

Investment Performance Review
Period Ending September 30, 2018

Howard County Retirement Plans



Table of Contents

Market Environment	3
Total Fund	14
US Equity	28
International Equity	34
Fixed Income	41
Real Assets	47
Alternatives	52
Manager Detail	54
Appendix	83

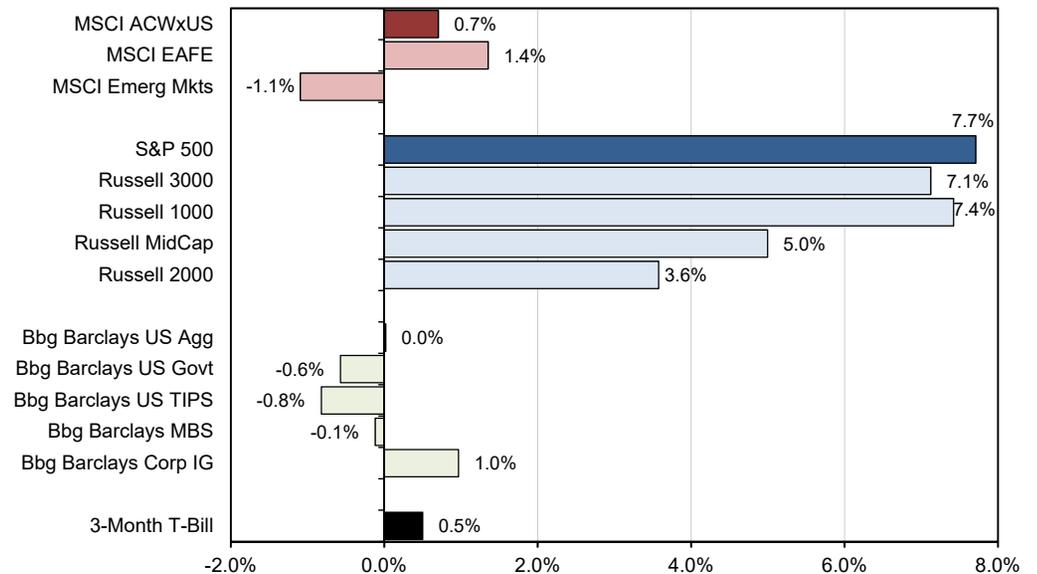


Market Environment

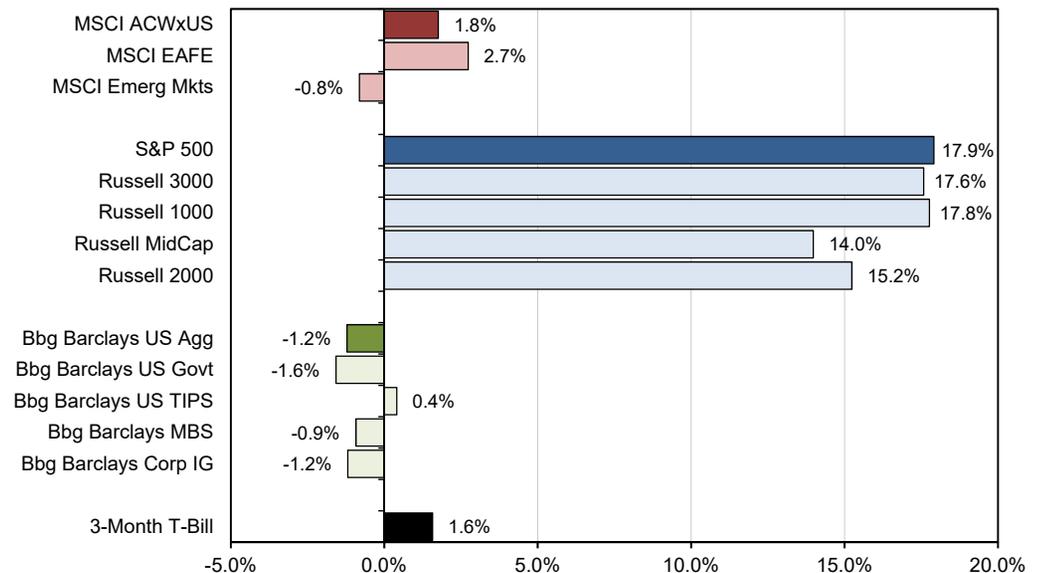


- Market returns were mixed across major equity and fixed income indices for the 3rd quarter of 2018 with many themes from the 2nd quarter repeating during the current period. Broad domestic equity indices pushed higher on continued strength in both economic and corporate earnings data. Corporate earnings continue to benefit from fiscal stimulus tailwinds in the form of the late 2017 tax reform. International indices underperformed domestic indices during the period, posting more muted returns in US dollar (USD) terms, as investors weighed relatively soft economic data, a strengthening USD and geopolitical concerns, especially around global trade relations. Fixed income returns were flat for the quarter as interest rates continued to rise. Domestic stocks rose as concerns around ongoing monetary policy tightening by the Federal Reserve (Fed) and an escalating trade war between the US and China were not substantial enough to dampen investor enthusiasm around the ongoing strength of the US economy. The US stock market represented by the Russell 3000 Index returned 7.1% and 17.6% for the quarter and 1-year period respectively.
- International equity returns finished the quarter slightly positive with the MSCI ACWI ex US Index returning 0.7%. Developed market stocks pushed higher through the period, however, relatively subdued economic growth and ongoing political and trade uncertainty tempered returns versus domestic equities. The developed market MSCI EAFE Index gained 1.4% during the quarter. Emerging market stocks struggled in comparison, posting negative returns for the period, as trade tensions grew between the US and China. In addition, a strengthening USD caused headwinds for most international markets, but caused particular difficulties for emerging market countries that issue debt in USD. The MSCI Emerging Markets Index posted a small decline of -1.1% during the 3rd quarter. The relative outperformance of developed markets can also be seen in the 1-year period with the MSCI EAFE and MSCI Emerging Markets indices returning 2.7% and -0.8% respectively.
- Interest rates on the US Treasury Yield Curve continued their year-to-date rise during the 3rd quarter as investor expectations for further Fed tightening of monetary policy increased during the period. The yield curve did flatten slightly as interest rates had the greatest increase in short-term maturities, but overall, the shift in rates was fairly consistent throughout the entire curve. The Fed did implement another interest rate increase following their September meeting citing the continued strength of the US economy and stable inflation. The broad market Bloomberg Barclays US Aggregate Index was flat for the quarter returning 0.0% and is slightly negative over the 1-year period returning -1.2%. Corporate issues rebounded following underperformance during the first half of the year and were the only investment grade sector to post a positive return during the quarter, as they benefitted from tightening credit spreads and strong investor demand.

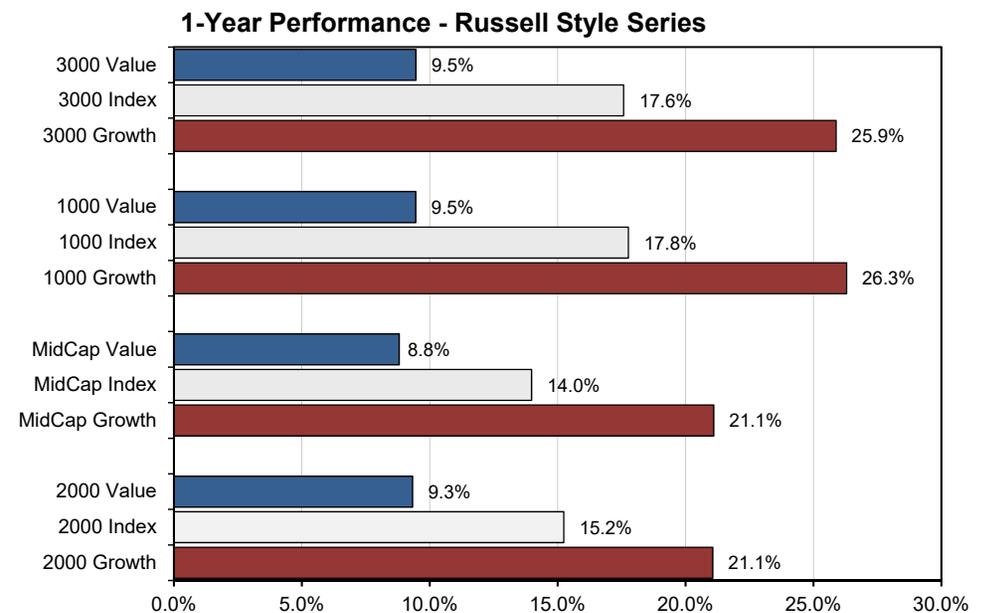
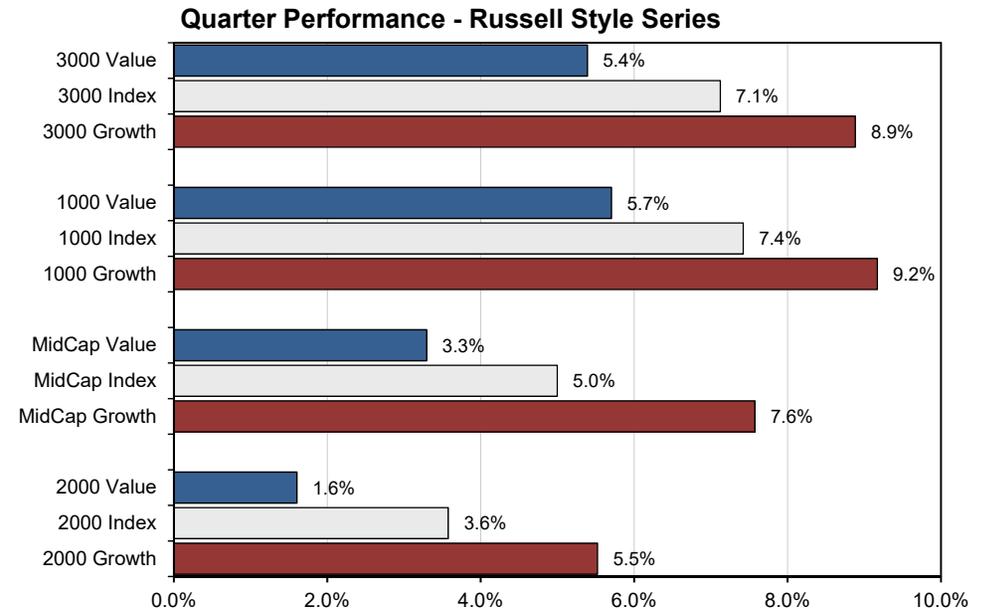
Quarter Performance



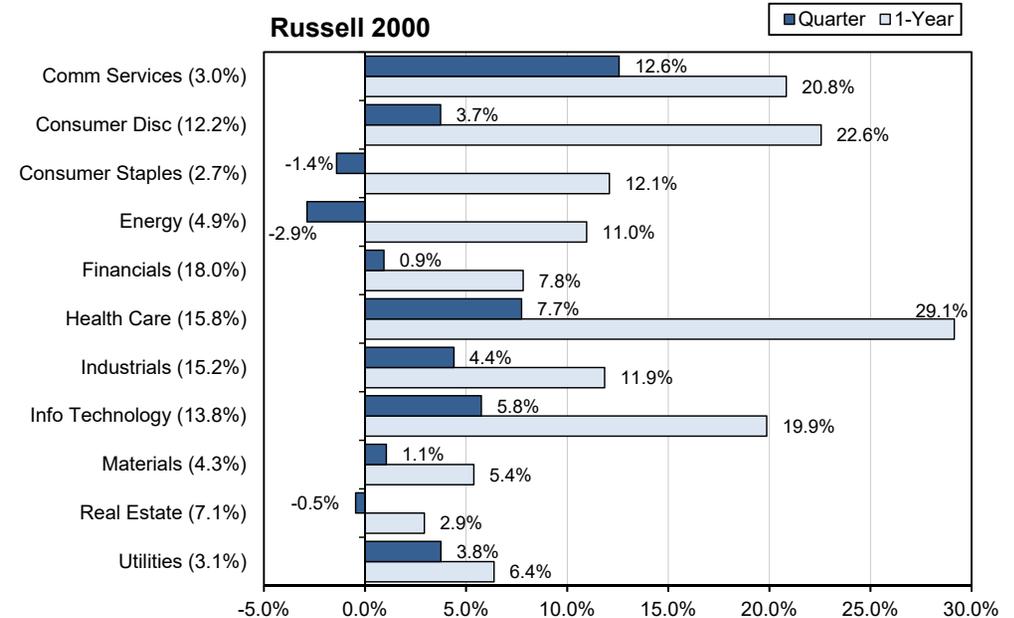
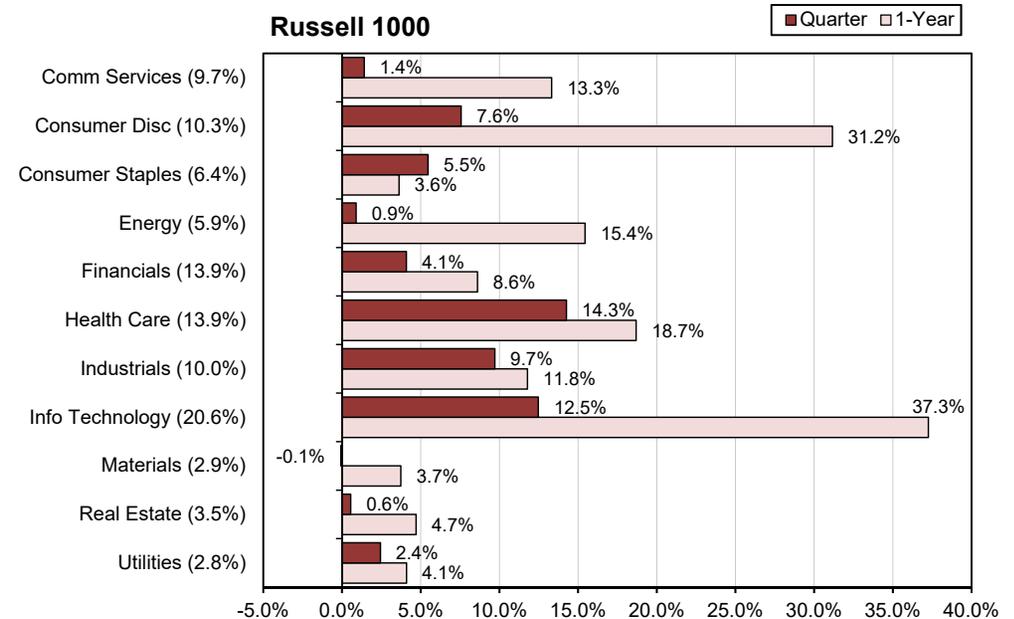
1-Year Performance



- US equity index returns were positive across the style and capitalization spectrum during the 3rd quarter of 2018. US equity markets were pushed higher by the ongoing strength in US economic data and corporate earnings. Positive data releases in GDP, unemployment, retail sales, consumer consumption and investor sentiment highlighted the continued health of the US economy. Corporate earnings released during the quarter were also impressive. Earnings reported for S&P 500 companies were up over 20% on a year-over-year basis for the second straight quarter as corporate profits continued to benefit from the new tax code. The current expansion in US equity markets now marks the longest bull market in history. While the positive economic data drove returns through the quarter, trade negotiations with China broke down with both the US and China instituting several rounds of new tariffs during the period. Currently the US is imposing tariffs on \$250 billion of Chinese imports with China placing tariffs on \$110 billion worth of goods. Further action has been threatened by both countries. While negotiations with China have been unsuccessful, progress was made in the renegotiation of the North American Free Trade Agreement (NAFTA) and discussions with the European Union (EU) appear to be moving ahead productively.
- During the quarter, large cap stocks outperformed mid and small cap equities across growth, value and core indices. The large cap Russell 1000 Index returned 7.4% for the quarter versus a 3.6% return for the Russell 2000 Index. The Russell 1000 benefitted from strong performance from some of its largest exposures. Apple Inc, Microsoft Corp and Amazon.com Inc alone make up over 10% of the index and posted quarterly returns of 22.4%, 16.4% and 17.8% respectively. Those same three stocks have gained 48.7%, 56.3% and 108.4% over the 1-year period. This strong performance from some of the index's largest constituents has helped large caps outperform small caps over the 1-year period as well with the Russell 1000 returning 17.8% over the trailing year while the Russell 2000 posted a still solid return of 15.2%.
- Growth stocks outperformed value stocks across the market cap spectrum during the 3rd quarter. The large cap Russell 1000 Growth Index was the best performing style index for the period returning a notable 9.2% for the quarter. The outperformance of growth indices relative to value indices is also evident over the 1-year period as growth indices continue to show significant outperformance relative to their value counterparts. The returns for growth indices more than double the returns of the corresponding value indices over the last 12 months. Growth benchmarks benefitted from larger exposures to more cyclical names within the information technology, consumer discretionary, health care and industrials sectors. They also benefitted from underweights to more defensive sectors such as REITs and utilities.



- Both S&P Dow Jones Indices and MSCI made changes to the Global Industry Classification Standard (GICS) sector configurations of their indices, creating a new GICS sector classification called Communication Services which replaced the Telecommunications sector on September 28, 2018. The Communication Services sector is comprised of companies in the Telecommunications sector, as well as certain companies formerly classified as Consumer Discretionary and Information Technology. As a result, the sector, went from a weighting of about 2% of the Russell 1000 Index to almost 10% post reclassification. Notable names now classified under Communication Services include Netflix, Alphabet, Facebook and Disney. This is just the second change to the GICS classifications since 1999.
- Sector performance was broadly positive across large cap sectors for the 3rd quarter. Ten of eleven sectors had positive returns for the quarter with four outpacing the Russell 1000 Index return. The consumer discretionary sector continues to do well on the back of strong retail sales and increased consumer spending, gaining 7.6% for the period. Health care and technology stocks increased 14.3% and 12.5% during the quarter respectively, with companies in both sectors reporting strong earnings. Industrials benefitted from continued economic strength returning 9.7%. The largest detractors for the quarter were the materials, real estate and energy sectors which returned -0.1%, 0.6% and 0.9% respectively. Over the trailing 1-year period, all large cap all sectors were positive. The information technology and consumer discretionary sectors were the best performers, returning over 30% over the last 12 months, and six of eleven sectors have returns over 10% for the year.
- Quarterly results for small cap sectors were generally lower relative to their large capitalization counterparts. Nine of eleven sectors had positive returns during the period with six of eleven economic sectors outpacing the Russell 2000 Index return for the quarter. Energy, consumer staples and real estate posted negative returns for the period returning -2.9%, -1.4% and -0.5% respectively. Communications services and health care were the best performers returning 12.6% and 7.7%. Over the trailing 1-year period, all eleven sectors posted gains. Health care stocks were the best performers within the Russell 2000 for the trailing year returning a solid 29.1%. Communication services, technology, and consumer discretionary also had particularly robust returns for the 1-year period.
- Using S&P 500 sector valuations as a proxy for the market, forward P/E ratios for seven of the eleven GICS sectors were higher than their long-term averages at quarter-end. Using these historical P/E measures, the utilities, consumer discretionary and real estate sectors appear the most extended. In contrast the financials, technology and health care sectors were trading at a discount to their long-term average P/E ratios.



The Market Environment
Top 10 Index Weights & Quarterly Performance for the Russell 1000 & 2000
As of September 30, 2018

Top 10 Weighted Stocks				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Apple Inc	3.97%	22.4%	48.7%	Information Technology
Microsoft Corp	3.15%	16.4%	56.3%	Information Technology
Amazon.com Inc	2.96%	17.8%	108.4%	Consumer Discretionary
Berkshire Hathaway Inc B	1.51%	14.7%	16.8%	Financials
Facebook Inc A	1.42%	-15.4%	-3.8%	Communication Services
JPMorgan Chase & Co	1.37%	8.9%	20.7%	Financials
Johnson & Johnson	1.35%	14.6%	9.1%	Health Care
Alphabet Inc Class C	1.32%	7.0%	24.4%	Communication Services
Alphabet Inc A	1.31%	6.9%	24.0%	Communication Services
Exxon Mobil Corp	1.31%	3.8%	7.9%	Energy

Top 10 Weighted Stocks				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Five Below Inc	0.31%	33.1%	137.0%	Consumer Discretionary
Etsy Inc	0.27%	21.8%	204.4%	Consumer Discretionary
Integrated Device Technology Inc	0.27%	47.5%	76.9%	Information Technology
LivaNova PLC	0.27%	24.2%	76.9%	Health Care
Haemonetics Corp	0.26%	27.8%	155.4%	Health Care
Teladoc Health Inc	0.25%	48.8%	160.5%	Health Care
Ligand Pharmaceuticals Inc	0.25%	32.5%	101.6%	Health Care
HubSpot Inc	0.24%	20.4%	79.6%	Information Technology
Primerica Inc	0.23%	21.3%	49.2%	Financials
HealthEquity Inc	0.22%	25.7%	86.7%	Health Care

Top 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Advanced Micro Devices Inc	0.10%	106.1%	142.3%	Information Technology
Square Inc A	0.10%	60.6%	243.7%	Information Technology
Paycom Software Inc	0.03%	57.2%	107.3%	Information Technology
Twilio Inc A	0.02%	54.0%	189.0%	Information Technology
Atlassian Corporation PLC A	0.03%	53.8%	173.5%	Information Technology
Molina Healthcare Inc	0.03%	51.8%	116.3%	Health Care
DexCom Inc	0.05%	50.6%	192.4%	Health Care
Match Group Inc	0.01%	49.5%	149.7%	Communication Services
Fortinet Inc	0.05%	47.8%	157.4%	Information Technology
IAC/InterActiveCorp	0.06%	42.1%	84.3%	Communication Services

Top 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
CareDx Inc	0.04%	135.7%	679.7%	Health Care
Reata Pharmaceuticals Inc A	0.07%	133.8%	162.9%	Health Care
Invitae Corp	0.05%	127.6%	78.5%	Health Care
RigNet Inc	0.01%	97.6%	18.3%	Energy
Tandem Diabetes Care Inc	0.10%	94.6%	486.8%	Health Care
Health Insurance Innovations Inc	0.03%	90.6%	325.2%	Financials
Funko Inc Class A	0.01%	88.8%	N/A	Consumer Discretionary
LSB Industries Inc	0.01%	84.5%	23.2%	Materials
Viking Therapeutics Inc	0.04%	83.6%	812.0%	Health Care
Ra Pharmaceuticals Inc	0.01%	81.8%	23.9%	Health Care

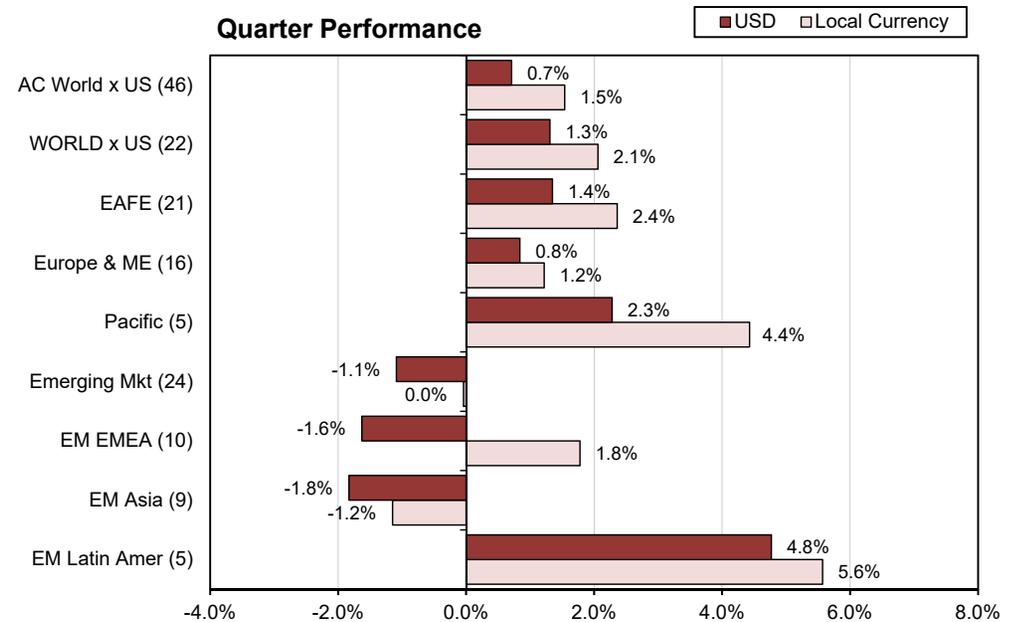
Bottom 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Floor & Decor Holdings Inc	0.01%	-38.8%	-22.5%	Consumer Discretionary
Twitter Inc	0.07%	-34.8%	68.7%	Communication Services
IPG Photonics Corp	0.02%	-29.3%	-15.7%	Information Technology
Visteon Corp	0.01%	-28.1%	-24.9%	Consumer Discretionary
Zillow Group Inc A	0.01%	-26.0%	10.1%	Communication Services
Zillow Group Inc C	0.02%	-25.1%	10.0%	Communication Services
Western Digital Corp	0.06%	-23.7%	-30.4%	Information Technology
Wynn Resorts Ltd	0.05%	-23.7%	-13.3%	Consumer Discretionary
Extraction Oil & Gas Inc	0.00%	-23.1%	-26.6%	Energy
Tesla Inc	0.13%	-22.8%	-22.4%	Consumer Discretionary

Bottom 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Vital Therapies Inc	0.00%	-96.0%	-94.5%	Health Care
GTx Inc	0.00%	-89.7%	-81.4%	Health Care
Ampio Pharmaceuticals Inc	0.00%	-76.9%	-16.9%	Health Care
Innovate Biopharmaceuticals Inc	0.01%	-71.0%	-2.4%	Health Care
Zion Oil & Gas Inc	0.00%	-68.4%	-62.5%	Energy
Endologix Inc	0.01%	-66.3%	-57.2%	Health Care
Lannett Co Inc	0.01%	-65.1%	-74.3%	Health Care
Maiden Holdings Ltd	0.01%	-62.6%	-61.1%	Financials
Diebold Nixdorf Inc	0.02%	-62.3%	-80.1%	Information Technology
Sears Holdings Corp	0.00%	-59.2%	-86.7%	Consumer Discretionary

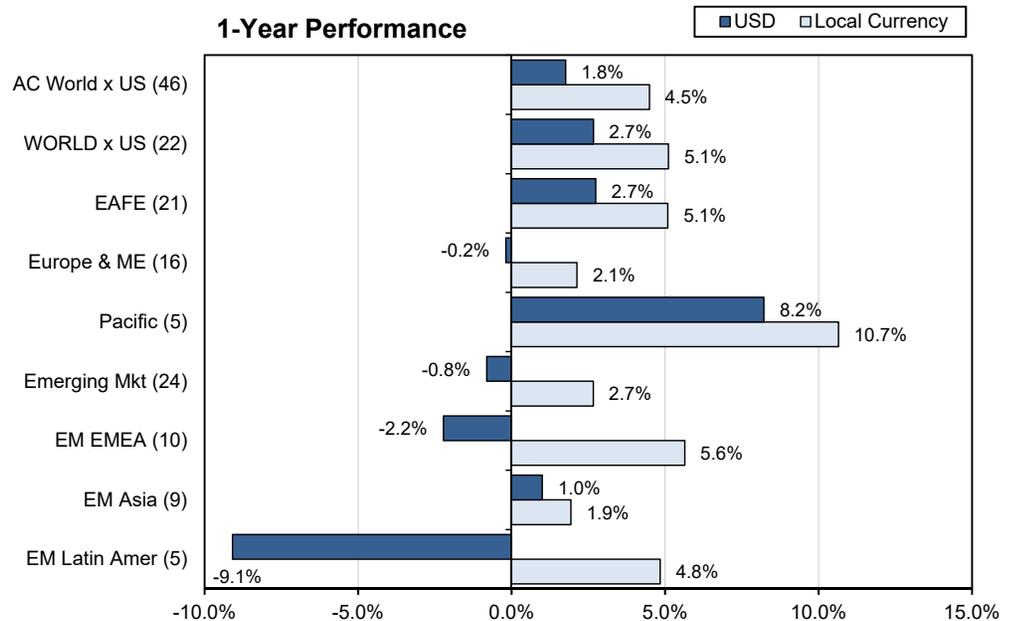


- Broad international equity returns were mixed for the quarter. Most developed markets were positive in local currency and USD terms whereas emerging markets were negative in both local currency and USD terms. Performance was largely driven by the same catalysts as the US equity markets for the second straight quarter. We saw global macroeconomic data slow, but remain generally positive through the period, with returns being tempered by global trade tensions and ongoing political uncertainty. The USD continued to strengthen against most currencies for the period as relatively strong US economic fundamentals and the continued divergence in global monetary policy hurt US investors in international markets. The MSCI ACWI ex US Index gained 1.5% in local currency terms and 0.7% in USD terms during the 3rd quarter. Returns over the 1-year period are modestly positive in both local currency and USD terms with the MSCI ACWI ex US returning 4.5% and 1.8% respectively.
- Third quarter results for developed market international indices were positive in local currency terms and USD terms with the MSCI EAFE Index returning 2.4% and 1.4% respectively. Returns were dampened for US investors as continued strength in the USD pushed returns lower. Developed markets were pushed higher by broadly positive, but slowing, global economic and earnings data despite several significant political events in Europe during the quarter. Concerns over a “no deal” Brexit and worries over a pending budget approval in Italy weighed on returns, while markets were encouraged by progress in trade negotiations between the US and the eurozone and signs of continued political stability in Japan. The MSCI EAFE Index returned 5.1% and 2.7% for the last twelve months in local currency and USD terms respectively.
- Emerging markets underperformed relative to developed markets for the 3rd quarter, posting a flat return in local currency terms that was exacerbated by the rising USD. The MSCI Emerging Markets Index returned 0.0% and -1.1% in local currency and USD terms respectively. Returns in emerging markets were the hurt by the deterioration in trade negotiations between the US and China followed by several rounds of new tariffs enacted by both countries. Emerging market stocks were also negatively affected by rising US interest rates coupled with an appreciating USD. Many emerging market countries and companies issue debt denominated in USD and the combination of higher interest rates and a relatively weaker local currency can put stress on the balance sheets of these borrowers, especially those heavily dependent on external capital. This was particularly problematic for Turkey, Argentina and South Africa during the 3rd quarter with Argentina having to expedite their request for an emergency bailout of \$50 billion from the World Monetary Fund. In positive news, Mexico and the US made progress toward the renegotiation of NAFTA. One year returns for the MSCI Emerging Market Index were 2.7% in local currency terms and -0.8% in USD terms.

Quarter Performance



1-Year Performance



The Market Environment
US Dollar International Index Attribution & Country Detail
As of September 30, 2018

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	5.4%	3.3%	-2.4%
Consumer Discretionary	11.1%	-0.5%	3.3%
Consumer Staples	11.3%	-0.1%	2.5%
Energy	6.0%	3.5%	24.6%
Financials	19.8%	0.9%	-4.0%
Health Care	10.9%	5.6%	7.1%
Industrials	14.3%	2.6%	4.2%
Information Technology	6.2%	0.3%	7.4%
Materials	8.1%	0.4%	5.1%
Real Estate	3.5%	-3.0%	1.0%
Utilities	3.3%	-0.6%	0.7%
Total	100.0%	1.4%	2.7%

MSCI - ACWIXUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	7.6%	-3.0%	-4.1%
Consumer Discretionary	10.7%	-3.2%	-1.4%
Consumer Staples	9.7%	-0.6%	1.6%
Energy	7.1%	4.1%	18.3%
Financials	22.0%	1.7%	-1.9%
Health Care	8.3%	4.5%	7.6%
Industrials	11.7%	2.8%	3.8%
Information Technology	8.5%	1.3%	5.6%
Materials	8.2%	0.4%	5.2%
Real Estate	3.2%	-3.5%	-2.7%
Utilities	3.0%	-0.9%	-1.2%
Total	100.0%	0.7%	1.8%

MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	14.8%	-9.4%	-6.0%
Consumer Discretionary	11.3%	-9.9%	-13.2%
Consumer Staples	6.7%	-2.9%	-1.9%
Energy	6.3%	14.5%	26.0%
Financials	23.3%	1.5%	0.4%
Health Care	3.1%	-7.2%	11.4%
Industrials	5.3%	2.5%	-4.3%
Information Technology	15.9%	2.2%	2.3%
Materials	7.8%	4.5%	8.6%
Real Estate	2.9%	-5.6%	-15.1%
Utilities	2.5%	-1.9%	-5.4%
Total	100.0%	-1.1%	-0.8%

Country	MSCI-EAFE Weight	MSCI-ACWIXUS Weight	Quarter Return	1-Year Return
Japan	24.6%	16.9%	3.7%	10.2%
United Kingdom	17.5%	12.0%	-1.7%	2.9%
France	11.2%	7.7%	2.8%	4.2%
Germany	9.4%	6.5%	-0.6%	-5.4%
Switzerland	8.3%	5.7%	7.3%	1.6%
Australia	6.8%	4.7%	-0.9%	4.4%
Hong Kong	3.5%	2.4%	-1.0%	2.9%
Netherlands	3.3%	2.3%	-1.5%	-1.6%
Spain	3.0%	2.0%	-2.4%	-9.7%
Sweden	2.7%	1.9%	7.0%	-3.3%
Italy	2.3%	1.6%	-4.5%	-8.9%
Denmark	1.7%	1.2%	2.3%	-4.2%
Singapore	1.3%	0.9%	2.2%	6.9%
Finland	1.1%	0.7%	3.2%	10.3%
Belgium	1.0%	0.7%	-5.2%	-11.8%
Norway	0.8%	0.5%	6.7%	13.7%
Israel	0.6%	0.4%	5.1%	14.9%
Ireland	0.5%	0.4%	-5.4%	-6.1%
Austria	0.2%	0.2%	0.2%	-3.1%
New Zealand	0.2%	0.2%	2.4%	4.4%
Portugal	0.2%	0.1%	-0.6%	1.7%
Total EAFE Countries	100.0%	68.7%	1.4%	2.7%
Canada		6.7%	0.8%	1.9%
Total Developed Countries		75.3%	1.3%	2.7%
China		7.6%	-7.5%	-2.2%
Korea		3.7%	0.7%	1.4%
Taiwan		3.0%	6.5%	9.7%
India		2.1%	-2.3%	1.1%
Brazil		1.5%	6.1%	-14.0%
South Africa		1.5%	-7.4%	-5.1%
Russia		0.9%	6.2%	13.7%
Mexico		0.8%	6.9%	-4.4%
Thailand		0.6%	13.6%	15.2%
Malaysia		0.6%	3.8%	7.6%
Indonesia		0.5%	2.0%	-10.4%
Poland		0.3%	10.6%	-5.0%
Chile		0.3%	-2.0%	-5.7%
Philippines		0.2%	1.0%	-15.6%
Qatar		0.2%	12.8%	25.3%
United Arab Emirates		0.2%	3.1%	-6.9%
Turkey		0.2%	-20.5%	-41.7%
Colombia		0.1%	-2.5%	10.0%
Peru		0.1%	-2.1%	12.2%
Greece		0.1%	-17.6%	-14.8%
Hungary		0.1%	4.7%	-5.0%
Czech Republic		0.1%	4.0%	12.8%
Egypt		0.0%	-6.8%	-7.1%
Pakistan		0.0%	-4.9%	-20.6%
Total Emerging Countries		24.7%	-1.1%	-0.8%
Total ACWIXUS Countries		100.0%	0.7%	1.8%

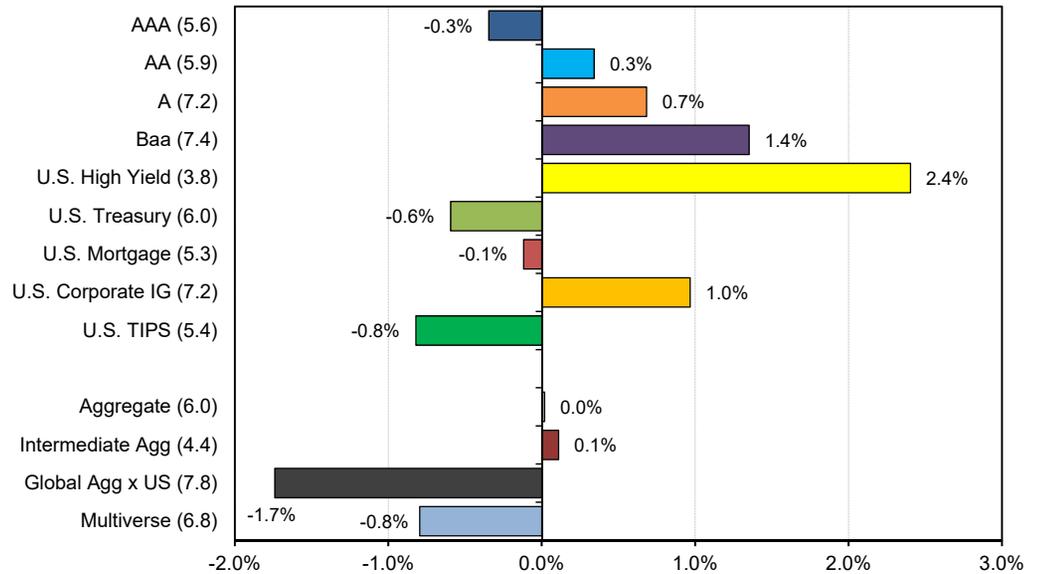
Source: Morningstar Direct, MSCI Global Index Monitor (Returns are Net in USD)

As a result of the GICS classification changes on 9/28/2018 and certain associated reporting limitations, sector performance represents backward looking performance for the prior year of each sector's current constituency, post creation of the Communication Services sector.

