,366,328	1.21	N/A
Hamilton Lane Nowood Fund, L.P.	147,358,461	0.73	N/A
Neuberger Berman Sauger Fund, L.P.	190,458,056	0.95	N/A
Real Estate Composite	928,432,624	4.61	N/A
Clarion Lion	349,622,337	1.73	3.81
UBS Trumbull	284,817,359	1.41	2.80
Cornerstone	4,776,734	0.02	N/A
Heitman	17,473	0.00	N/A

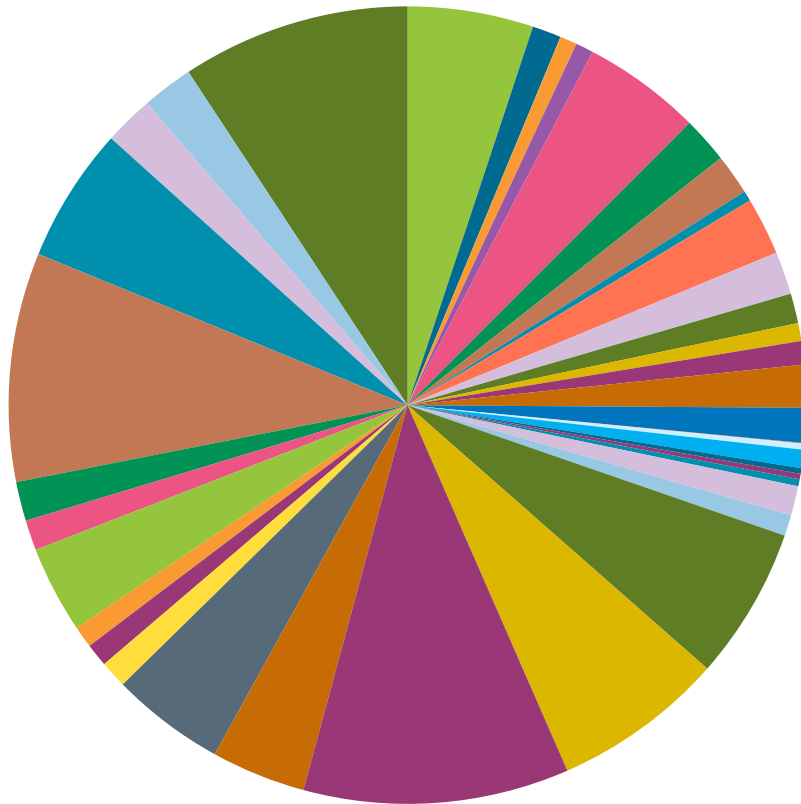
Asset Allocation & Performance			
	Allocation		Performance (%)
	Market Value (\$)	%	FYTD
M&G	48,858,148	0.24	N/A
Northwood	149,612,642	0.74	N/A
SC Capital	45,366,193	0.23	N/A
TA Associates Realty	269,535	0.00	N/A
WestRiver	45,092,204	0.22	N/A
Diversified Hedge Funds Composite	468,732,278	2.33	-2.04
PAAMCO - Jackalope Fund	57,413,630	0.28	-2.03
Grosvenor Diversified Hedge Funds	240,400,391	1.19	-3.17
Internal Diversified Hedge Funds	170,918,257	0.85	0.87
Core Fixed Income Composite	4,816,970,622	23.90	1.72
C.S. McKee	1,244,766,800	6.18	1.72
JP Morgan	1,403,670,794	6.96	1.71
PIMCO	2,168,533,029	10.76	1.73
Credit Fixed Income Composite	1,701,968,353	8.45	-1.45
Neuberger Berman Credit	770,047,247	3.82	-1.84
Seix	931,921,107	4.62	-1.11
Grosvenor Silvery Lupine Fund	221,828,165	1.10	0.95
Emerging Market Debt Composite	365,757,886	1.81	-1.73
Investec	188,467,563	0.94	-1.22
Stone Harbor	177,290,323	0.88	-2.27
State Street TIPS	710,020,897	3.52	-1.42
Long Duration Fixed Income Composite	566,946,515	2.81	N/A
Internal Long Duration Fixed Income	247,301,839	1.23	N/A
Logan Circle	319,644,675	1.59	N/A
Internal Intermediate Gov't Fixed Income	1,871,401,273	9.29	2.00
Low Duration Fixed Income Composite	1,506,744,682	7.48	N/A
Internal Low Duration Fixed Income	1,104,000,628	5.48	1.49
State Street Low Duration	402,744,055	2.00	N/A
Cash Equivalents	1,866,471,022	9.26	1.11
Public Purpose Investments	417,803,232	2.07	N/A

Schedule of Investable Assets - Total Fund Composite Ex Public Purpose Investments

Periods Ending	Beginning Market Value (\$)	Net Cash Flow (\$)	Gain/Loss (\$)	Ending Market Value (\$)	% Return	Unit Value
FYTD	20,275,652,821	-257,688,932	-282,245,801	19,735,718,088	-1.43	98.57

Allocations may not sum up to 100% exactly due to rounding. Performance shown is net of fees and excludes Public Purpose Investments (PPIs). Market value shown for Public Purpose Investments (PPIs) is as of 12/31/2018. Investment manager fees are accounted for on a quarterly basis. Wyoming State Treasurer's Office fiscal year ends on June 30th.

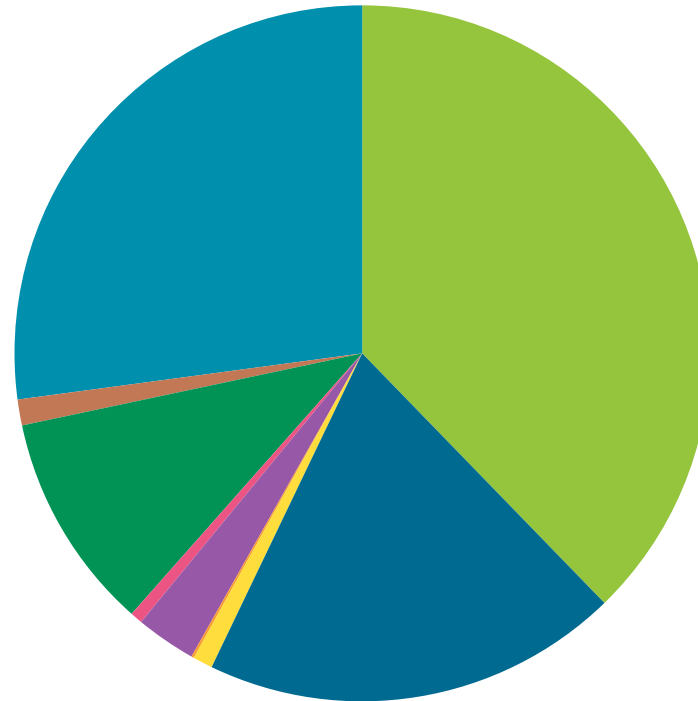
December 31, 2018 : \$20,153,521,320



	Market Value (\$)	Allocation (%)
State Street All Cap	1,025,583,500	5.09
Epoch	236,091,409	1.17
UW Portfolio Mgmt Program	1,323,962	0.01
Internal Equity Russell 2000	138,267,116	0.69
Internal International Equity Portfolio	146,137,638	0.73
Northern Trust	968,887,999	4.81
Fisher Investments	377,491,691	1.87
Arrowstreet	331,522,141	1.64
Cohen & Steers	83,114,119	0.41
Allianz Global Investors	472,527,227	2.34
Harvest	343,690,238	1.71
Access Venture Partners II	4,623,887	0.02
Cheyenne Equity Capital Fund, L.P.	243,366,328	1.21
Hamilton Lane Nowood Fund, L.P.	147,358,461	0.73
Neuberger Berman Sauger Fund, L.P.	190,458,056	0.95
Clarion Lion	349,622,337	1.73
UBS Trumbull	284,817,359	1.41
Cornerstone	4,776,734	0.02
Heitman	17,473	0.00
M&G	48,858,148	0.24
Northwood	149,612,642	0.74
SC Capital	45,366,193	0.23
TA Associates Realty	269,535	0.00
WestRiver	45,092,204	0.22
PAAMCO - Jackalope Fund	57,413,630	0.28
Grosvenor Diversified Hedge Funds	240,400,391	1.19
Internal Diversified Hedge Funds	170,918,257	0.85
C.S. McKee	1,244,766,800	6.18
JP Morgan Core	1,403,670,794	6.96
PIMCO Core	2,168,533,029	10.76
Neuberger Berman Credit	770,047,247	3.82
Seix	931,921,107	4.62
Grosvenor Silvery Lupine Fund	221,828,165	1.10
Investec	188,467,563	0.94
Stone Harbor	177,290,323	0.88
State Street TIPS	710,020,897	3.52
Internal Long Duration Fixed Income Portfolio	247,301,839	1.23
Logan Circle	319,644,675	1.59
Internal Intermediate Govt Fixed Income Portfolio	1,871,401,273	9.29
Internal Low Duration Fixed Income Portfolio	1,104,000,628	5.48
State Street Low Duration	402,744,055	2.00
Public Purpose Investments	417,803,232	2.07
JP Morgan Cash Composite	1,866,471,022	9.26

Allocations shown may not sum up to 100% exactly due to rounding.

December 31, 2018 : \$20,153,521,320

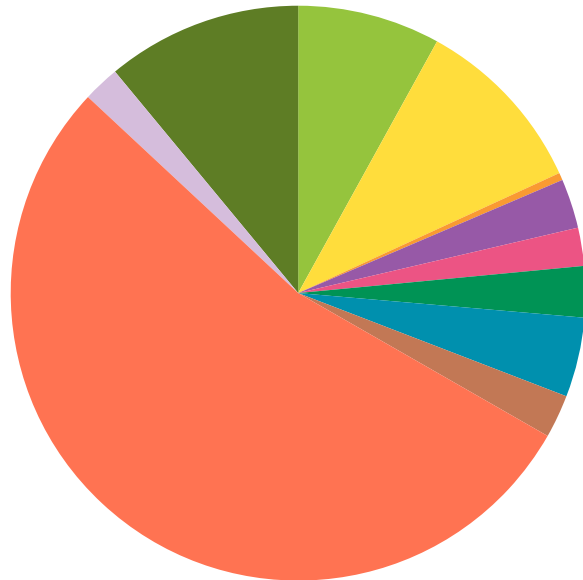


	Market Value (\$)	Allocation (%)
Permanent Mineral Trust	7,603,910,667	37.73
Common School PLF	3,908,617,817	19.39
Permanent Land Fund	186,630,512	0.93
University Permanent Land Fund	22,381,033	0.11
Hathaway Scholarship	565,450,818	2.81
Higher Education	115,224,236	0.57
Workers Compensation Fund	2,042,516,777	10.13
Pool A	243,608,717	1.21
State Agency Pool	5,465,180,745	27.12

Allocations shown may not sum up to 100% exactly due to rounding.

Asset Allocation by Asset Class - Prior Quarter

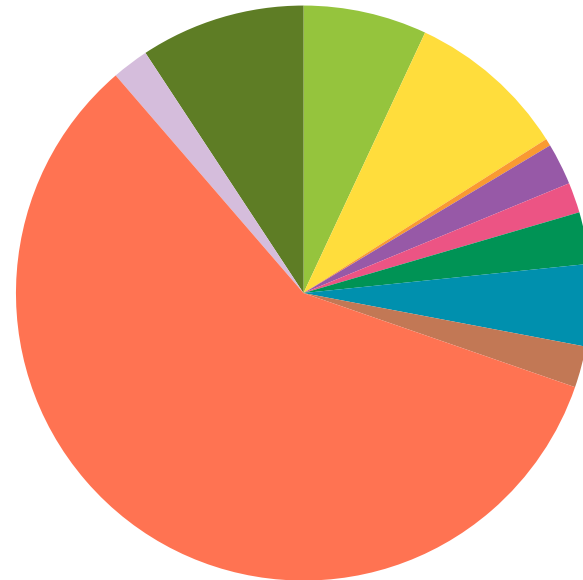
September 30, 2018 : \$20,638,825,306



	Market Value (\$)	Allocation (%)
US Equity	1,656,433,893	8.03
International Equity	2,088,230,910	10.12
Preferred Stock	86,139,590	0.42
Convertibles	574,646,540	2.78
MLPs	442,256,551	2.14
Private Equity	593,877,245	2.88
Real Estate	924,487,145	4.48
Diversified Hedge Funds	501,548,021	2.43
Fixed Income	11,076,360,097	53.67
Public Purpose Investments	425,861,487	2.06
Cash	2,268,983,827	10.99

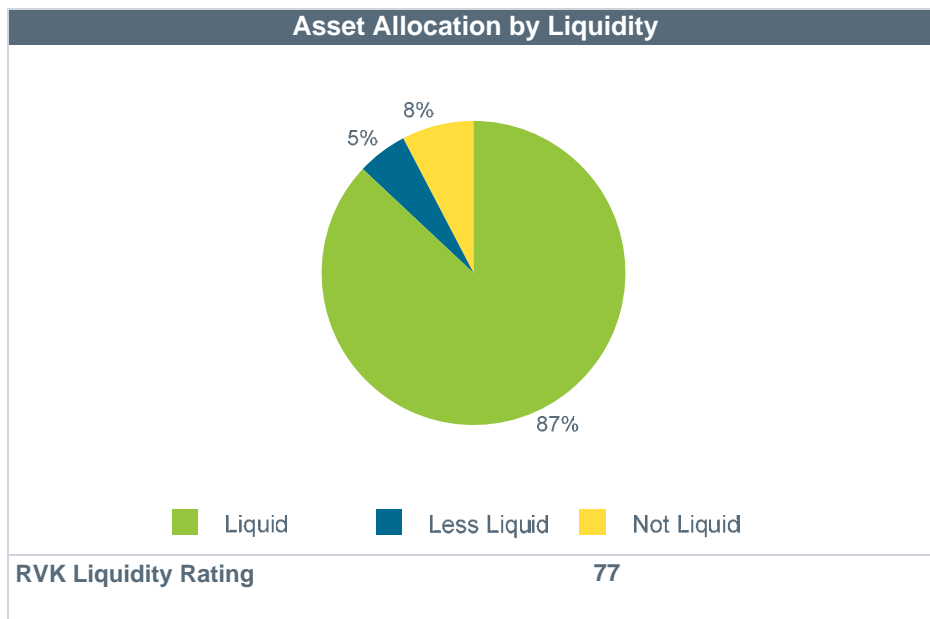
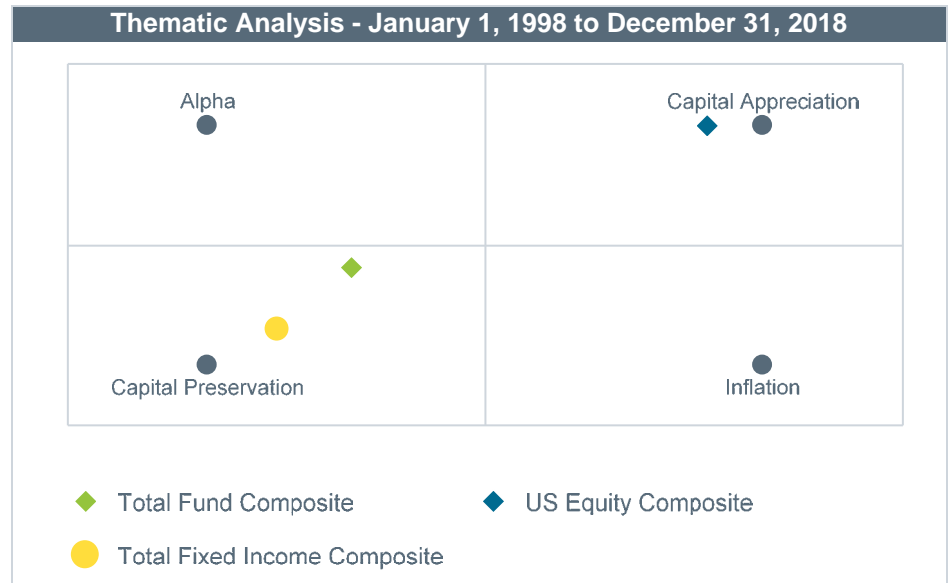
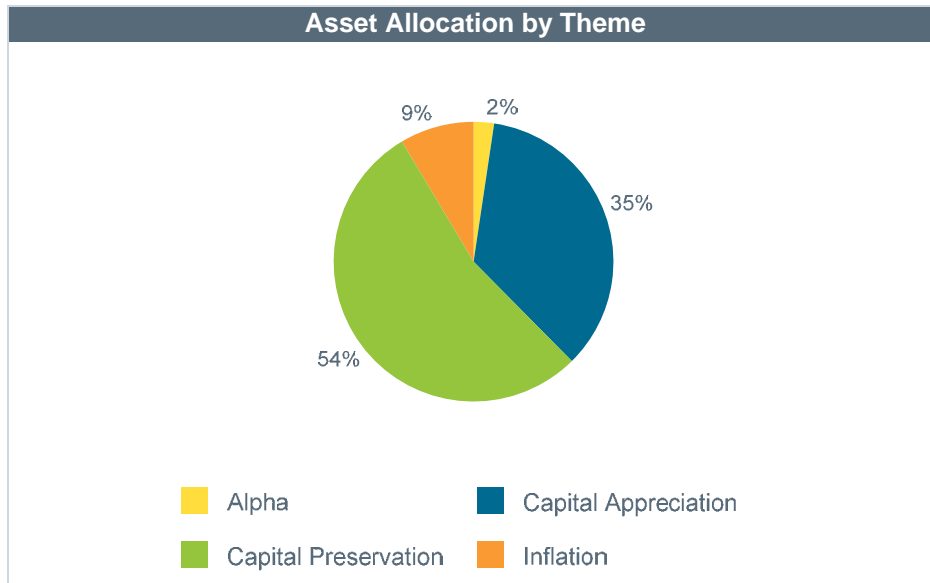
Asset Allocation by Asset Class - Current Quarter

December 31, 2018 : \$20,153,521,320



	Market Value (\$)	Allocation (%)
US Equity	1,401,265,987	6.95
International Equity	1,824,039,468	9.05
Preferred Stock	83,114,119	0.41
Convertibles	472,527,227	2.34
MLPs	343,690,238	1.71
Private Equity	585,806,732	2.91
Real Estate	928,432,624	4.61
Diversified Hedge Funds	468,732,278	2.33
Fixed Income	11,761,638,393	58.36
Public Purpose Investments	417,803,232	2.07
Cash	1,866,471,022	9.26

Allocations shown may not sum up to 100% exactly due to rounding.



Correlation Matrix - 10 Years

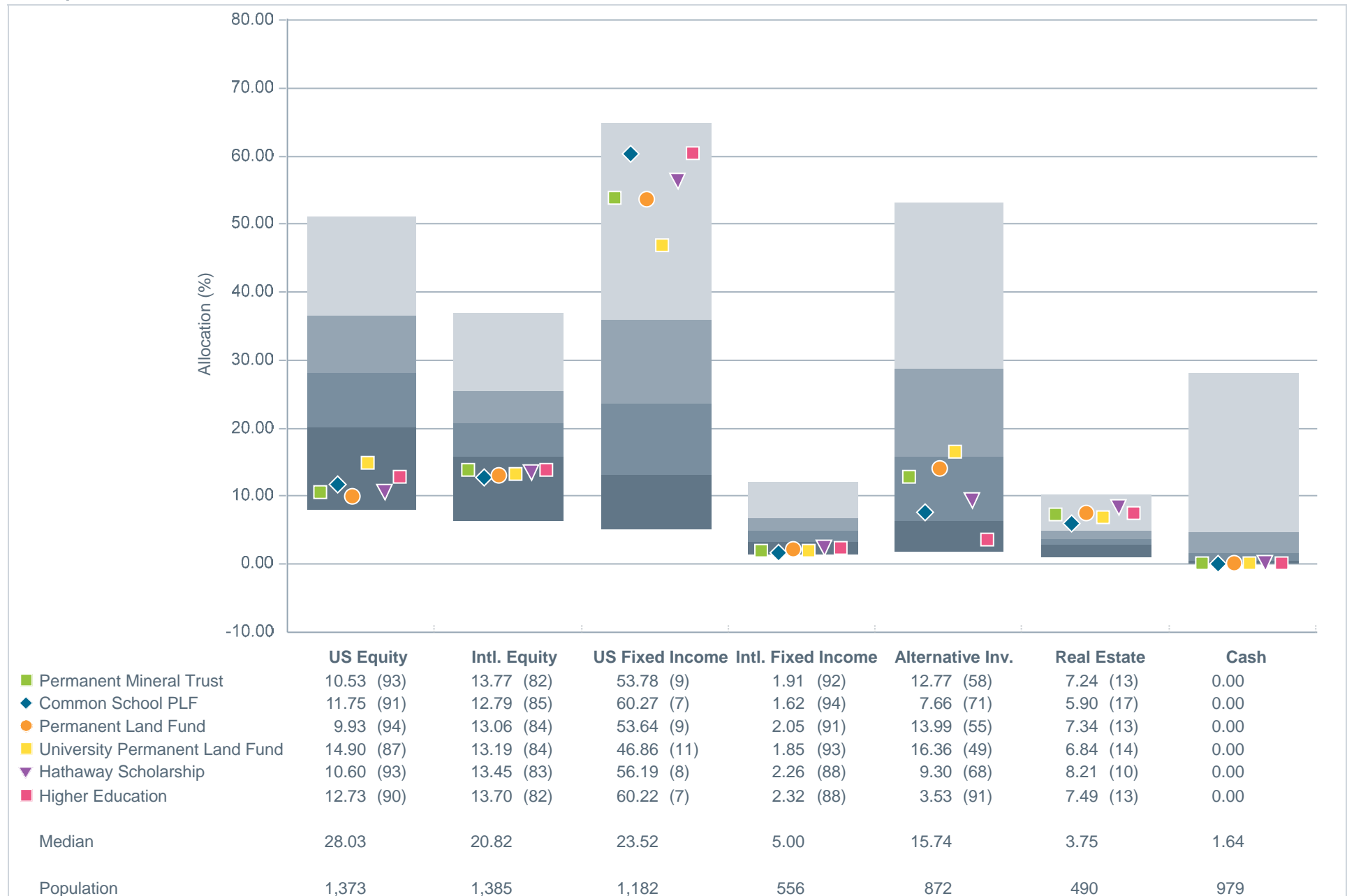
	A	B	C	D
A	1.00			
B	0.62	1.00		
C	-0.29	-0.26	1.00	
D	0.49	0.83	0.02	1.00

A = HFRI EH: Eq Mkt Neut Index (Alpha)
 B = MSCI ACW Index (USD) (Gross) (Capital Appreciation)
 C = Bloomberg US Gov't Bond Index (Capital Preservation)
 D = Real Return Custom Index (Inflation)

Asset Allocation by Theme is based on dedicated manager allocations; as such, thematic allocations are approximations. The RVK Liquidity Rating is calculated using beginning of month investment weights applied to each corresponding asset class liquidity rating. Please see the Glossary for additional information regarding these metrics. Allocations may not sum to 100% exactly due to rounding.

Wyoming State Treasurer's Office
All Endowment&Foundation-Total Fund
Plan Sponsor TF Asset Allocation

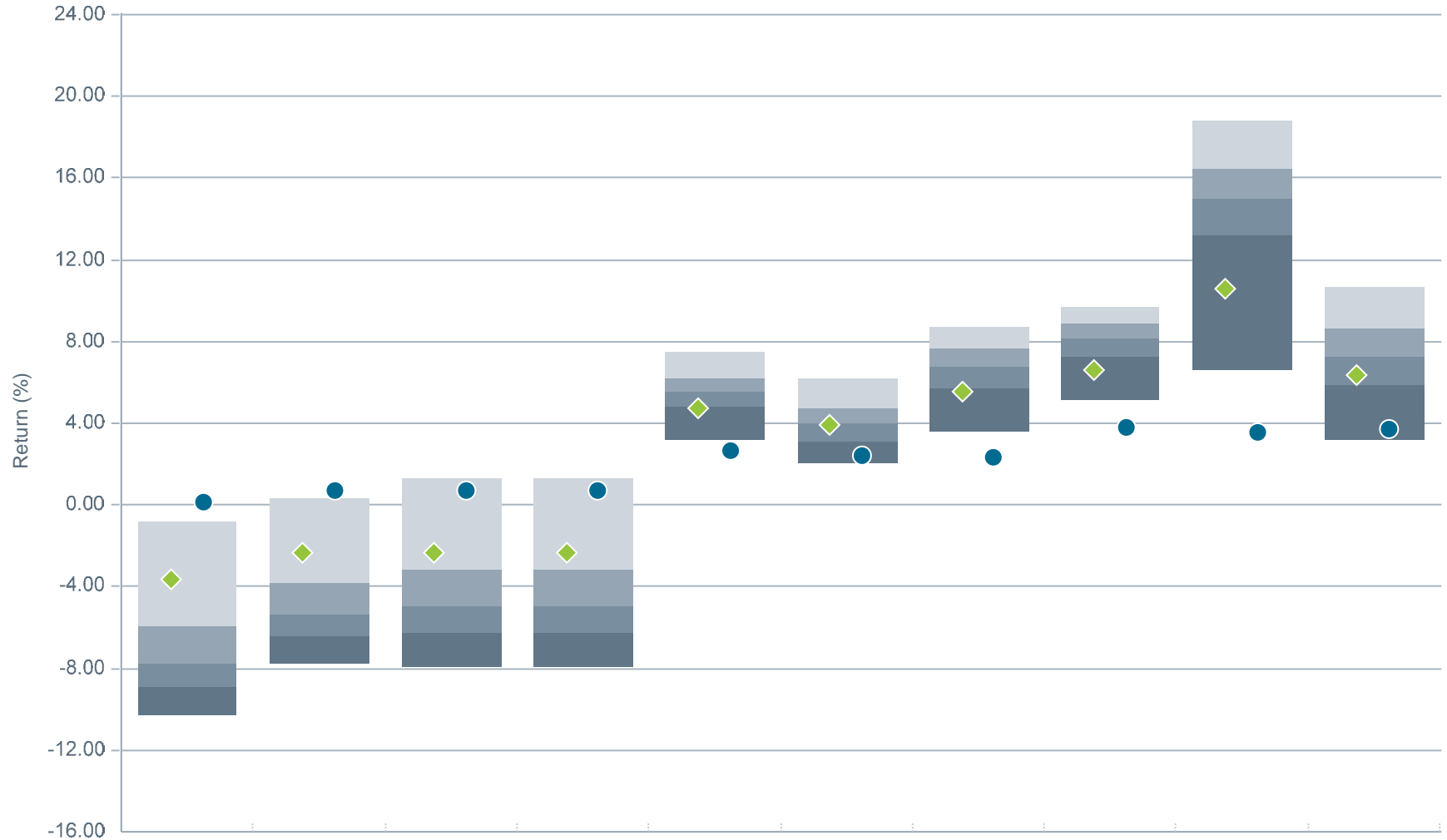
As of December 31, 2018



Parentheses contain percentile ranks. US Fixed Income allocation shown includes Convertibles and Cash (inv. in SAP).

Wyoming State Treasurer's Office
All Endowment&Foundation-Total Fund
Plan Sponsor Peer Group Analysis

As of December 31, 2018

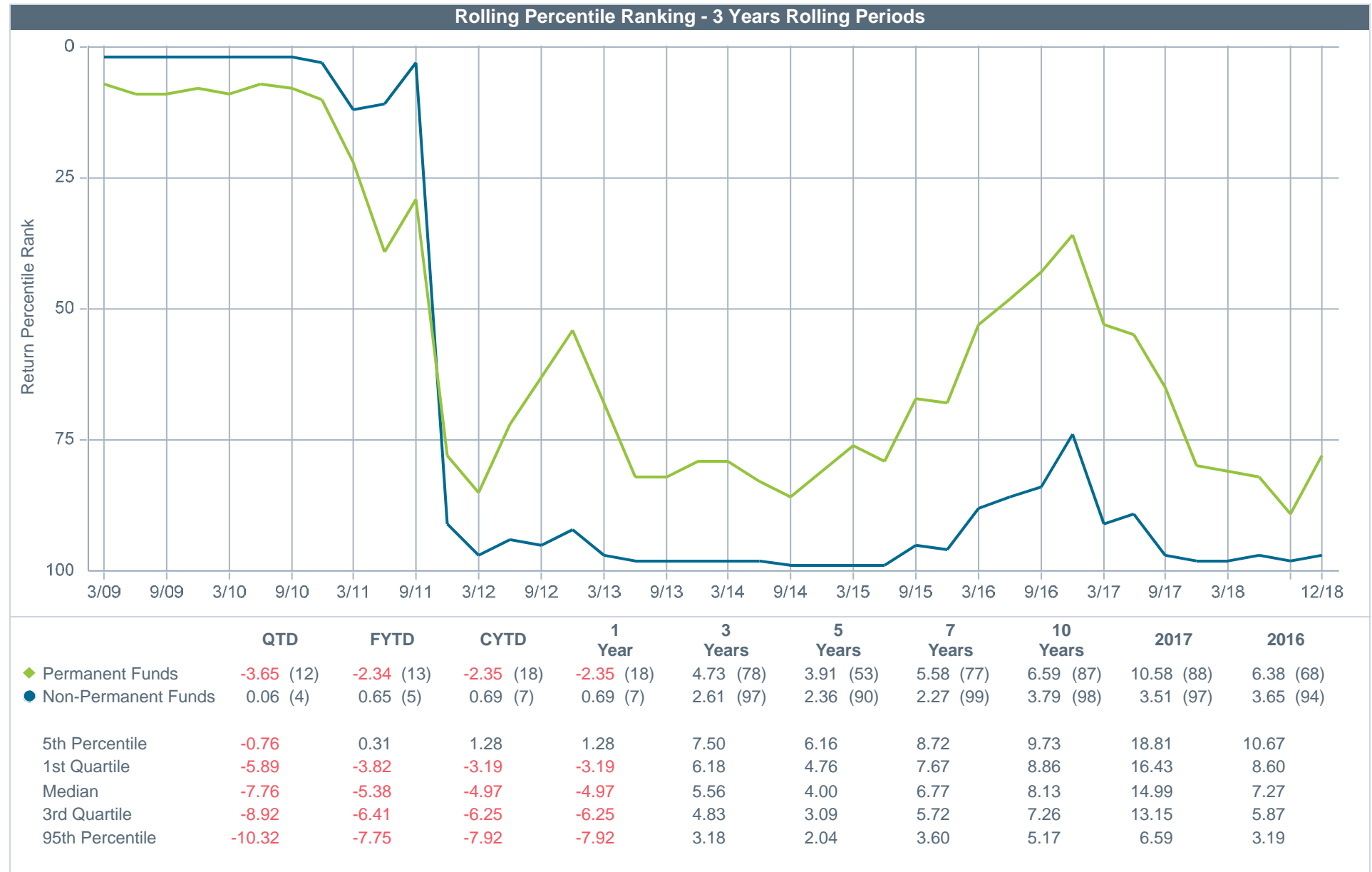


	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016
◆ Permanent Funds	-3.65 (12)	-2.34 (13)	-2.35 (18)	-2.35 (18)	4.73 (78)	3.91 (53)	5.58 (77)	6.59 (87)	10.58 (88)	6.38 (68)
● Non-Permanent Funds	0.06 (4)	0.65 (5)	0.69 (7)	0.69 (7)	2.61 (97)	2.36 (90)	2.27 (99)	3.79 (98)	3.51 (97)	3.65 (94)
Median	-7.76	-5.38	-4.97	-4.97	5.56	4.00	6.77	8.13	14.99	7.27
Population	1,107	1,087	1,065	1,065	952	848	729	555	733	695

Performance shown is gross of fees. Calculation is based on quarterly periodicity. Parentheses contain percentile ranks.
Wyoming State Treasurer's Office fiscal year ends on June 30th.

Wyoming State Treasurer's Office
All Endowment & Foundation - Total Fund
Rolling Percentile Ranking and Plan Sponsor Peer Group Analysis

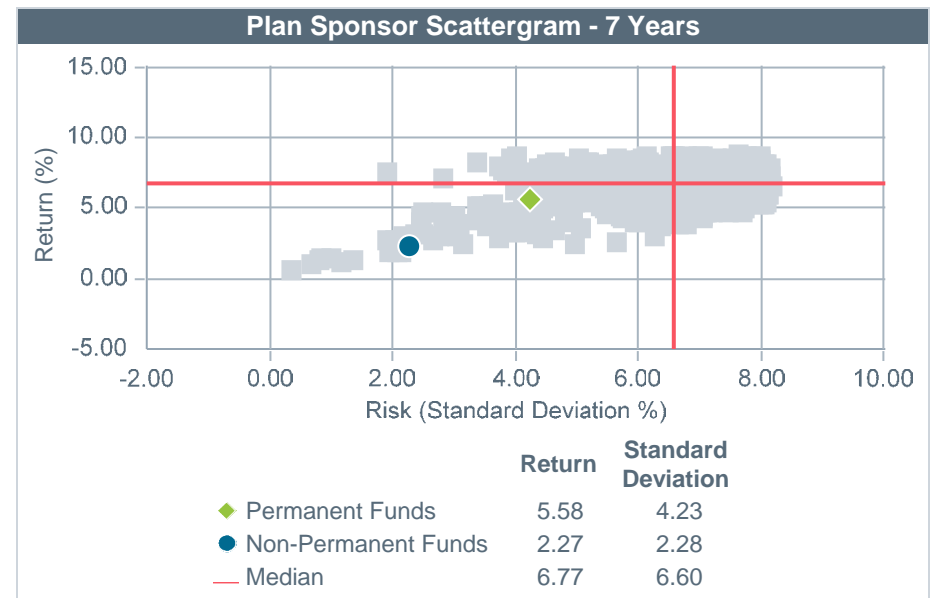
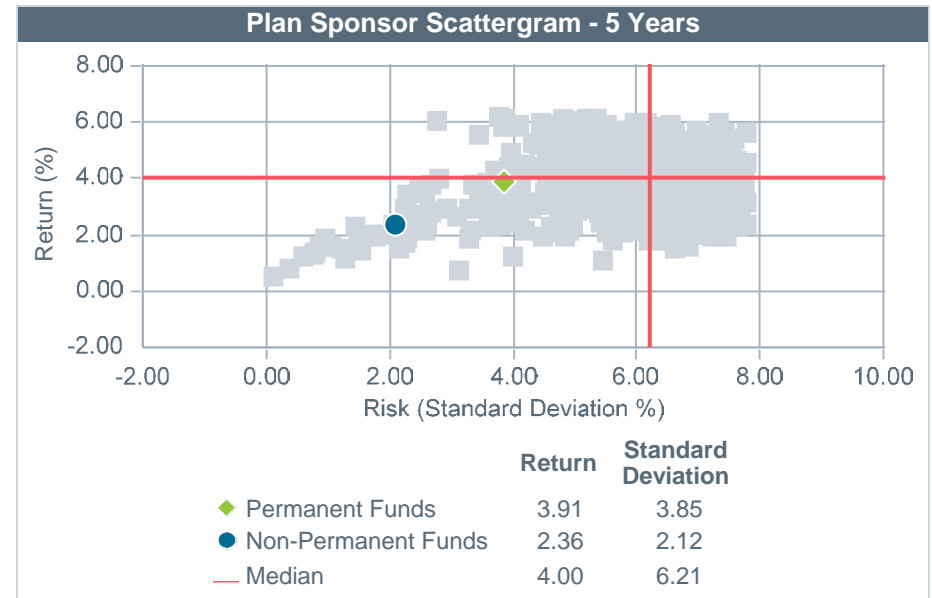
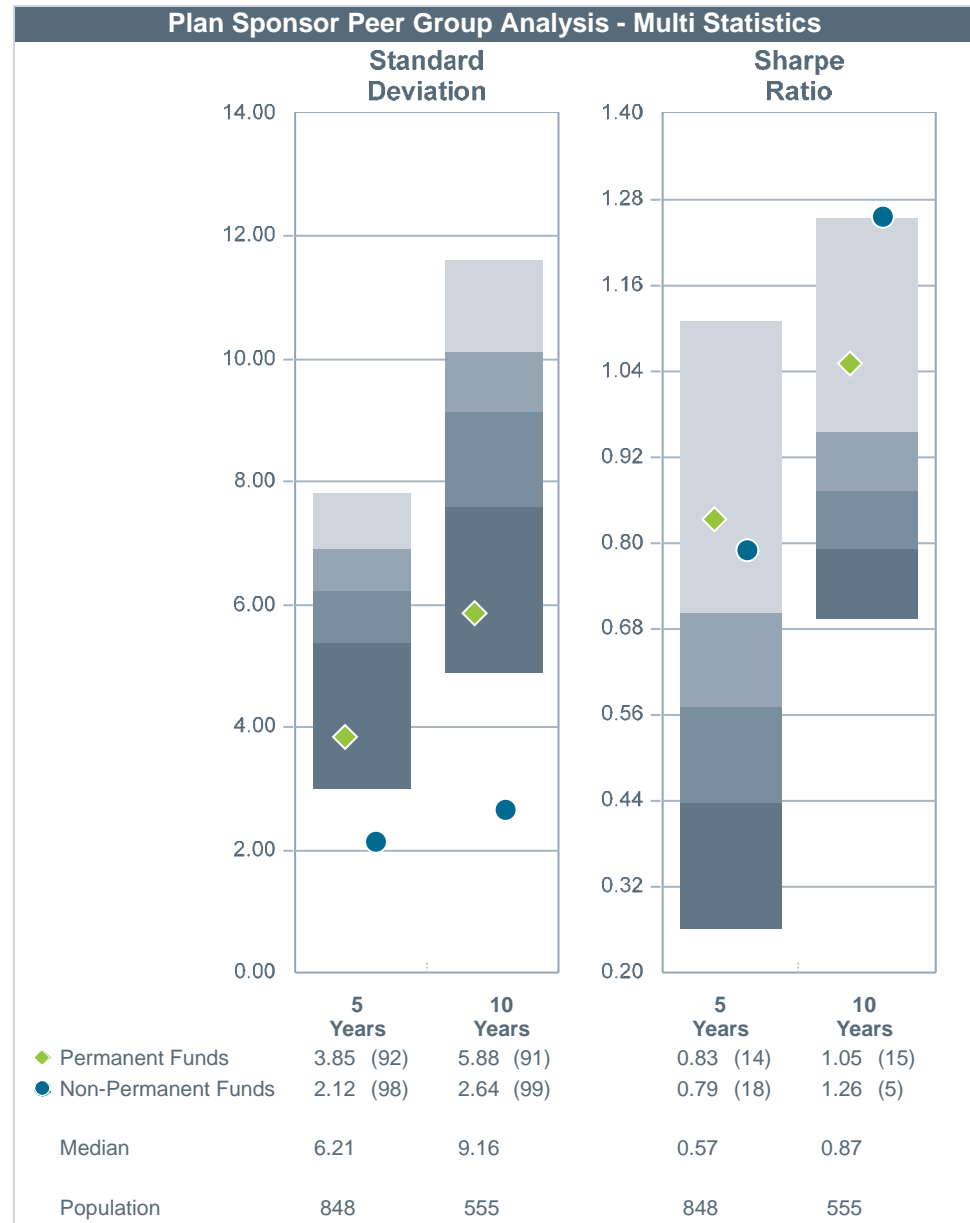
As of December 31, 2018



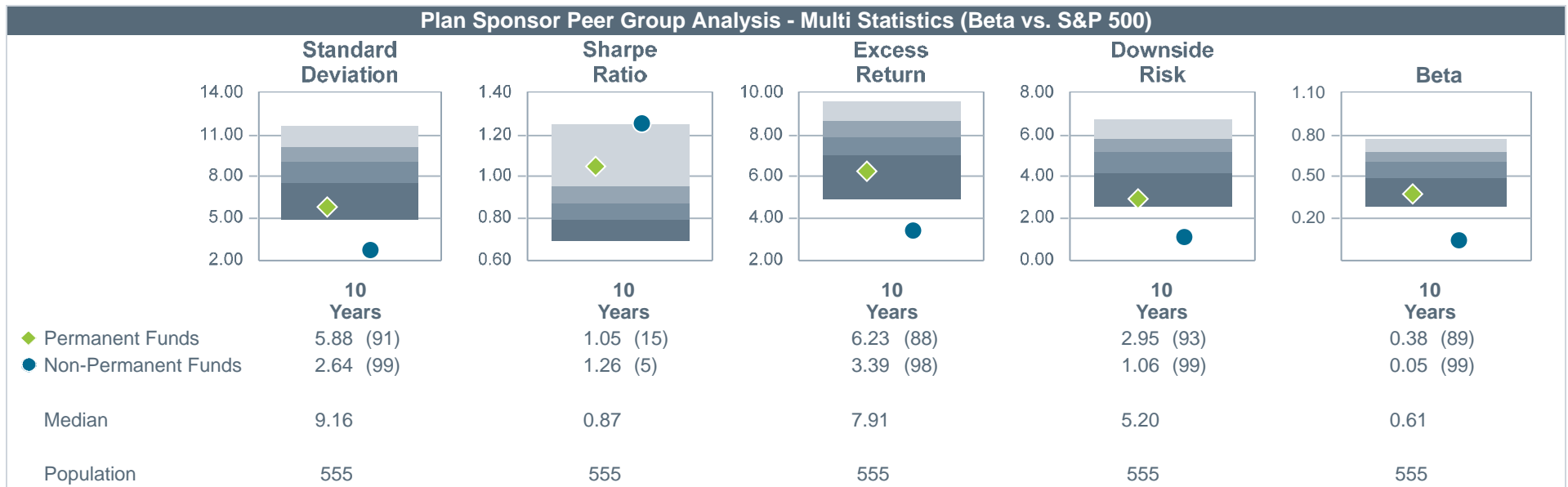
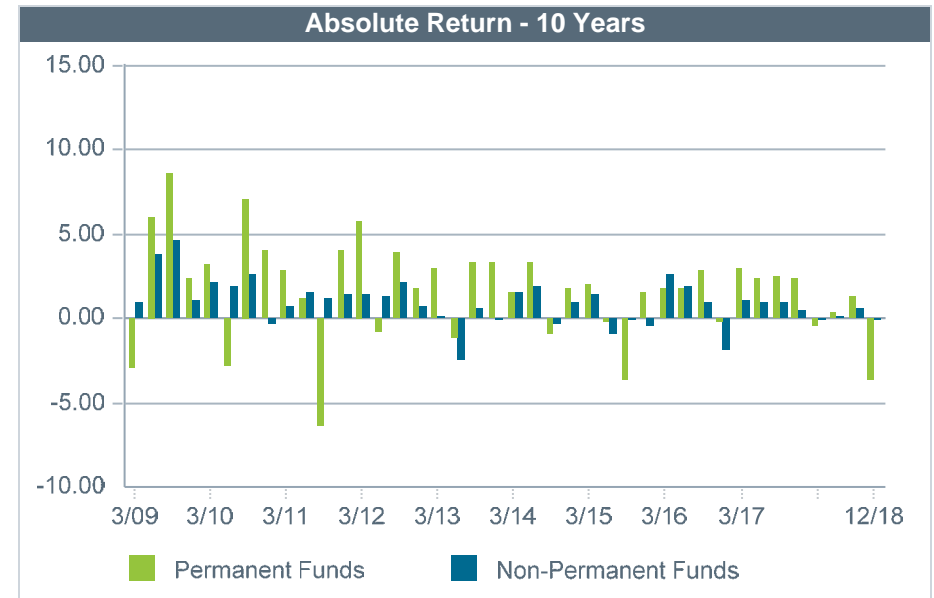
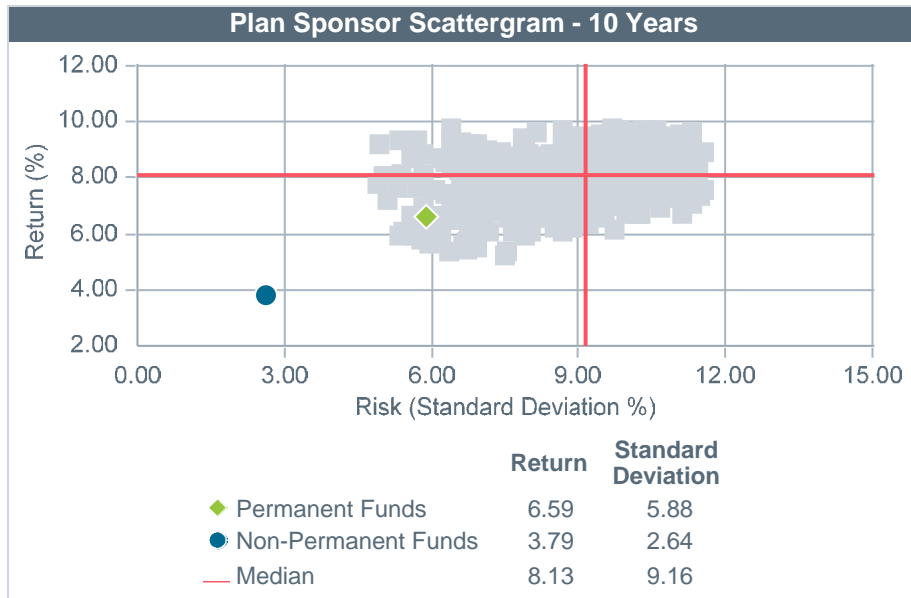
Performance shown is gross of fees. Calculation is based on quarterly periodicity. Parentheses contain percentile ranks.
Wyoming State Treasurer's Office fiscal year ends on June 30th.

Wyoming State Treasurer's Office
 Permanent Funds and Non-Permanent Funds vs. All Endowment&Foundation-Total Fund
 Plan Sponsor Peer Group Scattergram and Multi Statistics

As of December 31, 2018



Performance shown is gross of fees. Calculation is based on quarterly periodicity. Parentheses contain percentile ranks.



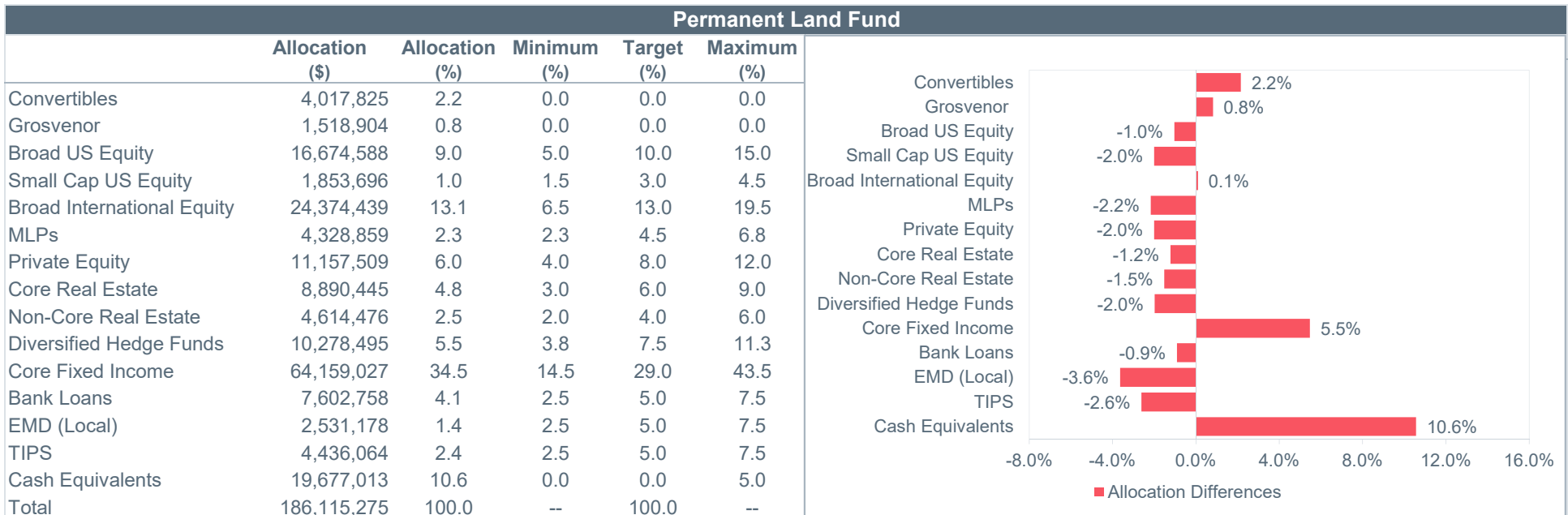
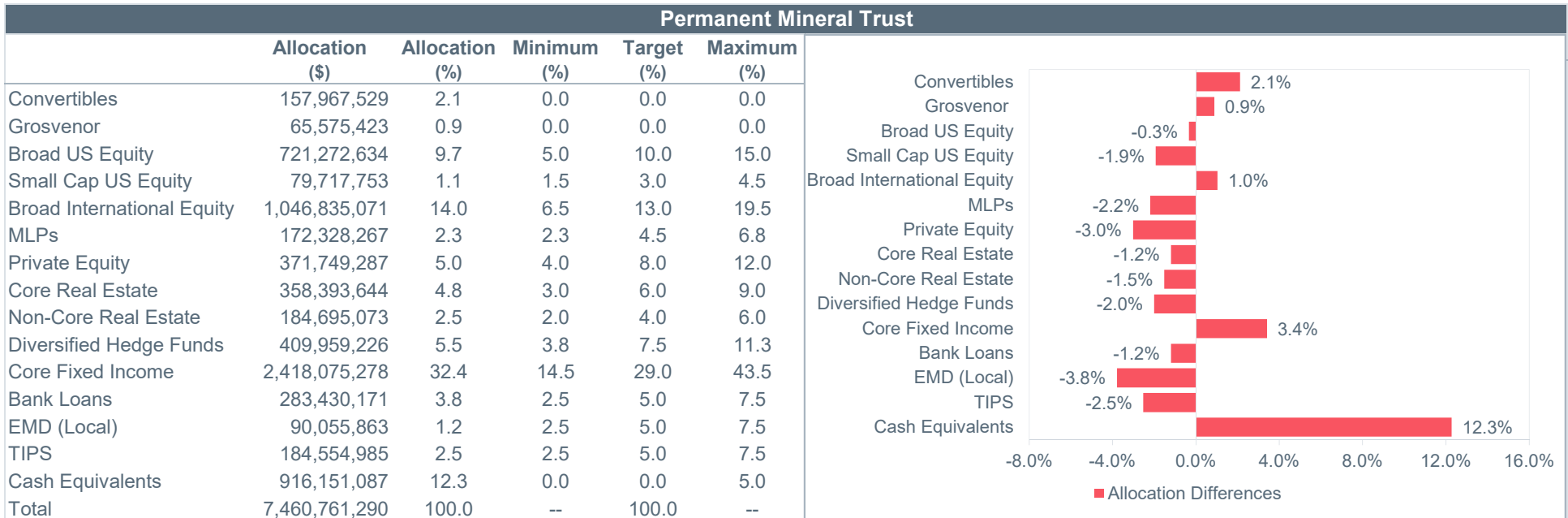
Performance shown is gross of fees. Calculation is based on quarterly periodicity. Parentheses contain percentile ranks.

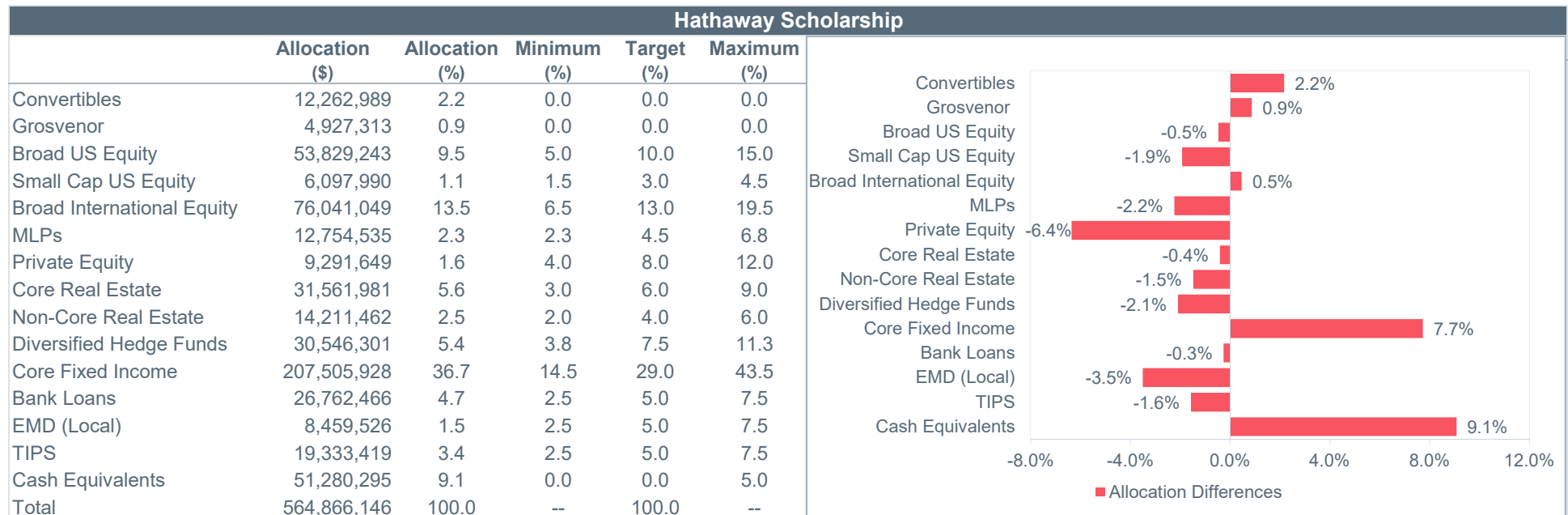
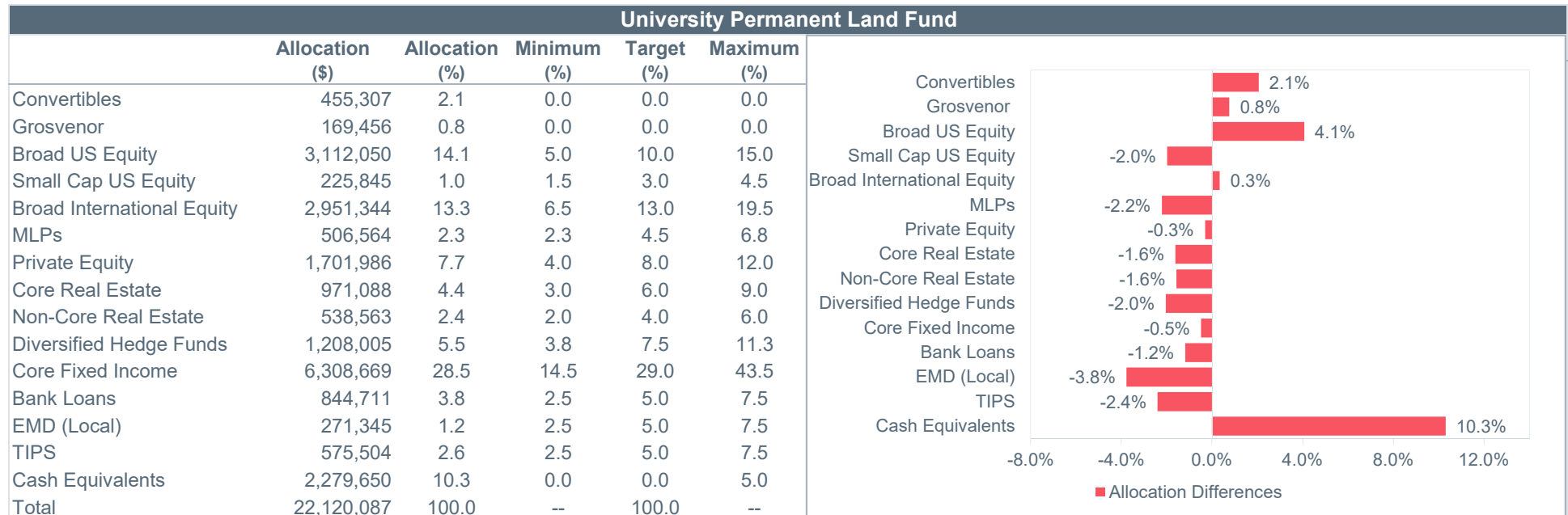
Investment Profile					Long-Term Target Allocation												
<p>Fund Type: Permanent Fund</p> <p>Main Objective: Produce maximized long-term investment income and capital gains while providing an appropriate level of safety and liquidity.</p> <p>Primary Investment Goals: Capital appreciation, total return, and protection against inflation. Capital preservation and liquidity are important secondary goals.</p> <p>Long-Term Return Expectation: CPI + 3%</p> <p>Maximum Equity Allocation: 70%</p> <p>Current Long-Term Target Equity Allocation: 56%</p> <p>Spending Policy</p> <ul style="list-style-type: none">• Permanent Mineral Trust Fund: 5% of the five-year trailing average market value, calculated on the first day of the fiscal year. In fiscal year 2021, the spending rate will be 4.75%. In fiscal year 2022 and thereafter, the spending rate will be 4.5%.• Hathaway Scholarship: The amount necessary to fully fund scholarships awarded under W.S. 21-16-1301 <i>et seq.</i>					Minimum Range (%)				Target (%)				Maximum Range (%)				
					Permanent Mineral Trust				-				100.00				-
					Broad US Equity				5.00				10.00				15.00
					Small Cap US Equity				1.50				3.00				4.50
					International Equity				6.50				13.00				19.50
					MLPs				2.25				4.50				6.75
					Private Equity				4.00				8.00				12.00
					Core Real Estate				3.00				6.00				9.00
					Value Added Real Estate				2.00				4.00				6.00
					Diversified Hedge Funds				3.75				7.50				11.25
					Core Fixed Income				14.50				29.00				43.50
					Credit Fixed Income				2.50				5.00				7.50
					EMD				2.50				5.00				7.50
					TIPS				2.50				5.00				7.50
					Cash (inv. in SAP)				0.00				0.00				5.00
Thematic Allocation					Risk Metrics												
					5 Years				10 Years								
					PMTF	PLF	UPLF	Hath	PMTF	PLF	UPLF	Hath					
					Sharpe Ratio	0.8	0.8	0.8	0.7	1.0	1.0	1.0	1.0				
					Standard Deviation	4.1	3.9	4.5	3.8	6.2	5.9	6.1	5.6				
					Beta	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3				
Comparative Performance																	
Allocation					Performance (%)												
Market Value (\$)		QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years								
Permanent Mineral Trust		7,603,910,667	-4.1	-2.7	-2.7	-2.7	4.7	3.8	5.6	6.5							
PMTF Actual Allocation Index			-4.0	-2.6	-2.6	-2.6	4.5	3.9	5.5	6.0							
Difference			-0.1	-0.1	-0.1	-0.1	0.2	-0.1	0.1	0.5							
Permanent Land Fund		186,630,512	-3.8	-2.5	-2.5	-2.5	4.7	3.8	5.5	6.3							
PLF Actual Allocation Index			-3.7	-2.4	-2.4	-2.4	4.5	3.9	5.4	5.8							
Difference			-0.1	-0.1	-0.1	-0.1	0.2	-0.1	0.1	0.5							
University Permanent Land Fund		22,381,033	-4.8	-3.0	-2.7	-2.7	5.2	4.1	5.7	6.4							
UPLF Actual Allocation Index			-4.6	-2.8	-2.4	-2.4	5.0	4.2	5.7	6.1							
Difference			-0.2	-0.2	-0.3	-0.3	0.2	-0.1	0.0	0.3							
Hathaway Scholarship		565,450,818	-3.9	-2.7	-3.1	-3.1	4.1	3.4	4.9	6.2							
Hathaway Actual Allocation Index			-3.8	-2.5	-2.9	-2.9	4.0	3.6	4.9	5.7							
Difference			-0.1	-0.2	-0.2	-0.2	0.1	-0.2	0.0	0.5							

Performance shown is net of fees and annualized for periods greater than one year. Wyoming State Treasurer's Office fiscal year ends on June 30th. Beta is calculated relative to the MSCI ACW Index (Net). Calculations are based on quarterly periodicity. Allocations shown may not sum up to 100% exactly due to rounding. Thematic Allocation shown represents the Permanent Mineral Trust.

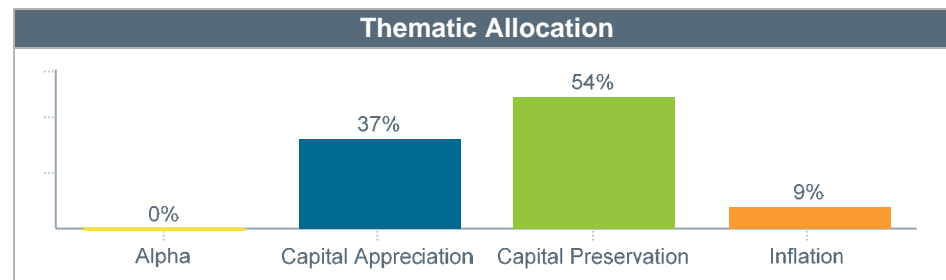
Wyoming State Treasurer's Office
Permanent Funds - Long-Term Total Return Focus
Asset Allocation vs. Long-Term Target

As of December 31, 2018





Investment Profile
Fund Type: Permanent Fund Main Objective: Produce maximized long-term investment income and capital gains while providing an appropriate level of safety and liquidity. Primary Investment Goals: Income generation, capital appreciation, total return, and protection against inflation. Capital preservation and liquidity are important secondary goals. Long-Term Return Expectation: CPI + 3% Maximum Equity Allocation: 70% Current Long-Term Target Equity Allocation: 44%
Spending Policy <ul style="list-style-type: none"> • Common School Permanent Land Fund: 5% of the five-year trailing average market value, calculated on the first day of the fiscal year. In fiscal year 2021, the spending rate will be 4.75%. In fiscal year 2022 and thereafter, the spending rate will be 4.5%. • Higher Education: 4.75% of the five-year trailing average market value, calculated on the first day of the fiscal year.

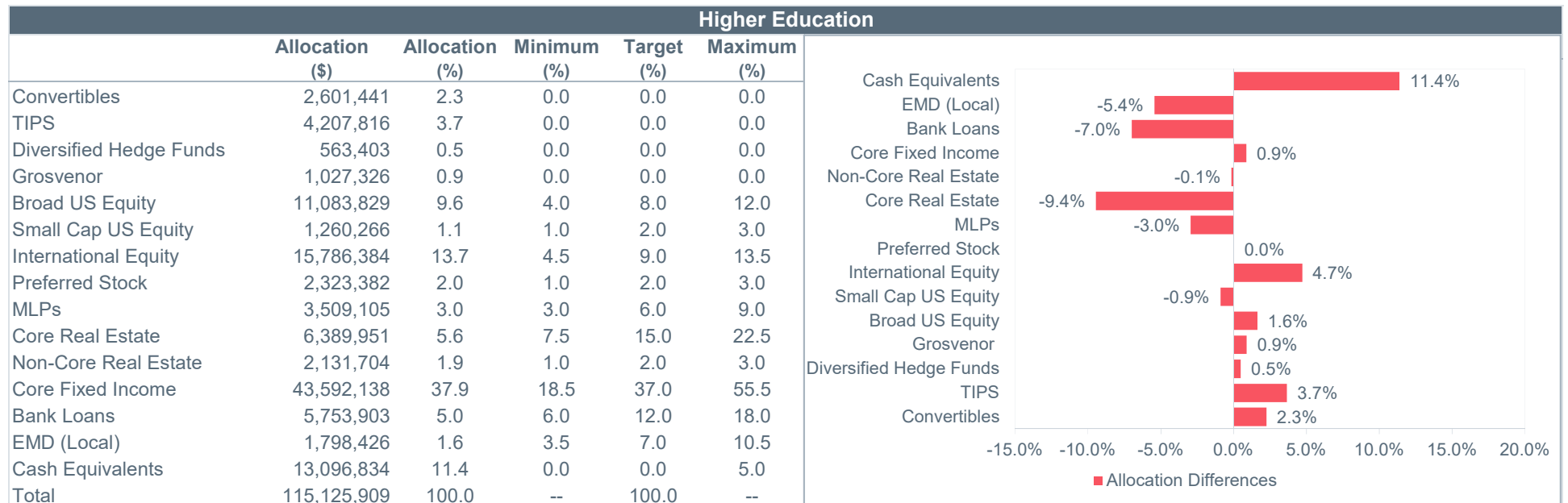
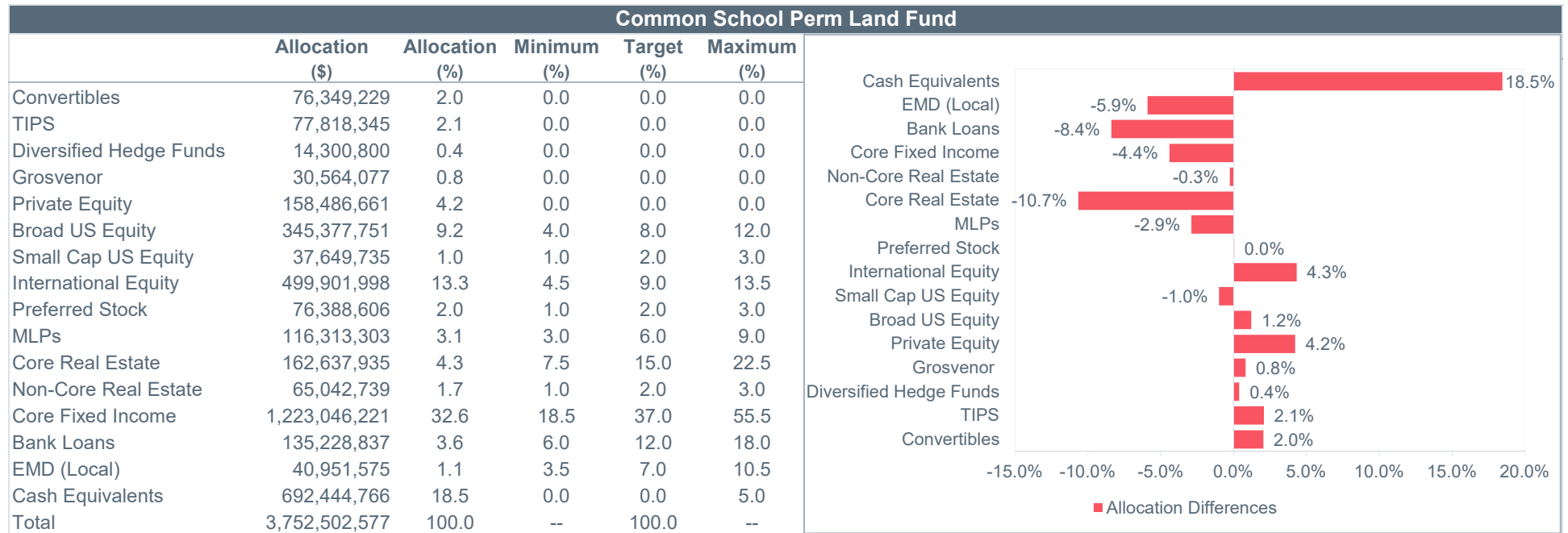


Comparative Performance									
	Allocation	Performance (%)							
	Market Value (\$)	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years
Common School Perm Land Fund	3,908,617,817	-4.0	-2.7	-2.7	-2.7	4.7	3.9	5.7	6.7
CSPLF - Actual Allocation Index		-3.8	-2.5	-2.6	-2.6	4.5	4.0	5.6	6.0
Difference		-0.2	-0.2	-0.1	-0.1	0.2	-0.1	0.1	0.7
Higher Education	115,224,236	-4.1	-3.0	-3.4	-3.4	4.0	3.3	4.8	6.2
Higher Education - Actual Allocation Index		-3.9	-2.7	-3.1	-3.1	3.9	3.5	4.8	5.7
Difference		-0.2	-0.3	-0.3	-0.3	0.1	-0.2	0.0	0.5

Performance shown is net of fees and annualized for periods greater than one year. Wyoming State Treasurer's Office fiscal year ends on June 30th. Beta is calculated relative to the MSCI ACW Index (Net). Calculations are based on quarterly periodicity. Allocations shown may not sum up to 100% exactly due to rounding. Thematic Allocation shown represents the Common School Permanent Land Fund.