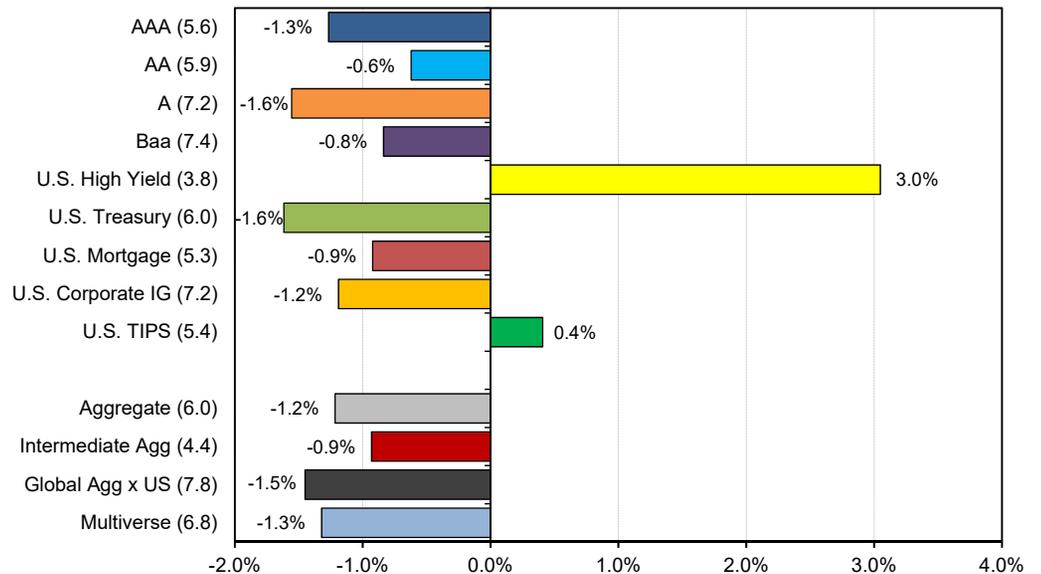


- Broad fixed income benchmarks had mixed results during the 3rd quarter. Interest rates rose across all maturities on the US Treasury Yield Curve. The Federal Open Market Committee (FOMC), decided to increase short-term interest rates by 25 basis points at their September meeting citing continued strength in the economy and stable inflation. This is the third rate hike of 2018. The current Fed Funds Rate target range sits at 2.00%-2.25%. The FOMC also changed the language used in its policy statement, removing the word “accommodative”, which investors took as a signal that the Fed plans to continue its trend of monetary policy tightening. The yield curve continued to flatten, although very gradually, as short-term yields rose at a greater rate than long-term yields during the quarter. The difference in yields between the 2-year and 10-year Treasury now sits at just 0.24%. As the curve continues to flatten, it moves closer to becoming “inverted”, which happens when short-term maturities have greater yields than long-term securities. Historically, an inverted yield curve has signaled a greater probability of a recession. The Fed is also continuing the reduction of the size of its balance sheet by slowing its pace of reinvestment as the securities it holds mature. The Bloomberg Barclays US Aggregate Index was flat during the quarter, posting a 0.0% return. Over the 1-year period the index has fallen -1.2%.
- Within investment grade credit, lower quality corporate issues outperformed higher quality issues as credit spreads tightened steadily over the quarter. On an absolute basis, without negating the duration differences in the sub-indices, Baa rated credit was the best performing investment grade credit quality segment returning 1.4% for the quarter, while AAA was the worst performing, falling -0.3%. High yield debt outperformed relative to investment grade credit, returning 2.0%, as spreads tightened to a greater degree for these issues and the index benefitted from less sensitivity to rising interest rates due to its lower duration. Returns are negative for all investment grade quality segments when viewed over the 1-year period while high yield continues to outperform with a return of 3.0%.
- Of the Bloomberg Barclays US Aggregate Index’s three broad sectors, US investment grade corporates were the best performing investment grade sector through the quarter, returning 1.0%, and the only sector to post a positive return for the period. Corporate credit outperformed as credit spreads tightened. Demand for these securities outweighed supply for the period despite considerable new issuance and a headwind from the sectors higher duration relative to other index sectors. Treasuries were the worst performing sector posting a -0.6% return. Over the 1-year period, all three broad investment grade sectors posted losses with mortgages, investment grade credit and Treasuries falling -0.9%, -1.2% and -1.6% respectively.

Quarter Performance

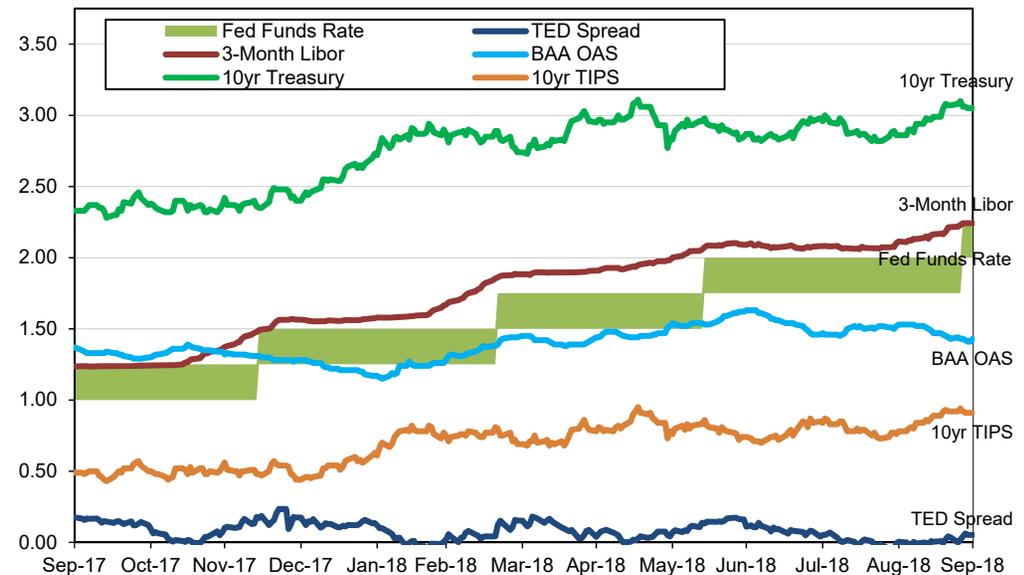


1-Year Performance

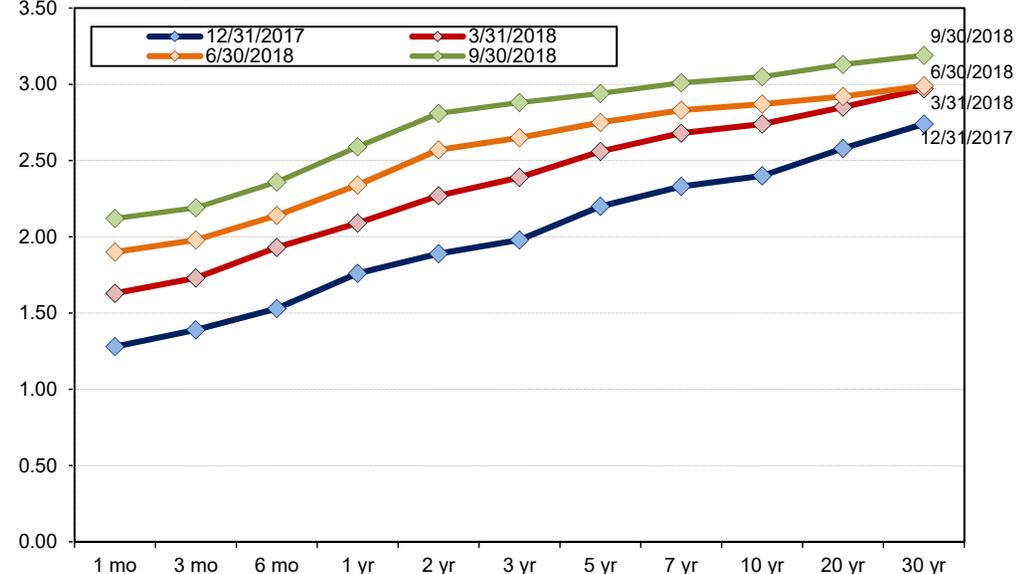


- Global fixed income indices continue to struggle relative to their domestic counterparts, underperforming during the 3rd quarter. These indices have lower yields and their relatively high duration acted as a headwind to performance in the current quarter as interest rates increased. The returns of these indices are also significantly influenced by fluctuations in their currency denomination relative to the USD. During the 3rd quarter the USD strengthened against most other currencies, negatively impacting the returns on global bond indices. The return on global bonds, as represented by the Bloomberg Barclays Global Aggregate ex US Index, was -1.7% and -1.5% for the quarter and 1-year period respectively. As the global economy continues to recover, several international central banks have started to move toward less accommodative postures. Notably, the ECB, began to slow its monthly bond purchase program in September, reducing new purchases to 15 billion euro per month from 30 billion euro per month, as well as forecasting an end to the program by the end of the year assuming the eurozone recovery continues to flourish. However, they have indicated a continuation of reinvestment in maturing securities and would likely not raise interest rates from current levels until summer 2019. The Bank of England increased interest rates by 0.25% during the quarter citing improvement in their near-term economic outlook and the Bank of Japan has changed its policy to allow flexibility for future tightening in the future.
- Much of the index performance detailed in the bar graphs on the previous page is visible on a time series basis by reviewing the line graphs to the right. The '1-Year Trailing Market Rates' chart illustrates that the 10-year Treasury yield (green line) rose steadily during the end of the 3rd quarter, ending the period at 3.05%. The blue line illustrates changes in the BAA OAS (Option Adjusted Spread). This measure quantifies the additional yield premium that investors require to purchase and hold non-Treasury issues. This line illustrates a steady increase in credit spreads through the first two quarters of 2018, followed by a smooth decline during the 3rd quarter. This decline is equivalent to an interest rate decrease on corporate bonds, which produces an additional tailwind for corporate bond index returns. These credit spreads have tightened by about 20 basis points over the last 3-months. The green band across the graph illustrates the gradual increase in the Federal Funds Rate (three increases in the last twelve months) due to the continued unwinding of accommodative US monetary policy.
- The lower graph provides a snapshot of the US Treasury yield curve at the end of each of the last four calendar quarters. As mentioned, the yield curve continues to flatten as yields on shorter-term maturities have risen more than interest rates on the long end of the curve. The upward momentum of interest rates as well as a general flattening of the yield curve are clearly visible over the last twelve months.

1-Year Trailing Market Rates



Treasury Yield Curve



Annual Asset Class Performance

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD
Best	MSCI Emerging Markets (Net) Index 25.6 %	MSCI Emerging Markets (Net) Index 34.0 %	MSCI Emerging Markets (Net) Index 32.2 %	MSCI Emerging Markets (Net) Index 39.4 %	Bloomberg Barclays U.S. Aggregate Index 5.2 %	MSCI Emerging Markets (Net) Index 78.5 %	Russell 2000 Growth Index 29.1 %	NCREIF Fund Index-ODCE (EW) (Net) 15.0 %	MSCI Emerging Markets (Net) Index 18.2 %	Russell 2000 Growth Index 43.3 %	S&P 500 Index 13.7 %	NCREIF Fund Index-ODCE (EW) (Net) 14.2 %	Russell 2000 Value Index 31.7 %	MSCI Emerging Markets (Net) Index 37.3 %	Russell 1000 Growth Index 17.1 %
	Russell 2000 Value Index 22.2 %	NCREIF Fund Index-ODCE (EW) (Net) 19.0 %	MSCI EAFE (Net) Index 26.3 %	NCREIF Fund Index-ODCE (EW) (Net) 15.0 %	Bloomberg Barclays Global Aggregate Ex USD 4.4 %	Bloomberg Barclays U.S. Corp High Yield 58.2 %	Russell 2000 Index 26.9 %	Bloomberg Barclays U.S. Aggregate Index 7.8 %	Russell 2000 Value Index 18.1 %	Russell 2000 Index 38.8 %	Russell 1000 Value Index 13.5 %	Russell 1000 Growth Index 5.7 %	Russell 2000 Index 21.3 %	Russell 1000 Growth Index 30.2 %	Russell 2000 Growth Index 15.8 %
	MSCI EAFE (Net) Index 20.2 %	MSCI EAFE (Net) Index 13.5 %	Russell 2000 Value Index 23.5 %	Russell 1000 Growth Index 11.8 %	NCREIF Fund Index-ODCE (EW) (Net) -11.1 %	Russell 1000 Growth Index 37.2 %	Russell 2000 Value Index 24.5 %	Bloomberg Barclays U.S. Corp High Yield 5.0 %	Russell 1000 Value Index 17.5 %	Russell 2000 Value Index 34.5 %	Russell 1000 Growth Index 13.1 %	S&P 500 Index 1.4 %	Russell 1000 Value Index 17.3 %	MSCI EAFE (Net) Index 25.0 %	Russell 2000 Index 11.5 %
	Russell 2000 Index 18.3 %	Russell 1000 Value Index 7.1 %	Russell 1000 Value Index 22.2 %	MSCI EAFE (Net) Index 11.2 %	Bloomberg Barclays U.S. Corp High Yield -26.2 %	Russell 2000 Growth Index 34.5 %	MSCI Emerging Markets (Net) Index 18.9 %	Bloomberg Barclays Global Aggregate Ex USD 4.4 %	MSCI EAFE (Net) Index 17.3 %	Russell 1000 Growth Index 33.5 %	NCREIF Fund Index-ODCE (EW) (Net) 11.4 %	Bloomberg Barclays U.S. Aggregate Index 0.5 %	Bloomberg Barclays U.S. Corp High Yield 17.1 %	Russell 2000 Growth Index 22.2 %	S&P 500 Index 10.6 %
	Russell 1000 Value Index 16.5 %	Russell 1000 Growth Index 5.3 %	Russell 2000 Index 18.4 %	Bloomberg Barclays Global Aggregate Ex USD 11.0 %	Russell 2000 Value Index -28.9 %	MSCI EAFE (Net) Index 31.8 %	Russell 1000 Growth Index 16.7 %	Russell 1000 Growth Index 2.6 %	Russell 2000 Index 16.3 %	Russell 1000 Value Index 32.5 %	Bloomberg Barclays U.S. Aggregate Index 6.0 %	MSCI EAFE (Net) Index -0.8 %	S&P 500 Index 12.0 %	S&P 500 Index 21.8 %	Russell 2000 Value Index 7.1 %
	Russell 2000 Growth Index 14.3 %	S&P 500 Index 4.9 %	S&P 500 Index 15.8 %	Russell 2000 Growth Index 7.0 %	Russell 2000 Index -33.8 %	Russell 2000 Index 27.2 %	Russell 1000 Value Index 15.5 %	S&P 500 Index 2.1 %	S&P 500 Index 16.0 %	S&P 500 Index 32.4 %	Russell 2000 Growth Index 5.6 %	Russell 2000 Growth Index -1.4 %	Russell 2000 Growth Index 11.3 %	Russell 2000 Index 14.6 %	NCREIF Fund Index-ODCE (EW) (Net) 5.8 %
	Bloomberg Barclays Global Aggregate Ex USD 12.5 %	Russell 2000 Value Index 4.7 %	NCREIF Fund Index-ODCE (EW) (Net) 15.1 %	Bloomberg Barclays U.S. Aggregate Index 7.0 %	Russell 1000 Value Index -36.8 %	S&P 500 Index 26.5 %	Bloomberg Barclays U.S. Corp High Yield 15.1 %	Russell 1000 Value Index 0.4 %	Bloomberg Barclays U.S. Corp High Yield 15.8 %	MSCI EAFE (Net) Index 22.8 %	Russell 2000 Index 4.9 %	Russell 1000 Value Index -3.8 %	MSCI Emerging Markets (Net) Index 11.2 %	Russell 1000 Value Index 13.7 %	Russell 1000 Value Index 3.9 %
	NCREIF Fund Index-ODCE (EW) (Net) 11.5 %	Russell 2000 Index 4.6 %	Russell 2000 Growth Index 13.3 %	S&P 500 Index 5.5 %	S&P 500 Index -37.0 %	Russell 2000 Value Index 20.6 %	NCREIF Fund Index-ODCE (EW) (Net) 15.1 %	Russell 2000 Growth Index -2.9 %	Russell 1000 Growth Index 15.3 %	NCREIF Fund Index-ODCE (EW) (Net) 12.4 %	Russell 2000 Value Index 4.2 %	Russell 2000 Index -4.4 %	NCREIF Fund Index-ODCE (EW) (Net) 8.4 %	Bloomberg Barclays Global Aggregate Ex USD 10.5 %	Bloomberg Barclays U.S. Corp High Yield 2.6 %
	Bloomberg Barclays U.S. Corp High Yield 11.1 %	Russell 2000 Growth Index 4.2 %	Bloomberg Barclays U.S. Corp High Yield 11.9 %	Bloomberg Barclays U.S. Corp High Yield 1.9 %	Russell 1000 Growth Index -38.4 %	Russell 1000 Value Index 19.7 %	S&P 500 Index 15.1 %	Russell 2000 Index -4.2 %	Russell 2000 Growth Index 14.6 %	Bloomberg Barclays U.S. Corp High Yield 7.4 %	Bloomberg Barclays U.S. Corp High Yield 2.5 %	Bloomberg Barclays U.S. Corp High Yield -4.5 %	Russell 1000 Growth Index 7.1 %	Russell 2000 Value Index 7.8 %	MSCI EAFE (Net) Index -1.4 %
	S&P 500 Index 10.9 %	Bloomberg Barclays U.S. Corp High Yield 2.7 %	Russell 1000 Growth Index 9.1 %	Russell 1000 Value Index -0.2 %	Russell 2000 Growth Index -38.5 %	Bloomberg Barclays Global Aggregate Ex USD 7.5 %	MSCI EAFE (Net) Index 7.8 %	Russell 2000 Value Index -5.5 %	NCREIF Fund Index-ODCE (EW) (Net) 9.9 %	Bloomberg Barclays U.S. Aggregate Index -2.0 %	MSCI Emerging Markets (Net) Index -2.2 %	Bloomberg Barclays Global Aggregate Ex USD -6.0 %	Bloomberg Barclays U.S. Aggregate Index 2.6 %	Bloomberg Barclays U.S. Corp High Yield 7.5 %	Bloomberg Barclays U.S. Aggregate Index -1.6 %
	Russell 1000 Growth Index 6.3 %	Bloomberg Barclays U.S. Aggregate Index 2.4 %	Bloomberg Barclays Global Aggregate Ex USD 8.2 %	Russell 2000 Index -1.6 %	MSCI EAFE (Net) Index -43.4 %	Bloomberg Barclays U.S. Aggregate Index 5.9 %	Bloomberg Barclays U.S. Aggregate Index 6.5 %	MSCI EAFE (Net) Index -12.1 %	Bloomberg Barclays U.S. Aggregate Index 4.2 %	MSCI Emerging Markets (Net) Index -2.6 %	Bloomberg Barclays Global Aggregate Ex USD -3.1 %	Russell 2000 Value Index -7.5 %	Bloomberg Barclays Global Aggregate Ex USD 1.5 %	NCREIF Fund Index-ODCE (EW) (Net) 6.9 %	Bloomberg Barclays Global Aggregate Ex USD -3.0 %
Worst	Bloomberg Barclays U.S. Aggregate Index 4.3 %	Bloomberg Barclays Global Aggregate Ex USD -8.7 %	Bloomberg Barclays U.S. Aggregate Index 4.3 %	Russell 2000 Value Index -9.8 %	MSCI Emerging Markets (Net) Index -53.3 %	NCREIF Fund Index-ODCE (EW) (Net) -31.3 %	Bloomberg Barclays Global Aggregate Ex USD 4.9 %	MSCI Emerging Markets (Net) Index -18.4 %	Bloomberg Barclays Global Aggregate Ex USD 4.1 %	Bloomberg Barclays Global Aggregate Ex USD -3.1 %	MSCI EAFE (Net) Index -4.9 %	MSCI Emerging Markets (Net) Index -14.9 %	MSCI EAFE (Net) Index 1.0 %	Bloomberg Barclays U.S. Aggregate Index 3.5 %	MSCI Emerging Markets (Net) Index -7.7 %



Winners for the Trailing 12 Months

- Trade tensions continued to headline and rattle markets. However, positive economic data proved a strong enough support for equities, especially domestically, to grow.
 - Russell 1000 Growth: 26.3%
 - Russell 2000 Growth: 21.1%
 - Russell 3000: 17.6%

Losers for the Trailing 12 Months

- As developed market economies began to raise rates in response to strong economic data, investors have sought greater compensation for owning more volatile emerging market debt. Emerging market currency declines versus the US dollar especially dragged on EMD returns.
 - JPM GBI-EM Global Div: -7.4%
 - MSCI Emerging Markets: -0.8%

Areas of Positive Performance for the Trailing 12 Months

- The Total Fund Composite outperformed its Implementation Index by 2.2% for the trailing 12 months; Total Fund returned 8.1% versus the benchmark return of 5.9%. The Total Fund ranked in the 56th percentile versus other Public Fund peers.
- The US Non-Large Cap Composite returned 24.8%, outperformed the Russell 2500 Index by 8.6%, and ranked in the 18th percentile versus peers.
 - All US non-large cap managers posted strong absolute and relative returns. William Blair returned 28.6% and outperformed by 5.5%, Investment Counselors of Maryland returned 13.2% and outperformed by 3.9%, and Brown returned 39.3% and outperformed by 18.2%.
- The US Large Cap Composite returned 17.5% and ranked above median versus peers, but underperformed the Russell 1000 Index by 28 bps.
 - All US large cap managers had strong yearly returns. Invesco returned 17.9% and ranked in the 41st percentile, LSV returned 9.9% and ranked in the 72nd percentile, and Westfield returned 24.4% and ranked in the 51st percentile.
- The Real Assets Composite was positive with a return of 17.8%, outperforming NCREIF Property Index by 10.7 % and ranking in the top decile versus peers.

Areas of Negative Performance for the Trailing 12 Months

- The Fixed Income Composite has been negative over the past year, with an absolute return of -1.5%. The Composite has underperformed the Fixed Income Policy Index, and is ranked in the bottom quartile of its peer universe.

Winners for the Recent Quarter:

- US GDP growth accelerated over the quarter, and, alongside subdued inflation, resulted in strong US equity market gains.
 - Russell 1000 Growth: 9.2% (outperformed Value by 3.5%)
 - S&P 500: 7.7%

Losers for the Recent Quarter:

- International equity markets continued to underperform US equity markets. US interest rate hikes and the strengthening US dollar, trade war concerns, US tax cuts/fiscal policy, and accelerating growth in the US (with growth rates outside the US remaining flat) all contributed to international equity underperformance.
 - JPM GBI-EM Global Div: -1.8%
 - MSCI Emerging Markets: -1.1%

Areas of Positive Performance for the Recent Quarter

- The US Equity Composite returned 6.8% over the quarter, and ranked in the 33rd percentile versus peers. The Non-Large Cap Composite returned 6.6% and outperformed the Russell 2500 Index by 1.9%, ranking in the top quartile versus peers. The Large Cap Composite underperformed the index and ranked below median.
- The International Equity Composite had an absolute return of 1.6% for the quarter, outperforming the benchmark by 92 bps, and ranking in the top quartile. The International Developed Markets Composite returned 1.3% and ranked in the 30th percentile. The International Emerging Markets Composite returned 2.4% and ranked in the 5th percentile.

Areas of Negative Performance for the Recent Quarter

- The Fixed Income Composite was down 7 bps over the quarter, underperforming the Fixed Income Policy Index, and ranking 73rd in its peer universe.
- The Real Assets Composite was positive with a return of 1.1%, but underperformed the NCREIF Property Index by 0.7% and ranking 80th versus peers.



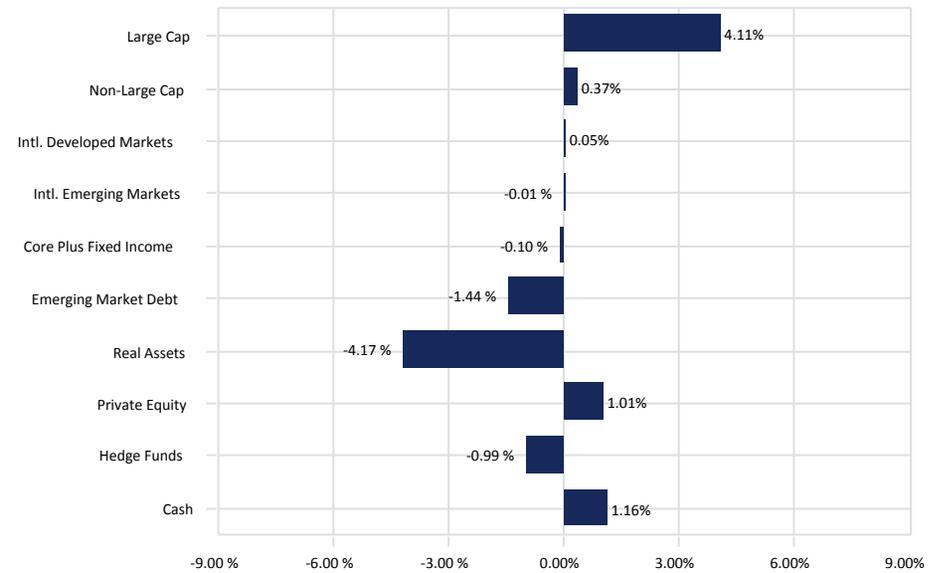
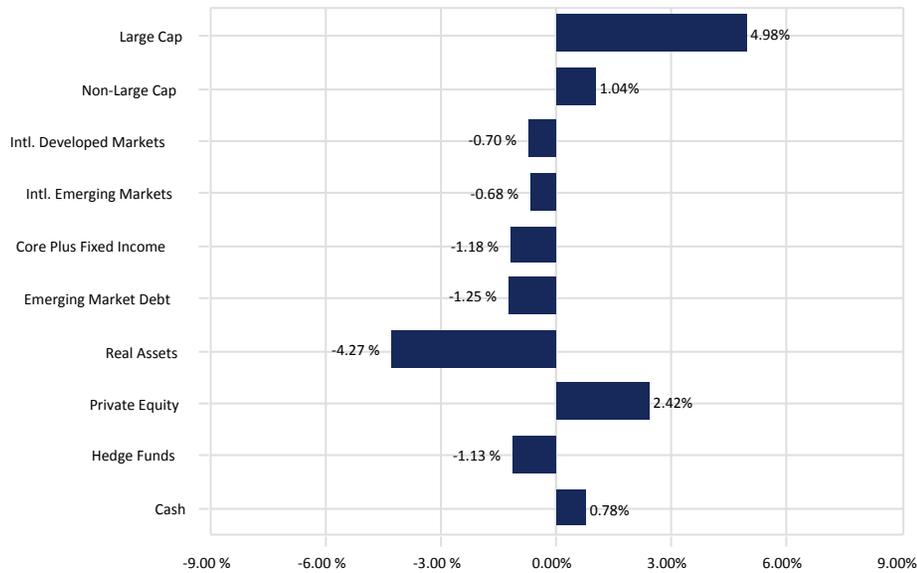
Total Fund



Howard County Retirement Plans

Asset Allocation vs. Target Allocation

September 30, 2018



September 30, 2018

	<u>Market Value</u> (\$)	<u>Allocation</u> (%)	<u>Target</u> (%)
Large Cap	208,033,973	19.98	15.00
Non-Large Cap	62,913,662	6.04	5.00
Intl. Developed Markets	128,037,212	12.30	13.00
Intl. Emerging Markets	65,787,240	6.32	7.00
Core Plus Fixed Income	248,053,740	23.82	25.00
Emerging Market Debt	39,024,879	3.75	5.00
Real Assets	33,659,878	3.23	7.50
Private Equity	129,314,921	12.42	10.00
Hedge Funds	118,435,757	11.37	12.50
Cash	8,078,793	0.78	0.00
Total Fund	1,041,340,053	100.00	100.00

December 31, 2017

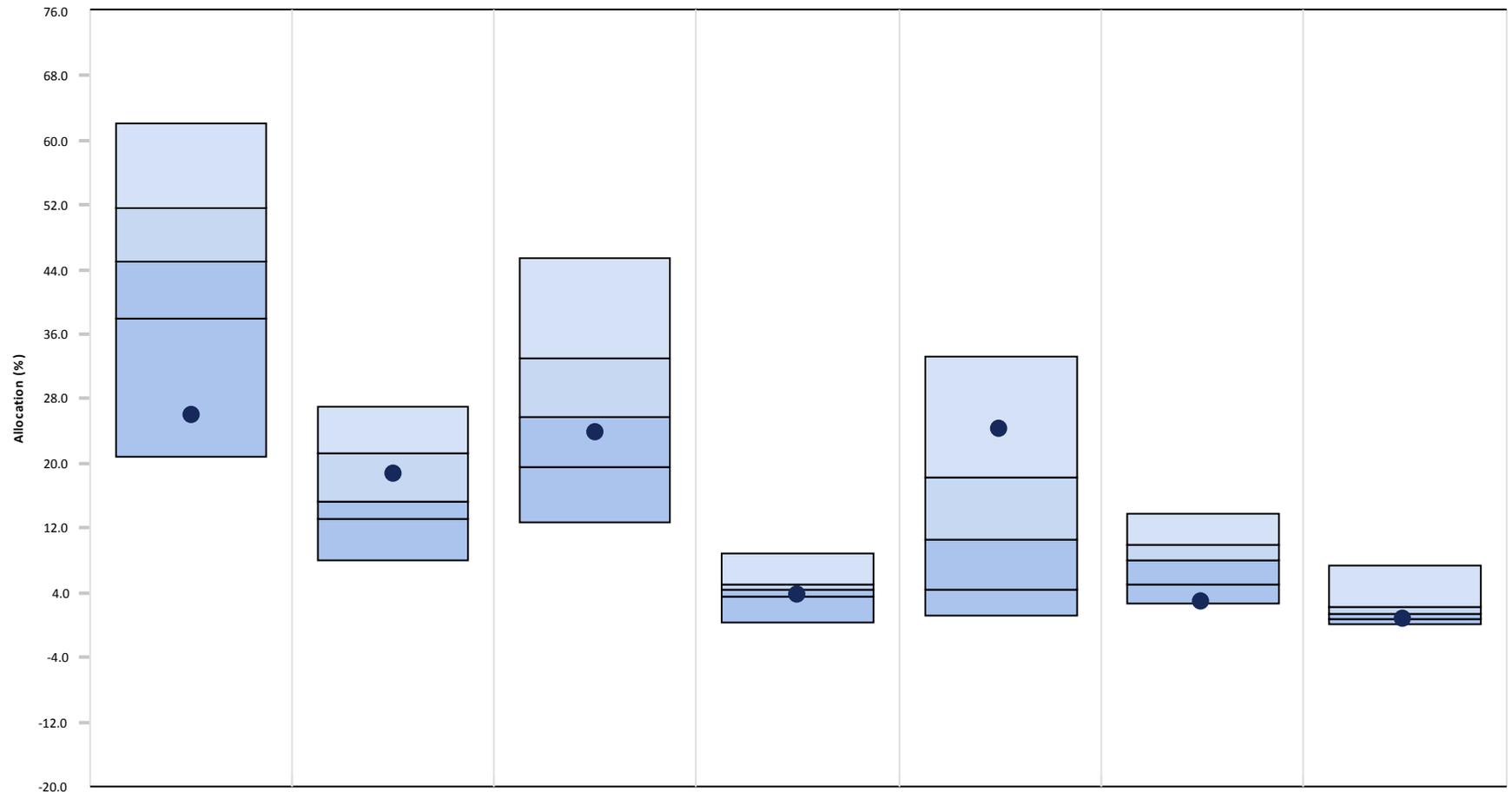
	<u>Market Value</u> (\$)	<u>Allocation</u> (%)	<u>Target</u> (%)
Large Cap	189,441,429	19.11	15.00
Non-Large Cap	53,279,749	5.37	5.00
Intl. Developed Markets	129,397,425	13.05	13.00
Intl. Emerging Markets	69,347,936	6.99	7.00
Core Plus Fixed Income	246,858,728	24.90	25.00
Emerging Market Debt	35,310,365	3.56	5.00
Real Assets	33,001,370	3.33	7.50
Private Equity	109,192,151	11.01	10.00
Hedge Funds	114,123,641	11.51	12.50
Cash	11,466,237	1.16	0.00
Total Fund	991,419,031	100.00	100.00



Howard County Retirement Plans

Plan Sponsor TF Asset Allocation - All Public Plans

September 30, 2018



	<u>US Equity</u>	<u>Intl. Equity</u>	<u>US Fixed Income</u>	<u>Intl. Fixed Income</u>	<u>Alternative Inv.</u>	<u>Real Estate</u>	<u>Cash</u>
● Total Fund Composite	26.02 (92)	18.61 (38)	23.82 (59)	3.75 (70)	24.22 (14)	2.80 (95)	0.78 (70)
5th Percentile	62.05	27.07	45.33	8.95	33.28	13.76	7.28
1st Quartile	51.64	21.31	33.07	4.93	18.18	9.96	2.32
Median	44.98	15.32	25.65	4.37	10.49	8.00	1.38
3rd Quartile	37.86	13.08	19.58	3.43	4.42	4.98	0.66
95th Percentile	20.88	8.05	12.80	0.35	1.25	2.70	0.07
Population	555	526	561	205	196	350	492

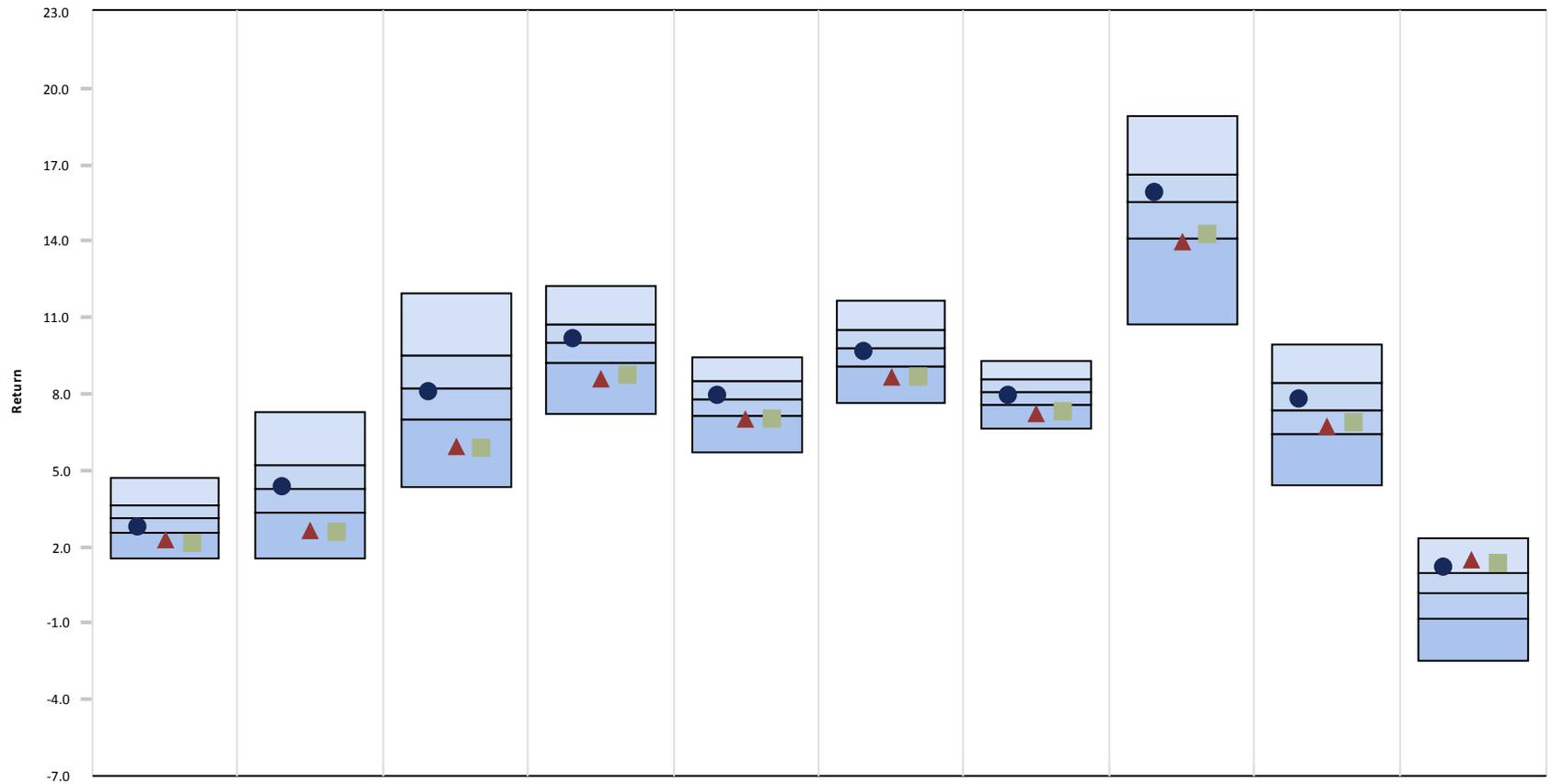
Parentheses contain percentile rankings.