Long-Term Target Allocation			
	Minimum Range (%)	Target (%)	Maximum Range (%)
Common School PLF	-	100.00	-
Broad US Equity	4.00	8.00	12.00
Small Cap US Equity	1.00	2.00	3.00
International Equity	4.50	9.00	13.50
Preferred Stock	1.00	2.00	3.00
MLPs	3.00	6.00	9.00
Core Real Estate	7.50	15.00	22.50
Value Added Real Estate	1.00	2.00	3.00
Core Fixed Income	18.50	37.00	55.50
Credit Fixed Income	6.00	12.00	18.00
EMD	3.50	7.00	10.50
Cash (inv. in SAP)	0.00	0.00	5.00

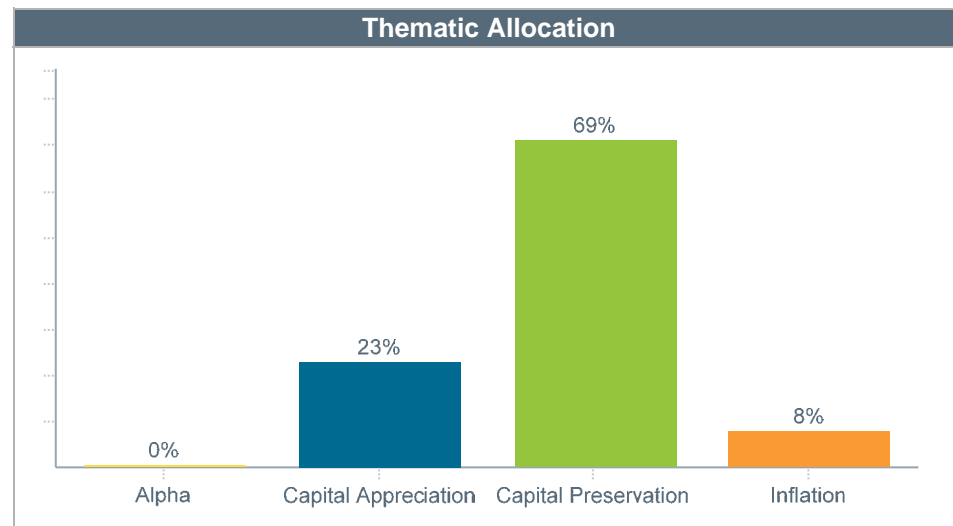
	5 Years		10 Years	
	CSPLF	HiEd	CSPLF	HiEd
Sharpe Ratio	0.8	0.7	1.0	1.0
Standard Deviation	4.0	3.9	6.2	5.7
Beta	0.4	0.4	0.4	0.4



Wyoming State Treasurer's Office
Permanent Funds - Workers' Compensation Fund

As of December 31, 2018

Investment Profile
Fund Type: Permanent Fund Main Objective: Provide a return that assures the Workers' Compensation Fund will be self-funding or nearly self-funding in order to substantially reduce or eliminate the need for employer contributions. Primary Investment Goals: Long-term return, safety of capital, yield and capital appreciation. Long-Term Return Expectation: CPI + 3% Maximum Equity Allocation: 70% Current Long-Term Target Equity Allocation: 27% Actuarial Discount Rate: 2.5%* Funded Status: >100%* Duration of Liabilities: 11.4 years*
*As of the most recent report.



Comparative Performance									
	Allocation	Performance (%)							
	Market Value (\$)	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years
Workers' Compensation Fund	2,042,516,777	-1.4	-0.5	-0.9	-0.9	3.9	3.2	4.2	5.8
WC - Actual Allocation Index		-1.1	-0.3	-1.0	-1.0	3.6	3.3	4.1	5.2
Difference		-0.3	-0.2	0.1	0.1	0.3	-0.1	0.1	0.6

Performance shown is net of fees and annualized for periods greater than one year. Wyoming State Treasurer's Office fiscal year ends on June 30th. Beta is calculated relative to the MSCI ACW Index (Net). Calculations are based on quarterly periodicity. Allocations shown may not sum up to 100% exactly due to rounding.

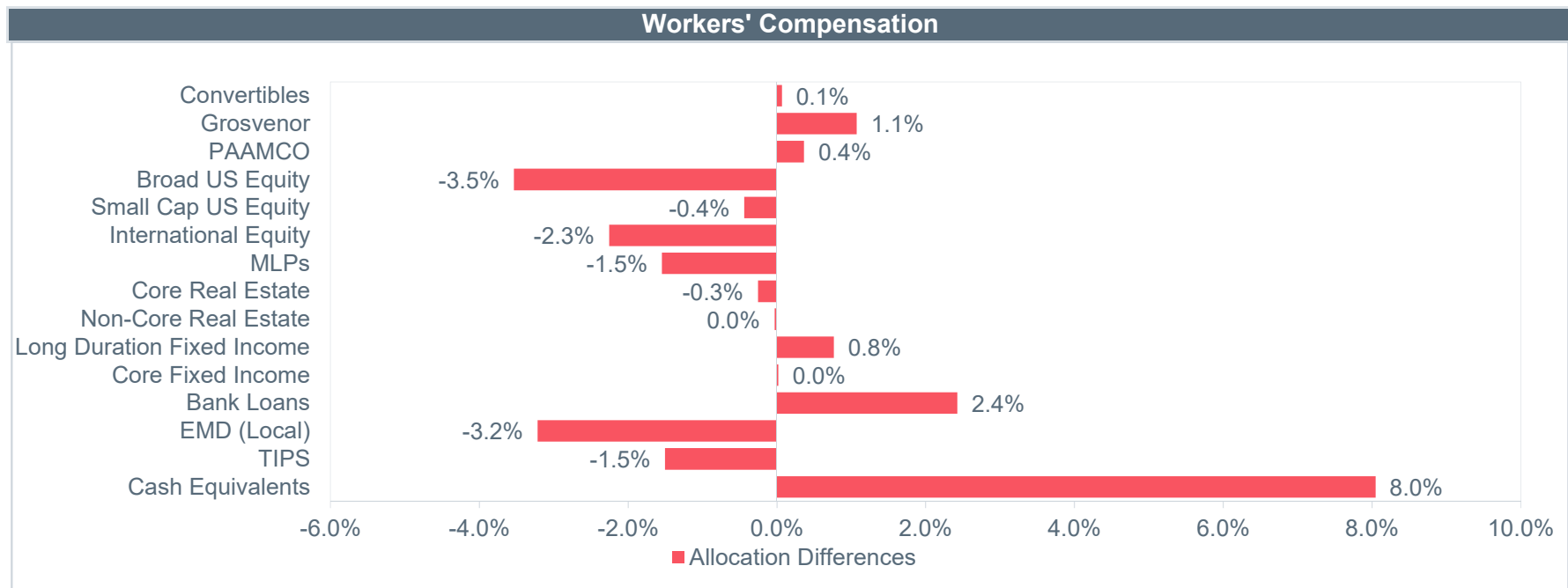
Long-Term Target Allocation			
	Minimum Range (%)	Target (%)	Maximum Range (%)
Workers Compensation Fund	-	100.00	-
Broad US Equity	4.50	9.00	13.50
Small Cap US Equity	0.50	1.00	1.50
International Equity	5.00	10.00	15.00
MLPs	1.50	3.00	4.50
Core Real Estate	1.50	3.00	4.50
Value Added Real Estate	0.50	1.00	1.50
Long Duration Fixed Income	13.50	27.00	40.50
Core Fixed Income	16.50	33.00	49.50
Credit Fixed Income	1.50	3.00	4.50
EMD	2.50	5.00	7.50
TIPS	2.50	5.00	7.50
Cash (inv. in SAP)	0.00	0.00	5.00

Fixed Income Characteristics vs. BB US Agg Bond Index		
	Portfolio	Benchmark
Effective Duration	8.2	5.9
Avg. Quality	Aa3	Aa1/Aa2
Yield To Maturity (%)	3.9	3.3
Coupon Rate (%)	3.6	3.2

Risk Metrics		
	5 Years	10 Years
Sharpe Ratio	0.9	1.2
Standard Deviation	2.8	4.5
Beta	0.2	0.3

Wyoming State Treasurer's Office
Permanent Funds - Workers' Compensation Fund
Asset Allocation vs. Long-Term Target

As of December 31, 2018



	Market Value	Allocation	Minimum	Target	Maximum
	(\$)	(%)	(%)	(%)	(%)
Convertibles	1,399,156	0.1	0.0	0.0	0.0
Grosvenor	21,928,812	1.1	0.0	0.0	0.0
PAAMCO	7,454,027	0.4	0.0	0.0	0.0
Broad US Equity	111,651,802	5.5	4.5	9.0	13.5
Small Cap US Equity	11,461,831	0.6	0.5	1.0	1.5
International Equity	158,149,184	7.7	5.0	10.0	15.0
MLPs	29,748,947	1.5	1.5	3.0	4.5
Core Real Estate	56,069,744	2.7	1.5	3.0	4.5
Non-Core Real Estate	19,800,101	1.0	0.5	1.0	1.5
Long Duration Fixed Income	566,946,515	27.8	13.5	27.0	40.5
Core Fixed Income	674,230,227	33.0	16.5	33.0	49.5
Bank Loans	110,805,351	5.4	1.5	3.0	4.5
EMD (Local)	36,470,523	1.8	2.5	5.0	7.5
TIPS	71,391,454	3.5	2.5	5.0	7.5
Cash Equivalents	164,317,177	8.0	0.0	0.0	5.0
Total	2,041,824,850	100.0	--	100.0	--

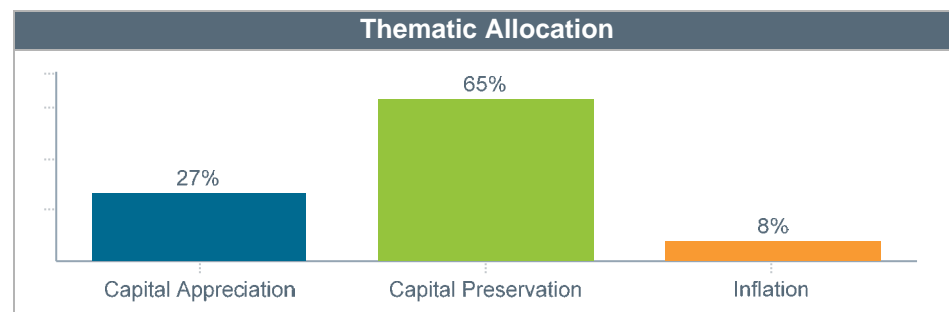
Market values were provided by the Treasurer's Office and may differ from the rest of the report.

Wyoming State Treasurer's Office
Pool A Investment Account

As of December 31, 2018

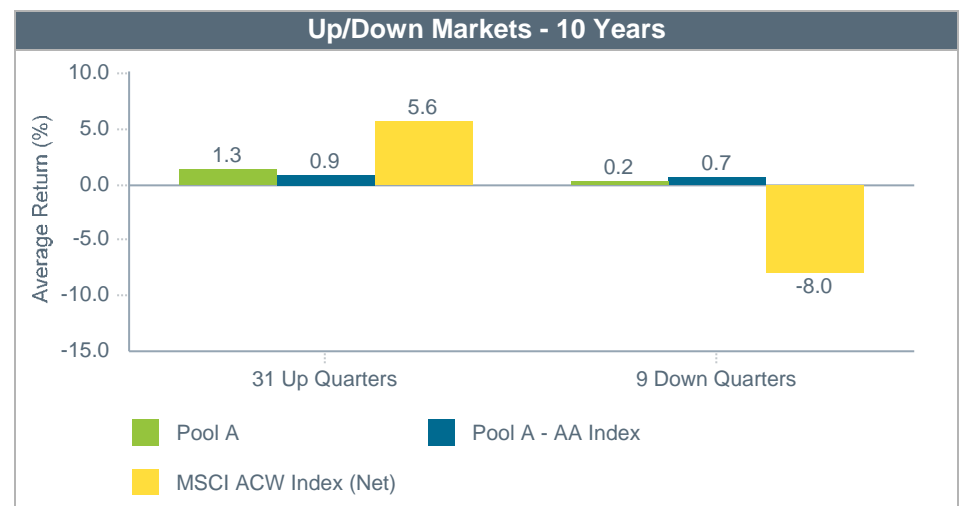
Investment Profile
Fund Type: Non-Permanent Fund
Main Objective: Provide a diverse array of securities including equities, while maintaining adequate liquidity, stability, and return on investment.
Primary Investment Goal: Pool A is intended to be moderately liquid and safely invested but also be invested for return and growth.
Long-Term Return Expectation: CPI + 2%
Maximum Equity Allocation: 60%
Current Target Equity Allocation: 23%
Participating Funds:
• Tobacco Settlement Trust Fund
• Wildlife and Natural Resource Trust Account
• Cultural Trust Fund
• Public Television Matching Fund Account
• Game and Fish Fund Trust Account

Risk Metrics		
	5 Years	10 Years
Sharpe Ratio	0.7	1.2
Standard Deviation	2.5	3.1
Beta	0.1	0.1



Comparative Performance									
	Allocation	Performance (%)							
	Market Value (\$)	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years
Pool A	243,608,717	-0.4	0.1	-0.4	-0.4	2.5	2.4	2.4	4.2
Pool A - Actual Allocation Index		-0.2	-0.1	-1.4	-1.4	1.7	2.3	2.0	3.4
Difference		-0.2	0.2	1.0	1.0	0.8	0.1	0.4	0.8

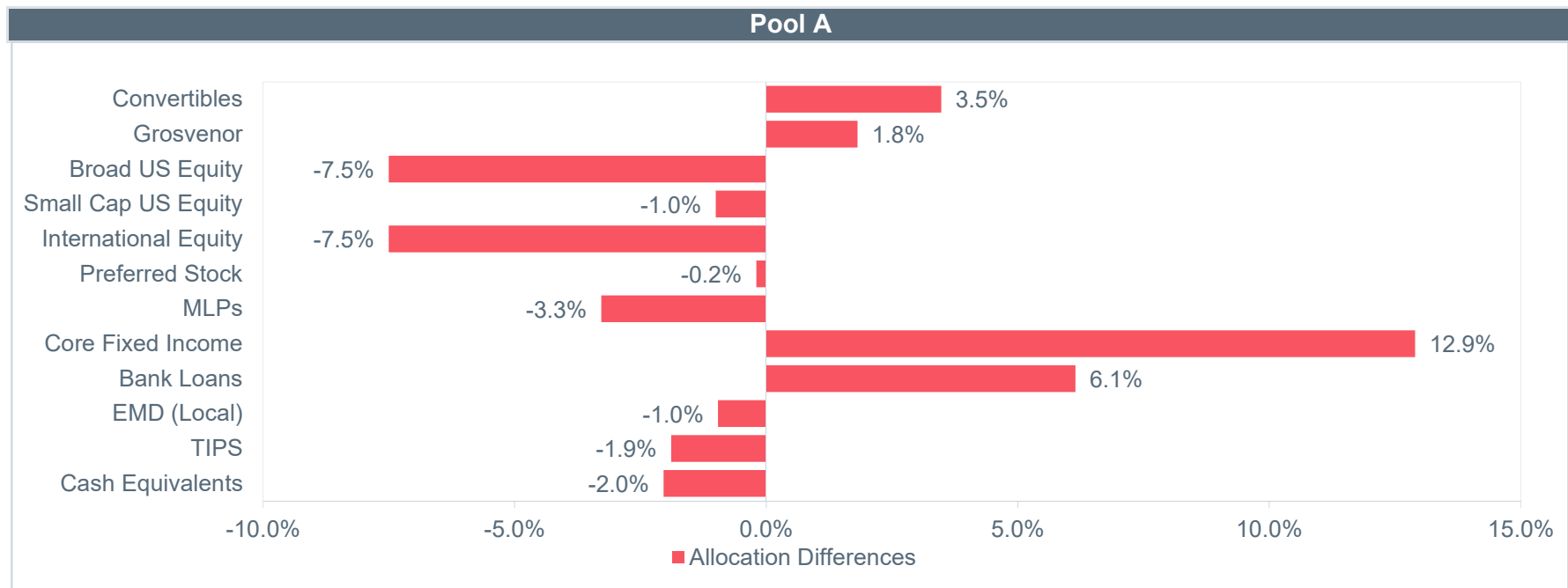
Long-Term Target Allocation			
	Minimum Range (%)	Target (%)	Maximum Range (%)
Pool A	-	100.00	-
Broad US Equity	3.75	7.50	11.25
Small Cap US Equity	0.50	1.00	1.50
International Equity	3.75	7.50	11.25
Preferred Stock	1.00	2.00	3.00
MLPs	2.50	5.00	7.50
Core Fixed Income	24.50	49.00	73.50
Credit Fixed Income	5.00	10.00	15.00
EMD	2.50	5.00	7.50
TIPS	4.00	8.00	12.00
Cash (inv. in SAP)	2.50	5.00	7.50



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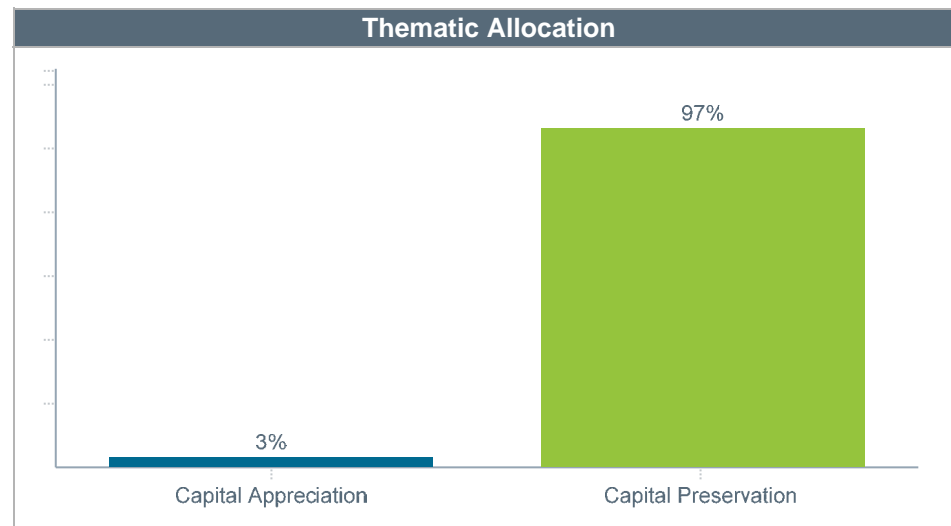
Pool A

Asset Allocation vs. Long-Term Target



	Market Value	Allocation	Minimum	Target	Maximum
	(\$)	(%)	(%)	(%)	(%)
Convertibles	8,488,584	3.5	0.0	0.0	0.0
Grosvenor	4,431,315	1.8	0.0	0.0	0.0
Broad US Equity	0	0.0	3.8	7.5	11.3
Small Cap US Equity	0	0.0	0.5	1.0	1.5
International Equity	0	0.0	3.8	7.5	11.3
Preferred Stock	4,402,131	1.8	1.0	2.0	3.0
MLPs	4,200,658	1.7	2.5	5.0	7.5
Core Fixed Income	150,822,721	61.9	24.5	49.0	73.5
Bank Loans	39,345,190	16.1	5.0	10.0	15.0
EMD (Local)	9,854,561	4.0	2.5	5.0	7.5
TIPS	14,891,990	6.1	4.0	8.0	12.0
Cash Equivalents	7,224,200	3.0	2.5	5.0	7.5
Total	243,661,351	100.0	--	100.0	--

Investment Profile
Fund Type: Non-Permanent Fund Main Objective: Produce an investment return so that State agencies have the advantage of better income from their invested funds, while maintaining stability. Primary Investment Goal: Capital preservation, yield, and liquidity Long-Term Return Expectation: CPI + 2% Liquidity Constraints: The Fund must meet the day-to-day cash flow needs of the State Maximum Equity Allocation: 0% Current Target Equity Allocation: 0%



Comparative Performance									
	Allocation	Performance (%)							
	Market Value (\$)	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years
State Agency Pool	5,465,180,745	0.1	0.6	0.6	0.6	2.5	2.2	2.1	3.6
State Agency Pool - Actual Allocation Index		0.1	0.4	-0.4	-0.4	1.8	2.1	1.8	3.0
Difference		0.0	0.2	1.0	1.0	0.7	0.1	0.3	0.6

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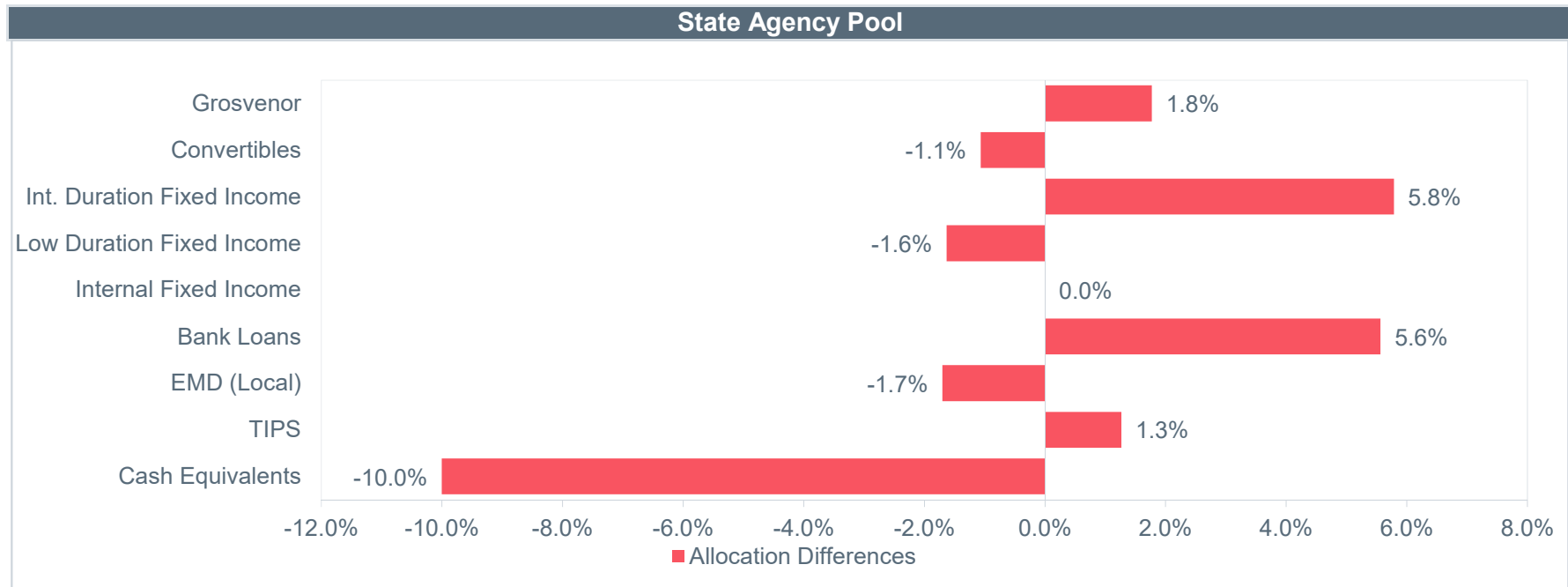
Long-Term Target Allocation			
	Minimum Range (%)	Target (%)	Maximum Range (%)
State Agency Pool	-	100.00	-
Core Fixed Income	5.00	10.00	15.00
Int. Govt. Fixed Income	10.00	20.00	30.00
Low Duration Fixed Income	15.00	30.00	45.00
Credit Fixed Income	7.50	15.00	22.50
Opportunistic Fixed Income	0.00	0.00	0.00
EMD	2.50	5.00	7.50
TIPS	2.50	5.00	7.50
Convertibles	2.50	5.00	7.50
Cash Equivalents	5.00	10.00	15.00

Fixed Income Characteristics vs. BB US Agg Bond Index		
	Portfolio	Benchmark
Effective Duration	2.9	5.9
Avg. Quality	A1	Aa1/Aa2
Yield To Maturity (%)	3.7	3.3
Coupon Rate (%)	2.8	3.2

Risk Metrics		
	5 Years	10 Years
Sharpe Ratio	0.7	1.2
Standard Deviation	2.1	2.6
Beta	0.1	0.1

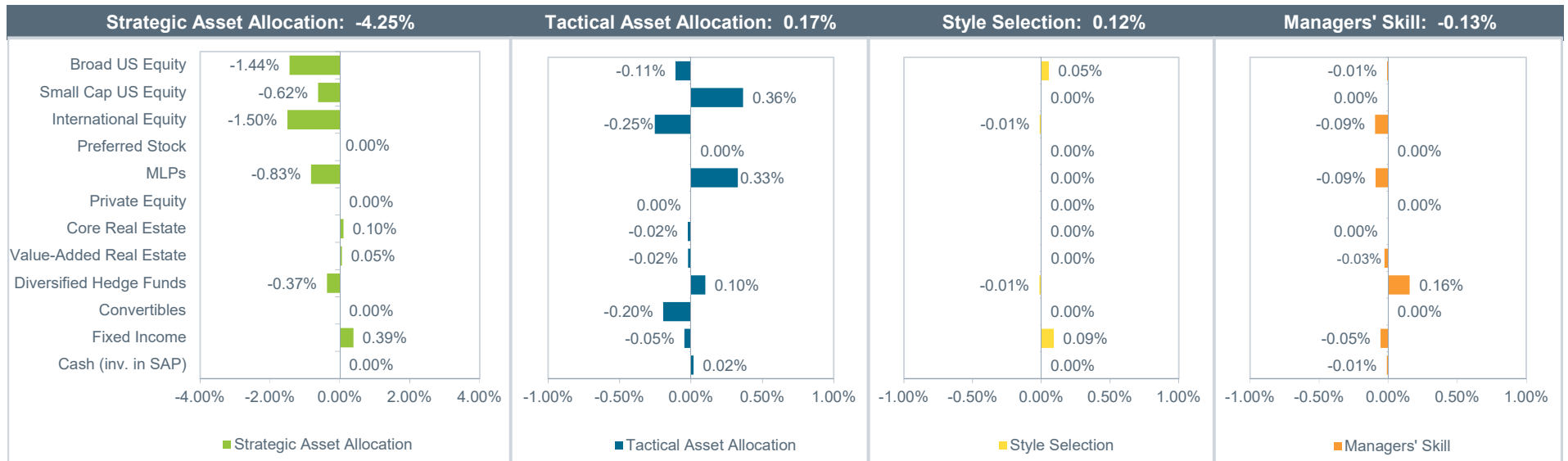
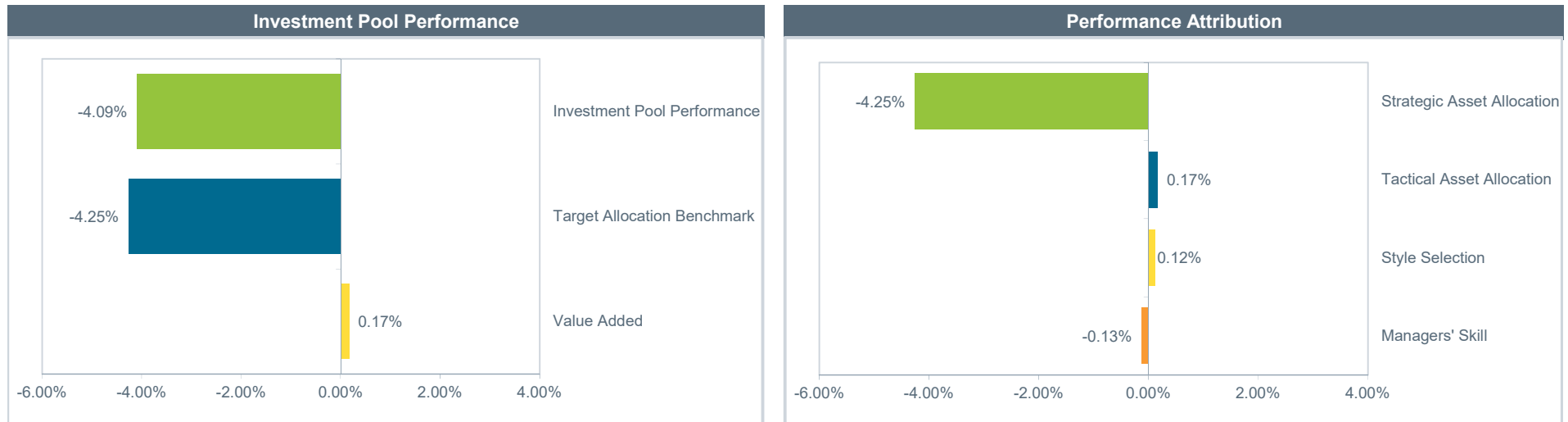
Wyoming State Treasurer's Office
State Agency Pool
Asset Allocation vs. Long-Term Target

As of December 31, 2018



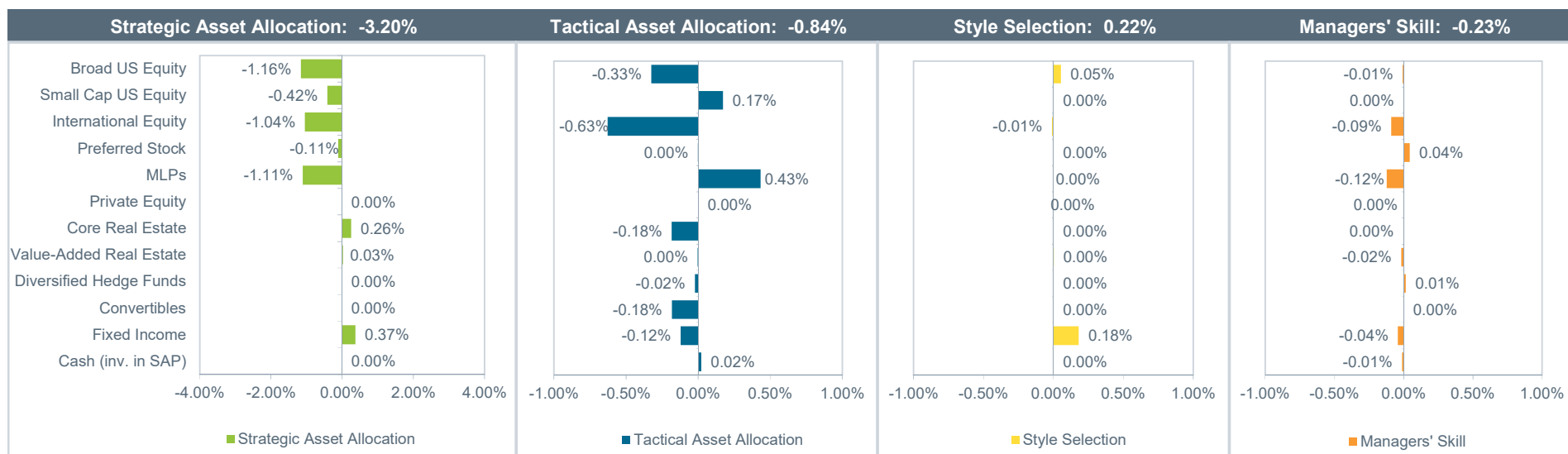
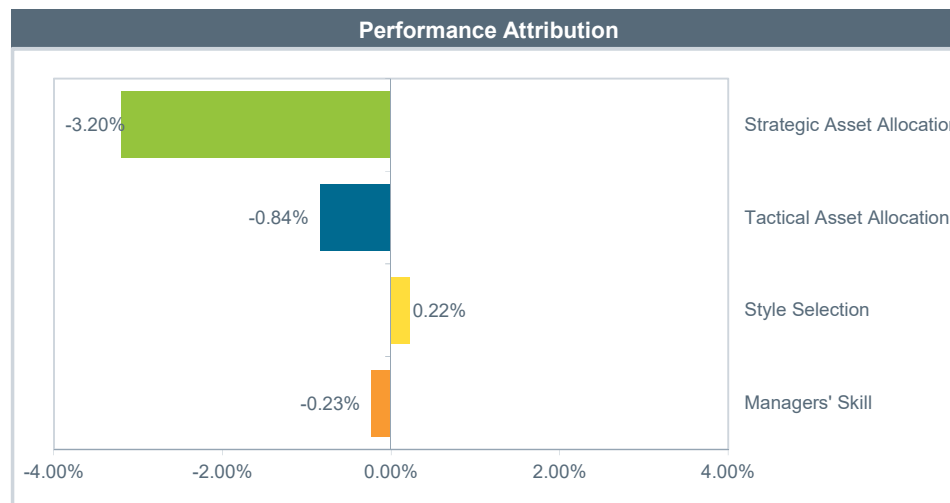
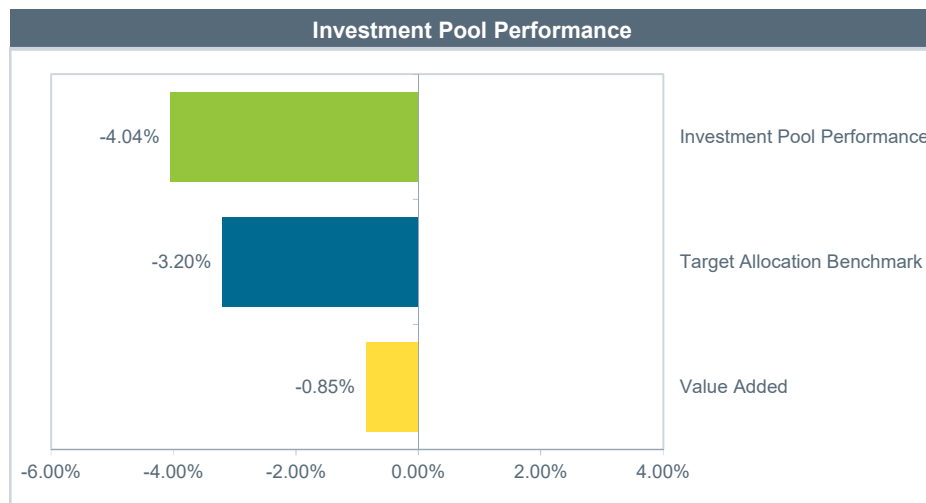
	Market Value (\$)	Allocation (%)	Minimum (%)	Target (%)	Maximum (%)
Grosvenor	94,218,320	1.8	0.0	0.0	0.0
Convertibles	208,985,167	3.9	2.5	5.0	7.5
Int. Duration Fixed Income	1,900,631,686	35.8	15.0	30.0	45.0
Internal Fixed Income	0	0.0	0.0	0.0	0.0
Low Duration Fixed Income	1,506,744,682	28.4	15.0	30.0	45.0
Bank Loans	1,092,194,965	20.6	7.5	15.0	22.5
EMD (Local)	175,364,890	3.3	2.5	5.0	7.5
TIPS	332,811,320	6.3	2.5	5.0	7.5
Cash Equivalents	0	0.0	5.0	10.0	15.0
Total	5,310,951,031	100.0	--	100.0	--

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
Permanent Mineral Trust Fund vs. Target Allocation Index
1 Quarter Ending December 31, 2018



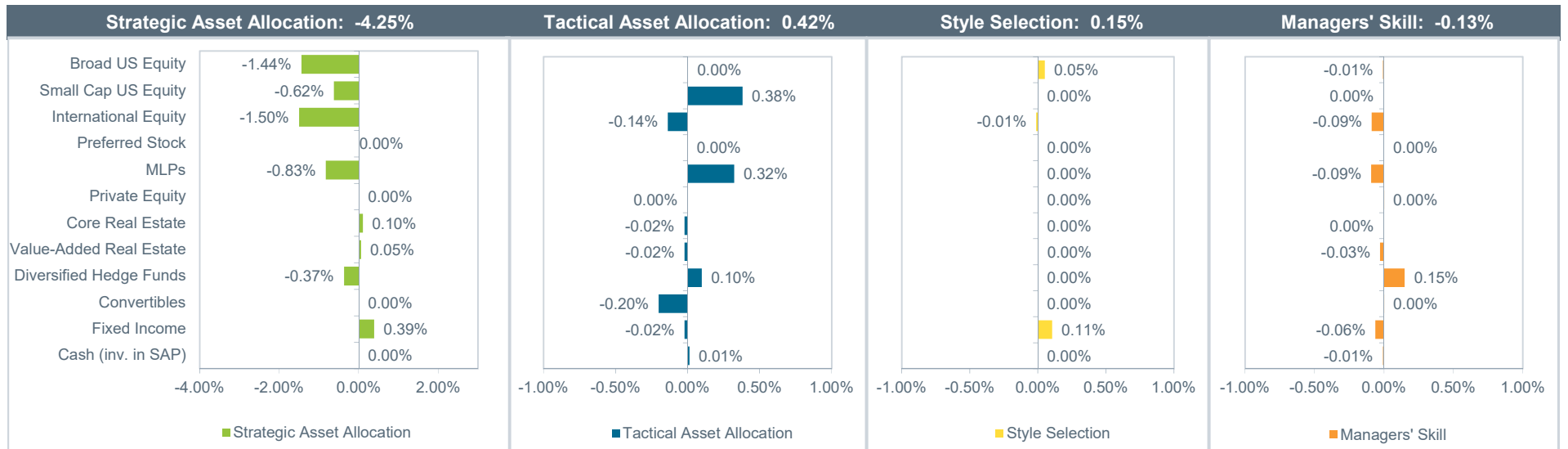
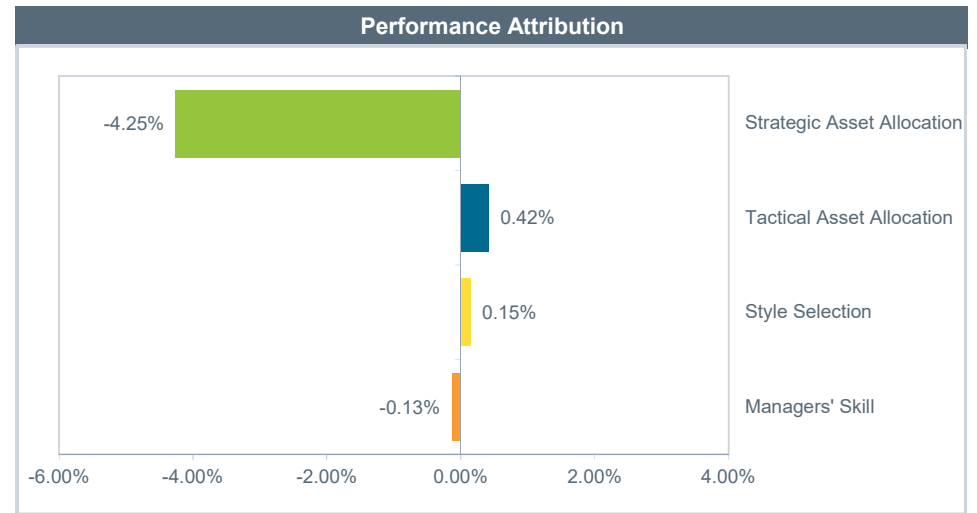
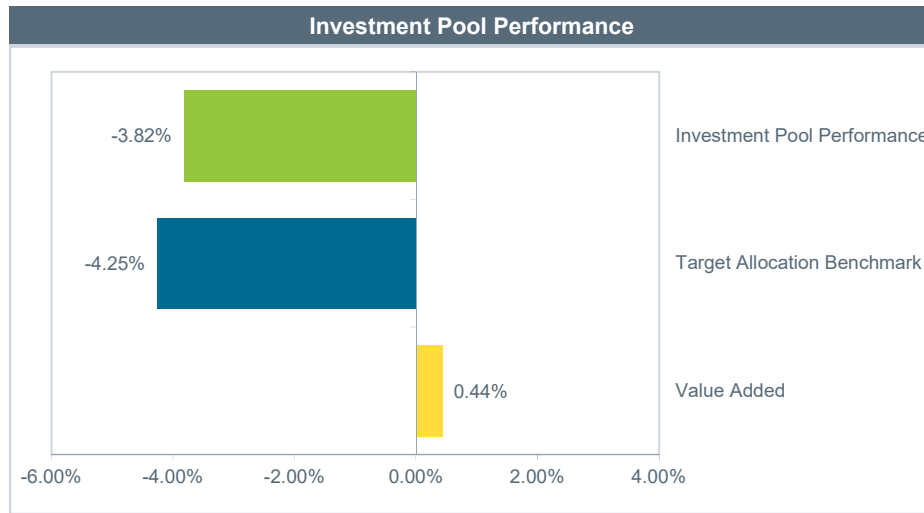
Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index.
 Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
Common School Permanent Land Fund vs. Target Allocation Index
1 Quarter Ending December 31, 2018



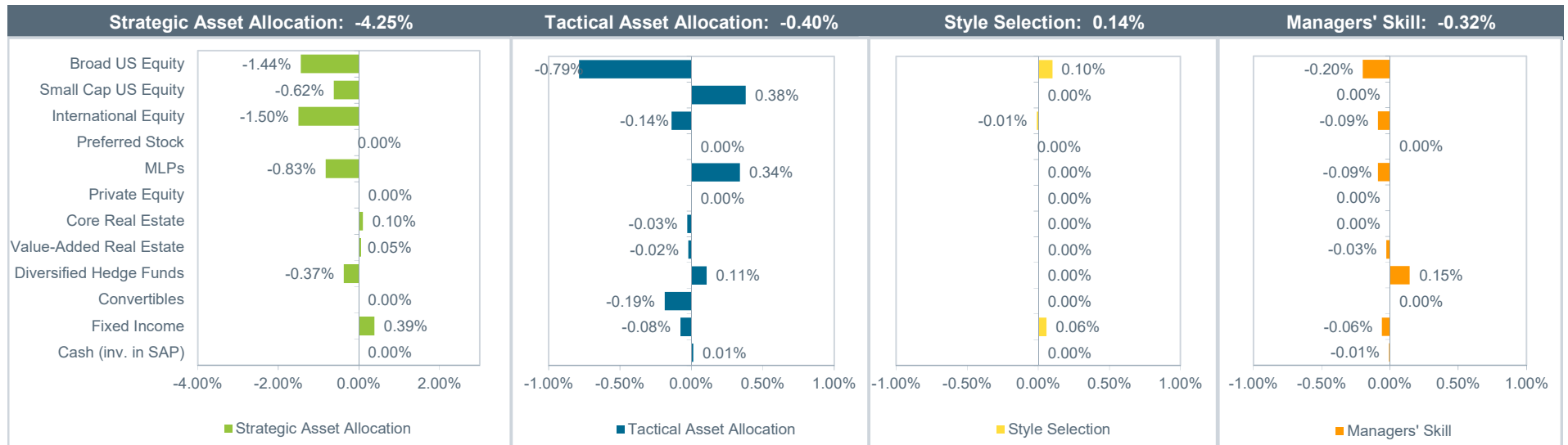
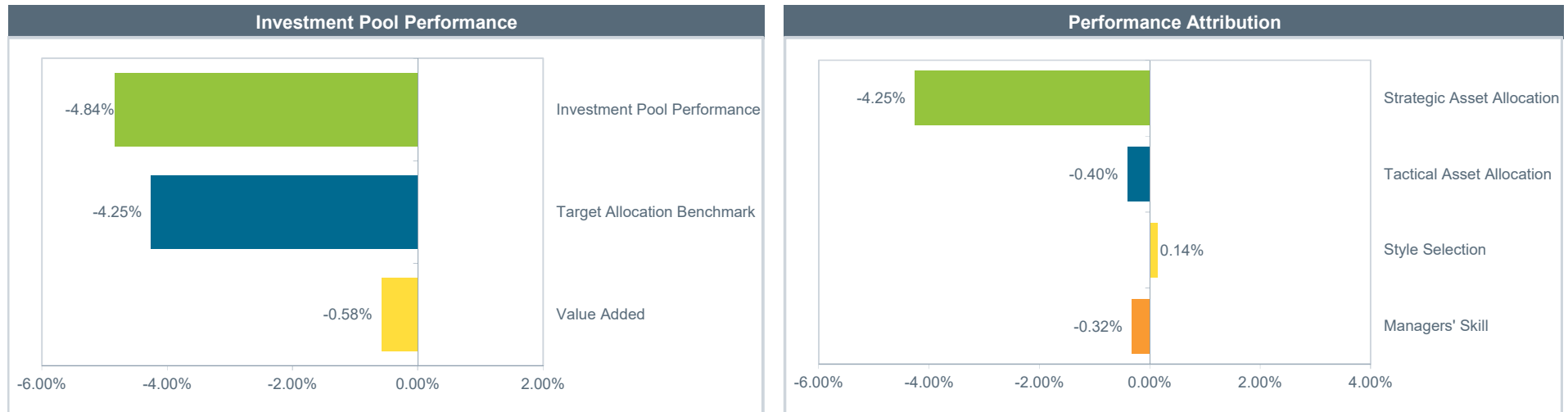
Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index. Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
Permanent Land Fund vs. Target Allocation Index
1 Quarter Ending December 31, 2018



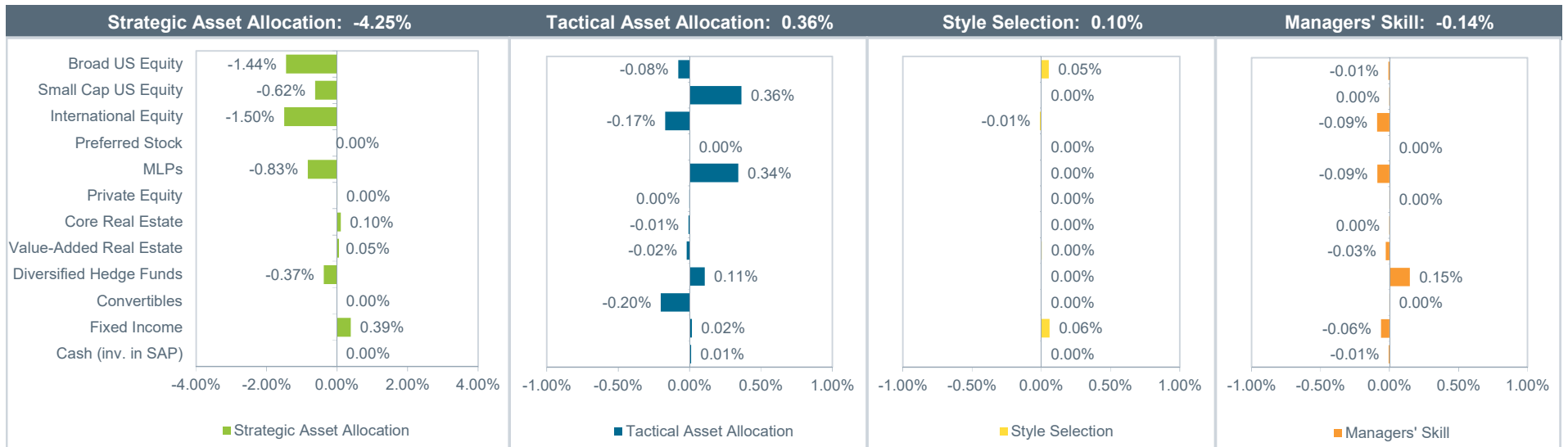
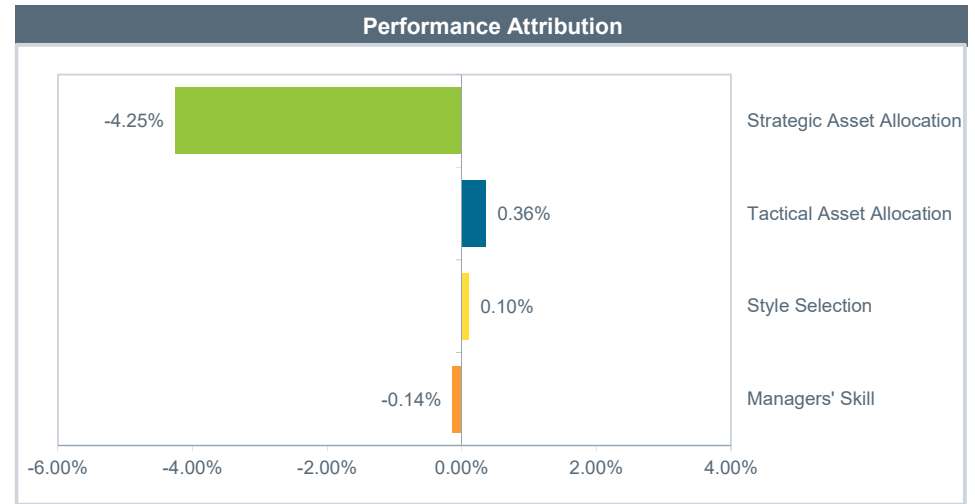
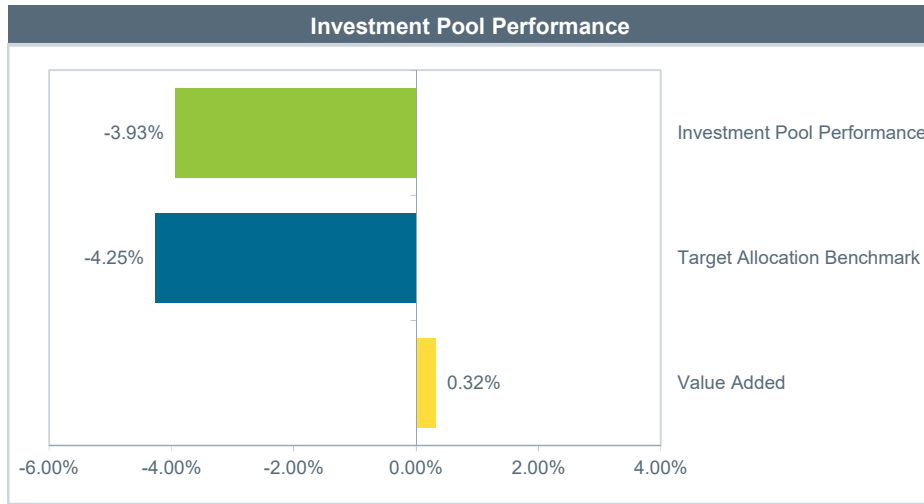
Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index.
 Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
University Permanent Land Fund vs. Target Allocation Index
1 Quarter Ending December 31, 2018



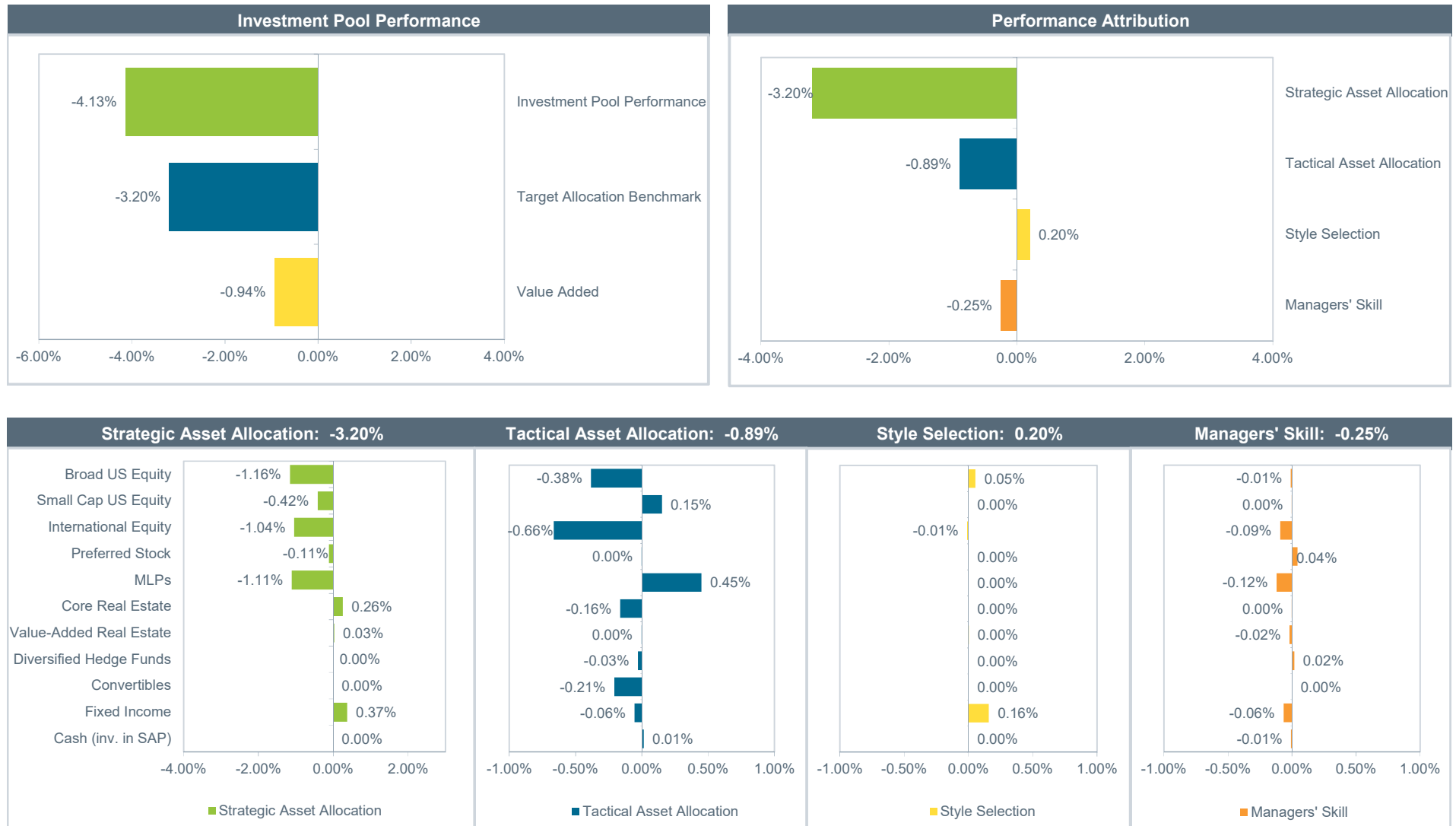
Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index.
 Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
Hathaway Scholarship Endowment Fund vs. Target Allocation Index
1 Quarter Ending December 31, 2018



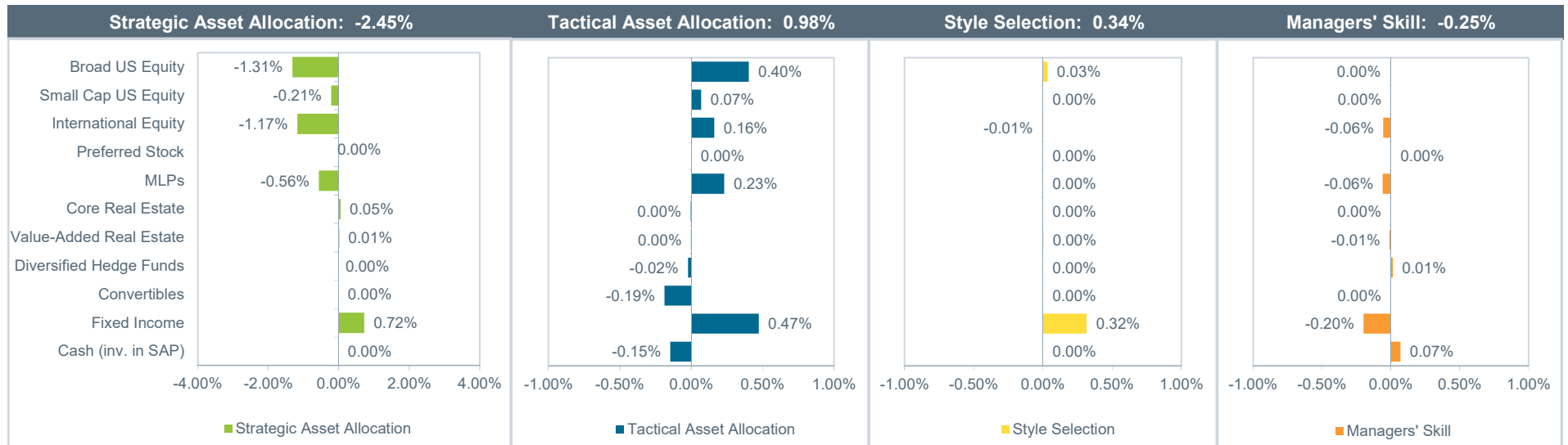
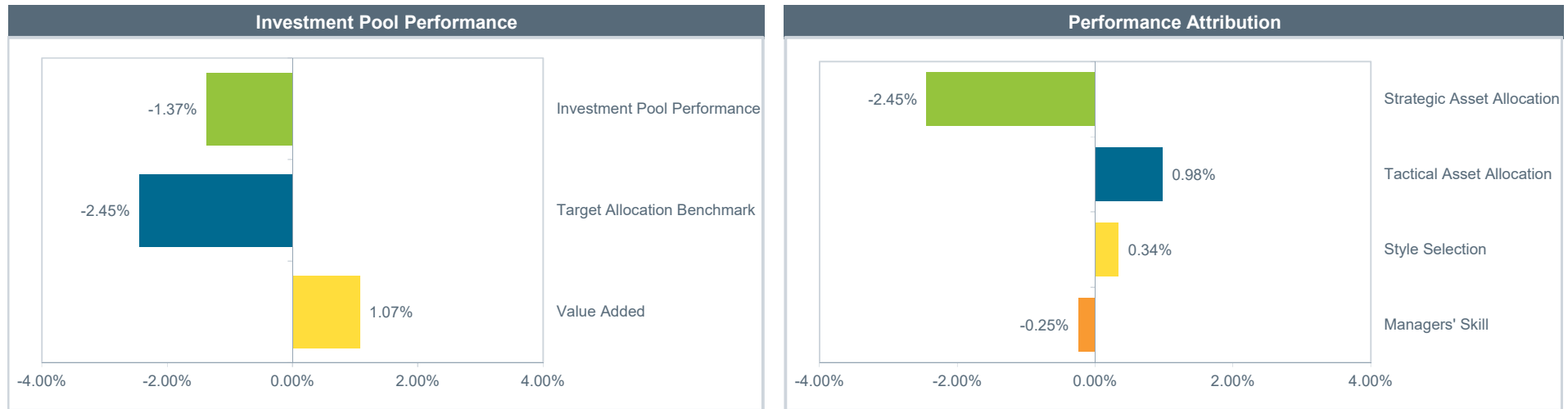
Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index. Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
Higher Education Endowment Fund vs. Target Allocation Index
1 Quarter Ending December 31, 2018



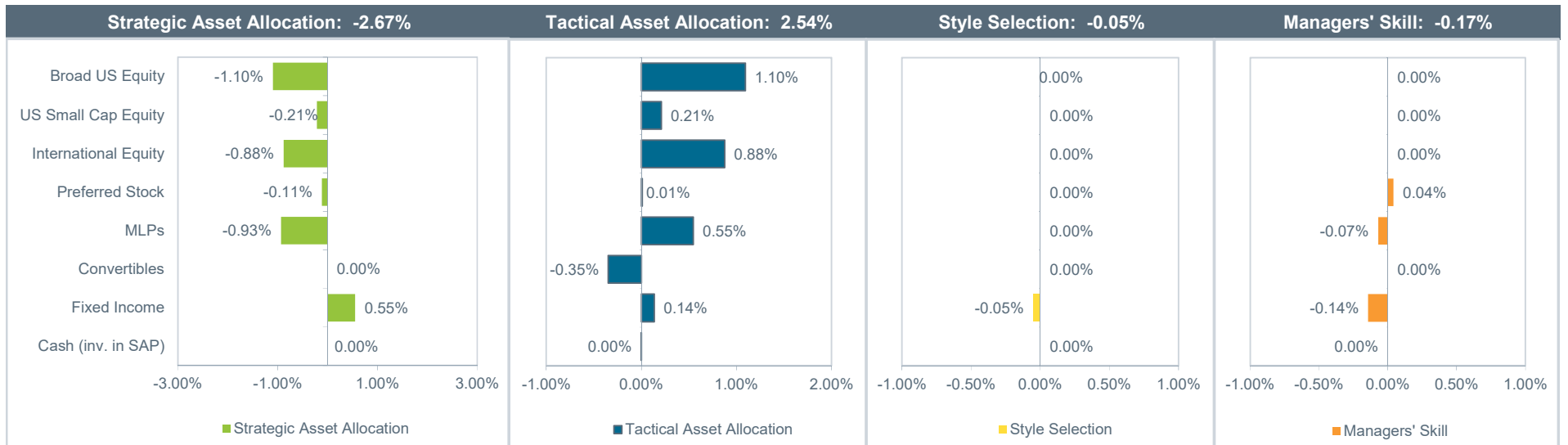
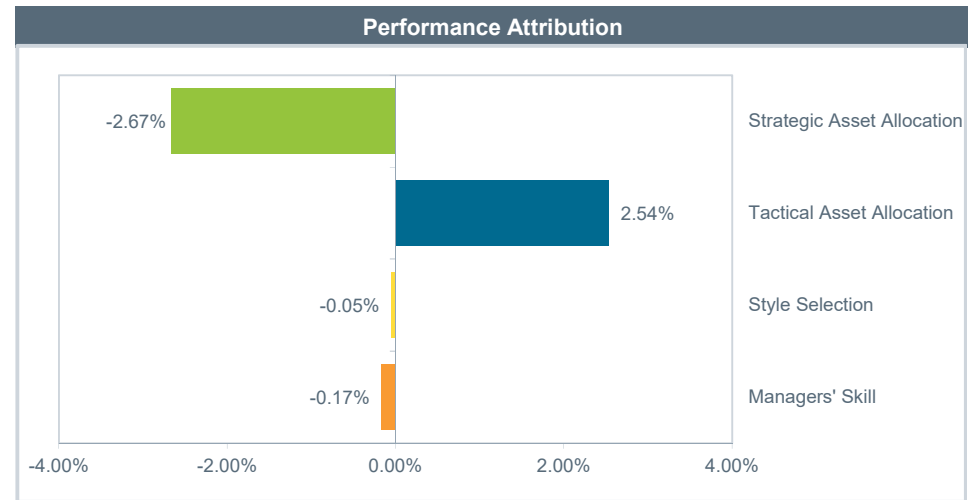
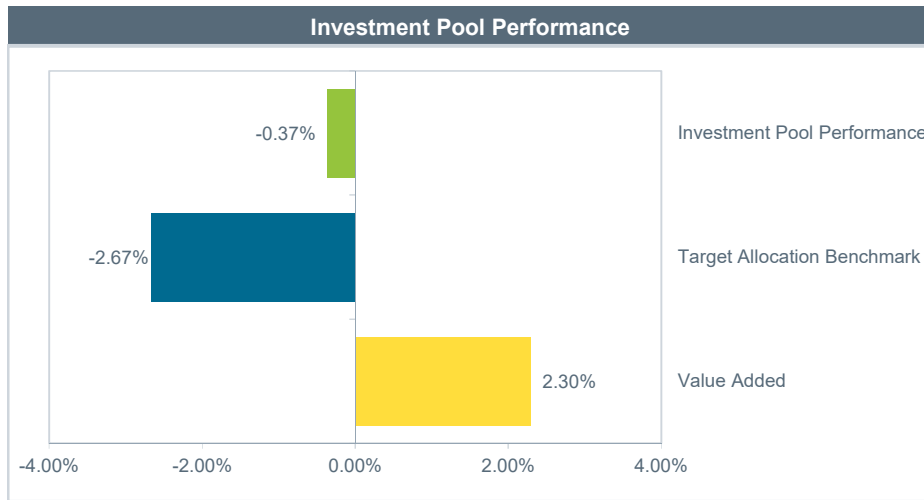
Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index.
 Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

**Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
Workers Compensation Fund vs. Target Allocation Index
1 Quarter Ending December 31, 2018**



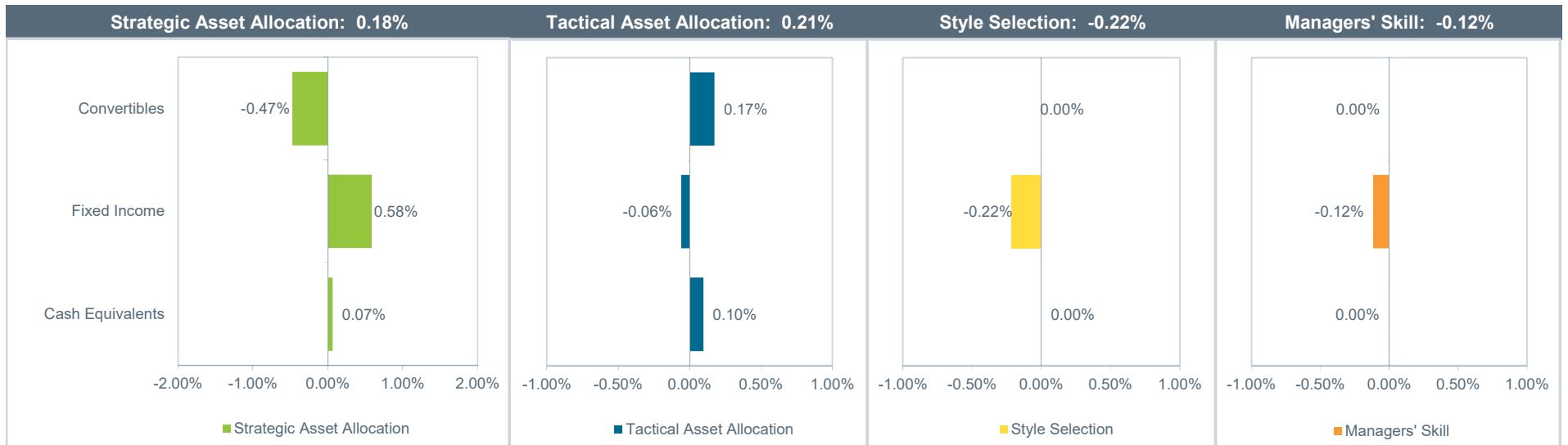
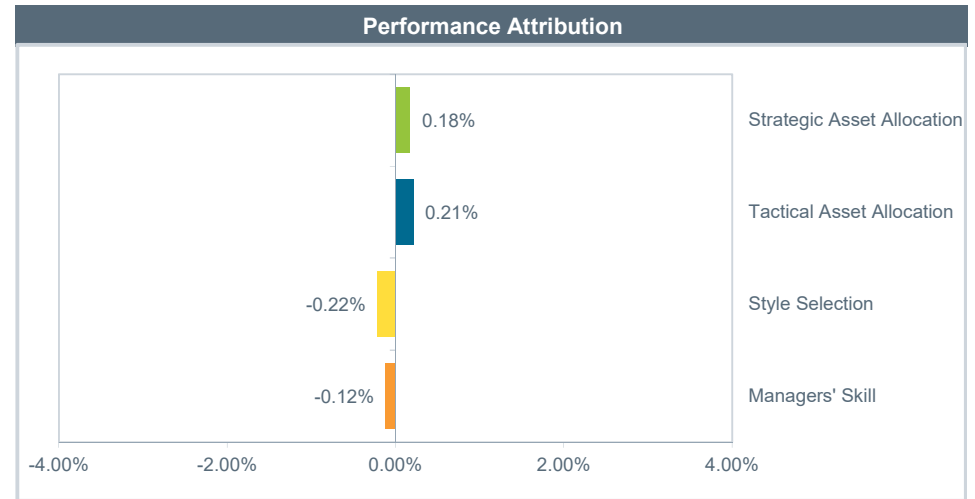
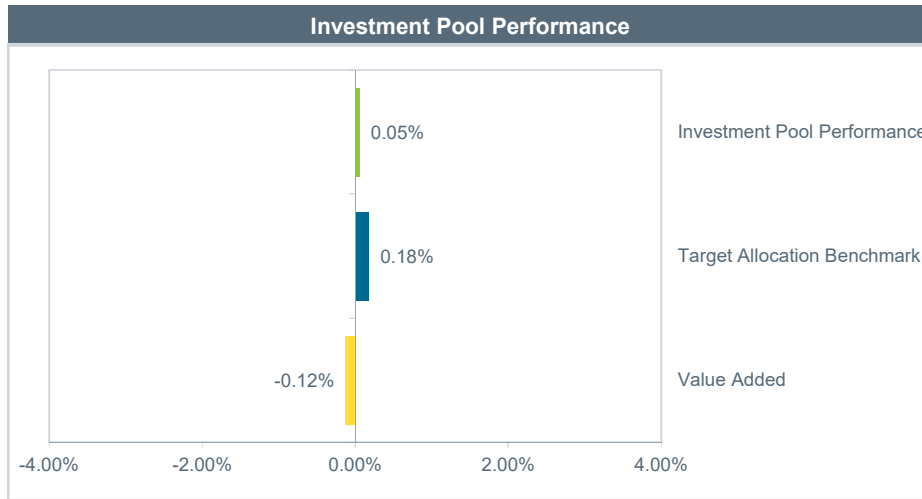
Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index.
Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
Pool A vs. Target Allocation Index
1 Quarter Ending December 31, 2018



Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index. Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

Wyoming State Treasurer's Office
Pool Attribution - IDP Methodology
State Agency Pool vs. Target Allocation Index
1 Quarter Ending December 31, 2018



Attribution shown is calculated using the Investment Decision Process (IDP) method. Performance shown is net of fees. Calculation is based on monthly periodicity. The benchmark utilized in this analysis is a passive target allocation index rather than an active actual allocation index. Actual Allocation Index = Target Allocation Benchmark + Tactical Asset Allocation. The underlying parts may not exactly sum to the category totals due to rounding.

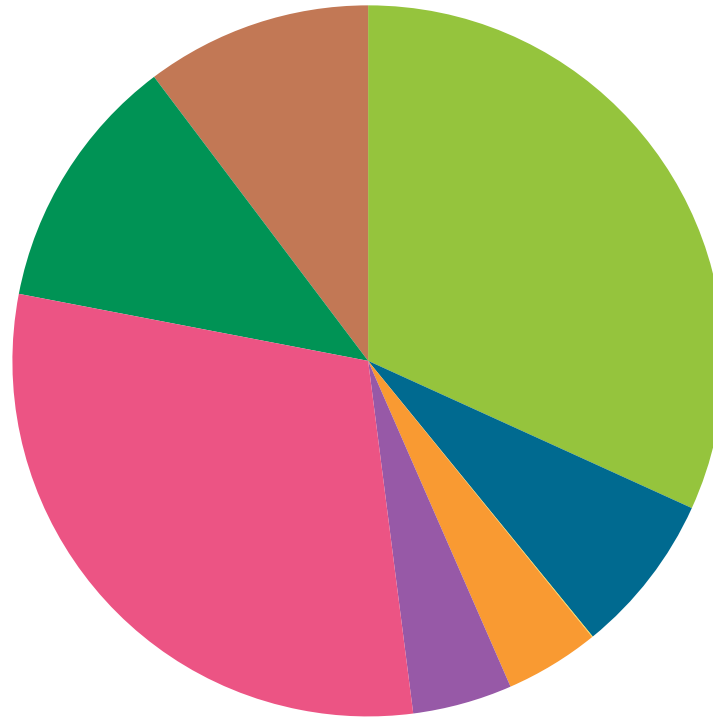
Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)									
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Incep.	Inception Date
Permanent Funds	14,444,731,858	71.7	-3.7	-2.4	-2.5	-2.5	4.6	3.7	5.4	6.4	5.7	07/01/2002
Permanent Mineral Trust	7,603,910,667	37.7	-4.1	-2.7	-2.7	-2.7	4.7	3.8	5.6	6.5	5.7	06/01/2001
Permanent Mineral Trust - Actual Allocation Index			-4.0	-2.6	-2.6	-2.6	4.5	3.9	5.5	6.0	5.1	
Difference			-0.1	-0.1	-0.1	-0.1	0.2	-0.1	0.1	0.5	0.6	
Common School Permanent Land Fund	3,908,617,817	19.4	-4.0	-2.7	-2.7	-2.7	4.7	3.9	5.7	6.7	5.9	06/01/2001
Common School - Actual Allocation Index			-3.8	-2.5	-2.6	-2.6	4.5	4.0	5.6	6.0	5.1	
Difference			-0.2	-0.2	-0.1	-0.1	0.2	-0.1	0.1	0.7	0.8	
Permanent Land Fund	186,630,512	0.9	-3.8	-2.5	-2.5	-2.5	4.7	3.8	5.5	6.3	4.9	02/01/2006
Permanent Land Fund - Actual Allocation Index			-3.7	-2.4	-2.4	-2.4	4.5	3.9	5.4	5.8	4.5	
Difference			-0.1	-0.1	-0.1	-0.1	0.2	-0.1	0.1	0.5	0.4	
University Permanent Land Fund	22,381,033	0.1	-4.8	-3.0	-2.7	-2.7	5.2	4.1	5.7	6.4	4.8	05/01/2006
University PLF - Actual Allocation Index			-4.6	-2.8	-2.4	-2.4	5.0	4.2	5.7	6.1	4.6	
Difference			-0.2	-0.2	-0.3	-0.3	0.2	-0.1	0.0	0.3	0.2	
Hathaway Scholarship	565,450,818	2.8	-3.9	-2.7	-3.1	-3.1	4.1	3.4	4.9	6.2	4.8	09/01/2007
Hathaway Scholarship - Actual Allocation Index			-3.8	-2.5	-2.9	-2.9	4.0	3.6	4.9	5.7	4.6	
Difference			-0.1	-0.2	-0.2	-0.2	0.1	-0.2	0.0	0.5	0.2	
Higher Education	115,224,236	0.6	-4.1	-3.0	-3.4	-3.4	4.0	3.3	4.8	6.2	4.7	09/01/2007
Higher Education - Actual Allocation Index			-3.9	-2.7	-3.1	-3.1	3.9	3.5	4.8	5.7	4.6	
Difference			-0.2	-0.3	-0.3	-0.3	0.1	-0.2	0.0	0.5	0.1	
Workers Compensation Fund	2,042,516,777	10.1	-1.4	-0.5	-0.9	-0.9	3.9	3.2	4.2	5.8	5.2	06/01/2001
Workers Compensation - Actual Allocation Index			-1.1	-0.3	-1.0	-1.0	3.6	3.3	4.1	5.2	4.9	
Difference			-0.3	-0.2	0.1	0.1	0.3	-0.1	0.1	0.6	0.3	
Non-Permanent Funds	5,708,789,462	28.3	0.0	0.6	0.6	0.6	2.5	2.2	2.1	3.6	3.7	07/01/2002
Pool A	243,608,717	1.2	-0.4	0.1	-0.4	-0.4	2.5	2.4	2.4	4.2	4.1	01/01/2000
Pool A - Actual Allocation Index			-0.2	-0.1	-1.4	-1.4	1.7	2.3	2.0	3.4	4.8	
Difference			-0.2	0.2	1.0	1.0	0.8	0.1	0.4	0.8	-0.7	
State Agency Pool	5,465,180,745	27.1	0.1	0.6	0.6	0.6	2.5	2.2	2.1	3.6	3.9	06/01/2001
State Agency Pool - Actual Allocation Index			0.1	0.4	-0.4	-0.4	1.8	2.1	1.8	3.0	3.7	
Difference			0.0	0.2	1.0	1.0	0.7	0.1	0.3	0.6	0.2	
Total Fund	20,153,521,320	100.0	-2.6	-1.4	-1.4	-1.4	4.1	3.4	4.4	5.6	5.3	10/01/1996
Wyoming State Actual Allocation Index			-2.3	-1.3	-1.5	-1.5	3.7	3.4	4.3	5.0	5.2	
Difference			-0.3	-0.1	0.1	0.1	0.4	0.0	0.1	0.6	0.1	

Performance shown is net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th.

December 31, 2018 : \$3,225,305,455



	Market Value (\$)	Allocation (%)
State Street All Cap	1,025,583,500	31.80
Epoch	236,091,409	7.32
UW Portfolio Mgmt Program	1,323,962	0.04
Internal Equity Russell 2000	138,267,116	4.29
Internal International Equity Portfolio	146,137,638	4.53
Northern Trust	968,887,999	30.04
Fisher Investments	377,491,691	11.70
Arrowstreet	331,522,141	10.28

Allocations shown may not sum up to 100% exactly due to rounding.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)											Inception Date
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.		
US Equity Composite	1,401,265,987	43.45	-14.56	-9.09	-7.55	-7.55	7.58	7.04	11.71	12.88	18.57	6.47	06/01/1997	
US Equity Custom Index			-14.30	-8.20	-5.24	-5.24	8.97	8.17	12.45	12.95	21.13	7.07		
Difference			-0.26	-0.89	-2.31	-2.31	-1.39	-1.13	-0.74	-0.07	-2.56	-0.60		
All Cap US Equity Composite	1,261,674,909	39.12	-13.89	-8.07	-6.23	-6.23	7.92	N/A	N/A	N/A	19.32	7.87	11/01/2014	
Russell 3000 Index			-14.30	-8.20	-5.24	-5.24	8.97	7.91	12.46	13.18	21.13	7.12		
Difference			0.41	0.13	-0.99	-0.99	-1.05	N/A	N/A	N/A	-1.81	0.75		
State Street All Cap	1,025,583,500	31.80	-13.51	-7.55	-5.30	-5.30	8.86	N/A	N/A	N/A	19.75	6.56	01/01/2015	
State Street All Cap Custom Index			-13.72	-7.74	-5.50	-5.50	8.82	7.80	12.35	13.45	19.85	6.58		
Difference			0.21	0.19	0.20	0.20	0.04	N/A	N/A	N/A	-0.10	-0.02		
Russell 3000 Index			-14.30	-8.20	-5.24	-5.24	8.97	7.91	12.46	13.18	21.13	6.78		
Difference			0.79	0.65	-0.06	-0.06	-0.11	N/A	N/A	N/A	-1.38	-0.22		
Epoch	236,091,409	7.32	-15.49	-10.26	-10.47	-10.47	6.59	N/A	N/A	N/A	23.36	5.23	11/01/2014	
Russell 3000 Index			-14.30	-8.20	-5.24	-5.24	8.97	7.91	12.46	13.18	21.13	7.12		
Difference			-1.19	-2.06	-5.23	-5.23	-2.38	N/A	N/A	N/A	2.23	-1.89		
UW Portfolio Mgmt Program	1,323,962	0.04	-16.15	-8.79	-8.04	-8.04	7.49	7.29	9.32	9.39	21.83	4.17	04/01/2006	
S&P 500 Index (Cap Wtd)			-13.52	-6.85	-4.38	-4.38	9.26	8.49	12.70	13.12	21.83	7.56		
Difference			-2.63	-1.94	-3.66	-3.66	-1.77	-1.20	-3.38	-3.73	0.00	-3.39		
Small Cap US Equity Composite	138,267,116	4.29	-20.26	-17.51	-18.31	-18.31	4.76	N/A	N/A	N/A	11.10	1.81	11/01/2014	
Russell 2000 Index			-20.20	-17.35	-11.01	-11.01	7.36	4.41	10.44	11.97	14.65	4.84		
Difference			-0.06	-0.16	-7.30	-7.30	-2.60	N/A	N/A	N/A	-3.55	-3.03		
Internal Equity Russell 2000	138,267,116	4.29	-20.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-22.11	09/01/2018	
Russell 2000 Index			-20.20	-17.35	-11.01	-11.01	7.36	4.41	10.44	11.97	14.65	-22.12		
Difference			-0.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01		

Performance shown is net of fees. US Equity Index consists of the S&P 500 Index through September 2014 and the Russell 3000 Index thereafter. International Equity Custom Index and Fisher Index both consist of the MSCI EAFE Index (Gross) through July 2010 and the MSCI ACW Ex US Index (Net) thereafter. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Int'l Equity Composite	1,824,039,468	56.55	-12.14	-11.09	-14.66	-14.66	4.10	0.49	4.93	6.35	27.73	4.80	01/01/2004
International Equity Custom Index			-11.46	-10.84	-14.20	-14.20	4.48	0.68	4.85	5.70	27.19	4.48	
Difference			-0.68	-0.25	-0.46	-0.46	-0.38	-0.19	0.08	0.65	0.54	0.32	
Internal International Equity Portfolio	146,137,638	4.53	-11.37	-10.58	-13.96	-13.96	N/A	N/A	N/A	N/A	27.20	6.86	02/01/2016
FTSE All Wrld Ex US Index (US Invstr) (USD) (Net)			-11.47	-10.71	-14.13	-14.13	4.58	1.05	5.22	6.99	27.11	7.30	
Difference			0.10	0.13	0.17	0.17	N/A	N/A	N/A	N/A	0.09	-0.44	
Northern Trust	968,887,999	30.04	-11.34	-10.67	-13.83	-13.83	4.68	0.82	5.00	N/A	27.47	4.01	08/01/2010
MSCI ACW Ex US Index (USD) (Net)			-11.46	-10.84	-14.20	-14.20	4.48	0.68	4.85	6.57	27.19	3.88	
Difference			0.12	0.17	0.37	0.37	0.20	0.14	0.15	N/A	0.28	0.13	
Fisher Investments	377,491,691	11.70	-13.40	-12.27	-15.92	-15.92	3.39	1.07	5.32	7.75	29.57	5.79	09/01/2004
MSCI ACW Ex US Index (USD) (Net)			-11.46	-10.84	-14.20	-14.20	4.48	0.68	4.85	5.70	27.19	4.56	
Difference			-1.94	-1.43	-1.72	-1.72	-1.09	0.39	0.47	2.05	2.38	1.23	
Arrowstreet	331,522,141	10.28	-13.32	-11.21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-16.36	03/01/2018
MSCI ACW Ex US IM Index (USD) (Net)			-11.88	-11.53	-14.76	-14.76	4.39	0.85	5.07	6.97	27.81	-15.28	
Difference			-1.44	0.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.08	

Performance shown is net of fees. US Equity Index consists of the S&P 500 Index through September 2014 and the Russell 3000 Index thereafter. International Equity Custom Index and Fisher Index both consist of the MSCI EAFE Index (Gross) through July 2010 and the MSCI ACW Ex US Index (Net) thereafter. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)											Inception Date
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.		
US Equity Composite	1,401,265,987	43.45	-14.54	-9.03	-7.41	-7.41	7.78	7.23	11.88	13.04	18.80	6.56	06/01/1997	
US Equity Custom Index			-14.30	-8.20	-5.24	-5.24	8.97	8.17	12.45	12.95	21.13	7.07		
Difference			-0.24	-0.83	-2.17	-2.17	-1.19	-0.94	-0.57	0.09	-2.33	-0.51		
All Cap US Equity Composite	1,261,674,909	39.12	-13.87	-8.02	-6.11	-6.11	8.08	N/A	N/A	N/A	19.50	8.05	11/01/2014	
Russell 3000 Index			-14.30	-8.20	-5.24	-5.24	8.97	7.91	12.46	13.18	21.13	7.12		
Difference			0.43	0.18	-0.87	-0.87	-0.89	N/A	N/A	N/A	-1.63	0.93		
State Street All Cap	1,025,583,500	31.80	-13.51	-7.54	-5.25	-5.25	8.90	N/A	N/A	N/A	19.79	6.60	01/01/2015	
State Street All Cap Custom Index			-13.72	-7.74	-5.50	-5.50	8.82	7.80	12.35	13.45	19.85	6.58		
Difference			0.21	0.20	0.25	0.25	0.08	N/A	N/A	N/A	-0.06	0.02		
Russell 3000 Index			-14.30	-8.20	-5.24	-5.24	8.97	7.91	12.46	13.18	21.13	6.78		
Difference			0.79	0.66	-0.01	-0.01	-0.07	N/A	N/A	N/A	-1.34	-0.18		
IM U.S. All Cap Equity (SA+CF) Median			-14.86	-9.45	-6.11	-6.11	7.90	6.66	11.90	13.15	19.92	5.72		
State Street All Cap Rank			29	26	43	43	38	N/A	N/A	N/A	52	39		
Epoch	236,091,409	7.32	-15.38	-10.04	-10.04	-10.04	7.11	N/A	N/A	N/A	23.97	5.75	11/01/2014	
Russell 3000 Index			-14.30	-8.20	-5.24	-5.24	8.97	7.91	12.46	13.18	21.13	7.12		
Difference			-1.08	-1.84	-4.80	-4.80	-1.86	N/A	N/A	N/A	2.84	-1.37		
IM U.S. All Cap Equity (SA+CF) Median			-14.86	-9.45	-6.11	-6.11	7.90	6.66	11.90	13.15	19.92	6.09		
Epoch Rank			59	54	72	72	62	N/A	N/A	N/A	25	54		
UW Portfolio Mgmt Program	1,323,962	0.04	-16.15	-8.79	-8.04	-8.04	7.49	7.29	9.32	9.39	21.83	4.17	04/01/2006	
S&P 500 Index (Cap Wtd)			-13.52	-6.85	-4.38	-4.38	9.26	8.49	12.70	13.12	21.83	7.56		
Difference			-2.63	-1.94	-3.66	-3.66	-1.77	-1.20	-3.38	-3.73	0.00	-3.39		
IM U.S. Large Cap Core Equity (SA+CF) Median			-13.83	-7.66	-5.20	-5.20	8.47	8.15	12.63	13.05	21.83	7.71		
UW Portfolio Mgmt Program Rank			89	69	84	84	75	72	91	96	50	100		
Small Cap US Equity Composite	138,267,116	4.29	-20.21	-17.40	-17.96	-17.96	5.35	N/A	N/A	N/A	11.79	2.40	11/01/2014	
Russell 2000 Index			-20.20	-17.35	-11.01	-11.01	7.36	4.41	10.44	11.97	14.65	4.84		
Difference			-0.01	-0.05	-6.95	-6.95	-2.01	N/A	N/A	N/A	-2.86	-2.44		
Internal Equity Russell 2000	138,267,116	4.29	-20.21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-22.05	09/01/2018	
Russell 2000 Index			-20.20	-17.35	-11.01	-11.01	7.36	4.41	10.44	11.97	14.65	-22.12		
Difference			-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.07		

Performance shown is gross of fees. US Equity Index consists of the S&P 500 Index through September 2014 and the Russell 3000 Index thereafter. International Equity Custom Index and Fisher Index both consist of the MSCI EAFE Index (Gross) through July 2010 and the MSCI ACW Ex US Index (Net) thereafter. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Int'l Equity Composite	1,824,039,468	56.55	-12.09	-11.00	-14.50	-14.50	4.31	0.72	5.18	6.64	27.96	5.00	01/01/2004
International Equity Custom Index			-11.46	-10.84	-14.20	-14.20	4.48	0.68	4.85	5.70	27.19	4.48	
Difference			-0.63	-0.16	-0.30	-0.30	-0.17	0.04	0.33	0.94	0.77	0.52	
Internal International Equity Portfolio	146,137,638	4.53	-11.36	-10.55	-13.90	-13.90	N/A	N/A	N/A	N/A	27.29	6.94	02/01/2016
FTSE All Wrld Ex US Index (US Invstr) (USD) (Net)			-11.47	-10.71	-14.13	-14.13	4.58	1.05	5.22	6.99	27.11	7.30	
Difference			0.11	0.16	0.23	0.23	N/A	N/A	N/A	N/A	0.18	-0.36	
Northern Trust	968,887,999	30.04	-11.33	-10.66	-13.81	-13.81	4.72	0.85	5.04	N/A	27.51	4.05	08/01/2010
MSCI ACW Ex US Index (USD) (Net)			-11.46	-10.84	-14.20	-14.20	4.48	0.68	4.85	6.57	27.19	3.88	
Difference			0.13	0.18	0.39	0.39	0.24	0.17	0.19	N/A	0.32	0.17	
Fisher Investments	377,491,691	11.70	-13.30	-12.07	-15.54	-15.54	3.87	1.53	5.80	8.26	30.17	6.30	09/01/2004
MSCI ACW Ex US Index (USD) (Net)			-11.46	-10.84	-14.20	-14.20	4.48	0.68	4.85	5.70	27.19	4.56	
Difference			-1.84	-1.23	-1.34	-1.34	-0.61	0.85	0.95	2.56	2.98	1.74	
IM All ACWI Ex US (SA+CF) Median			-13.30	-12.50	-14.73	-14.73	4.10	1.73	6.63	8.13	28.74	6.49	
Fisher Investments Rank			50	43	58	58	53	58	73	46	40	59	
Arrowstreet	331,522,141	10.28	-13.21	-10.98	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-16.04	03/01/2018
MSCI ACW Ex US IM Index (USD) (Net)			-11.88	-11.53	-14.76	-14.76	4.39	0.85	5.07	6.97	27.81	-15.28	
Difference			-1.33	0.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.76	
IM All ACWI Ex US (SA+CF) Median			-13.30	-12.50	-14.73	-14.73	4.10	1.73	6.63	8.13	28.74	-15.25	
Arrowstreet Rank			48	29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	59	

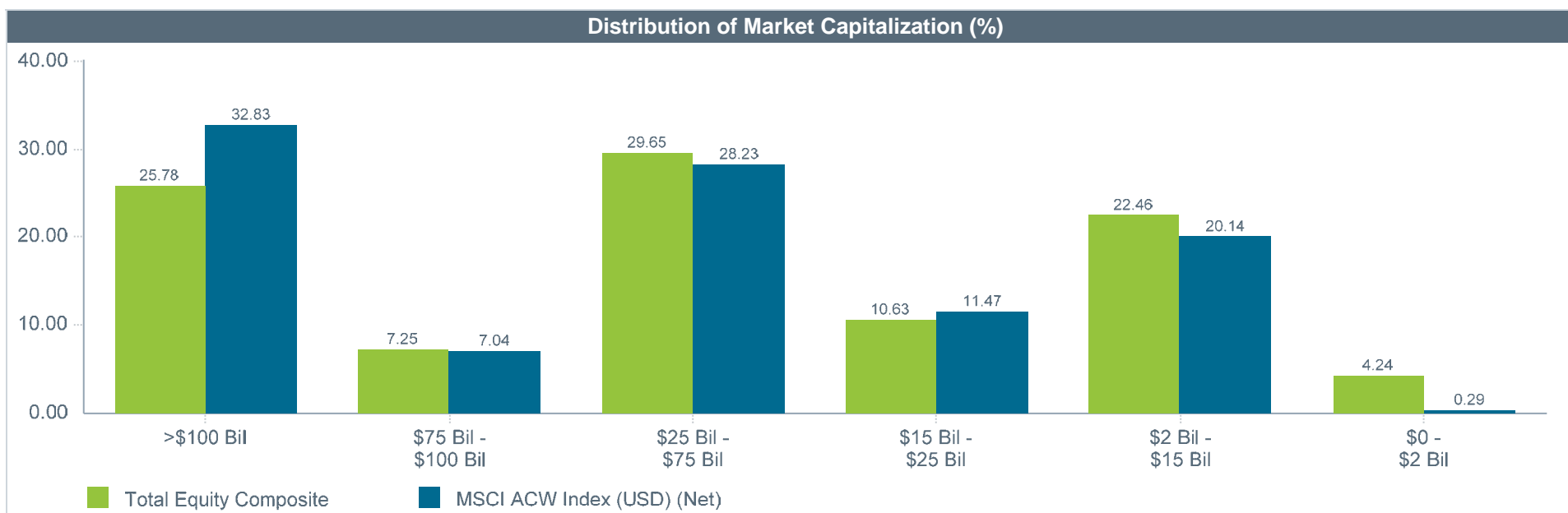
Performance shown is gross of fees. US Equity Index consists of the S&P 500 Index through September 2014 and the Russell 3000 Index thereafter. International Equity Custom Index and Fisher Index both consist of the MSCI EAFE Index (Gross) through July 2010 and the MSCI ACW Ex US Index (Net) thereafter. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding.

Wyoming State Treasurer's Office
Total Equity Composite vs. MSCI ACW Index (USD) (Net)
Portfolio Characteristics

As of December 31, 2018

Top Ten Equity Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Microsoft Corp	1.26	1.82	-0.56	-10.80
Apple Inc	1.26	1.88	-0.62	-29.88
Samsung Electronics Co Ltd	0.93	0.41	0.52	-16.16
Tencent Holdings LTD	0.90	0.56	0.34	-2.93
Novartis AG	0.68	0.46	0.22	-1.23
Alibaba Group Holding Ltd	0.67	0.44	0.23	-16.81
Siemens AG	0.61	0.21	0.40	-13.04
Roche Holding AG	0.58	0.43	0.15	1.55
SAP AG Systeme Anwendungen	0.58	0.24	0.34	-19.19
Pfizer Inc	0.57	0.63	-0.06	-0.19
% of Portfolio	8.04	7.08	0.96	

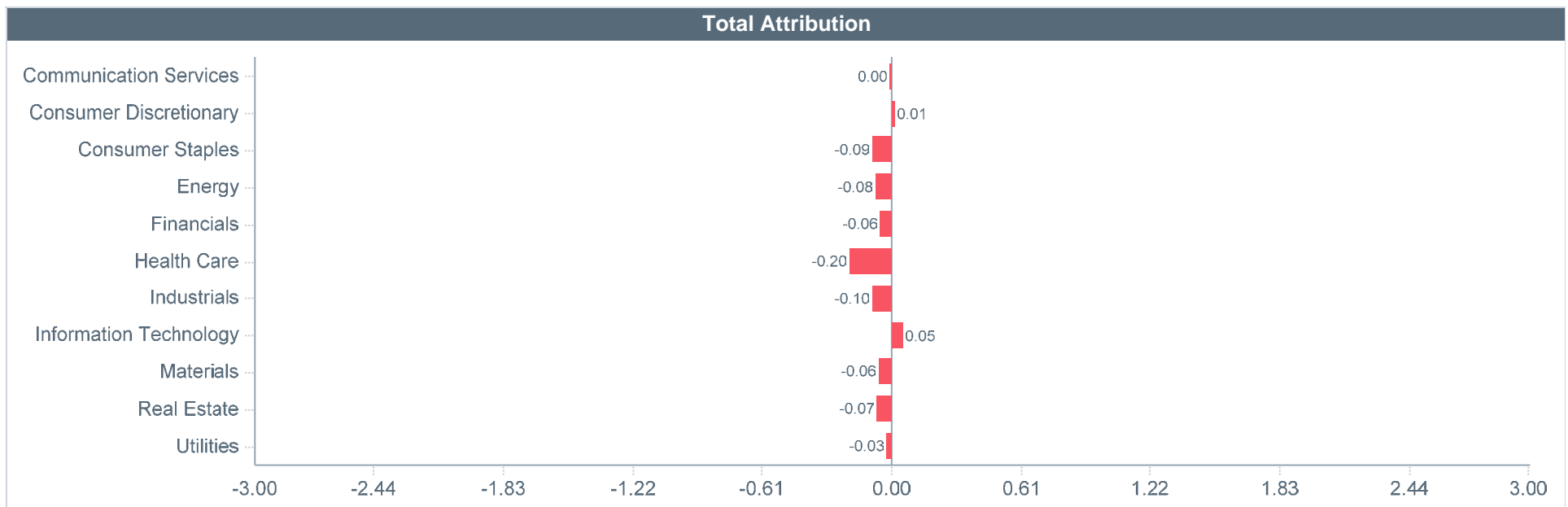
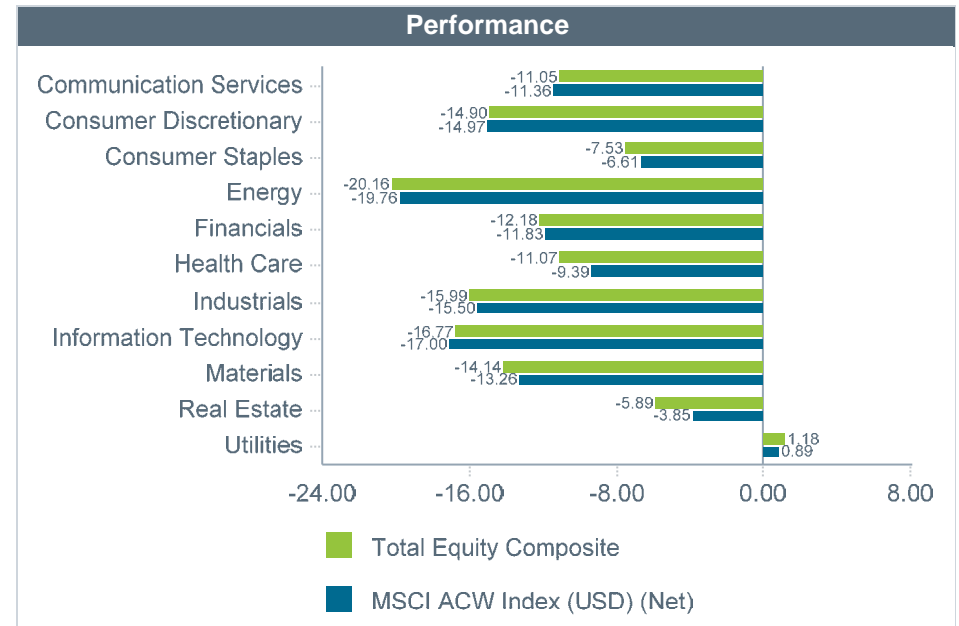
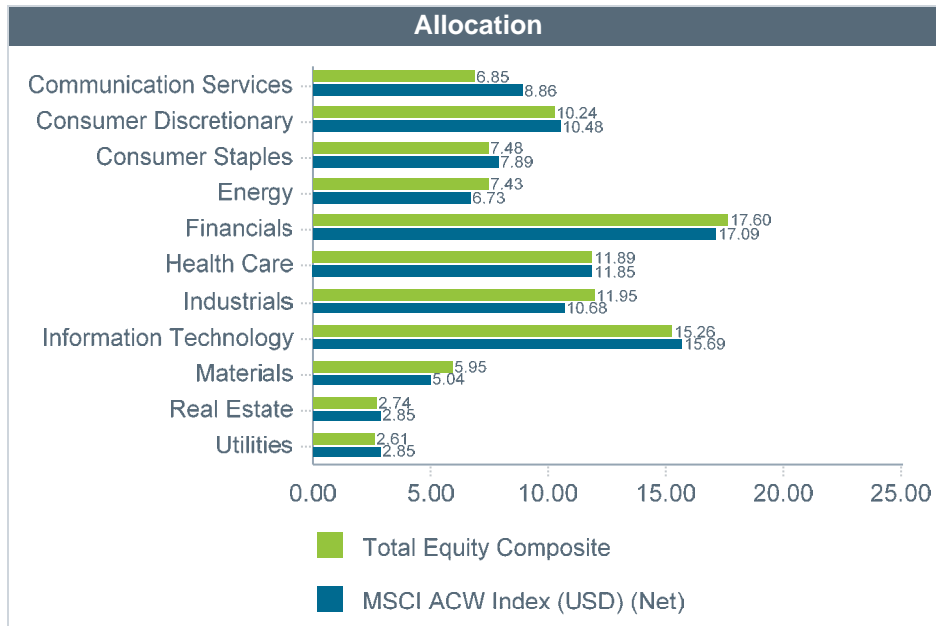
Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	98,968	128,805
Median Mkt. Cap (\$M)	3,131	9,032
Price/Earnings Ratio	13.63	14.52
Price/Book Ratio	2.51	2.67
5 Yr. EPS Growth Rate (%)	12.12	13.64
Current Yield (%)	2.89	2.82
Beta (5 Years, Monthly)	0.99	1.00
Number of Securities	6,203	2,758



The Total Equity Custom Index currently consists of the MSCI ACW Index (USD) (Net).

Wyoming State Treasurer's Office
Total Equity Composite vs. MSCI ACW Index (USD) (Net)
Buy and Hold Sector Attribution Graph

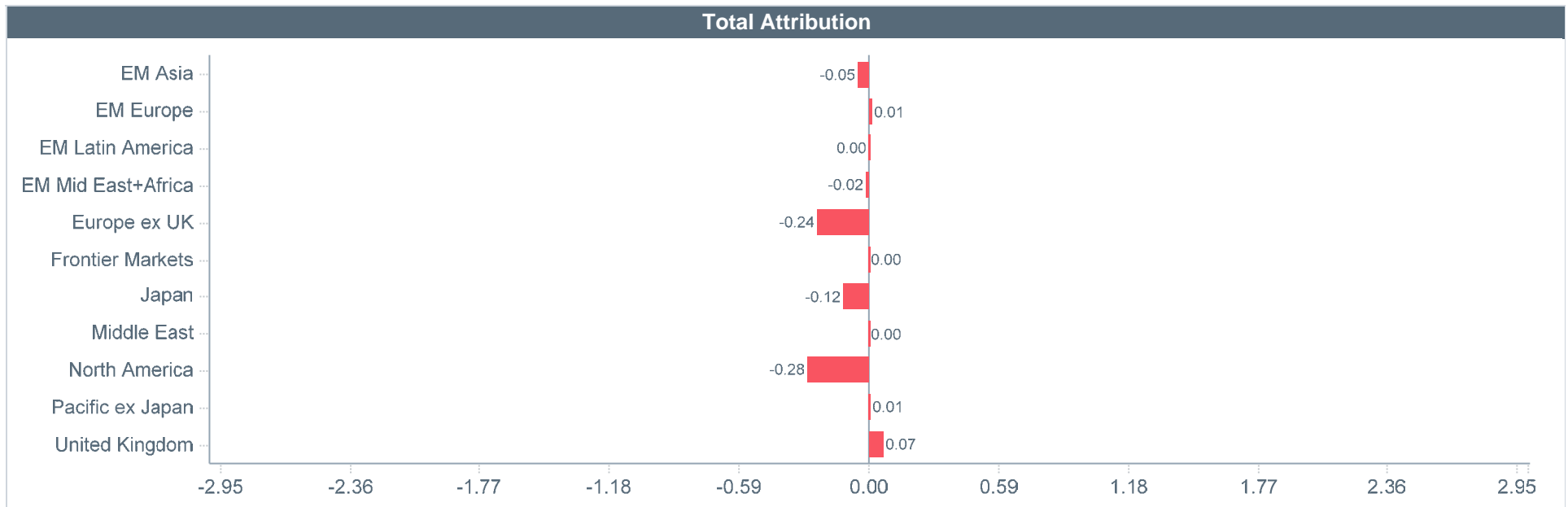
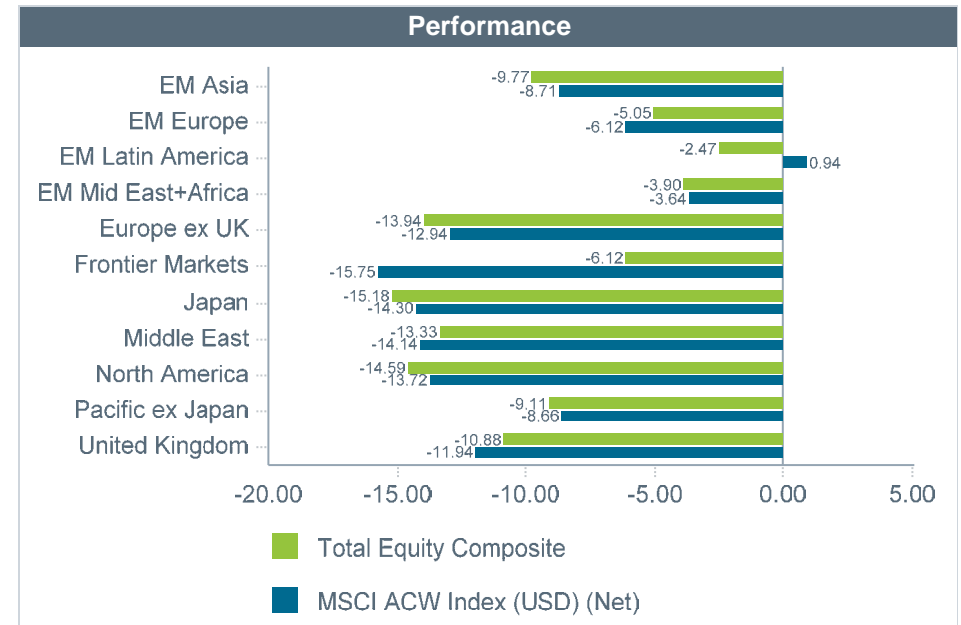
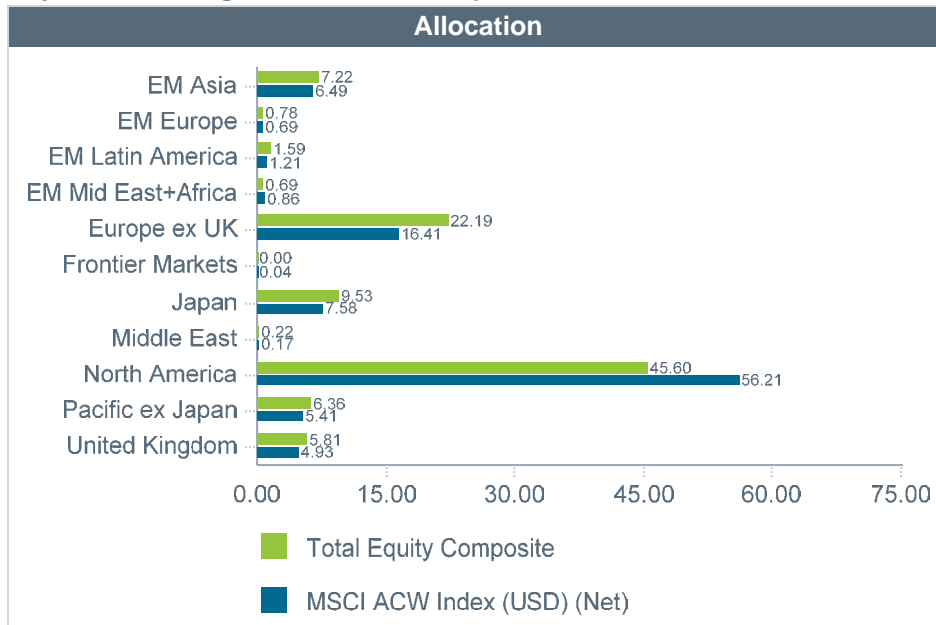
1 Quarter Ending December 31, 2018



The Total Equity Custom Index currently consists of the MSCI ACW Index (USD) (Net).

Wyoming State Treasurer's Office
Total Equity Composite vs. MSCI ACW Index (USD) (Net)
Buy and Hold Region Attribution Graph

1 Quarter Ending December 31, 2018



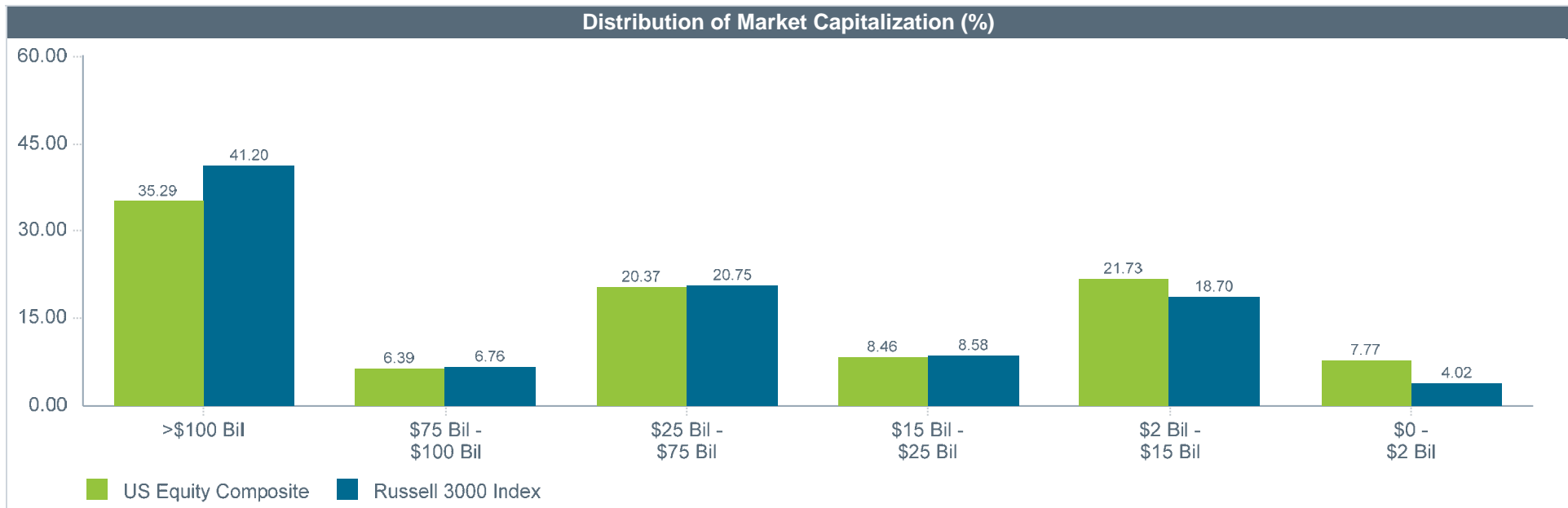
The Total Equity Custom Index currently consists of the MSCI ACW Index (USD) (Net).

Wyoming State Treasurer's Office
US Equity Composite vs. Russell 3000 Index
Portfolio Characteristics

As of December 31, 2018

Top Ten Equity Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Microsoft Corp	2.90	3.06	-0.16	-10.80
Apple Inc	2.90	2.98	-0.08	-29.88
Pfizer Inc	1.31	1.01	0.30	-0.19
Amazon.com Inc	1.27	2.43	-1.16	-25.01
Unitedhealth Group Inc	1.25	0.95	0.30	-6.06
Alphabet Inc	1.17	1.25	-0.08	-13.23
Berkshire Hathaway Inc	1.16	1.57	-0.41	-4.64
Exxon Mobil Corp	1.13	1.15	-0.02	-18.98
Bank of America Corp	1.10	0.90	0.20	-15.88
Johnson & Johnson	1.03	1.38	-0.35	-6.01
% of Portfolio	15.22	16.68	-1.46	

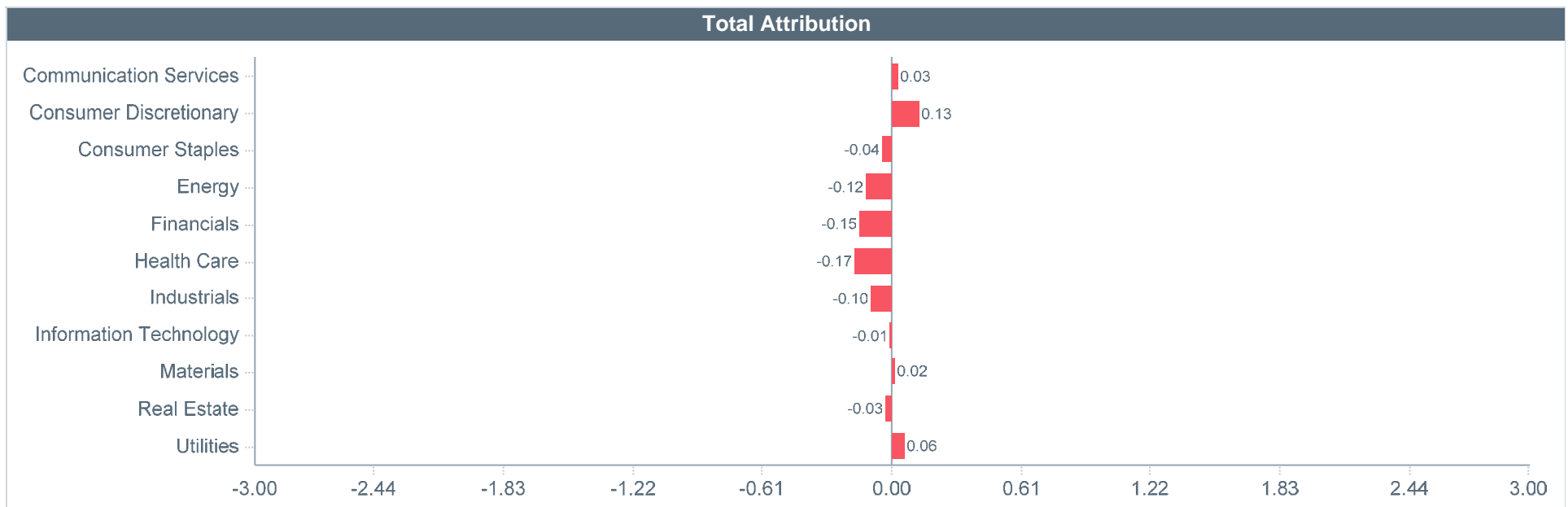
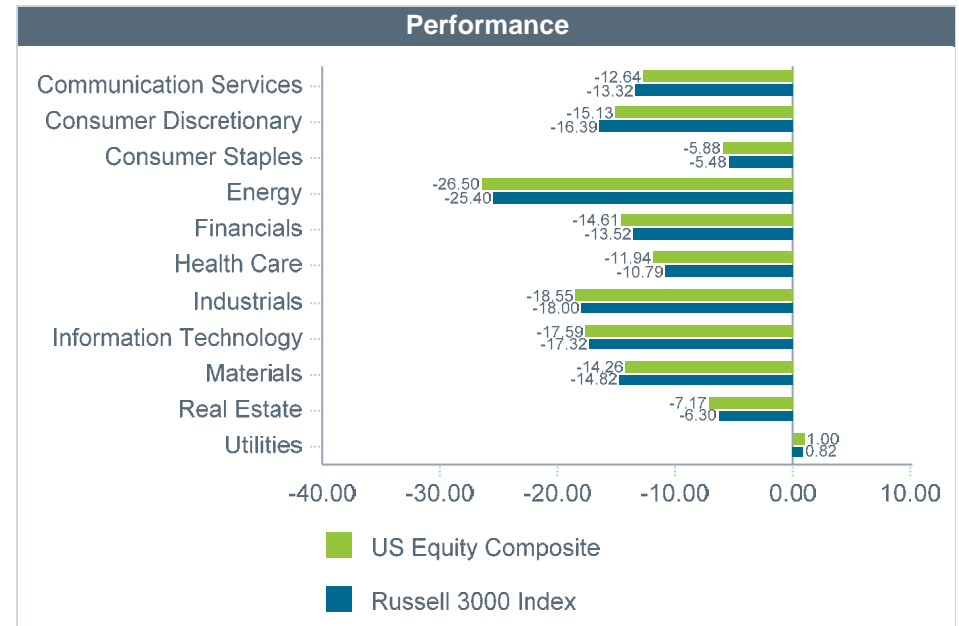
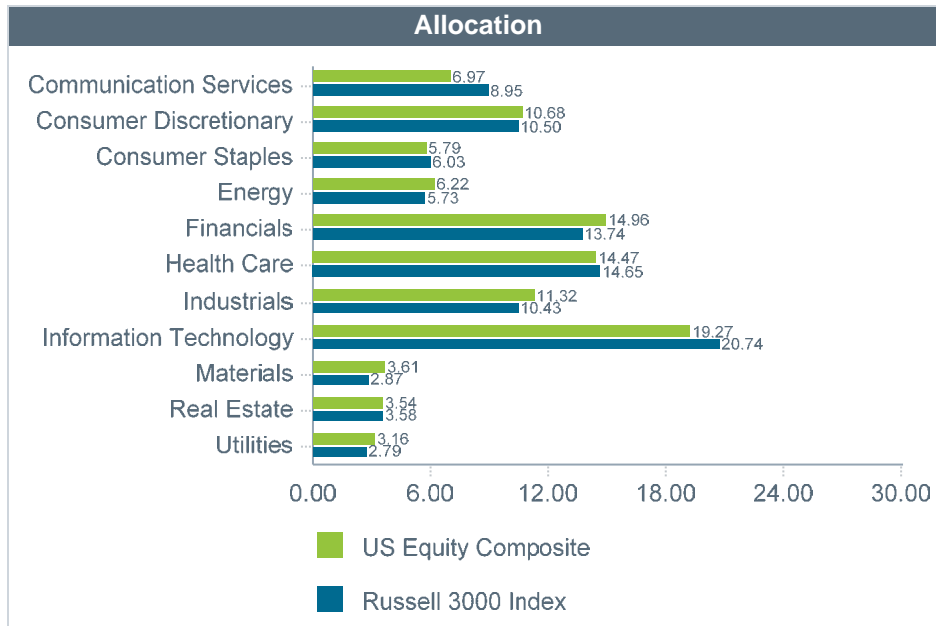
Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	144,124	167,103
Median Mkt. Cap (\$M)	1,434	1,418
Price/Earnings Ratio	16.18	16.99
Price/Book Ratio	2.81	3.04
5 Yr. EPS Growth Rate (%)	14.40	15.88
Current Yield (%)	2.19	2.14
Beta (5 Years, Monthly)	1.00	1.00
Number of Securities	3,007	3,015



The US Equity Custom Index currently consists of the Russell 3000 Index.

Wyoming State Treasurer's Office
US Equity Composite vs. Russell 3000 Index
Buy and Hold Sector Attribution Graph

1 Quarter Ending December 31, 2018



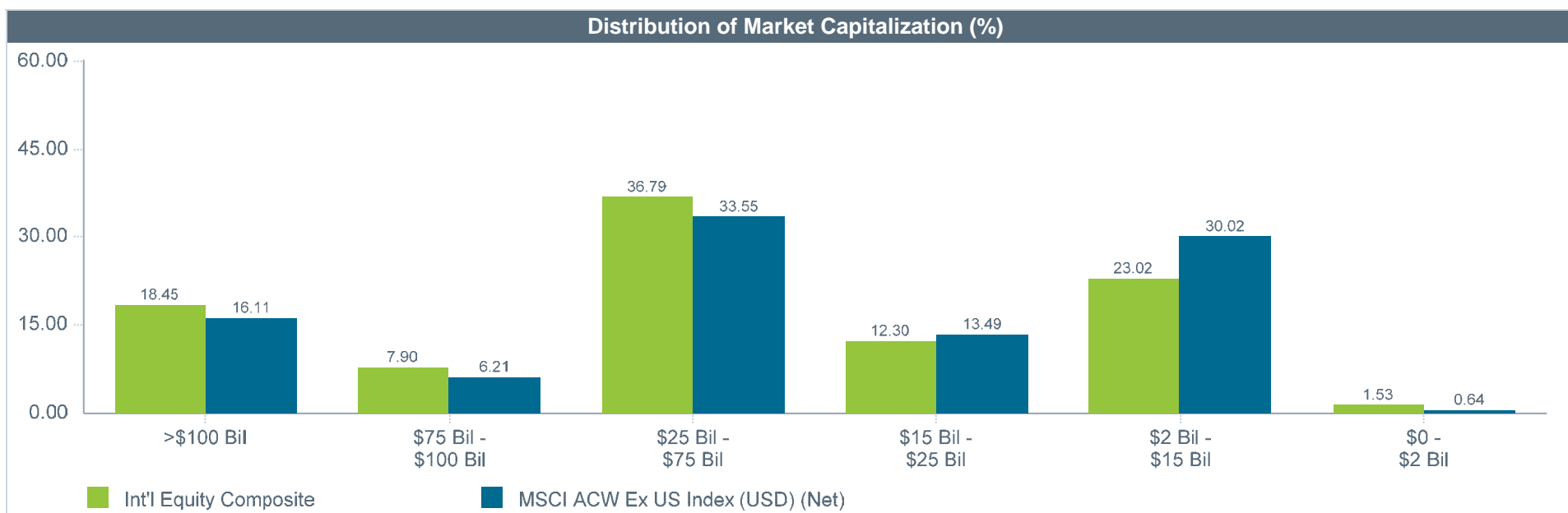
The US Equity Custom Index currently consists of the Russell 3000 Index.

Wyoming State Treasurer's Office
Int'l Equity Composite vs. MSCI ACW Ex US Index (USD) (Net)
Portfolio Characteristics

As of December 31, 2018

Top Ten Equity Holdings				
	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Samsung Electronics Co Ltd	1.64	0.90	0.74	-16.16
Tencent Holdings LTD	1.59	1.24	0.35	-2.93
Novartis AG	1.21	1.00	0.21	-1.23
Alibaba Group Holding Ltd	1.19	0.96	0.23	-16.81
Siemens AG	1.09	0.46	0.63	-13.04
Roche Holding AG	1.04	0.94	0.10	1.55
SAP AG Systeme Anwendungen	1.03	0.53	0.50	-19.19
ASML Holding NV	1.01	0.35	0.66	-16.00
Lvmh Moet Hennessy Louis Vuitton	0.98	0.44	0.54	-15.84
Taiwan Semiconductor Mfg (ADR)	0.95	0.98	-0.03	-16.42
% of Portfolio	11.73	7.80	3.93	

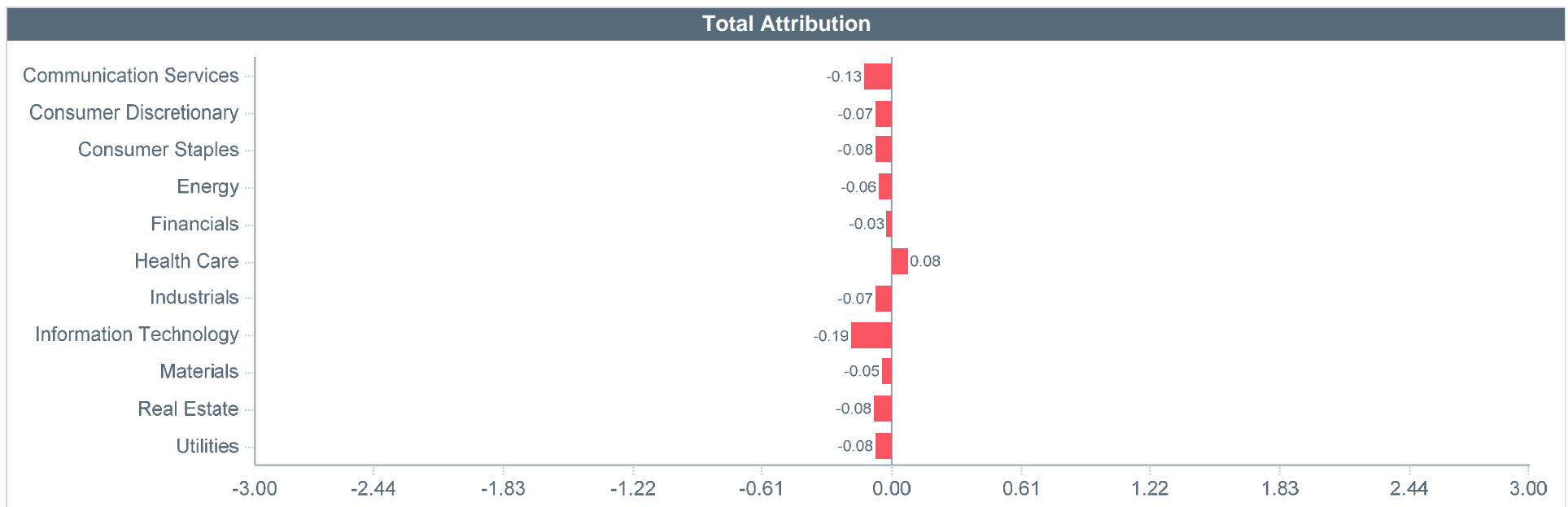
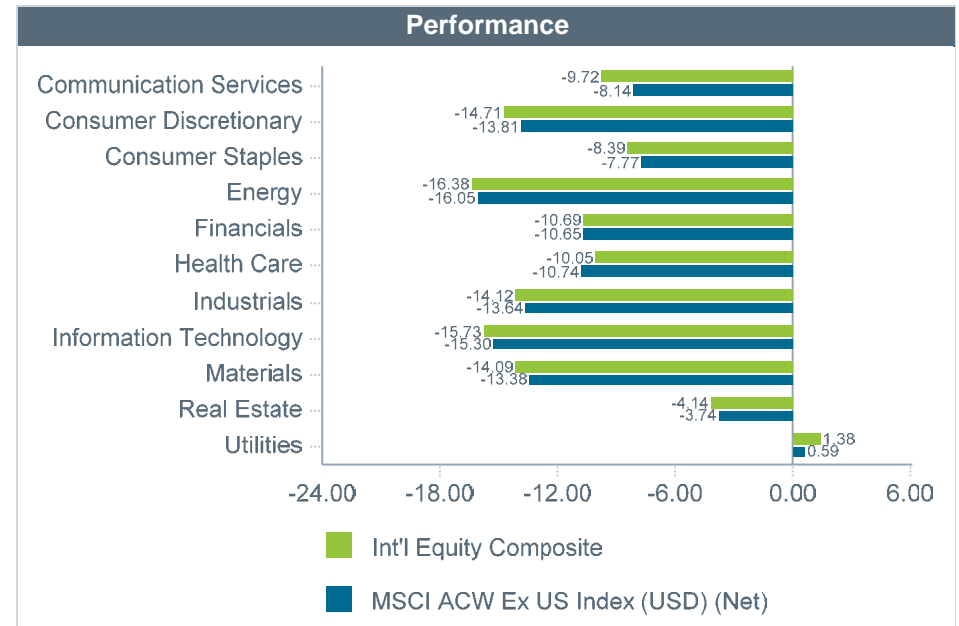
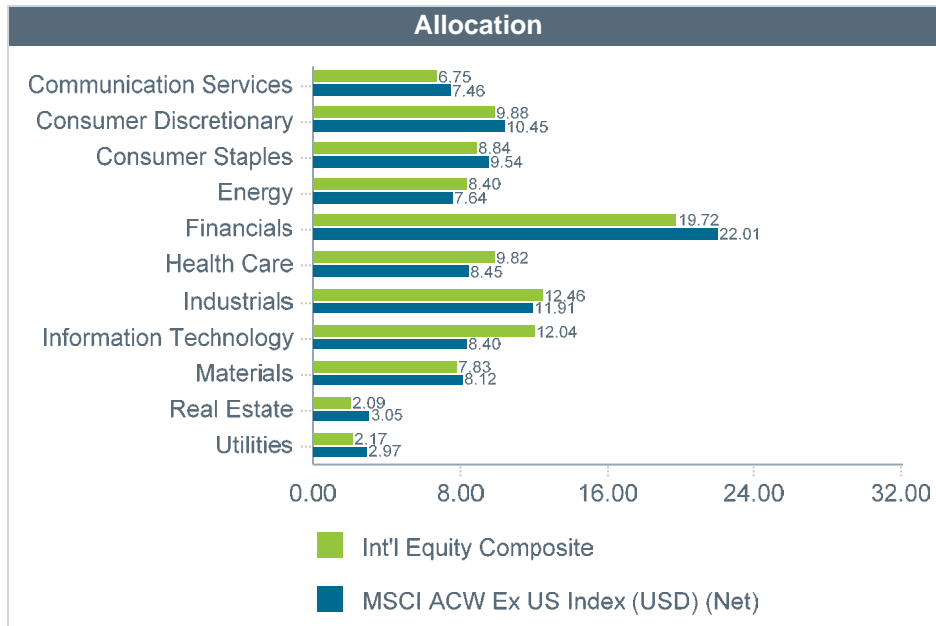
Portfolio Characteristics		
	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$M)	64,167	58,116
Median Mkt. Cap (\$M)	5,017	7,298
Price/Earnings Ratio	12.12	12.03
Price/Book Ratio	2.27	2.15
5 Yr. EPS Growth Rate (%)	10.30	10.64
Current Yield (%)	3.42	3.54
Beta (5 Years, Monthly)	1.01	1.00
Number of Securities	3,204	2,136



The International Equity Custom Index currently consists of the MSCI ACW Ex US Index (USD) (Net).