Howard County Retirement Plans

All Public Plans - Total Fund Peer Group Return

September 30, 2018



	<u>3 Month</u>	<u>CYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>7 Year</u>	<u>10 Year</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>
● Total Fund Composite	2.76 (68)	4.31 (49)	8.05 (56)	10.18 (44)	7.95 (45)	9.66 (56)	7.94 (57)	15.87 (44)	7.80 (40)	1.15 (20)
▲ Total Implementation Index	2.22 (87)	2.64 (88)	5.90 (89)	8.59 (88)	7.01 (78)	8.65 (86)	7.18 (89)	13.97 (77)	6.71 (68)	1.44 (16)
■ Total Policy Index	2.15 (88)	2.53 (89)	5.85 (89)	8.70 (87)	7.02 (78)	8.62 (87)	7.30 (86)	14.23 (73)	6.87 (63)	1.31 (17)
5th Percentile	4.68	7.32	11.97	12.21	9.44	11.63	9.29	18.89	9.94	2.32
1st Quartile	3.65	5.19	9.50	10.76	8.50	10.54	8.54	16.64	8.41	0.96
Median	3.14	4.28	8.24	9.98	7.81	9.80	8.10	15.52	7.34	0.15
3rd Quartile	2.53	3.34	7.03	9.24	7.14	9.11	7.57	14.11	6.40	-0.80
95th Percentile	1.53	1.51	4.31	7.20	5.67	7.67	6.67	10.70	4.39	-2.50
Population	541	538	537	491	453	438	396	641	643	585

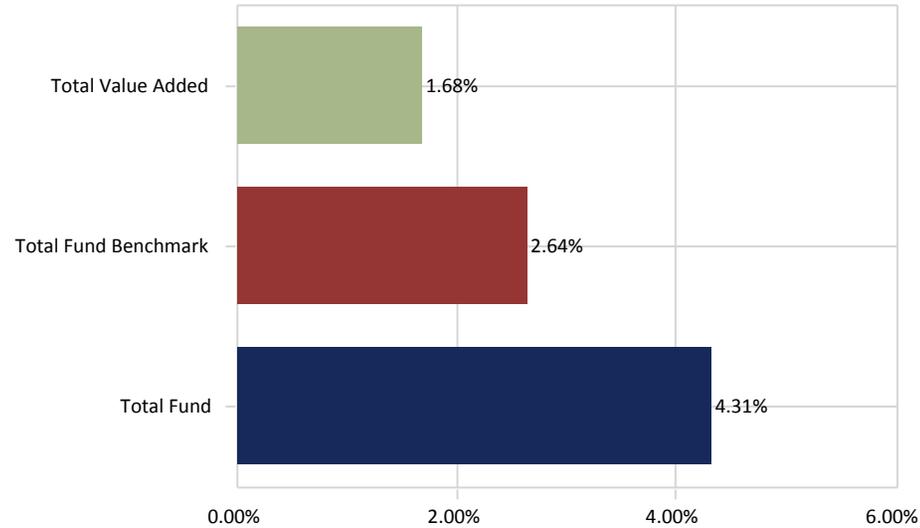


Howard County Retirement Plans

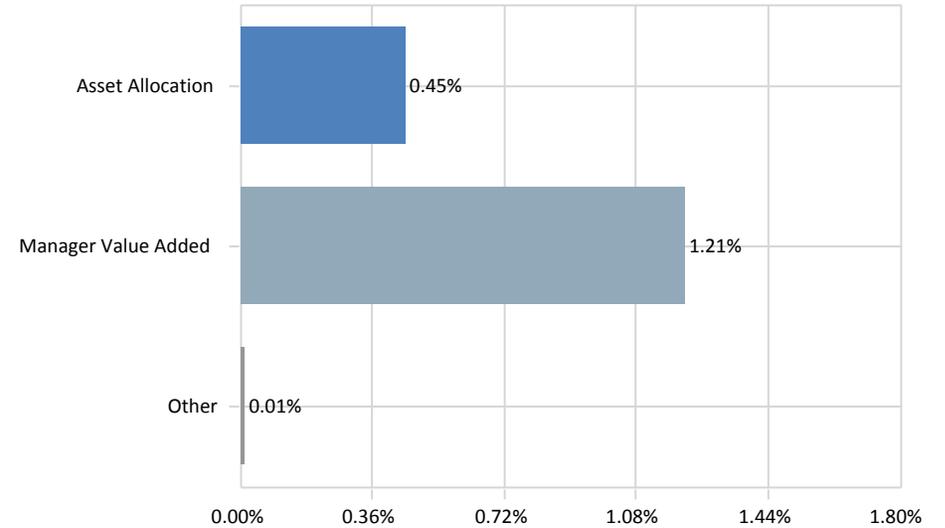
Total Fund Attribution

Year To Date Ending September 30, 2018

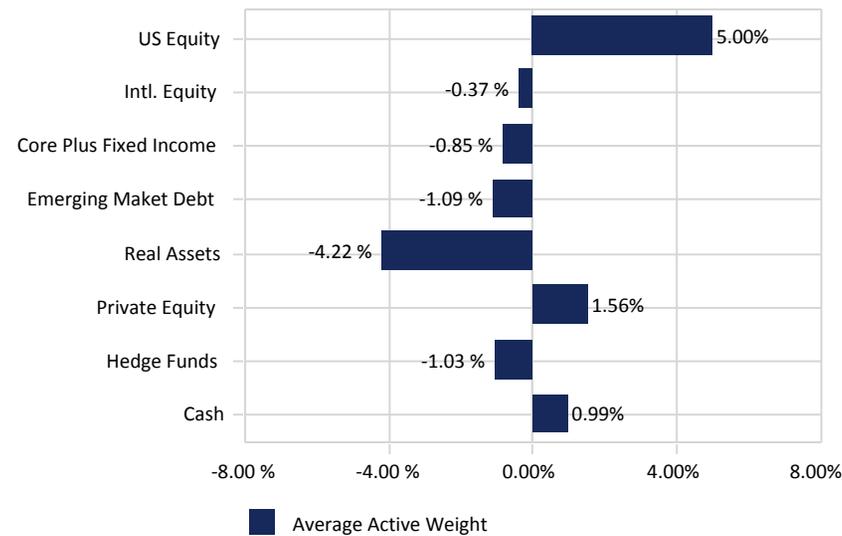
Total Fund Performance



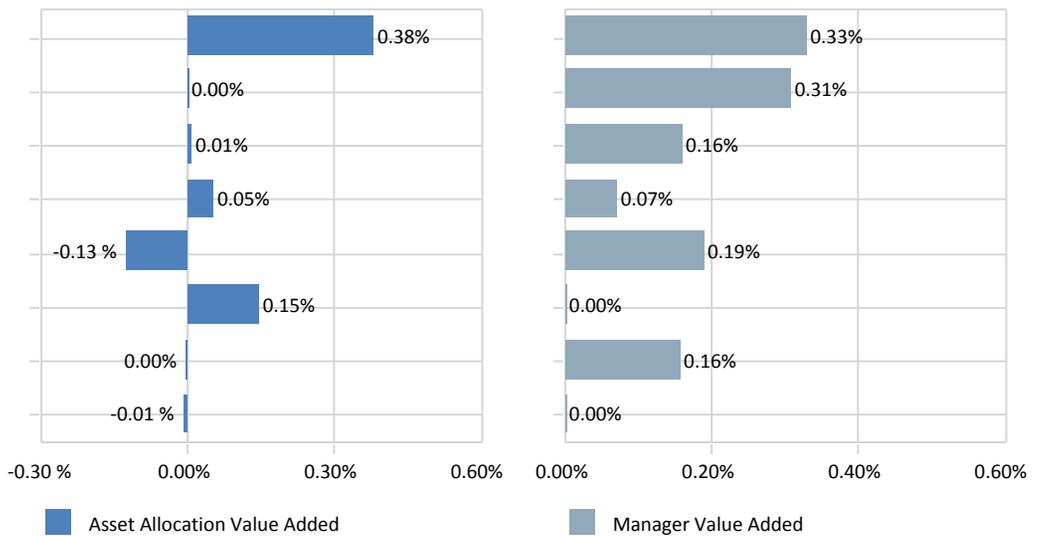
Total Value Added:1.68%



Total Asset Allocation:0.45%



Total Manager Value Added:1.21%

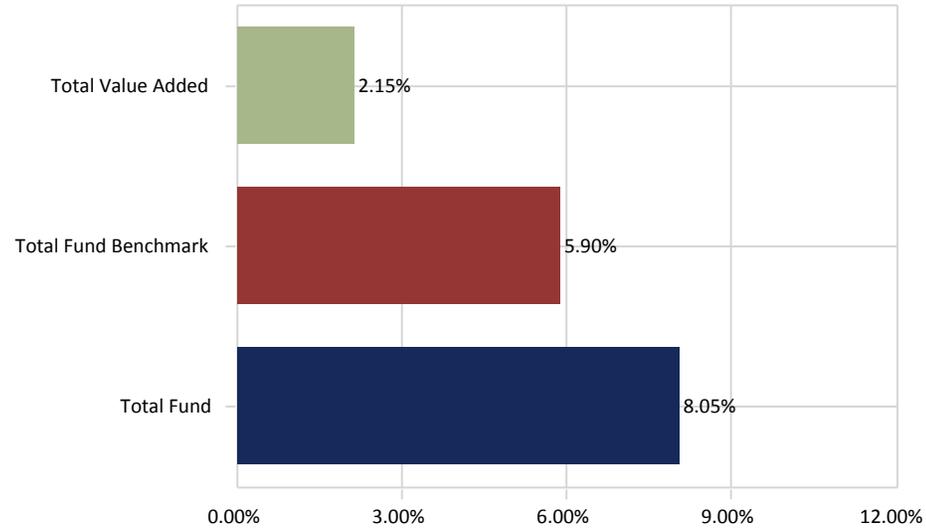


Howard County Retirement Plans

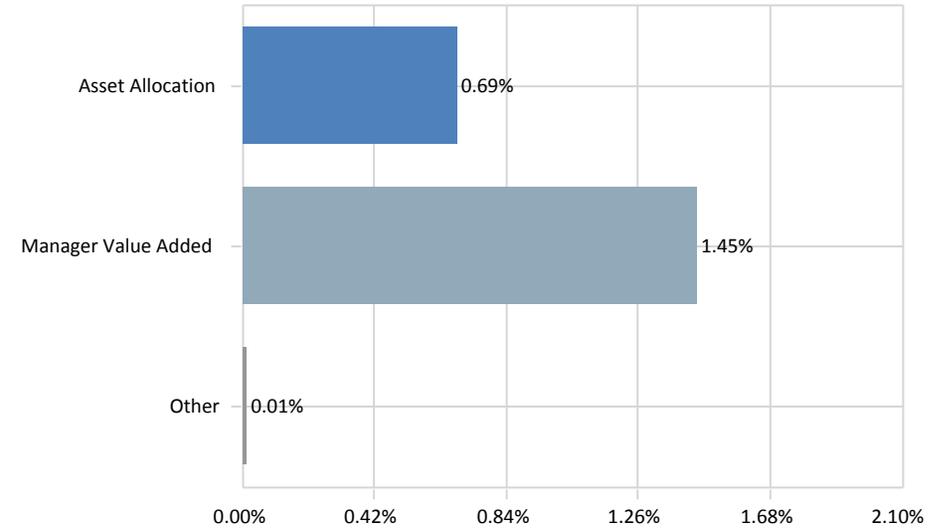
Total Fund Attribution

1 Year Ending September 30, 2018

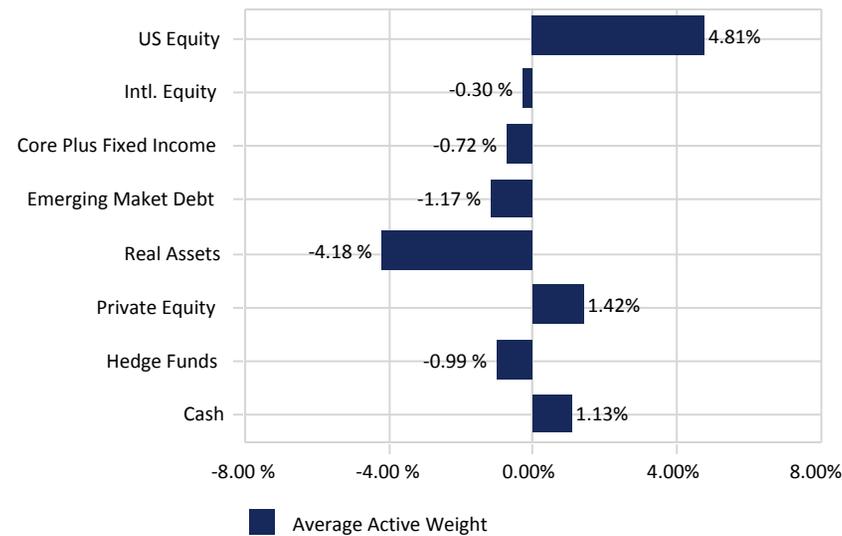
Total Fund Performance



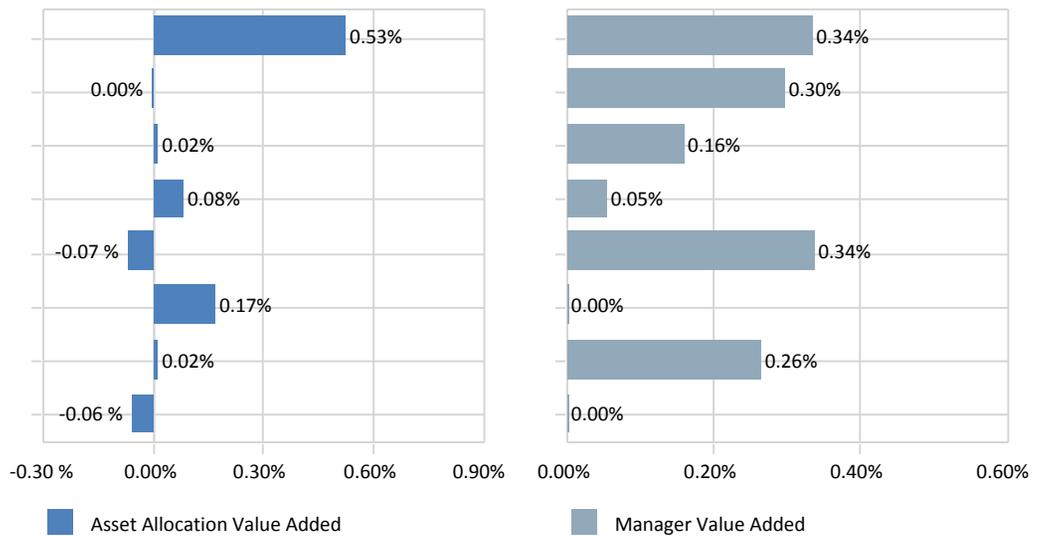
Total Value Added: 2.15%



Total Asset Allocation: 0.69%



Total Manager Value Added: 1.45%

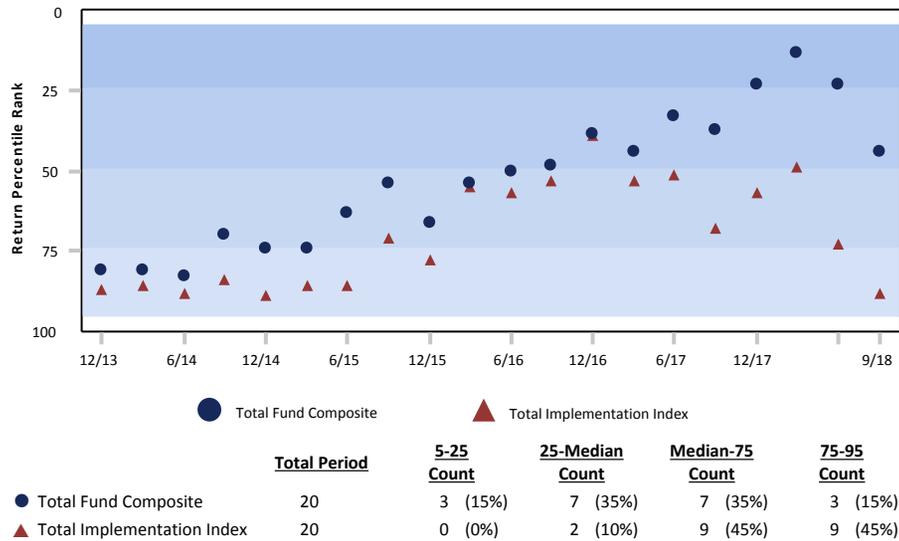


Howard County Retirement Plans

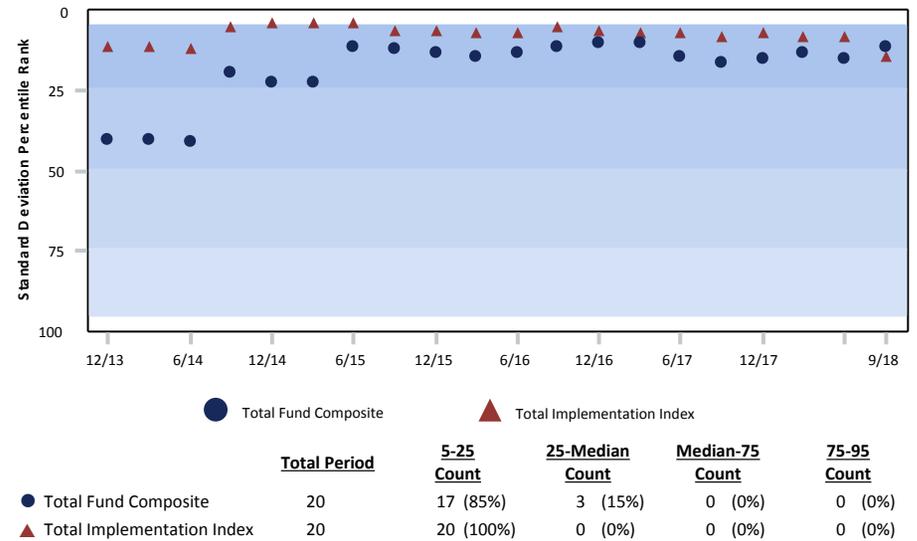
Total Fund Composite

September 30, 2018

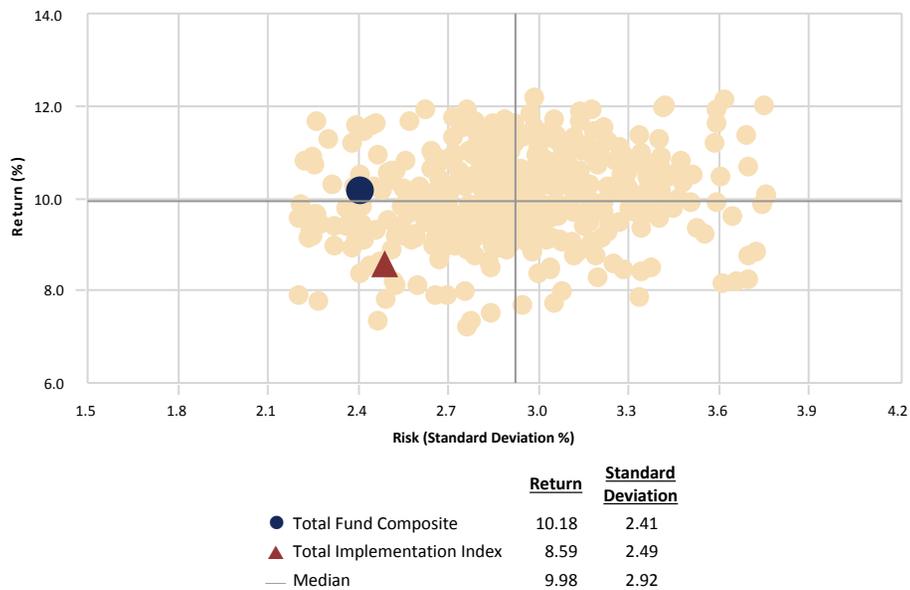
3 Year Rolling Return Rank



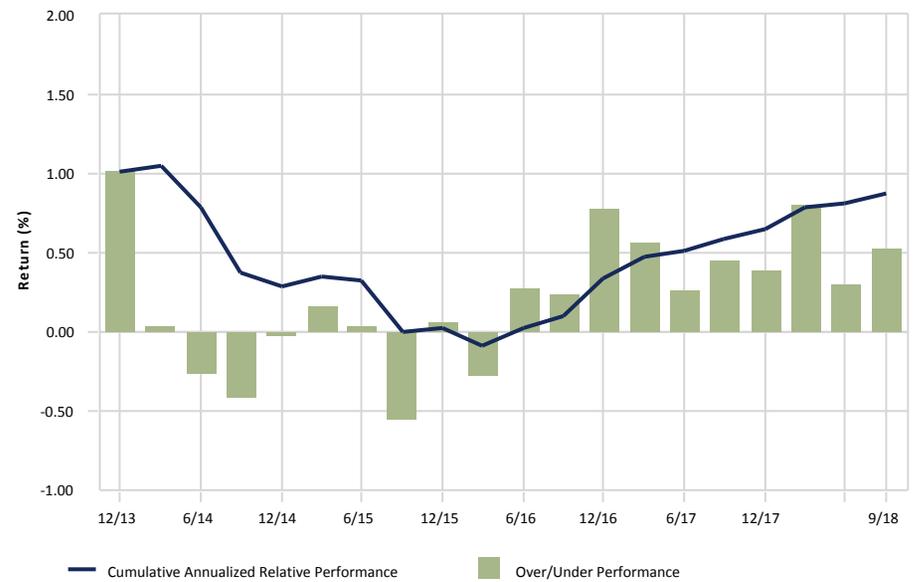
3 Year Rolling Standard Deviation Rank



Risk vs. Return (10/01/15 - 09/30/18)



Relative Performance vs. Total Implementation Index

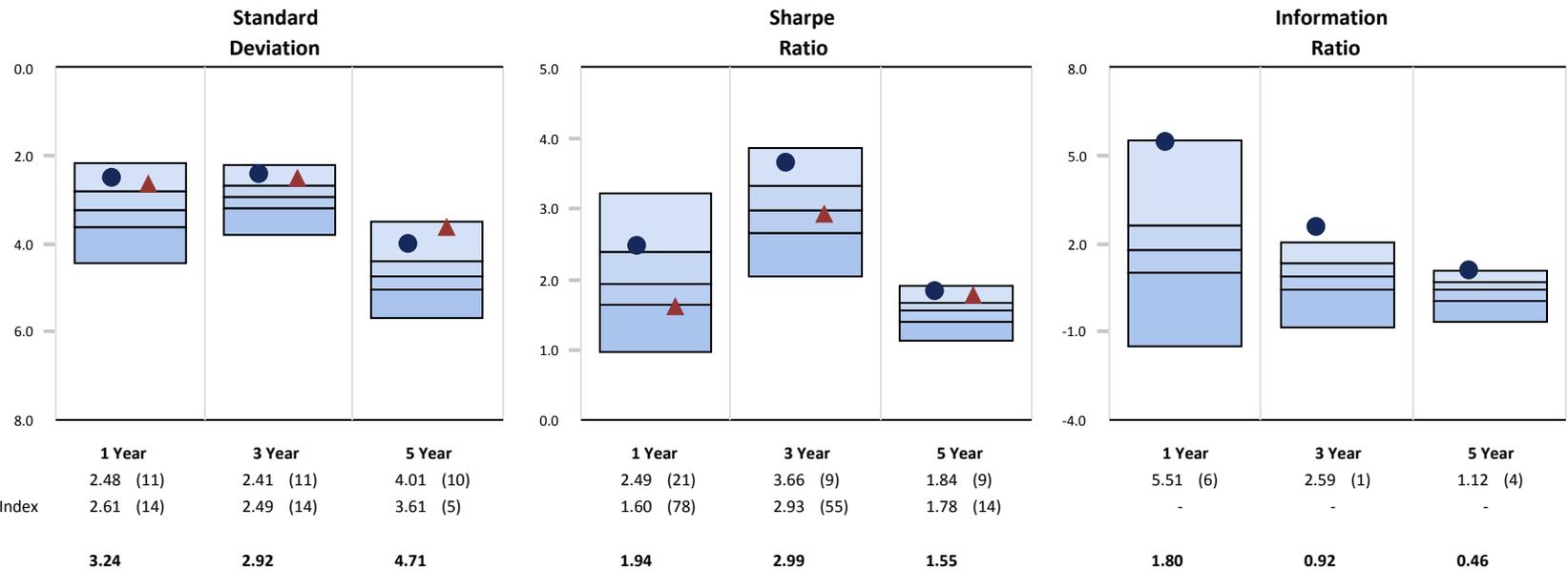


Howard County Retirement Plans

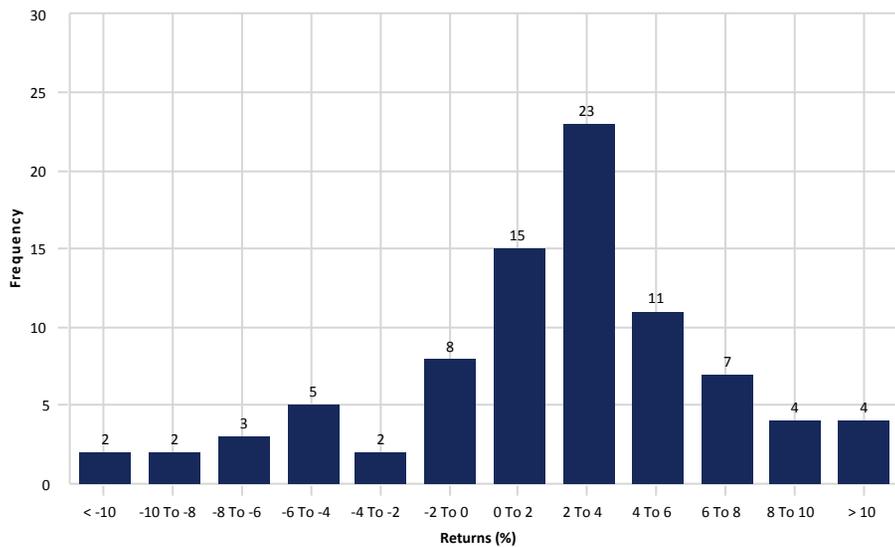
Total Fund Composite

September 30, 2018

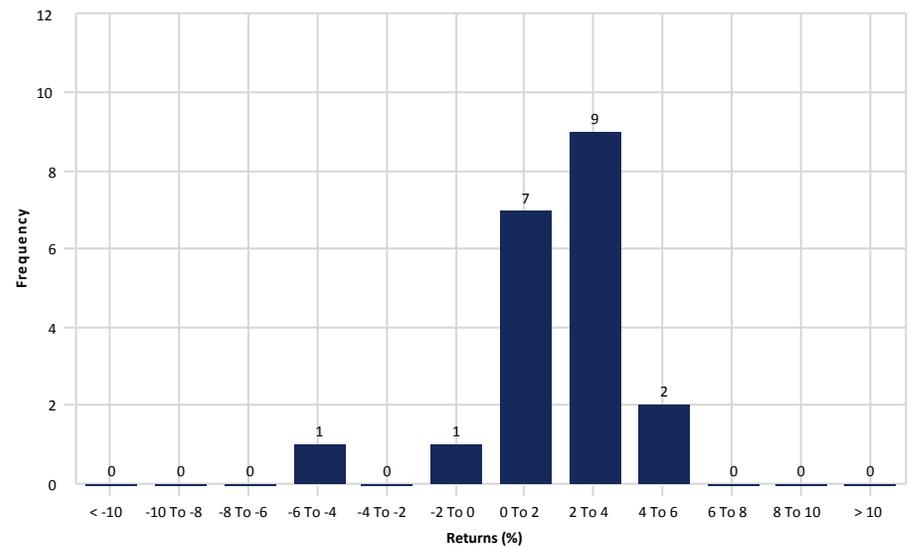
Peer Group Analysis: All Public Plans-Total Fund



Inception - Quarterly Distribution of Returns



5 Years - Quarterly Distribution of Returns

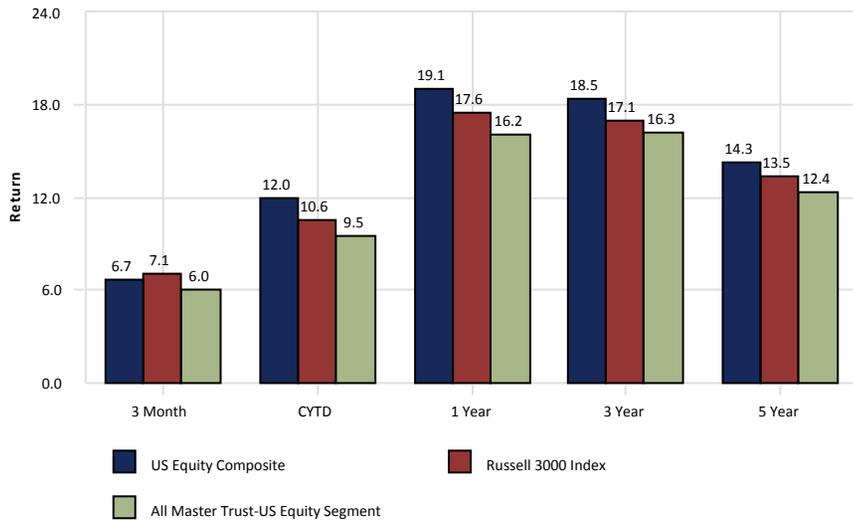


Howard County Retirement Plans

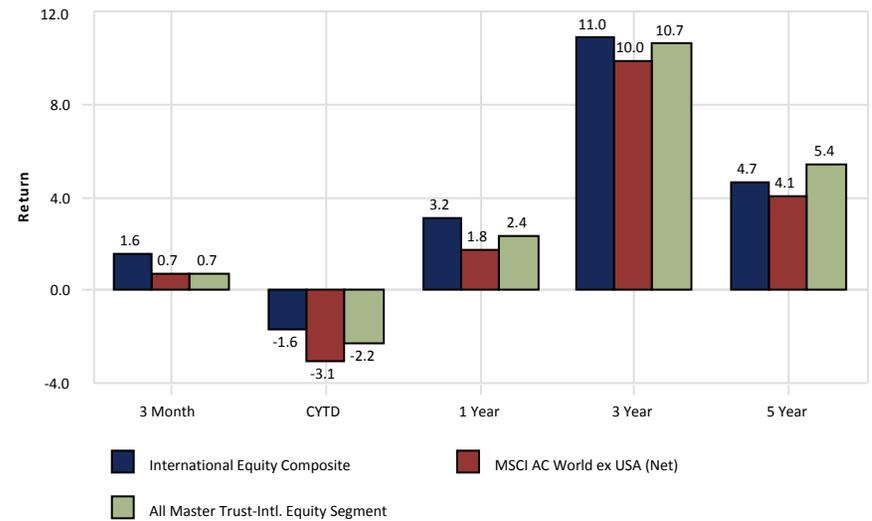
Composite Summary

September 30, 2018

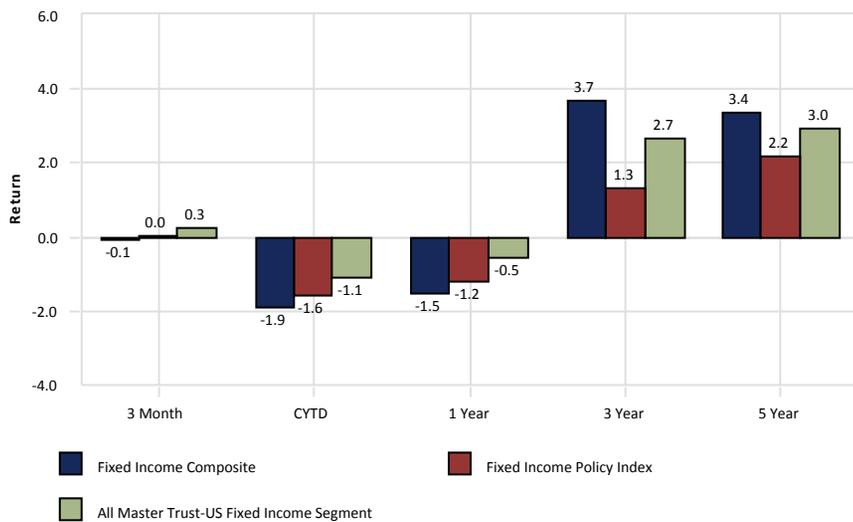
US Equity Composite



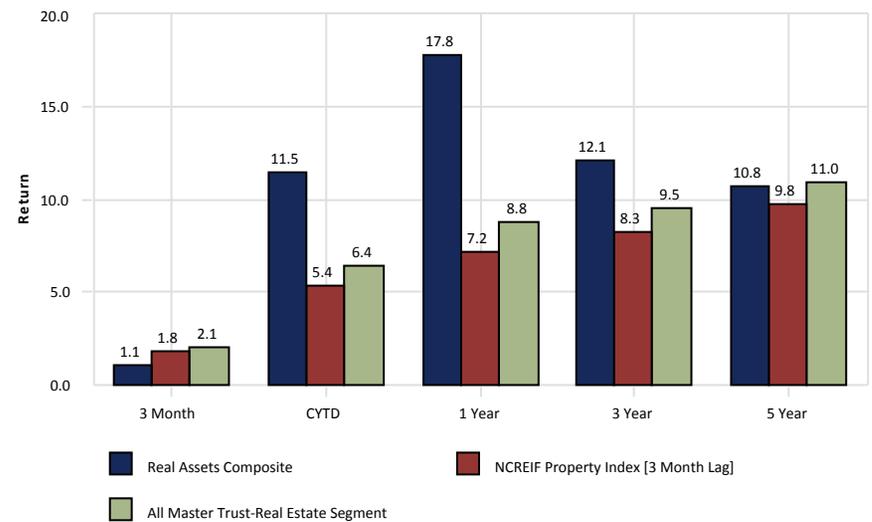
International Equity Composite



Fixed Income Composite



Real Assets Composite



Howard County Retirement Plans

Composite Asset Allocation & Performance % | gross of fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
Total Fund Composite	1,041,340,053	100.00	2.76 (67)	4.31 (49)	2.76 (67)	8.05 (56)	10.18 (44)	7.95 (45)	7.39 (47)	Apr-1997
<i>Total Implementation Index</i>			2.22	2.64	2.22	5.90	8.59	7.01	6.84	
Excess Return			0.54	1.67	0.54	2.15	1.59	0.94	0.55	
<i>Total Policy Index</i>			2.15	2.53	2.15	5.85	8.70	7.02	7.34	<i>Apr-1997</i>
Total Fund EX Alternatives	796,455,947	76.48	2.69	3.16	2.69	6.87	10.39	7.50	6.67	Jul-2008
Total Fund EX Real Assets	1,007,680,175	96.77	2.82	4.08	2.82	7.73	10.12	7.85	7.48	Dec-2003
Total Equity Composite	464,772,087	44.63	4.55	5.89	4.55	11.90	15.19	10.12	7.35	Apr-2000
US Equity Composite	270,947,635	26.02	6.75 (33)	12.04 (10)	6.75 (33)	19.12 (9)	18.51 (7)	14.32 (9)	8.86 (21)	Jul-1997
<i>Russell 3000 Index</i>			7.12	10.57	7.12	17.58	17.07	13.46	8.03	
Excess Return			-0.37	1.47	-0.37	1.54	1.44	0.86	0.83	
<i>US Equity Allocation Index</i>			6.86	10.93	6.86	17.64	17.20	13.17	9.48	<i>Jan-2004</i>
Large Cap Composite	208,033,973	19.98	6.79 (57)	10.09 (48)	6.79 (57)	17.48 (47)	17.38 (33)	14.03 (38)	8.83 (32)	Apr-2001
<i>Russell 1000 Index</i>			7.42	10.49	7.42	17.76	17.07	13.67	7.78	
Excess Return			-0.63	-0.40	-0.63	-0.28	0.31	0.36	1.05	
Non-Large Cap Composite	62,913,662	6.04	6.61 (25)	19.02 (14)	6.61 (25)	24.83 (18)	22.24 (3)	15.83 (3)	12.79 (16)	Apr-1993
<i>Russell 2500 Index</i>			4.70	10.41	4.70	16.19	16.13	11.37	10.77	
Excess Return			1.91	8.61	1.91	8.64	6.11	4.46	2.02	
International Equity Composite	193,824,452	18.61	1.63 (22)	-1.65 (34)	1.63 (22)	3.17 (32)	10.96 (41)	4.67 (77)	4.79 (89)	Jul-1997
<i>MSCI AC World ex USA (Net)</i>			0.71	-3.09	0.71	1.76	9.97	4.12	-	
Excess Return			0.92	1.44	0.92	1.41	0.99	0.55	-	
International Developed Markets Composite	128,037,212	12.30	1.26 (30)	0.04 (23)	1.26 (30)	3.31 (40)	8.88 (77)	4.83 (76)	3.31 (77)	Mar-2008
<i>MSCI EAFE Index (Net)</i>			1.42	-0.98	1.42	3.25	9.77	4.90	2.99	
Excess Return			-0.16	1.02	-0.16	0.06	-0.89	-0.07	0.32	
International Emerging Markets Composite	65,787,240	6.32	2.35 (5)	-4.70 (12)	2.35 (5)	3.00 (9)	15.30 (11)	4.21 (54)	6.03 (46)	Feb-2006
<i>MSCI Emerging Markets Index (Net)</i>			-0.95	-7.39	-0.95	-0.44	12.77	3.99	5.13	
Excess Return			3.30	2.69	3.30	3.44	2.53	0.22	0.90	
Fixed Income Composite	287,078,618	27.57	-0.07 (73)	-1.89 (73)	-0.07 (73)	-1.54 (78)	3.67 (25)	3.36 (41)	5.28 (61)	Jul-1997
<i>Fixed Income Policy Index</i>			0.02	-1.60	0.02	-1.22	1.31	2.16	5.05	
Excess Return			-0.09	-0.29	-0.09	-0.32	2.36	1.20	0.23	



Howard County Retirement Plans

Composite Asset Allocation & Performance % | gross of fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
Real Assets Composite	33,659,878	3.23	1.11 (80)	11.48 (9)	1.11 (80)	17.84 (4)	12.14 (15)	10.78 (56)	7.59 (91)	Jul-2003
<i>NCREIF Property Index [3 Month Lag]</i>			1.81	5.40	1.81	7.19	8.25	9.77	9.06	
Excess Return			-0.70	6.08	-0.70	10.65	3.89	1.01	-1.47	
<i>NCREIF Fund Index-ODCE (VW) [M]</i>			2.09	6.48	2.09	8.68	8.80	10.72	8.30	Jul-2003
Alternatives Composite	247,750,677	23.79	3.09	8.29	3.09	12.09	9.35	9.93	8.73	Jul-2008
Private Equity Composite	129,314,921	12.42	5.12	12.87	5.12	18.65	15.61	16.54	12.76	Jul-2008
Hedge Fund Composite	118,435,757	11.37	0.97	3.78	0.97	5.86	4.10	5.10	4.89	Jan-2011
<i>HFRI FOF: Conservative Index</i>			0.77	2.43	0.77	3.62	2.81	2.92	2.57	
Excess Return			0.20	1.35	0.20	2.24	1.29	2.18	2.32	
Cash Composite	8,078,793	0.78	0.38	0.93	0.38	1.11	0.51	0.31	1.30	Dec-2003
<i>FTSE 3 Month T-Bill</i>			0.50	1.29	0.50	1.57	0.80	0.49	1.24	
Excess Return			-0.12	-0.36	-0.12	-0.46	-0.29	-0.18	0.06	



Howard County Retirement Plans

Manager Allocation & Performance % | gross of fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
US Equity										
Invesco	68,479,341	6.58	7.28 (46)	10.02 (48)	7.28 (46)	17.88 (41)	16.79 (40)	13.72 (47)	8.01 (63)	Apr-2001
<i>S&P 500</i>			7.71	10.56	7.71	17.91	17.31	13.95	7.52	
Excess Return			-0.43	-0.54	-0.43	-0.03	-0.52	-0.23	0.49	
LSV Asset Management*	63,854,910	6.13	4.65 (73)	2.56 (86)	4.65 (73)	9.87 (72)	14.84 (46)	12.45 (28)	10.21 (11)	May-2000
<i>Russell 1000 Value Index</i>			5.70	3.92	5.70	9.45	13.55	10.72	7.06	
Excess Return			-1.05	-1.36	-1.05	0.42	1.29	1.73	3.15	
Westfield	75,699,722	7.27	8.20 (49)	17.43 (42)	8.20 (49)	24.39 (51)	20.32 (28)	15.74 (49)	17.16 (50)	Jul-2010
<i>Russell 1000 Growth Index</i>			9.17	17.09	9.17	26.30	20.55	16.58	17.91	
Excess Return			-0.97	0.34	-0.97	-1.91	-0.23	-0.84	-0.75	
William Blair	19,887,561	1.91	8.72 (37)	21.37 (34)	8.72 (37)	28.58 (34)	20.94 (19)	16.79 (3)	12.99 (15)	Jun-2006
<i>Russell 2500 Growth Index</i>			7.17	15.78	7.17	23.13	17.96	12.88	10.39	
Excess Return			1.55	5.59	1.55	5.45	2.98	3.91	2.60	
Investment Counselors of Maryland	24,506,429	2.35	1.38 (57)	9.19 (19)	1.38 (57)	13.24 (20)	19.60 (9)	12.79 (12)	12.49 (59)	Apr-1993
<i>Russell 2000 Value Index</i>			1.60	7.14	1.60	9.33	16.12	9.91	10.41	
Excess Return			-0.22	2.05	-0.22	3.91	3.48	2.88	2.08	
Brown Capital Management	18,519,672	1.78	11.91 (11)	31.94 (9)	11.91 (11)	39.25 (10)	28.03 (7)	18.76 (4)	21.53 (1)	Aug-2011
<i>Russell 2000 Growth Index</i>			5.52	15.76	5.52	21.06	17.98	12.14	13.67	
Excess Return			6.39	16.18	6.39	18.19	10.05	6.62	7.86	
International Equity										
Mondrian International	60,981,886	5.86	2.12 (14)	-1.59 (50)	2.12 (14)	1.71 (60)	8.80 (79)	4.99 (73)	1.94 (84)	Dec-2007
<i>MSCI EAFE Index (Net)</i>			1.35	-1.43	1.35	2.74	9.23	4.42	1.44	
Excess Return			0.77	-0.16	0.77	-1.03	-0.43	0.57	0.50	
Baillie Gifford	67,055,326	6.44	0.66 (50)	-	0.66 (50)	-	-	-	1.70 (3)	May-2018
<i>MSCI EAFE Index (Net)</i>			1.35	-	1.35	-	-	-	-2.13	
Excess Return			-0.69	-	-0.69	-	-	-	3.83	
DFA Emerging Markets	65,787,240	6.32	2.35 (5)	-4.70 (12)	2.35 (5)	3.00 (9)	15.30 (11)	4.22 (54)	6.20 (44)	Feb-2006
<i>MSCI Emerging Markets (Net)</i>			-1.09	-7.68	-1.09	-0.81	12.36	3.61	4.79	
Excess Return			3.44	2.98	3.44	3.81	2.94	0.61	1.41	

All returns are time-weighted and calculated using custodian data.