Wyoming State Treasurer's Office
 Int'l Equity Composite vs. MSCI ACW Ex US Index (USD) (Net)
 Buy and Hold Sector Attribution Graph

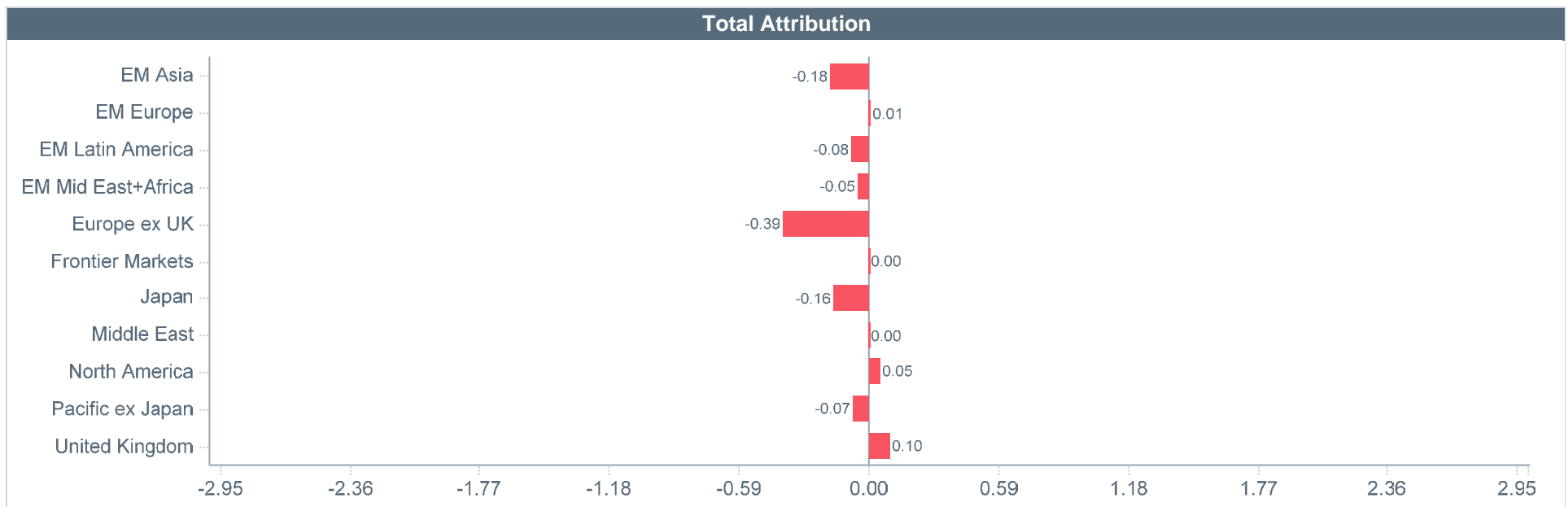
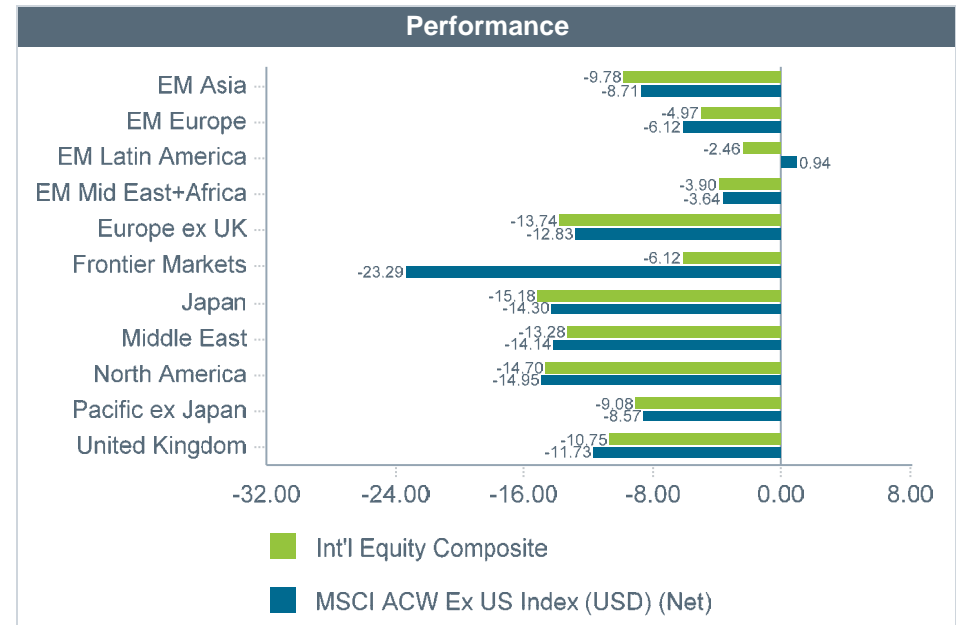
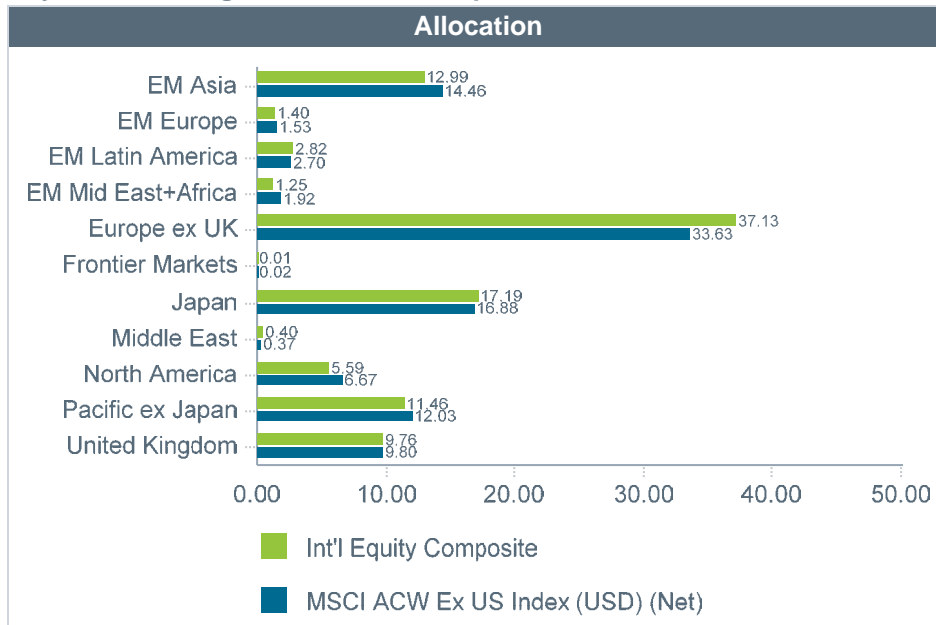
1 Quarter Ending December 31, 2018



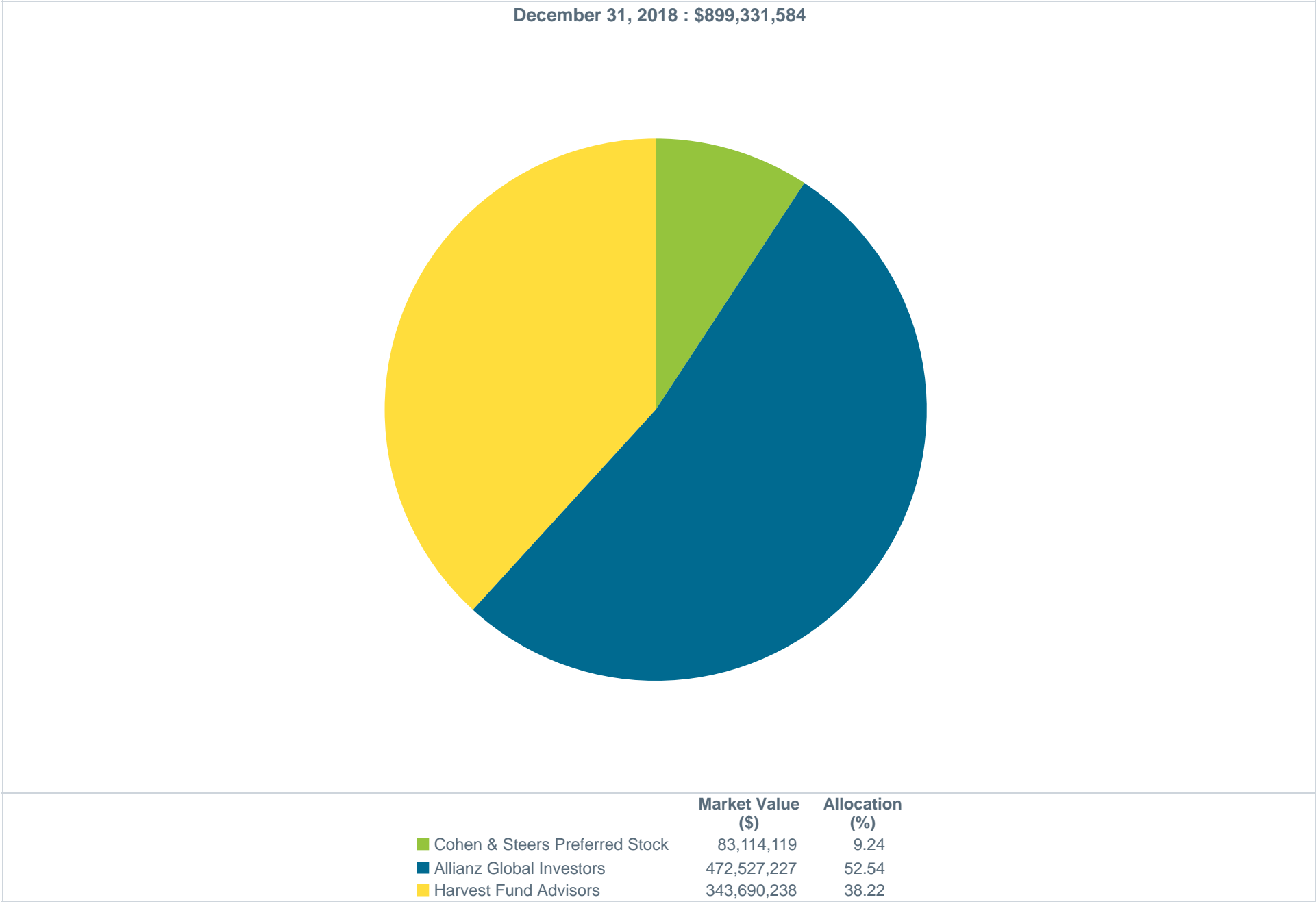
The International Equity Custom Index currently consists of the MSCI ACW Ex US Index (USD) (Net).

Wyoming State Treasurer's Office
 Int'l Equity Composite vs. MSCI ACW Ex US Index (USD) (Net)
 Buy and Hold Region Attribution Graph

1 Quarter Ending December 31, 2018



The International Equity Custom Index currently consists of the MSCI ACW Ex US Index (USD) (Net).



Allocations shown may not sum up to 100% exactly due to rounding.

Wyoming State Treasurer's Office
Comparative Performance

As of December 31, 2018

	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Cohen & Steers Preferred Stock	-3.51	-2.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.01	07/01/2018
S&P US Preferred Stock Index	-5.65	-5.45	-4.25	-4.25	2.12	5.08	6.14	9.60	9.11	-5.45	
Difference	2.14	3.44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.44	
Allianz Global Investors	-9.29	-4.34	3.23	3.23	7.84	5.67	9.20	11.76	14.76	5.71	09/01/2000
ICE BofAML All Cnvrts Index (All Qual)	-9.31	-5.75	0.18	0.18	7.95	5.90	9.71	12.19	13.70	5.13	
Difference	0.02	1.41	3.05	3.05	-0.11	-0.23	-0.51	-0.43	1.06	0.58	
Harvest Fund Advisors	-20.83	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-21.40	08/01/2018
S&P MLP Index (TR)	-17.80	-12.55	-11.67	-11.67	0.57	-6.59	-0.46	10.35	-5.58	-17.60	
Difference	-3.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.80	

Performance shown is net of fees. Wyoming State Treasurer's Office fiscal year ends June 30th. Since Inception date shown represents the first full month following initial funding.

Wyoming State Treasurer's Office
Comparative Performance

As of December 31, 2018

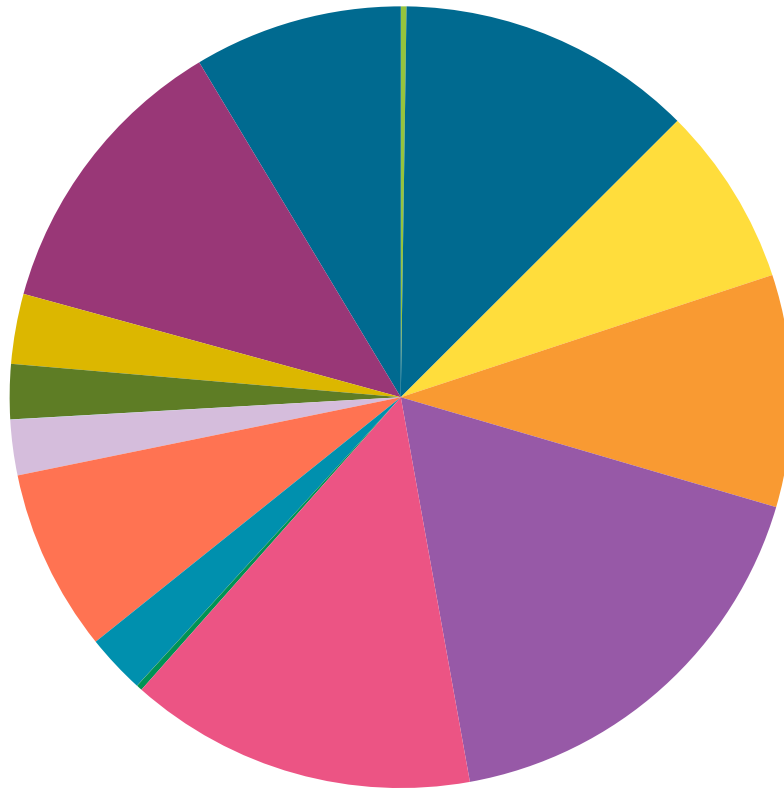
	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Cohen & Steers Preferred Stock	-3.41	-1.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.81	07/01/2018
S&P US Preferred Stock Index	-5.65	-5.45	-4.25	-4.25	2.12	5.08	6.14	9.60	9.11	-5.45	
Difference	2.24	3.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.64	
Allianz Global Investors	-9.29	-4.34	3.23	3.23	7.84	5.67	9.20	11.76	14.76	5.71	09/01/2000
ICE BofAML All Cnvrts Index (All Qual)	-9.31	-5.75	0.18	0.18	7.95	5.90	9.71	12.19	13.70	5.13	
Difference	0.02	1.41	3.05	3.05	-0.11	-0.23	-0.51	-0.43	1.06	0.58	
Harvest Fund Advisors	-20.69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-21.18	08/01/2018
S&P MLP Index (TR)	-17.80	-12.55	-11.67	-11.67	0.57	-6.59	-0.46	10.35	-5.58	-17.60	
Difference	-2.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.58	

Performance shown is gross of fees with the exception of Allianz Global Investors, which is shown net of fees. Wyoming State Treasurer's Office fiscal year ends June 30th. Since Inception date shown represents the first full month following initial funding.

Wyoming State Treasurer's Office
Asset Allocation by Manager - Total Alternative Assets

As of December 31, 2018

December 31, 2018 : \$1,982,971,635



	Market Value (\$)	Allocation (%)
Access Venture Partners II	4,623,887	0.23
Cheyenne Equity Capital Fund, L.P.	243,366,328	12.27
Hamilton Lane Nowood Fund, L.P.	147,358,461	7.43
Neuberger Berman Sauger Fund, L.P.	190,458,056	9.60
Clarion Lion	349,622,337	17.63
UBS Trumbull	284,817,359	14.36
Cornerstone	4,776,734	0.24
Heitman	17,473	0.00
M&G	48,858,148	2.46
Northwood	149,612,642	7.54
SC Capital	45,366,193	2.29
TA Associates Realty	269,535	0.01
WestRiver	45,092,204	2.27
PAAMCO - Jackalope Fund	57,413,630	2.90
Grosvenor Diversified Hedge Funds	240,400,391	12.12
Internal Diversified Hedge Funds	170,918,257	8.62

Allocations shown may not sum up to 100% exactly due to rounding.

Wyoming State Treasurer's Office
Comparative Performance

As of December 31, 2018

	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Core Real Estate Composite	1.72	3.36	7.69	7.69	7.31	9.45	9.65	5.81	6.96	5.85	01/01/2006
NCREIF ODCE Index (AWA) (Net)	1.52	3.42	7.36	7.36	7.27	9.41	9.96	6.01	6.66	5.94	
Difference	0.20	-0.06	0.33	0.33	0.04	0.04	-0.31	-0.20	0.30	-0.09	
Clarion Lion	1.86	3.81	8.92	8.92	8.52	10.51	10.65	5.55	8.27	5.49	01/01/2006
NCREIF ODCE Index (AWA) (Net)	1.52	3.42	7.36	7.36	7.27	9.41	9.96	6.01	6.66	5.94	
Difference	0.34	0.39	1.56	1.56	1.25	1.10	0.69	-0.46	1.61	-0.45	
UBS Trumbull	1.55	2.80	6.19	6.19	5.90	8.00	8.33	5.77	5.42	5.59	07/01/2006
NCREIF ODCE Index (AWA) (Net)	1.52	3.42	7.36	7.36	7.27	9.41	9.96	6.01	6.66	5.58	
Difference	0.03	-0.62	-1.17	-1.17	-1.37	-1.41	-1.63	-0.24	-1.24	0.01	
Diversified Hedge Funds Composite	-2.26	-2.04	-0.85	-0.85	1.51	1.31	3.83	4.81	4.90	2.19	12/01/2007
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	0.64	
Difference	2.75	2.75	3.24	3.24	0.23	-0.07	0.91	1.70	-2.87	1.55	
PAAMCO - Jackalope Fund	-1.77	-2.03	-0.86	-0.86	1.51	1.15	3.78	4.61	4.90	1.96	12/01/2007
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	0.64	
Difference	3.24	2.76	3.23	3.23	0.23	-0.23	0.86	1.50	-2.87	1.32	
Grosvenor Diversified Hedge Funds	-3.94	-3.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.17	07/01/2018
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	-4.79	
Difference	1.07	1.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.62	
Internal Diversified Hedge Funds	0.01	0.87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	07/01/2018
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	-4.79	
Difference	5.02	5.66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.66	

Performance shown is net of fees. Wyoming State Treasurer's Office fiscal year ends June 30th. Since Inception date shown represents the first full month following initial funding.

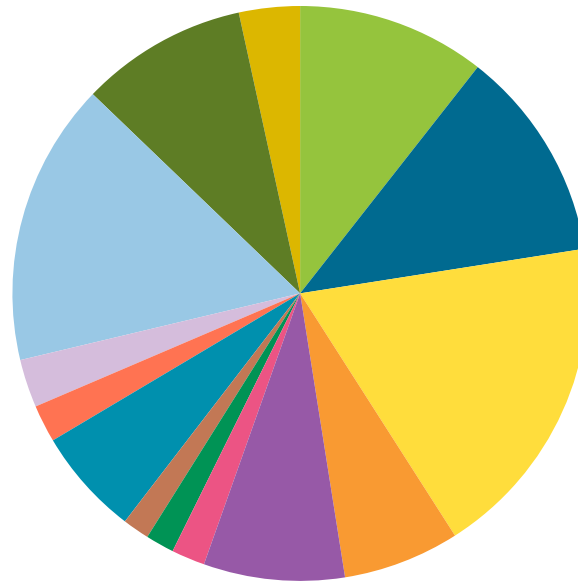
Wyoming State Treasurer's Office
Comparative Performance

As of December 31, 2018

	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Core Real Estate Composite	1.89	3.72	8.44	8.44	8.13	10.31	10.55	6.69	7.76	6.72	01/01/2006
NCREIF ODCE Index (AWA) (Gross)	1.76	3.88	8.35	8.35	8.24	10.41	10.99	7.00	7.62	6.92	
Difference	0.13	-0.16	0.09	0.09	-0.11	-0.10	-0.44	-0.31	0.14	-0.20	
Clarion Lion	2.03	4.16	9.66	9.66	9.25	11.29	11.45	6.37	8.99	6.28	01/01/2006
NCREIF ODCE Index (AWA) (Gross)	1.76	3.88	8.35	8.35	8.24	10.41	10.99	7.00	7.62	6.92	
Difference	0.27	0.28	1.31	1.31	1.01	0.88	0.46	-0.63	1.37	-0.64	
UBS Trumbull	1.73	3.17	6.98	6.98	6.80	8.98	9.35	6.75	6.33	6.58	07/01/2006
NCREIF ODCE Index (AWA) (Gross)	1.76	3.88	8.35	8.35	8.24	10.41	10.99	7.00	7.62	6.56	
Difference	-0.03	-0.71	-1.37	-1.37	-1.44	-1.43	-1.64	-0.25	-1.29	0.02	
Diversified Hedge Funds Composite	-2.26	-2.04	-0.85	-0.85	1.51	1.31	3.83	4.81	4.90	2.19	12/01/2007
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	0.64	
Difference	2.75	2.75	3.24	3.24	0.23	-0.07	0.91	1.70	-2.87	1.55	
PAAMCO - Jackalope Fund	-1.77	-2.03	-0.86	-0.86	1.51	1.15	3.78	4.61	4.90	1.96	12/01/2007
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	0.64	
Difference	3.24	2.76	3.23	3.23	0.23	-0.23	0.86	1.50	-2.87	1.32	
Grosvenor Diversified Hedge Funds	-3.94	-3.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-3.17	07/01/2018
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	-4.79	
Difference	1.07	1.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.62	
Internal Diversified Hedge Funds	0.01	0.87	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	07/01/2018
HFRI FOF Comp Index	-5.01	-4.79	-4.09	-4.09	1.28	1.38	2.92	3.11	7.77	-4.79	
Difference	5.02	5.66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.66	

Performance shown is gross of fees for the Core Real Estate Composite and Core Real Estate managers. Performance shown is net of fees for the Diversified Hedge Funds Composite and Diversified Hedge Funds managers. Wyoming State Treasurer's Office fiscal year ends June 30th. Since Inception date shown represents the first full month following initial funding.

December 31, 2018 : \$11,761,638,393



	Market Value (\$)	Allocation (%)
C.S. McKee	1,244,766,800	10.58
JP Morgan Core	1,403,670,794	11.93
PIMCO Core	2,168,533,029	18.44
Neuberger Berman Credit	770,047,247	6.55
Seix	931,921,107	7.92
Grosvenor Silvery Lupine Fund	221,828,165	1.89
Investec	188,467,563	1.60
Stone Harbor	177,290,323	1.51
State Street TIPS	710,020,897	6.04
Internal Long Duration Govt Fixed Income Portfolio	247,301,839	2.10
Logan Circle	319,644,675	2.72
Internal Intermediate Govt Fixed Income Portfolio	1,871,401,273	15.91
Internal Low Duration Fixed Income Portfolio	1,104,000,628	9.39
State Street Low Duration	402,744,055	3.42

Allocations shown may not sum up to 100% exactly due to rounding.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Core Fixed Income Composite	4,816,970,622	40.95	1.55	1.72	0.50	0.50	2.28	2.61	N/A	N/A	3.56	1.79	01/01/2013
Bloomberg US Agg Bond Index			1.64	1.66	0.01	0.01	2.06	2.52	2.10	3.48	3.54	1.75	
Difference			-0.09	0.06	0.49	0.49	0.22	0.09	N/A	N/A	0.02	0.04	
C.S. McKee	1,244,766,800	10.58	1.47	1.72	0.73	0.73	2.24	2.72	N/A	N/A	3.50	1.85	01/01/2013
C.S. McKee Custom Index			1.80	1.91	0.74	0.74	2.30	2.67	2.20	3.55	3.54	1.87	
Difference			-0.33	-0.19	-0.01	-0.01	-0.06	0.05	N/A	N/A	-0.04	-0.02	
JP Morgan Core	1,403,670,794	11.93	1.69	1.71	0.33	0.33	2.05	2.66	N/A	N/A	3.42	1.88	01/01/2013
Bloomberg US Agg Bond Index			1.64	1.66	0.01	0.01	2.06	2.52	2.10	3.48	3.54	1.75	
Difference			0.05	0.05	0.32	0.32	-0.01	0.14	N/A	N/A	-0.12	0.13	
PIMCO Core	2,168,533,029	18.44	1.50	1.73	0.47	0.47	2.60	2.74	N/A	N/A	4.16	1.82	01/01/2013
PIMCO Custom Index			1.80	1.91	0.32	0.32	2.16	2.58	2.14	3.51	3.54	1.80	
Difference			-0.30	-0.18	0.15	0.15	0.44	0.16	N/A	N/A	0.62	0.02	
Credit Fixed Income Composite	1,701,968,353	14.47	-3.11	-1.45	-1.12	-1.12	4.35	3.00	N/A	N/A	4.87	2.78	04/01/2013
Credit Custom Index			-3.00	-1.28	-0.59	-0.59	5.00	3.26	4.44	8.48	5.20	3.25	
Difference			-0.11	-0.17	-0.53	-0.53	-0.65	-0.26	N/A	N/A	-0.33	-0.47	
Neuberger Berman Credit	770,047,247	6.55	-3.38	-1.84	-1.33	-1.33	3.56	2.70	N/A	N/A	4.10	2.79	04/01/2013
Credit Custom Index			-3.00	-1.28	-0.59	-0.59	5.00	3.26	4.44	8.48	5.20	3.25	
Difference			-0.38	-0.56	-0.74	-0.74	-1.44	-0.56	N/A	N/A	-1.10	-0.46	
Seix	931,921,107	7.92	-2.87	-1.11	-0.95	-0.95	5.07	3.24	N/A	N/A	5.40	2.99	05/01/2013
Credit Custom Index			-3.00	-1.28	-0.59	-0.59	5.00	3.26	4.44	8.48	5.20	3.10	
Difference			0.13	0.17	-0.36	-0.36	0.07	-0.02	N/A	N/A	0.20	-0.11	
Opportunistic Fixed Income													
Grosvenor Silvery Lupine Fund	221,828,165	1.89	-1.12	0.95	4.12	4.12	7.43	N/A	N/A	N/A	9.66	6.04	07/01/2014
CS Western Euro Hi Yld Index			-3.26	-1.03	-1.08	-1.08	6.07	4.90	8.05	12.78	8.41	4.24	
Difference			2.14	1.98	5.20	5.20	1.36	N/A	N/A	N/A	1.25	1.80	

Performance shown is net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding. The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofAML US HY Master II Const. Index, and 60% S&P/LSTA Leveraged Loan Index. The Internal Intermediate Gov't Fixed Income Portfolio Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index. The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter. The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Emerging Market Debt Fixed Income Composite	365,757,886	3.11	1.13	-1.73	-9.06	-9.06	4.35	-2.12	N/A	N/A	15.88	-3.68	04/01/2013
JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)			2.11	0.25	-6.21	-6.21	5.91	-0.96	0.18	3.45	15.21	-2.42	
Difference			-0.98	-1.98	-2.85	-2.85	-1.56	-1.16	N/A	N/A	0.67	-1.26	
Investec	188,467,563	1.60	0.94	-1.22	-8.21	-8.21	4.51	-1.71	N/A	N/A	16.95	-3.09	04/01/2013
JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)			2.11	0.25	-6.21	-6.21	5.91	-0.96	0.18	3.45	15.21	-2.42	
Difference			-1.17	-1.47	-2.00	-2.00	-1.40	-0.75	N/A	N/A	1.74	-0.67	
Stone Harbor	177,290,323	1.51	1.32	-2.27	-9.96	-9.96	4.17	-2.55	N/A	N/A	14.78	-4.34	04/01/2013
JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)			2.11	0.25	-6.21	-6.21	5.91	-0.96	0.18	3.45	15.21	-2.42	
Difference			-0.79	-2.52	-3.75	-3.75	-1.74	-1.59	N/A	N/A	-0.43	-1.92	
TIPS													
State Street TIPS	710,020,897	6.04	-0.52	-1.42	-1.53	-1.53	2.16	1.81	N/A	N/A	3.10	-0.13	01/01/2013
Bloomberg US Trsy US TIPS Index (Series B)			-0.49	-1.41	-1.48	-1.48	2.19	1.84	0.92	3.62	3.30	-0.10	
Difference			-0.03	-0.01	-0.05	-0.05	-0.03	-0.03	N/A	N/A	-0.20	-0.03	
Long Duration Fixed Income Composite	566,946,515	4.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2019
Bloomberg US Gov't Crdt Lng Trm Bond Index			0.78	0.31	-4.68	-4.68	4.03	5.37	3.68	5.88	10.71	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Internal Long Duration Govt Fixed Income Portfolio	247,301,839	2.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2019
Bloomberg US Gov't Lng Trm Bond Index			4.16	1.22	-1.79	-1.79	2.63	5.90	2.76	4.15	8.53	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Logan Circle Long Credit	319,644,675	2.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.98	11/01/2018
Bloomberg US Lng Crdt Index			-1.64	-0.40	-6.76	-6.76	4.87	5.08	4.36	7.40	12.21	2.04	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.06	
Intermediate Govt Fixed Income													
Internal Intermediate Govt Fixed Income Portfolio	1,871,401,273	15.91	1.93	2.00	1.85	1.85	1.55	2.34	1.59	2.25	1.84	4.57	10/01/1996
Bloomberg US Gov't: Int. Term Bond Index			2.22	2.11	1.43	1.43	1.21	1.46	1.11	2.31	1.14	4.55	
Difference			-0.29	-0.11	0.42	0.42	0.34	0.88	0.48	-0.06	0.70	0.02	

Performance shown is net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding. The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofAML US HY Master II Const. Index, and 60% S&P/LSTA Leveraged Loan Index. The Internal Intermediate Gov't Fixed Income Portfolio Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index. The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter. The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Low Duration Fixed Income Composite	1,506,744,682	12.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.70	12/01/2018
Bloomberg US Gov't Crdt 1-3 Yr Bond Index			1.18	1.52	1.60	1.60	1.24	1.03	1.01	1.52	0.84	0.78	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.08	
Internal Low Duration Fixed Income Portfolio	1,104,000,628	9.39	1.19	1.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.90	03/01/2018
Bloomberg US Gov't 1-3 Yr Bond Index			1.31	1.51	1.58	1.58	0.96	0.82	0.71	1.03	0.45	1.93	
Difference			-0.12	-0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.03	
State Street Low Duration	402,744,055	3.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.69	12/01/2018
Bloomberg US Crdt 1-3 Yr Bond Index			0.89	1.52	1.64	1.64	1.80	1.47	1.78	2.96	1.66	0.72	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.03	

Performance shown is net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding. The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofAML US HY Master II Const. Index, and 60% S&P/LSTA Leveraged Loan Index. The Internal Intermediate Gov't Fixed Income Portfolio Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index. The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter. The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Core Fixed Income Composite	4,816,970,622	40.95	1.58	1.77	0.61	0.61	2.40	2.75	N/A	N/A	3.67	1.93	01/01/2013
Bloomberg US Agg Bond Index			1.64	1.66	0.01	0.01	2.06	2.52	2.10	3.48	3.54	1.75	
Difference			-0.06	0.11	0.60	0.60	0.34	0.23	N/A	N/A	0.13	0.18	
IM U.S. Broad Mkt Core Fixed Income (SA+CF) Median			1.40	1.60	0.07	0.07	2.48	2.86	2.63	4.41	4.05	2.08	
Core Fixed Income Composite Rank			35	21	17	17	56	59	N/A	N/A	74	67	
C.S. McKee	1,244,766,800	10.58	1.50	1.78	0.86	0.86	2.37	2.86	N/A	N/A	3.63	1.99	01/01/2013
C.S. McKee Custom Index			1.80	1.91	0.74	0.74	2.30	2.67	2.20	3.55	3.54	1.87	
Difference			-0.30	-0.13	0.12	0.12	0.07	0.19	N/A	N/A	0.09	0.12	
IM U.S. Broad Mkt Core Fixed Income (SA+CF) Median			1.40	1.60	0.07	0.07	2.48	2.86	2.63	4.41	4.05	2.08	
C.S. McKee Rank			41	21	10	10	57	51	N/A	N/A	77	60	
JP Morgan Core	1,403,670,794	11.93	1.72	1.76	0.43	0.43	2.15	2.77	N/A	N/A	3.53	1.98	01/01/2013
Bloomberg US Agg Bond Index			1.64	1.66	0.01	0.01	2.06	2.52	2.10	3.48	3.54	1.75	
Difference			0.08	0.10	0.42	0.42	0.09	0.25	N/A	N/A	-0.01	0.23	
IM U.S. Broad Mkt Core Fixed Income (SA+CF) Median			1.40	1.60	0.07	0.07	2.48	2.86	2.63	4.41	4.05	2.08	
JP Morgan Core Rank			16	23	21	21	75	57	N/A	N/A	86	60	
PIMCO Core	2,168,533,029	18.44	1.52	1.78	0.58	0.58	2.72	2.89	N/A	N/A	4.27	1.98	01/01/2013
PIMCO Custom Index			1.80	1.91	0.32	0.32	2.16	2.58	2.14	3.51	3.54	1.80	
Difference			-0.28	-0.13	0.26	0.26	0.56	0.31	N/A	N/A	0.73	0.18	
IM U.S. Broad Mkt Core Fixed Income (SA+CF) Median			1.40	1.60	0.07	0.07	2.48	2.86	2.63	4.41	4.05	2.08	
PIMCO Core Rank			40	21	17	17	34	48	N/A	N/A	34	62	

Performance shown is gross of fees with the exception of Grosvenor Silvery Lupine Fund, which is shown net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding. The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofAML US HY Master II Const. Index, and 60% S&P/LSTA Leveraged Loan Index. The Internal Intermediate Gov't Fixed Income Portfolio Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index. The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter. The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Credit Fixed Income Composite	1,701,968,353	14.47	-3.01	-1.29	-0.83	-0.83	4.64	3.31	N/A	N/A	5.14	3.08	04/01/2013
Credit Custom Index			-3.00	-1.28	-0.59	-0.59	5.00	3.26	4.44	8.48	5.20	3.25	
Difference			-0.01	-0.01	-0.24	-0.24	-0.36	0.05	N/A	N/A	-0.06	-0.17	
IM U.S. Fixed Income (SA+CF) Median			0.69	1.18	0.43	0.43	2.61	2.84	2.94	4.52	4.17	2.34	
Credit Fixed Income Composite Rank			84	84	73	73	23	37	N/A	N/A	36	34	
Neuberger Berman Credit	770,047,247	6.55	-3.29	-1.69	-1.05	-1.05	3.84	2.99	N/A	N/A	4.38	3.09	04/01/2013
Credit Custom Index			-3.00	-1.28	-0.59	-0.59	5.00	3.26	4.44	8.48	5.20	3.25	
Difference			-0.29	-0.41	-0.46	-0.46	-1.16	-0.27	N/A	N/A	-0.82	-0.16	
IM U.S. Fixed Income (SA+CF) Median			0.69	1.18	0.43	0.43	2.61	2.84	2.94	4.52	4.17	2.34	
Neuberger Berman Credit Rank			86	89	74	74	33	45	N/A	N/A	47	33	
Seix	931,921,107	7.92	-2.78	-0.95	-0.66	-0.66	5.36	3.54	N/A	N/A	5.65	3.28	05/01/2013
Credit Custom Index			-3.00	-1.28	-0.59	-0.59	5.00	3.26	4.44	8.48	5.20	3.10	
Difference			0.22	0.33	-0.07	-0.07	0.36	0.28	N/A	N/A	0.45	0.18	
IM U.S. Fixed Income (SA+CF) Median			0.69	1.18	0.43	0.43	2.61	2.84	2.94	4.52	4.17	2.22	
Seix Rank			83	80	71	71	16	30	N/A	N/A	33	22	
Opportunistic Fixed Income													
Grosvenor Silvery Lupine Fund	221,828,165	1.89	-1.12	0.95	4.12	4.12	7.43	N/A	N/A	N/A	9.66	6.04	07/01/2014
CS Western Euro Hi Yld Index			-3.26	-1.03	-1.08	-1.08	6.07	4.90	8.05	12.78	8.41	4.24	
Difference			2.14	1.98	5.20	5.20	1.36	N/A	N/A	N/A	1.25	1.80	

Performance shown is gross of fees with the exception of Grosvenor Silvery Lupine Fund, which is shown net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding. The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofAML US HY Master II Const. Index, and 60% S&P/LSTA Leveraged Loan Index. The Internal Intermediate Gov't Fixed Income Portfolio Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index. The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter. The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Emerging Market Debt Fixed Income Composite	365,757,886	3.11	1.23	-1.52	-8.62	-8.62	4.90	-1.55	N/A	N/A	16.51	-3.12	04/01/2013
JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)			2.11	0.25	-6.21	-6.21	5.91	-0.96	0.18	3.45	15.21	-2.42	
Difference			-0.88	-1.77	-2.41	-2.41	-1.01	-0.59	N/A	N/A	1.30	-0.70	
IM Emerging Markets Debt (SA+CF) Median			-0.25	0.25	-5.32	-5.32	5.88	3.44	4.15	8.26	12.40	2.10	
Emerging Market Debt Fixed Income Composite Rank			28	93	92	92	84	98	N/A	N/A	12	98	
Investec	188,467,563	1.60	1.10	-0.92	-7.64	-7.64	5.15	-1.11	N/A	N/A	17.65	-2.50	04/01/2013
JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)			2.11	0.25	-6.21	-6.21	5.91	-0.96	0.18	3.45	15.21	-2.42	
Difference			-1.01	-1.17	-1.43	-1.43	-0.76	-0.15	N/A	N/A	2.44	-0.08	
IM Emerging Markets Debt (SA+CF) Median			-0.25	0.25	-5.32	-5.32	5.88	3.44	4.15	8.26	12.40	2.10	
Investec Rank			33	86	82	82	74	94	N/A	N/A	6	92	
Stone Harbor	177,290,323	1.51	1.38	-2.17	-9.66	-9.66	4.63	-2.01	N/A	N/A	15.33	-3.80	04/01/2013
JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)			2.11	0.25	-6.21	-6.21	5.91	-0.96	0.18	3.45	15.21	-2.42	
Difference			-0.73	-2.42	-3.45	-3.45	-1.28	-1.05	N/A	N/A	0.12	-1.38	
IM Emerging Markets Debt (SA+CF) Median			-0.25	0.25	-5.32	-5.32	5.88	3.44	4.15	8.26	12.40	2.10	
Stone Harbor Rank			26	97	97	97	88	100	N/A	N/A	22	100	
TIPS													
State Street TIPS	710,020,897	6.04	-0.52	-1.40	-1.51	-1.51	2.18	1.83	N/A	N/A	3.12	-0.11	01/01/2013
Bloomberg US Trsy US TIPS Index (Series B)			-0.49	-1.41	-1.48	-1.48	2.19	1.84	0.92	3.62	3.30	-0.10	
Difference			-0.03	0.01	-0.03	-0.03	-0.01	-0.01	N/A	N/A	-0.18	-0.01	
Long Duration Fixed Income Composite	566,946,515	4.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2019
Bloomberg US Gov't Crdt Lng Trm Bond Index			0.78	0.31	-4.68	-4.68	4.03	5.37	3.68	5.88	10.71	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IM U.S. Long Duration (SA+CF) Median			0.46	0.17	-4.70	-4.70	4.38	5.56	4.31	7.23	11.24	N/A	
Long Duration Fixed Income Composite Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Internal Long Duration Govt Fixed Income Portfolio	247,301,839	2.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2019
Bloomberg US Gov't Lng Trm Bond Index			4.16	1.22	-1.79	-1.79	2.63	5.90	2.76	4.15	8.53	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
IM U.S. Long Duration (SA+CF) Median			0.46	0.17	-4.70	-4.70	4.38	5.56	4.31	7.23	11.24	N/A	
Internal Long Duration Govt Fixed Income Portfolio Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Performance shown is gross of fees with the exception of Grosvenor Silvery Lupine Fund, which is shown net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding. The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofAML US HY Master II Const. Index, and 60% S&P/LSTA Leveraged Loan Index. The Internal Intermediate Gov't Fixed Income Portfolio Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index. The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter. The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Wyoming State Treasurer's Office
Asset Allocation & Performance

As of December 31, 2018

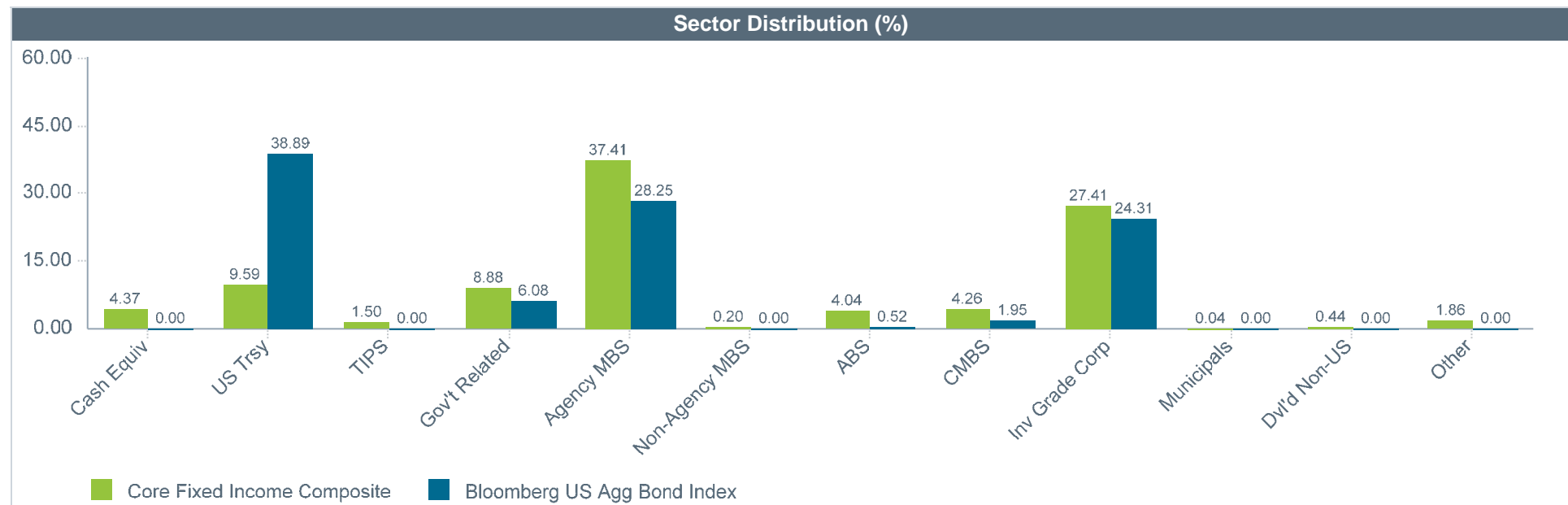
	Allocation		Performance (%)										
	Market Value (\$)	%	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
Logan Circle	319,644,675	2.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.04	11/01/2018
Bloomberg US Lng Crdt Index			-1.64	-0.40	-6.76	-6.76	4.87	5.08	4.36	7.40	12.21	2.04	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	
IM U.S. Long Duration (SA+CF) Median			0.46	0.17	-4.70	-4.70	4.38	5.56	4.31	7.23	11.24	3.69	
Logan Circle Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	82	
Intermediate Govt Fixed Income													
Internal Intermediate Govt Fixed Income Portfolio	1,871,401,273	15.91	1.93	2.00	1.85	1.85	1.55	2.34	1.59	2.25	1.84	4.57	10/01/1996
Bloomberg US Gov't: Int. Term Bond Index			2.22	2.11	1.43	1.43	1.21	1.46	1.11	2.31	1.14	4.55	
Difference			-0.29	-0.11	0.42	0.42	0.34	0.88	0.48	-0.06	0.70	0.02	
IM U.S. Government Bonds (SA+CF) Median			2.25	1.47	1.27	1.27	1.66	1.99	1.49	2.09	1.77	4.94	
Internal Intermediate Govt Fixed Income Portfolio Rank			73	27	3	3	53	47	49	48	50	57	
Low Duration Fixed Income Composite													
Low Duration Fixed Income Composite	1,506,744,682	12.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.70	12/01/2018
Bloomberg US Gov't Crdt 1-3 Yr Bond Index			1.18	1.52	1.60	1.60	1.24	1.03	1.01	1.52	0.84	0.78	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.08	
IM U.S. Short Duration Fixed Income (SA+CF) Median			0.97	1.45	1.68	1.68	1.58	1.45	1.49	2.31	1.51	0.63	
Low Duration Fixed Income Composite Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	
Internal Low Duration Fixed Income Portfolio													
Internal Low Duration Fixed Income Portfolio	1,104,000,628	9.39	1.19	1.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.90	03/01/2018
Bloomberg US Gov't 1-3 Yr Bond Index			1.31	1.51	1.58	1.58	0.96	0.82	0.71	1.03	0.45	1.93	
Difference			-0.12	-0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.03	
IM U.S. Short Duration Fixed Income (SA+CF) Median			0.97	1.45	1.68	1.68	1.58	1.45	1.49	2.31	1.51	2.00	
Internal Low Duration Fixed Income Portfolio Rank			18	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	74	
State Street Low Duration													
State Street Low Duration	402,744,055	3.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.69	12/01/2018
Bloomberg US Crdt 1-3 Yr Bond Index			0.89	1.52	1.64	1.64	1.80	1.47	1.78	2.96	1.66	0.72	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.03	
IM U.S. Short Duration Fixed Income (SA+CF) Median			0.97	1.45	1.68	1.68	1.58	1.45	1.49	2.31	1.51	0.63	
State Street Low Duration Rank			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34	

Performance shown is gross of fees with the exception of Grosvenor Silvery Lupine Fund, which is shown net of fees. Wyoming State Treasurer's Office fiscal year ends on June 30th. Since Inception date shown represents the first full month following initial funding. The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofAML US HY Master II Const. Index, and 60% S&P/LSTA Leveraged Loan Index. The Internal Intermediate Gov't Fixed Income Portfolio Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index. The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter. The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

Wyoming State Treasurer's Office
Core Fixed Income Composite vs. Bloomberg US Agg Bond Index
Portfolio Characteristics

As of December 31, 2018

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	4.31	5.87
Convexity	-0.38	0.23
Avg. Maturity	5.33	8.22
Avg. Quality	Aa3	Aa1/Aa2
Yield To Maturity (%)	3.50	3.28
Coupon Rate (%)	3.36	3.20
Current Yield (%)	3.21	N/A

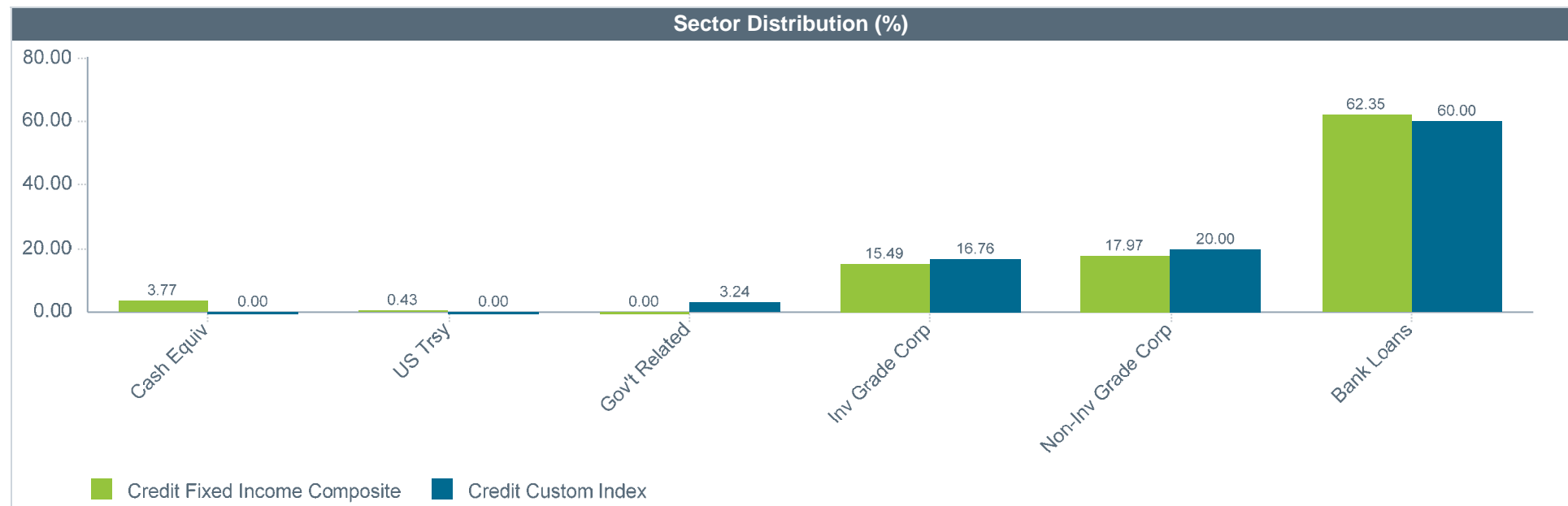


The statistics are calculated based on a weighted average of the underlying managers. Allocation to "Other" consists of collateralized mortgage obligations and Euro/Yankee securities.

Wyoming State Treasurer's Office
Credit Fixed Income Composite vs. Credit Custom Index
Portfolio Characteristics

As of December 31, 2018

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	1.96	N/A
Avg. Maturity	6.42	6.33
Avg. Quality	Ba3	Ba2
Yield To Maturity (%)	5.75	7.01
Coupon Rate (%)	4.49	5.73
Current Yield (%)	4.80	N/A

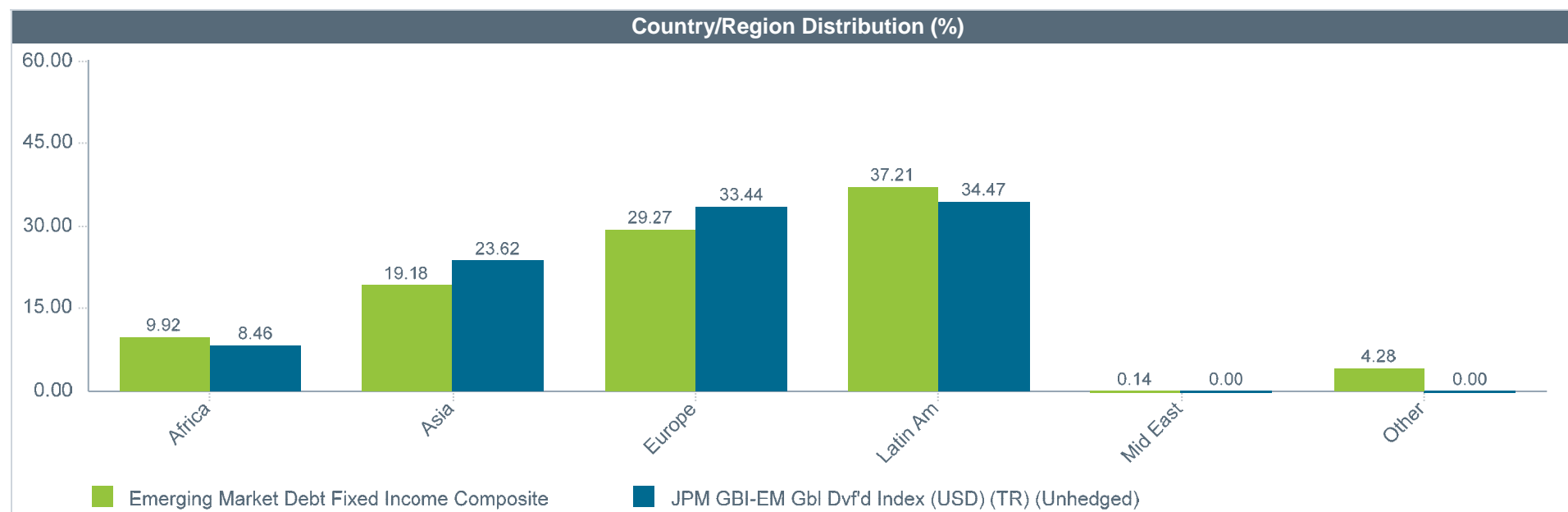


The statistics are calculated based on a weighted average of the underlying members.
Statistics for the S&P/LSTA Leveraged Loan Index are unavailable.
The Credit Suisse Leveraged Loan Index is used as a proxy within the Credit Custom Index.

Emerging Market Debt Fixed Income Composite vs. JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)

Portfolio Characteristics

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	5.08	5.18
Convexity	0.48	0.51
Avg. Maturity	7.73	7.54
Avg. Quality	Baa2	Baa3
Yield To Maturity (%)	8.31	6.62
Coupon Rate (%)	6.04	6.48
Yield To Worst (%)	8.31	6.62
Current Yield (%)	6.66	6.55

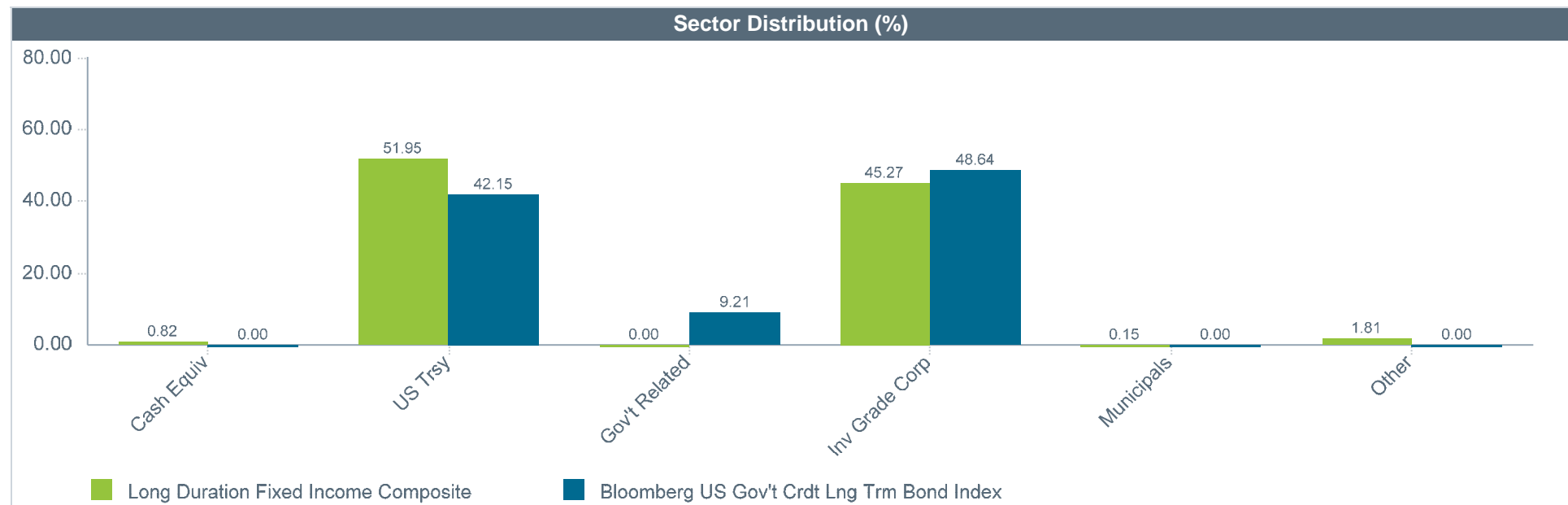


The statistics are calculated based on a weighted average of the underlying managers. Region allocation to "Other" consists of developed market securities, Commonwealth of Independent States, foreign exchange, and cash. Negative region allocation reflects manager's use of derivatives, short selling, or interest rate swaps.

Long Duration Fixed Income Composite vs. Bloomberg US Gov't Crdt Lng Trm Bond Index

Portfolio Characteristics

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	14.83	14.97
Convexity	3.18	3.14
Avg. Quality	Aa2	Aa3/A1
Yield To Maturity (%)	4.00	4.07
Coupon Rate (%)	4.06	4.37

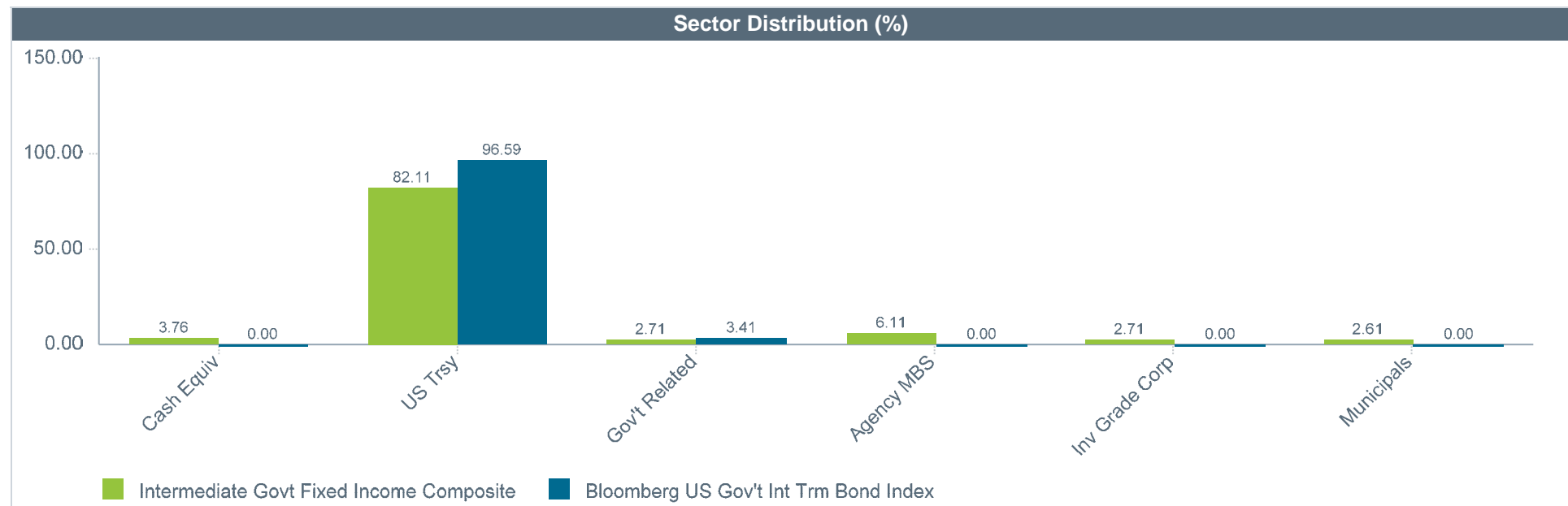


The statistics are calculated based on a weighted average of the underlying managers. Allocation to "Other" consists of foreign agency securities.

Wyoming State Treasurer's Office
Intermediate Govt Fixed Income Composite vs. Bloomberg US Gov't Int Trm Bond Index
Portfolio Characteristics

As of December 31, 2018

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	3.27	3.75
Convexity	0.15	0.20
Avg. Quality	Aaa	Aaa/Aa1
Yield To Maturity (%)	2.65	2.54
Coupon Rate (%)	1.95	2.21

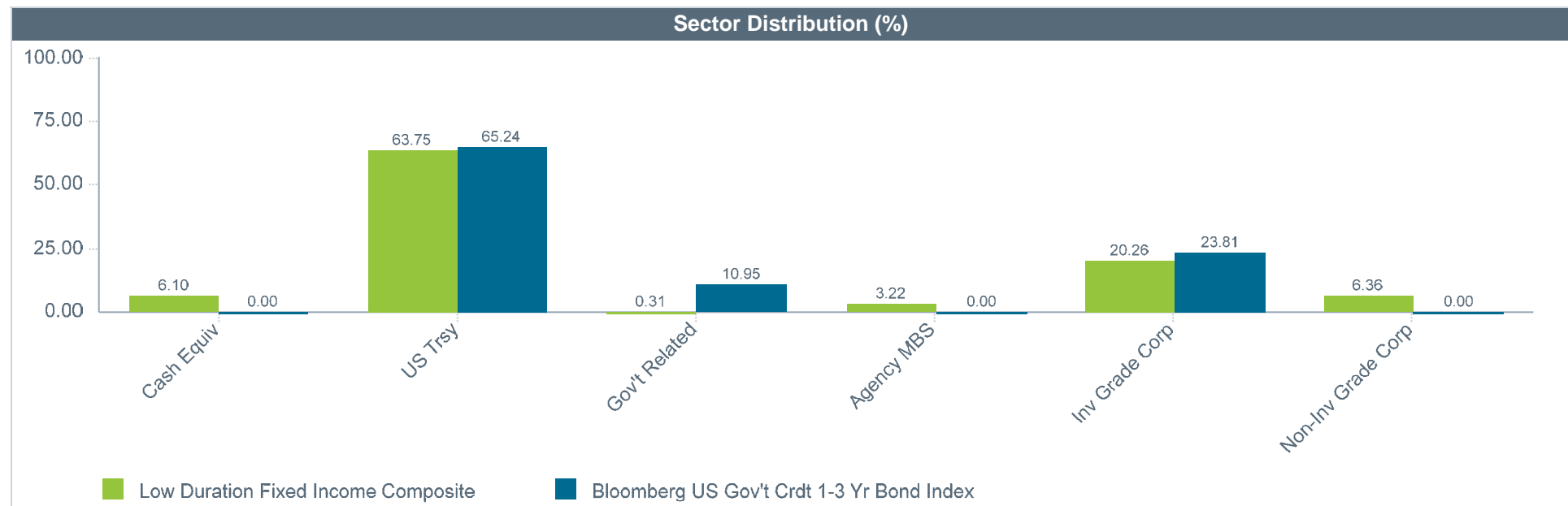


The statistics are calculated based on a weighted average of the underlying managers.

Low Duration Fixed Income Composite vs. Bloomberg US Gov't Crdt 1-3 Yr Bond Index

Portfolio Characteristics

Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	1.78	1.90
Convexity	0.03	0.04
Avg. Quality	Aa2	Aa1/Aa2
Yield To Maturity (%)	2.75	2.75
Coupon Rate (%)	1.76	2.39



The statistics are calculated based on a weighted average of the underlying managers.

Wyoming State Treasurer's Office
Comparative Performance

As of December 31, 2018

	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
JP Morgan Cash Composite	0.64	1.11	1.90	1.90	1.06	0.70	0.54	0.59	0.83	1.49	01/01/2006
JP Morgan Cash Custom Index	0.66	1.13	1.87	1.87	1.03	0.69	0.55	0.64	0.84	1.50	
Difference	-0.02	-0.02	0.03	0.03	0.03	0.01	-0.01	-0.05	-0.01	-0.01	
Wyo-Star Cash Composite	0.72	1.16	1.75	1.75	0.98	0.69	0.55	0.62	0.76	3.25	10/01/1996
Wyo-Star Cash Custom Index	0.74	1.16	1.77	1.77	0.98	0.69	0.57	0.68	0.80	2.64	
Difference	-0.02	0.00	-0.02	-0.02	0.00	0.00	-0.02	-0.06	-0.04	0.61	
WYO STAR II Total Fund	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2019
Bloomberg US Corp Int Bond Index	0.58	1.39	-0.23	-0.23	2.56	2.62	3.11	5.32	3.92	N/A	
Difference	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Performance shown for the JP Morgan Cash Composite and the Wyo-Star Cash Composite consists of the respective operating and extended cash accounts.

The JP Morgan Cash Custom Index is calculated monthly using beginning of the month investment weights applied to each corresponding primary benchmark return. Currently, the primary benchmark for JP Morgan Cash is the ICE BofAML 3 Mo US T-Bill Index and for JP Morgan Extd is the JP Morgan Blended Index.

The Wyo-Star Cash Custom Index is calculated monthly using beginning of the month investment weights applied to each corresponding primary benchmark return. Currently, the primary benchmark for Wyo-Star Cash is the ICE BofAML 3 Mo US T-Bill Index and for Wyo-Star Extd is the JP Morgan Blended Index.

Wyoming State Treasurer's Office
Comparative Performance

As of December 31, 2018

	QTD	FYTD	CYTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	Since Incep.	Inception Date
JP Morgan Cash Composite	0.65	1.14	1.96	1.96	1.13	0.79	0.64	0.70	0.87	1.57	01/01/2006
JP Morgan Cash Custom Index	0.66	1.13	1.87	1.87	1.03	0.69	0.55	0.64	0.84	1.50	
Difference	-0.01	0.01	0.09	0.09	0.10	0.10	0.09	0.06	0.03	0.07	
Wyo-Star Cash Composite	0.74	1.19	1.81	1.81	1.05	0.75	0.62	0.71	0.81	3.29	10/01/1996
Wyo-Star Cash Custom Index	0.74	1.16	1.77	1.77	0.98	0.69	0.57	0.68	0.80	2.64	
Difference	0.00	0.03	0.04	0.04	0.07	0.06	0.05	0.03	0.01	0.65	
WYO STAR II Total Fund	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/01/2019
Bloomberg US Corp Int Bond Index	0.58	1.39	-0.23	-0.23	2.56	2.62	3.11	5.32	3.92	N/A	
Difference	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Performance shown for the JP Morgan Cash Composite and the Wyo-Star Cash Composite consists of the respective operating and extended cash accounts.

The JP Morgan Cash Custom Index is calculated monthly using beginning of the month investment weights applied to each corresponding primary benchmark return. Currently, the primary benchmark for JP Morgan Cash is the ICE BofAML 3 Mo US T-Bill Index and for JP Morgan Extd is the JP Morgan Blended Index.

The Wyo-Star Cash Custom Index is calculated monthly using beginning of the month investment weights applied to each corresponding primary benchmark return. Currently, the primary benchmark for Wyo-Star Cash is the ICE BofAML 3 Mo US T-Bill Index and for Wyo-Star Extd is the JP Morgan Blended Index.

Wyoming State Treasurer's Office
Investment Values by Fund
December 31, 2018

	Total Investment Value	Fiscal Year Ending 06/30/18 Market Value	Current Market Value	% of MV
Wyoming State Total Fund	\$19,891,129,270	\$20,599,864,561	\$20,153,521,320	100.0%
Permanent Mineral Trust	\$7,400,003,510	\$7,807,061,216	\$7,603,910,667	100.0%
US Equity	\$699,578,356	\$902,200,321	\$800,990,387	10.5%
International Equity	\$1,039,515,629	\$1,195,656,643	\$1,046,835,071	13.8%
MLPs	\$224,522,617	\$0	\$172,328,267	2.3%
Convertible Bonds	\$137,484,327	\$154,560,618	\$150,166,529	2.0%
Private Equity	\$253,961,005	\$427,185,212	\$393,776,025	5.2%
Real Estate	\$465,185,227	\$547,895,605	\$550,590,525	7.2%
Diversified Hedge Funds	\$412,650,430	\$350,380,482	\$404,946,496	5.3%
Fixed Income	\$2,977,498,160	\$2,942,548,132	\$2,906,888,141	38.2%
Public Purpose Investments	\$119,393,495	\$123,953,002	\$119,393,495	1.6%
Cash (invested in State Agency Pool)	\$1,070,214,264	\$1,162,681,202	\$1,057,995,731	13.9%
Common School Perm Land Fund	\$3,821,019,685	\$3,989,288,968	\$3,908,617,817	100.0%
US Equity	\$334,010,381	\$431,979,724	\$383,027,486	9.8%
International Equity	\$494,970,390	\$570,972,998	\$499,901,998	12.8%
Preferred Stock	\$78,121,884	\$78,121,884	\$76,388,606	2.0%
MLPs	\$151,541,982	\$0	\$116,313,303	3.0%
Convertible Bonds	\$65,130,000	\$72,514,640	\$70,453,082	1.8%
Private Equity	\$99,184,728	\$190,648,126	\$168,755,922	4.3%
Real Estate	\$191,227,983	\$229,728,008	\$230,734,611	5.9%
Diversified Hedge Funds	\$14,183,323	\$127,081,061	\$14,266,615	0.4%
Fixed Income	\$1,440,400,572	\$1,234,096,745	\$1,405,762,756	36.0%
Public Purpose Investments	\$143,359,738	\$18,359,738	\$143,359,738	3.7%
Cash (invested in State Agency Pool)	\$808,888,705	\$1,035,786,044	\$799,653,700	20.5%
Permanent Land Fund	\$181,154,633	\$198,047,815	\$186,630,512	100.0%
US Equity	\$16,261,390	\$20,864,116	\$18,528,284	9.9%
International Equity	\$24,076,714	\$27,838,662	\$24,374,439	13.1%
MLPs	\$5,639,972	\$0	\$4,328,859	2.3%
Convertible Bonds	\$3,549,159	\$3,962,941	\$3,850,276	2.1%
Private Equity	\$7,720,679	\$12,731,523	\$11,632,917	6.2%
Real Estate	\$11,553,136	\$13,616,536	\$13,690,386	7.3%
Diversified Hedge Funds	\$10,328,061	\$8,710,560	\$10,152,563	5.4%
Fixed Income	\$79,039,554	\$78,264,960	\$77,349,249	41.4%
Cash (invested in State Agency Pool)	\$22,985,968	\$32,058,517	\$22,723,539	12.2%
University Permanent Land Fund	\$20,563,565	\$23,206,526	\$22,381,033	100.0%
US Equity	\$2,734,834	\$3,734,945	\$3,334,868	14.9%
International Equity	\$2,877,736	\$3,370,941	\$2,951,344	13.2%
MLPs	\$659,991	\$0	\$506,564	2.3%
Convertible Bonds	\$396,770	\$448,651	\$435,896	1.9%
Private Equity	\$643,153	\$2,055,536	\$1,962,082	8.8%
Real Estate	\$1,353,529	\$1,524,457	\$1,530,504	6.8%
Diversified Hedge Funds	\$1,213,914	\$1,050,152	\$1,193,238	5.3%
Fixed Income	\$8,020,634	\$7,942,943	\$7,833,936	35.0%
Cash (invested in State Agency Pool)	\$2,663,004	\$3,078,901	\$2,632,601	11.8%

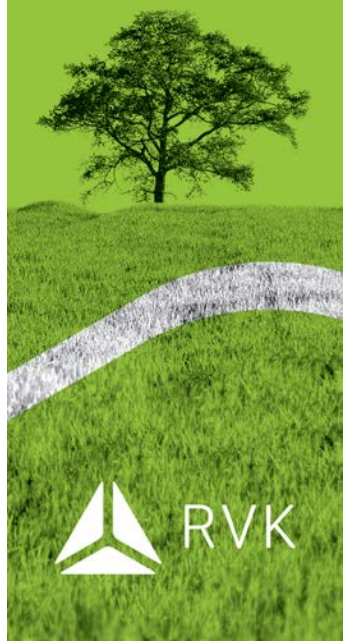
Wyoming State Treasurer's Office
Investment Values by Fund
December 31, 2018

	Total Investment Value	Fiscal Year Ending 06/30/18 Market Value	Current Market Value	% of MV
Wyoming State Total Fund	\$19,891,129,270	\$20,599,864,561	\$20,153,521,320	100.0%
Hathaway Scholarship	\$557,937,545	\$582,413,022	\$565,450,818	100.0%
US Equity	\$52,242,917	\$67,496,921	\$59,927,233	10.6%
International Equity	\$74,253,249	\$86,862,174	\$76,041,049	13.4%
MLPs	\$16,617,597	\$0	\$12,754,535	2.3%
Convertible Bonds	\$10,710,409	\$12,172,394	\$11,826,338	2.1%
Private Equity	\$9,902,641	\$8,504,136	\$9,679,786	1.7%
Real Estate	\$35,943,923	\$46,159,970	\$46,403,467	8.2%
Diversified Hedge Funds	\$30,749,419	\$27,941,928	\$30,175,102	5.3%
Fixed Income	\$267,613,620	\$262,978,800	\$259,423,454	45.9%
Cash (invested in State Agency Pool)	\$59,903,769	\$70,296,700	\$59,219,853	10.5%
Higher Education	\$114,086,012	\$120,117,913	\$115,224,236	100.0%
US Equity	\$10,778,148	\$13,902,792	\$12,344,095	10.7%
International Equity	\$15,401,798	\$18,032,477	\$15,786,384	13.7%
Preferred Stock	\$2,376,100	\$2,376,100	\$2,323,382	2.0%
MLPs	\$4,571,934	\$0	\$3,509,105	3.0%
Convertible Bonds	\$2,248,679	\$2,562,780	\$2,489,922	2.2%
Real Estate	\$6,688,668	\$8,593,415	\$8,634,629	7.5%
Diversified Hedge Funds	\$558,709	\$5,006,285	\$562,056	0.5%
Fixed Income	\$56,162,731	\$55,192,176	\$54,450,088	47.3%
Cash (invested in State Agency Pool)	\$15,299,244	\$14,451,888	\$15,124,574	13.1%
Workers Compensation Fund	\$2,030,322,291	\$2,035,610,128	\$2,042,516,777	100.0%
US Equity	\$107,160,735	\$139,378,668	\$123,113,634	6.0%
International Equity	\$154,843,802	\$180,662,255	\$158,149,184	7.7%
MLPs	\$38,759,233	\$0	\$29,748,947	1.5%
Convertible Bonds	\$0	\$59,806,289	\$0	0.0%
Real Estate	\$55,073,527	\$76,472,069	\$76,848,502	3.8%
Diversified Hedge Funds	\$7,392,559	\$66,237,645	\$7,436,208	0.4%
Fixed Income	\$1,475,143,106	\$1,096,150,945	\$1,457,462,440	71.4%
Cash (invested in State Agency Pool)	\$191,949,329	\$416,902,257	\$189,757,862	9.3%
Pool A	\$237,745,253	\$238,849,216	\$243,608,717	100.0%
Preferred Stock	\$4,502,016	\$4,502,016	\$4,402,131	1.8%
MLPs	\$5,472,943	\$0	\$4,200,658	1.7%
Convertible Bonds	\$8,077,226	\$8,673,658	\$8,427,070	3.5%
Fixed Income	\$211,254,021	\$219,578,995	\$218,236,159	89.6%
Cash (invested in State Agency Pool)	\$8,439,047	\$6,094,547	\$8,342,700	3.4%
State Agency Pool	\$5,528,296,776	\$5,605,269,757	\$5,465,180,745	100.0%
Convertible Bonds	\$147,601,638	\$155,438,565	\$161,272,667	3.0%
Fixed Income	\$3,933,108,035	\$3,615,102,242	\$3,854,162,338	70.5%
Public Purpose Investments	\$111,195,023	\$122,156,392	\$111,195,023	2.0%
Cash Equivalents	\$1,336,392,080	\$1,712,572,558	\$1,338,550,716	24.5%

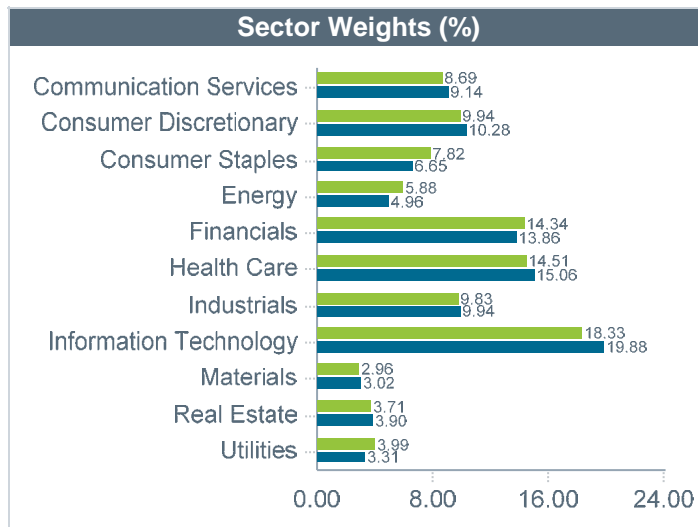
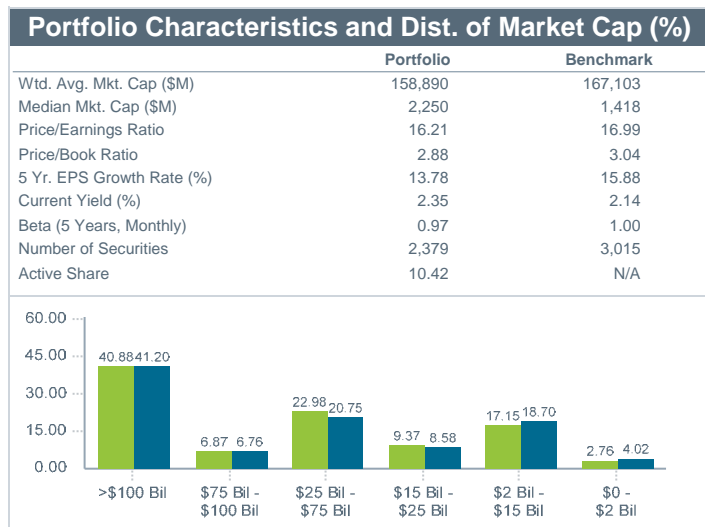
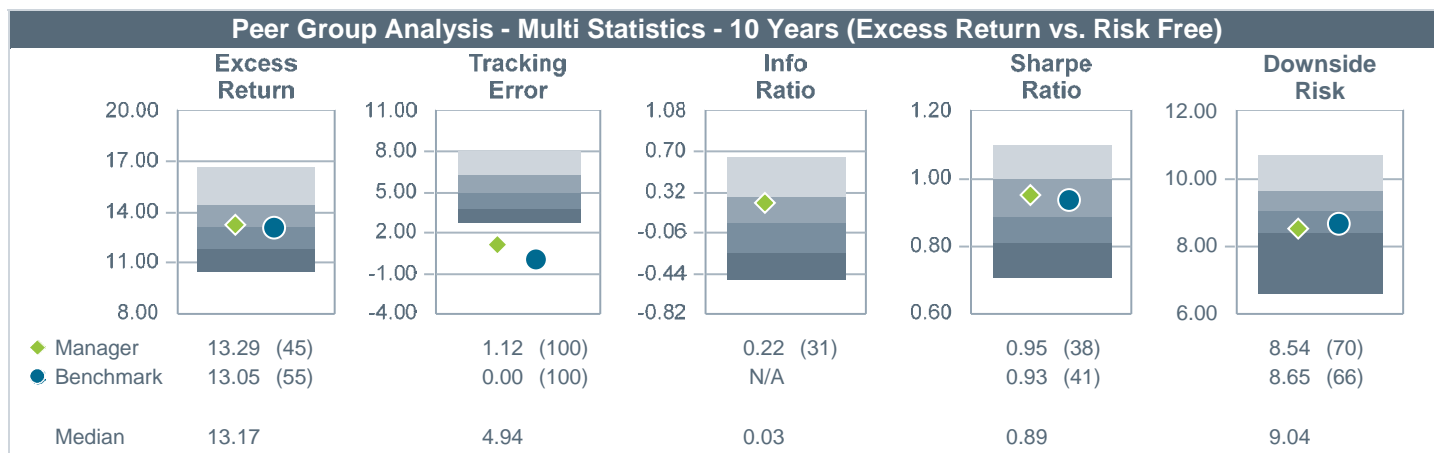
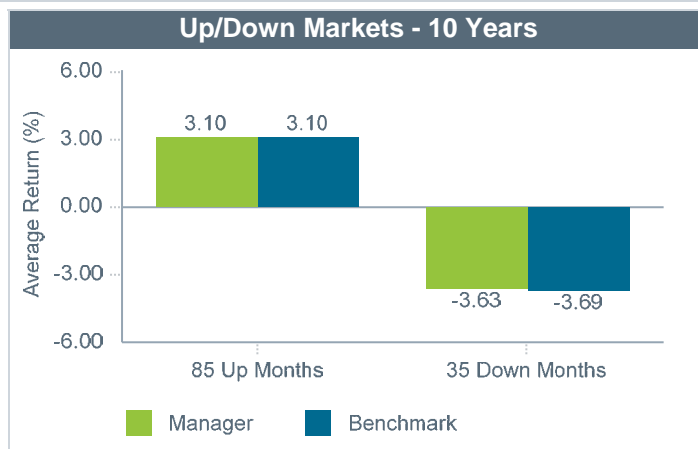
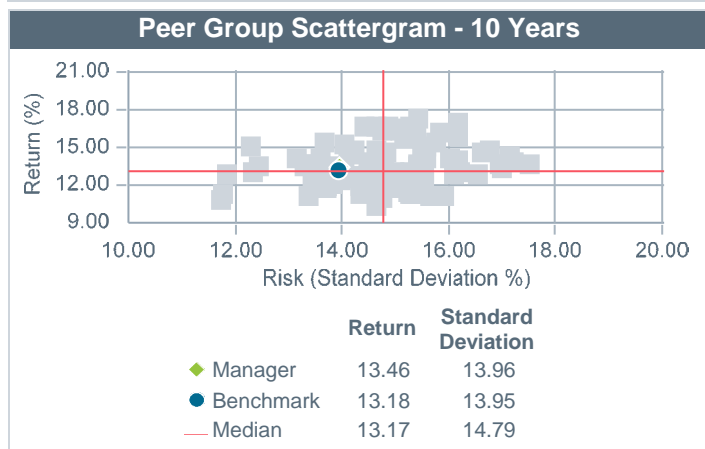
Wyoming State Treasurer's Office
Investment Values by Manager
December 31, 2018

	Total Investment Value	Fiscal Year Ending 06/30/18 Market Value	Current Market Value	% of MV
Wyoming State Total Fund	\$19,891,129,270	\$20,599,864,561	\$20,153,521,320	100.0%
US Equity	\$1,222,766,761	\$1,579,557,486	\$1,401,265,987	7.0%
State Street All Cap	\$838,476,906	\$1,137,708,518	\$1,025,583,500	
Epoch	\$218,362,873	\$269,713,108	\$236,091,409	
UW Portfolio Management Program	\$1,000,000	\$1,466,053	\$1,323,962	
Internal Equity Russell 2000	\$164,926,982	\$0	\$138,267,116	
RBC	\$0	\$170,669,808	\$0	
International Equity	\$1,805,939,317	\$2,083,396,150	\$1,824,039,468	9.1%
Internal International Equity Portfolio	\$135,000,000	\$166,293,614	\$146,137,638	
Northern Trust	\$968,882,175	\$1,101,957,364	\$968,887,999	
Fisher Investments	\$343,648,207	\$437,594,475	\$377,491,691	
Arrowstreet	\$358,408,936	\$377,550,696	\$331,522,141	
Mixed Assets	\$966,198,111	\$631,160,344	\$899,331,584	4.5%
Cohen & Steers	\$85,000,000	\$85,000,000	\$83,114,119	
Harvest	\$447,786,270	\$0	\$343,690,238	
Allianz Global Investors	\$433,411,842	\$546,160,344	\$472,527,227	
Private Equity	\$371,412,206	\$641,124,533	\$585,806,732	2.9%
Access Venture Partners II	\$3,801,445	\$14,384,623	\$4,623,887	
Cheyenne Capital	\$121,635,215	\$287,701,522	\$243,366,328	
Hamilton Lane Nowood	\$126,769,675	\$147,715,242	\$147,358,461	
Neuberger Berman Sauger	\$119,205,871	\$191,323,146	\$190,458,056	
Real Estate	\$767,025,993	\$923,990,059	\$928,432,624	4.6%
Clarion Lion	\$266,303,630	\$342,217,898	\$349,622,337	
UBS Trumbull	\$241,303,630	\$281,783,741	\$284,817,359	
Cornerstone	\$4,656,940	\$4,827,296	\$4,776,734	
Heitman	\$1,759,375	\$67,199	\$17,473	
M&G	\$65,347,538	\$54,156,241	\$48,858,148	
Northwood	\$114,447,406	\$145,919,605	\$149,612,642	
SC Capital	\$44,563,765	\$46,068,794	\$45,366,193	
TA Realty	\$1,802,058	\$2,622,422	\$269,535	
WestRiver	\$26,841,651	\$46,326,863	\$45,092,204	
Diversified Hedge Funds	\$477,076,415	\$586,408,113	\$468,732,278	2.3%
PAAMCO - Jackalope	\$57,076,415	\$511,408,113	\$57,413,630	
Grosvenor Diversified Hedge Funds	\$250,000,000	\$31,000,000	\$240,400,391	
Internal Diversified Hedge Funds	\$170,000,000	\$44,000,000	\$170,918,257	
Fixed Income	\$11,999,446,206	\$11,279,881,593	\$11,761,638,393	58.4%
C.S. McKee	\$1,250,141,923	\$1,239,782,750	\$1,244,766,800	
JP Morgan Core	\$1,417,913,636	\$1,398,403,539	\$1,403,670,794	
PIMCO	\$2,176,287,800	\$2,160,523,241	\$2,168,533,029	
Neuberger Berman Credit	\$803,565,335	\$922,183,704	\$770,047,247	
Seix	\$943,160,037	\$948,736,474	\$931,921,107	
Grosvenor Silvery Lupine Fund	\$171,010,797	\$281,156,865	\$221,828,165	
Investec	\$297,714,010	\$197,847,664	\$188,467,563	
Stone Harbor	\$297,712,381	\$186,907,000	\$177,290,323	
State Street TIPS	\$723,969,701	\$723,229,173	\$710,020,897	
Internal Long Duration Govt Portfolio	\$232,123,992	\$0	\$247,301,839	
Logan Circle	\$318,000,000	\$0	\$319,644,675	
Internal Int. Duration Govt Portfolio	\$1,868,275,080	\$1,852,289,491	\$1,871,401,273	
Internal Low Duration Govt Portfolio	\$1,099,571,515	\$1,368,821,692	\$1,104,000,628	
State Street Low Duration	\$400,000,000	\$0	\$402,744,055	
Neuberger Berman Core	\$0	\$1	\$0	
Public Purpose Investments	\$417,803,232	\$324,211,740	\$417,803,232	2.1%
Cash & Cash Equivalents	\$1,863,461,027	\$2,550,134,544	\$1,866,471,022	9.3%
JP Morgan Cash Composite	\$1,863,461,027	\$2,550,134,544	\$1,866,471,022	

Investment Manager Profiles



Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-13.51	-5.25	8.90	7.82	12.36	13.46	19.79	13.77	-0.02	12.86	33.48
Benchmark	-14.30	-5.24	8.97	7.91	12.46	13.18	21.13	12.74	0.48	12.56	33.55
Difference	0.79	-0.01	-0.07	-0.09	-0.10	0.28	-1.34	1.03	-0.50	0.30	-0.07
Peer Group Median	-14.86	-6.11	7.90	6.66	11.90	13.15	19.92	12.57	-0.39	9.76	35.11
Rank	29	43	38	33	41	42	52	43	48	22	66
Population	155	155	152	143	136	115	172	190	195	203	214



Performance shown is gross of fees. Performance prior to client inception consists of the State Street All Cap Custom Index. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

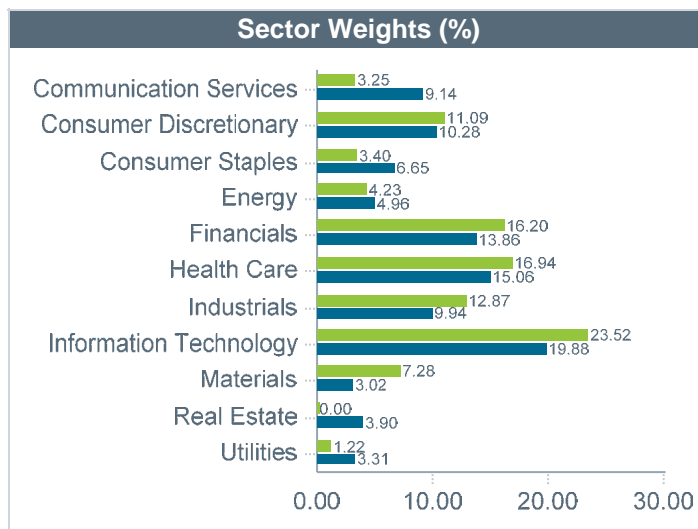
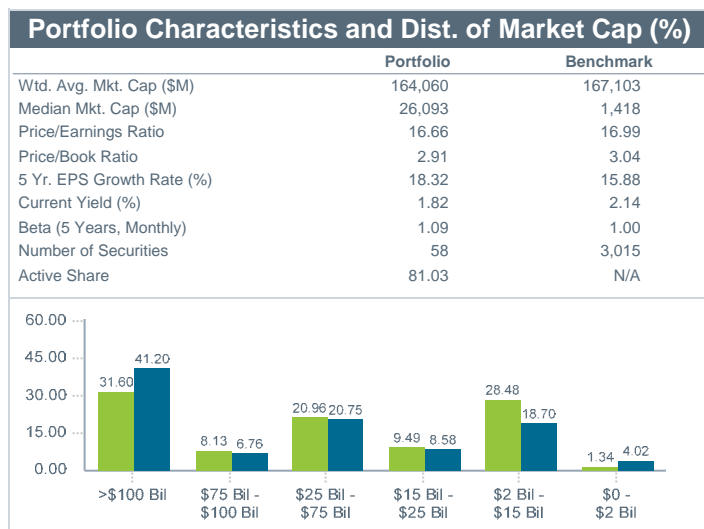
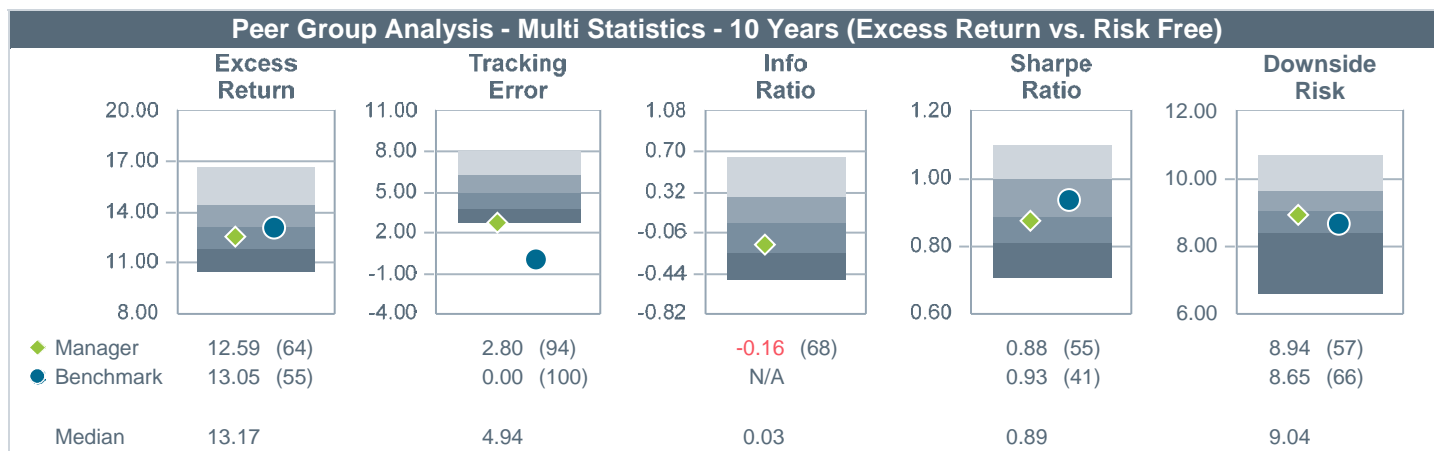
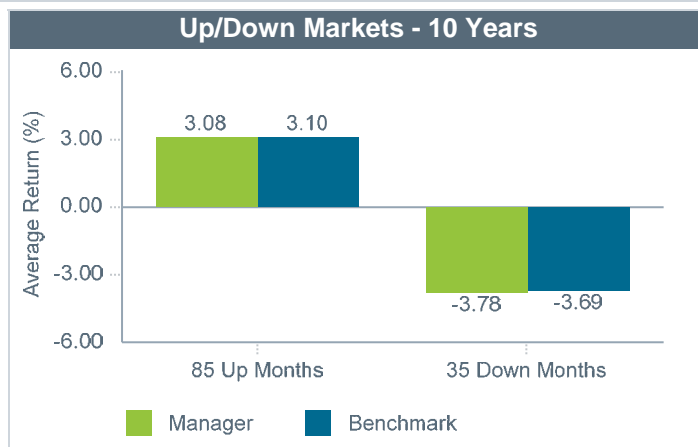
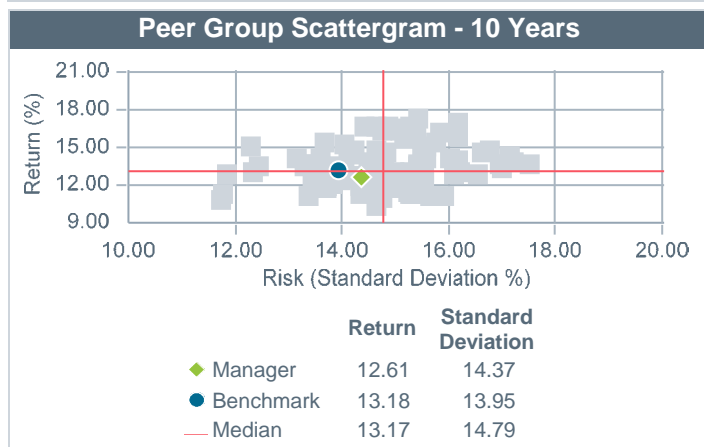
Manager: Epoch

As of December 31, 2018

Benchmark: Russell 3000 Index

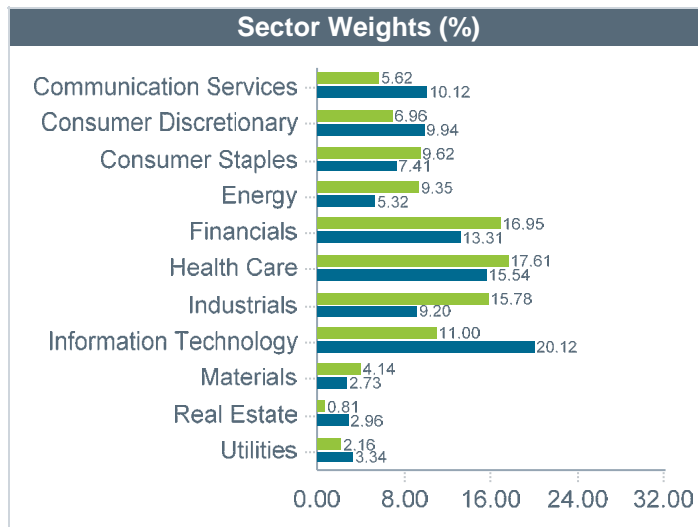
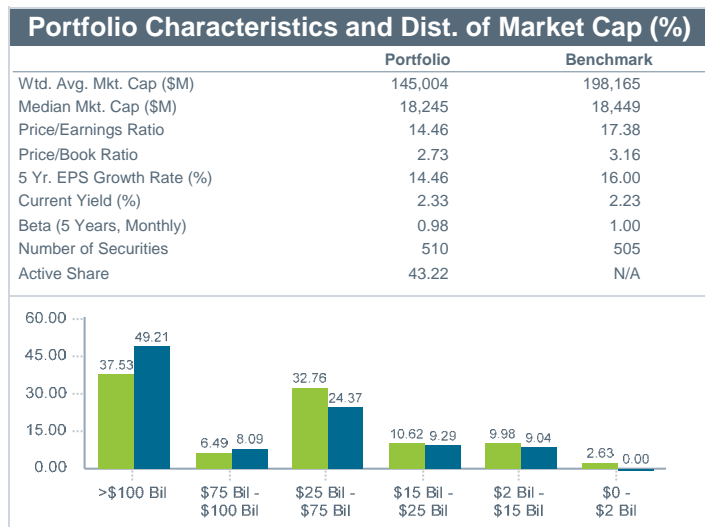
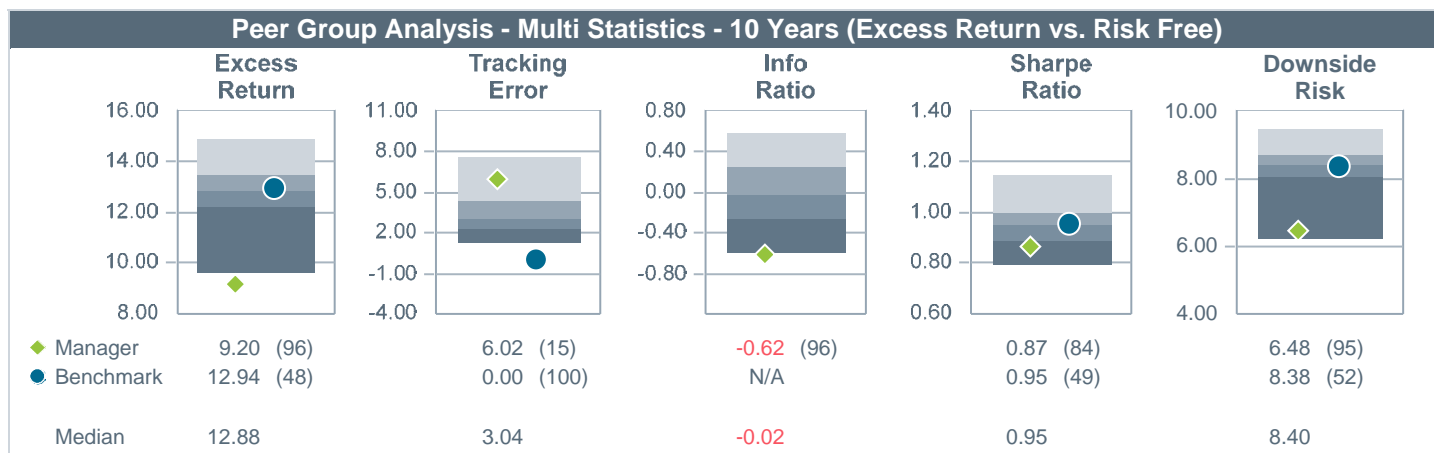
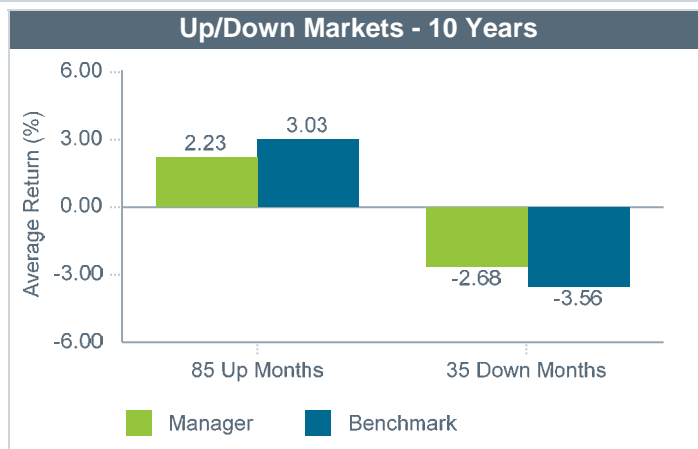
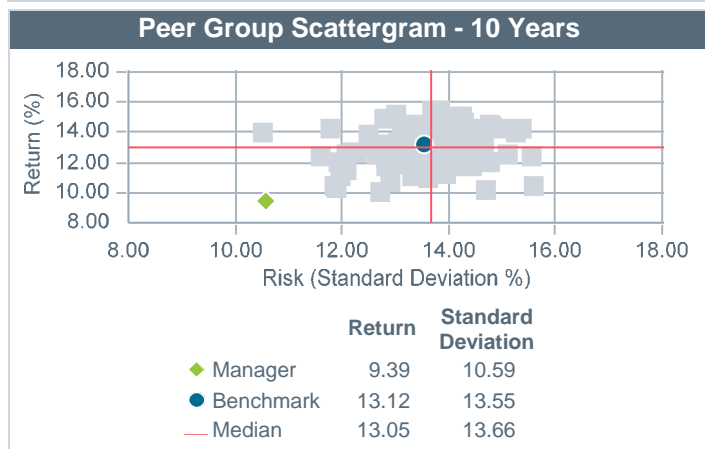
Peer Group: IM U.S. All Cap Equity (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-15.38	-10.04	7.11	6.73	11.41	12.61	23.97	10.19	-1.61	14.56	37.28
Benchmark	-14.30	-5.24	8.97	7.91	12.46	13.18	21.13	12.74	0.48	12.56	33.55
Difference	-1.08	-4.80	-1.86	-1.18	-1.05	-0.57	2.84	-2.55	-2.09	2.00	3.73
Peer Group Median	-14.86	-6.11	7.90	6.66	11.90	13.15	19.92	12.57	-0.39	9.76	35.11
Rank	59	72	62	49	56	65	25	58	59	12	37
Population	155	155	152	143	136	115	172	190	195	203	214



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-16.15	-8.04	7.49	7.29	9.32	9.39	21.83	10.87	1.03	13.30	23.52
Benchmark	-13.52	-4.38	9.26	8.49	12.70	13.12	21.83	11.96	1.38	13.69	32.39
Difference	-2.63	-3.66	-1.77	-1.20	-3.38	-3.73	0.00	-1.09	-0.35	-0.39	-8.87
Peer Group Median	-13.83	-5.20	8.47	8.15	12.63	13.05	21.83	10.52	1.43	13.42	32.98
Rank	89	84	75	72	91	96	50	47	56	52	95
Population	242	242	236	229	214	192	284	308	326	345	363



Performance shown is gross of fees and client specific. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

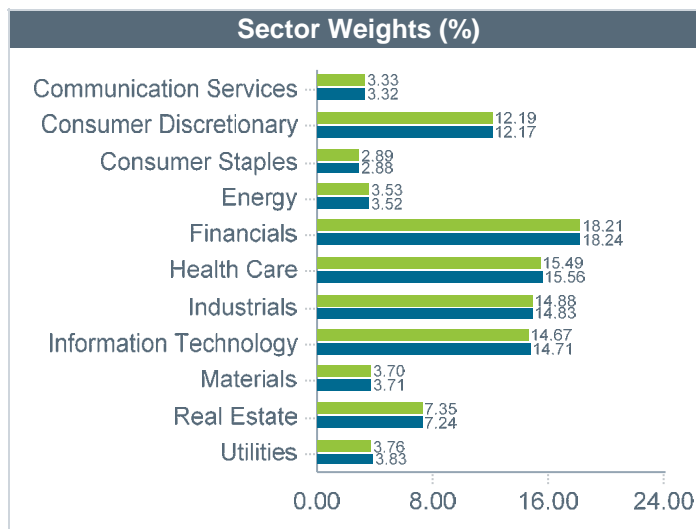
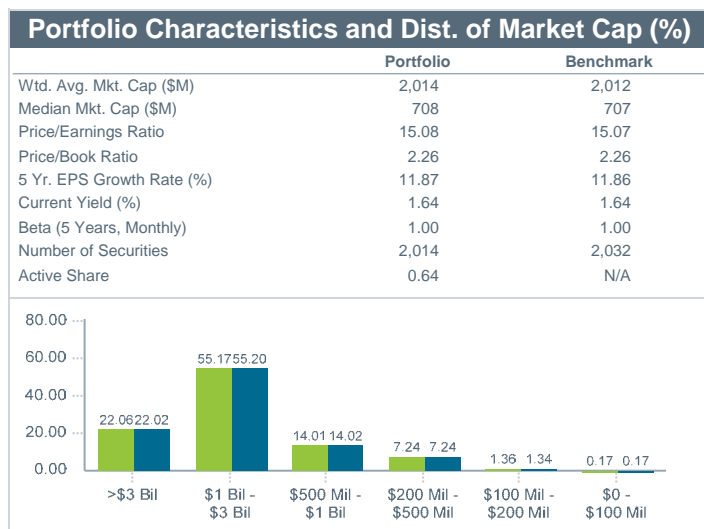
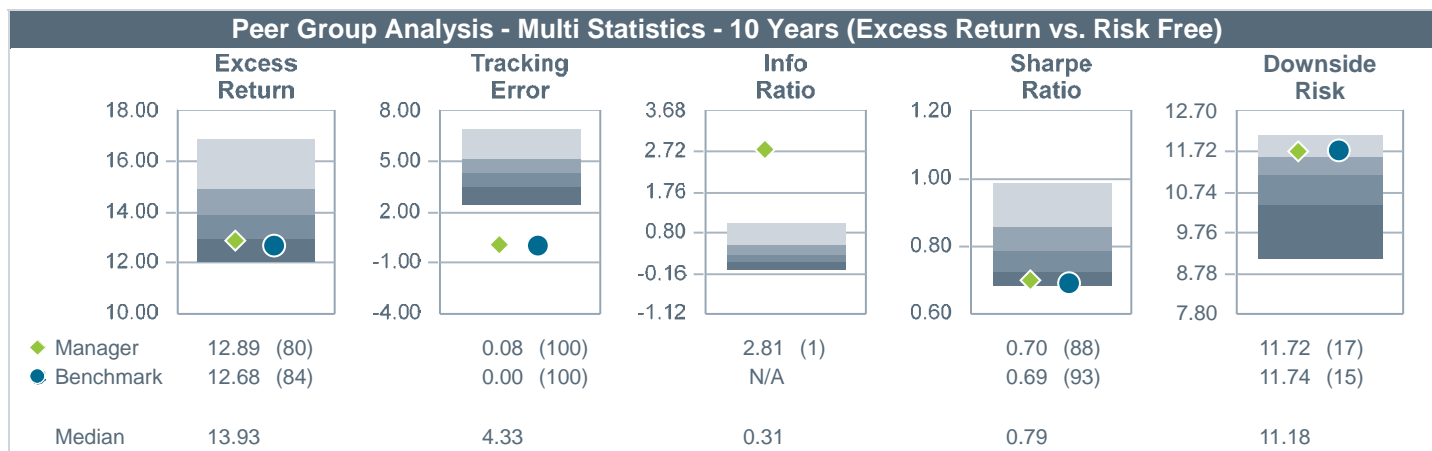
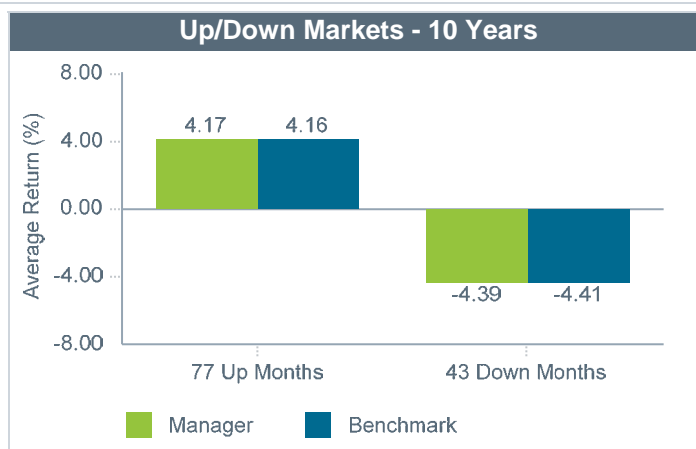
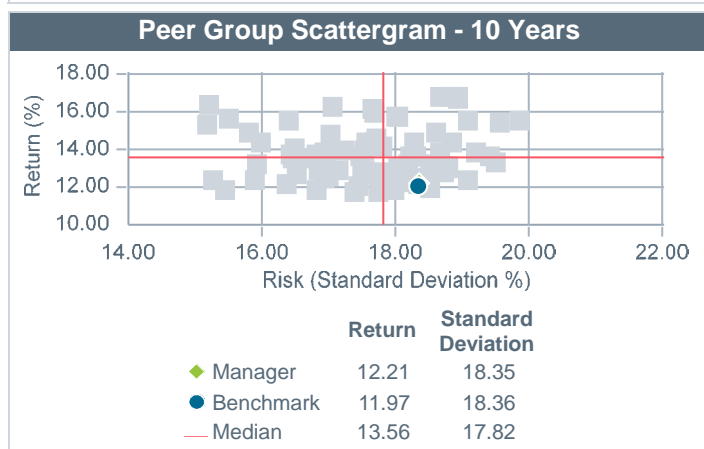
Manager: Internal Equity Russell 2000

As of December 31, 2018

Benchmark: Russell 2000 Index

Peer Group: IM U.S. Small Cap Core Equity (SA+CF)

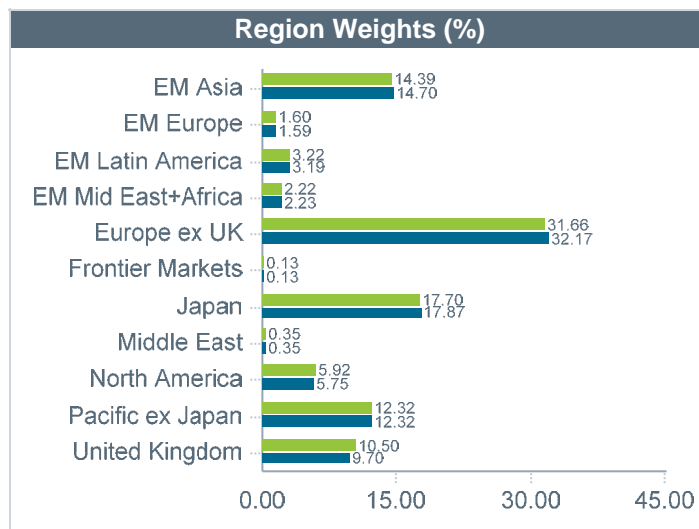
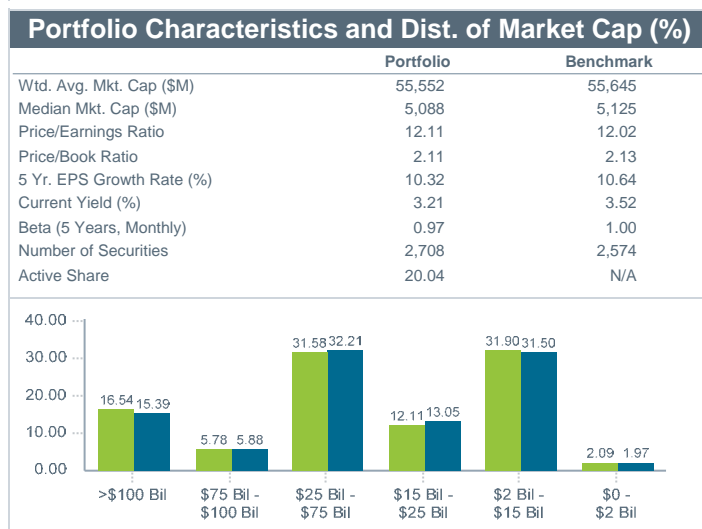
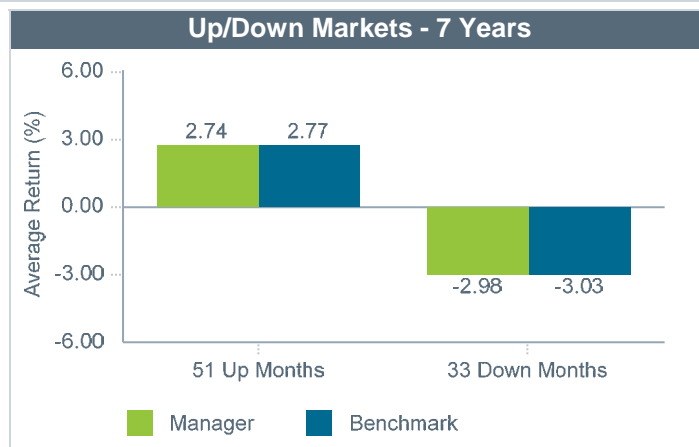
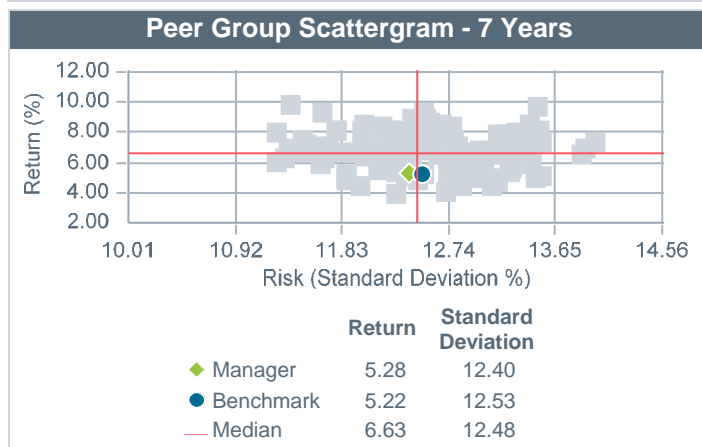
Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-20.21	-10.83	7.60	4.66	10.70	12.21	14.89	21.60	-4.14	5.15	39.13
Benchmark	-20.20	-11.01	7.36	4.41	10.44	11.97	14.65	21.31	-4.41	4.89	38.82
Difference	-0.01	0.18	0.24	0.25	0.26	0.24	0.24	0.29	0.27	0.26	0.31
Peer Group Median	-19.71	-10.73	7.73	5.48	11.46	13.56	15.18	20.77	-1.35	6.65	41.28
Rank	63	52	55	69	73	84	53	45	80	64	70
Population	133	133	132	128	122	103	143	149	155	154	152



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Manager: Internal International Equity Portfolio
As of December 31, 2018
Benchmark: FTSE All Wrld Ex US Index (US Invstr) (USD) (Net)
Peer Group: IM All ACWI Ex US (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-11.36	-13.90	4.73	1.05	5.28	N/A	27.29	4.81	-4.54	-3.92	14.65
Benchmark	-11.47	-14.13	4.58	1.05	5.22	6.99	27.11	4.80	-4.72	-3.31	15.31
Difference	0.11	0.23	0.15	0.00	0.06	N/A	0.18	0.01	0.18	-0.61	-0.66
Peer Group Median	-13.30	-14.73	4.10	1.73	6.63	8.13	28.74	2.09	-0.53	-3.38	20.39
Rank	19	43	39	71	78	N/A	62	25	80	60	88
Population	175	175	175	167	152	125	191	206	217	214	204



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. The Internal International Equity Portfolio currently consists of Vanguard FTSE xUS;InsP (VFWPX).

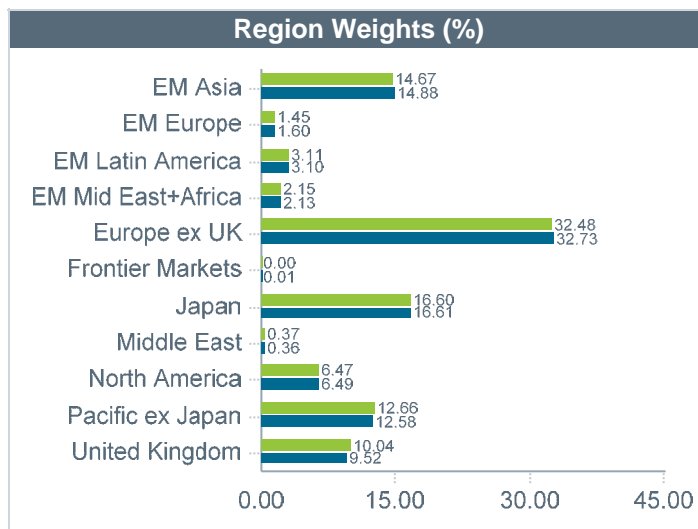
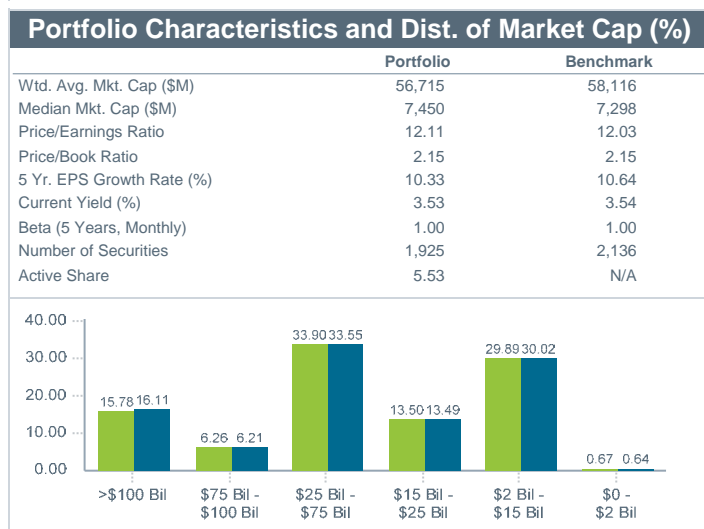
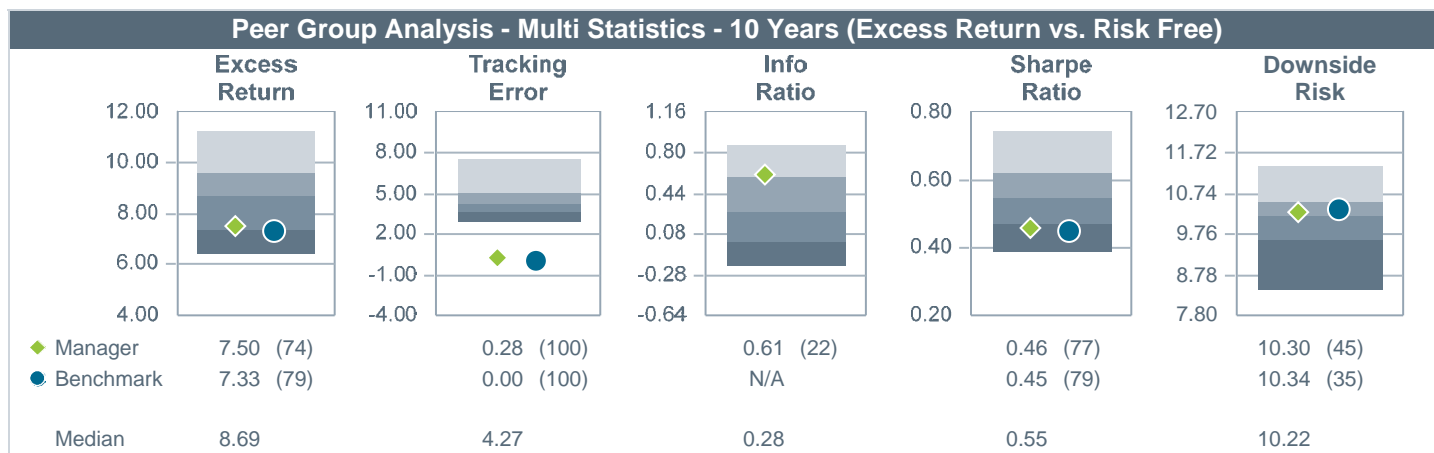
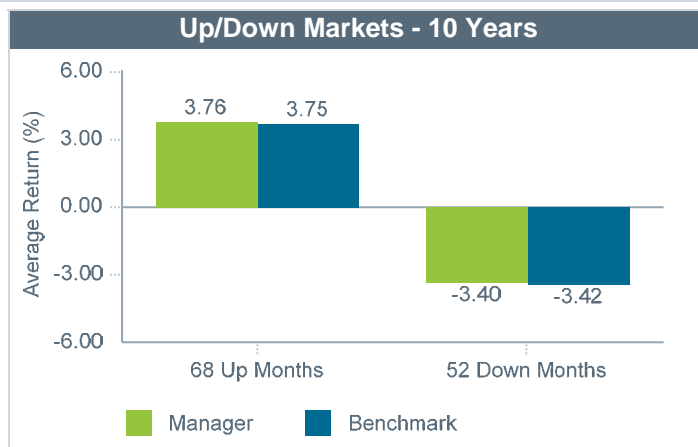
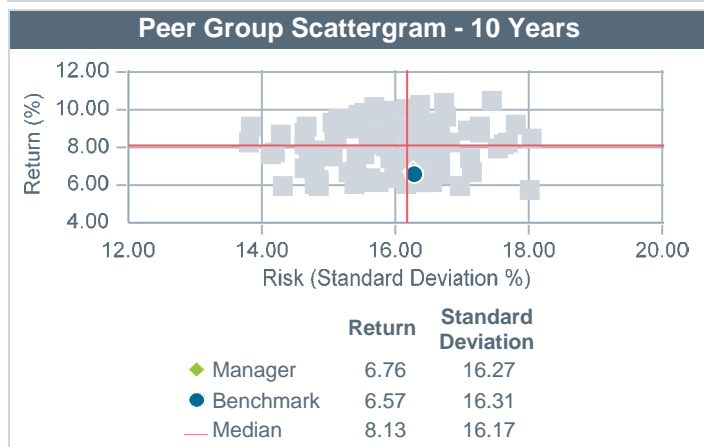
Manager: Northern Trust

As of December 31, 2018

Benchmark: MSCI ACW Ex US Index (USD) (Net)

Peer Group: IM All ACWI Ex US (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-11.33	-13.81	4.72	0.85	5.04	6.76	27.51	4.48	-5.70	-3.63	15.42
Benchmark	-11.46	-14.20	4.48	0.68	4.85	6.57	27.19	4.50	-5.66	-3.87	15.29
Difference	0.13	0.39	0.24	0.17	0.19	0.19	0.32	-0.02	-0.04	0.24	0.13
Peer Group Median	-13.30	-14.73	4.10	1.73	6.63	8.13	28.74	2.09	-0.53	-3.38	20.39
Rank	19	42	39	73	84	75	61	29	87	54	86
Population	175	175	175	167	152	125	191	206	217	214	204



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

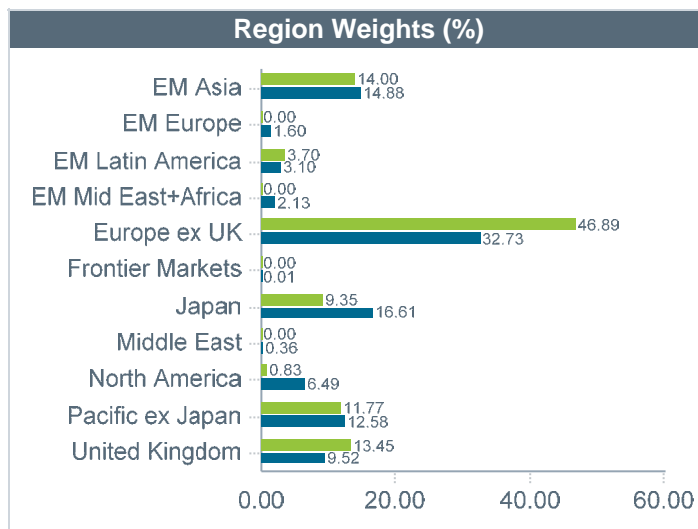
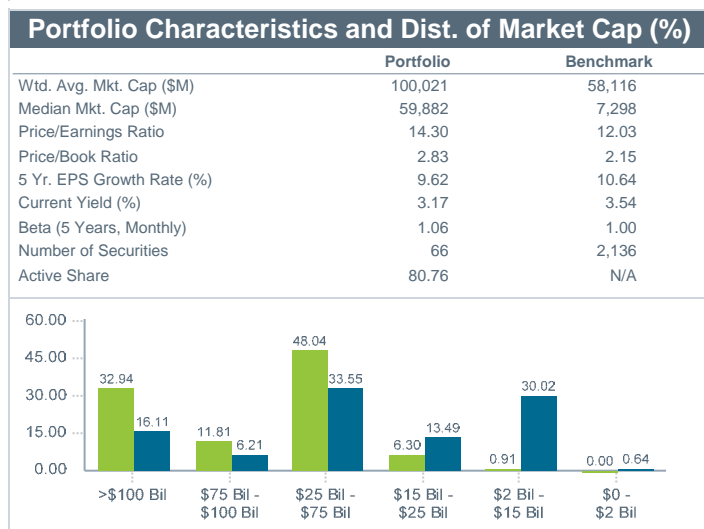
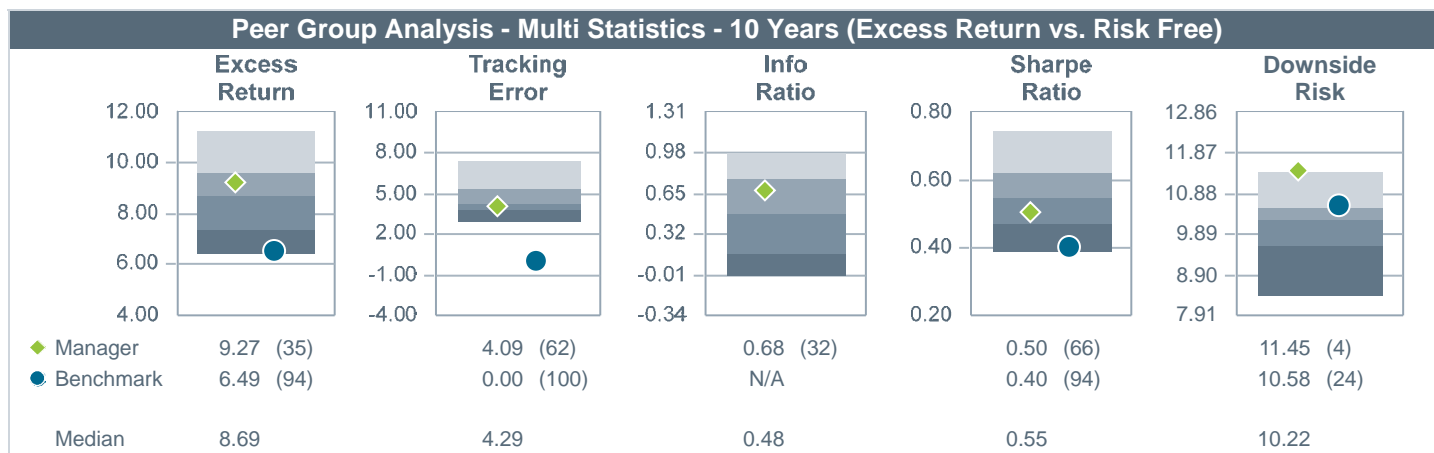
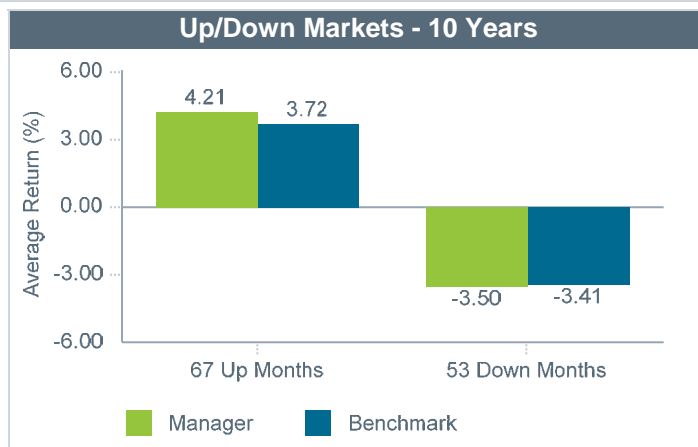
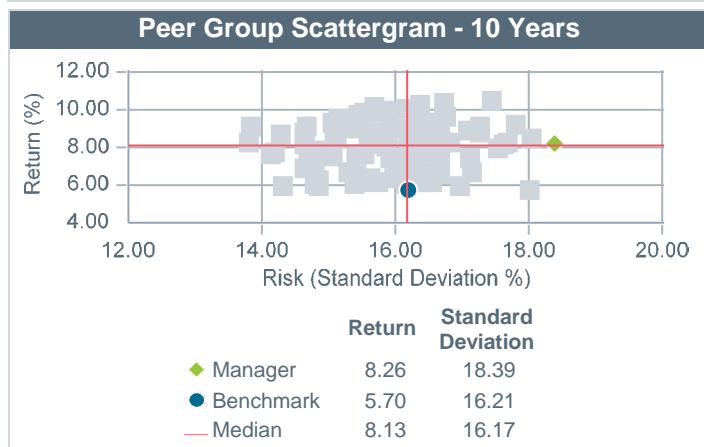
Manager: Fisher Investments

As of December 31, 2018

Benchmark: MSCI ACW Ex US Index (Net)*

Peer Group: IM All ACWI Ex US (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-13.30	-15.54	3.87	1.53	5.80	8.26	30.17	1.94	-1.84	-1.91	17.68
Benchmark	-11.46	-14.20	4.48	0.68	4.85	5.70	27.19	4.50	-5.66	-3.87	15.29
Difference	-1.84	-1.34	-0.61	0.85	0.95	2.56	2.98	-2.56	3.82	1.96	2.39
Peer Group Median	-13.30	-14.73	4.10	1.73	6.63	8.13	28.74	2.09	-0.53	-3.38	20.39
Rank	50	58	53	58	73	46	40	52	59	37	68
Population	175	175	175	167	152	125	191	206	217	214	204



Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

*Consists of the MSCI EAFE (Gross) through July 2010 and the MSCI ACW Ex US (Net) thereafter.