* Inception date differs from manager; Summit does not calculate partial month returns.



Howard County Retirement Plans

Manager Allocation & Performance % | gross of fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
Fixed Income										
Dodge & Cox	118,404,775	11.37	0.69 (6)	-0.43 (9)	0.69 (6)	0.07 (12)	3.55 (4)	3.53 (7)	4.14 (11)	May-2010
<i>Blmbg. Barc. U.S. Aggregate</i>			0.02	-1.60	0.02	-1.22	1.31	2.16	2.89	
Excess Return			0.67	1.17	0.67	1.29	2.24	1.37	1.25	
PIMCO Total Return	108,315,124	10.40	0.10 (66)	-1.55 (81)	0.10 (66)	-1.51 (98)	2.41 (16)	2.50 (58)	3.48 (44)	May-2010
<i>Blmbg. Barc. U.S. Aggregate</i>			0.02	-1.60	0.02	-1.22	1.31	2.16	2.89	
Excess Return			0.08	0.05	0.08	-0.29	1.10	0.34	0.59	
State Street Global Advisors TIPS	21,333,840	2.05	-0.81 (66)	-0.85 (71)	-0.81 (66)	0.41 (71)	2.02 (72)	1.36 (58)	2.93 (64)	Nov-2009
<i>Blmbg. Barc. U.S. TIPS</i>			-0.82	-0.84	-0.82	0.41	2.04	1.37	2.95	
Excess Return			0.01	-0.01	0.01	0.00	-0.02	-0.01	-0.02	
Colchester LMD	39,024,879	3.75	-2.28 (51)	-6.53 (18)	-2.28 (51)	-6.23 (19)	7.60 (1)	-	7.60 (1)	Oct-2015
<i>JPM GBI-EM Global Diversified</i>			-1.83	-8.15	-1.83	-7.40	5.17	-	5.17	
Excess Return			-0.45	1.62	-0.45	1.17	2.43	-	2.43	
Real Assets										
TA Realty Associates VIII	169,451	0.02	4.11	11.13	4.11	14.36	8.65	9.96	2.14	Jul-2007
TA Realty Associates IX	21,475	0.00	0.36	1.22	0.36	-0.04	3.98	7.88	7.90	Apr-2010
Partners Group Global RE 2011	7,028,684	0.67	-3.99	2.94	-3.99	10.60	9.45	9.04	6.74	Mar-2012
Partners Group Global RE 2014	17,460,320	1.68	1.20	12.99	1.20	17.56	15.56	-	10.20	Dec-2014
Commonfund Natural Resources X	4,468,390	0.43	7.55	26.37	7.55	35.17	-	-	24.82	Apr-2016
Aether Real Assets IV	3,997,794	0.38	3.61	8.75	3.61	23.67	-	-	3.25	Jun-2016
Aether Real Assets V	513,764	0.05	-	-	-	-	-	-	0.00	Sep-2018
Private Equity										
Siguler Guff Distressed Opps III	1,766,132	0.17	3.85	10.22	3.85	13.06	7.73	9.11	9.21	Jul-2008
Greenspring IV	5,122,095	0.49	8.32	10.94	8.32	14.77	10.70	19.25	16.04	Jul-2009
Pantheon Global Secondaries IV	670,868	0.06	4.99	13.31	4.99	20.00	9.69	12.01	13.34	Sep-2010
LGT Crown Asia-Pacific II	14,439,805	1.39	1.14	9.21	1.14	14.09	13.63	15.83	-10.96	Jul-2011
Greenspring V	7,687,284	0.74	3.43	10.92	3.43	14.41	17.72	20.94	17.75	Sep-2011
Adveq Europe V	7,338,787	0.70	2.74	16.87	2.74	27.67	15.89	7.11	8.56	Jan-2013

All returns are time-weighted and calculated using custodian data.

* Inception date differs from manager; Summit does not calculate partial month returns.



Howard County Retirement Plans

Manager Allocation & Performance % | gross of fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
LGT Crown Global Secondaries III	5,359,774	0.51	4.80	7.35	4.80	11.40	12.78	15.27	16.56	Feb-2013
Flag Private Equity V	14,296,084	1.37	9.21	16.81	9.21	34.54	18.77	16.62	16.62	Oct-2013
HarbourVest Partners 2013 Direct	16,373,015	1.57	2.28	5.56	2.28	10.44	17.77	-	18.05	Jan-2014
Greenspring VI	8,799,033	0.84	6.31	19.79	6.31	23.29	21.14	-	16.58	Apr-2014
Greenspring Secondaries Fund I	3,972,255	0.38	28.70	46.94	28.70	43.17	29.49	-	26.24	May-2014
Greenspring VIII	1,608,800	0.15	12.55	9.44	12.55	-8.25	-	-	-7.64	Sep-2017
Adveq Europe VI	3,340,424	0.32	0.83	16.99	0.83	19.26	-5.48	-	5.85	Feb-2015
Flag Private Equity VI	12,072,678	1.16	8.69	24.24	8.69	27.17	19.33	-	18.22	Aug-2015
57 Stars	4,558,988	0.44	4.27	1.81	4.27	6.19	-0.14	-	-0.14	Oct-2015
NB Crossroads XXI	8,464,688	0.81	1.17	6.71	1.17	9.97	4.61	-	4.61	Oct-2015
LGT Crown Asia-Pacific III	4,312,480	0.41	2.03	20.87	2.03	28.04	-	-	21.55	Nov-2015
HarbourVest IV	7,873,961	0.76	3.70	4.69	3.70	9.98	-	-	10.88	Jan-2017
Aberdeen US PE VII	1,257,772	0.12	14.80	14.04	14.80	-	-	-	14.04	Dec-2017
Hedge Funds										
Magnitude International	58,630,932	5.63	0.64	4.03	0.64	6.64	3.42	5.07	4.97	Jan-2011
<i>HFRI FOF: Conservative Index</i>			<i>0.77</i>	<i>2.43</i>	<i>0.77</i>	<i>3.62</i>	<i>2.81</i>	<i>2.92</i>	<i>2.57</i>	
Excess Return			-0.13	1.60	-0.13	3.02	0.61	2.15	2.40	
Blackstone Offshore F1	59,804,824	5.74	1.30	3.53	1.30	5.11	4.78	5.13	4.88	Mar-2011
<i>HFRI FOF: Conservative Index</i>			<i>0.77</i>	<i>2.43</i>	<i>0.77</i>	<i>3.62</i>	<i>2.81</i>	<i>2.92</i>	<i>2.44</i>	
Excess Return			0.53	1.10	0.53	1.49	1.97	2.21	2.44	
Cash										
Cash - General Employees	3,231,260	0.31	0.42	1.04	0.42	1.26	0.57	0.35	1.31	Jan-2004
Cash - Police & Fire	4,344,629	0.42	0.38	0.95	0.38	1.10	0.49	0.29	1.26	Jan-2004

All returns are time-weighted and calculated using custodian data.

* Inception date differs from manager; Summit does not calculate partial month returns.



US Equity

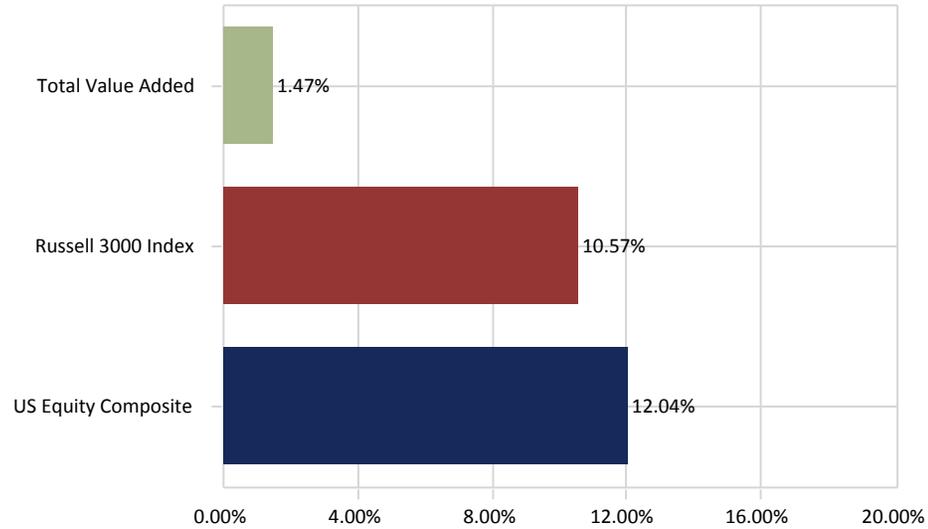


Howard County Retirement Plans

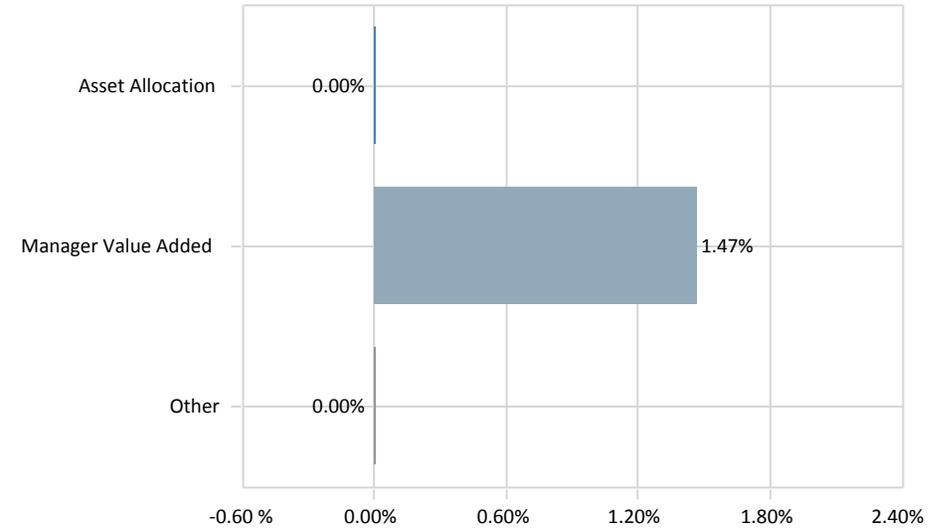
US Equity Composite Attribution

Year To Date Ending September 30, 2018

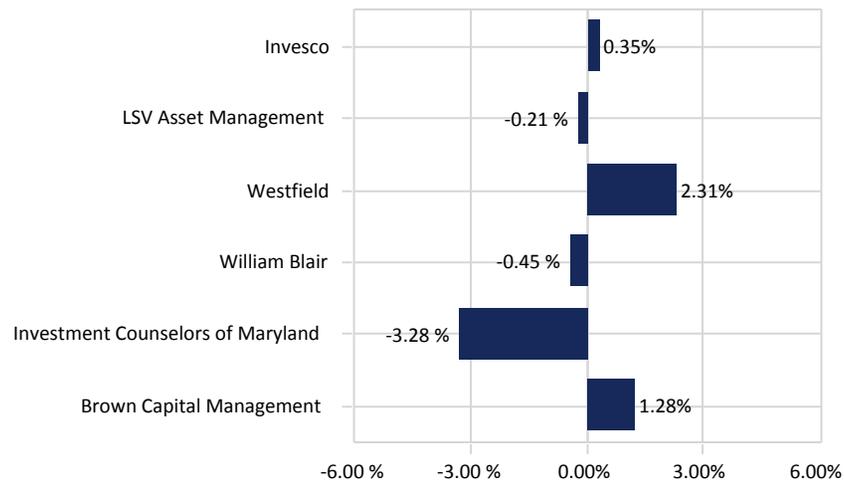
Total Fund Performance



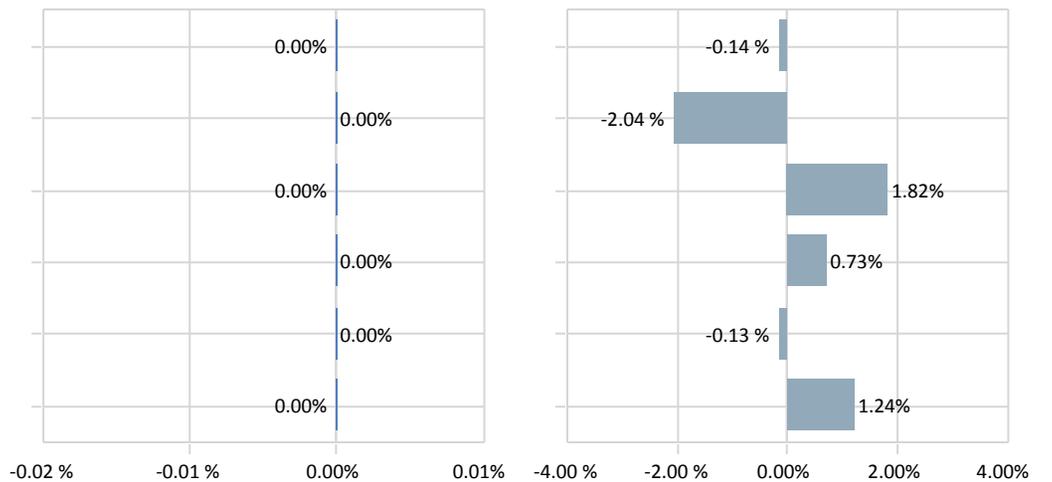
Total Value Added: 1.47%



Total Asset Allocation: 0.00%



Total Manager Value Added: 1.47%



■ Average Active Weight

■ Asset Allocation Value Added

■ Manager Value Added



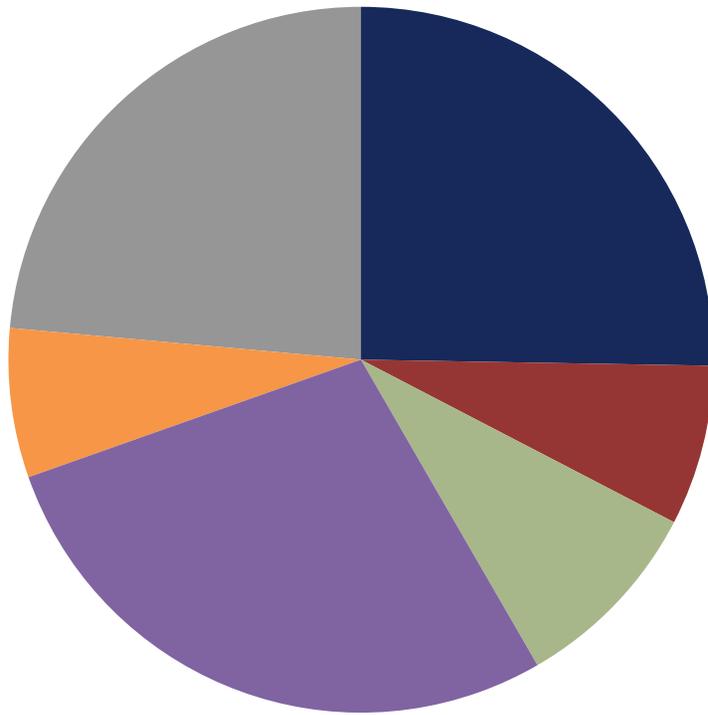
Howard County Retirement Plans

US Equity Composite vs. Russell 3000 Index

September 30, 2018

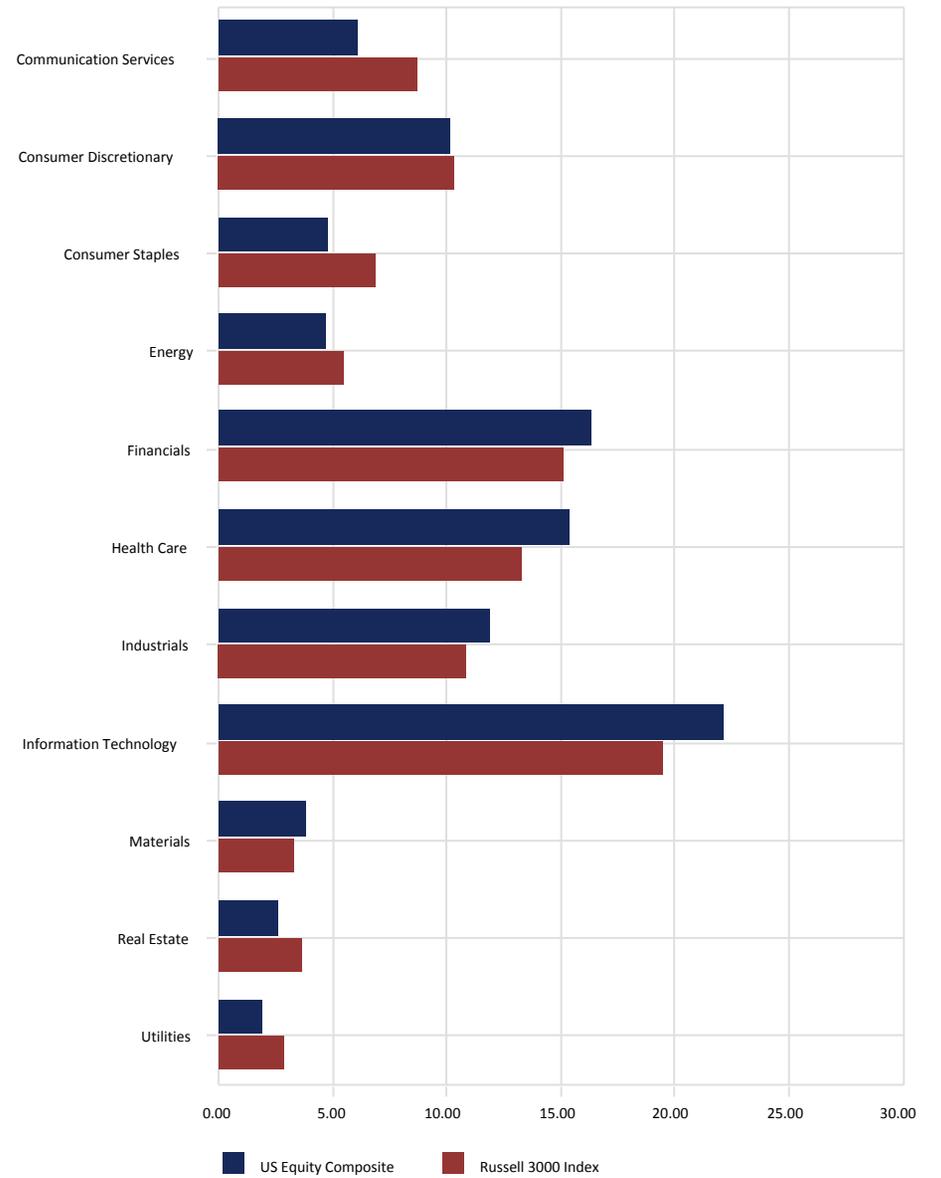
Manager Allocation

September 30, 2018 : \$270,947,635



	Market Value (\$)	Allocation (%)
Invesco	68,479,341	25.27
William Blair	19,887,561	7.34
Investment Counselors of Maryland	24,506,429	9.04
Westfield	75,699,722	27.94
Brown Capital Management	18,519,672	6.84
LSV Asset Management	63,854,910	23.57

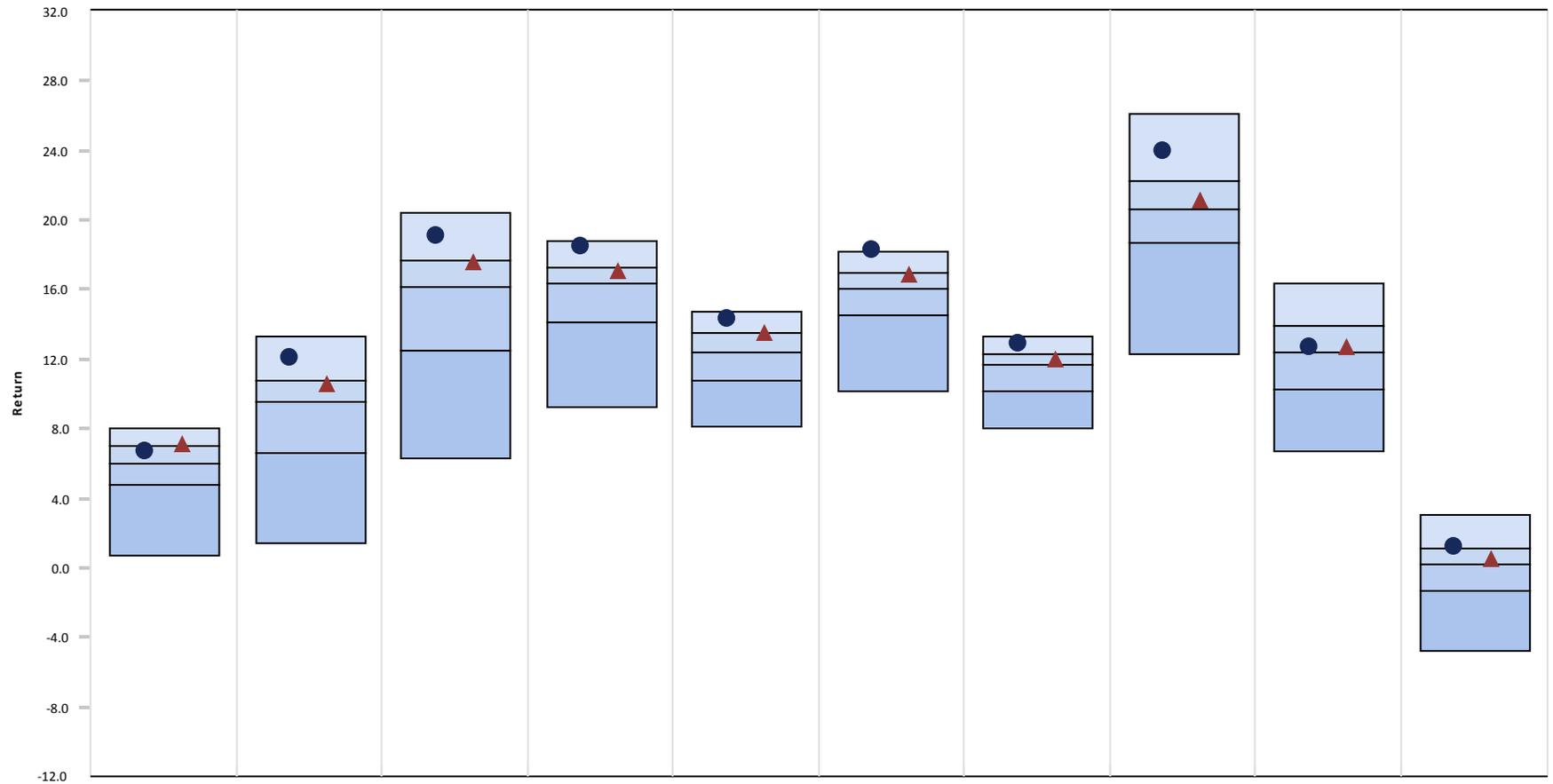
Sector Allocation - Holdings Based



Howard County Retirement Plans

All Master Trust - US Equity Peer Group Return

September 30, 2018



	<u>3 Month</u>	<u>CYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>7 Year</u>	<u>10 Year</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>
● US Equity Composite	6.75 (33)	12.04 (10)	19.12 (9)	18.51 (7)	14.32 (9)	18.26 (5)	12.88 (14)	23.93 (14)	12.68 (45)	1.22 (23)
▲ Russell 3000 Index	7.12 (19)	10.57 (31)	17.58 (29)	17.07 (30)	13.46 (27)	16.86 (30)	12.01 (38)	21.13 (42)	12.74 (44)	0.48 (41)
5th Percentile	8.07	13.34	20.47	18.83	14.77	18.21	13.35	26.14	16.38	3.03
1st Quartile	6.97	10.77	17.67	17.27	13.49	16.96	12.29	22.25	13.93	1.07
Median	6.00	9.51	16.16	16.32	12.36	16.01	11.68	20.64	12.43	0.23
3rd Quartile	4.81	6.58	12.52	14.13	10.74	14.49	10.15	18.73	10.25	-1.31
95th Percentile	0.72	1.37	6.34	9.28	8.11	10.15	8.06	12.30	6.70	-4.77
Population	293	286	279	267	240	212	128	359	393	337

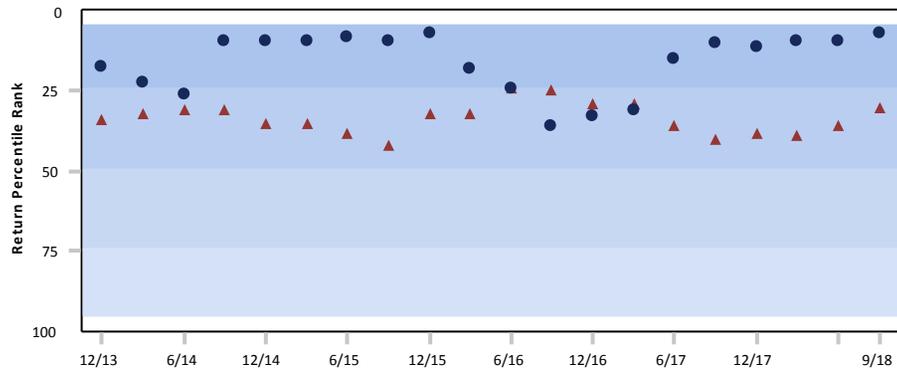


Howard County Retirement Plans

US Equity Composite

September 30, 2018

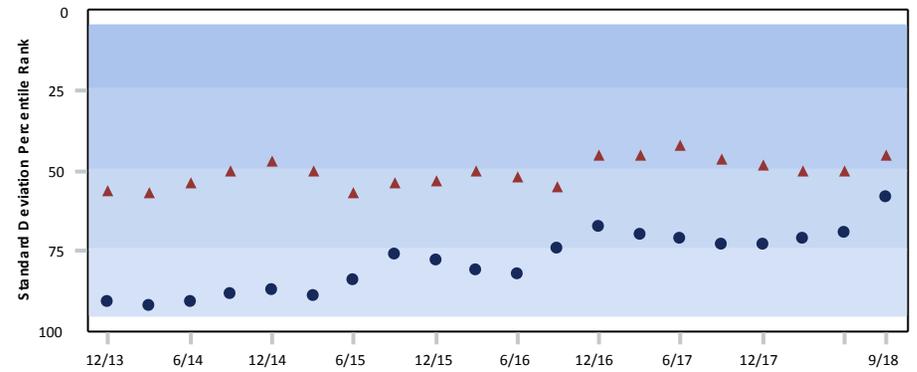
3 Year Rolling Return Rank



● US Equity Composite ▲ Russell 3000 Index

	<u>Total Period</u>	<u>5-25 Count</u>	<u>25-Median Count</u>	<u>Median-75 Count</u>	<u>75-95 Count</u>
● US Equity Composite	20	16 (80%)	4 (20%)	0 (0%)	0 (0%)
▲ Russell 3000 Index	20	2 (10%)	18 (90%)	0 (0%)	0 (0%)

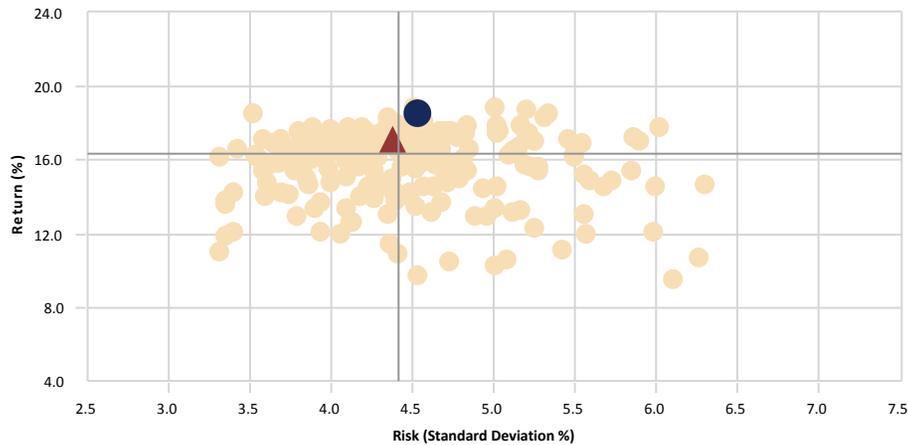
3 Year Rolling Standard Deviation Rank



● US Equity Composite ▲ Russell 3000 Index

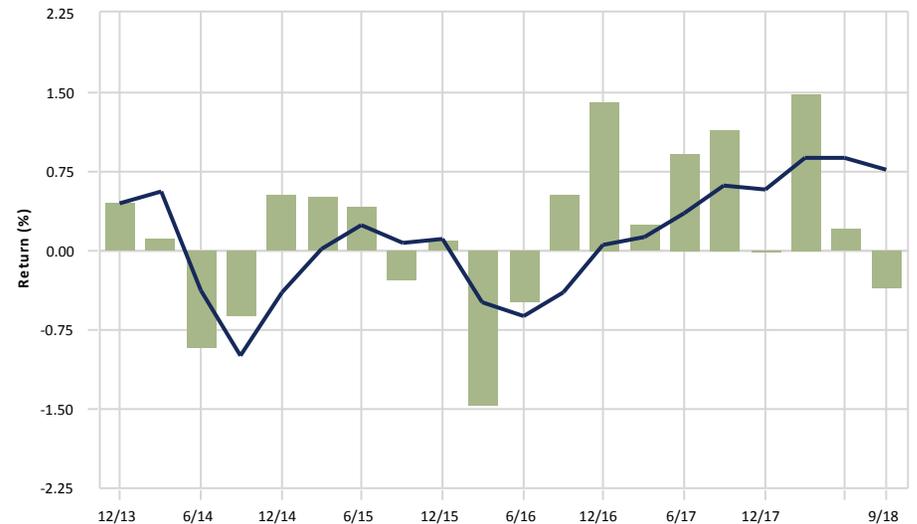
	<u>Total Period</u>	<u>5-25 Count</u>	<u>25-Median Count</u>	<u>Median-75 Count</u>	<u>75-95 Count</u>
● US Equity Composite	20	0 (0%)	0 (0%)	9 (45%)	11 (55%)
▲ Russell 3000 Index	20	0 (0%)	12 (60%)	8 (40%)	0 (0%)

Risk vs. Return (10/01/15 - 09/30/18)



	<u>Return</u>	<u>Standard Deviation</u>
● US Equity Composite	18.51	4.53
▲ Russell 3000 Index	17.07	4.38
— Median	16.32	4.41

Relative Performance vs. Russell 3000 Index



— Cumulative Annualized Relative Performance ■ Over/Under Performance

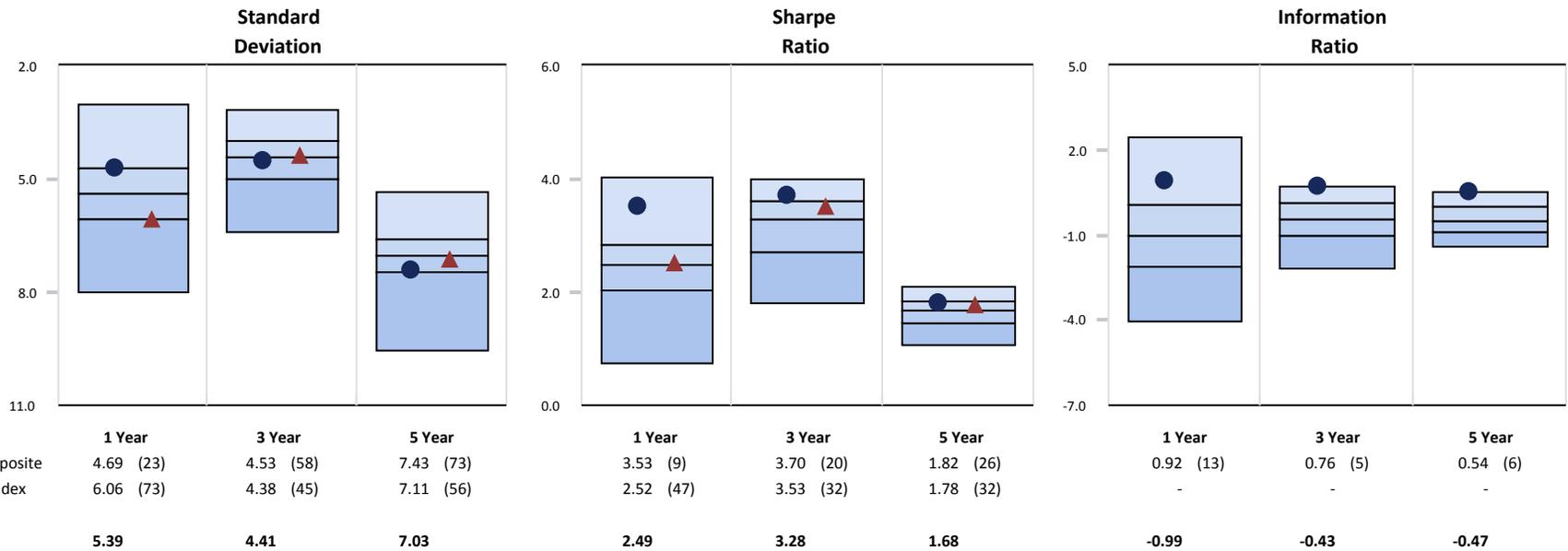


Howard County Retirement Plans

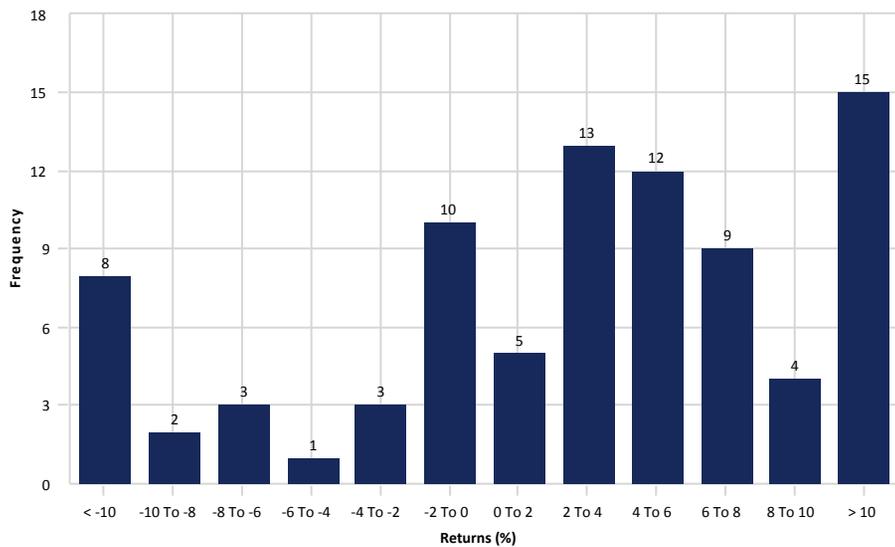
US Equity Composite

September 30, 2018

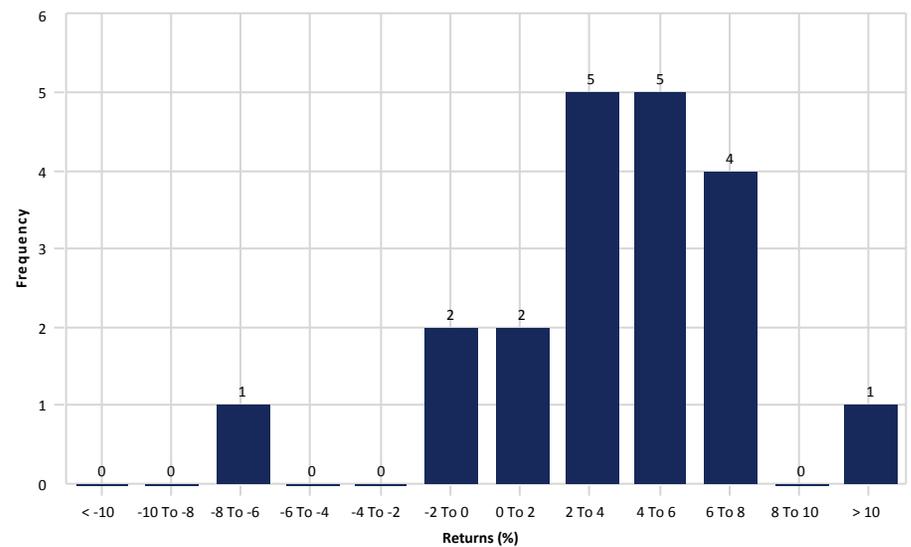
Peer Group Analysis: All Master Trust-US Equity Segment