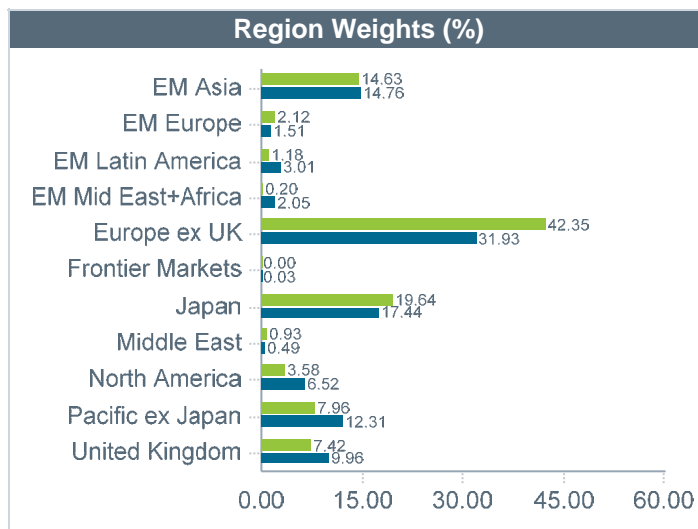
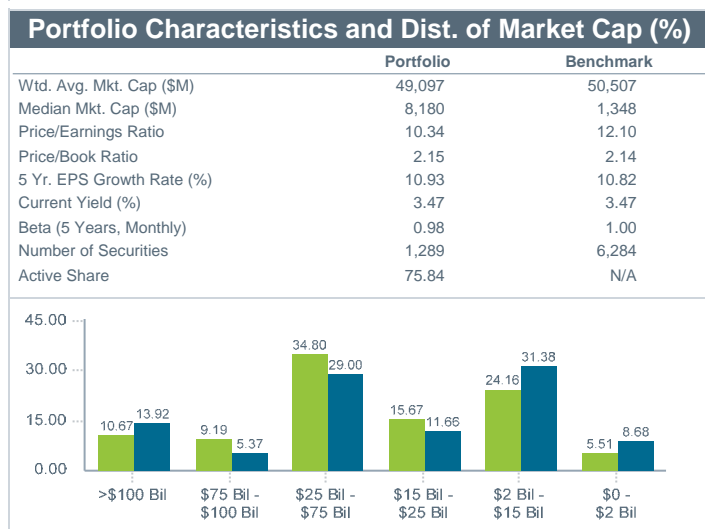
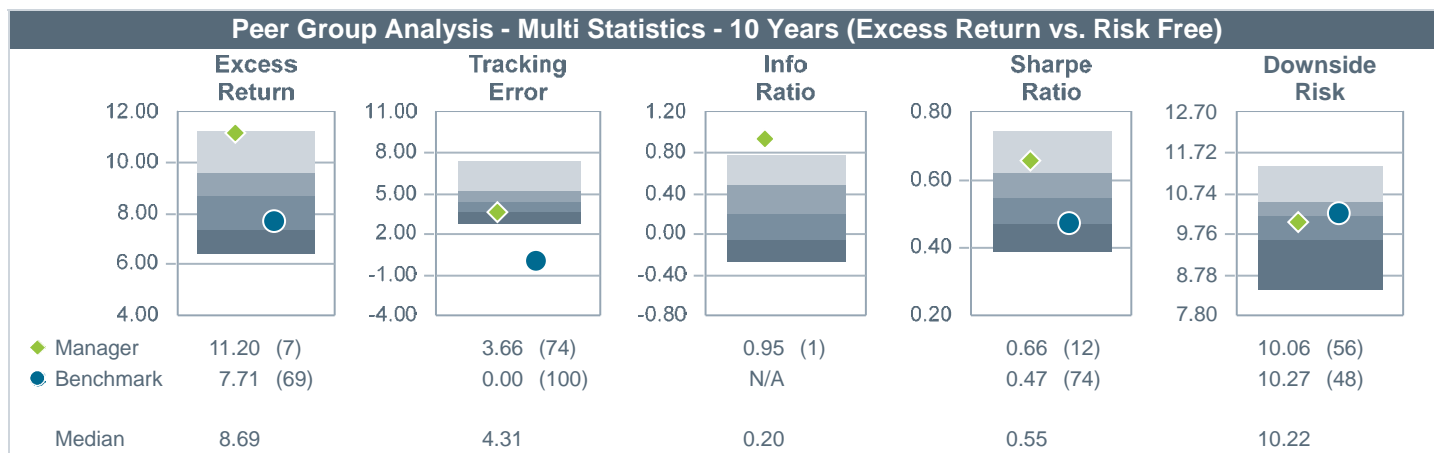
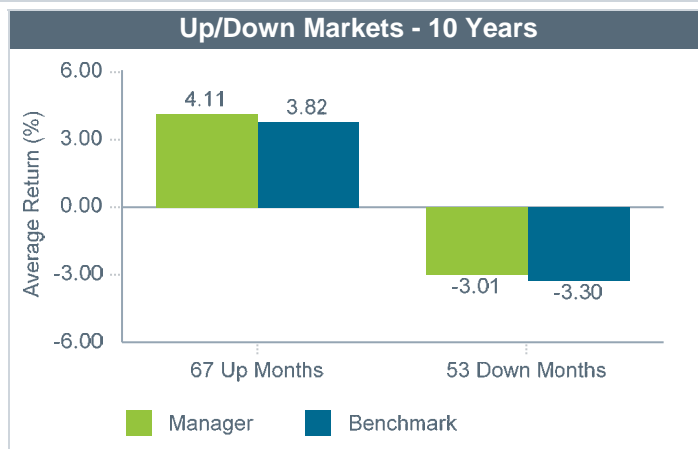
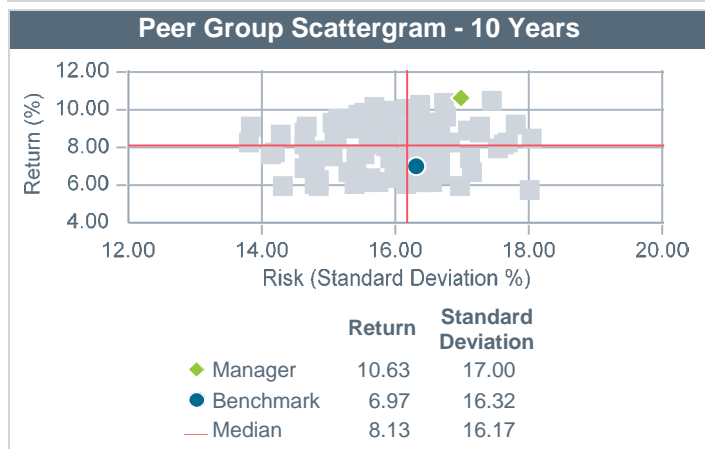
Manager: Arrowstreet

As of December 31, 2018

Benchmark: MSCI ACW Ex US IM Index (USD) (Net)

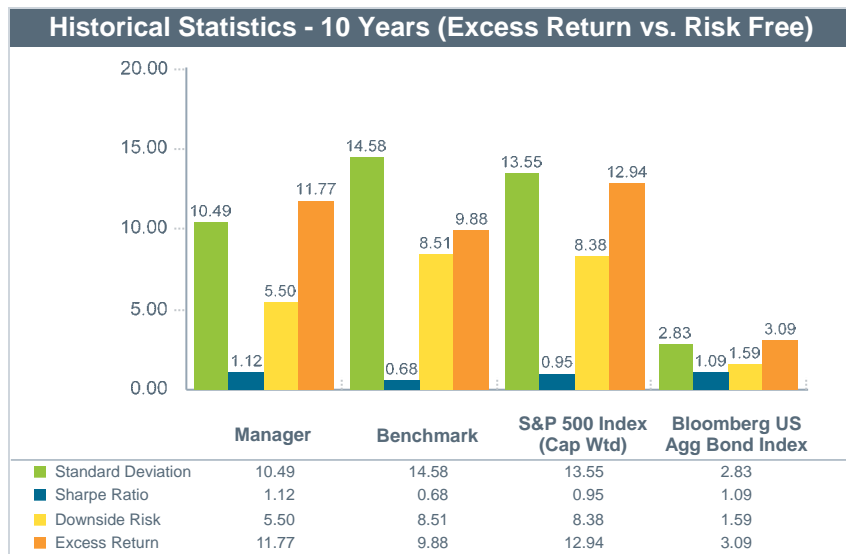
Peer Group: IM All ACWI Ex US (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-13.21	-13.84	6.33	3.76	9.10	10.63	29.12	8.06	0.01	0.04	26.49
Benchmark	-11.88	-14.76	4.39	0.85	5.07	6.97	27.81	4.41	-4.60	-3.89	15.82
Difference	-1.33	0.92	1.94	2.91	4.03	3.66	1.31	3.65	4.61	3.93	10.67
Peer Group Median	-13.30	-14.73	4.10	1.73	6.63	8.13	28.74	2.09	-0.53	-3.38	20.39
Rank	48	43	16	14	9	6	48	10	48	20	19
Population	175	175	175	167	152	125	191	206	217	214	204



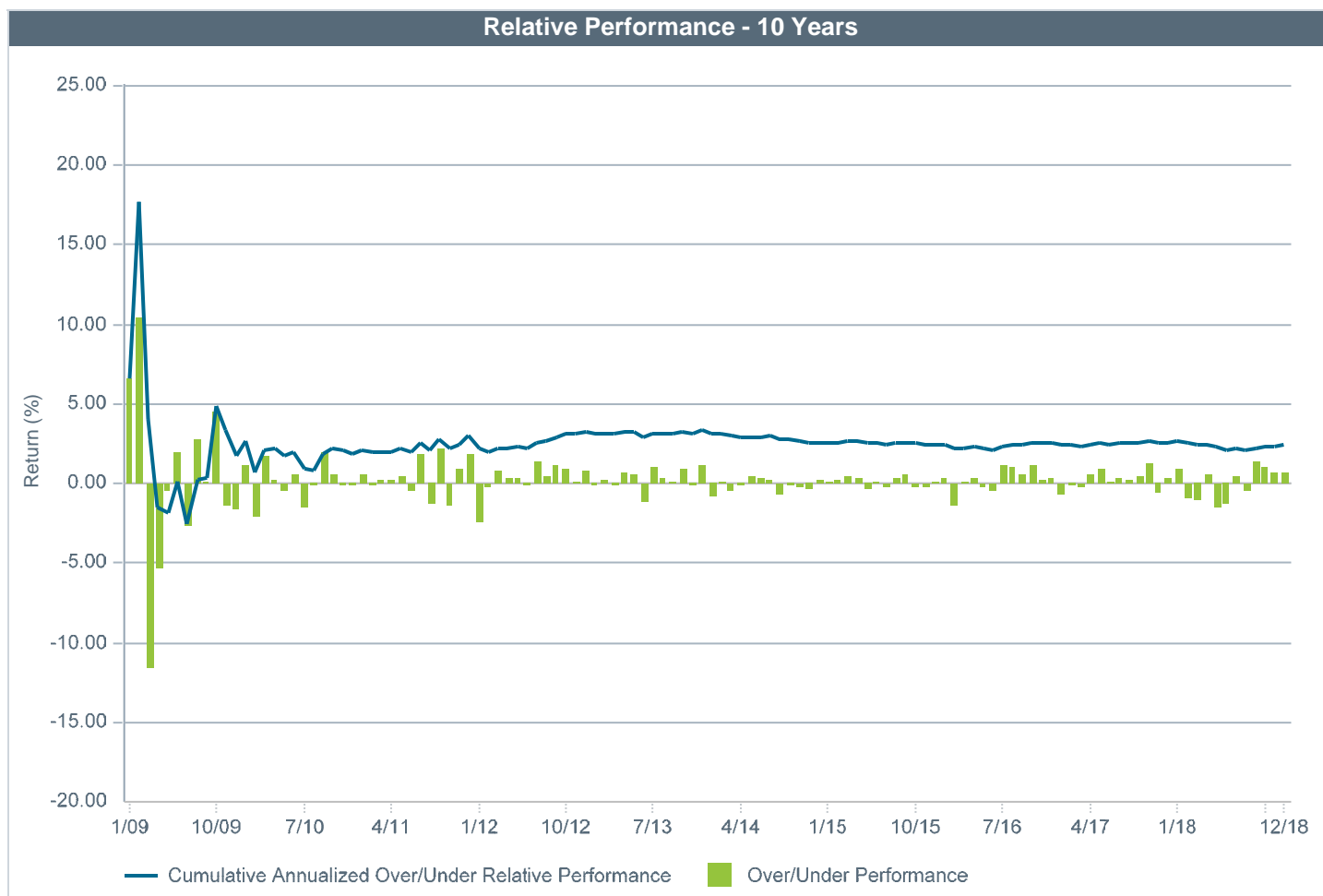
Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-3.41	-3.66	4.49	6.63	8.41	12.24	12.31	5.43	7.04	12.88	3.58
Benchmark	-5.65	-4.25	2.12	5.08	6.14	9.60	9.11	1.94	5.47	14.07	-0.17
Difference	2.24	0.59	2.37	1.55	2.27	2.64	3.20	3.49	1.57	-1.19	3.75



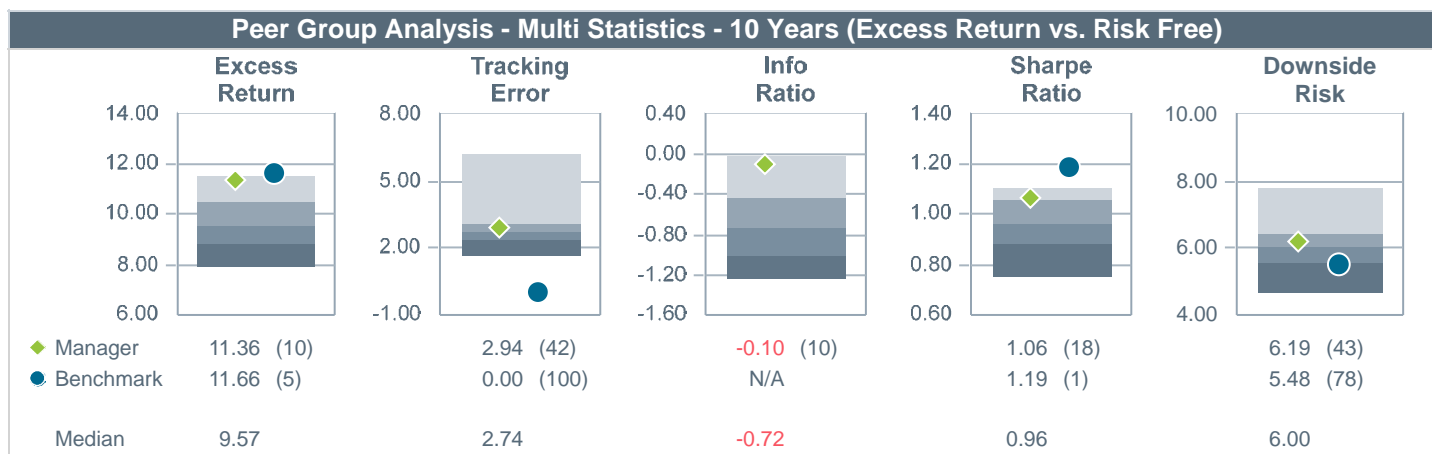
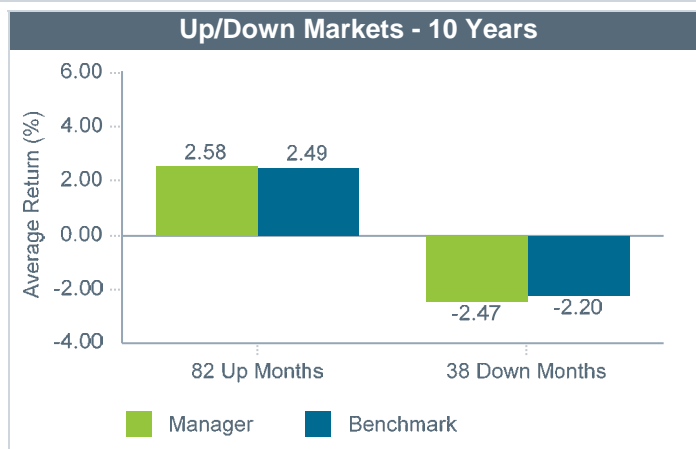
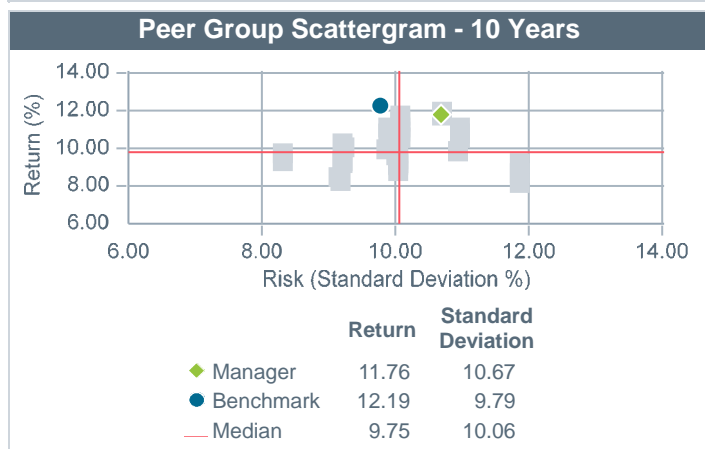
Actual Correlation - 10 Years

	Actual Correlation
S&P US Preferred Stock Index	0.99
S&P 500 Index (Cap Wtd)	0.65
Russell 2000 Index	0.62
MSCI EAFE Index (USD) (Net)	0.77
MSCI Emg Mkts Index (USD) (Net)	0.73
Bloomberg US Agg Bond Index	0.25
Bloomberg US Trsy US TIPS Index	0.00
NCREIF ODCE Index (AWA) (Gross)	-0.26
Wilshire US REIT Index	0.81
HFRI FOF Comp Index	0.54
Bloomberg Cmdty Index (TR)	0.45
ICE BofAML 3 Mo US T-Bill Index	-0.16
Cons Price Index (Unadjusted)	0.17

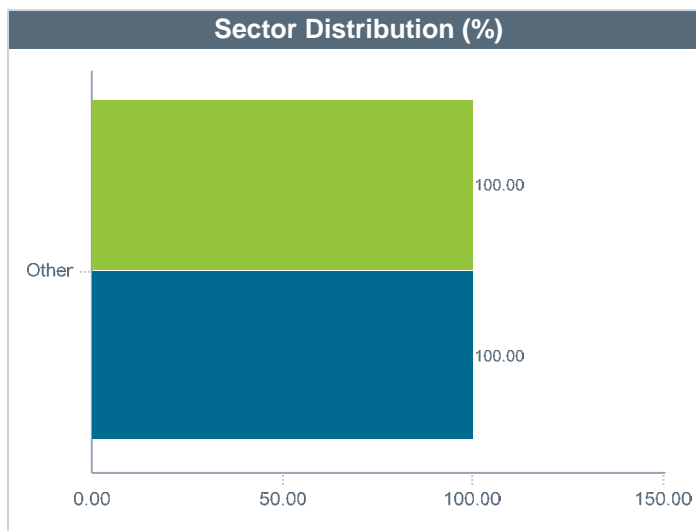


Performance shown is gross of fees and product specific prior to client inception. Calculation is based on quarterly periodicity.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-9.29	3.23	7.84	5.67	9.20	11.76	14.76	5.86	-1.49	6.64	25.60
Benchmark	-9.31	0.18	7.95	5.90	9.71	12.19	13.70	10.44	-3.24	9.42	24.96
Difference	0.02	3.05	-0.11	-0.23	-0.51	-0.43	1.06	-4.58	1.75	-2.78	0.64
Peer Group Median	-9.91	-1.93	6.54	4.04	7.79	9.75	14.33	7.74	-3.32	6.42	23.16
Rank	39	5	29	17	10	7	43	70	31	46	11
Population	81	80	77	60	57	41	81	79	70	76	76

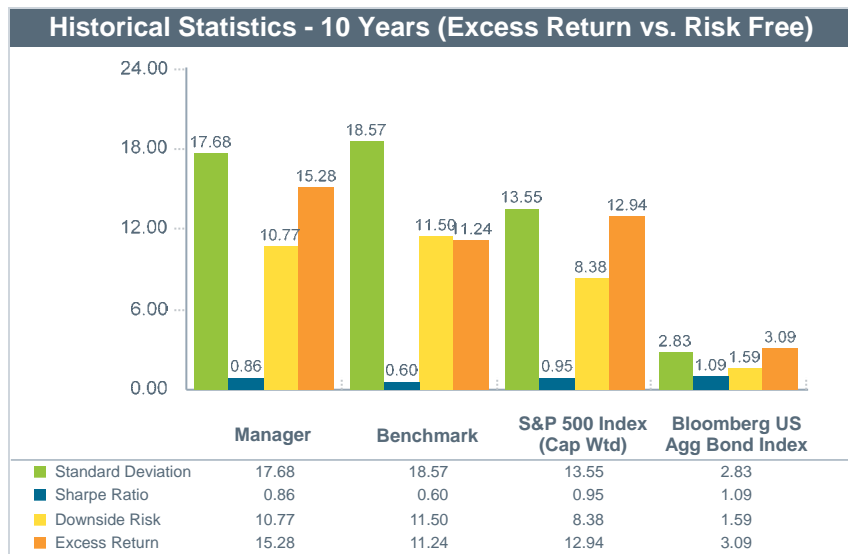


Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	N/A	2.48
Spread Duration	N/A	N/A
Avg. Maturity	15.70	19.11
Avg. Quality	Ba1	Ba2
Yield To Maturity (%)	N/A	1.64
Coupon Rate (%)	2.21	2.94
Current Yield (%)	2.07	2.88
Holdings Count	111	414



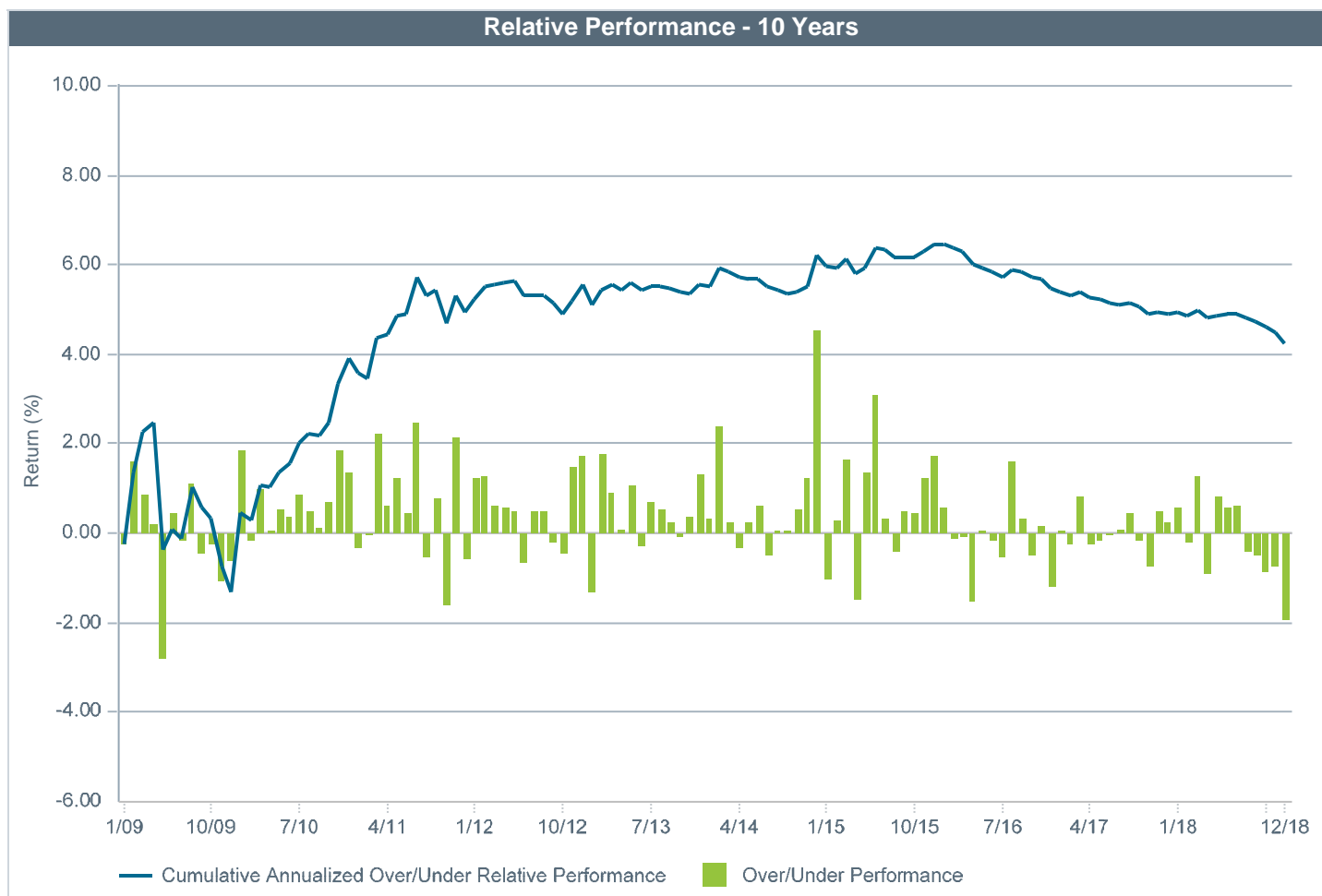
Performance shown is net of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Allocation to other consists of convertibles.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-20.69	-13.12	-0.22	-3.84	3.46	15.03	-4.98	20.34	-29.94	18.16	36.94
Benchmark	-17.80	-11.67	0.57	-6.59	-0.46	10.35	-5.58	21.95	-35.07	7.66	29.75
Difference	-2.89	-1.45	-0.79	2.75	3.92	4.68	0.60	-1.61	5.13	10.50	7.19



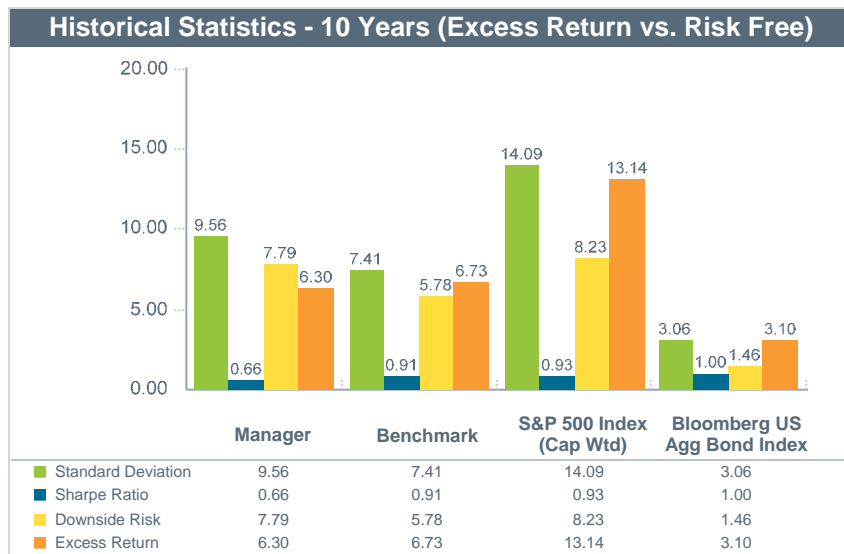
Actual Correlation - 10 Years

	Actual Correlation
S&P MLP Index (TR)	0.98
S&P 500 Index (Cap Wtd)	0.56
Russell 2000 Index	0.57
MSCI EAFE Index (USD) (Net)	0.44
MSCI Emg Mkts Index (USD) (Net)	0.47
Bloomberg US Agg Bond Index	0.01
Bloomberg US Trsy US TIPS Index	0.22
NCREIF ODCE Index (AWA) (Gross)	-0.32
Wilshire US REIT Index	0.33
HFRI FOF Comp Index	0.61
Bloomberg Cmdty Index (TR)	0.59
ICE BofAML 3 Mo US T-Bill Index	-0.27
Cons Price Index (Unadjusted)	0.38



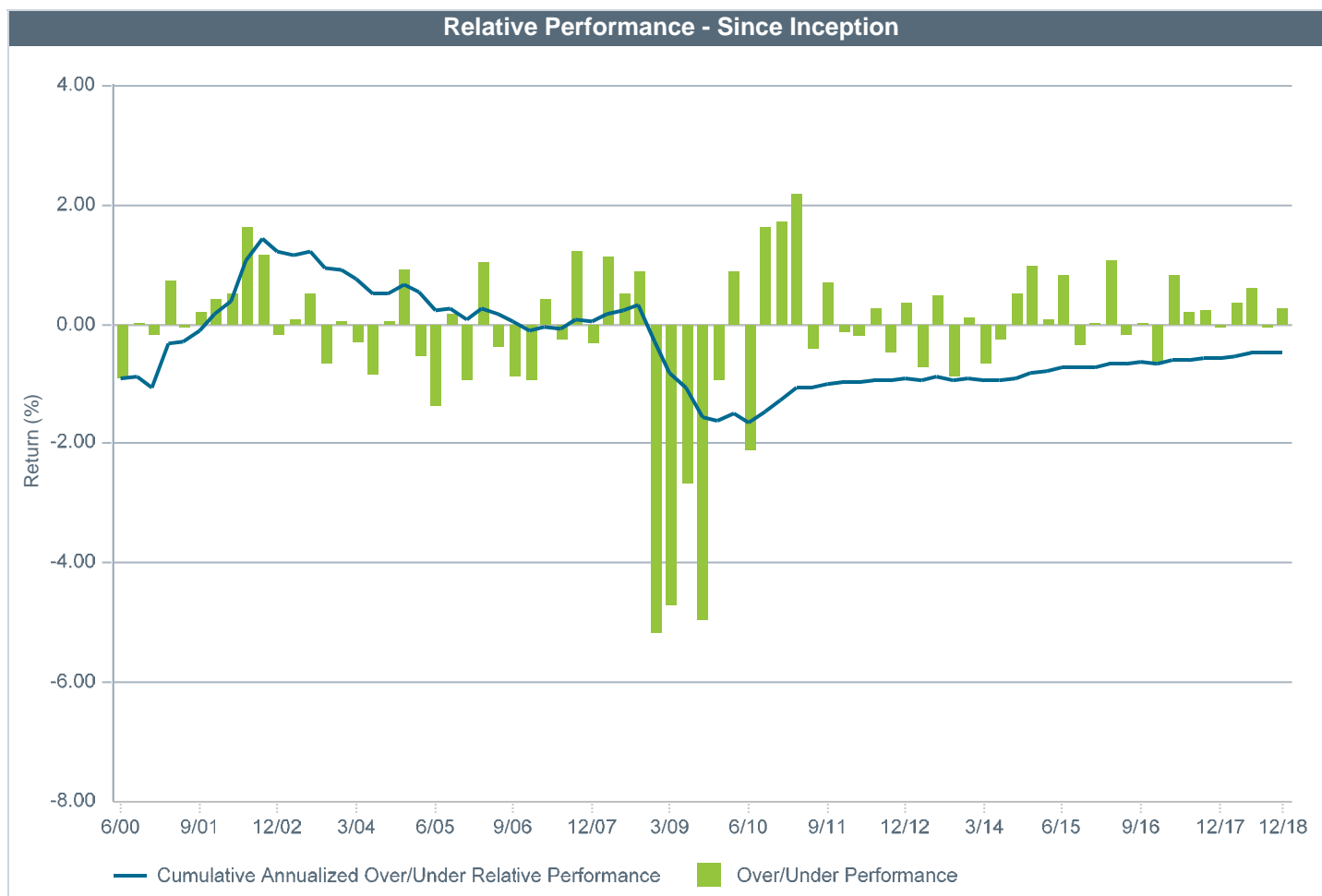
Performance shown is gross of fees and product specific prior to client inception. Calculation is based on quarterly periodicity.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	2.02	9.66	9.24	11.29	11.45	6.33	8.99	9.09	15.71	13.17	12.77
Benchmark	1.76	8.35	8.24	10.41	10.99	7.00	7.62	8.77	15.02	12.50	13.94
Difference	0.26	1.31	1.00	0.88	0.46	-0.67	1.37	0.32	0.69	0.67	-1.17



Actual Correlation - 10 Years

	Actual Correlation
NCREIF ODCE Index (AWA) (Gross)	0.98
S&P 500 Index (Cap Wtd)	-0.03
Russell 2000 Index	-0.04
MSCI EAFE Index (USD) (Net)	-0.14
MSCI Emg Mkts Index (USD) (Net)	-0.39
Bloomberg US Agg Bond Index	-0.13
Bloomberg US Trsy US TIPS Index	-0.30
Wilshire US REIT Index	-0.05
HFRI FOF Comp Index	-0.23
Bloomberg Cmdty Index (TR)	-0.11
ICE BofAML 3 Mo US T-Bill Index	0.00
Cons Price Index (Unadjusted)	-0.15



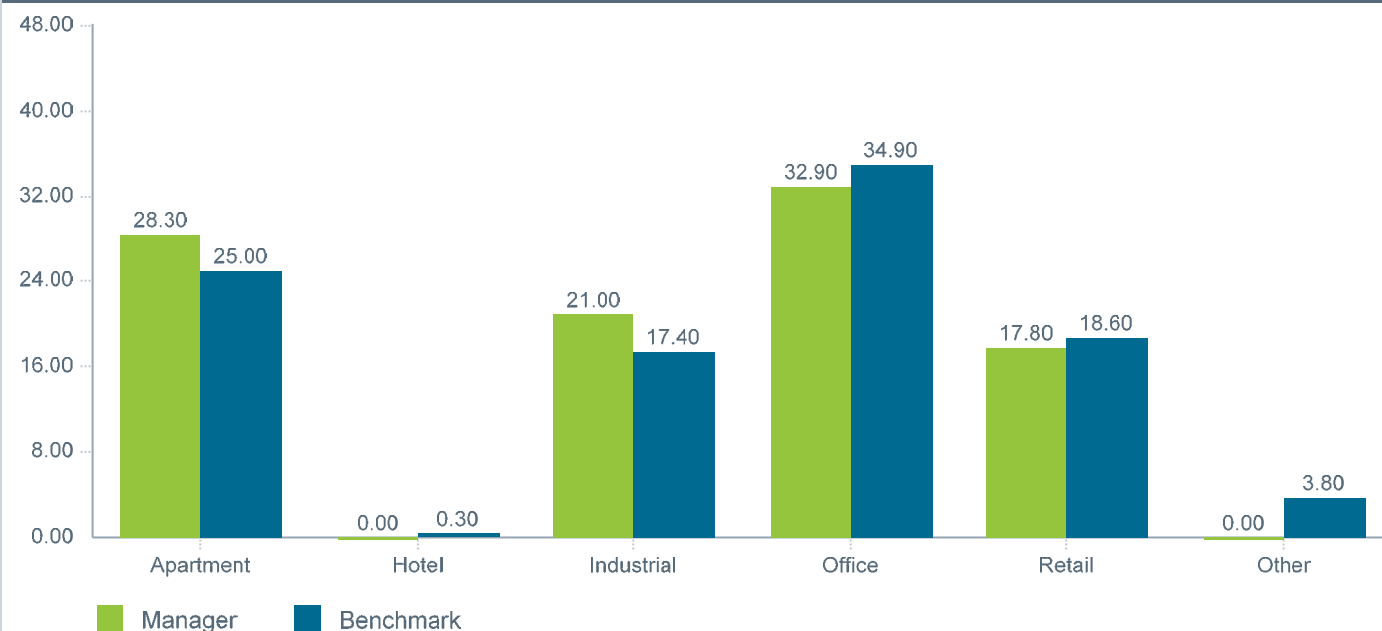
Investment Strategy

The Fund pursues a diversified core real estate strategy and seeks to provide its investors with a reliable total investment gross return of approximately 8% to 10% over a market cycle, with 70% of return expected to be generated by the income component. The Fund manages a portfolio of institutional quality real estate assets diversified across the four major property types (office, industrial, retail and multi-family) and across major metropolitan areas. The Fund operates with moderate leverage and may invest up to 15% of its gross assets in higher risk, non-core type real estate investment opportunities.

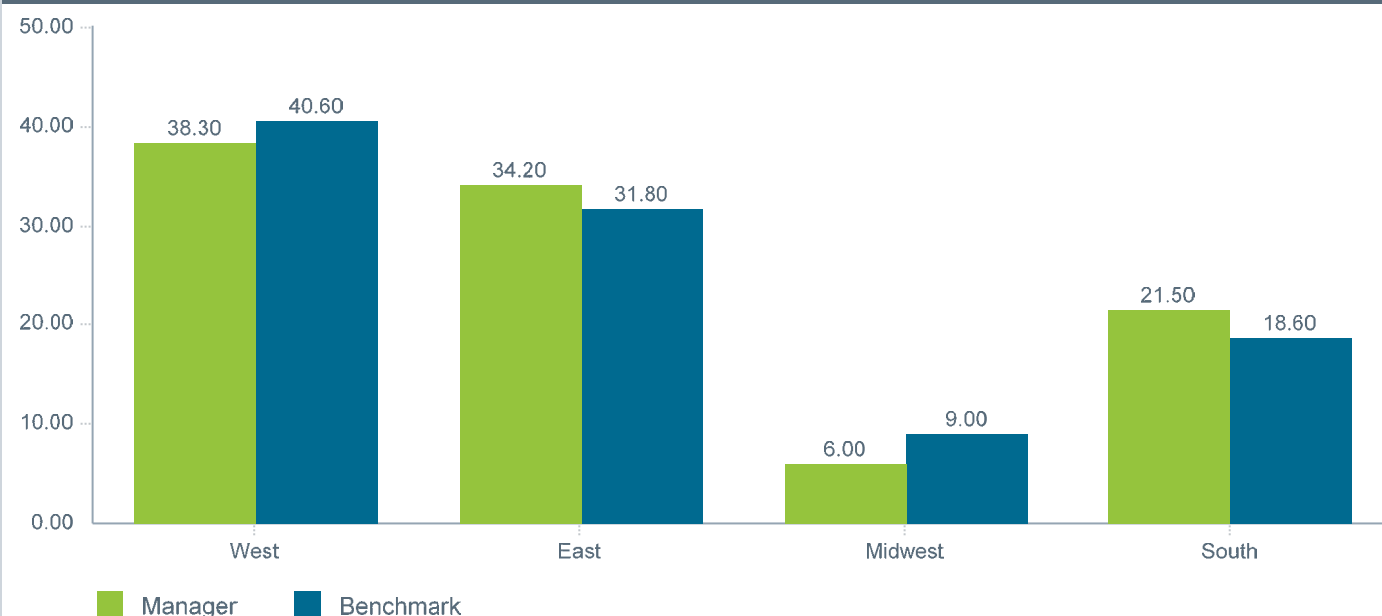
Investment Profile

Fund Inception	2000
Legal Structure	LP
Fund Structure	Open-End
Gross Real Estate Assets (\$M)	12,175
Fund Leverage %	21.60
Portfolio Occupancy %	94.20
Cash Reserve %	3.40
Number of Investments	141
Number of Limited Partners	451

Property Type Allocation (%)

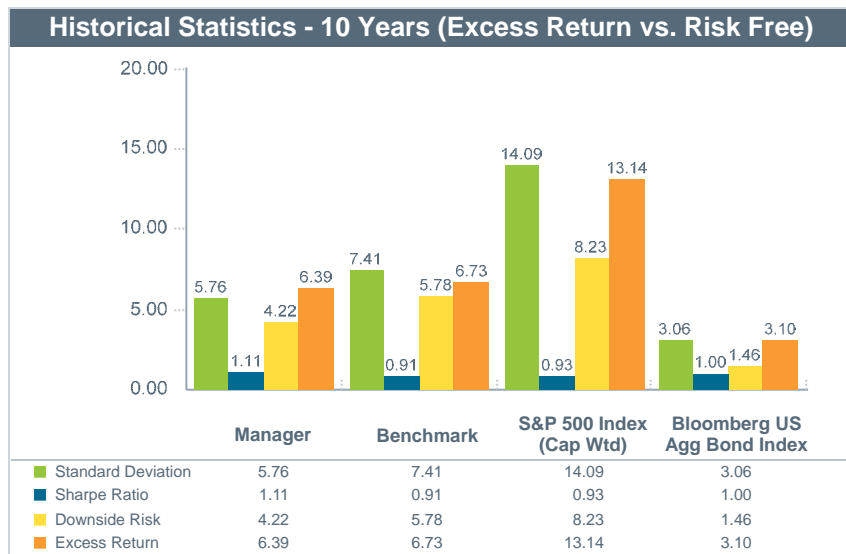


Geographic Allocation (%)



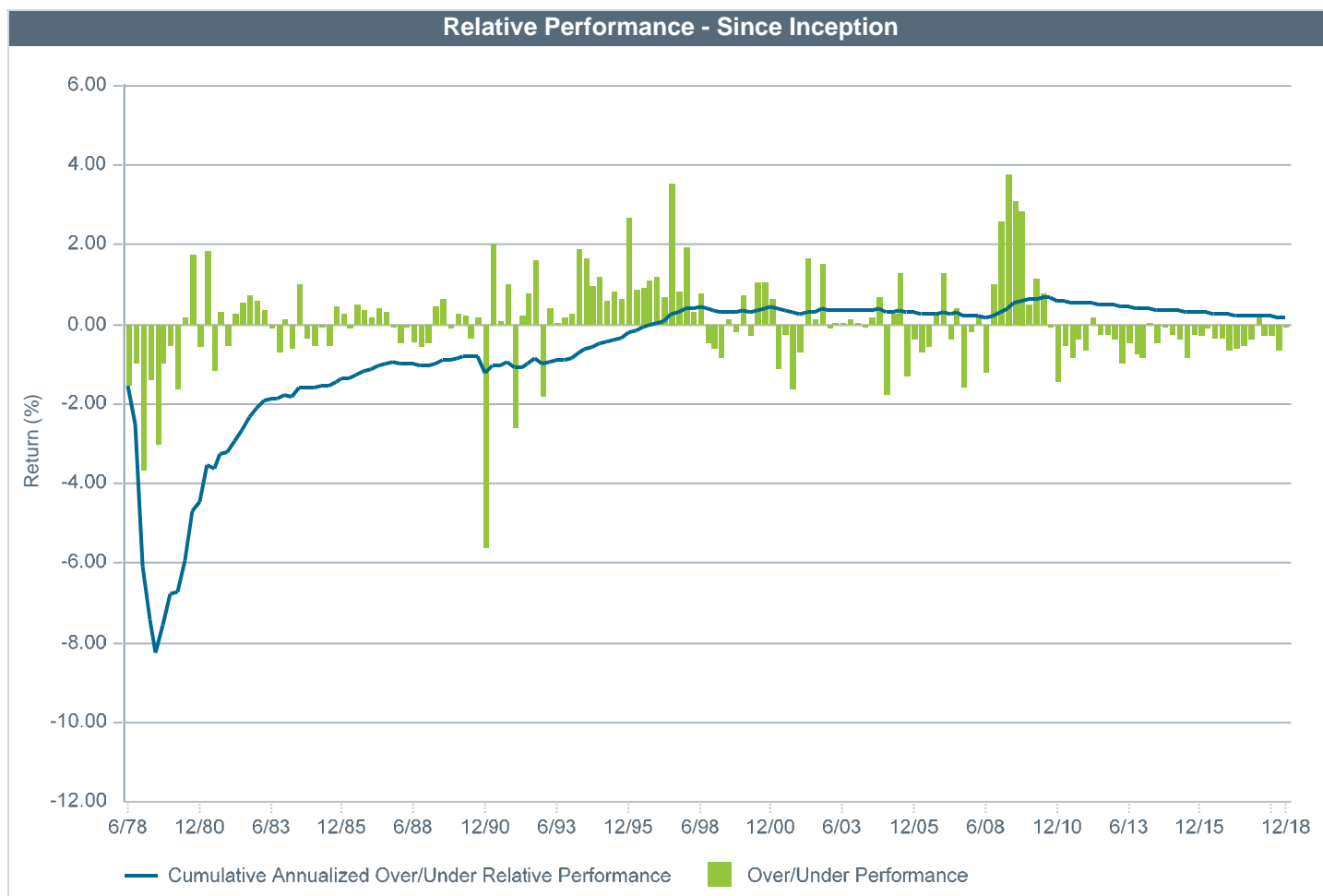
Performance shown is gross of fees and product specific. Calculation is based on quarterly periodicity. Investment profile data shown is provided by the investment manager and is as of the most recently available quarter end. Allocation data shown is based on NAV. Benchmark allocation to "Other" consists of entertainment (theaters, golf courses, bowling alleys), healthcare (hospitals, clinics), manufactured homes, parking lots, self-storage units, senior living, and undeveloped land.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	1.73	6.99	6.83	8.99	9.36	6.76	6.30	7.21	12.94	11.69	10.44
Benchmark	1.76	8.35	8.24	10.41	10.99	7.00	7.62	8.77	15.02	12.50	13.94
Difference	-0.03	-1.36	-1.41	-1.42	-1.63	-0.24	-1.32	-1.56	-2.08	-0.81	-3.50



Actual Correlation - 10 Years

	Actual Correlation
NCREIF ODCE Index (AWA) (Gross)	0.99
S&P 500 Index (Cap Wtd)	-0.07
Russell 2000 Index	-0.06
MSCI EAFE Index (USD) (Net)	-0.15
MSCI Emg Mkts Index (USD) (Net)	-0.40
Bloomberg US Agg Bond Index	-0.01
Bloomberg US Trsy US TIPS Index	-0.24
Wilshire US REIT Index	0.00
HFRI FOF Comp Index	-0.25
Bloomberg Cmnty Index (TR)	-0.15
ICE BofAML 3 Mo US T-Bill Index	-0.05
Cons Price Index (Unadjusted)	-0.18



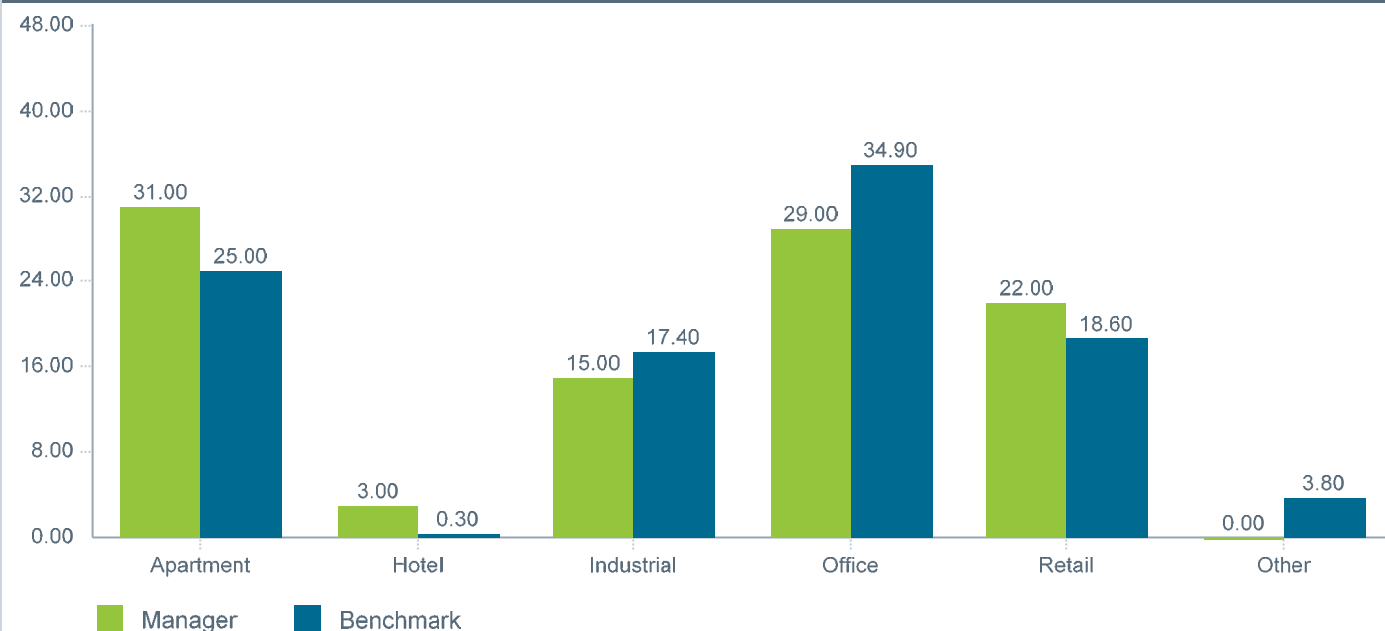
Investment Strategy

The Fund pursues a diversified core real estate strategy that seeks to produce attractive risk-adjusted returns by focusing on selective acquisitions, diversification, active portfolio management, and asset management. The Fund invests in well-leased, stabilized assets in major US metropolitan markets and receives the majority of its return from the income component. Diversification for the Fund is consistently pursued on many levels, including geographic region, property type, and economic sector. The Fund has historically maintained a leverage ratio significantly lower than the NCREIF ODCE Index and invests 5-15% of its gross assets in value-added type real estate investment opportunities.

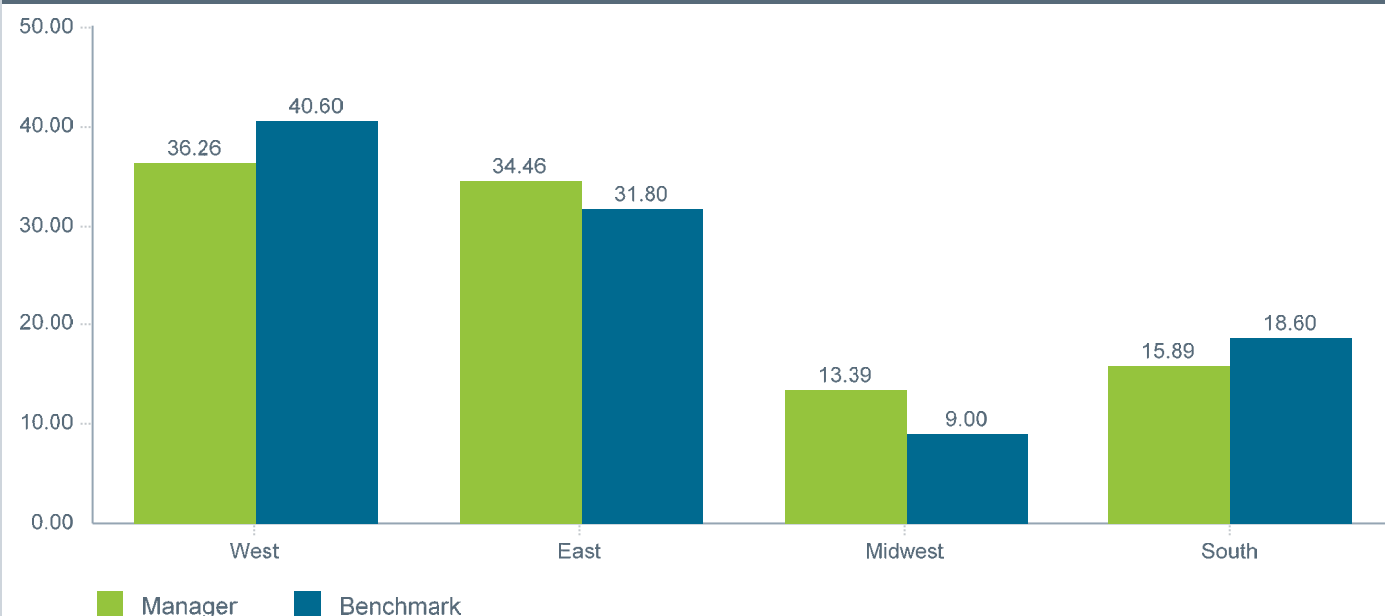
Investment Profile

Fund Inception	1978
Legal Structure	LP
Fund Structure	Open-End
Gross Real Estate Assets (\$M)	23,414
Fund Leverage %	17.60
Portfolio Occupancy %	93.40
Cash Reserve %	5.40
Number of Investments	203
Number of Limited Partners	435

Property Type Allocation (%)



Geographic Allocation (%)



Performance shown is gross of fees and product specific. Calculation is based on quarterly periodicity. Investment profile data shown is provided by the investment manager and is as of the most recently available quarter end. Allocation data shown is based on NAV. Benchmark allocation to "Other" consists of entertainment (theaters, golf courses, bowling alleys), healthcare (hospitals, clinics), manufactured homes, parking lots, self-storage units, senior living, and undeveloped land.

Investment Strategy

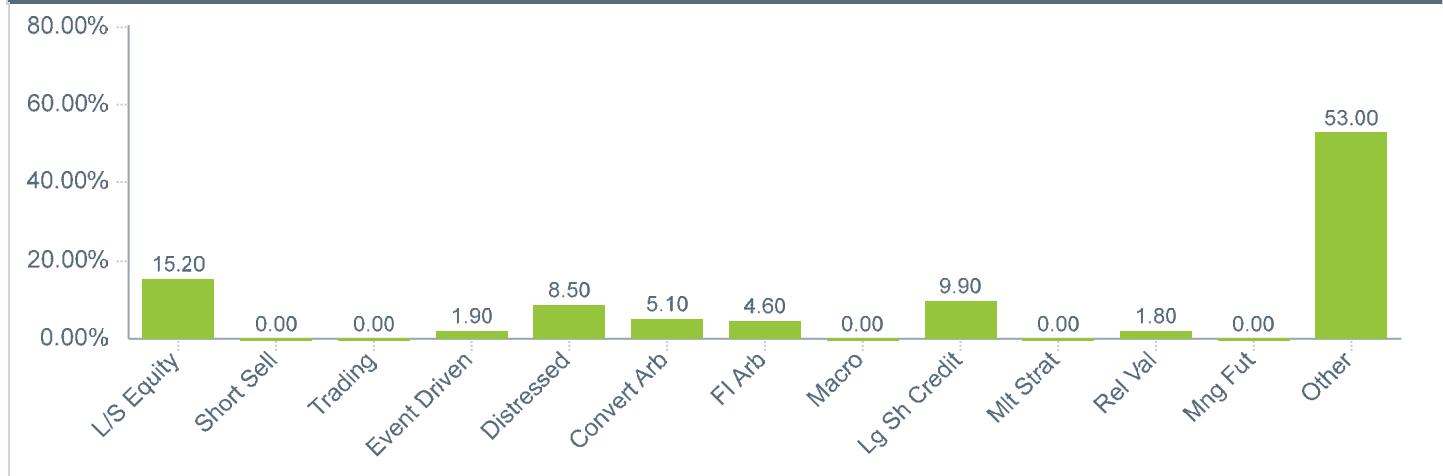
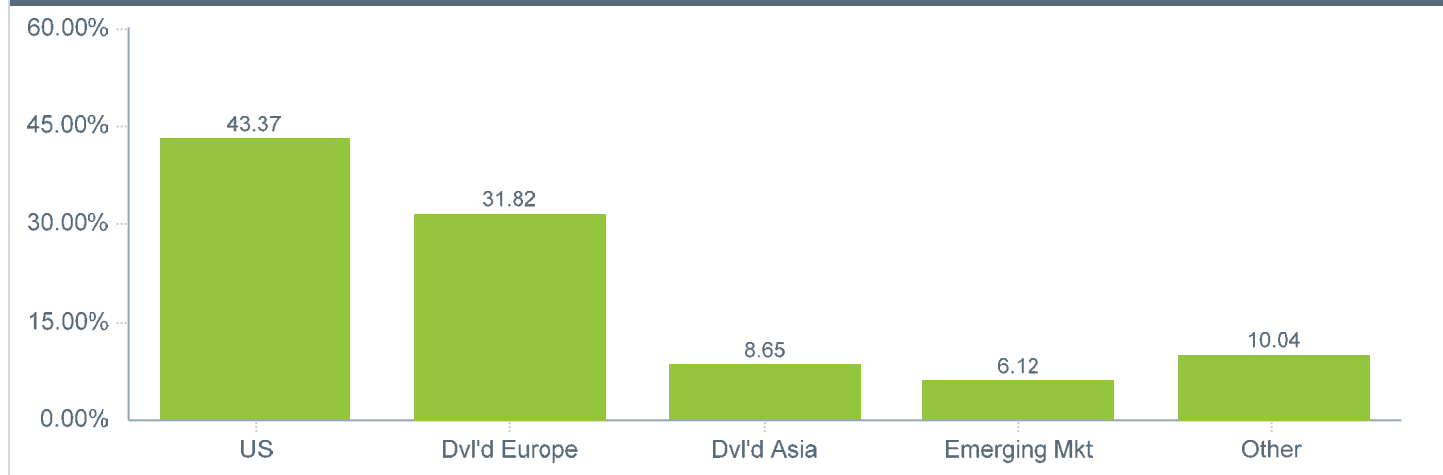
PAAMCO focuses on returns which are targeted to be independent of traditional markets and builds portfolios which aim to diversify sources of idiosyncratic returns. PAAMCO believes in being open to new investment ideas and that investment decisions should be based on independent, fundamental assessments. PAAMCO attempts to avoid conflicts and maintain the highest ethical standards in evaluating investment opportunities.

Firm Statistics

Year Firm Established	2000
Firm AUM (\$M)	7,101
Percentage Employee Owned %	60.10

Fund Statistics

Fund Inception	2007
Fund Size(\$M)	511
Number of Underlying Managers	7
Maximum Weighting of an Underlying Manager %	22.90
Current Leverage (Assets/Equity)	0.66
Annual Manager Turnover %	14.35
Annual Management Fee %	0.94
Performance Fee %	No
Hurdle %	No
Initial Lock-Up Periods	No
Redemption Frequency	Monthly
Notification Period	30 Days

Strategy Allocation (%)**Geographic Allocation (%)**

Strategy Allocation to "Other" consists of opportunistic investments, lower liquidity investments, and cash. Geographic Allocation to "Other" consists of Asia ex-Japan, Canada, and unclassified geographies. Investment profile data shown is provided by the investment manager and is as of the most recently available quarter end.

Manager: C.S. McKee

As of December 31, 2018

Benchmark: C.S. McKee Custom Index

Peer Group: IM U.S. Broad Market Core Fixed Income (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	1.50	0.86	2.37	2.86	2.43	4.11	3.63	2.65	1.49	5.75	-2.23
Benchmark	1.80	0.74	2.30	2.67	2.20	3.55	3.54	2.65	0.55	5.97	-2.02
Difference	-0.30	0.12	0.07	0.19	0.23	0.56	0.09	0.00	0.94	-0.22	-0.21
Peer Group Median	1.40	0.07	2.48	2.86	2.63	4.41	4.05	3.11	0.82	6.17	-1.56
Rank	41	10	57	51	68	66	77	76	11	78	88
Population	138	137	136	130	126	121	152	162	167	180	191

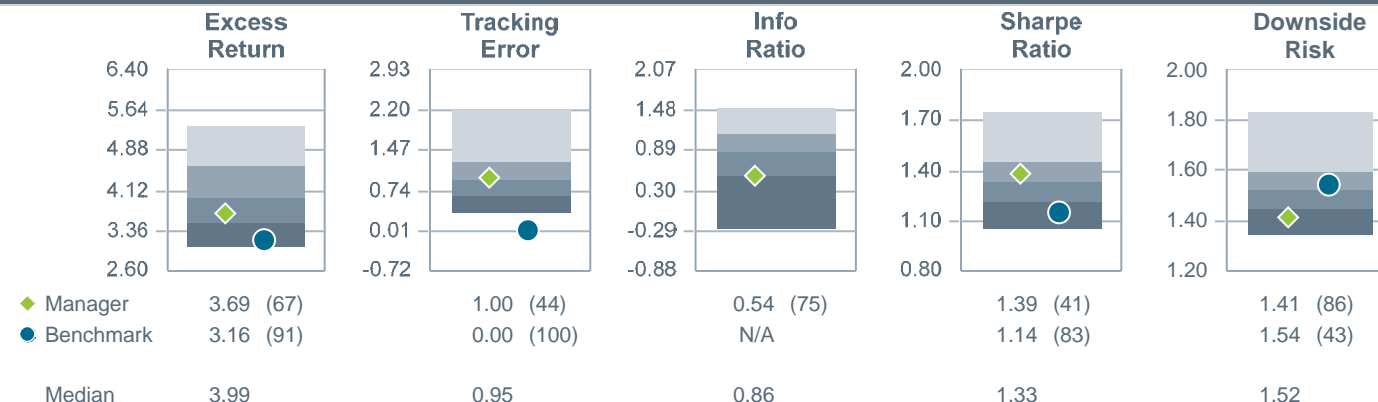
Peer Group Scattergram - 10 Years



Up/Down Markets - 10 Years



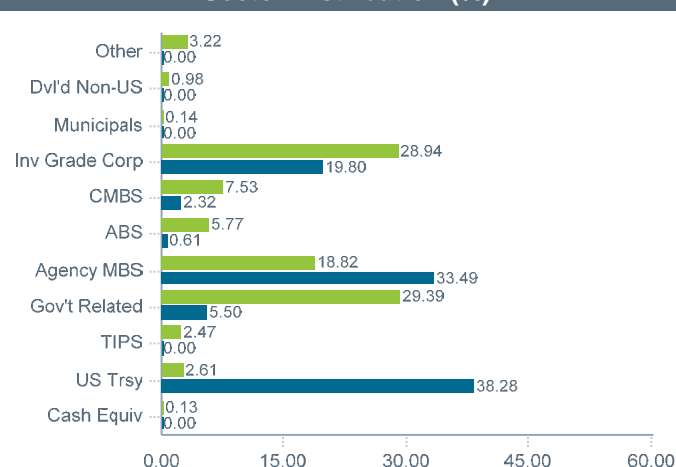
Peer Group Analysis - Multi Statistics - 10 Years (Excess Return vs. Risk Free)



Portfolio Characteristics

	Portfolio	Benchmark
Effective Duration	4.29	4.18
Spread Duration	3.20	4.40
Avg. Maturity	5.06	5.27
Avg. Quality	Aa1	Aa1/Aa2
Yield To Maturity (%)	3.44	3.14
Coupon Rate (%)	3.26	2.99
Current Yield (%)	3.27	N/A
Holdings Count	287	8,032

Sector Distribution (%)



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Sector allocation to "Other" consists of collateralized mortgage obligations.