Inception - Quarterly Distribution of Returns



5 Years - Quarterly Distribution of Returns



International Equity

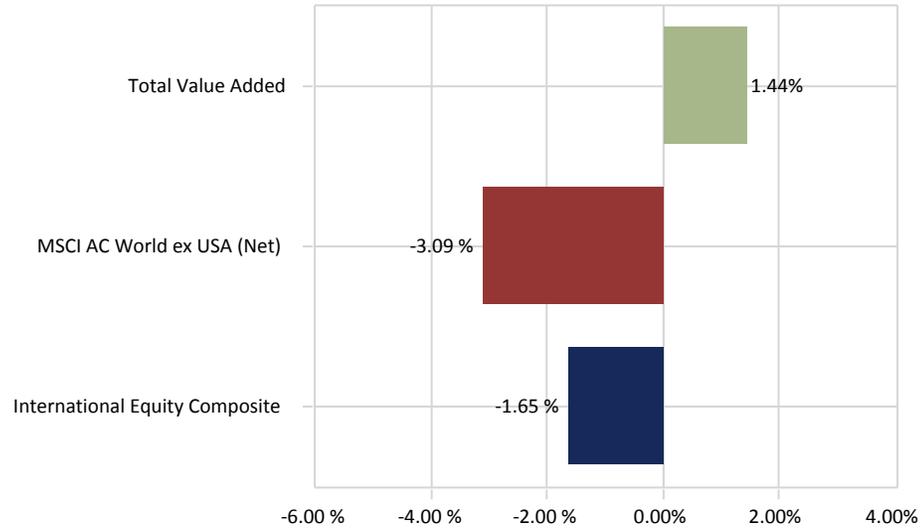


Howard County Retirement Plans

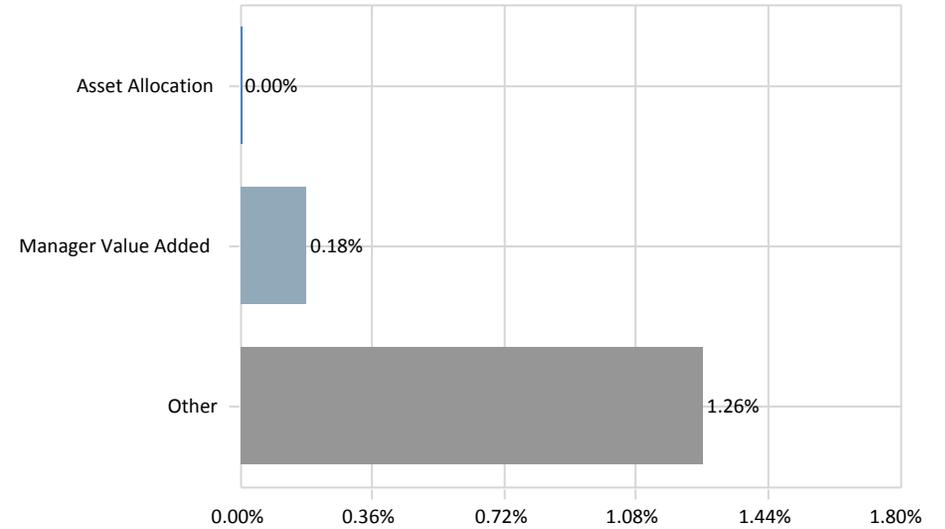
International Equity Composite Attribution

Year To Date Ending September 30, 2018

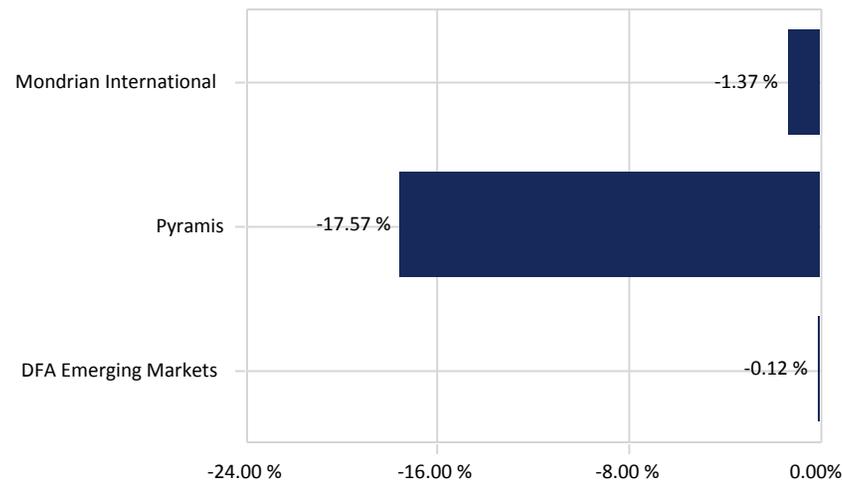
Total Fund Performance



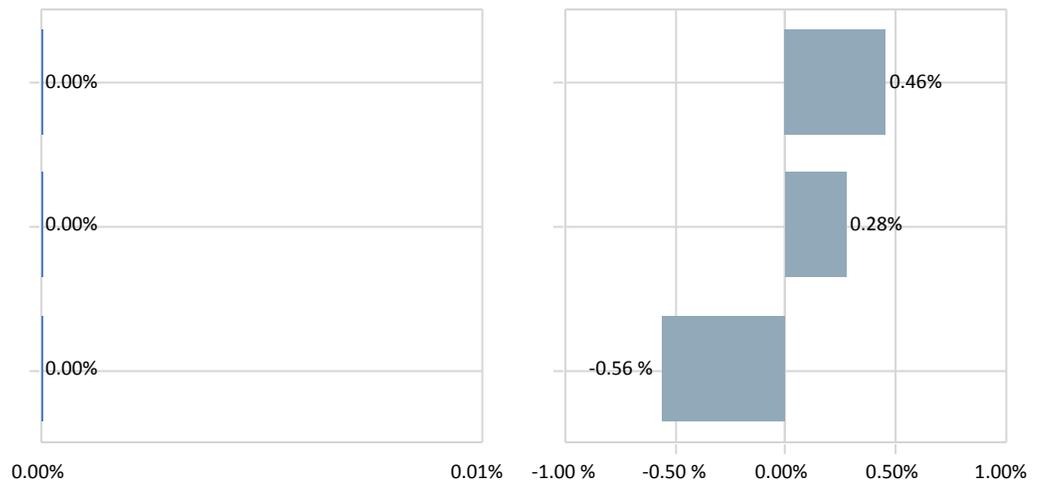
Total Value Added:1.44%



Total Asset Allocation:0.00%



Total Manager Value Added:0.18%



■ Average Active Weight

■ Asset Allocation Value Added

■ Manager Value Added



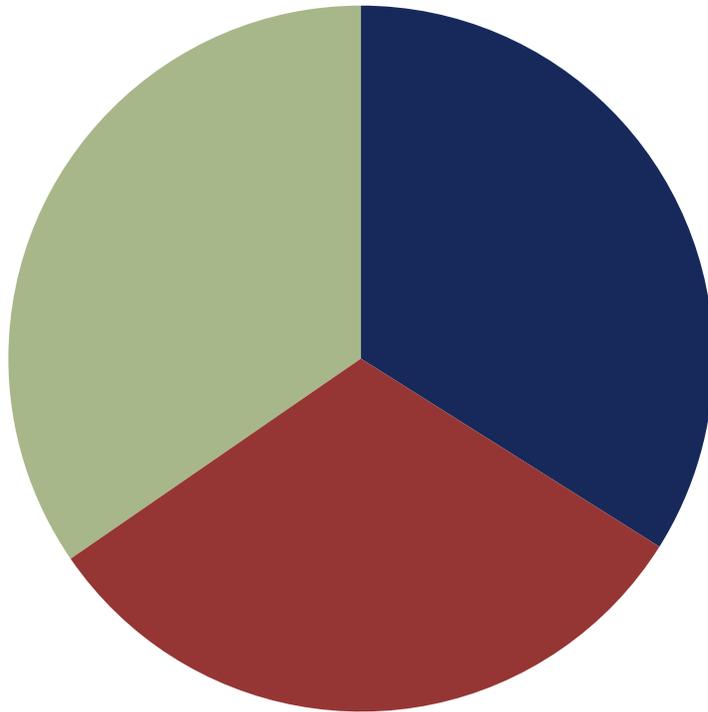
Howard County Retirement Plans

International Equity Composite vs. MSCI AC World ex USA (Net)

September 30, 2018

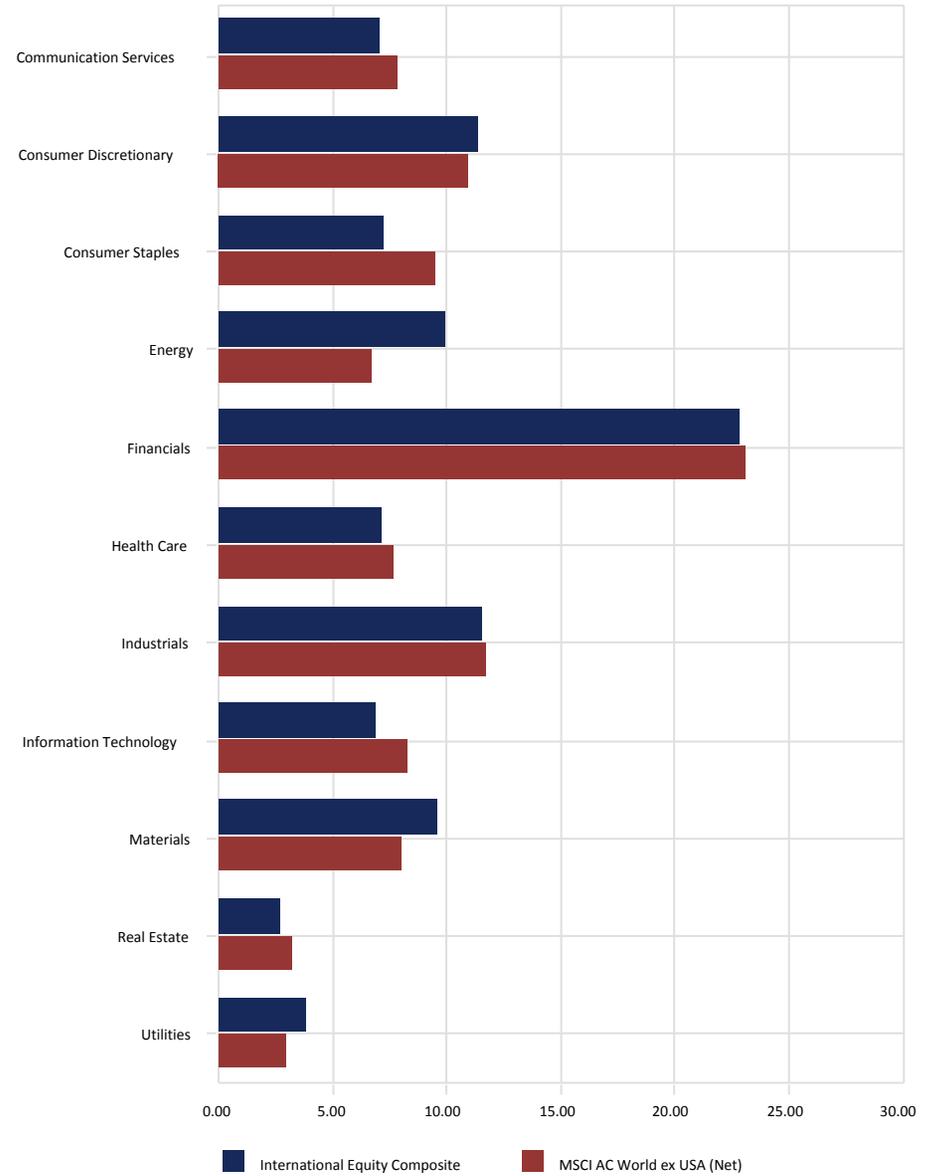
Manager Allocation

September 30, 2018 : \$193,824,452



	Market Value (\$)	Allocation (%)
■ DFA Emerging Markets	65,787,240	33.94
■ Mondrian International	60,981,886	31.46
■ Baillie Gifford	67,055,326	34.60

Sector Allocation - Holdings Based

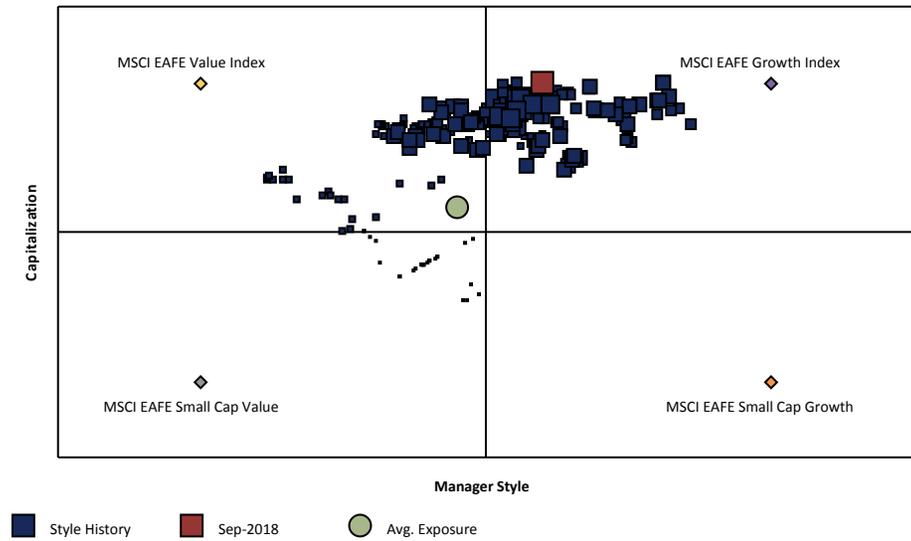


Howard County Retirement Plans

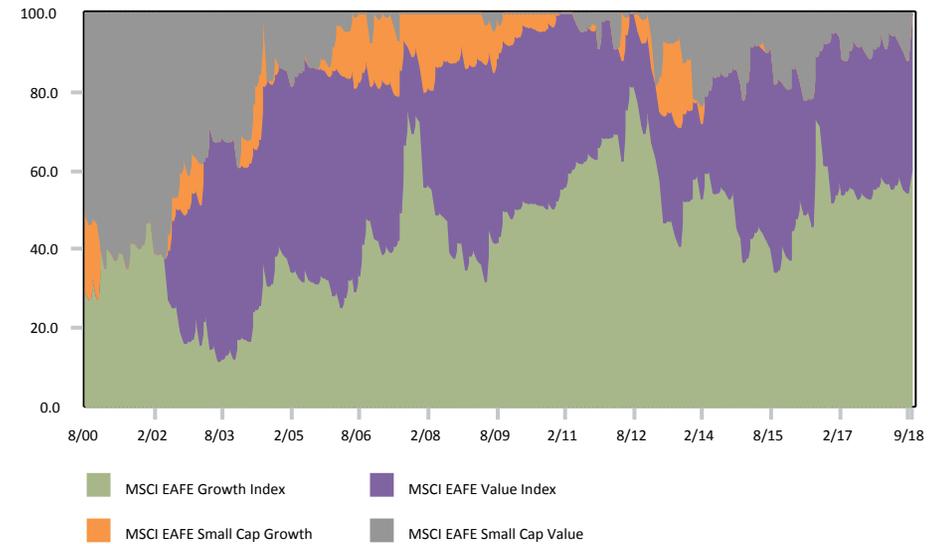
International Equity Composite vs. MSCI AC World ex USA (Net)

September 30, 2018

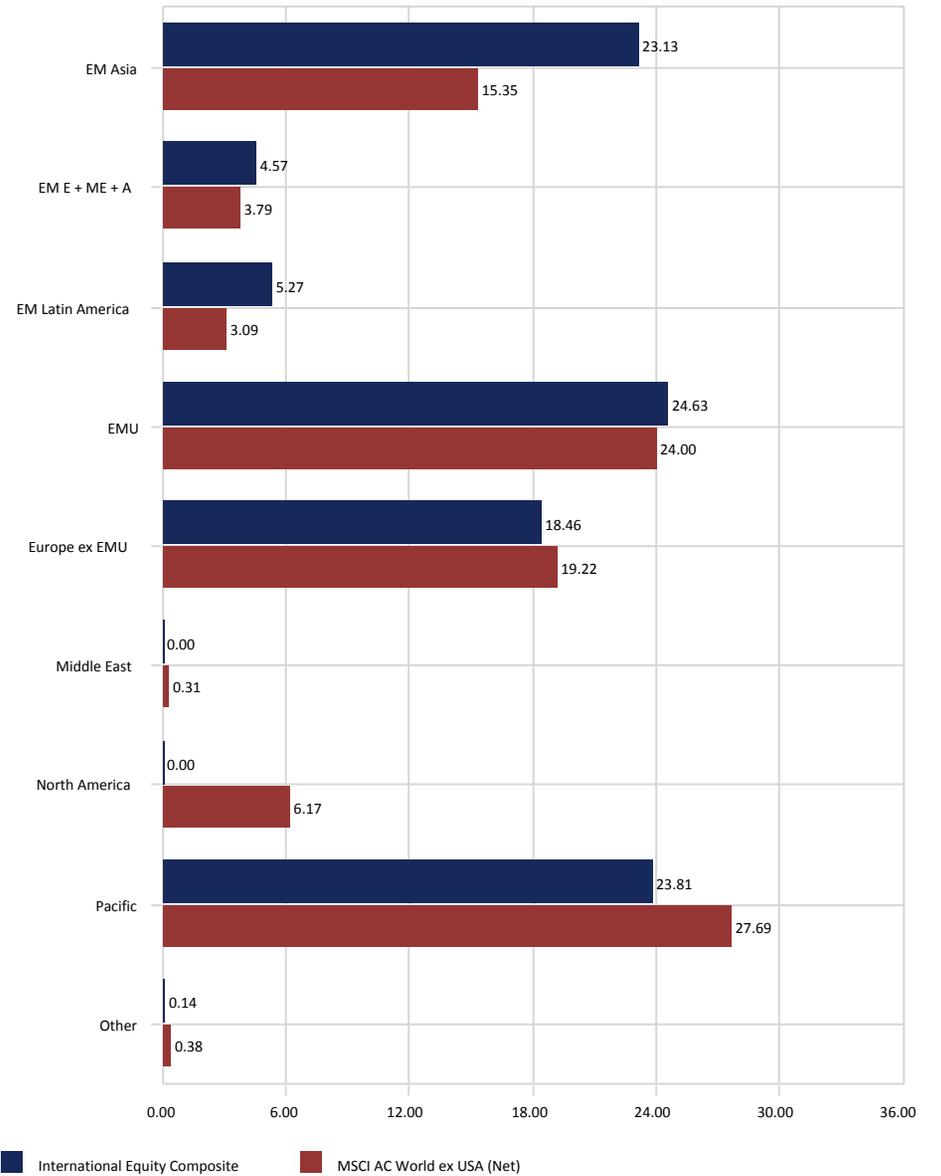
Style Analysis - Returns Based



3 Year Style Analysis



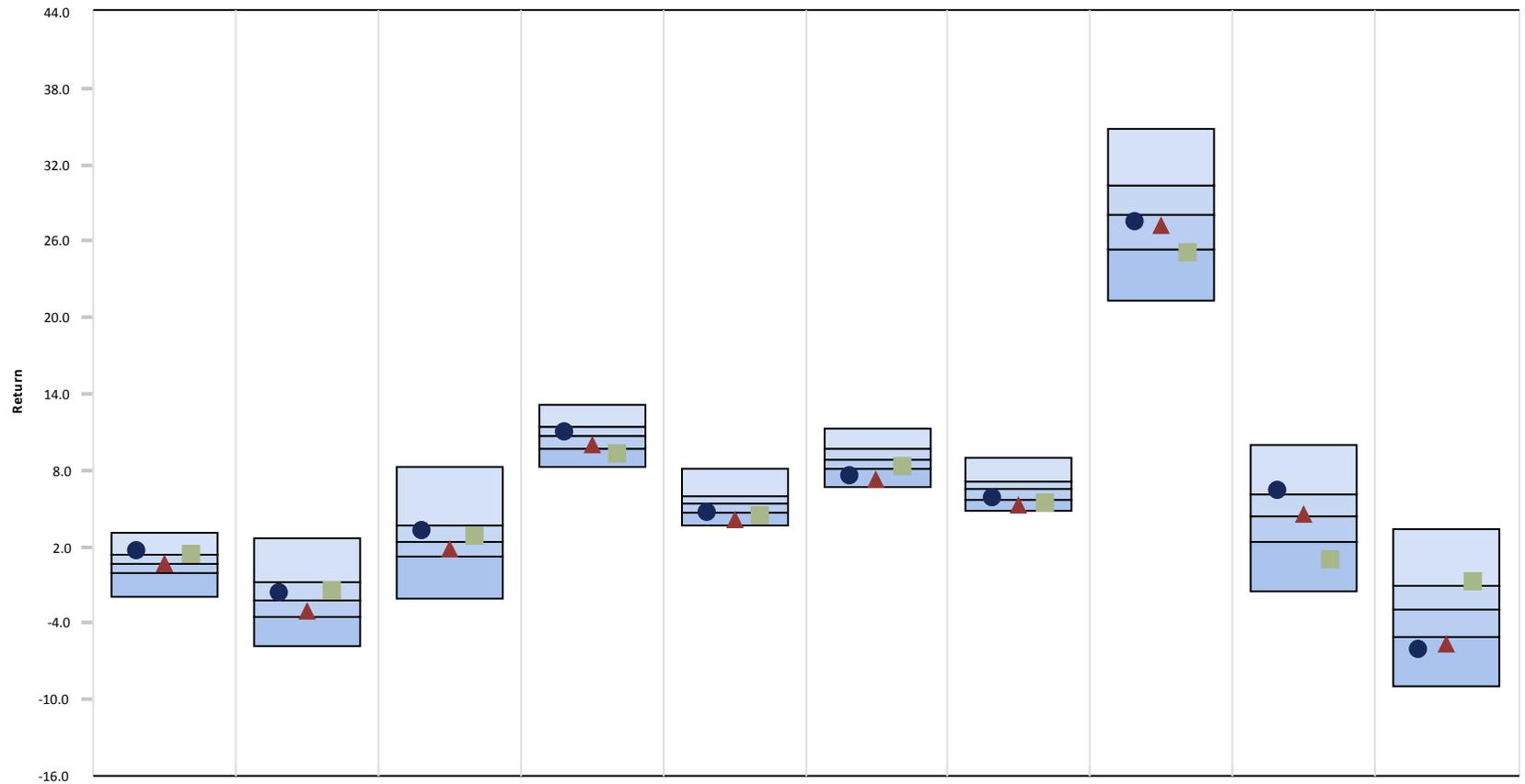
Region Allocation - Holdings Based



Howard County Retirement Plans

All Master Trust - International Equity Peer Group Return

September 30, 2018



	<u>3 Month</u>	<u>CYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>7 Year</u>	<u>10 Year</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>
● International Equity Composite	1.63 (22)	-1.65 (34)	3.17 (32)	10.96 (41)	4.67 (77)	7.61 (83)	5.75 (74)	27.55 (57)	6.45 (23)	-6.13 (88)
▲ MSCI AC World ex USA (Net)	0.71 (51)	-3.09 (71)	1.76 (66)	9.97 (69)	4.12 (91)	7.25 (90)	5.18 (89)	27.19 (62)	4.50 (48)	-5.66 (83)
■ MSCI EAFE Index (Net)	1.35 (25)	-1.43 (32)	2.74 (42)	9.23 (86)	4.42 (86)	8.30 (69)	5.38 (86)	25.03 (80)	1.00 (86)	-0.81 (22)
5th Percentile	3.14	2.68	8.19	13.18	8.13	11.26	8.95	34.76	9.94	3.31
1st Quartile	1.35	-0.78	3.70	11.46	6.01	9.64	7.17	30.40	6.08	-1.03
Median	0.71	-2.24	2.37	10.70	5.42	8.78	6.60	28.11	4.37	-2.94
3rd Quartile	-0.08	-3.48	1.22	9.70	4.71	8.06	5.72	25.39	2.40	-5.02
95th Percentile	-1.96	-5.78	-2.13	8.24	3.71	6.64	4.85	21.38	-1.47	-8.94
Population	275	270	268	243	211	175	108	321	342	290

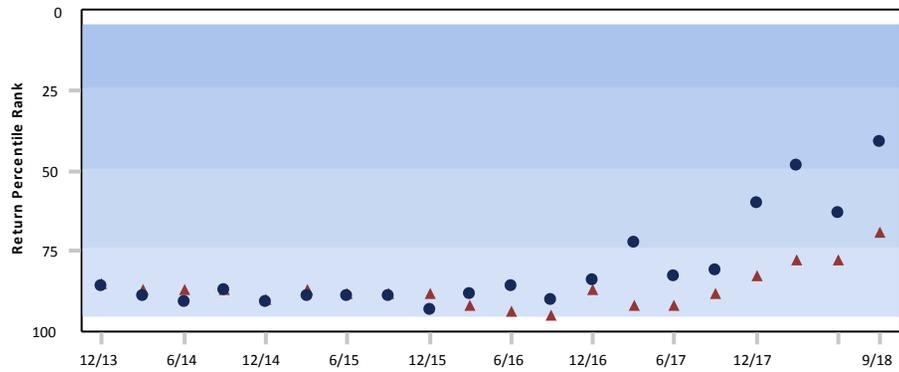


Howard County Retirement Plans

International Equity Composite

September 30, 2018

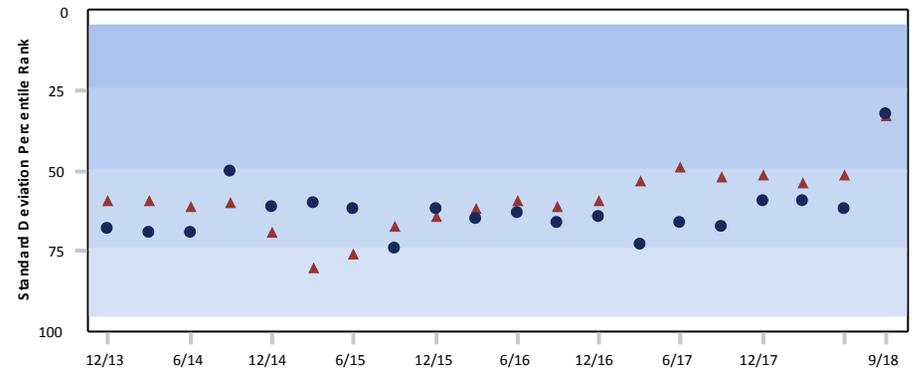
3 Year Rolling Return Rank



● International Equity Composite ▲ MSCI AC World ex USA (Net)

	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
● International Equity Composite	20	0 (0%)	2 (10%)	3 (15%)	15 (75%)
▲ MSCI AC World ex USA (Net)	20	0 (0%)	0 (0%)	1 (5%)	19 (95%)

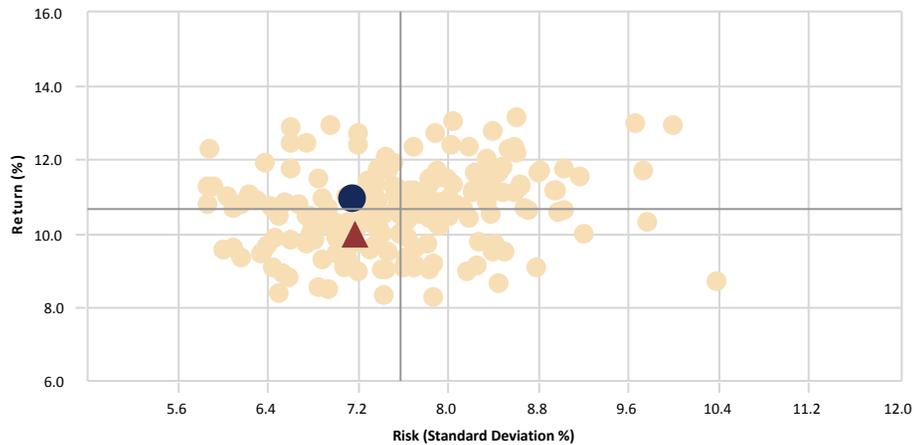
3 Year Rolling Standard Deviation Rank



● International Equity Composite ▲ MSCI AC World ex USA (Net)

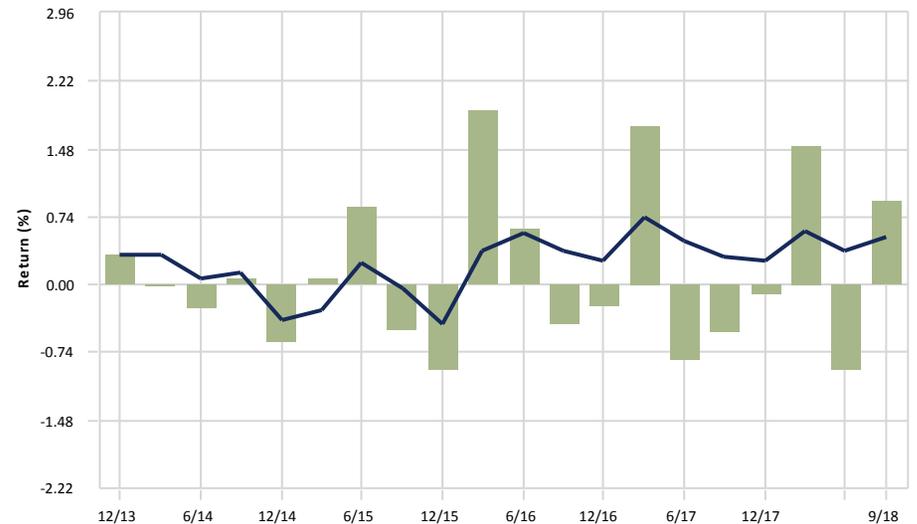
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
● International Equity Composite	20	0 (0%)	2 (10%)	18 (90%)	0 (0%)
▲ MSCI AC World ex USA (Net)	20	0 (0%)	2 (10%)	16 (80%)	2 (10%)

Risk vs. Return (10/01/15 - 09/30/18)



	Return	Standard Deviation
● International Equity Composite	10.96	7.16
▲ MSCI AC World ex USA (Net)	9.97	7.17
— Median	10.70	7.58

Relative Performance vs. MSCI AC World ex USA (Net)



— Cumulative Annualized Relative Performance ■ Over/Under Performance

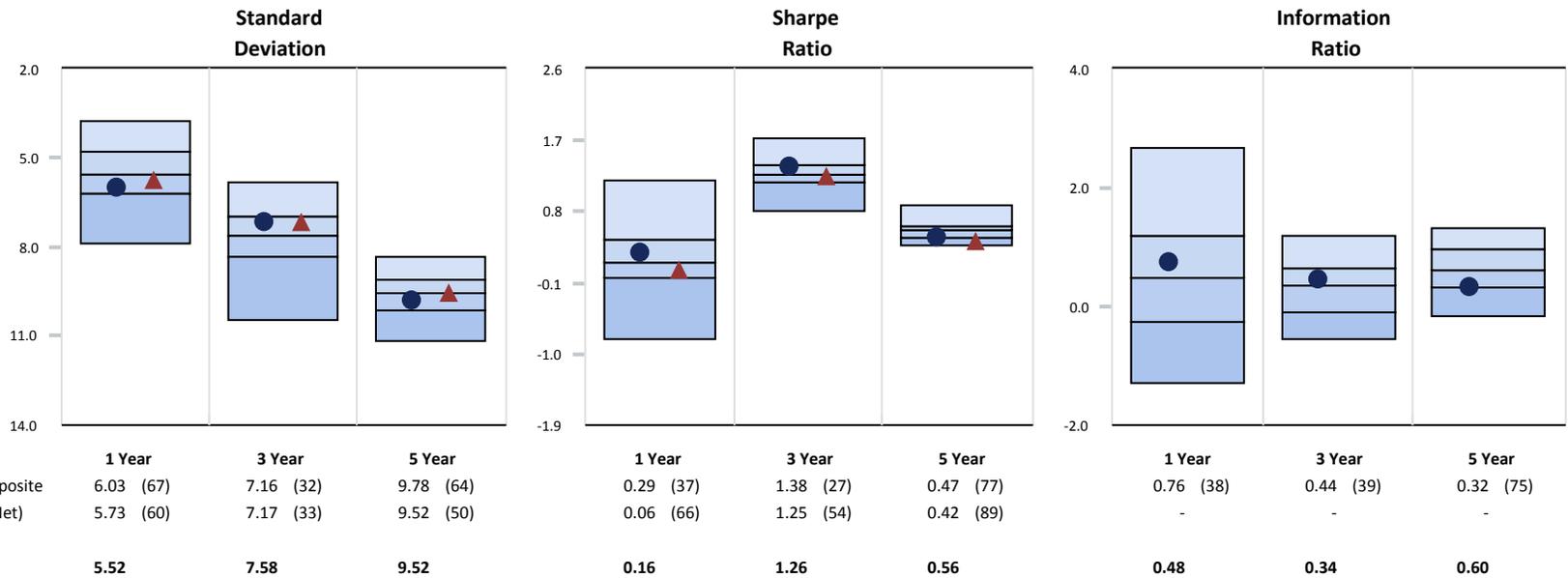


Howard County Retirement Plans

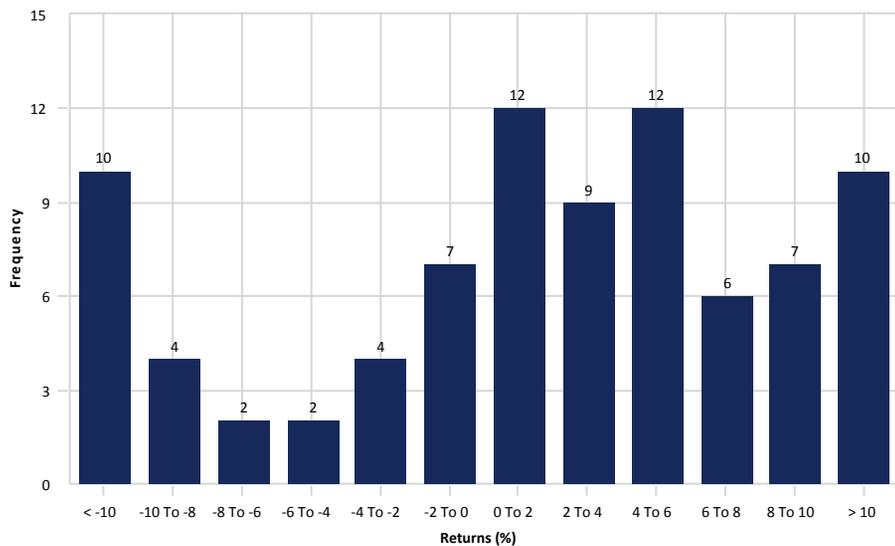
International Equity Composite

September 30, 2018

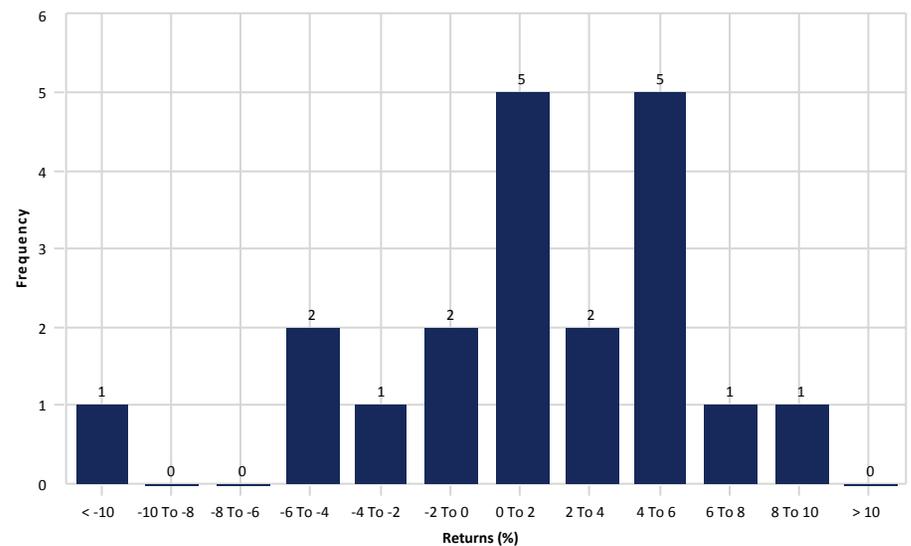
Peer Group Analysis: All Master Trust-Intl. Equity Segment



Inception - Quarterly Distribution of Returns



5 Years - Quarterly Distribution of Returns



Fixed Income

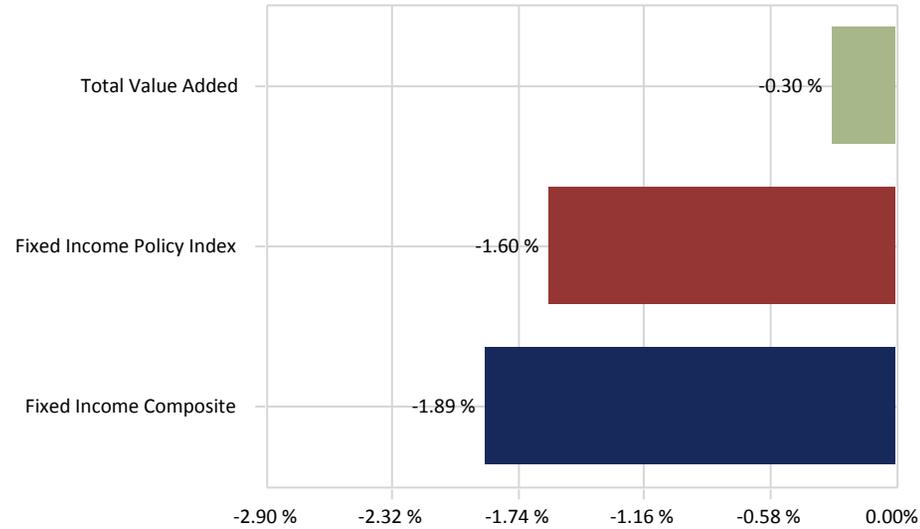


Howard County Retirement Plans

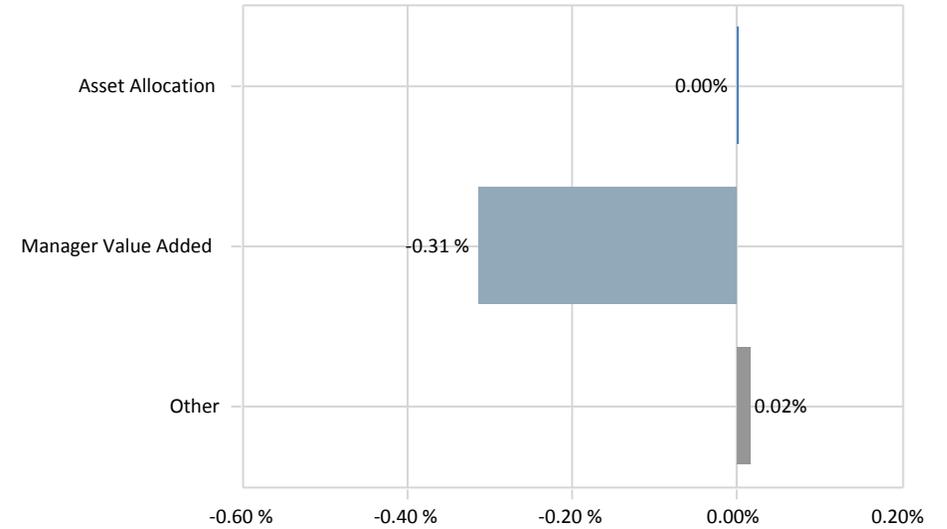
Fixed Income Composite Attribution

Year To Date Ending September 30, 2018

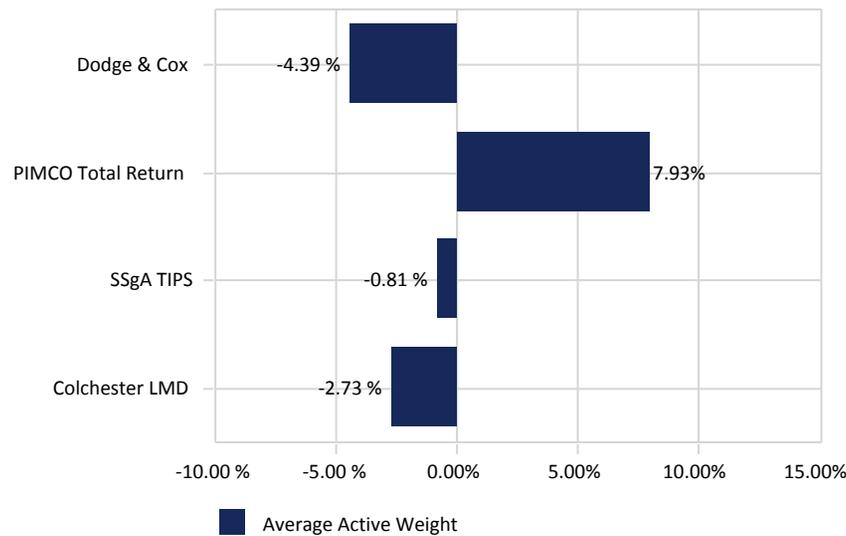
Total Fund Performance



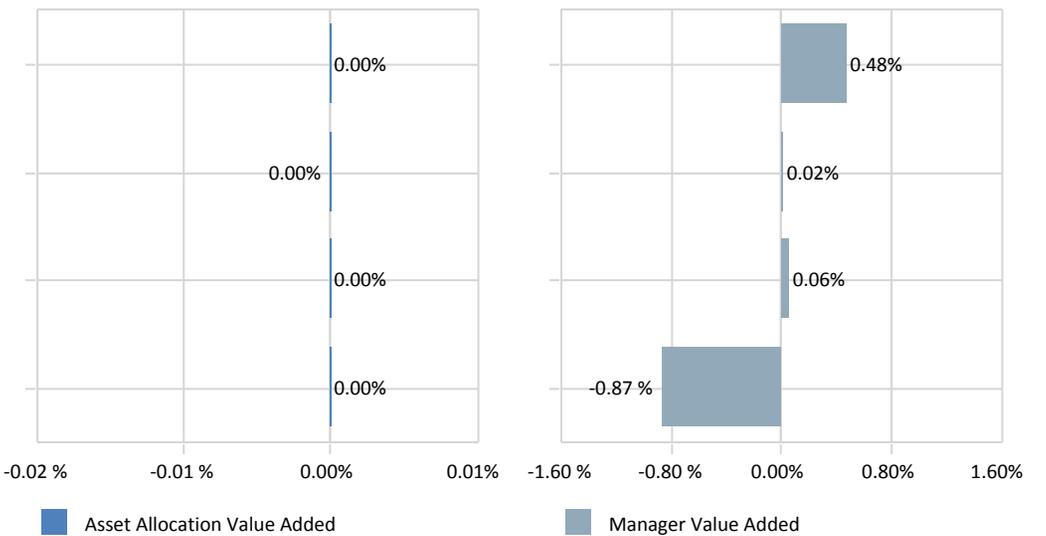
Total Value Added:-0.30 %



Total Asset Allocation:0.00%



Total Manager Value Added:-0.31 %



■ Average Active Weight

■ Asset Allocation Value Added

■ Manager Value Added



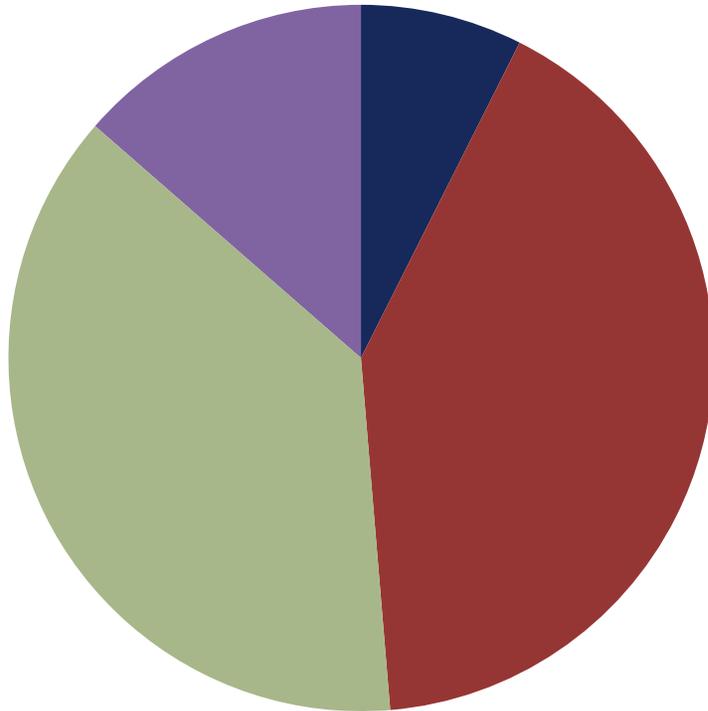
Howard County Retirement Plans

Fixed Income Composite

September 30, 2018

Manager Allocation

September 30, 2018 : \$287,078,618

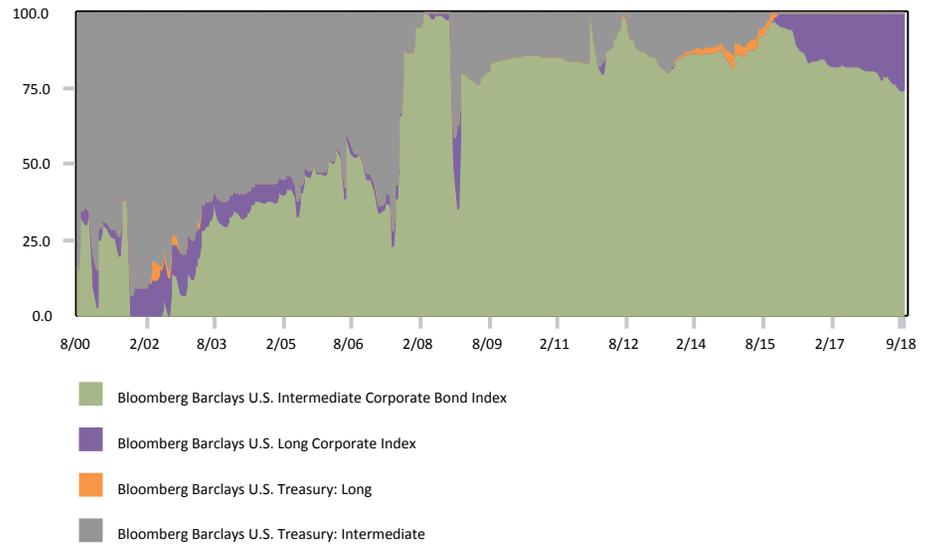


	Market Value (\$)	Allocation (%)
State Street Global Advisors TIPS	21,333,840	7.43
Dodge & Cox	118,404,775	41.24
PIMCO Total Return	108,315,124	37.73
Colchester LMD	39,024,879	13.59

Style Analysis - Returns Based



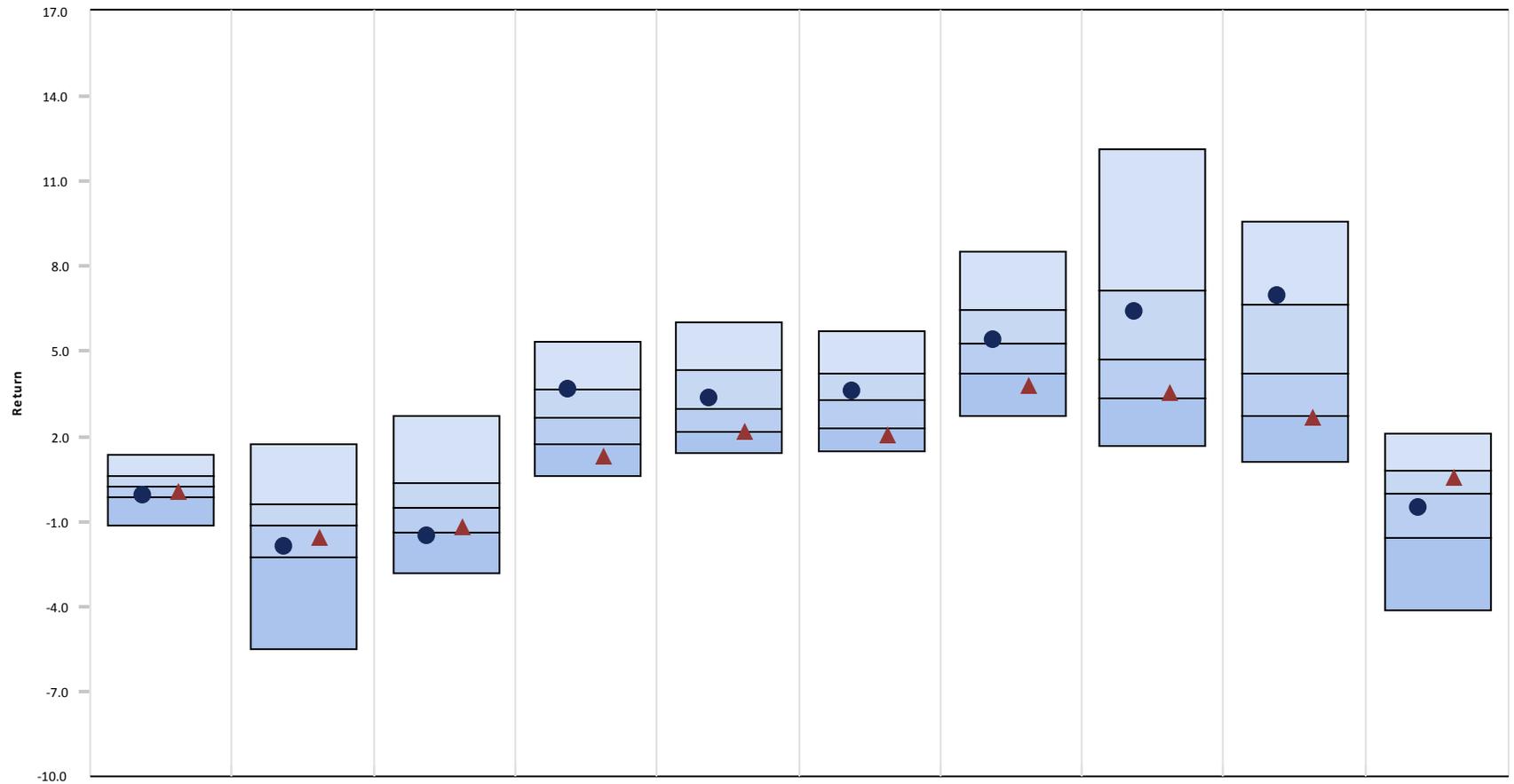
3 Year Style Analysis



Howard County Retirement Plans

All Master Trust - US Fixed Income Peer Group Return

September 30, 2018



	<u>3 Month</u>	<u>CYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>7 Year</u>	<u>10 Year</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>
● Fixed Income Composite	-0.07 (73)	-1.89 (73)	-1.54 (78)	3.67 (25)	3.36 (41)	3.59 (41)	5.39 (47)	6.43 (30)	6.97 (23)	-0.53 (61)
▲ Fixed Income Policy Index	0.02 (68)	-1.60 (67)	-1.22 (71)	1.31 (86)	2.16 (75)	2.02 (82)	3.77 (87)	3.54 (69)	2.65 (77)	0.55 (32)
5th Percentile	1.34	1.73	2.71	5.34	6.04	5.74	8.50	12.14	9.61	2.11
1st Quartile	0.58	-0.37	0.32	3.65	4.37	4.24	6.48	7.17	6.66	0.79
Median	0.26	-1.11	-0.54	2.67	2.96	3.29	5.27	4.70	4.21	0.01
3rd Quartile	-0.12	-2.24	-1.39	1.75	2.15	2.28	4.20	3.32	2.70	-1.59
95th Percentile	-1.17	-5.52	-2.85	0.59	1.42	1.48	2.69	1.63	1.09	-4.15
Population	288	284	282	259	228	199	124	331	360	310

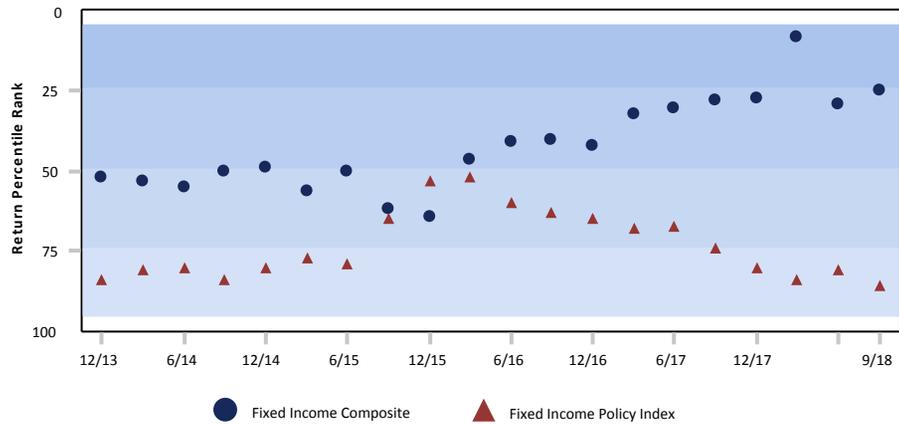


Howard County Retirement Plans

Fixed Income Composite

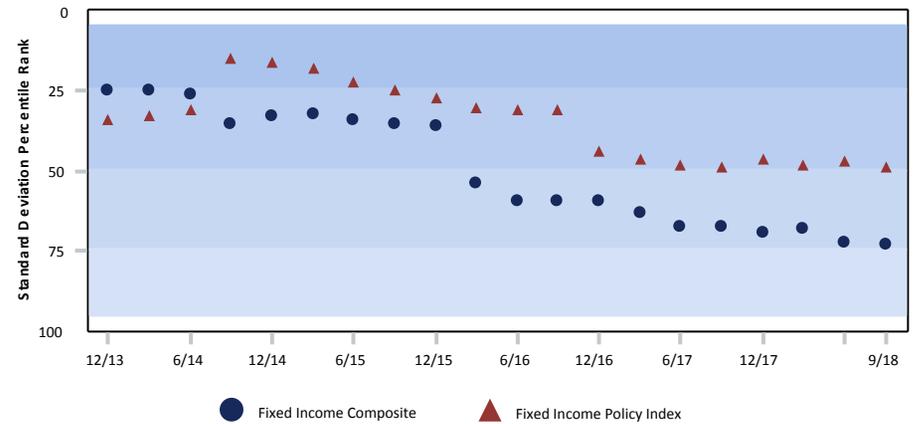
September 30, 2018

3 Year Rolling Return Rank



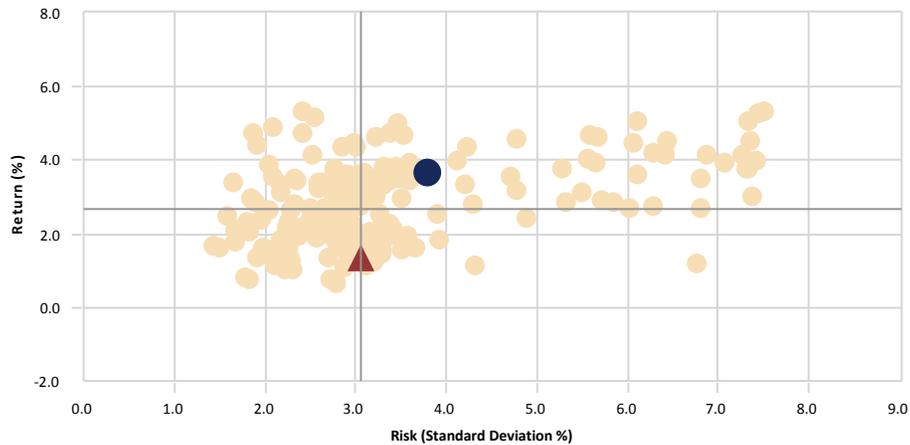
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
● Fixed Income Composite	20	2 (10%)	12 (60%)	6 (30%)	0 (0%)
▲ Fixed Income Policy Index	20	0 (0%)	0 (0%)	9 (45%)	11 (55%)

3 Year Rolling Standard Deviation Rank



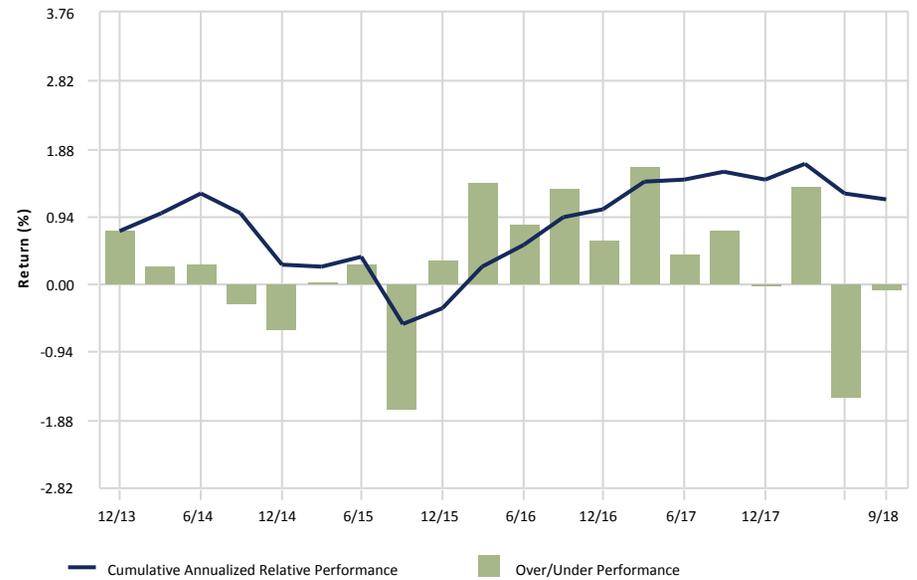
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
● Fixed Income Composite	20	2 (10%)	7 (35%)	11 (55%)	0 (0%)
▲ Fixed Income Policy Index	20	5 (25%)	15 (75%)	0 (0%)	0 (0%)

Risk vs. Return (10/01/15 - 09/30/18)



	Return	Standard Deviation
● Fixed Income Composite	3.67	3.80
▲ Fixed Income Policy Index	1.31	3.05
— Median	2.67	3.07

Relative Performance vs. Fixed Income Policy Index

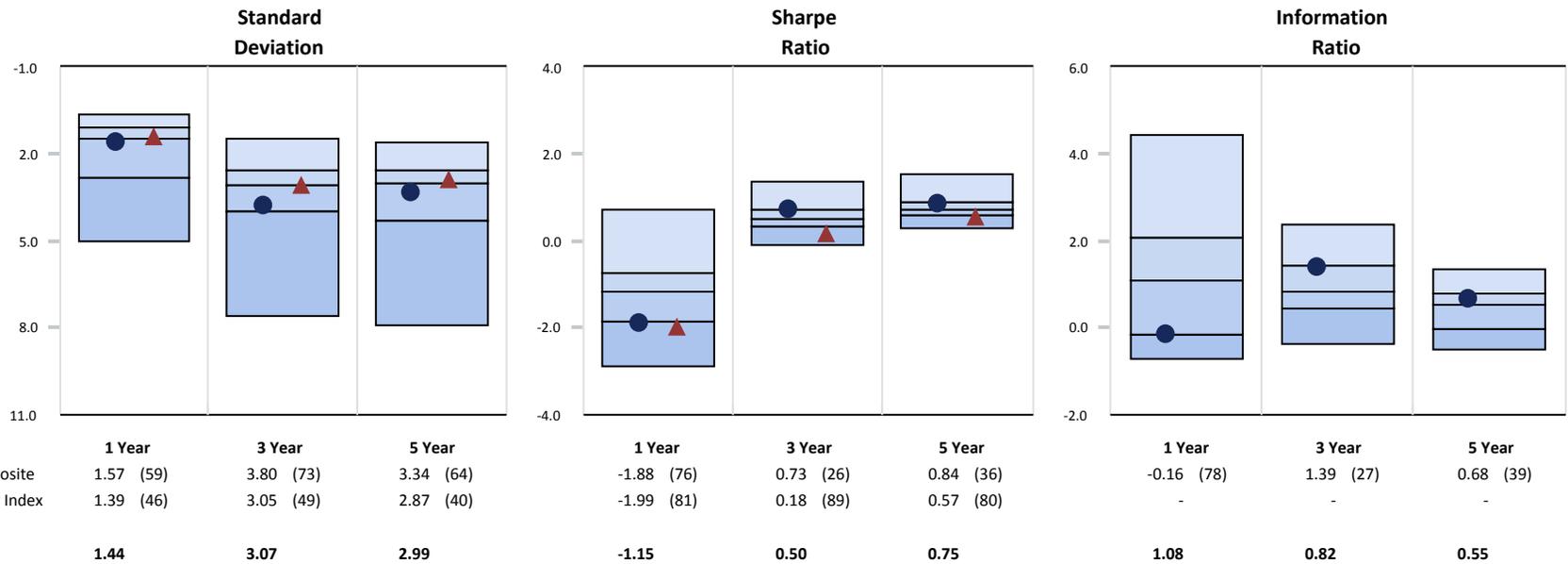


Howard County Retirement Plans

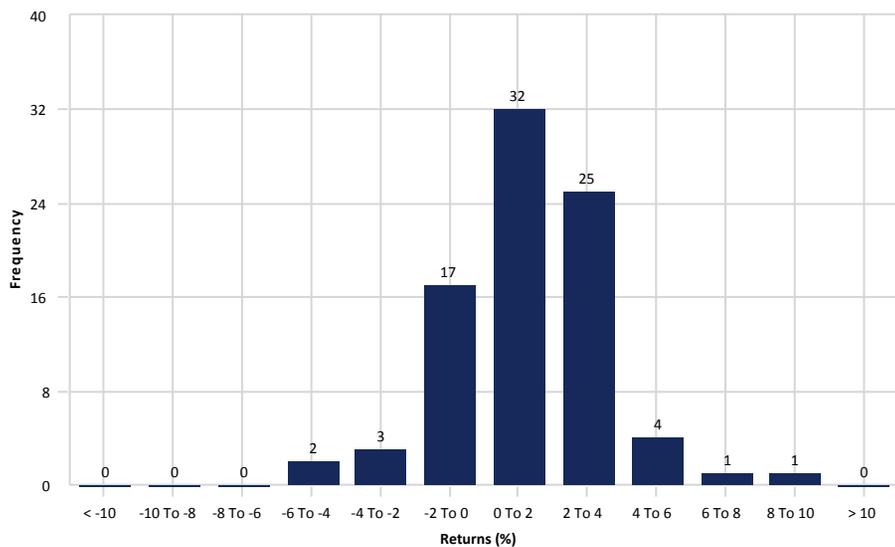
Fixed Income Composite

September 30, 2018

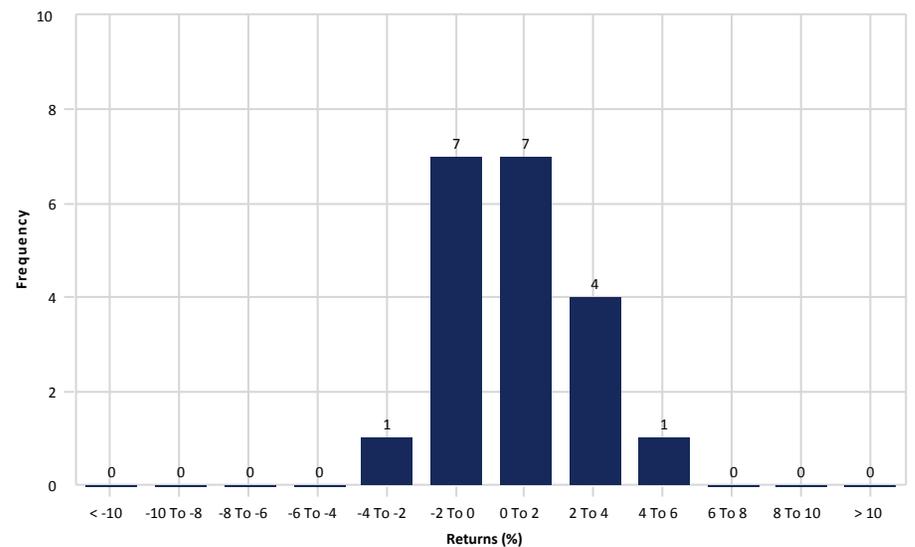
Peer Group Analysis: All Master Trust-US Fixed Income Segment



Inception - Quarterly Distribution of Returns



5 Years - Quarterly Distribution of Returns



Real Assets



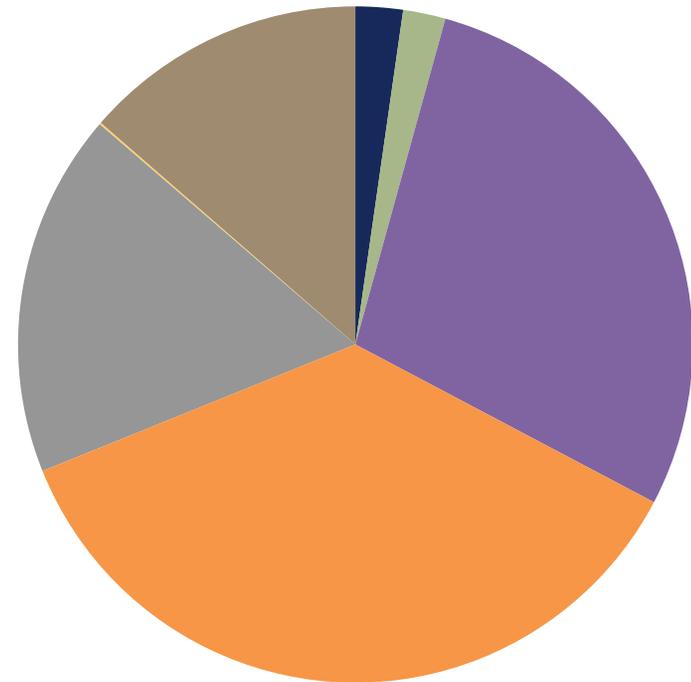
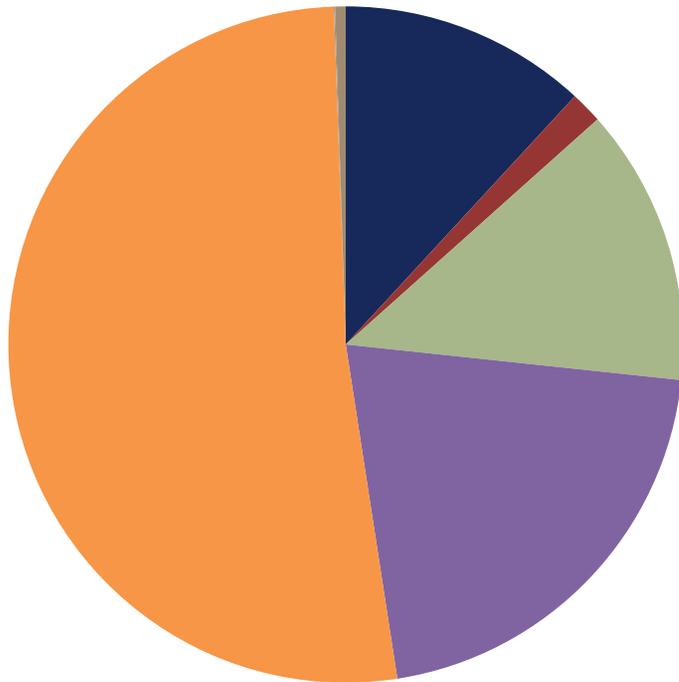
Real Assets Manager Allocation Chart

Asset Allocation By Manager

September 30, 2018

September 30, 2018 : \$33,659,878

December 31, 2016 : \$37,773,341



	Market Value (\$)	Allocation (%)
Aether Real Assets IV	3,997,794	11.88
Aether Real Assets V	513,764	1.53
Commonfund Natural Resources X	4,468,390	13.28
Partners Group Global RE 2011	7,028,684	20.88
Partners Group Global RE 2014	17,460,320	51.87
TA Realty Associates IX	21,475	0.06
TA Realty Associates VII	-	0.00
TA Realty Associates VIII	169,451	0.50

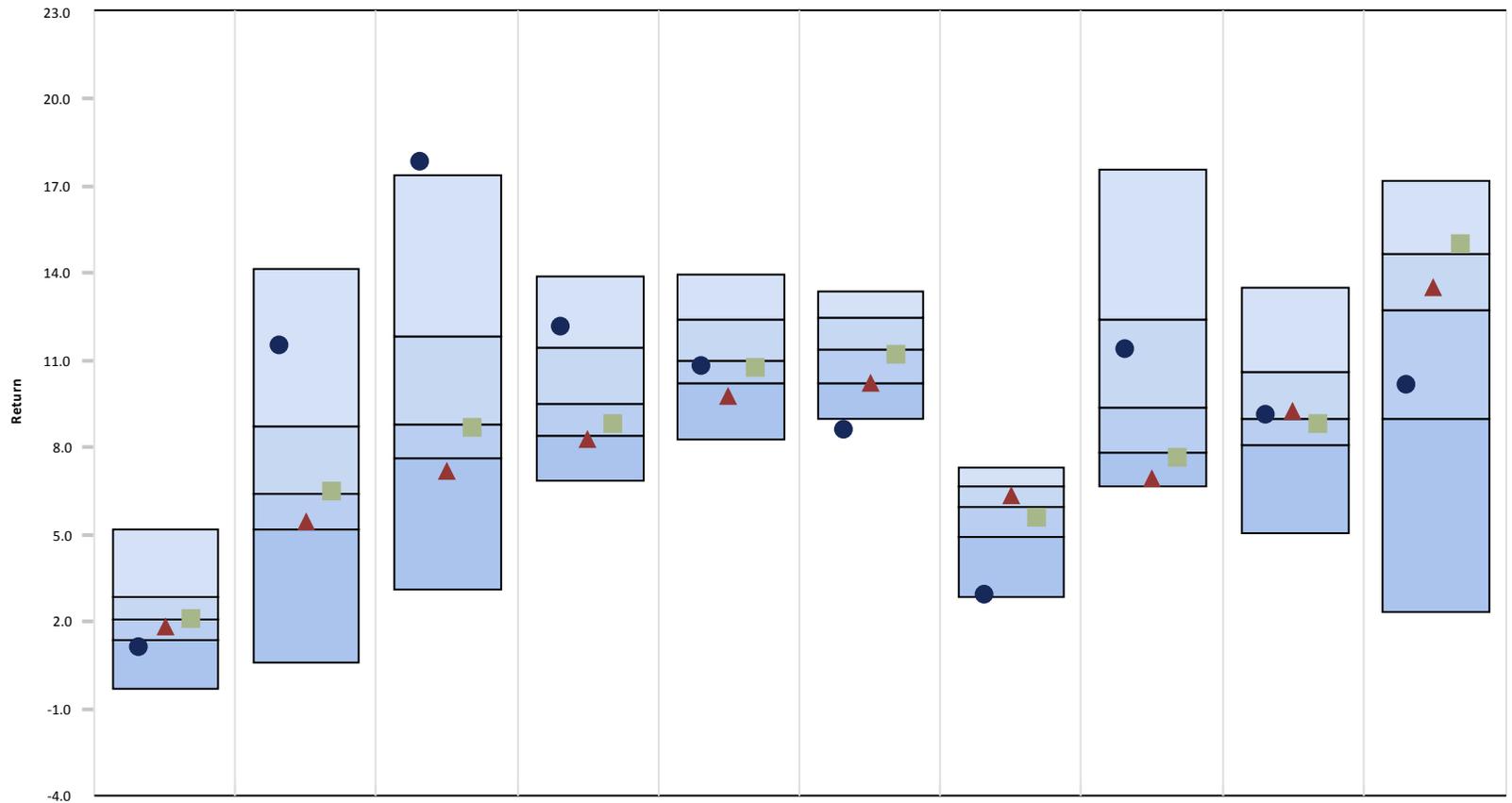
	Market Value (\$)	Allocation (%)
Aether Real Assets IV	856,098	2.27
Aether Real Assets V	-	0.00
Commonfund Natural Resources X	767,376	2.03
Partners Group Global RE 2011	10,736,621	28.42
Partners Group Global RE 2014	13,665,700	36.18
TA Realty Associates IX	6,572,390	17.40
TA Realty Associates VII	31,729	0.08
TA Realty Associates VIII	5,143,428	13.62



Howard County Retirement Plans

All Master Trust - Real Estate Peer Group Return

September 30, 2018



	<u>3 Month</u>	<u>CYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>7 Year</u>	<u>10 Year</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>
● Real Assets Composite	1.11 (80)	11.48 (9)	17.84 (4)	12.14 (15)	10.78 (56)	8.58 (97)	2.90 (95)	11.40 (33)	9.13 (50)	10.12 (70)
▲ NCREIF Property Index [3 Month Lag]	1.81 (62)	5.40 (74)	7.19 (80)	8.25 (81)	9.77 (83)	10.23 (74)	6.34 (40)	6.89 (90)	9.22 (48)	13.48 (36)
■ NCREIF Fund Index-ODCE (VW) [M]	2.09 (48)	6.48 (49)	8.68 (52)	8.80 (65)	10.72 (57)	11.17 (67)	5.58 (53)	7.62 (78)	8.77 (54)	15.02 (25)
5th Percentile	5.18	14.18	17.39	13.90	13.93	13.39	7.30	17.60	13.52	17.21
1st Quartile	2.87	8.73	11.86	11.42	12.41	12.46	6.66	12.41	10.57	14.65
Median	2.07	6.41	8.78	9.53	10.99	11.38	5.93	9.36	9.00	12.74
3rd Quartile	1.38	5.18	7.65	8.38	10.21	10.19	4.93	7.84	8.06	8.99
95th Percentile	-0.31	0.58	3.10	6.88	8.24	9.00	2.86	6.66	5.05	2.35
Population	139	111	104	69	48	33	20	100	90	73



Howard County Retirement Plans

Real Assets Summary of Partnerships*

September 30, 2018

Partnerships	Vintage Year	Investment Strategy	Capital Commitment (\$)	Drawn Down (\$)	Distributed (\$)	Market Value (\$,1)	IRR (% ¹)	TVPI Multiple (1, 2)	Valuation Date (1)
Real Asset Partnerships									
TA Realty Associates VIII	2006	Real Estate - Value Added	10,000,000	10,000,000	9,757,484	169,451	-0.08	0.99	09/30/2018
TA Realty Associates IX	2008	Real Estate - Value Added	10,000,000	10,000,000	16,125,560	21,475	10.72	1.62	09/30/2018
Partners Group Global Real Estate 2011(3)	2011	Real Estate - Opportunistic (FOF)	15,000,000	13,351,599	10,534,051	7,028,684	6.81	1.32	09/30/2018
Partners Group Global Real Estate 2014	2013	Real Estate - Opportunistic (FOF)	25,000,000	13,833,263	1,679,104	17,460,320	12.17	1.38	09/30/2018
Commonfund Natural Resources X	2015	Natural Resources - Diversified (FOF)	7,500,000	3,623,073	480,383	4,468,390	38.71	1.37	09/30/2018
Aether Real Assets IV	2015	Natural Resources - Diversified (FOF)	7,500,000	4,526,262	1,020,338	3,997,794	11.06	1.11	09/30/2018
Total Real Assets (4)			90,000,000	69,796,528	58,651,966	33,659,878	6.61	1.32	09/30/2018

1) Valuations are typically reported on one quarter lag. If the valuation date is earlier than the statement's date, the market value and performance are estimated by rolling forward the latest reported balance to include relevant new cash flows.

2) Total Value to Paid In (TVPI) reflects total realized and unrealized performance.

3) Fund is not USD: Cash flows are in actual USD per the custodian. Market values and remaining commitment are translated using the spot on the valuation date.

4) Total Real Assets include fully realized partnerships.

*Source of performance data is from the Custodial Bank.

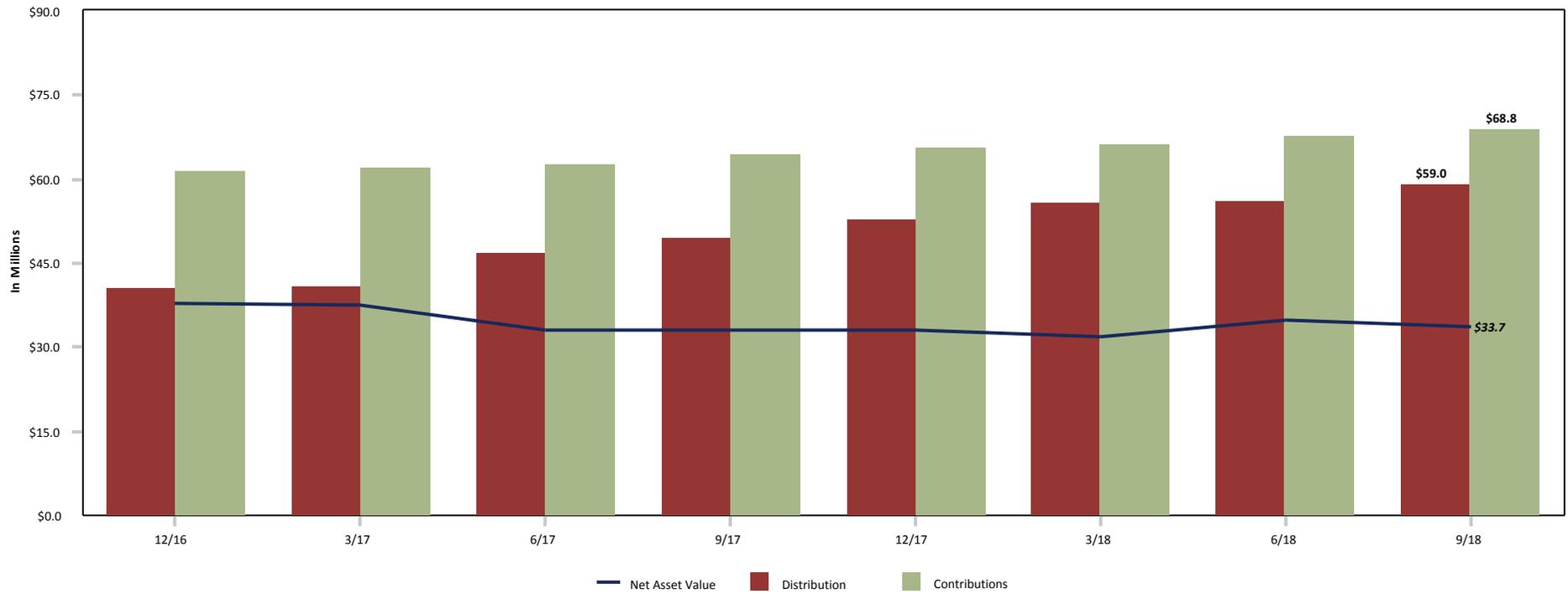


Howard County Retirement Plans

Real Assets Portfolio Summary*

September 30, 2018

Cumulative Cash Flow Analysis



*The Custodial Bank is the source of performance data for liquid real assets.