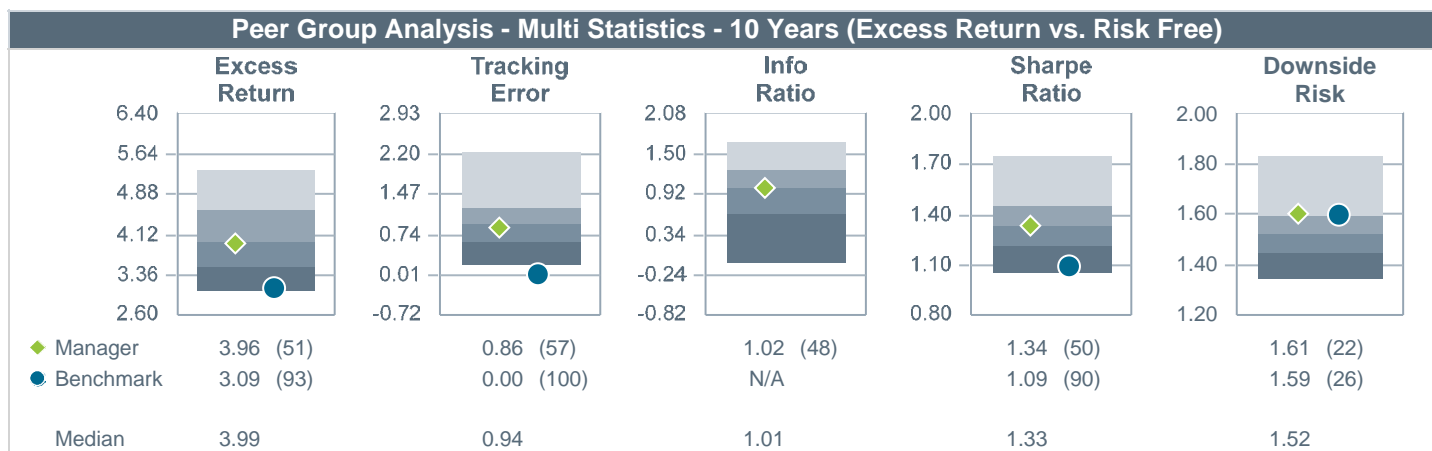
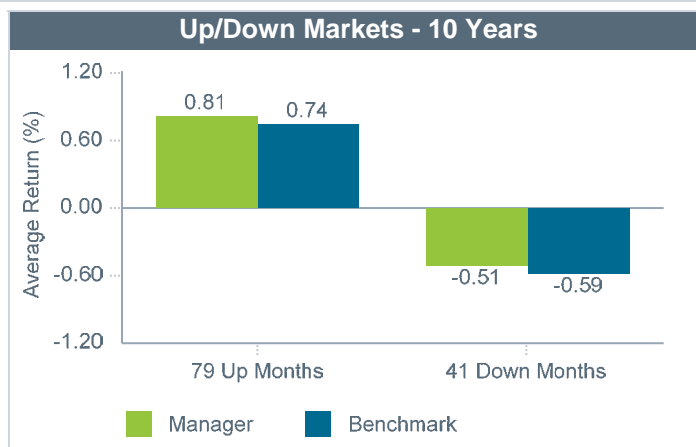
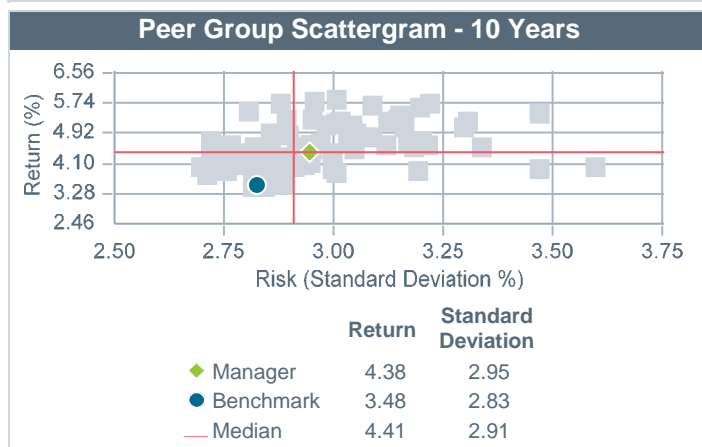
Manager: JP Morgan Core

As of December 31, 2018

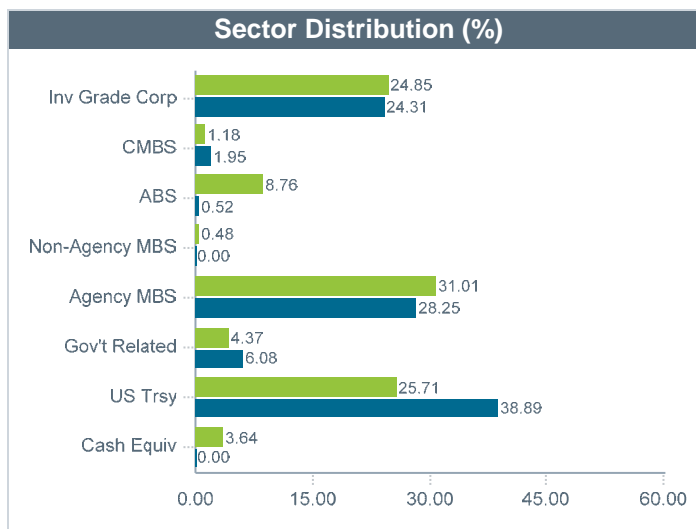
Benchmark: Bloomberg US Agg Bond Index

Peer Group: IM U.S. Broad Market Core Fixed Income (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	1.72	0.43	2.15	2.77	2.51	4.38	3.53	2.52	1.25	6.19	-1.83
Benchmark	1.64	0.01	2.06	2.52	2.10	3.48	3.54	2.65	0.55	5.97	-2.02
Difference	0.08	0.42	0.09	0.25	0.41	0.90	-0.01	-0.13	0.70	0.22	0.19
Peer Group Median	1.40	0.07	2.48	2.86	2.63	4.41	4.05	3.11	0.82	6.17	-1.56
Rank	16	21	75	57	61	51	86	86	16	48	66
Population	138	137	136	130	126	121	152	162	167	180	191



Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	5.50	5.87
Spread Duration	3.36	6.00
Avg. Maturity	7.11	8.22
Avg. Quality	Aa3	Aa1/Aa2
Yield To Maturity (%)	3.30	3.28
Coupon Rate (%)	3.48	3.20
Current Yield (%)	2.92	N/A
Holdings Count	781	10,252



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Manager: PIMCO Core

As of December 31, 2018

Benchmark: PIMCO Custom Index

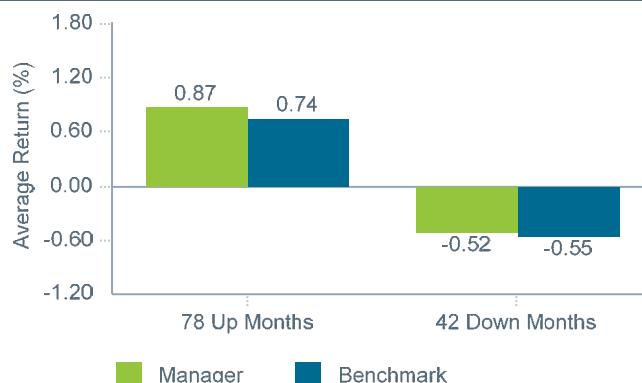
Peer Group: IM U.S. Broad Market Core Fixed Income (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	1.52	0.58	2.72	2.89	2.80	4.70	4.27	3.35	0.50	5.85	-2.48
Benchmark	1.80	0.32	2.16	2.58	2.14	3.51	3.54	2.65	0.55	5.97	-2.02
Difference	-0.28	0.26	0.56	0.31	0.66	1.19	0.73	0.70	-0.05	-0.12	-0.46
Peer Group Median	1.40	0.07	2.48	2.86	2.63	4.41	4.05	3.11	0.82	6.17	-1.56
Rank	40	17	34	48	41	33	34	44	79	73	95
Population	138	137	136	130	126	121	152	162	167	180	191

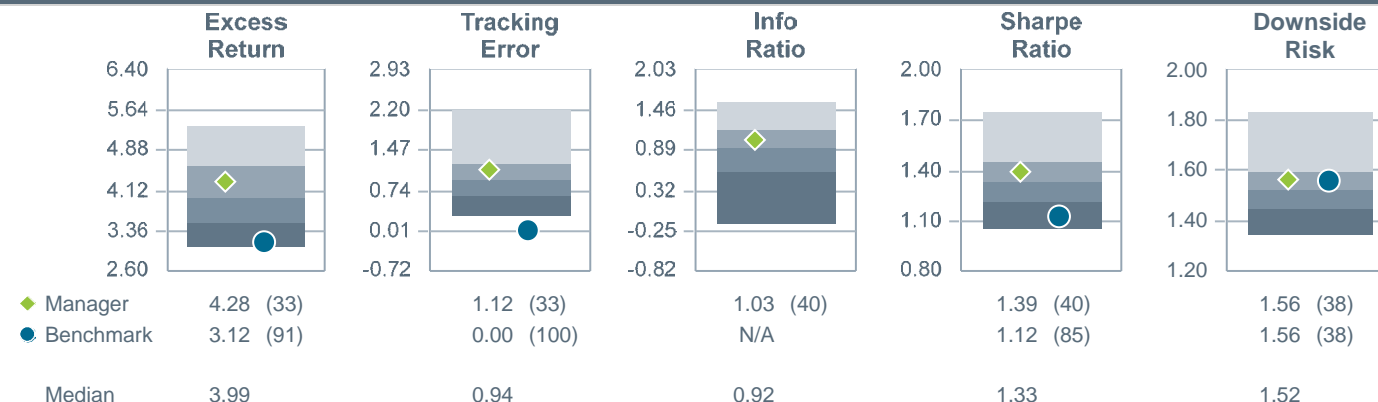
Peer Group Scattergram - 10 Years



Up/Down Markets - 10 Years



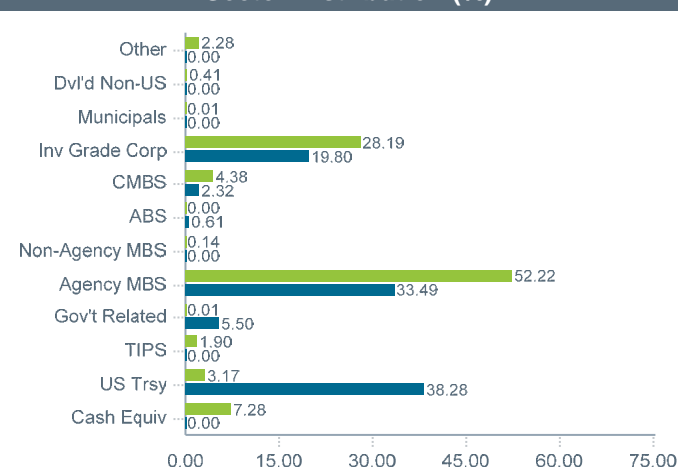
Peer Group Analysis - Multi Statistics - 10 Years (Excess Return vs. Risk Free)



Portfolio Characteristics

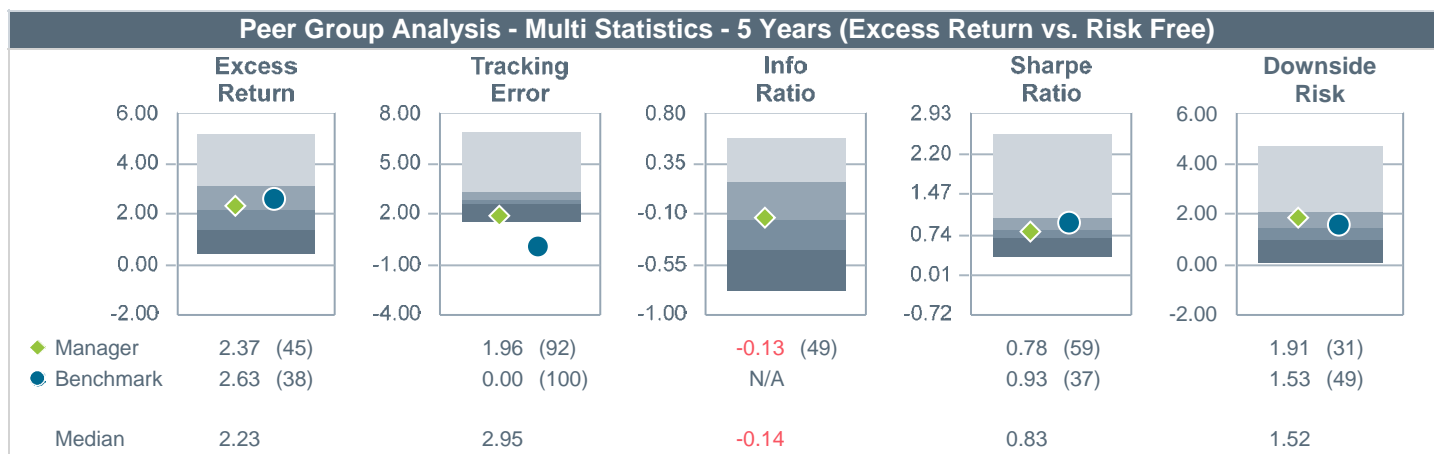
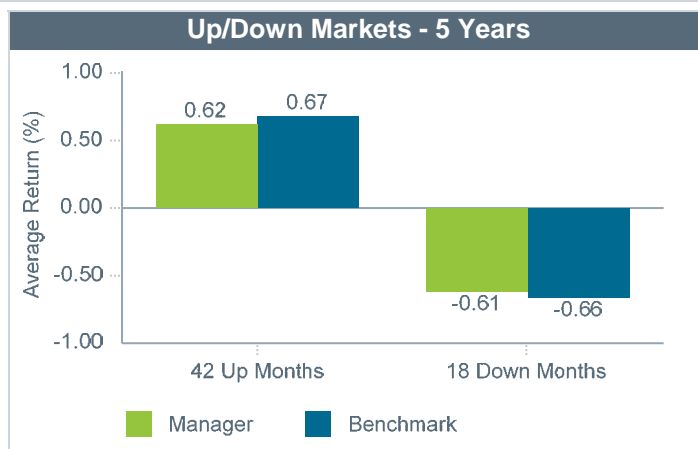
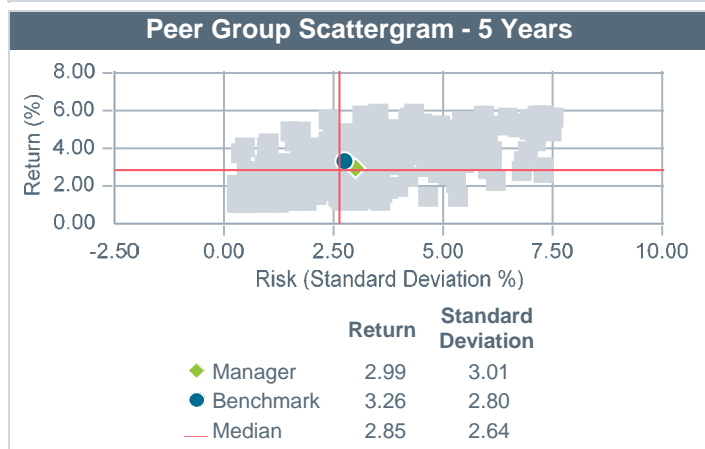
	Portfolio	Benchmark
Effective Duration	3.54	4.18
Spread Duration	3.98	4.40
Avg. Maturity	4.33	5.27
Avg. Quality	Aa3	Aa1/Aa2
Yield To Maturity (%)	3.66	3.14
Coupon Rate (%)	3.33	2.99
Current Yield (%)	3.36	N/A
Holdings Count	327	8,032

Sector Distribution (%)

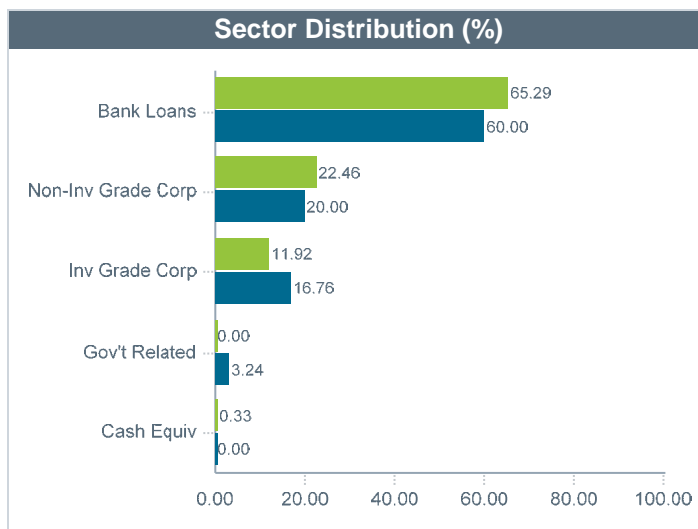


Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Sector allocation to "Other" consists of Euro/Yankee securities.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-3.29	-1.05	3.84	2.99	N/A	N/A	4.38	8.42	0.08	3.40	N/A
Benchmark	-3.00	-0.59	5.00	3.26	4.44	8.48	5.20	10.69	-1.47	2.95	4.22
Difference	-0.29	-0.46	-1.16	-0.27	N/A	N/A	-0.82	-2.27	1.55	0.45	N/A
Peer Group Median	0.69	0.43	2.61	2.84	2.94	4.52	4.17	3.70	0.73	4.43	-0.20
Rank	86	74	33	45	N/A	N/A	47	23	66	62	N/A
Population	1,343	1,340	1,298	1,249	1,179	1,002	1,465	1,521	1,555	1,599	1,617



Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	1.78	N/A
Spread Duration	2.88	N/A
Avg. Maturity	5.76	6.33
Avg. Quality	Ba3	Ba2
Yield To Maturity (%)	5.30	7.01
Coupon Rate (%)	3.84	5.73
Current Yield (%)	4.42	N/A
Holdings Count	175	2,674



Performance shown is gross of fees. Historical strategy performance is unavailable. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

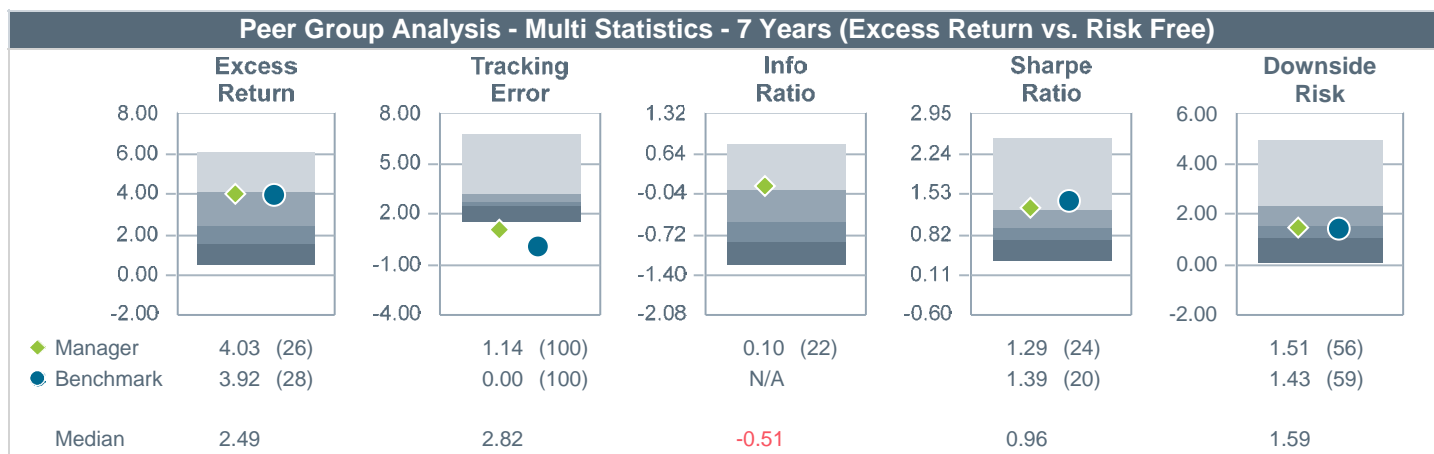
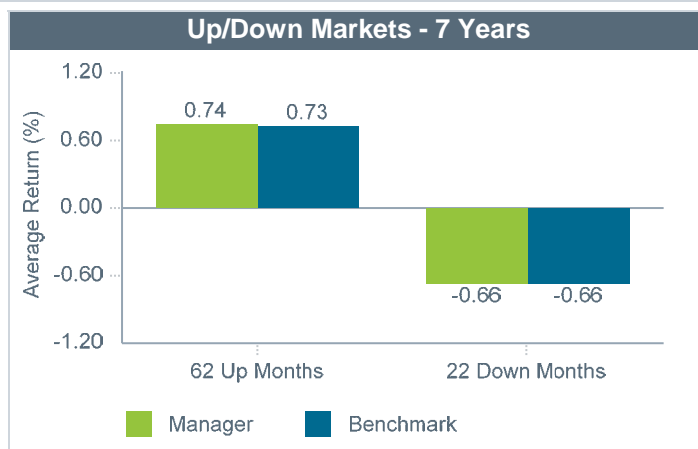
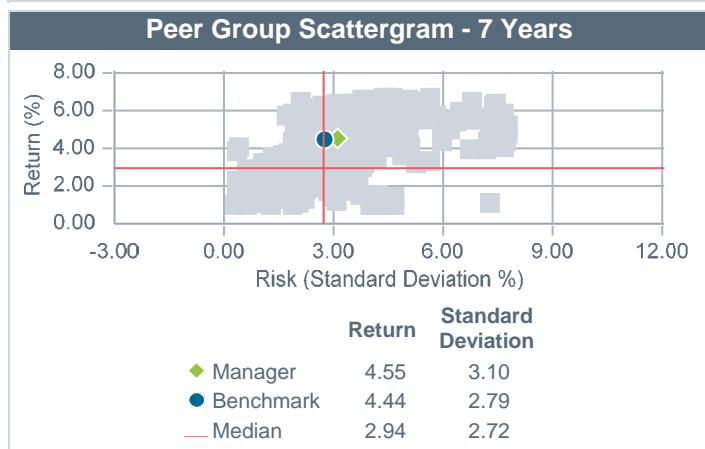
Manager: Seix

As of December 31, 2018

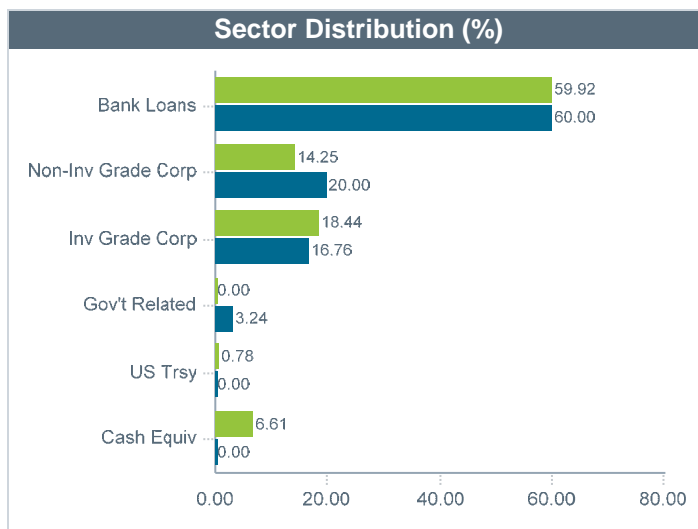
Benchmark: Credit Custom Index

Peer Group: IM U.S. Fixed Income (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-2.78	-0.66	5.36	3.54	4.55	N/A	5.65	11.46	-0.91	2.68	3.27
Benchmark	-3.00	-0.59	5.00	3.26	4.44	8.48	5.20	10.69	-1.47	2.95	4.22
Difference	0.22	-0.07	0.36	0.28	0.11	N/A	0.45	0.77	0.56	-0.27	-0.95
Peer Group Median	0.69	0.43	2.61	2.84	2.94	4.52	4.17	3.70	0.73	4.43	-0.20
Rank	83	71	16	30	24	N/A	33	13	76	70	22
Population	1,343	1,340	1,298	1,249	1,179	1,002	1,465	1,521	1,555	1,599	1,617



Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	2.10	N/A
Spread Duration	N/A	N/A
Avg. Maturity	6.97	6.33
Avg. Quality	Ba1	Ba2
Yield To Maturity (%)	6.12	7.01
Coupon Rate (%)	5.02	5.73
Current Yield (%)	5.11	N/A
Holdings Count	775	2,674



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Manager: Investec

As of December 31, 2018

Benchmark: JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)

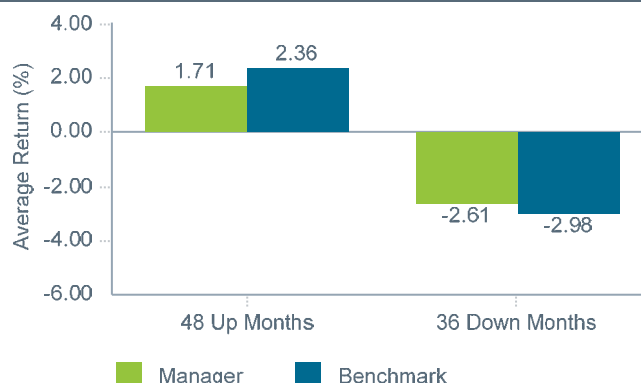
Peer Group: IM Emerging Markets Debt (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	1.10	-7.64	5.15	-1.11	-2.30	N/A	17.65	7.00	-14.68	-4.67	-8.93
Benchmark	2.11	-6.21	5.91	-0.96	0.18	3.45	15.21	9.94	-14.92	-5.72	-8.98
Difference	-1.01	-1.43	-0.76	-0.15	-2.48	N/A	2.44	-2.94	0.24	1.05	0.05
Peer Group Median	-0.25	-5.32	5.88	3.44	4.15	8.26	12.40	11.09	-2.67	1.52	-5.81
Rank	33	82	74	94	100	N/A	6	92	84	82	81
Population	137	137	131	123	104	72	158	168	174	175	158

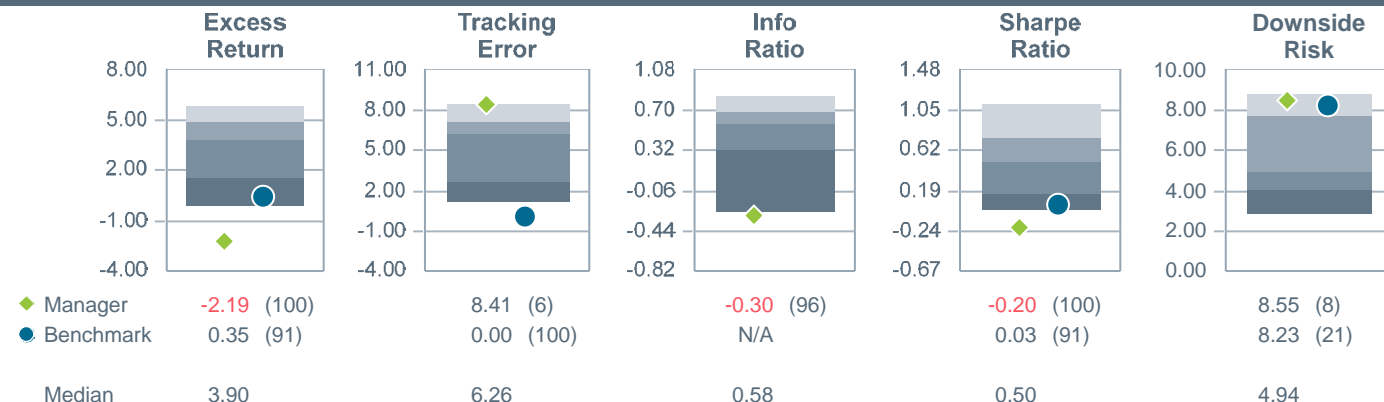
Peer Group Scattergram - 7 Years



Up/Down Markets - 7 Years



Peer Group Analysis - Multi Statistics - 7 Years (Excess Return vs. Risk Free)



Portfolio Characteristics (%)

	Portfolio	Benchmark
Effective Duration	5.29	5.18
Spread Duration	N/A	0.11
Avg. Maturity	8.11	7.54
Avg. Quality	Baa2	Baa3
Yield To Maturity (%)	7.67	6.62
Coupon Rate (%)	5.53	6.48
Current Yield (%)	6.29	6.55
Holdings Count	145	219

Maturity Distribution (%)

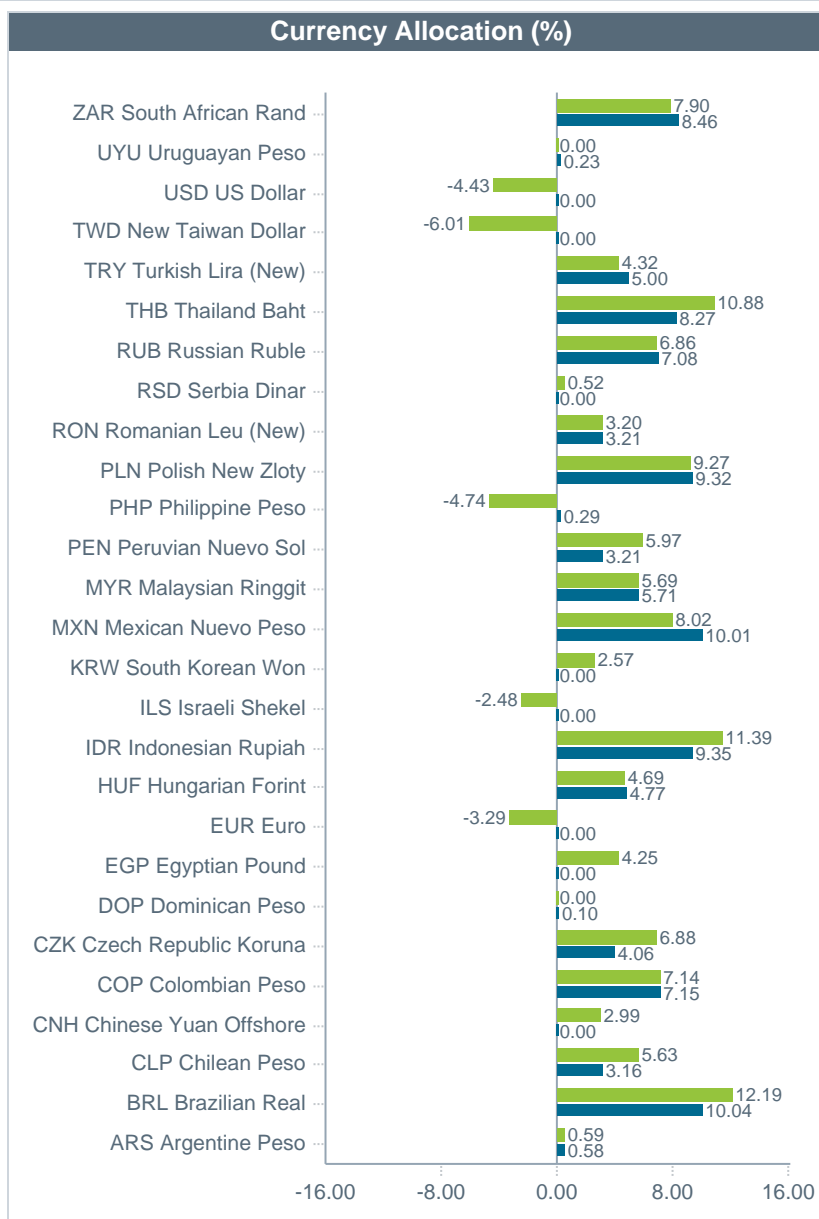
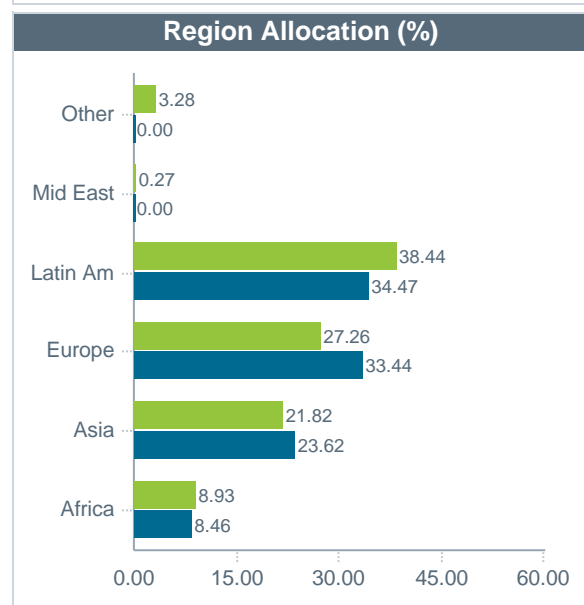
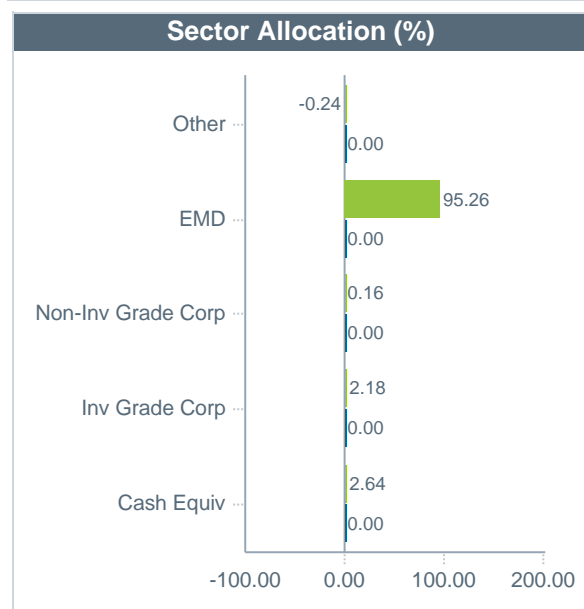
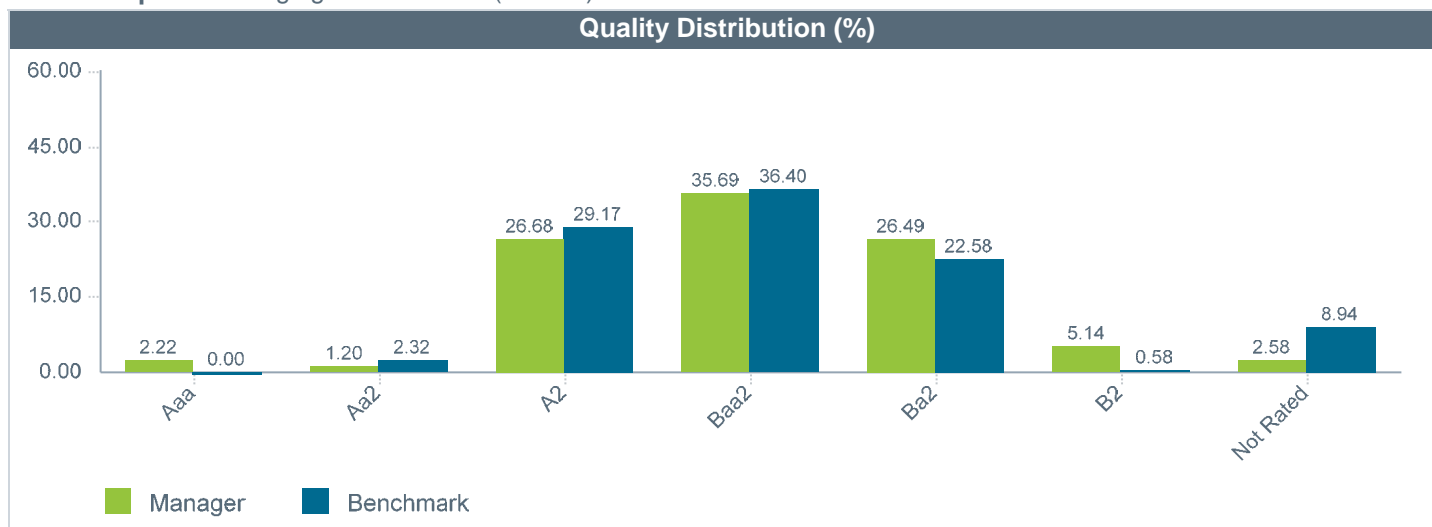


Manager: Investec

As of December 31, 2018

Benchmark: JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)

Peer Group: IM Emerging Markets Debt (SA+CF)



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Negative sector allocation reflects manager's use of derivatives, short selling, or interest rate swaps. Sector allocation to "Other" consists of foreign exchange and interest rate swaps. Region allocation to "Other" consists of developed market securities and the Commonwealth of Independent States.



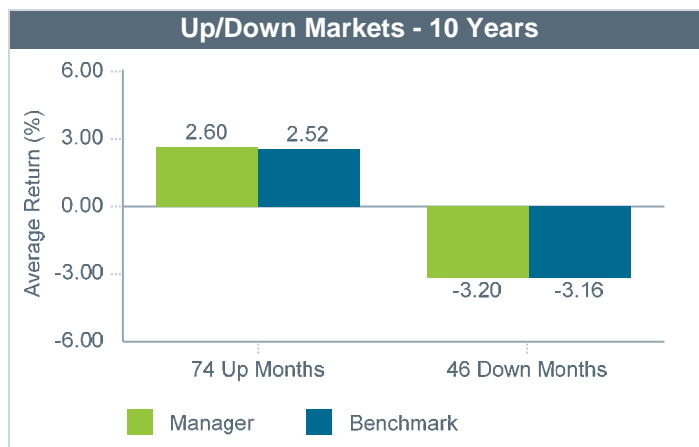
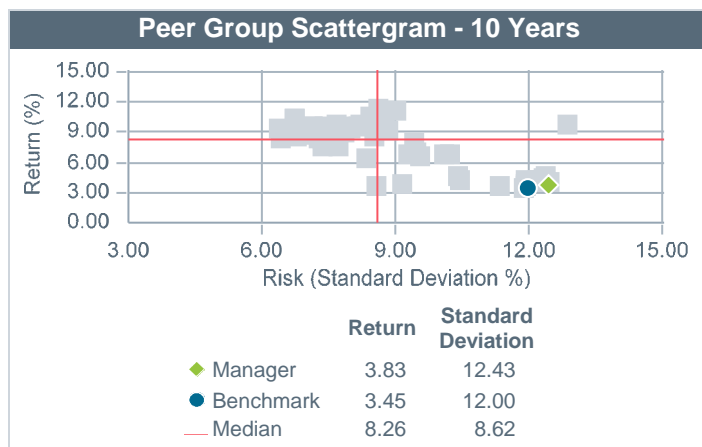
Manager: Stone Harbor

As of December 31, 2018

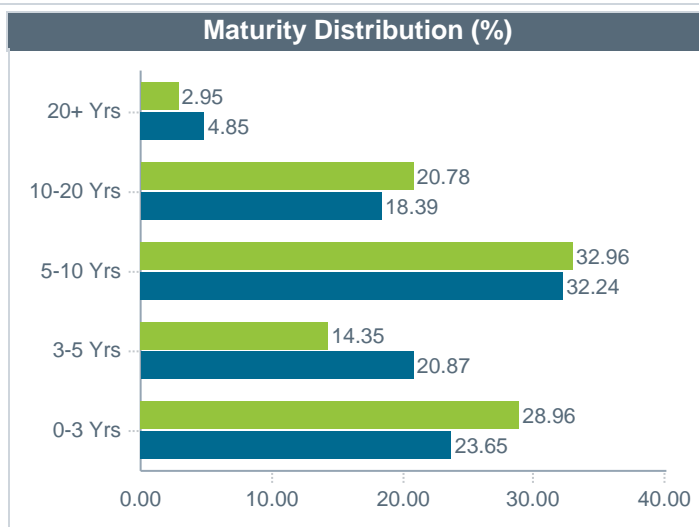
Benchmark: JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)

Peer Group: IM Emerging Markets Debt (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	1.38	-9.66	4.63	-2.01	-1.12	3.83	15.33	9.94	-14.61	-7.63	-11.48
Benchmark	2.11	-6.21	5.91	-0.96	0.18	3.45	15.21	9.94	-14.92	-5.72	-8.98
Difference	-0.73	-3.45	-1.28	-1.05	-1.30	0.38	0.12	0.00	0.31	-1.91	-2.50
Peer Group Median	-0.25	-5.32	5.88	3.44	4.15	8.26	12.40	11.09	-2.67	1.52	-5.81
Rank	26	97	88	100	100	88	22	71	83	98	99
Population	137	137	131	123	104	72	158	168	174	175	158



Portfolio Characteristics (%)		
	Portfolio	Benchmark
Effective Duration	4.87	5.18
Spread Duration	4.74	0.11
Avg. Maturity	7.33	7.54
Avg. Quality	Baa1	Baa3
Yield To Maturity (%)	8.98	6.62
Coupon Rate (%)	6.58	6.48
Current Yield (%)	7.05	6.55
Holdings Count	154	219

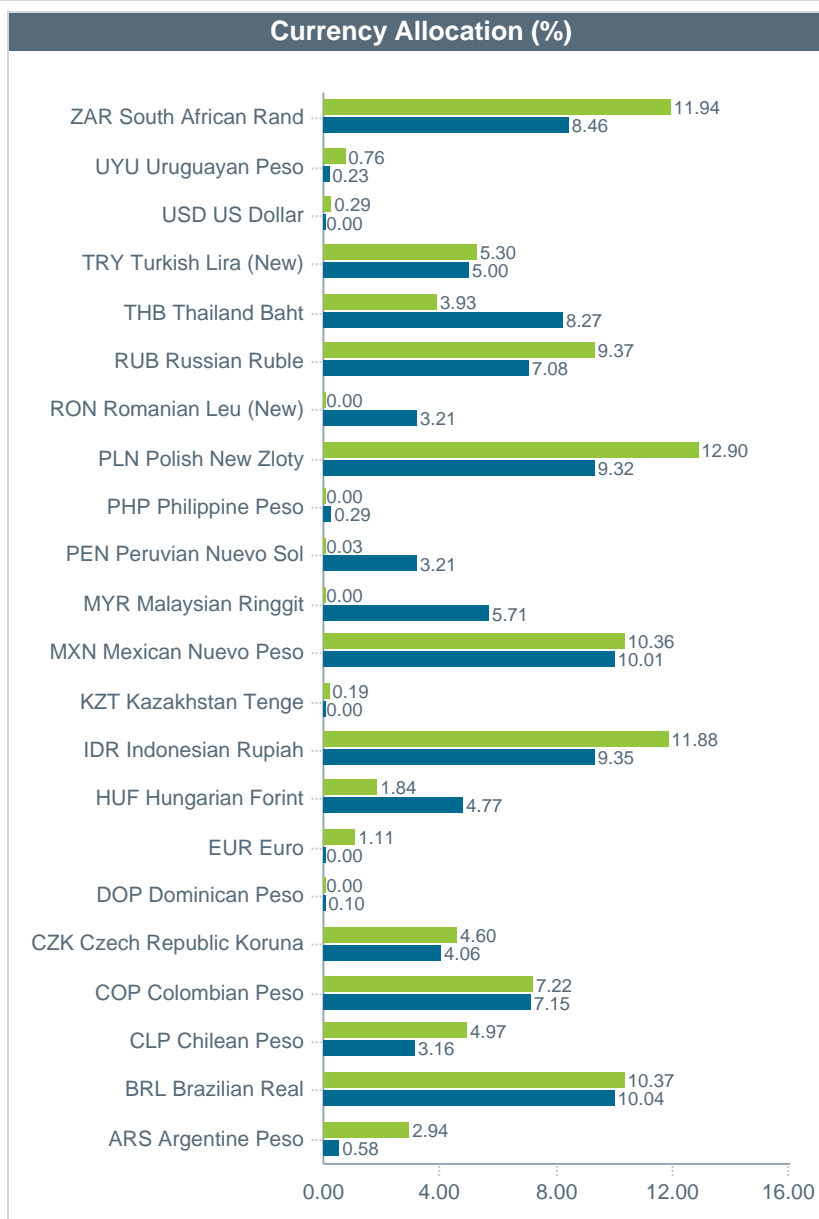
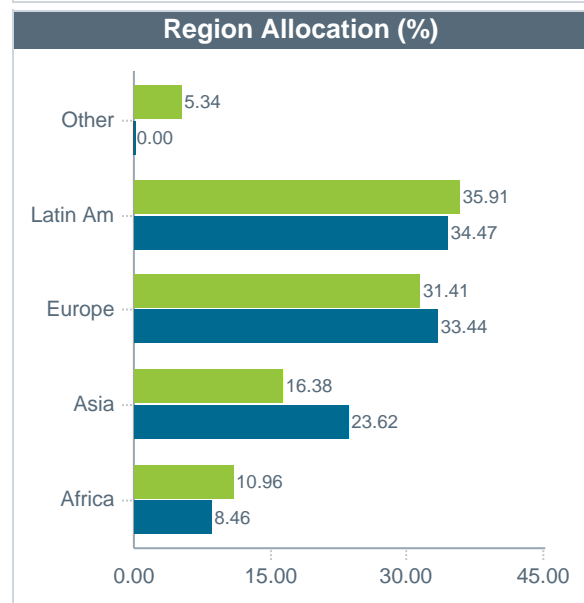
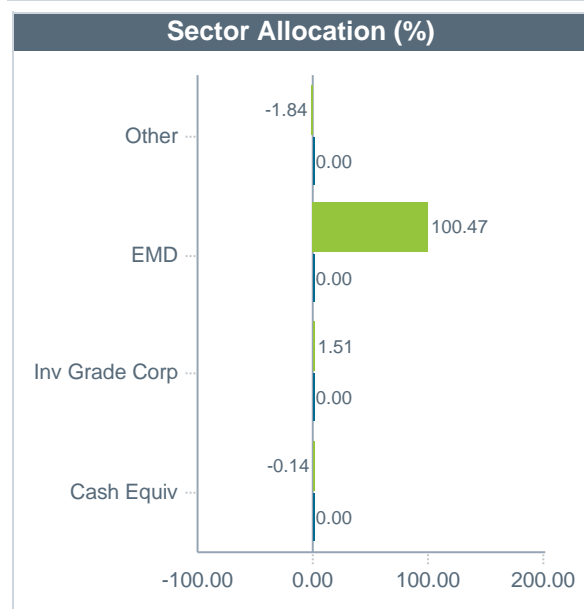
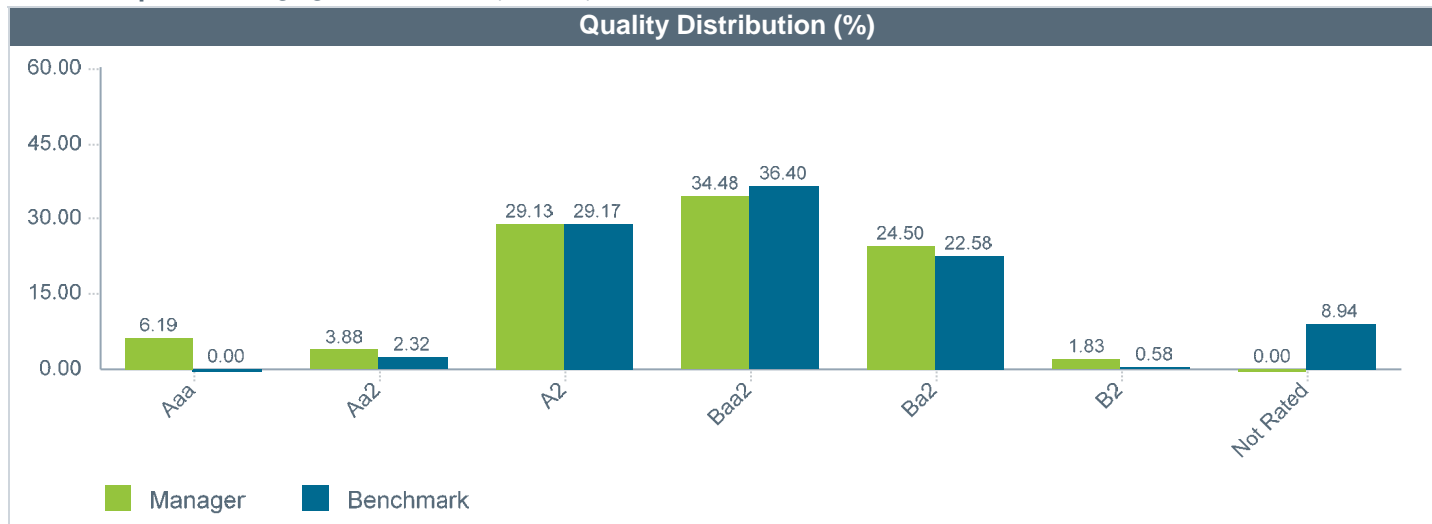


Manager: Stone Harbor

As of December 31, 2018

Benchmark: JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)

Peer Group: IM Emerging Markets Debt (SA+CF)



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Negative sector allocation reflects manager's use of derivatives, short selling, or interest rate swaps. Region allocation to "Other" consists of USD and cash. Sector allocation to "Other" consists of interest rate swaps.

Manager: State Street TIPS

As of December 31, 2018

Benchmark: Bloomberg US Trsy US TIPS Index (Series B)

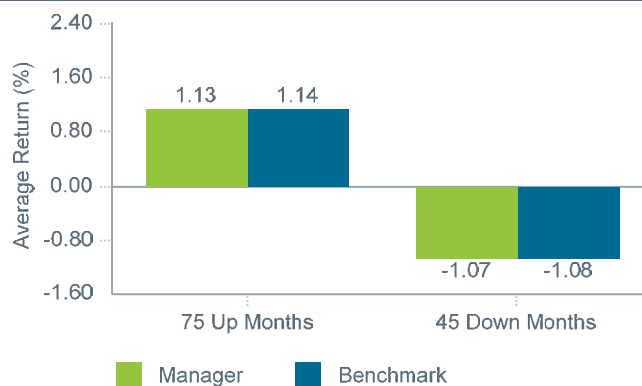
Peer Group: IM U.S. TIPS (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-0.52	-1.51	2.18	1.83	0.91	3.62	3.12	5.04	-1.75	4.47	-9.26
Benchmark	-0.49	-1.48	2.19	1.84	0.92	3.62	3.30	4.85	-1.72	4.43	-9.26
Difference	-0.03	-0.03	-0.01	-0.01	-0.01	0.00	-0.18	0.19	-0.03	0.04	0.00
Peer Group Median	-0.42	-1.20	2.17	1.70	0.92	3.64	3.10	4.66	-1.40	3.59	-8.33
Rank	72	84	49	25	57	61	49	24	91	7	93
Population	32	32	32	31	29	28	34	36	37	41	44

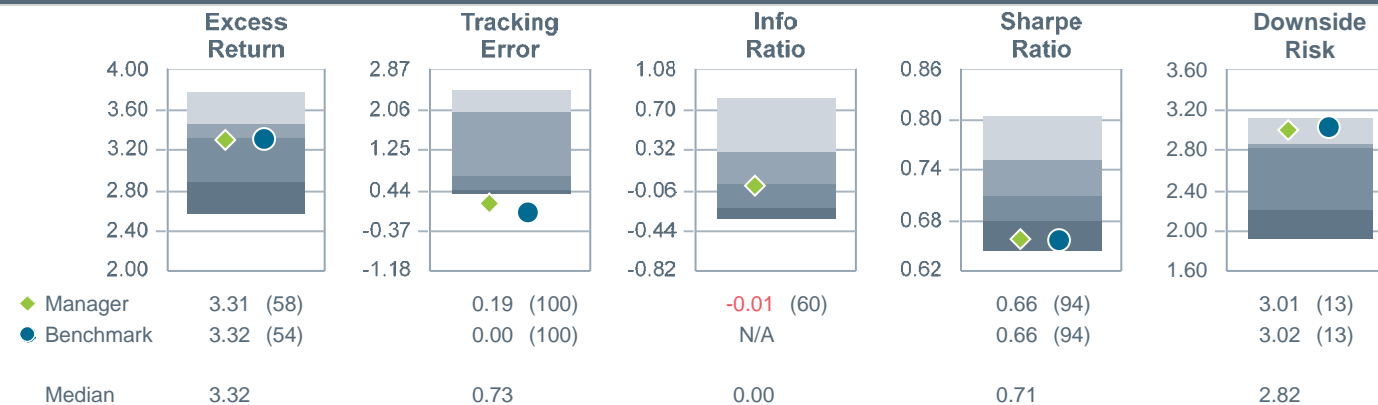
Peer Group Scattergram - 10 Years



Up/Down Markets - 10 Years



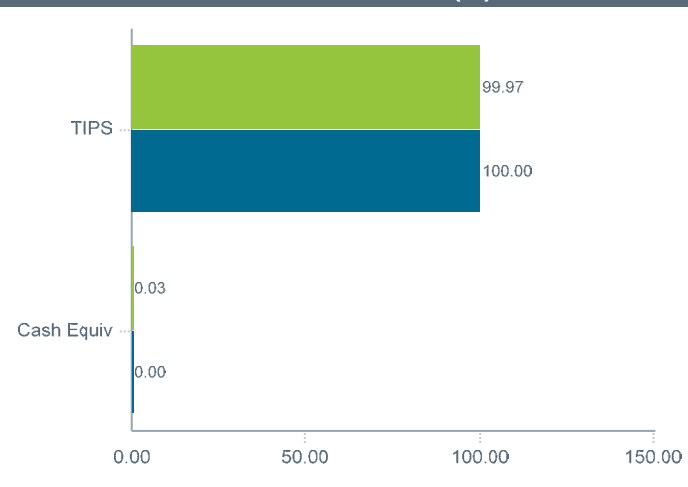
Peer Group Analysis - Multi Statistics - 10 Years (Excess Return vs. Risk Free)



Portfolio Characteristics

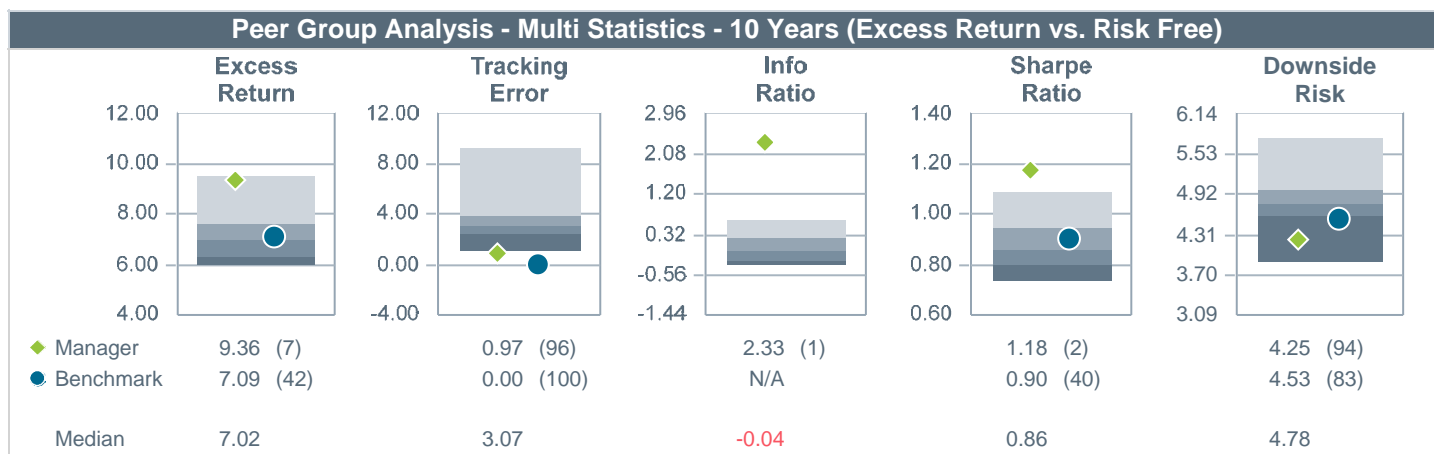
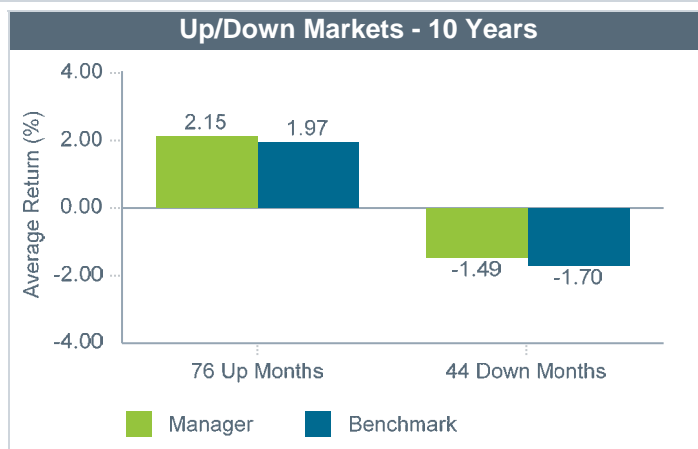
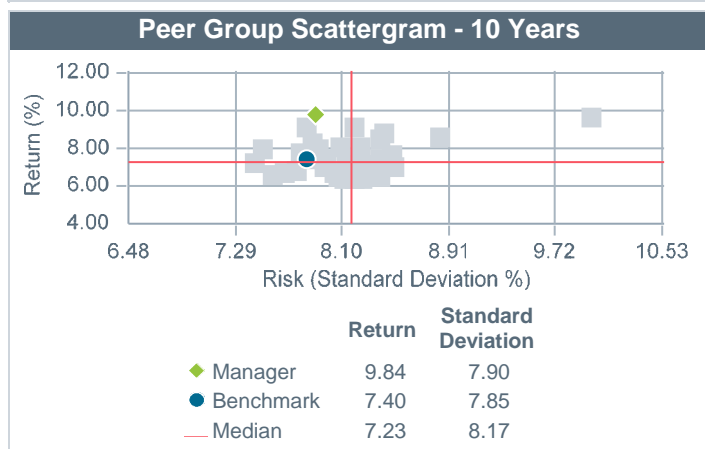
	Portfolio	Benchmark
Effective Duration	5.60	N/A
Spread Duration	N/A	N/A
Avg. Maturity	8.49	8.48
Avg. Quality	Aaa	Aaa
Yield To Maturity (%)	2.56	N/A
Coupon Rate (%)	0.93	N/A
Current Yield (%)	0.72	N/A
Holdings Count	40	39

Sector Distribution (%)

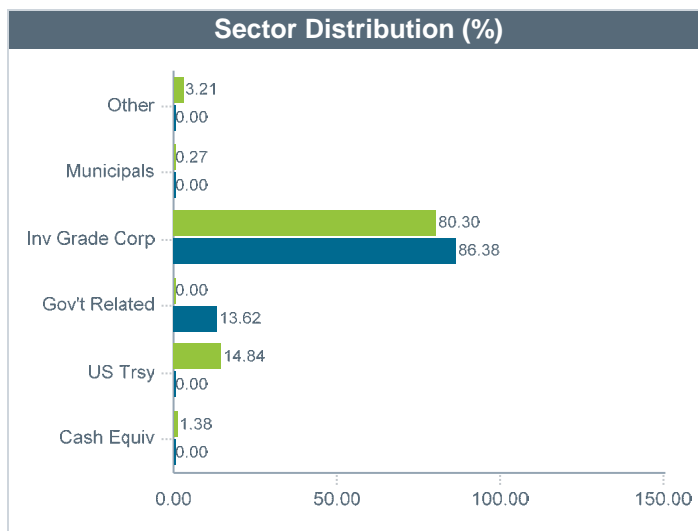


Performance shown is gross of fees. Performance prior to client inception consists of the Bloomberg US Trsy: US TIPS Index (Series B). Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	-1.49	-5.68	6.70	6.39	6.32	9.84	13.59	13.40	-4.73	17.74	-3.95
Benchmark	-1.64	-6.76	4.87	5.08	4.36	7.40	12.21	10.22	-4.56	16.39	-6.62
Difference	0.15	1.08	1.83	1.31	1.96	2.44	1.38	3.18	-0.17	1.35	2.67
Peer Group Median	0.46	-4.70	4.38	5.56	4.31	7.23	11.24	7.46	-3.33	18.36	-7.17
Rank	84	85	2	5	4	6	3	2	94	64	8
Population	60	60	59	59	56	46	71	73	74	79	79



Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	13.02	13.28
Spread Duration	10.96	13.04
Avg. Maturity	22.51	23.58
Avg. Quality	Aa2	A3/Baa1
Yield To Maturity (%)	4.80	4.90
Coupon Rate (%)	4.82	5.15
Current Yield (%)	4.84	N/A
Holdings Count	134	2,141

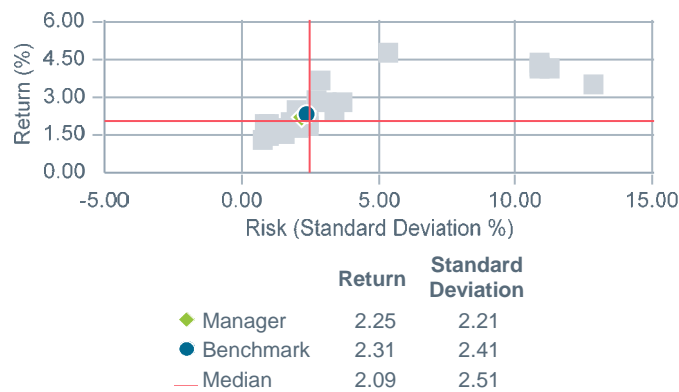
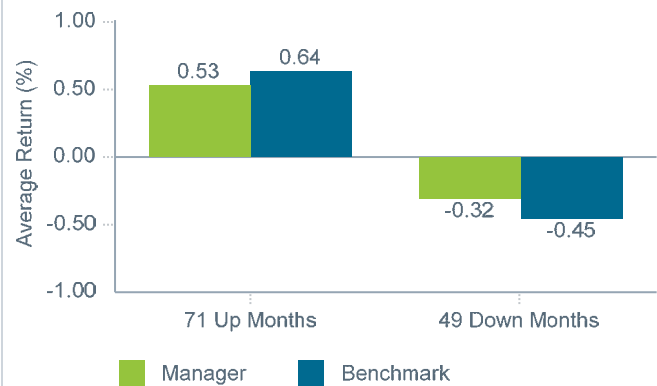
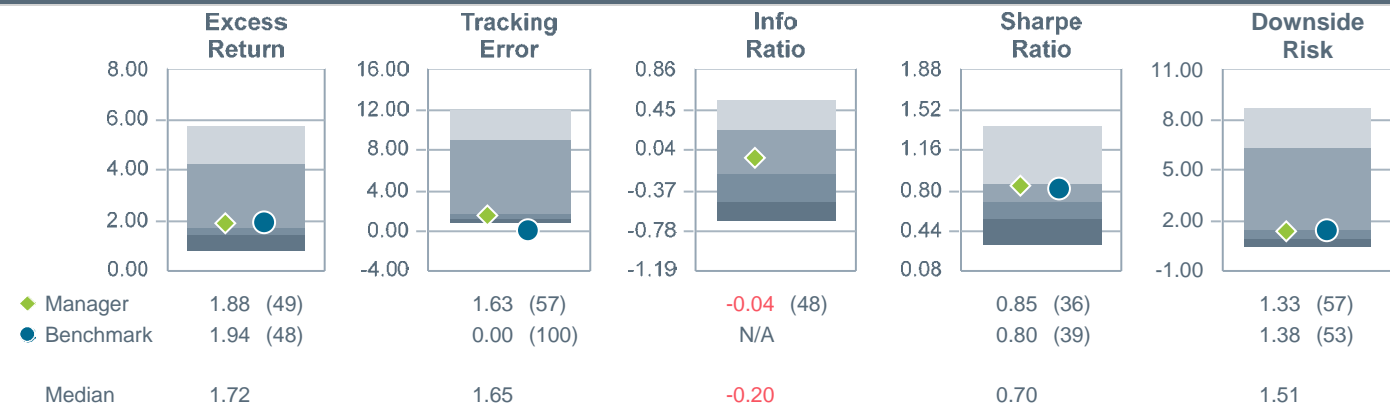


Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks. Allocation to other consists of foreign agency securities.

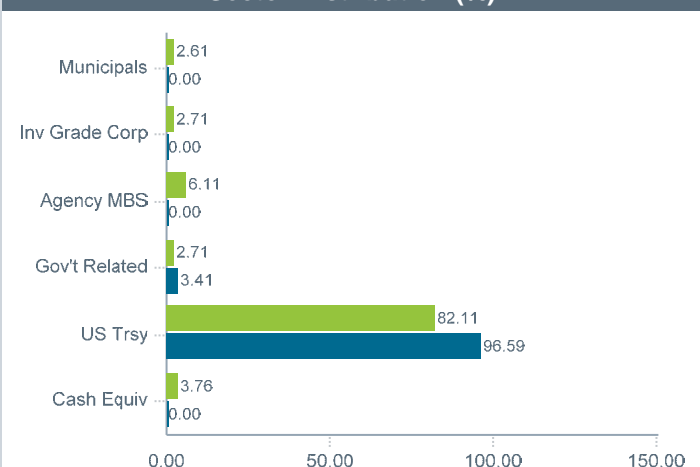
Manager: Internal Intermediate Gov't Fixed Income Portfolio
As of December 31, 2018
Benchmark: Bloomberg US Gov't: Int. Term Bond Index*

Peer Group: IM U.S. Government Bonds (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	1.93	1.85	1.55	2.34	1.59	2.25	1.84	0.95	1.83	5.30	-3.11
Benchmark	2.22	1.43	1.21	1.46	1.11	2.31	1.14	1.05	1.18	2.52	-1.25
Difference	-0.29	0.42	0.34	0.88	0.48	-0.06	0.70	-0.10	0.65	2.78	-1.86
Peer Group Median	2.25	1.27	1.66	1.99	1.49	2.09	1.77	1.34	0.72	2.89	-1.30
Rank	73	3	53	47	49	48	50	84	7	35	67
Population	41	41	39	38	37	33	45	46	46	47	47

Peer Group Scattergram - 10 Years

Up/Down Markets - 10 Years

Peer Group Analysis - Multi Statistics - 10 Years (Excess Return vs. Risk Free)

Portfolio Characteristics

	Portfolio	Benchmark
Effective Duration	3.27	3.75
Spread Duration	N/A	3.75
Avg. Maturity	N/A	4.04
Avg. Quality	Aaa	Aaa/Aa1
Yield To Maturity (%)	2.65	2.54
Coupon Rate (%)	1.95	2.21
Current Yield (%)	N/A	N/A
Holdings Count	70	454

Sector Distribution (%)


Performance shown is gross of fees. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

*Consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consisted of the Bloomberg US Gov't/Credit Bond Index.

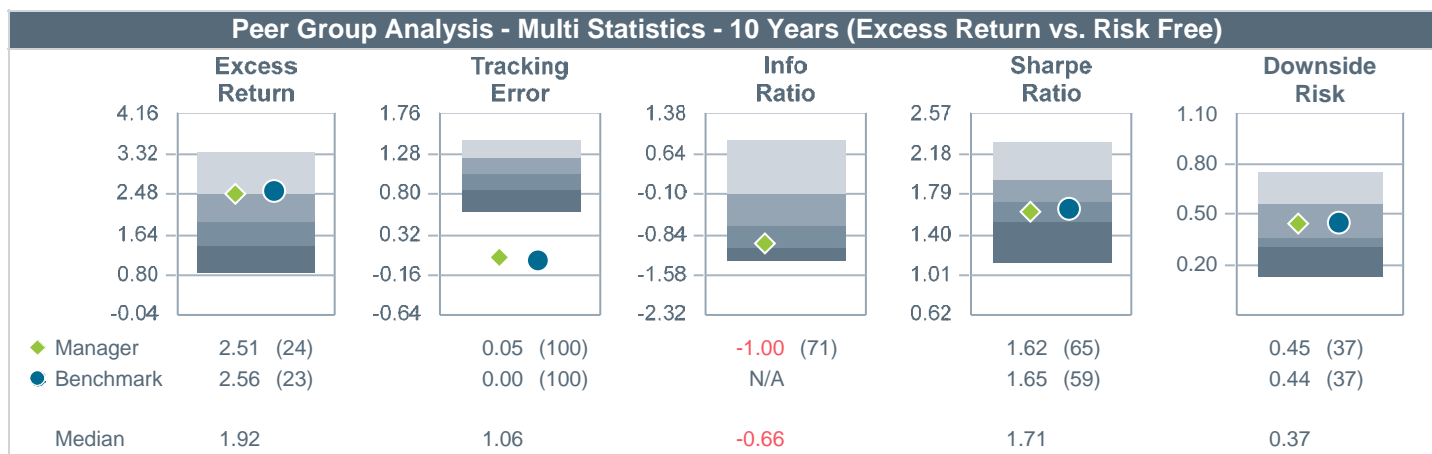
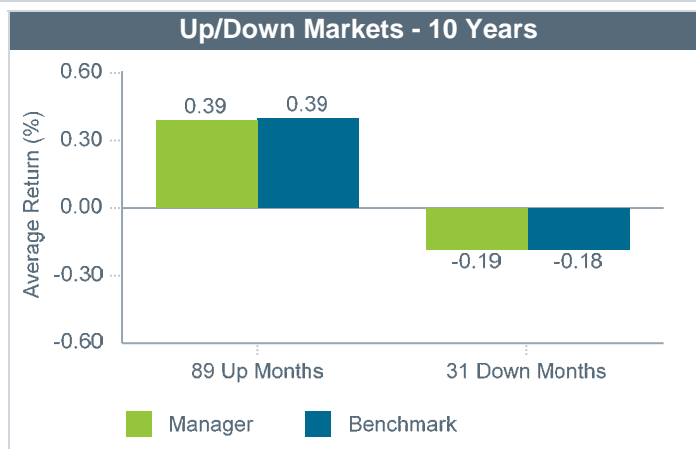
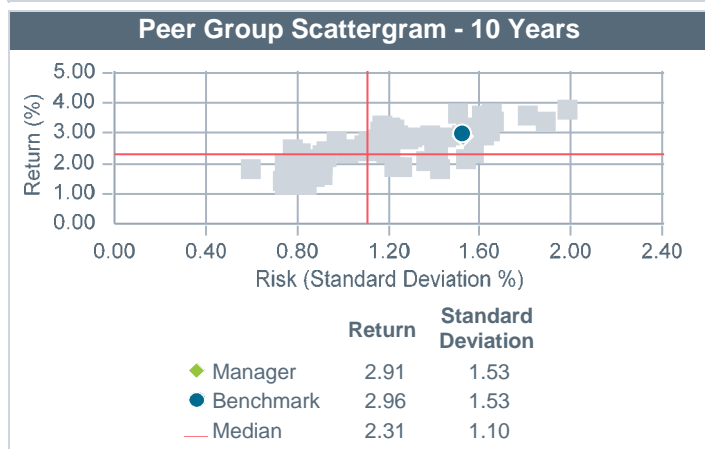
Manager: State Street Low Duration

As of December 31, 2018

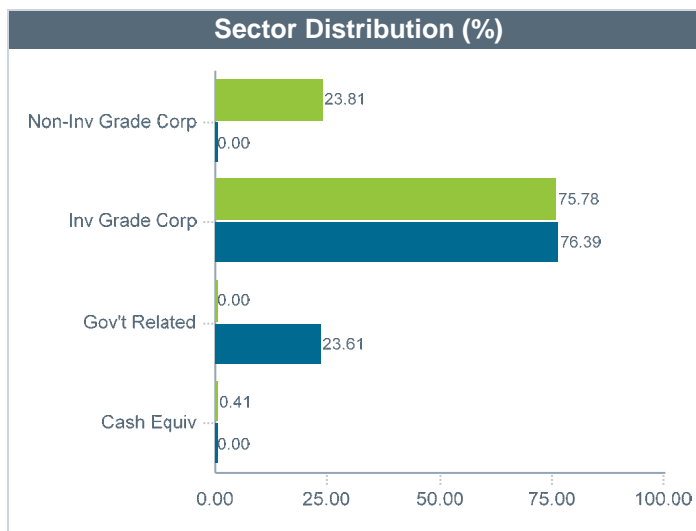
Benchmark: Bloomberg US Crdt 1-3 Yr Bond Index

Peer Group: IM U.S. Short Duration Fixed Income (SA+CF)

Performance											
	QTD	1 Year	3 Years	5 Years	7 Years	10 Years	2017	2016	2015	2014	2013
Manager	0.87	1.64	1.79	1.47	1.75	2.91	1.64	2.09	0.91	1.06	1.37
Benchmark	0.89	1.64	1.80	1.47	1.78	2.96	1.66	2.11	0.85	1.12	1.45
Difference	-0.02	0.00	-0.01	0.00	-0.03	-0.05	-0.02	-0.02	0.06	-0.06	-0.08
Peer Group Median	0.97	1.68	1.58	1.45	1.49	2.31	1.51	1.61	0.94	1.25	0.67
Rank	64	56	35	47	29	24	41	29	56	70	12
Population	115	115	110	106	100	90	124	126	126	126	125



Portfolio Characteristics		
	Portfolio	Benchmark
Effective Duration	1.85	1.85
Spread Duration	N/A	1.87
Avg. Maturity	1.95	1.97
Avg. Quality	A2	A1/A2
Yield To Maturity (%)	3.23	3.25
Coupon Rate (%)	2.98	3.06
Current Yield (%)	2.96	N/A
Holdings Count	1,167	1,331



Performance shown is gross of fees and product specific prior to client inception. Calculation is based on monthly periodicity. Parentheses contain percentile ranks.