Alternatives



Howard County Retirement Plans

Private Equity Summary of Partnerships

September 30, 2018

Partnerships	Vintage Year	Investment Strategy	Capital Commitment (\$)	Drawn Down (\$,1)	Distributed (\$,1)	Market Value (\$,1,2)	IRR (%) (3)	TVPI Multiple (3)	Valuation Date
Private Equity									
Siguler Guff Distressed Opps III	2007	Distressed Debt (FOF)	10,000,000	10,220,383	14,259,130	1,766,132	10.55	1.57	09/30/2018
Greenspring IV	2008	Venture Capital (FOF)	4,000,000	4,092,217	4,400,032	5,122,095	18.57	2.33	09/30/2018
Pantheon Global Secondaries IV	2010	Secondaries (FOF)	3,000,000	2,186,420	2,684,421	670,868	14.24	1.54	09/30/2018
LGT Crown Asia-Pacific II	2011	International Private Equity (FOF)	14,000,000	12,055,006	4,858,000	14,439,805	12.77	1.60	09/30/2018
Greenspring V	2011	Venture Capital (FOF)	7,000,000	6,353,846	5,782,000	7,687,284	20.33	2.12	09/30/2018
Adveq Europe V	2012	Buyout - Small (FOF)	10,000,000	8,019,488	3,253,457	7,338,787	10.22	1.32	09/30/2018
LGT Crown Global Secondaries III	2012	Secondaries (FOF)	10,000,000	6,564,447	4,210,000	5,359,774	14.91	1.46	09/30/2018
Flag Private Equity V	2013	Diversified (FOF)	15,000,000	14,114,188	6,857,052	14,296,084	18.12	1.50	09/30/2018
HarbourVest Partners 2013 Direct	2013	Diversified (COI)	15,000,000	15,748,646	8,374,344	16,373,015	18.20	1.57	09/30/2018
Greenspring VI	2014	Venture Capital (FOF)	7,500,000	6,226,152	1,473,750	8,799,033	19.23	1.65	09/30/2018
Greenspring Secondaries Fund I	2014	Secondaries	2,500,000	2,399,097	661,665	3,972,255	25.99	1.93	09/30/2018
Adveq Europe VI	2015	Buyout - Small (FOF)	7,500,000	3,347,314	672,047	3,340,424	13.27	1.20	09/30/2018
Flag Private Equity VI	2014	Buyout - Small (FOF)	15,000,000	10,575,000	2,138,163	12,072,678	21.92	1.34	09/30/2018
57 Stars	2015	Diversified (FOF)	7,000,000	4,706,884	525,481	4,558,988	5.87	1.08	09/30/2018
NB Crossroads XXI	2015	Diversified (FOF)	15,000,000	8,250,000	750,000	8,464,688	8.40	1.12	09/30/2018
LGT Crown Asia-Pacific III	2014	International Private Equity (FOF)	5,000,000	3,268,161	235,000	4,312,480	21.61	1.39	09/30/2018
HarbourVest IV	2016	Buyout - Mid (COI)	10,000,000	7,867,200	875,000	7,873,961	10.88	1.11	09/30/2018
Aberdeen US Private Equity VII	2017	Buyout - Small (FOF)	5,000,000	1,100,223	-	1,257,772	21.17	1.14	09/30/2018
Greenspring VIII B	2017	Venture Capital (FOF)	5,000,000	1,500,000	-	1,608,800	18.07	1.07	09/30/2018
Total Private Equity			167,500,000	128,594,671	62,009,542	129,314,921	15.15	1.49	09/30/2018

1. Information contained in this report is being derived from custodial data. 2. Custodial valuations may be lagged in comparison to actual fund valuations. 3. In the beginning life of a fund, fees and expenses disproportionately large compared to investments (aka "J-Curve"); therefore performance is considered not meaningful until a fund is about 50% drawn.



Manager Detail

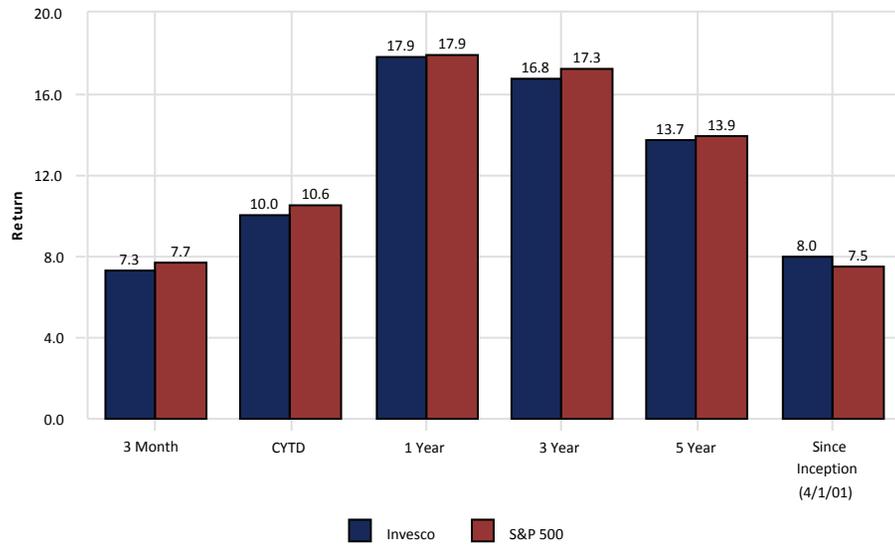


Howard County Retirement Plans

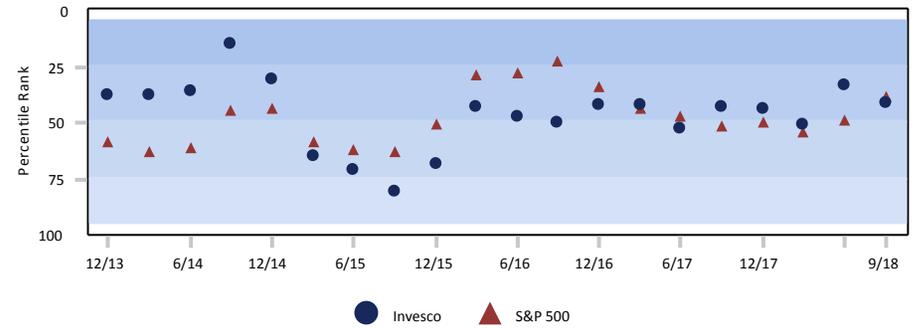
Invesco vs. IM U.S. Large Cap Core Equity (SA+CF)

September 30, 2018

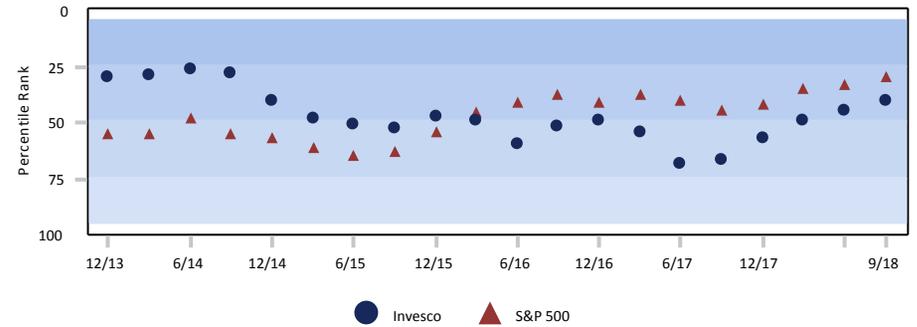
Comparative Performance



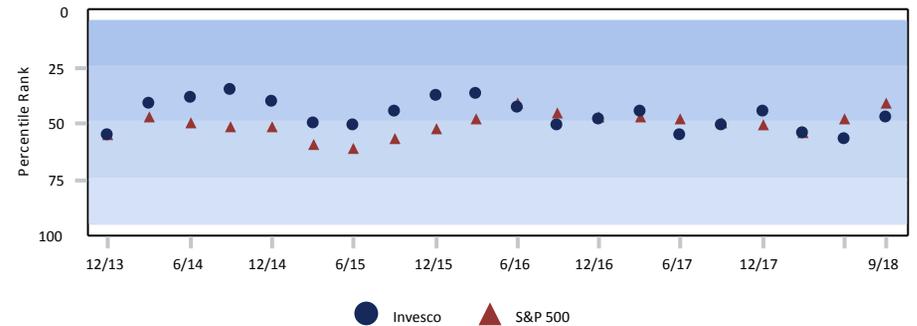
1 Year Rolling Percentile Ranking



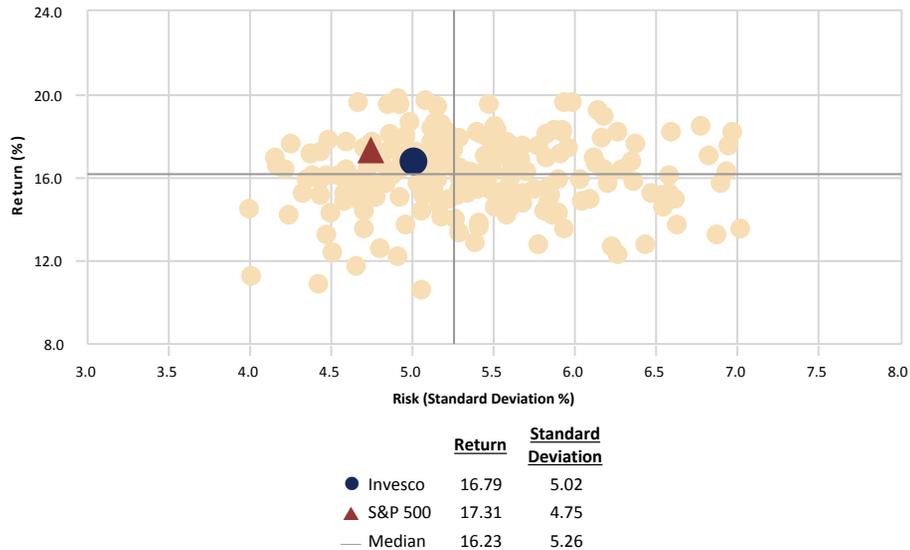
3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Risk/Return (10/01/15 - 09/30/18)



gross of fees



Howard County Retirement Plans

Invesco

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
Invesco	7.28	10.02	17.88	16.79	13.72
S&P 500	7.71	10.56	17.91	17.31	13.95
IM U.S. Large Cap Core Equity (SA+CF) Median	7.13	9.83	17.25	16.23	13.55
Invesco Rank	46	48	41	40	47

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Apple Inc	4.23	4.21	0.02	22.38
Microsoft Corp	3.77	3.57	0.20	16.43
Amazon.com Inc	3.36	3.34	0.02	17.84
Alphabet Inc Class A	1.71	1.47	0.24	6.90
Berkshire Hathaway Inc	1.67	1.70	-0.03	14.71
JPMorgan Chase & Co	1.59	1.54	0.05	8.88
Boeing Co	1.37	0.81	0.56	11.40
Facebook Inc	1.34	1.61	-0.27	-15.37
Pfizer Inc	1.33	1.05	0.28	22.51
Mastercard Inc	1.33	0.83	0.50	13.42

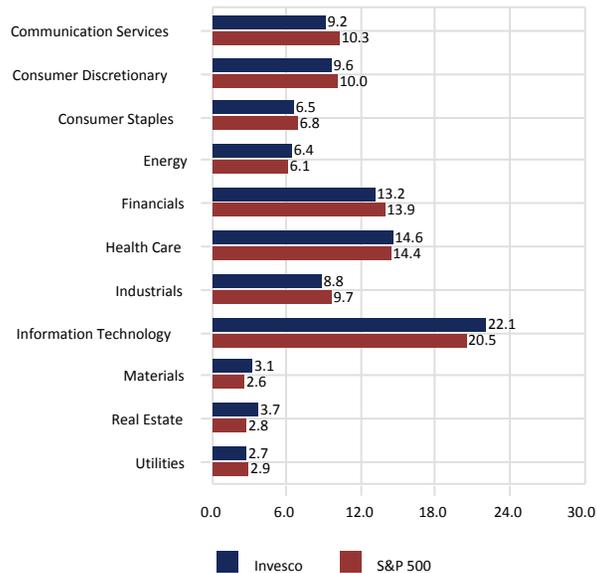
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
Invesco	-0.88	1.03	9.38	0.98	-0.35	99.17	105.00
S&P 500	0.00	1.00	9.05	1.00	-	100.00	100.00

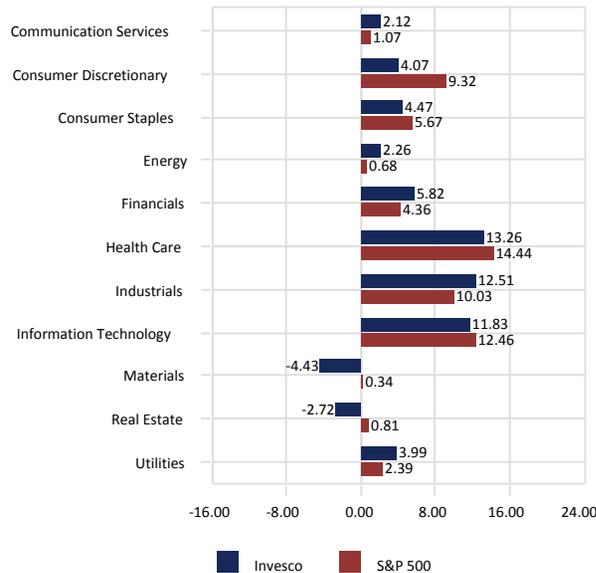
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	236,707,405	244,411,521
Median Mkt. Cap (\$000)	39,979,672	21,788,923
Price/Earnings ratio	18.70	21.51
Price/Book ratio	3.46	3.55
5 Yr. EPS Growth Rate (%)	9.97	11.20
Current Yield (%)	1.94	1.89
Beta (5 Years, Monthly)	1.00	1.00
Number of Stocks	225	505

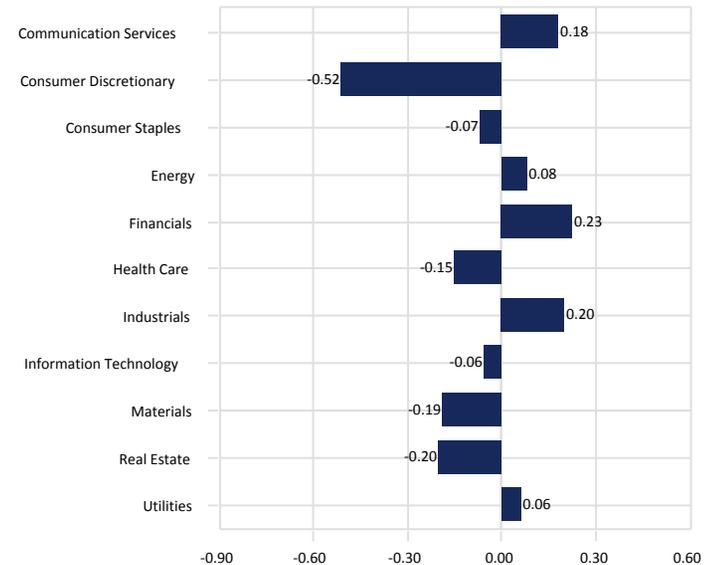
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

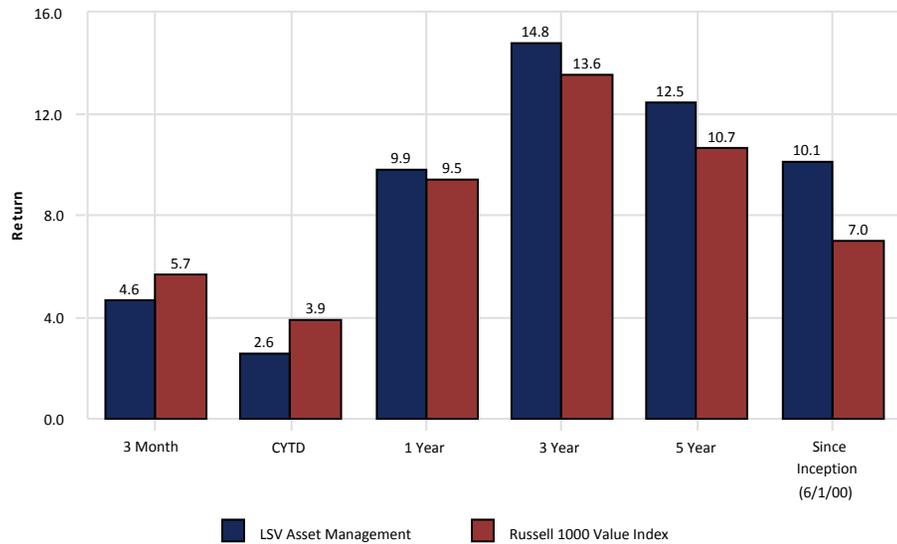


Howard County Retirement Plans

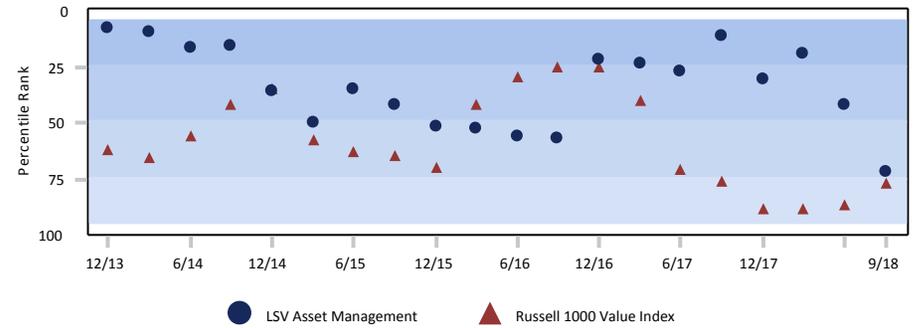
LSV Asset Management vs. IM U.S. Large Cap Value Equity (SA+CF)

September 30, 2018

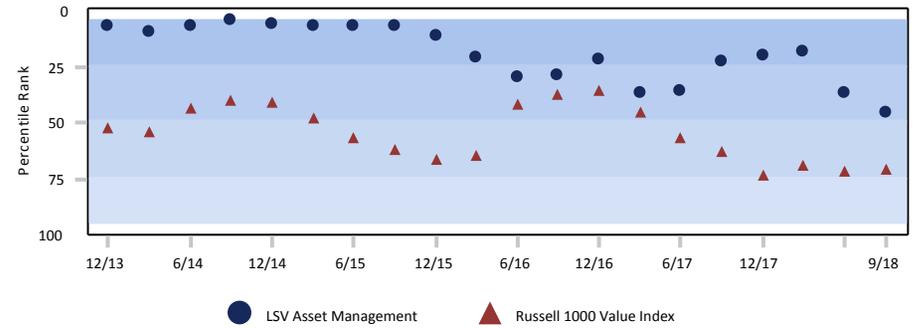
Comparative Performance



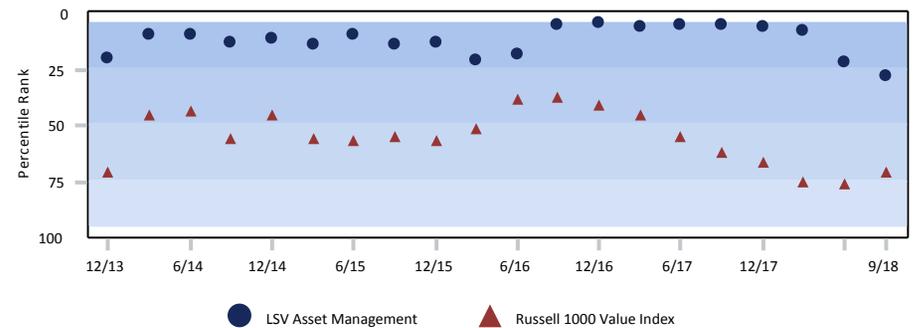
1 Year Rolling Percentile Ranking



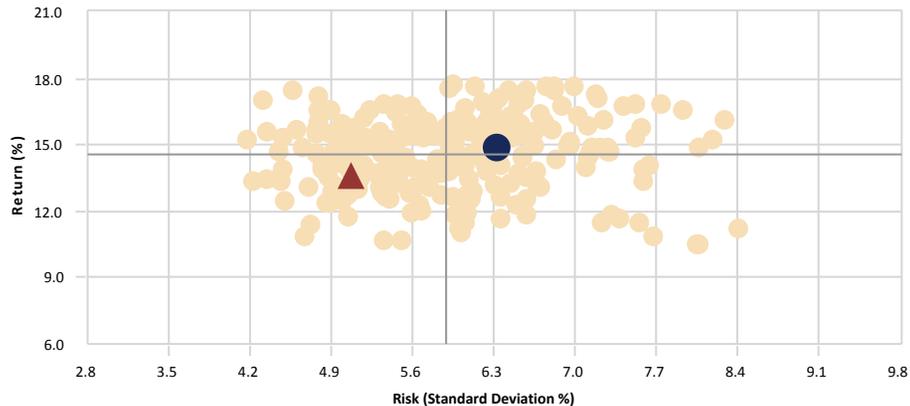
3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Risk/Return (10/01/15 - 09/30/18)



	<u>Return</u>	<u>Standard Deviation</u>
● LSV Asset Management	14.84	6.33
▲ Russell 1000 Value Index	13.55	5.07
— Median	14.61	5.90

gross of fees



Howard County Retirement Plans

LSV Asset Management

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
LSV Asset Management	4.65	2.56	9.87	14.84	12.45
<i>Russell 1000 Value Index</i>	5.70	3.92	9.45	13.55	10.72
<i>IM U.S. Large Cap Value Equity (SA+CF) Median</i>	5.65	5.14	11.82	14.61	11.55
LSV Asset Management Rank	73	86	72	46	28

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
JPMorgan Chase & Co	3.43	2.77	0.66	8.88
Cisco Systems Inc	3.00	1.68	1.32	13.94
Pfizer Inc	2.69	1.88	0.81	22.51
Johnson & Johnson	2.42	2.23	0.19	14.63
Bank of America Corp	2.31	2.01	0.30	5.01
Intel Corp	2.09	1.60	0.49	-4.29
Citigroup Inc	2.08	1.33	0.75	7.87
Exxon Mobil Corp	2.00	2.64	-0.64	3.83
Walgreens Boots Alliance Inc	1.76	0.45	1.31	22.23
Verizon Communications Inc	1.66	1.62	0.04	7.36

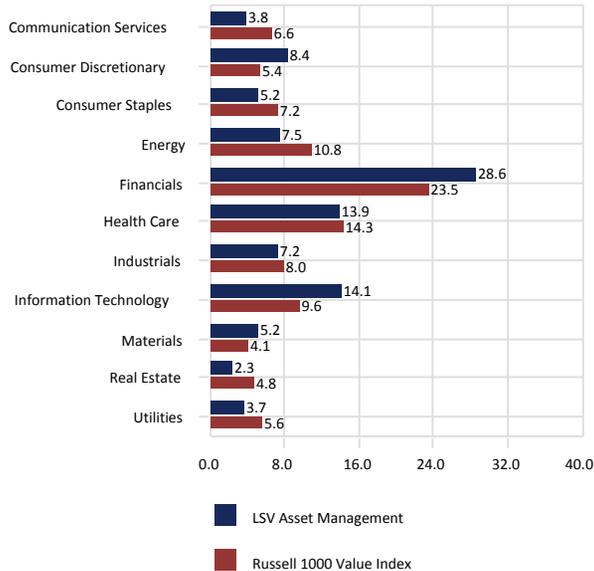
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
LSV Asset Management	0.15	1.08	10.37	0.93	0.44	107.72	103.80
<i>Russell 1000 Value Index</i>	0.00	1.00	9.22	1.00	-	100.00	100.00

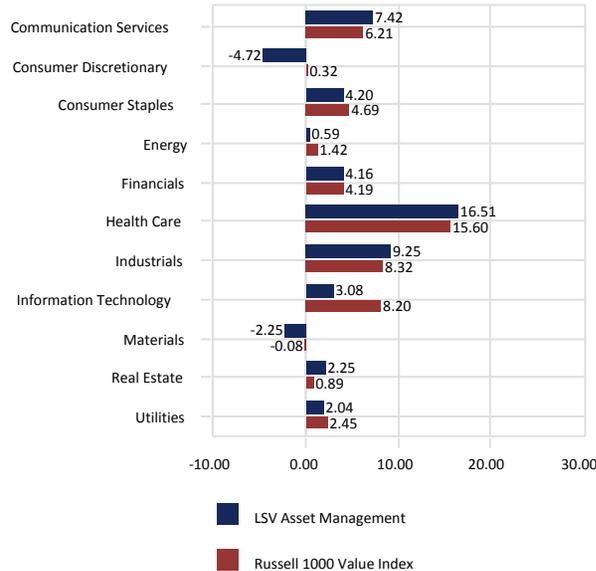
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	98,243,960	126,935,327
Median Mkt. Cap (\$000)	15,097,431	9,935,306
Price/Earnings ratio	13.22	16.45
Price/Book ratio	2.16	2.24
5 Yr. EPS Growth Rate (%)	9.85	7.25
Current Yield (%)	2.80	2.51
Beta (5 Years, Monthly)	1.08	1.00
Number of Stocks	152	727

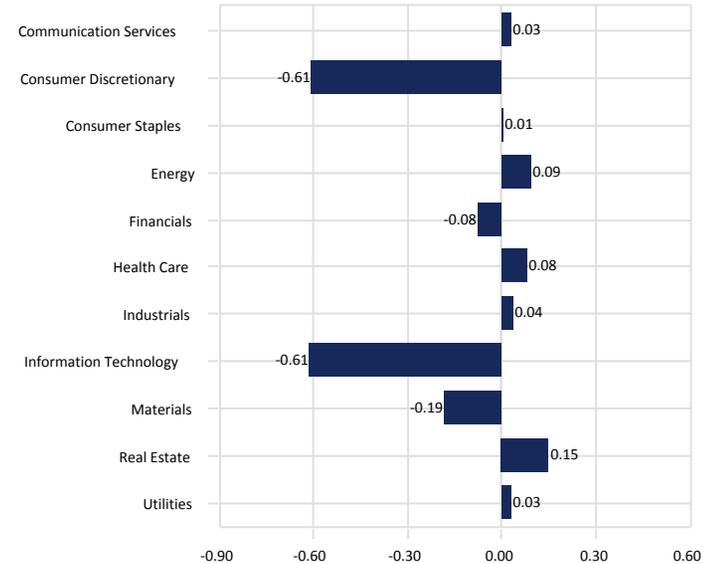
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

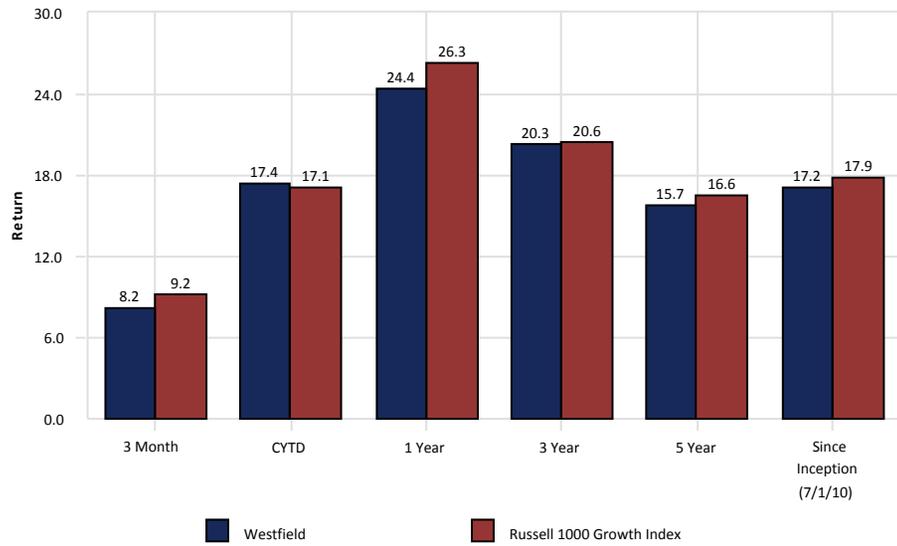


Howard County Retirement Plans

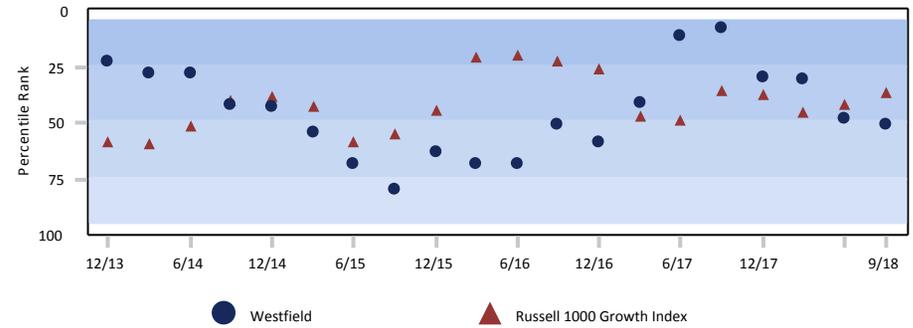
Westfield vs. IM U.S. Large Cap Growth Equity (SA+CF)

September 30, 2018

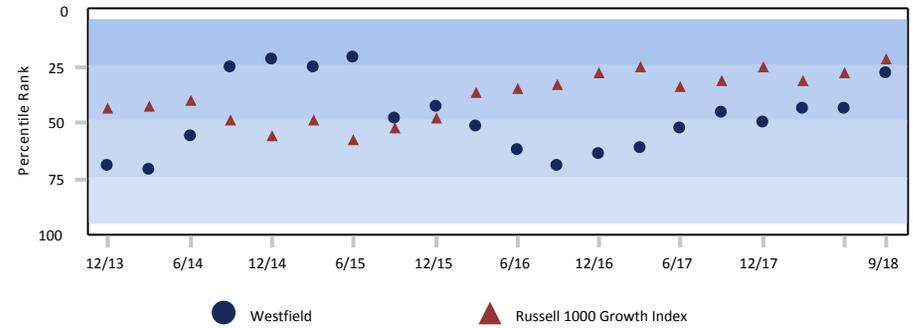
Comparative Performance



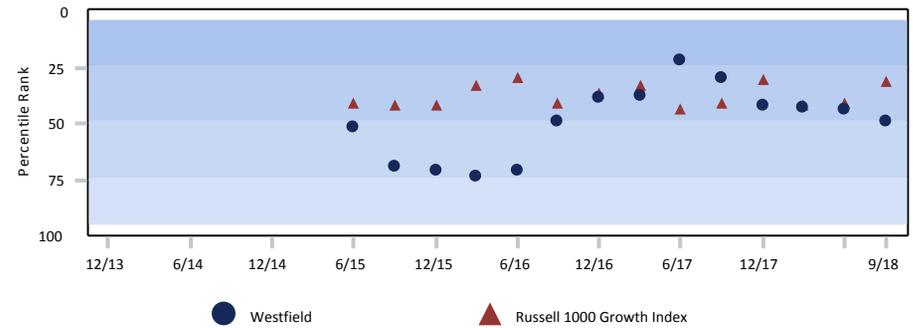
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Risk/Return (10/01/15 - 09/30/18)



gross of fees



Howard County Retirement Plans

Westfield

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
Westfield	8.20	17.43	24.39	20.32	15.74
<i>Russell 1000 Growth Index</i>	9.17	17.09	26.30	20.55	16.58
<i>IM U.S. Large Cap Growth Equity (SA+CF) Median</i>	8.17	16.17	24.42	18.85	15.59
Westfield Rank	49	42	51	28	49

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Apple Inc	6.54	7.88	-1.34	22.38
Amazon.com Inc	6.33	5.88	0.45	17.84
Visa Inc	4.00	1.94	2.06	13.49
Boeing Co	3.81	1.45	2.36	11.40
Microsoft Corp	3.60	5.93	-2.33	16.43
Alphabet Inc	3.52	2.62	0.90	6.98
salesforce.com Inc	3.01	0.81	2.20	16.59
Home Depot Inc. (The)	2.70	1.72	0.98	6.72
Unitedhealth Group Inc	2.68	1.84	0.84	8.80
Alphabet Inc Class A	2.66	2.60	0.06	6.90

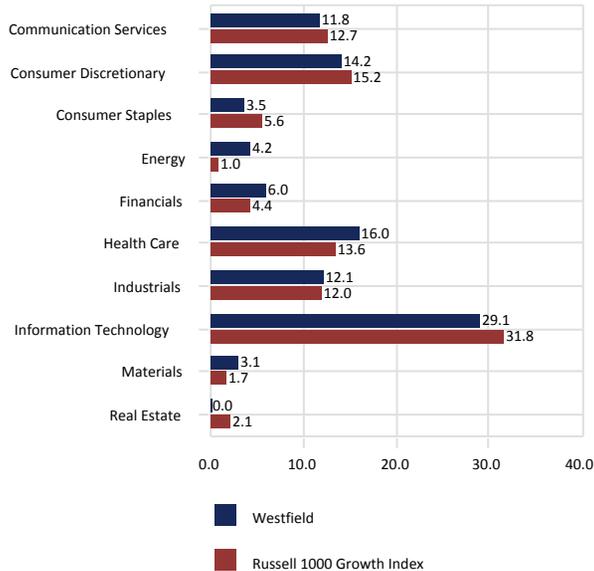
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
Westfield	0.28	0.98	10.18	0.92	-0.06	98.94	98.45
<i>Russell 1000 Growth Index</i>	0.00	1.00	10.02	1.00	-	100.00	100.00

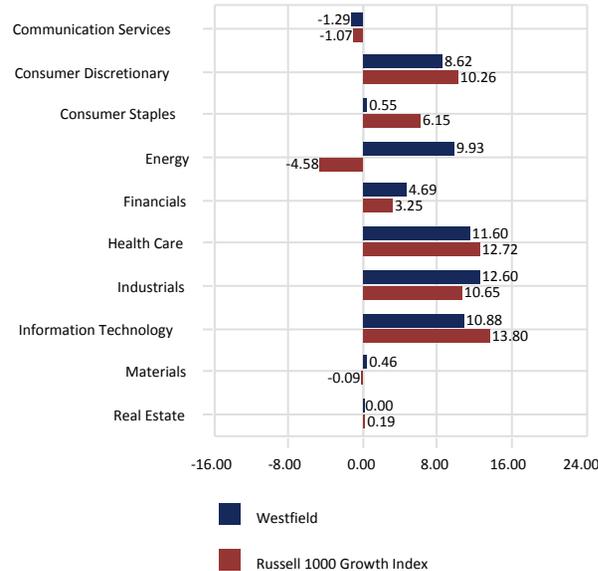
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	308,147,169	313,613,099
Median Mkt. Cap (\$000)	75,559,840	12,897,251
Price/Earnings ratio	25.57	29.31
Price/Book ratio	5.89	7.54
5 Yr. EPS Growth Rate (%)	19.48	16.26
Current Yield (%)	0.95	1.18
Beta (5 Years, Monthly)	1.02	1.00
Number of Stocks	47	542

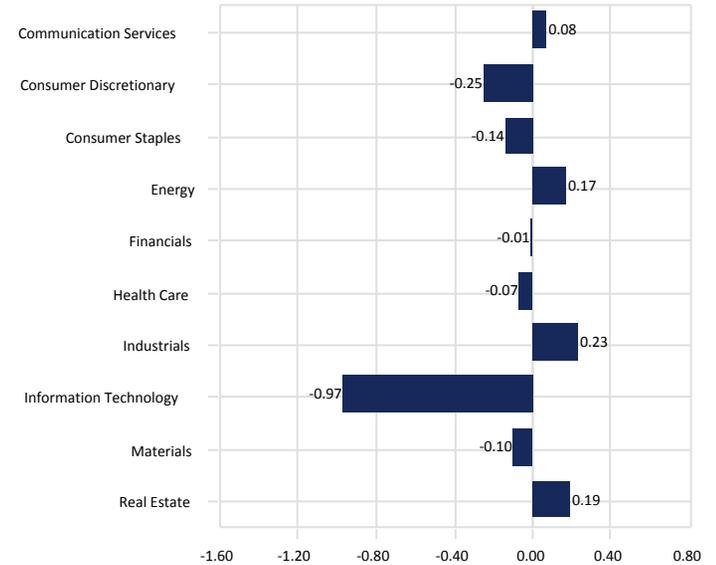
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

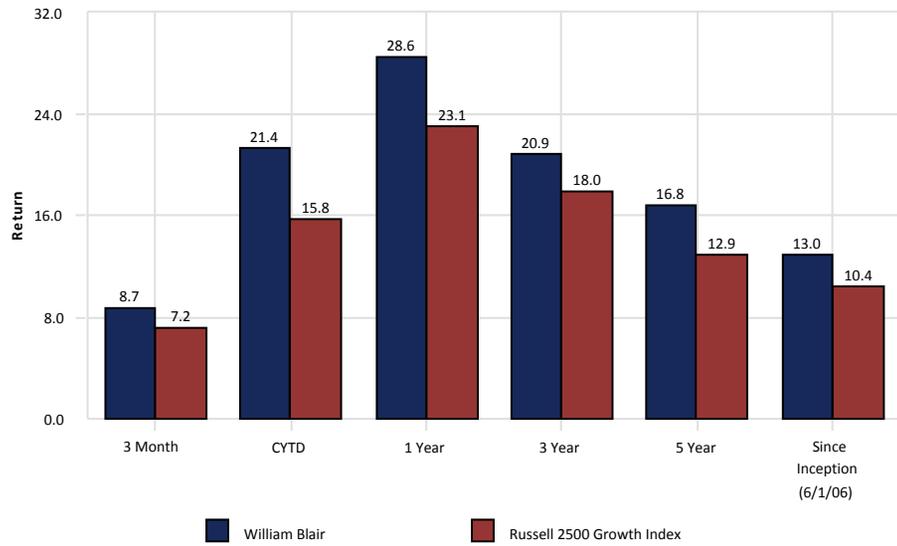


Howard County Retirement Plans

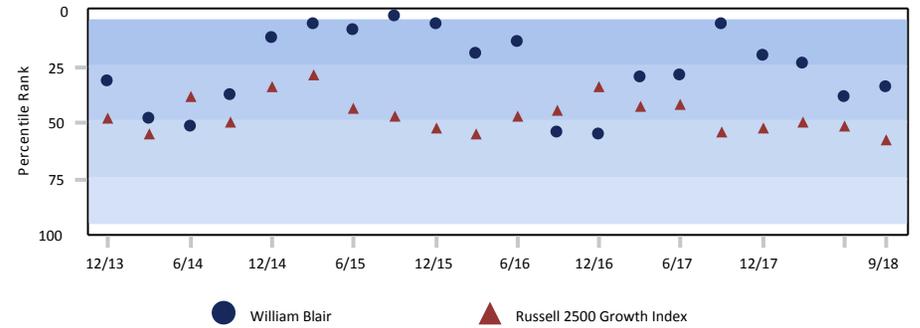
William Blair vs. IM U.S. SMID Cap Growth Equity (SA+CF)