State of Wyoming
State Loan and Investment Board
Investment Policy Objective Review

December 31, 2018

Investment Policy Guidelines	Meeting Objective			Explanation
	Yes	No	N/A	
1. Total Fund				
Exceed the rate of inflation (C.P.I.) over a market cycle of 5-years.	✓			Wyoming returned 3.4% vs. 1.5% for the C.P.I. for the current 5-year period
Exceed a weighted index of the total fund's asset allocation and component benchmarks over rolling 5-year periods by an appropriate amount.	✓			Wyoming returned 3.4% vs. 3.4% for the Actual Allocation Index for the current 5-year period
Not more than 1% of the outstanding common shares of any corporation shall be owned by the State. An exception may be made for Alternative Investments.	✓			
Not more than 1.5% of the total book value of permanent funds shall be invested in the common stock of any corporation. An exception may be made for Alternative Investments.	✓			

	Yes	No	N/A	Explanation
2. Investment Funds				
a) Permanent Mineral Trust Fund				
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Permanent Mineral Trust Fund return was 3.8% vs. 3.9% for the Actual Allocation Index
b) Common School Permanent Land Fund				
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Common School Permanent Land Fund return was 3.9% vs. 4.0% for the Actual Allocation Index
c) Permanent Land Fund				
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Permanent Land Fund return was 3.8% vs. 3.9% for the Actual Allocation Index
d) University Permanent Land Fund				
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: University Permanent Land Fund return was 4.1% vs. 4.2% for the Actual Allocation Index
e) Hathaway Scholarship Endowment Fund				
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Hathaway Scholarship Endowment Fund return was 3.4% vs. 3.6% for the Actual Allocation Index
f) Higher Education Endowment Fund				
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Higher Education Endowment Fund return was 3.3% vs. 3.5% for the Actual Allocation Index
g) Workers Compensation Fund				
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Workers Compensation Fund return was 3.2% vs. 3.3% for the Actual Allocation Index
h) Pool A				
At least 5% to 10% of the fund balance should be invested in securities with maturities of less than one year.	✓			
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: Pool A return was 2.4% vs. 2.3% for the Actual Allocation Index
i) State Agency Pool				
At least 10% to 15% of the fund balance should be invested in securities with maturities of less than one year.	✓			
No public and/or private equities are permitted.	✓			
Exceed a weighted index of the Fund's asset allocation and component benchmarks over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: State Agency Pool return was 2.2% vs. 2.1% for the Actual Allocation Index

	Yes	No	N/A	Explanation
3. US Equity Portfolios				
a) State Street Global Advisors – All Cap – Passive				
A maximum of the greater of five percent (5%), or the benchmark weighting plus two percent (2%), of the total stock portfolio of a manager may be invested in any one security.	✓			Largest Holding: Apple Inc = 2.81%
A maximum of one percent (1%) of the outstanding float of shares of one company may be held in companies with market capitalizations of \$5 Billion or greater at the time of purchase. A maximum of five percent (5%) of the outstanding float of shares of one company may be held in companies with market capitalizations of less than \$5 Billion at the time of purchase.	✓			
The maximum allowable in any sector, as defined as Global Industry Classification System Level 1, is two and one-half (2.5) times the respective benchmark weighting, unless the contract with the investment manager specifically provides otherwise.	✓			
A minimum number of twenty (20) securities shall be held.	✓			
Meet performance of the State Street All Cap Custom Index, net of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 01/2015
b) Epoch – All Cap				
A maximum of the greater of five percent (5%), or the benchmark weighting plus two percent (2%), of the total stock portfolio of a manager may be invested in any one security.	✓			Largest Holding: Microsoft Corp = 5.74%
A maximum of one percent (1%) of the outstanding float of shares of one company may be held in companies with market capitalizations of \$5 Billion or greater at the time of purchase. A maximum of five percent (5%) of the outstanding float of shares of one company may be held in companies with market capitalizations of less than \$5 Billion at the time of purchase.	✓			
The maximum allowable in any sector, as defined as Global Industry Classification System Level 1, is two and one-half (2.5) times the respective benchmark weighting, unless the contract with the investment manager specifically provides otherwise.	✓			
A minimum number of twenty (20) securities shall be held.	✓			
Outperform the Russell 3000 Index, net of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 11/2014
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 11/2014

	Yes	No	N/A	Explanation
c) Internal Equity Russell 2000 – Small Cap - Passive				
A maximum of the greater of five percent (5%), or the benchmark weighting plus two percent (2%), of the total stock portfolio of a manager may be invested in any one security.	✓			Largest Holding: Integrated Device Tech Inc = 0.35%
A maximum of one percent (1%) of the outstanding float of shares of one company may be held in companies with market capitalizations of \$5 Billion or greater at the time of purchase. A maximum of five percent (5%) of the outstanding float of shares of one company may be held in companies with market capitalizations of less than \$5 Billion at the time of purchase.	✓			
The maximum allowable in any sector, as defined as Global Industry Classification System Level 1, is two and one-half (2.5) times the respective benchmark weighting, unless the contract with the investment manager specifically provides otherwise.	✓			
A minimum number of twenty (20) securities shall be held.	✓			
Meet performance of the Russell 2000 Index, net of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 09/2018

	Yes	No	N/A	Explanation
4. International Equity Portfolios				
a) Internal International Equity Portfolio – Int’l – Passive				
A maximum of the greater of five percent (5%), or the benchmark weighting plus two percent (2%), of the total stock portfolio of a manager may be invested in any one security.	✓			Largest Holding: Nestle SA = 1.29%
A maximum of one percent (1%) of the outstanding float of shares of one company may be held in companies with market capitalizations of \$5 Billion or greater at the time of purchase. A maximum of five percent (5%) of the outstanding float of shares of one company may be held in companies with market capitalizations of less than \$5 Billion at the time of purchase.	✓			
The maximum allowable in any sector, as defined as Global Industry Classification System Level 1, is two and one-half (2.5) times the respective benchmark weighting, unless the contract with the investment manager specifically provides otherwise.	✓			
A minimum number of twenty (20) securities shall be held.	✓			
Meet performance of the FTSE All World Ex US Index (Net), net of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception Date: 02/2016
b) Northern Trust – Int’l – Passive				
A maximum of the greater of five percent (5%), or the benchmark weighting plus two percent (2%), of the total stock portfolio of a manager may be invested in any one security.	✓			Largest Holding: Nestle SA = 1.35%
A maximum of one percent (1%) of the outstanding float of shares of one company may be held in companies with market capitalizations of \$5 Billion or greater at the time of purchase. A maximum of five percent (5%) of the outstanding float of shares of one company may be held in companies with market capitalizations of less than \$5 Billion at the time of purchase.	✓			
The maximum allowable in any sector, as defined as Global Industry Classification System Level 1, is two and one-half (2.5) times the respective benchmark weighting, unless the contract with the investment manager specifically provides otherwise.	✓			
A minimum number of twenty (20) securities shall be held.	✓			
Meet performance of the MSCI ACW Ex US Index (Net), before fees, over a full market cycle, approximated by the most recent five-year period.	✓			5-year: Northern Trust gross of fees return was 0.9% vs. 0.7% for the MSCI ACW Ex US Index (Net)

	Yes	No	N/A	Explanation
c) Fisher – Int'l Active				
A maximum of the greater of five percent (5%), or the benchmark weighting plus two percent (2%), of the total stock portfolio of a manager may be invested in any one security.	✓			Largest Holding: Tencent Holdings Ltd = 4.05%
A maximum of one percent (1%) of the outstanding float of shares of one company may be held in companies with market capitalizations of \$5 Billion or greater at the time of purchase. A maximum of five percent (5%) of the outstanding float of shares of one company may be held in companies with market capitalizations of less than \$5 Billion at the time of purchase.	✓			
The maximum allowable in any sector, as defined as Global Industry Classification System Level 1, is two and one-half (2.5) times the respective benchmark weighting, unless the contract with the investment manager specifically provides otherwise.	✓			
A minimum number of twenty (20) securities shall be held.	✓			
Outperform the MSCI ACW Ex US Index (Net)*, net of fees, over a full market cycle, approximated by the most recent five-year period.	✓			5-year: Fisher net of fees return was 1.1% vs. 0.7% for the MSCI ACW Ex US Index (Net)
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: Fisher ranked in the 58th percentile for International Equity

*Fisher Index consists of MSCI EAFE Index (Gross) through July 2010 and the MSCI ACW Ex US Index (Net) thereafter.

d) Arrowstreet – Int'l Active				
A maximum of the greater of five percent (5%), or the benchmark weighting plus two percent (2%), of the total stock portfolio of a manager may be invested in any one security.	✓			Largest Holding: Samsung Electronics Co = 2.78%
A maximum of one percent (1%) of the outstanding float of shares of one company may be held in companies with market capitalizations of \$5 Billion or greater at the time of purchase. A maximum of five percent (5%) of the outstanding float of shares of one company may be held in companies with market capitalizations of less than \$5 Billion at the time of purchase.	✓			
The maximum allowable in any sector, as defined as Global Industry Classification System Level 1, is two and one-half (2.5) times the respective benchmark weighting, unless the contract with the investment manager specifically provides otherwise.	✓			
A minimum number of twenty (20) securities shall be held.	✓			
Outperform the MSCI ACW Ex US IM Index (Net), net of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 03/2018
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 03/2018

	Yes	No	N/A	Explanation
5. Preferred Stock				
a) Cohen & Steers				
Minimum issue credit rating for preferred stock at the time of purchase will be BB or equivalent.	✓			The portfolio currently holds securities which are rated below BB. Retention of these securities in the portfolio is permitted pursuant to Section 7.2 of the Investment Policy.
A maximum of 35% of the total portfolio of the investment manager may be invested in securities rated below investment grade.	✓			
A maximum of 10% of the total portfolio of the investment manager may be invested in any one issuer.	✓			
Outperform the S&P U.S. Preferred Stock Index, net of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 07/2018
	Yes	No	N/A	Explanation
6. Convertible Bond Portfolios				
a) Allianz Global Investors				
Outperform the BofA ML All Quality Convertible Bond Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Allianz Global Investors net of fees return was 5.7% vs. 5.9% for the ICE BofAML All Quality Convertible Bond Index
	Yes	No	N/A	Explanation
7. MLPs				
a) Harvest				
A maximum of 15% or the benchmark weighting + 2%, whichever is greater, of the total portfolio may be invested in any one company.	✓			
Outperform the S&P MLP Index, net of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 08/2018

	Yes	No	N/A	Explanation
8. Alternative Strategies				
Core Real Estate				
a) Clarion Lion				
Outperform the NCREIF Fund Index – Open-End Diversified Core Equity (ODCE), net of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: Clarion Lion net of fees return was 10.5% vs. 9.4% for the NCREIF ODCE Index (Net) (AWA)
b) UBS Trumbull				
Outperform the NCREIF Fund Index – Open-End Diversified Core Equity (ODCE), net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: UBS Trumbull net of fees return was 8.0% vs. 9.4% for the NCREIF ODCE Index (Net) (AWA)
Absolute Return				
c) PAAMCO				
Outperform the 90-Day T-Bills by 300 basis points, net of all fees (including underlying fund manager fees), over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: PAAMCO net of fees return was 1.1% vs. 0.6% for the ICE BofAML 3 Mo US T-Bill Index
Outperform the HFRI FOF Comp Index, net of all fees (including underlying fund manager fees), over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: PAAMCO net of fees return was 1.1% vs. 1.4% for the HFRI FOF Comp Index
d) Grosvenor Diversified Hedge Funds				
Outperform the HFRI FOF Comp Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.			N/A	Inception date: 07/2018
e) Internal Diversified Hedge Funds				
Outperform the HFRI FOF Comp Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.			N/A	Inception date: 07/2018

	Yes	No	N/A	Explanation
9. Fixed Income Portfolios				
a) C.S. McKee – Core				
Obligations not issued or guaranteed by the US government, US agencies, or US government-sponsored corporations and agencies are subject to a five percent (5%) per issuer limit excluding investments in commingled vehicles.	✓			
Non-US dollar denominated securities are permitted, but shall comprise no more than ten percent (10%) of the portfolio market value.	✓			
Private mortgage-backed and asset-backed securities are limited to ten percent (10%) of the portfolio market value.	✓			
Commercial mortgage-backed securities are permitted but shall comprise no more than ten percent (10%) of the portfolio market value.	✓			
Commercial paper of all issuers shall not exceed \$500 million.	✓			
Duration must fall in the range of plus or minus twenty percent (20%) of the Bloomberg Barclays US Aggregate Bond Index.	✓			
Minimum Issue Credit Rating at the time of purchase will be: A1 or equivalent for commercial paper BBB- for Corporate Bonds BBB- for Mortgage-Backed Securities BBB- for Commercial Mortgage-Backed Securities BBB- for Asset-Backed Securities BBB- for Non-US Dollar Denominated Securities BBB- for Dollar Denominated Emerging Market Securities	✓			
Average portfolio credit quality must be A- or better.	✓			
Dollar denominated emerging market securities are permitted, but shall comprise no more than ten percent (10%) of the portfolio market value.	✓			
A minimum number of 25 securities shall be held.	✓			
Investments in mortgage interest only and principal only securities or their derivations are permitted, but shall comprise no more than five percent (5%) of the portfolio market value.	✓			
Private placements, including 144A securities are not permitted.	✓			
Outperform its Custom Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: C.S. McKee net of fees return was 2.7% vs. 2.7% for the C.S. McKee Custom Index
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: C.S. McKee ranked in the 51st percentile for Core Fixed Income

	Yes	No	N/A	Explanation
b) JP Morgan – Core				
Obligations not issued or guaranteed by the US government, US agencies, or US government-sponsored corporations and agencies are subject to a five percent (5%) per issuer limit excluding investments in commingled vehicles.	✓			
Non-US dollar denominated securities are permitted, but shall comprise no more than ten percent (10%) of the portfolio market value.			N/A	
Private mortgage-backed and asset-backed securities are limited to ten percent (10%) of the portfolio market value.	✓			
Commercial mortgage-backed securities are permitted but shall comprise no more than ten percent (10%) of the portfolio market value.	✓			
Commercial paper of all issuers shall not exceed \$500 million.			N/A	
Duration must fall in the range of plus or minus twenty percent (20%) of the Bloomberg US Aggregate Bond Index.	✓			
Minimum Issue Credit Rating at the time of purchase will be: A1 or equivalent for commercial paper BBB- for Corporate Bonds BBB- for Mortgage-Backed Securities BBB- for Commercial Mortgage-Backed Securities BBB- for Asset-Backed Securities BBB- for Non-US Dollar Denominated Securities BBB- for Dollar Denominated Emerging Market Securities	✓			
Average portfolio credit quality must be A- or better.	✓			
Dollar denominated emerging market securities are permitted, but shall comprise no more than ten percent (10%) of the portfolio market value.			N/A	
A minimum number of 25 securities shall be held.	✓			
Investments in mortgage interest only and principal only securities or their derivations are permitted, but shall comprise no more than five percent (5%) of the portfolio market value.	✓			
Private placements, including 144A securities are not permitted.	✓			
Outperform the Bloomberg US Aggregate Bond Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: JP Morgan net of fees return was 2.7% vs. 2.5% for the Bloomberg US Aggregate Bond Index
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: JP Morgan ranked in the 57th percentile for Core Fixed Income

	Yes	No	N/A	Explanation
c) PIMCO – Core				
Obligations not issued or guaranteed by the US government, US agencies, or US government-sponsored corporations and agencies are subject to a five percent (5%) per issuer limit excluding investments in commingled vehicles.	✓			
Non-US dollar denominated securities are permitted, but shall comprise no more than ten percent (10%) of the portfolio market value.	✓			
Private mortgage-backed and asset-backed securities are limited to ten percent (10%) of the portfolio market value.	✓			
Commercial mortgage-backed securities are permitted but shall comprise no more than ten percent (10%) of the portfolio market value.	✓			
Commercial paper of all issuers shall not exceed \$500 million.	✓			
Duration must fall in the range of plus or minus twenty percent (20%) of the Bloomberg US Aggregate Bond Index.	✓			
Minimum Issue Credit Rating at the time of purchase will be: A1 or equivalent for commercial paper BBB- for Corporate Bonds BBB- for Mortgage-Backed Securities BBB- for Commercial Mortgage-Backed Securities BBB- for Asset-Backed Securities BBB- for Non-US Dollar Denominated Securities BBB- for Dollar Denominated Emerging Market Securities	✓			
Average portfolio credit quality must be A- or better.	✓			
Dollar denominated emerging market securities are permitted, but shall comprise no more than ten percent (10%) of the portfolio market value.	✓			
A minimum number of 25 securities shall be held.	✓			
Investments in mortgage interest only and principal only securities or their derivations are permitted, but shall comprise no more than five percent (5%) of the portfolio market value.	✓			
Private placements, including 144A securities are not permitted.	✓			
Outperform its Custom Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: PIMCO net of fees return was 2.7% vs. 2.6% for the PIMCO Custom Index
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: PIMCO ranked in the 48th percentile for Core Fixed Income

	Yes	No	N/A	Explanation
d) Neuberger Berman – Credit				
Duration must not exceed plus two (2) years of the custom index.	✓			
Minimum Issue Credit Rating for commercial paper will be A1.	✓			
Average portfolio credit quality must be B or better.	✓			
Obligations of specific issuers are subject to five percent (5%) per issuer limit, excluding investments in commingled vehicles.	✓			
Standalone purchases of private placements, including 144A securities, are not allowed.	✓			
Outperform the State's custom benchmark as measured by twenty percent (20%) Bloomberg US Credit Index, twenty percent (20%) BofA Merrill Lynch US High Yield Master II Constrained Index and sixty percent (60%) S&P/LSTA Leveraged Loan Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Neuberger Berman net of fees return was 2.7% vs. 3.3% for the Credit Custom Index
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: Neuberger Berman ranked in the 45th percentile for US Fixed Income
Investment Grade Credit Sleeve:				
Minimum Issue Credit Rating at the time of purchase will be: BBB- for individual securities.	✓			
Minimum of ten percent (10%) of the total portfolio must be invested in investment grade rated securities and a maximum of sixty percent (60%) of the total portfolio can be invested in investment grade rated securities.	✓			
High Yield Sleeve:				
Minimum Issue Credit Rating at the time of purchase will be: CCC- for individual securities. Securities that are not rated shall be, in the judgement of the investment manager, of credit quality equal or superior to the standards described above.	✓			
Maximum of forty percent (40%) of the total portfolio can be invested in high yield bonds.	✓			
Bank Loan Sleeve:				
Minimum Issue Credit Rating at the time of purchase will be: CCC for individual securities. Securities that are not rated shall be, in the judgement of the investment manager, of credit quality equal or superior to the standards described above.	✓			
Minimum of forty percent (40%) of the total portfolio must be invested in bank loans and a maximum of eighty percent (80%) of the total portfolio can be invested in bank loans.	✓			

	Yes	No	N/A	Explanation
e) Seix – Credit				
Duration must not exceed plus two (2) years of the custom index.	✓			
Minimum Issue Credit Rating for commercial paper will be A1.	✓			
Average portfolio credit quality must be B or better.	✓			
Obligations of specific issuers are subject to five percent (5%) per issuer limit, excluding investments in commingled vehicles.	✓			
Standalone purchases of private placements, including 144A securities, are not allowed.	✓			
Outperform the State's custom benchmark as measured by twenty percent (20%) Bloomberg US Credit Index, twenty percent (20%) BofA Merrill Lynch US High Yield Master II Constrained Index and sixty percent (60%) S&P/LSTA Leveraged Loan Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Seix net of fees return was 3.2% vs. 3.3% for the Credit Custom Index
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.	✓			5-year: Seix ranked in the 30th percentile for US Fixed Income
Investment Grade Credit Sleeve:				
Minimum Issue Credit Rating at the time of purchase will be: BBB- for individual securities.	✓			
Minimum of ten percent (10%) of the total portfolio must be invested in investment grade rated securities and a maximum of sixty percent (60%) of the total portfolio can be invested in investment grade rated securities.	✓			
High Yield Sleeve:				
Minimum Issue Credit Rating at the time of purchase will be: CCC- for individual securities. Securities that are not rated shall be, in the judgement of the investment manager, of credit quality equal or superior to the standards described above.	✓			
Maximum of forty percent (40%) of the total portfolio can be invested in high yield bonds.	✓			
Bank Loan Sleeve:				
Minimum Issue Credit Rating at the time of purchase will be: CCC for individual securities. Securities that are not rated shall be, in the judgement of the investment manager, of credit quality equal or superior to the standards described above.	✓			
Minimum of forty percent (40%) of the total portfolio must be invested in bank loans and a maximum of eighty percent (80%) of the total portfolio can be invested in bank loans.	✓			

	Yes	No	N/A	Explanation
f) Grosvenor Silvery Lupine Fund – Opportunistic Fixed Income				
Outperform the CS Western European Hi Yld Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.			N/A	Inception date: 07/2014
g) Investec – Emerging Market Debt (Local Currency)				
Duration must fall in the range of plus or minus twenty percent (20%) of the index.	✓			
Minimum Issue Credit Rating at the time of purchase will be: A1 for commercial paper B- for individual securities Where a security is not rated at the issue level, the issuer rating will be relied upon.	✓			
Average portfolio credit quality must be BB+ or better.	✓			
Obligations of individual sovereign/quasi-sovereign issuer are subject to a twenty-five percent (25%) per issuer limit.	✓			
Private placements, including 144A securities are not allowed.	✓			There are four 144A securities held by this portfolio. Retention of these securities in the portfolio is permitted pursuant to Section 7.2 of the Investment Policy.
The investment manager, as part of managing the account, can take net investment positions of up to twenty percent (20%) of the portfolio in currency and currency forwards.	✓			
Outperform the JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged), net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Investec net of fees return was -1.7% vs. the return of -1.0% for the JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: Investec ranked in the 94th percentile for Emerging Market Debt (Local Currency)

	Yes	No	N/A	Explanation
h) Stone Harbor – Emerging Market Debt (Local Currency)				
Duration must fall in the range of plus or minus twenty percent (20%) of the index.	✓			
Minimum Issue Credit Rating at the time of purchase will be: A1 for commercial paper B- for individual securities Where a security is not rated at the issue level, the issuer rating will be relied upon.	✓			The portfolio currently holds securities which are rated below B-. Retention of these securities in the portfolio is permitted pursuant to Section 7.2 of the Investment Policy.
Average portfolio credit quality must be BB+ or better.	✓			
Obligations of individual sovereign/quasi-sovereign issuer are subject to a twenty-five percent (25%) per issuer limit.	✓			
Private placements, including 144A securities are not allowed.	✓			The portfolio holds private placement and 144A securities. Retention of these securities in the portfolio is permitted pursuant to Section 7.2 of the Investment Policy.
The investment manager, as part of managing the account, can take net investment positions of up to twenty percent (20%) of the portfolio in currency and currency forwards.	✓			
Outperform the JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged), net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: Stone Harbor net of fees return was -2.6% vs. return of -1.0% for the JPM GBI-EM Gbl Dvf'd Index (USD) (TR) (Unhedged)
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: Stone Harbor ranked in the 100th percentile for Emerging Market Debt (Local Currency)
i) State Street – US TIPS – Passive				
Meet the performance of the Bloomberg US TIPS Index with minimal tracking error, gross of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: State Street gross of fees return was 1.8% vs. 1.8% for the Bloomberg US TIPS Index and a tracking error of 0.3%

	Yes	No	N/A	Explanation
j) Internal Int. Govt Fixed Income Portfolio – Intermediate Govt Fixed Income				
Obligations issued or guaranteed by the U.S. government, U.S. agencies or U.S. government-sponsored corporations and agencies are eligible without limit.	✓			
Non-U.S. Government securities are allowed, up to a maximum of 20% of the portfolio.	✓			
Duration should not exceed +2 years of the index.	✓			
Outperform the Bloomberg US Gov't: Int. Term Bond Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: Int. Govt Fixed Income Portfolio net of fees return was 2.3% vs. return of 1.5% for the Bloomberg US Gov't Int. Term Bond Index
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.		✗		5-year: Int. Govt Fixed Income Portfolio ranked in the 47th percentile for Government Fixed Income

	Yes	No	N/A	Explanation
k) Logan Circle – Long Duration Credit				
Obligations issued or guaranteed by the U.S. government, U.S. agencies or U.S. government-sponsored corporations and agencies are eligible without limit.	✓			
All other issuers are subject to a 5% per issuer limit excluding investments in commingled vehicles	✓			
A maximum of 30% of the portfolio may be invested in U.S. dollar denominated non-U.S. fixed income securities.	✓			
A maximum of 10% of the portfolio may be invested in U.S. dollar denominated emerging market securities.	✓			
A maximum of the appropriate benchmark plus 5% of the portfolio may be invested in convertible and municipal securities.	✓			
Portfolio duration for long duration bond portfolios must be within plus or minus 2 years of the Bloomberg Barclays U.S. Government/Credit: Long Term Bond Index. Custom portfolios designed to match the duration of plan liabilities must be within plus or minus 1 year of the duration of plan liabilities.	✓			
Average portfolio quality will be BBB+ or better. Securities shall be rated investment grade at time of purchase.	✓			
Outperform the Bloomberg US Long Credit Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.			N/A	Inception date: 11/2018
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 11/2018
	Yes	No	N/A	Explanation
l) Internal Long Duration – Long Duration Government				
Obligations issued or guaranteed by the U.S. government, U.S. agencies or U.S. government-sponsored corporations and agencies are eligible without limit.	✓			
All other issuers are subject to a 5% per issuer limit excluding investments in commingled vehicles	✓			
A maximum of 30% of the portfolio may be invested in U.S. dollar denominated non-U.S. fixed income securities.	✓			
A maximum of 10% of the portfolio may be invested in U.S. dollar denominated emerging market securities.	✓			
A maximum of the appropriate benchmark plus 5% of the portfolio may be invested in convertible and municipal securities.	✓			
Portfolio duration for long duration bond portfolios must be within plus or minus 2 years of the Bloomberg Barclays U.S. Government/Credit: Long Term Bond Index. Custom portfolios designed to match the duration of plan liabilities must be within plus or minus 1 year of the duration of plan liabilities.	✓			
Average portfolio quality will be BBB+ or better. Securities shall be rated investment grade at time of purchase.	✓			
Outperform the Bloomberg US Gov Long Term Bond Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.			N/A	Inception date: 01/2019
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 01/2019

	Yes	No	N/A	Explanation
m) State Street – Low Duration Credit				
Obligations issued or guaranteed by the U.S. government, U.S. agencies or U.S. government-sponsored corporations and agencies are eligible without limit.	✓			
All other issuers are subject to a 5% per issuer limit excluding investments in commingled vehicles	✓			
Corporate securities will be subject to a maximum limit of 60%.		✗		This portfolio is managed specifically as a credit portfolio. The low duration asset class mandate has been split into an internal government component and an external credit component.
Agency Mortgage Backed Securities ("MBS") will be subject to a maximum limit of 5%. Non-agency MBS are not permissible.	✓			
Asset Backed Securities ("ABS"), excluding CMBS, will be subject to a maximum limit of 10%. Minimum rating at time of purchase is AAA, with the exception of up to 5% maximum ABS rated below AAA but no lower than A.	✓			
Commercial Mortgage Backed Securities ("CMBS") are subject to a maximum limit of 5%.	✓			
Portfolio duration must be within plus or minus 30% of the Bloomberg Barclays US Gov't/Credit: 1-3 Year Bond Index.	✓			
Meet the performance of the Bloomberg US Credit 1-3 Bond Year Index with minimal tracking error, gross of fees, over a full market cycle, approximated by the most recent 5-year period.			N/A	Inception date: 12/2018
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 12/2018
	Yes	No	N/A	Explanation
n) Internal Low Duration – Low Duration Government				
Obligations issued or guaranteed by the U.S. government, U.S. agencies or U.S. government-sponsored corporations and agencies are eligible without limit.	✓			
All other issuers are subject to a 5% per issuer limit excluding investments in commingled vehicles	✓			
Corporate securities will be subject to a maximum limit of 60%.	✓			
Agency Mortgage Backed Securities ("MBS") will be subject to a maximum limit of 5%. Non-agency MBS are not permissible.	✓			
Asset Backed Securities ("ABS"), excluding CMBS, will be subject to a maximum limit of 10%. Minimum rating at time of purchase is AAA, with the exception of up to 5% maximum ABS rated below AAA but no lower than A.	✓			
Commercial Mortgage Backed Securities ("CMBS") are subject to a maximum limit of 5%.	✓			
Portfolio duration must be within plus or minus 30% of the Bloomberg Barclays US Gov't/Credit: 1-3 Year Bond Index.	✓			
Outperform the Bloomberg US Gov 1-3 Year Bond Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.			N/A	Inception date: 03/2018
Performance should rank in the top 40th percentile of peer manager universe as measured by the State's Consultant, gross of fees, over a full market cycle, approximated by the most recent five-year period.			N/A	Inception date: 03/2018

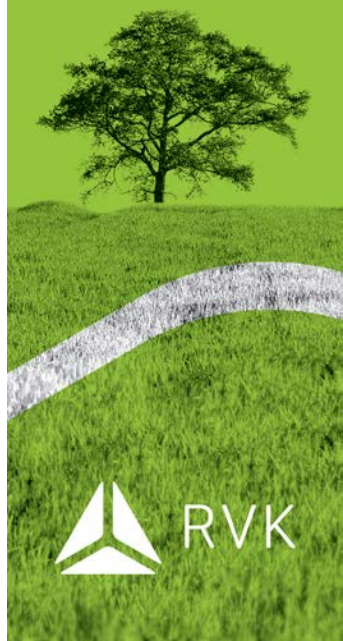
	Yes	No	N/A	Explanation
10. Cash and Cash Equivalents Portfolios				
JP Morgan Cash Composite*				
a) JP Morgan Treasury Cash				
Portfolio's weighted average maturity is not to exceed 90 days.	✓			
Portfolio's maximum average cash flow weighted duration of the portfolio must not exceed 90 days.	✓			
The market value of the portfolio must remain within plus or minus one-half percent (0.5%) of one percent (1%) of amortized cost.	✓			
A maximum of 5% of total assets shall be placed in the securities of one issuer except for government securities.	✓			
Investment in any single issuer must not exceed 5% of the outstanding issues of that issuer except for government securities.	✓			
Investment performance must exceed Monitored Repurchase Agreement Rate and the cash equivalents allocation by the 90-day T-Bill rate, net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: JP Morgan Treasury Cash net of fees return was 0.6% vs. 0.6% for the ICE BofAML 3 Mo US T-Bill Index
b) JP Morgan Treasury Extended Cash				
Portfolio's average cash flow weighted duration is not to exceed 3 years.	✓			
Average cash flow weighted duration is not to exceed 3 years.	✓			
Individual securities must not exceed cash flow weighted duration of greater than 5-years.	✓			
A maximum of 5% of total assets shall be placed in the securities of one issuer except for government securities.	✓			
Investment Performance must exceed an Equal Weighted Blend of the BofA Merrill Lynch 1-3 Year Agency, 1-3 Year Treasury, and a 0-3 Year Mortgage Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: JP Morgan Treasury Extended Cash net of fees return was 1.1% vs. 0.9% for the Blended Index
The extended portfolio must not exceed 35% of the total JP Morgan managed portfolio.	✓			

*During the fourth quarter of 2011, JP Morgan Treasury Cash and JP Morgan Treasury Extended Cash were combined. Net of fees performance shown consists of performance calculated by RVK, Inc. prior to 12/31/2011 and performance calculated by JP Morgan thereafter.

	Yes	No	N/A	Explanation
JP Morgan Wyo-Star Cash Composite*				
c) JP Morgan Wyo-Star Cash				
Portfolio's weighted average maturity is not to exceed 90 days.	✓			
Portfolio's maximum average cash flow weighted duration of the portfolio must not exceed 90 days.	✓			
The market value of the portfolio must remain within plus or minus one-half percent (0.5%) of one percent (1%) of amortized cost.	✓			
A maximum of 5% of total assets shall be placed in the securities of one issuer except for government securities.	✓			
Investment in any single issuer must not exceed 5% of the outstanding issues of that issuer.	✓			
Investment performance must exceed Monitored Repurchase Agreement Rate and the cash equivalents allocation by the 90-day T-Bill rate, net of fees, over a full market cycle, approximated by the most recent 5-year period.		✗		5-year: JP Morgan Wyo-Star Cash net of fees return was 0.6% vs. 0.6% for the ICE BofAML 3 Mo US T-Bill Index
d) JP Morgan Wyo-Star Extended Cash				
Portfolio's average cash flow weighted duration is not to exceed 3 years.	✓			
Average cash flow weighted duration is not to exceed 3 years.	✓			
Individual securities must not exceed cash flow weighted duration of greater than 5-years.	✓			
A maximum of 5% of total assets shall be placed in the securities of one issuer except for government securities.	✓			
Investment Performance must exceed an Equal Weighted Blend of the BofA Merrill Lynch 1-3 Year Agency, 1-3 Year Treasury, and a 0-3 Year Mortgage Index, net of fees, over a full market cycle, approximated by the most recent 5-year period.	✓			5-year: JP Morgan Wyo-Star Extended Cash net of fees return was 0.9% vs. 0.9% for the Blended Index
The extended portfolio must not exceed 35% of the total JP Morgan managed portfolio.	✓			

*During the fourth quarter of 2011, JP Morgan Wyo-Star Cash and JP Morgan Wyo-Star Extended Cash were combined. Net of fees performance shown consists of performance calculated by RVK, Inc. prior to 12/31/2011 and performance calculated by JP Morgan thereafter.

Addendum & Glossary



Custom Benchmark Comments

The Wyoming State Actual Allocation Index is calculated using beginning month asset class weights applied to the appropriate asset class benchmark return, using the US Equity Custom Index for US equities, MSCI ACW Ex US Index (Net) for international equities, manager specific benchmarks for fixed income, ICE BofA Merrill Lynch All Convertibles Index (All Qualities) for convertible bonds, NCREIF Open-End Diversified Core Equity Index (Gross) (AWA) for core real estate, NCREIF Property Index for value-added real estate, the State's actual private equity investment returns for private equity, HFRI FOF Comp Index for Diversified Hedge Funds, and ICE BofA Merrill Lynch 90 day US T-Bill rate for cash equivalents.

Pooled Fund actual allocation indices are calculated using beginning month asset class weights applied to the appropriate asset class benchmark return, using the US Equity Custom Index for US equities, MSCI ACW Ex US Index (Net) for international equities, manager specific benchmarks for fixed income, ICE BofA Merrill Lynch All Convertibles Index (All Qualities) for convertible bonds, NCREIF Open-End Diversified Core Equity Index for core real estate, NCREIF Property Index for value-added real estate, the State's actual private equity investment returns for private equity, HFRI FOF Comp Index for Diversified Hedge Funds, and the State Agency Pool Custom Index for the State Agency Pool allocation.

The US Equity Custom Index consists of the S&P 500 Index (Cap Wtd) through September 2014 and the Russell 3000 Index thereafter.

The State Street All Cap Custom Index consists of 69% Russell 3000 Index, 24% FTSE RAFI US 1000 Index and 7% MSCI USA Minimum Volatility Index (Net).

The International Equity Custom Index and the Fisher Custom Benchmark both consist of MSCI EAFE Index (Gross) through July 2010 and the MSCI ACW Ex US Index (Net) thereafter.

The Credit Custom Index consists of 20% Bloomberg US Credit Index, 20% ICE BofA Merrill Lynch US High Yield Master II Constrained Index, and 60% S&P/LSTA Leveraged Loan Index.

The Internal Intermediate Govt Fixed Income Portfolio Custom Index consists of the Bloomberg US Gov't: Int. Term Bond Index; prior to December 2009 the index consists of the Bloomberg US Gov't/Credit Bond Index.

The C.S. McKee Custom Index consists of the Bloomberg US Agg Bond Index through January 2018 and the Bloomberg US Agg Int Index thereafter.

The PIMCO Custom Index consists of the Bloomberg US Agg Bond Index through February 2018 and the Bloomberg US Agg Int Index thereafter.

The JP Morgan Blended Index consists of an equal-weighted allocation to the ICE BofA Merrill Lynch 1-3 Year US Treasury Index, ICE BofA Merrill Lynch 1-3 Year US Agencies Index, and ICE BofA Merrill Lynch 0-3 Year Weighted Average Life Mortgage Index.

The JP Morgan Cash Custom Index is calculated monthly using beginning of the month investment weights applied to each corresponding primary benchmark return. Currently, the primary benchmark for JP Morgan Cash is the ICE BofAML 3 Mo US T-Bill Index and for JP Morgan Extd is the JP Morgan Blended Index.

The Wyo-Star Cash Custom Index is calculated monthly using beginning of the month investment weights applied to each corresponding primary benchmark return. Currently, the primary benchmark for Wyo-Star Cash is the ICE BofAML 3 Mo US T-Bill Index and for Wyo-Star Extd is the JP Morgan Blended Index.

Performance & Holding Comments

RVK, Inc. shows performance beginning with the first full month following inception. Inception date shown for the Int'l Equity and JP Morgan Cash Composites represents the first date of performance calculated by RVK, Inc.

Performance shown for Pooled Funds is calculated on a capital-weighted basis using beginning-period allocations and does not reflect net cash flows.

Performance shown for the UW Portfolio Management Program prior to 07/01/2009 includes their participation in the State Agency Pool. Performance calculated for the UW Portfolio Management Program after 02/01/2013 has not been verified by RVK as the assets have been moved to a platform in which the custodian does not provide a reconcilable return.

Performance for the Internal Intermediate Govt Fixed Income Portfolio excludes distressed securities taken in-kind following the liquidation of WAMCO Core Plus.

Performance shown for the JP Morgan Cash Composite and the Wyo-Star Cash Composite consists of the respective operating and extended cash accounts.

Due to portfolio turnover, buy and hold attribution may not accurately represent quarterly performance relative to the benchmark.

Composite performance shown for Fixed Income is historically exclusive of convertibles.

Alternative Investment Comments

Reporting for Private Equity performance was changed from cost basis to the latest portfolio valuation adjusted for cash flows, consistent with the supplementary alternatives report. This methodology change involved reflecting the difference between cost value and the most recent valuation, resulting in a significant positive performance impact on the total fund during 2nd quarter 2008.

Valuations for value-added real estate and private equity were changed from a one-quarter lag to as of the most recent valuation, adjusted for subsequent cash flows. This methodology change involved reflecting all cash flows occurring during 4th quarter 2011 as of January 2012, resulting in a minor positive performance impact on the total fund during 1st quarter 2012. Investment (Cost) Values are not lagged.

Performance for value-added real estate and private equity investments is calculated on an IRR basis. For further analysis, please refer to the supplementary alternatives performance report.

Cheyenne Capital Fund valuations set forth herein could be materially different once underlying investments are realized. Market conditions at the time of exit could be substantially different than at the reporting period, resulting in valuations different than those represented above.

Miscellaneous Comments

Wyoming State Treasurer's Office fiscal year ends on June 30th.

Fixed Income style peer groups have low populations, and may cause ranks to change significantly from quarter to quarter.

"IM" is the acronym for Investment Metrics, the provider of peer group data used in ranking investment manager and asset class performance.

During the 4th quarter of 2012, WAMCO Core Plus, Neuberger Berman Core Plus, PIMCO Core Plus, PIMCO Mortgages, JP Morgan Mortgages, WAMCO Corporates, Logan Circle, and PIMCO Global/EM began the liquidation process to transition assets to the State's new fixed income asset class structure. The proceeds were used to fund State Street TIPS, C.S. McKee, JP Morgan Core, MacKay Shields, Neuberger Berman Core, PIMCO Core, and Wells Capital. During the 1st quarter of 2013, additional assets were transitioned to Neuberger Berman Credit, Seix, Investec, and Stone Harbor.

During the 4th quarter of 2014, State Street S&P 500 and Gabelli began the liquidation process to transition assets to the State's new US equity asset class structure. The proceeds were used to fund State Street All Cap, Epoch, Lazard, and RBC. During the 1st quarter of 2015, additional assets were transitioned to Arrowstreet.

During the 4th quarter of 2015, the Workers Compensation Fund was reclassified as a Permanent Fund.

During the 1st quarter of 2016, the State funded the Internal International Equity Portfolio, using proceeds from the liquidation of The Boston Company.

During the 3rd quarter of 2016, Bloomberg acquired the Barclays Global Family of Fixed Income Indices. Naming conventions have been updated to "Bloomberg" to reflect the acquisition.

During the 3rd quarter of 2016, MacKay Shields began the liquidation process, with proceeds used to increase allocations to C.S. McKee and the Internal Intermediate Govt Fixed Income Portfolio.

During the 1st quarter of 2017, Neuberger Berman Core and Wells Capital began their respective liquidation processes.

During the 2nd quarter of 2017, Manning & Napier began the liquidation process.

During the 4th quarter of 2017, Lazard began the liquidation process.

During the 4th quarter of 2017, Intercontinental Exchange (ICE) acquired the BofA Merrill Lynch Global Research FICC index platform. As a result, all BofA Merrill Lynch indices have been rebranded to "ICE BofA Merrill Lynch".

During the 1st quarter of 2018, Arrowstreet was reclassified as International Equity and the Internal Low Duration portfolio was funded.

During the 2nd quarter of 2018, Cohen & Steers, Grosvenor Diversified Hedge Funds, and Internal Diversified Hedge Funds were funded.

Miscellaneous Comments (Continued)

During the 2nd quarter of 2018, the Hybrid Assets Composite was created for convertibles, preferred stock, and MLPs.

During the 2nd quarter of 2018, RBC began the liquidation process.

During the 3rd quarter of 2018, Internal Equity Russell 2000 was funded.

During the 3rd quarter of 2018, Harvest was funded.

During the 4th quarter of 2018, Logan Circle, Internal Long Duration Fixed Income Portfolio, and State Street Low Duration were funded.

INVESTMENT MANAGER PEER GROUP GLOSSARY

IM U.S. All Cap Equity (SA+CF): The **U.S. All Cap Equity** universe includes products with a higher growth bias, products with a higher value bias, and products where the investment strategy permits investments in both value and growth equity securities across the complete Russell 3000 market cap spectrum.

IM U.S. Large Cap Core Equity (SA+CF): The **U.S. Large Cap Core Equity** universe includes products where the investment strategy can best be described as benchmark driven rather than style driven and can include a blend of both value and growth considerations. The weighted average market cap is in excess of \$10 billion.

IM U.S. Small Cap Core Equity (SA+CF): The **U.S. Small Cap Core Equity** universe includes products where the investment strategy can best be described as benchmark driven rather than style driven and can include a blend of both value and growth considerations. The weighted average market is between \$300 million and \$2 billion.

IM All ACWI ex US (SA+CF): The **All ACWI ex US** universe includes products where the investment strategy can be best described as benchmark driven and includes products investing in growth and value securities across the MSCI ACW Ex US Index.

IM U.S. Broad Mkt Core Fixed Income (SA+CF): The **U.S. Broad Mkt Core Fixed Income** universe includes products where the portfolio weighted average duration is greater than or equal to 4 years and less than 6 years. The average maturity can be between 3 and 8 years. The allocation to high yield bonds or emerging market debt is less than or equal to 5%.

IM U.S. Fixed Income (SA+CF): The **U.S. Fixed Income** universe includes all U.S. fixed income products.

IM Emerging Markets Debt (SA+CF): The **Emerging Markets Debt** universe includes products where the combined market allocation to emerging market debt in Asia, Africa/Europe and Latin America is approximately 75% or more. The JP Morgan Emerging Markets Bond and EMBI+ are commonly used benchmarks.

IM U.S. Government Bonds (SA+CF): The **U.S. Government Bonds** universe includes products where the investment style focuses on government bonds and the sector allocation to them is greater than or equal to 75%. The Barclays Capital U.S. Government or Government: Intermediate are commonly used benchmarks.

IM U.S. Short Duration Fixed Income (SA+CF): The **U.S. Short Duration Fixed Income** universe includes products where the portfolio weighted average duration is greater than or equal to 1 year and less than 2.5 years. The average maturity is between 1 and 3 years.

IM U.S. Long Duration Fixed Income (SA+CF): The **U.S. Long Duration Fixed Income** universe includes products where the portfolio weighted average duration is greater than or equal to 6 years. The average maturity can be greater than 6 years.

Glossary

Active Return - The difference between the investment manager/composite performance relative to the performance of an appropriate market benchmark.

Active Share - Measures the degree to which the holdings of a fund differ from the holdings of the benchmark. Active share is calculated by taking the sum of the absolute value of the differences of the weight of each holding in the fund versus the weight of each holding in the benchmark and dividing by two.

Alpha - A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta. It is a measure of the portfolio's historical performance not explained by movements of the market or a portfolio's non-systematic return.

Alpha Ratio - A measure of a portfolio's non-systematic return per unit of downside risk. It is measured by dividing the alpha of a portfolio by the downside risk. The non-systematic return is a measure of a portfolio's historical performance not explained by movements of the market.

Average Quality - Bond quality ratings are reported using the investment managers' and the index providers' preferred rating agency. *Average Quality for managers unable to provide this statistic is instead provided by Morningstar; if unavailable on Morningstar, it has been estimated using a credit quality distribution provided by the manager.* There are two primary rating agencies in the US. *Moody's* assigns ratings on a system that employs up to four symbols (consisting of letters and numbers) such as, Aaa, Aa2, etc., with Aaa being the highest or safest rating. *Standard & Poor's (S&P)* employs a system that uses + and - along with letters such as AAA, AA+, etc. The two rating agencies' systems are summarized below:

<u>S&P</u>	<u>Moody's</u>	<u>Explanation</u>	<u>S&P</u>	<u>Moody's</u>	<u>Explanation</u>
Higher Credit Quality – Investment Grade			Lower Credit Quality – Below Investment Grade		
AAA	Aaa	Prime/Highest credit quality	BB+	Ba1	Speculative/Low credit quality
AA+	Aa1	High credit quality	BB	Ba2	
AA	Aa2		BB-	Ba3	
AA-	Aa3		B+	B1	Highly speculative
A+	A1	Upper-medium credit quality	B	B2	
A	A2		B-	B3	
A-	A3		CCC+	Caa1	Substantial credit/default risk
BBB+	Baa1	Lower-medium credit quality	CCC	Caa2	Extremely speculative
BBB	Baa2		CCC-	Caa3	
BBB-	Baa3		CC	Ca	Vulnerable to default
			C	Ca	
			D	C	In default

Benchmark Effect - The difference between the blended return of each respective managers' benchmark within a composite and the composite's benchmark return.

Beta - A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of a portfolio's non-diversifiable or systematic risk.

Box Plots - A graphical representation of the distribution of observations. From top to bottom, the four boxes represent the spread between the maximum value and the minimum value in each quartile. A quartile represents the values that divide the observations into four quarters (i.e., 1st quartile, 2nd quartile, 3rd quartile, and 4th quartile). The median observation is where the 2nd quartile and 3rd quartile meet.

Buy and Hold Attribution - At the beginning of the time period under analysis, the manager and benchmark portfolios are broken down into segments (i.e., styles, sectors, countries, and regions) based on the desired type of attribution. The formula assumes zero turn-over to the manager and benchmark portfolios throughout the period and calculates the segment returns ("buy and hold returns") to arrive at performance attribution. Due to portfolio turnover, buy and hold attribution may not accurately represent quarterly performance relative to the benchmark. Country, region, sector, and style allocations are as of the date one quarter prior to the reporting date, and the returns shown are for those segments throughout the quarter reported. Due to disclosure guidelines set by each investment manager, equity characteristics shown are as of the most recent date available. The following is the methodology for segment classification:

Sector - Attribution is calculated using the Global Industry Classification Standard (GICS) which is a detailed and comprehensive structure for sector and industry analysis. Stocks are classified by their primary sector, as defined by S&P Capital IQ data.

Country/Region - Attribution is calculated using the Morgan Stanley Capital International (MSCI) region standards. Stocks are classified by their domicile country/region, as defined by S&P Capital IQ data.

Style - Stocks are classified into the following style boxes: large/mid/small vs. growth/neutral/value. Stocks are classified along large/mid/small categories at the time of the Russell index rebalancing, using the index market cap boundaries as cutoff points. Stocks are classified along growth/neutral/value categories at the time of the Russell index rebalancing, using the price/book ratio as supplied by S&P Capital IQ. Stocks in the Russell 3000 Index portfolio are sorted by price/book ratio; names with the highest price/book ratio that make up 1/3 of the total market capitalization are assigned to the growth category, names that make up the subsequent 1/3 of the total market capitalization are assigned to the neutral category, while the balance of the names are assigned to the value category.

Portfolio Characteristics and Buy and Hold Attribution reports utilize product-specific data for all mutual funds and commingled funds.

Capital Markets Review -

Breakeven Inflation - Measures the expected inflation rate at each stated maturity by taking the difference between the real yield of the inflation-linked maturity curve and the yield of the closest nominal Treasury maturity.

Consumer Confidence - Measures domestic consumer confidence as defined by the degree of optimism on the state of the economy that consumers express through saving and spending.

Consumer Price Index (CPI) - Measures the change in the price level of consumer goods and services.

Federal Funds Rate - The interest rate at which a depository institution lends funds maintained at the Federal Reserve to another depository institution overnight. It is one of the most influential interest rates in the US economy, since it affects monetary and financial conditions, which in turn have a bearing on key aspects of the broad economy including employment, growth and inflation.

Option-Adjusted Spread - Measures the flat spread of an index or bond to the Treasury yield curve after removing the effect of any embedded options.



Glossary

- Purchasing Managers Index (PMI)** - Measures economic activity by surveying purchasing managers on a monthly basis as to whether business conditions have improved, worsened, or stayed the same.
- Real Gross Domestic Product (Real GDP)** - An inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year.
- US Dollar Total Weighted Index** - Measures the value of the US Dollar relative to a basket of other world currencies. It is calculated as the weighted geometric mean of the dollar's value versus the EUR, GBP, CAD, SEK, CHF, and JPY.
- Unemployment Rate** - The percentage of the total labor force that is unemployed but actively seeking employment.
- VIX** - Measures the implied volatility of S&P 500 Index options by looking at the market's expectation of the S&P 500 Index volatility over the next 30 day period. Commonly referred to as the "fear index" or the "fear gauge."
- Cash Flow Effect** - The composite's active return minus the sum of each managers' active return minus the benchmark effect.
- Consistency** - The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.
- Convexity** - A measure of the shape of the curve that describes the relationship between bond prices and bond yields.
- Correlation** - A statistical measure of the relationship between asset class returns. A value of 1.00 is a perfect correlation; that is, the asset classes always move in the same direction. A value of -1.00 indicates a perfect negative correlation, in which the asset classes always move in opposite directions of each other. A value of 0 indicates there is no relationship between the direction of returns of the two asset classes. Correlation calculations only consider the direction of changes relative to two variables and not the magnitude of those changes.
- Coupon Rate** - The percentage rate of interest paid on a bond or fixed income security; it is typically paid twice per year.
- Current Yield** - The annual income of a security divided by the security's current price.
- Down Market Capture** - Down market by definition is negative benchmark return and down market capture represents the ratio in % terms of the average portfolios return over the benchmark during the down market period. The lower the value of the down market capture the better the product's performance.
- Downside Risk** - A measure similar to standard deviation, but focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative monthly returns. The higher the factor, the riskier the product.
- Earnings Per Share** - It is backward looking, calculated using the one year current EPS divided by the one year EPS five years ago.
- Effective Duration** - The approximate percentage change in a bond's price for a 100 basis point change in yield.
- Excess Return vs. Market** - Average of the monthly arithmetic difference between the manager's return and the benchmark return over a specified time period, shown on an annualized basis.
- Excess Return vs. Risk Free** - Average of the monthly arithmetic difference between the manager's return and the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) over a specified time period, shown on an annualized basis.
- Excess Risk** - A measure of the standard deviation of a portfolio's performance relative to the risk free return.
- Expense Ratios** - Morningstar is the source for mutual fund expense ratios.
- Gain/Loss** - The net increase or decrease in the market value of a portfolio excluding its Net Cash Flow for a given period.
- Indices** - All indices and related information are considered intellectual property and are licensed by each index provider. The indices may not be copied, used or distributed without the index provider's prior written approval. Index providers make no warranties and bear no liability with respect to the indices, any related data, their quality, accuracy, suitability and/or completeness.
- Information Ratio** - Measured by dividing the active rate of return by the tracking error. The higher the information ratio, the more value-added contribution by the manager.
- Liability Driven Investing (LDI)** - A method to optimally structure asset investments relative to liabilities. The change in liabilities is estimated by the Ryan Labs Generic PPA Index of appropriate duration for that Plan. This benchmark is based on generic data and is therefore an approximation. RVK is not an actuarial firm, and does not have actuarial expertise.
- Estimated Funded Status** - The estimated ratio of a Plan's assets relative to its future liabilities. This is calculated by dividing the Plan's asset market value by the estimated present value of its liabilities. The higher the estimated funded status, the better the Plan's ability to cover its projected benefit obligations. An estimated funded status of 100% indicates a Plan that is fully funded.
- Estimated PV of Liabilities** - An estimate of a Plan's future liabilities in present value terms. The beginning of the period liability is provided by the Plan's actuary. The period-end present value liability estimate provided in this report is derived by applying the estimated percentage change generated using the Ryan Labs Generic PPA Index with duration similar to that reported on the most recent actuarial valuation report.
- Duration of Liabilities** - The sensitivity of the value of a Plan's liabilities to changes in interest rates, as calculated by the Plan's actuary.
- Duration of Assets** - The dollar-weighted average duration of all the individual Plan assets.
- Estimated Plan Hedge Ratio** - The estimate of how well a Plan's investment portfolio is hedged against changes in interest rates - a primary driver of funded status movements. This is calculated by dividing the dollar-weighted values of both the Plan asset duration by the liability duration and multiplying by the estimated funded status. An estimated plan hedge ratio of zero indicates that the Plan's liabilities have not been hedged, whereas a value of one indicates fully hedged.
- Modified Duration** - The approximate percentage change in a bond's price for a 100 basis point change in yield, assuming the bonds' expected cash flows do not change.

Glossary

Mutual Fund Performance - Whenever possible, manager performance is extended for any share class that does not have 10 years of history. Using Morningstar's methodology, a single ticker within the same fund family (often the oldest share class) is chosen to append historical performance.

Net Cash Flow - The sum, in dollars, of a portfolio's contributions and withdrawals. This includes all management fees and expenses only when performance shown is gross of fees.

Peer Groups -

Plan Sponsor Peer Groups - RVK utilizes the Mellon Analytical Solutions Trust Universe along with the Investment Metrics Plan Sponsor Universe. The combined Mellon Analytical Solutions Trust Universe and Investment Metrics Plan Sponsor Universe is used for comparison of total fund composite results and utilizes actual client performance compiled from consultant and custodian data. The Plan Sponsor Peer Group database includes performance and other quantitative data for over 2,100 plans which include corporate, endowment, foundation, public, and Taft Hartley plans. Plan Sponsor Peer Groups are gross of fees.

Investment Manager Peer Groups - RVK utilizes Investment Metrics' Peer Groups for investment manager peer comparison and ranking. The Investment Metrics Peer Group database includes performance and other quantitative data for over 840 investment management firms and 29,000 investments products, across more than 160 standard peer groups. Mutual Fund Peer Groups are net of fees. For more information on Peer Groups, visit <https://www.invmetrics.com/style-peer-groups>.

Percentile Rankings - Percentile rank compares an individual fund's performance with those of other funds within a defined peer group of managers possessing a similar investment style. Percentile rank identifies the percentage of a fund's peer group that has a higher return (or other comparative measurement) than the fund being ranked. Conversely, 100 minus the individual fund's ranking will identify the percentage of funds within the peer group that have a lower return than the fund being ranked.

1 - Highest Statistical Value

100 - Lowest Statistical Value

Example: American Funds AMCP;R-4 (RAFEX) is ranked in the 4th percentile within the IM US Equity Large-Cap Growth Funds (MF) Peer Group for the Sharpe Ratio. Within the IM US Equity Large-Cap Growth Funds peer group, 4% of the other funds performed better than American Funds AMCP;R-4 (RAFEX), while 96% of the funds performed worse.

Performance Methodology - RVK calculates performance for investment managers and composites using different methodologies.

Investment Managers - Performance is calculated for interim periods between all large external cash flows for a given month and geometrically linked to calculate period returns. An external cash flow is defined as cash, securities, or assets that enter or exit a portfolio. RVK defines a "large cash flow" as a net aggregate cash flow of $\geq 10\%$ of the beginning-period portfolio market value or any cash flow that causes RVK calculated performance to deviate from manager/custodian reported performance in excess of 5 basis points for a given month.

Composites - The Modified Dietz methodology is utilized to calculate asset class, sub-asset class, and total fund composite performance. The Modified Dietz method calculates a time-weighted total rate of return that considers the timing of external cash flows; however, it does not utilize interim period performance to mitigate the impact of significant cash in- and outflows to the composite.

RVK calculates performance beginning with the first full month following inception. Since inception performance may vary from manager reported performance due to RVK using the first full month of returns as the inception date. Performance for both managers and composites is annualized for periods greater than one year.

Portfolio Characteristics - Due to disclosure guidelines set by each investment manager, portfolio characteristics shown are as of the most recent date available.

Price to Earnings Ratio - The ratio of a company's share price to its per-share earnings

Private Equity Quartile Ranks - Private Equity quartile ranks are generated using vintage year peer group data provided by Thomson Reuters, and are based on each fund's annualized, since inception internal rate of return (IRR). Three Private Equity peer groups are available via Thomson Reuters: Buyout, Venture, and All Private Equity. Ranks are available quarterly, at a one-quarter lag.

Return - Compounded rate of return for the period.

% Return - The time-weighted rate of return of a portfolio for a given period.

R-Squared - The percentage of a portfolio's performance explained by the behavior of the appropriate benchmark. High R-Squared means a higher correlation of the portfolio's performance to the appropriate benchmark.

Risk Free Benchmark - ICE BofAML 3 Mo US T-Bill Index unless specified otherwise.

Glossary

RVK Liquidity Rating - A qualitative method for determining the relative amount of liquidity in a portfolio. The characteristics considered when determining relative liquidity include trading volume, gates for redemption, leverage, nature of transactions, and pricing mechanisms. The RVK Liquidity Rating is calculated using beginning of month investment weights applied to each corresponding asset class liquidity rating.

<u>Asset Class</u>	<u>RVK Liquidity Rating</u>	<u>Asset Class</u>	<u>RVK Liquidity Rating</u>
<u>Liquid Investments</u>		<u>Less Liquid Investments</u>	
T-Bills and Treasuries	100	Fixed Income Plus Sector	50
Cash Equivalents	98	Bank Loans	50
TIPS	95	Stable Value (Plan Sponsor Directed)	50
US Large Cap Equity	95	Absolute Return Strategies	35
Diversified Real Return	93		
Stable Value (Participant Directed)	91		
Non-US Large Cap Equity	90	<u>Not Liquid Investments</u>	
Global Tactical Asset Allocation	88	Core Real Estate	25
US Small Cap Equity	85	Core Plus Real Estate	15
REITS	85	Non-Core Real Estate	5
Non-US Small Cap Equity	85	Private Equity Funds of Funds	5
Emerging Markets Equity	85		
Core Fixed Income	85		
Core Plus Fixed Income	80		

Sector Allocation - Negative fixed income sector allocation reflects manager's use of derivatives, short selling, or interest rate swaps.

Sharpe Ratio - Represents the excess rate of return over the risk-free return (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise), divided by the standard deviation of the excess return to the risk free asset. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.

Simple Alpha - The difference between the manager's return and the benchmark's return.

Spread Duration - The approximate percentage change in a bond's price for a 100 basis point change in its spread over a Treasury of the same maturity.

Standard Deviation - A statistical measure of the range of a portfolio's performance. The variability of a return around its average return over a specified time period.

Time Period Abbreviations - **QTD** - Quarter-to-Date. **CYTD** - Calendar Year-to-Date. **FYTD** - Fiscal Year-to-Date. **YOY** - Year Over Year.

Thematic Classification - Represents dedicated manager allocations; as such, thematic allocations are approximations. RVK categorizes the following asset classes as Alpha, Capital Appreciation, Capital Preservation, and Inflation:

<u>Alpha</u>	<u>Capital Appreciation</u>	<u>Capital Preservation</u>	<u>Inflation</u>
Absolute Return Strategies	Public Equity	Core Fixed Income	TIPS
Currency Overlay	Private Equity	CMBS Fixed Income	Bank Loans
	Preferred Securities	Asset Backed Fixed Income	Core Real Estate
	High Yield	Domestic Core Plus Fixed Income	Real Return
	Convertible Fixed Income	Mortgage Backed Fixed Income	Inflation Hedges
	TALF Funds	International Developed Fixed Income	REITS
	Distressed Debt	Cash Equivalents	Commodities
	Emerging Market Fixed Income	Stable Value	
	Value Added Real Estate		
	Opportunistic Real Estate		

Total Fund Attribution - The Investment Decision Process (IDP) model provides an approach to evaluating investment performance that applies to all asset classes and investment styles. The IDP model is based on a top-down hierarchy framework of investment decisions, with each decision contributing to the overall profit or loss. The IDP approach starts from the strategic asset allocation and follows the flow of the investments down to the manager's skill.

Strategic Asset Allocation (SAA) - The percentage return gained or lost from the long-term strategic asset allocation decision, the most significant determinant of long-term performance. SAA is the product of the target asset allocation multiplied by the corresponding benchmark returns.

Tactical Asset Allocation (TAA) - The percentage return gained or lost from not having been precisely allocated at the target asset allocation mix, whether by deviations that are tactical in nature or a by-product of moving towards the target mix. TAA is the product of the actual asset allocation multiplied by the broad asset class benchmarks, less the SAA.

Style Selection (SS) - The percentage return gained or lost from intentional style biases within each asset class (e.g. value rather than core or overweight to emerging markets relative to benchmark). SS is the product of the actual manager allocation within each asset class multiplied by their specific benchmark, less TAA.

Manager's Skill (MS) - The percentage return gained or lost from manager value added relative to their specific benchmark. MS is the product of the actual manager allocation multiplied by their achieved excess return.

Total Fund Beta - Total Fund Beta is calculated using the S&P 500 as the benchmark. It represents a measure of the sensitivity of the total fund to movements in the S&P 500 and is a measure of the Total Fund's non-diversifiable or systematic risk.

Tracking Error - A measure of the standard deviation of a portfolio's performance relative to the performance of an appropriate market benchmark.

Glossary

Treynor Ratio - Similar to Sharpe ratio, but focuses on beta rather than excess risk (standard deviation). Treynor ratio represents the excess rate of return over the risk-free rate (i.e., ICE BofAML 3 Mo US T-Bill Index unless specified otherwise) divided by the beta. The result is the absolute rate of return per unit of risk. The higher the value, the better historical risk-adjusted performance.

Unit Value - The dollar value of a portfolio, assuming an initial nominal investment of \$100, growing at the compounded rate of %Return for a given period.

Up Market Capture - Up market by definition is positive benchmark return and up market capture represents the ratio in % terms of the average portfolios return over the benchmark during the up market period. The higher the value of the up market capture the better the product's performance.

Yield to Maturity - The rate of return achieved on a bond or other fixed income security assuming the security is bought and held to maturity and that the coupon interest paid over the life of the bond will be reinvested at the same rate of return. The 30-Day SEC Yield is similar to the Yield to Maturity and is reported for mutual funds.

Yield to Worst - The bond yield calculated by using the worst possible yield taking into consideration all call, put, and optional sink dates.

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NEW YORK

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