September 30, 2018

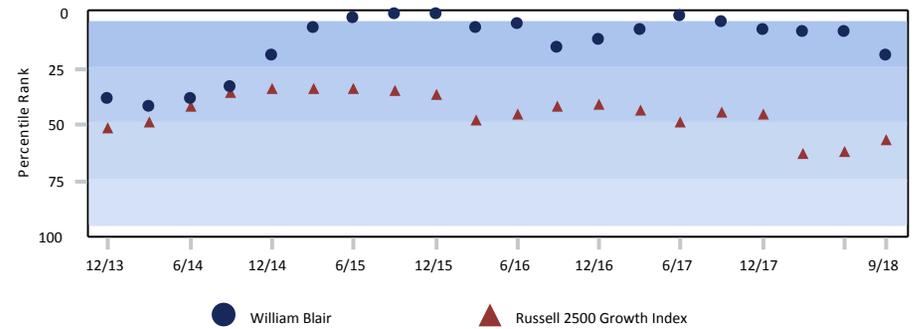
Comparative Performance



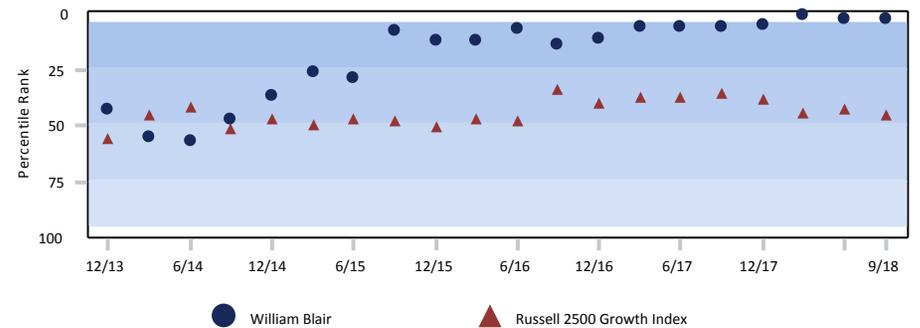
1 Year Rolling Percentile Ranking



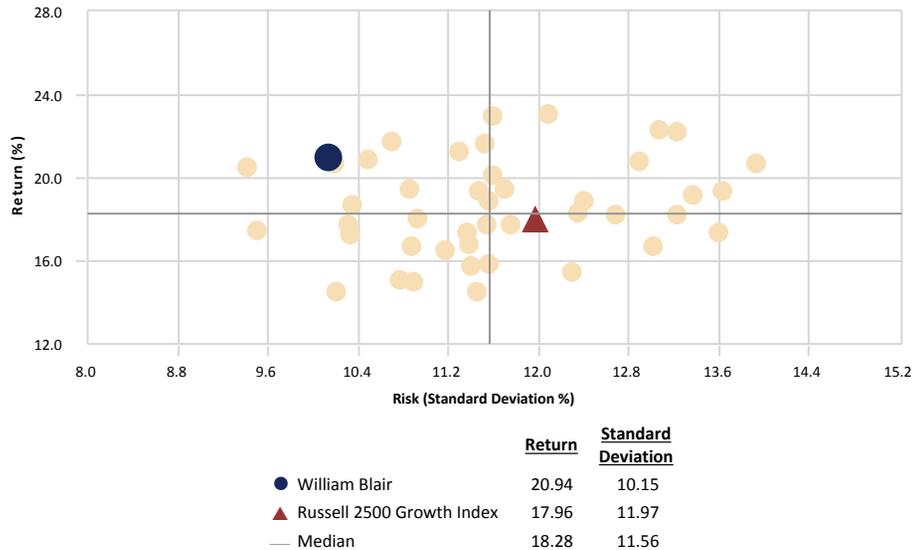
3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Risk/Return (10/01/15 - 09/30/18)



gross of fees



Howard County Retirement Plans

William Blair

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
William Blair	8.72	21.37	28.58	20.94	16.79
<i>Russell 2500 Growth Index</i>	7.17	15.78	23.13	17.96	12.88
<i>IM U.S. SMID Cap Growth Equity (SA+CF) Median</i>	7.81	18.05	25.76	18.28	12.70
William Blair Rank	37	34	34	19	3

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
CoStar Group Inc	2.81	0.00	2.81	1.99
BWX Technologies Inc	2.78	0.27	2.51	0.61
Encompass Health Corp	2.51	0.33	2.18	15.50
Copart Inc	2.44	0.00	2.44	-8.89
Ligand Pharmaceuticals Inc	2.41	0.25	2.16	32.50
Booz Allen Hamilton Holding Corp	2.25	0.28	1.97	13.93
DexCom Inc	2.17	0.54	1.63	50.60
Six Flags Entertainment Corp	2.08	0.21	1.87	0.86
Veeva Systems Inc	2.08	0.56	1.52	41.65
TransUnion	2.03	0.00	2.03	2.81

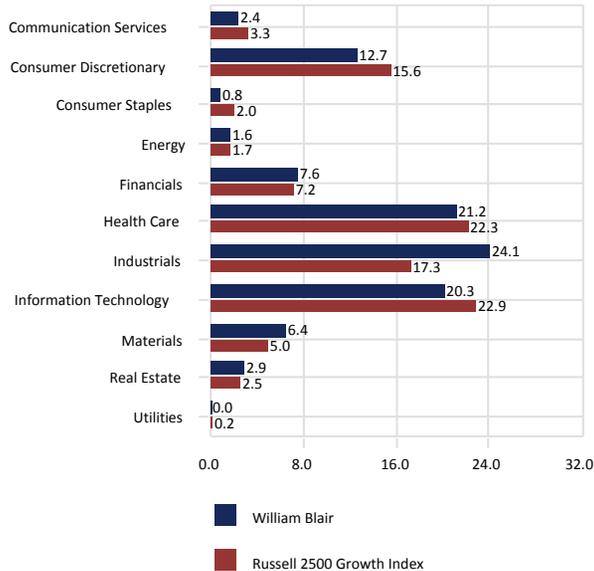
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
William Blair	5.86	0.80	10.15	0.90	0.59	97.26	63.38
<i>Russell 2500 Growth Index</i>	0.00	1.00	11.97	1.00	-	100.00	100.00

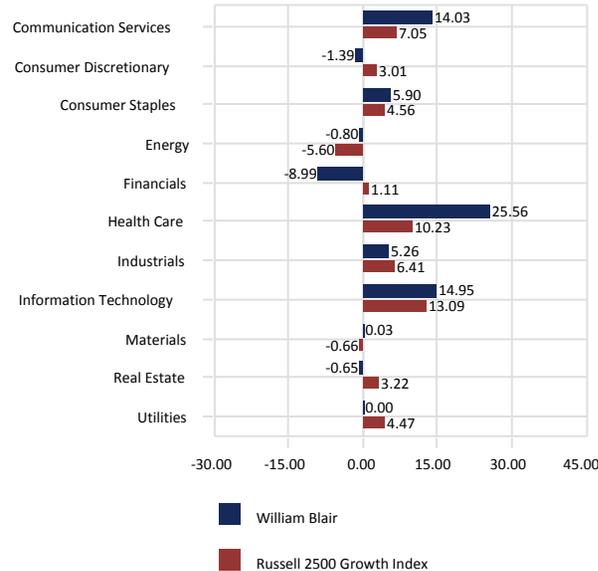
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	7,834,529	5,677,106
Median Mkt. Cap (\$000)	6,308,484	1,330,655
Price/Earnings ratio	29.37	26.35
Price/Book ratio	4.97	5.17
5 Yr. EPS Growth Rate (%)	20.03	21.03
Current Yield (%)	0.59	0.68
Beta (5 Years, Monthly)	0.80	1.00
Number of Stocks	73	1,501

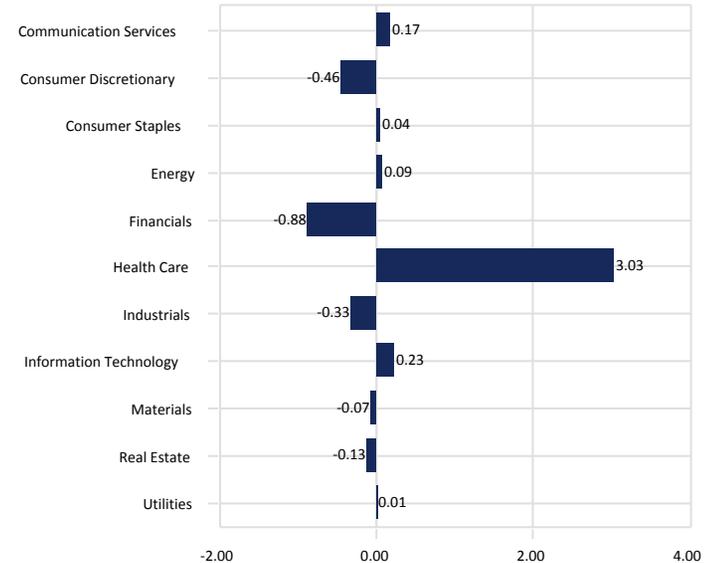
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

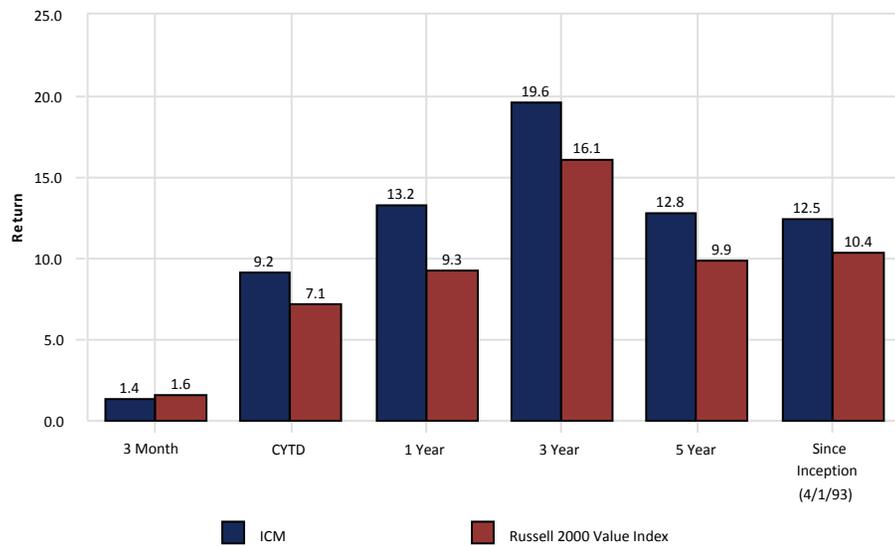


Howard County Retirement Plans

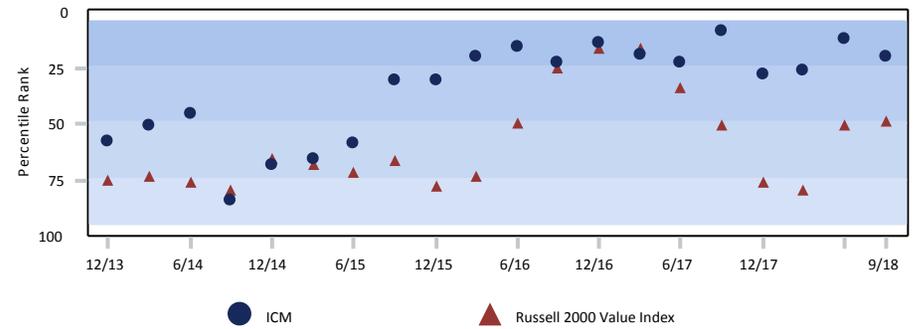
ICM vs. IM U.S. Small Cap Value Equity (SA+CF)

September 30, 2018

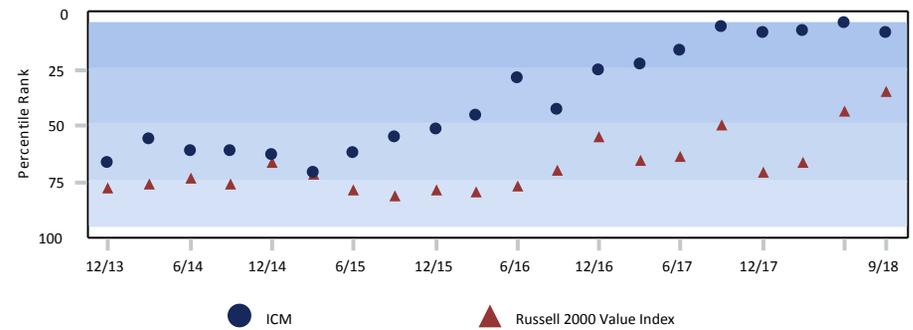
Comparative Performance



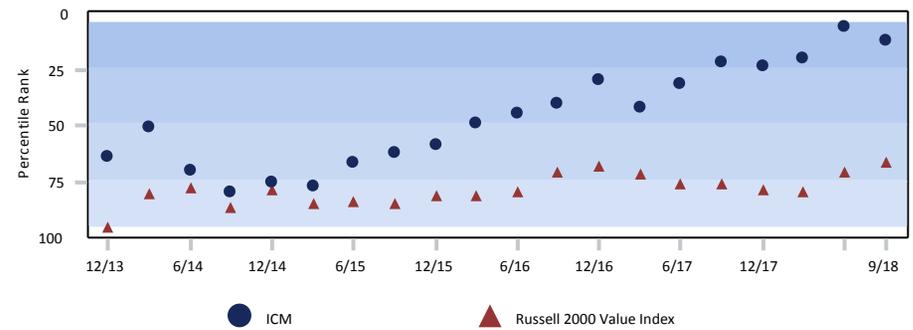
1 Year Rolling Percentile Ranking



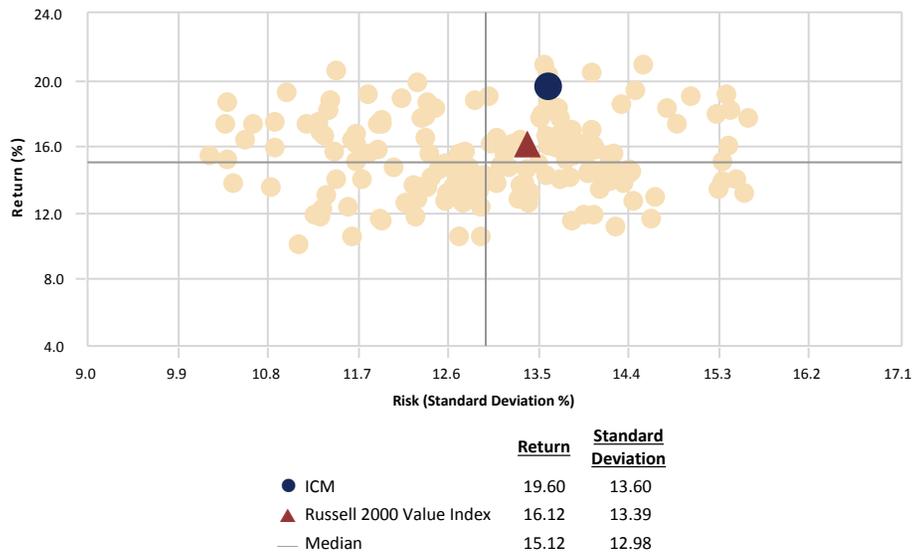
3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Risk/Return (10/01/15 - 09/30/18)



gross of fees



Howard County Retirement Plans

ICM

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
ICM	1.38	9.19	13.24	19.60	12.79
<i>Russell 2000 Value Index</i>	1.60	7.14	9.33	16.12	9.91
<i>IM U.S. Small Cap Value Equity (SA+CF) Median</i>	1.62	5.37	9.07	15.12	10.77
ICM Rank	57	19	20	9	12

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Armstrong World Industries Inc	1.60	0.00	1.60	10.13
Belden Inc	1.53	0.26	1.27	16.92
Cambrex Corp	1.49	0.12	1.37	30.78
ICF International Inc	1.42	0.11	1.31	6.38
Simmons First National Corp	1.36	0.24	1.12	-1.03
Carrizo Oil & Gas Inc	1.35	0.00	1.35	-9.52
Verint Systems Inc	1.34	0.29	1.05	12.97
Mitel Networks Corp	1.33	0.00	1.33	0.46
Atkore International Group Inc	1.33	0.00	1.33	27.73
Perficient Inc	1.32	0.05	1.27	1.06

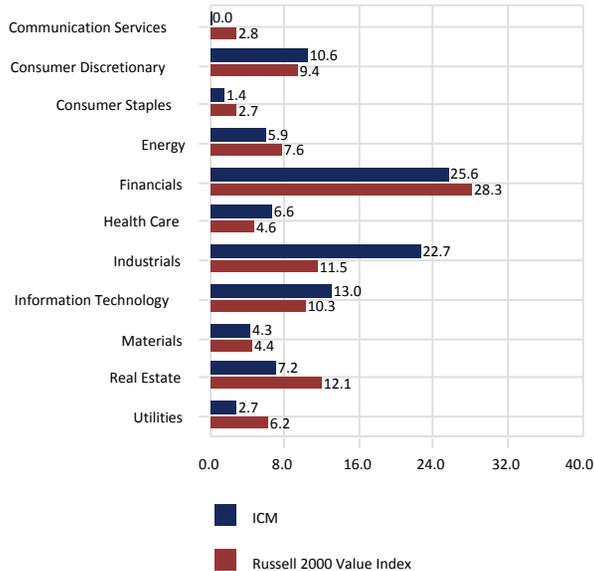
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
ICM	3.16	0.99	13.60	0.96	1.06	105.71	85.28
<i>Russell 2000 Value Index</i>	0.00	1.00	13.39	1.00	-	100.00	100.00

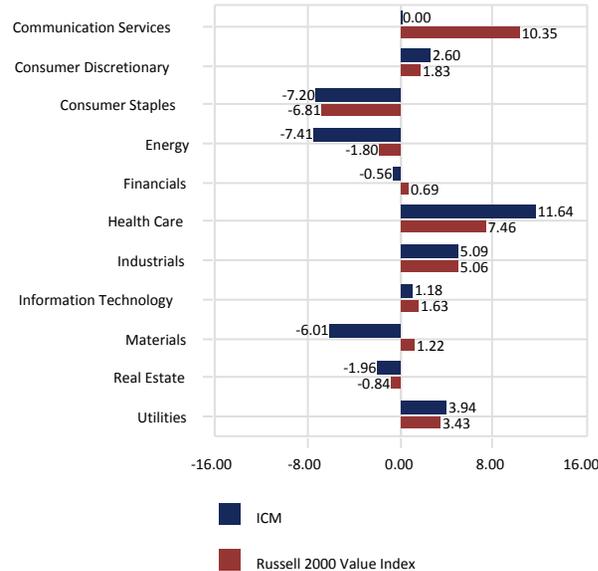
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	1,952,832	2,150,163
Median Mkt. Cap (\$000)	1,497,462	820,326
Price/Earnings ratio	19.65	15.46
Price/Book ratio	1.89	1.71
5 Yr. EPS Growth Rate (%)	8.21	7.14
Current Yield (%)	1.34	1.98
Beta (5 Years, Monthly)	1.00	1.00
Number of Stocks	109	1,387

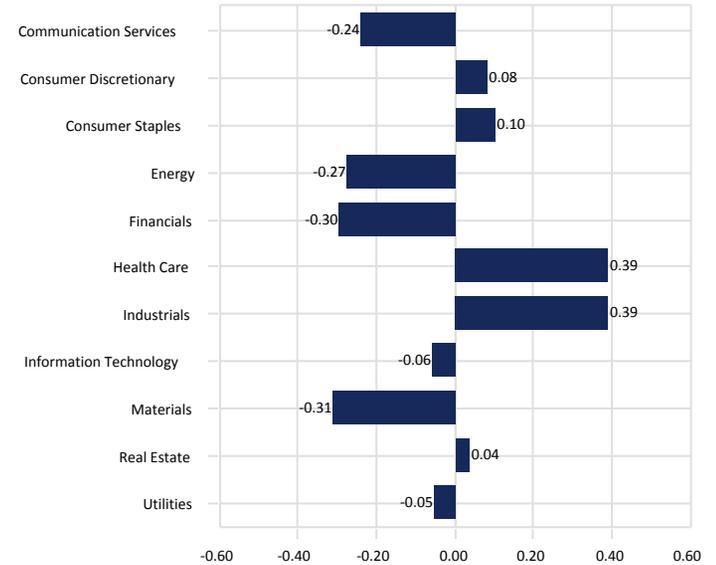
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

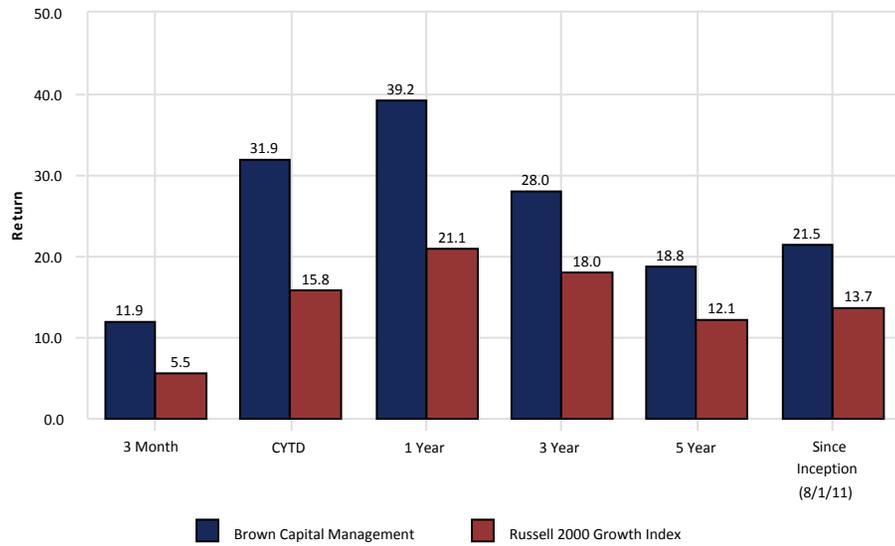


Howard County Retirement Plans

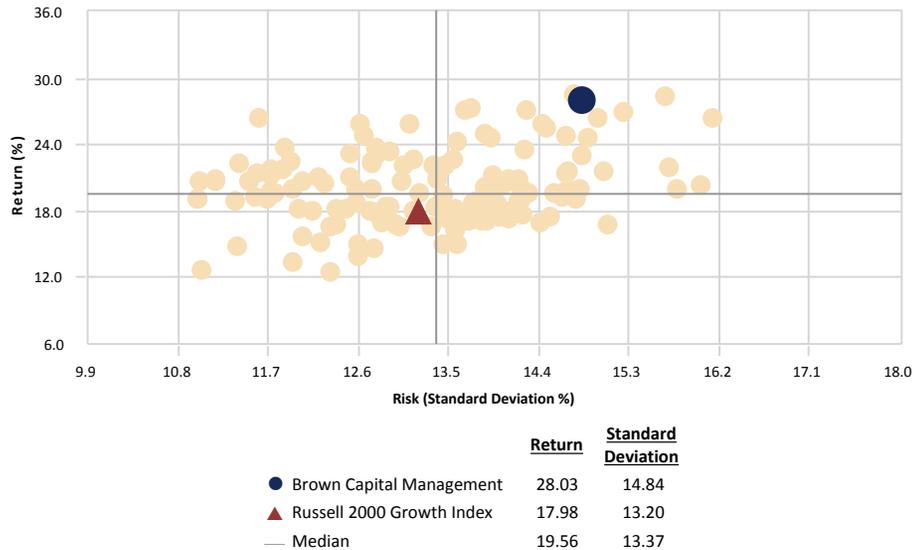
Brown Capital Management vs. IM U.S. Small Cap Growth Equity (SA+CF)

September 30, 2018

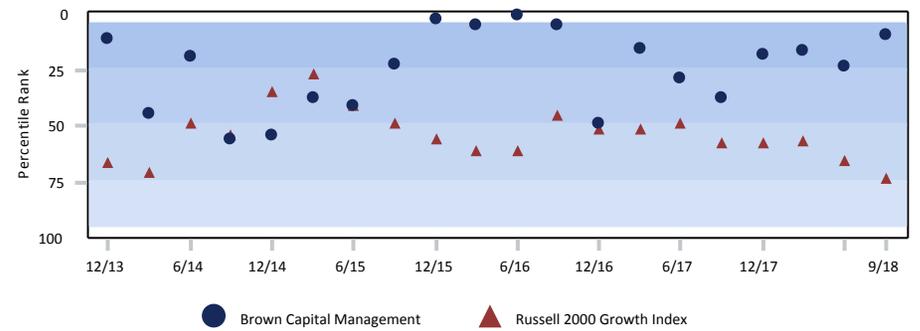
Comparative Performance



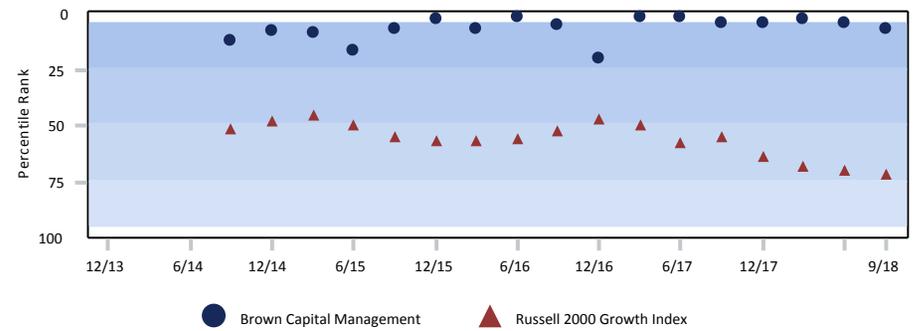
Risk/Return (10/01/15 - 09/30/18)



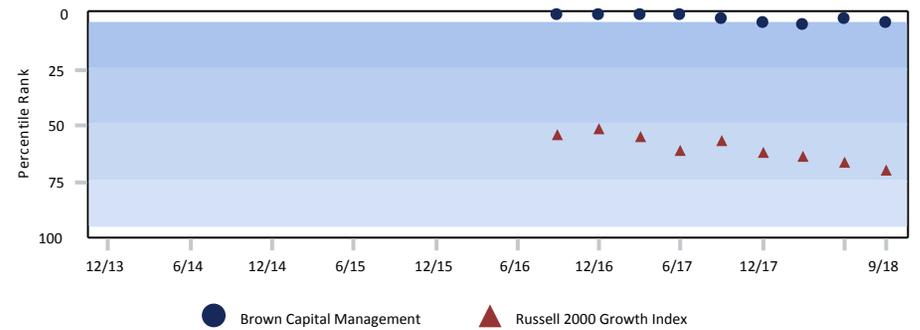
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



gross of fees



Howard County Retirement Plans

Brown Capital Management

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
Brown Capital Management	11.91	31.94	39.25	28.03	18.76
<i>Russell 2000 Growth Index</i>	5.52	15.76	21.06	17.98	12.14
<i>IM U.S. Small Cap Growth Equity (SA+CF) Median</i>	7.71	20.97	26.92	19.56	13.35
Brown Capital Management Rank	11	9	10	7	4

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Proto Labs Inc	5.88	0.37	5.51	35.98
Veeva Systems Inc	5.88	0.00	5.88	41.65
Paycom Software Inc	5.43	0.00	5.43	57.25
Tyler Technologies Inc.	5.12	0.00	5.12	10.34
ABIOMED Inc	4.96	0.00	4.96	9.95
Cognex Corp	4.68	0.00	4.68	25.24
Neogen Corp	4.64	0.31	4.33	-10.80
Inogen Inc	4.62	0.37	4.25	31.02
Blackbaud Inc	4.29	0.42	3.87	-0.83
ANSYS Inc	3.99	0.00	3.99	7.18

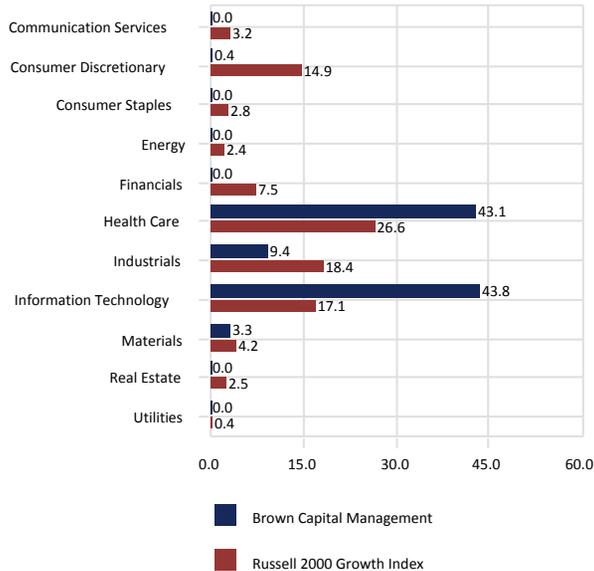
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
Brown Capital Management	9.72	0.96	14.84	0.72	1.09	115.85	56.76
<i>Russell 2000 Growth Index</i>	0.00	1.00	13.20	1.00	-	100.00	100.00

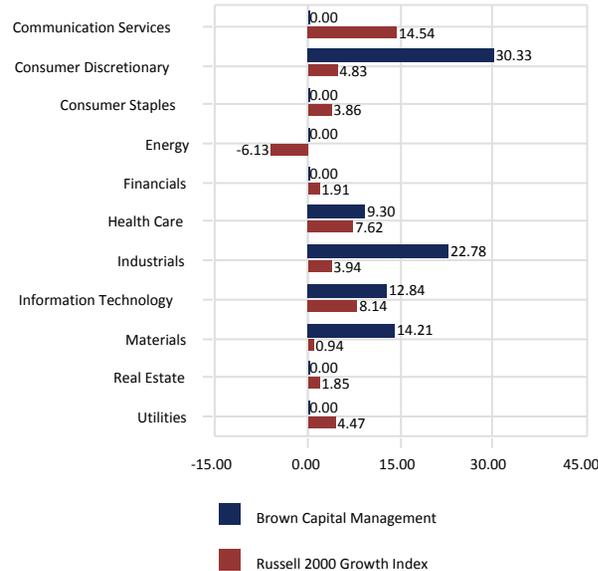
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	6,472,615	2,645,563
Median Mkt. Cap (\$000)	3,270,160	1,042,920
Price/Earnings ratio	67.87	25.36
Price/Book ratio	7.65	4.49
5 Yr. EPS Growth Rate (%)	20.07	17.52
Current Yield (%)	0.15	0.61
Beta (5 Years, Monthly)	0.88	1.00
Number of Stocks	36	1,253

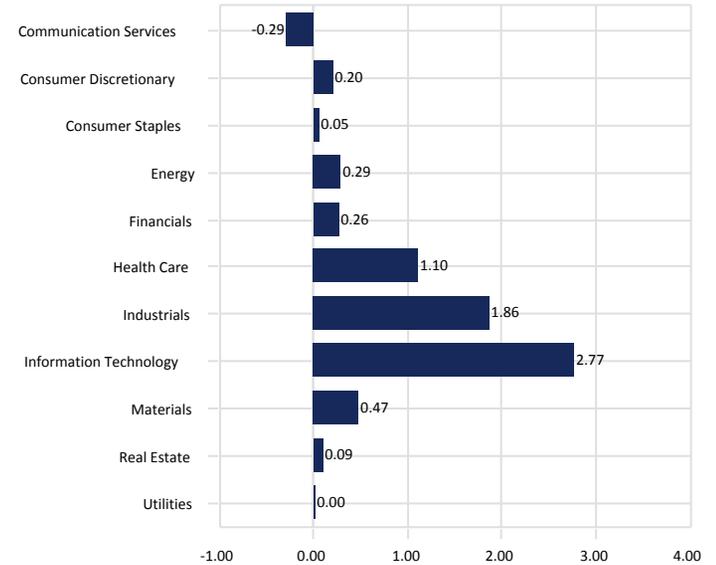
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

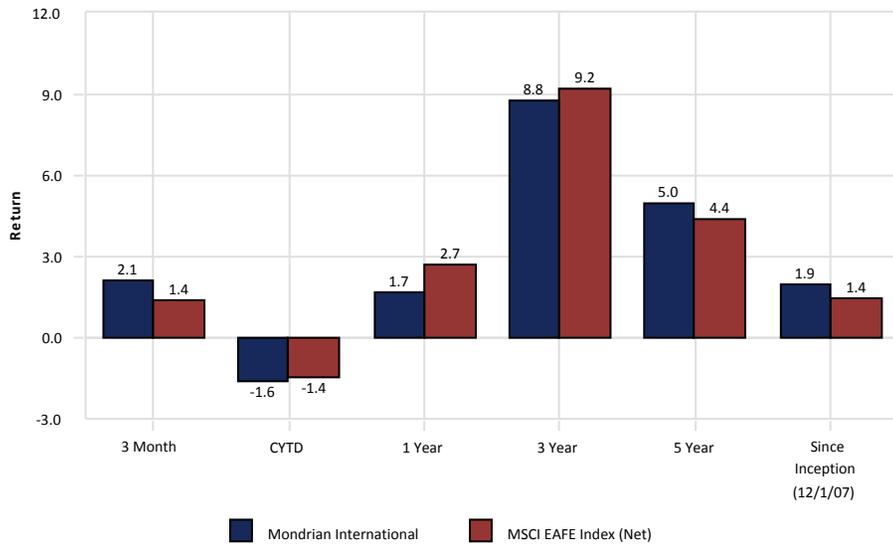


Howard County Retirement Plans

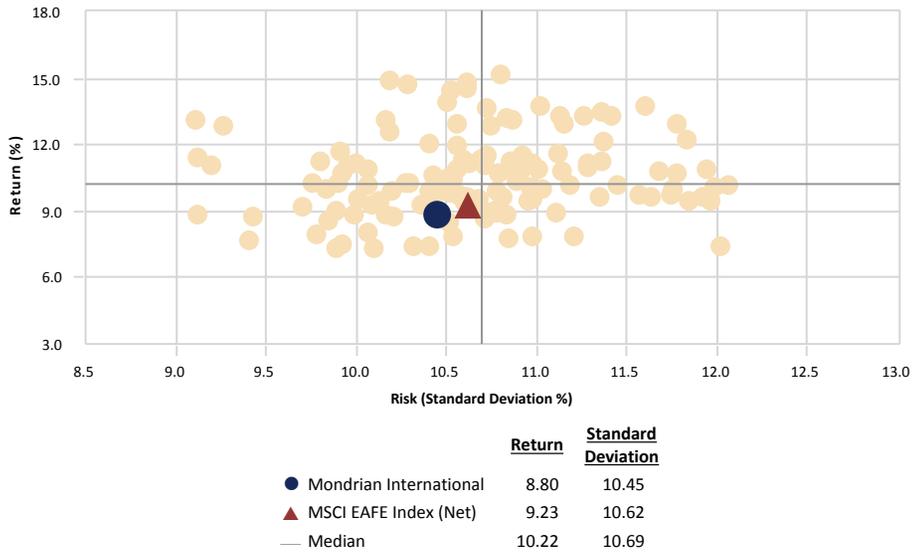
Mondrian International vs. IM International Core Equity (SA+CF)

September 30, 2018

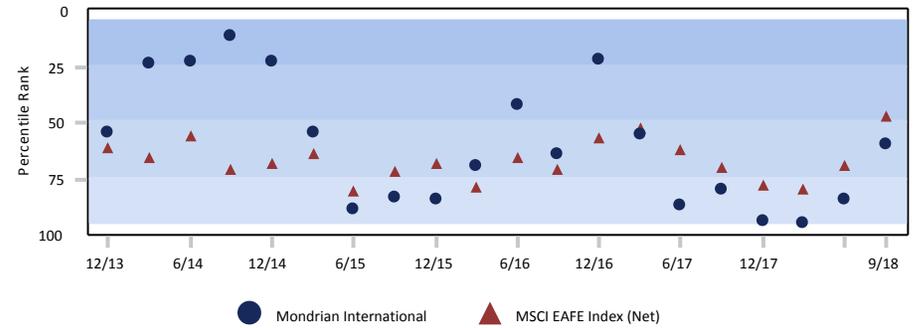
Comparative Performance



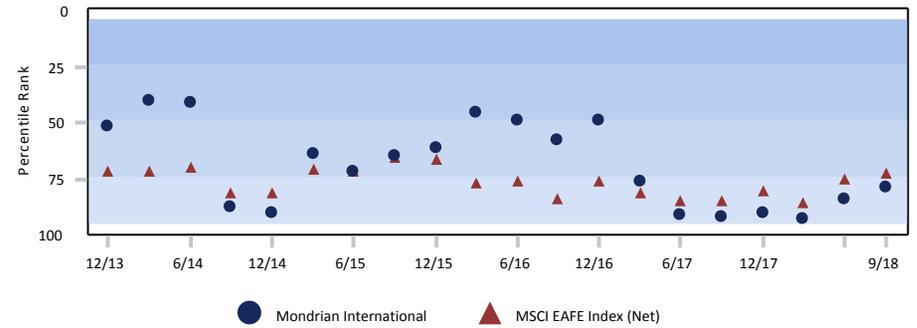
Risk/Return (10/01/15 - 09/30/18)



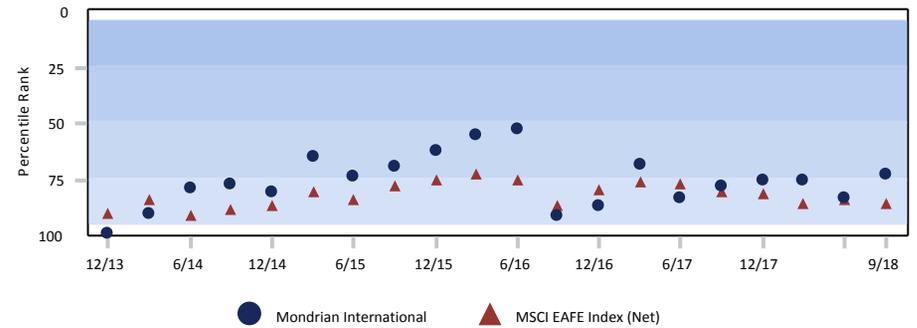
1 Year Rolling Percentile Ranking



3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Howard County Retirement Plans

Mondrian International

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
Mondrian International	2.12	-1.59	1.71	8.80	4.99
<i>MSCI EAFE Index (Net)</i>	1.35	-1.43	2.74	9.23	4.42
<i>IM International Core Equity (SA+CF) Median</i>	0.65	-1.62	2.40	10.22	5.97
Mondrian International Rank	14	50	60	79	73

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Sanofi	3.65	0.69	2.96	11.06
Eni SpA	3.23	0.33	2.90	4.59
CK Hutchison Holdings Ltd	3.23	0.22	3.01	9.78
Enel Ente Nazionale Per L'Energia Elettrica SPA, Roma	3.20	0.29	2.91	-5.06
United Overseas Bank Ltd	3.08	0.18	2.90	2.80
Lloyds Banking Group PLC	2.94	0.39	2.55	-5.40
Telia Company AB	2.85	0.09	2.76	0.46
Honda Motor Co Ltd	2.81	0.34	2.47	4.07
Iberdrola SA, Bilbao	2.67	0.30	2.37	-4.72
Glaxosmithkline PLC	2.67	0.69	1.98	0.51

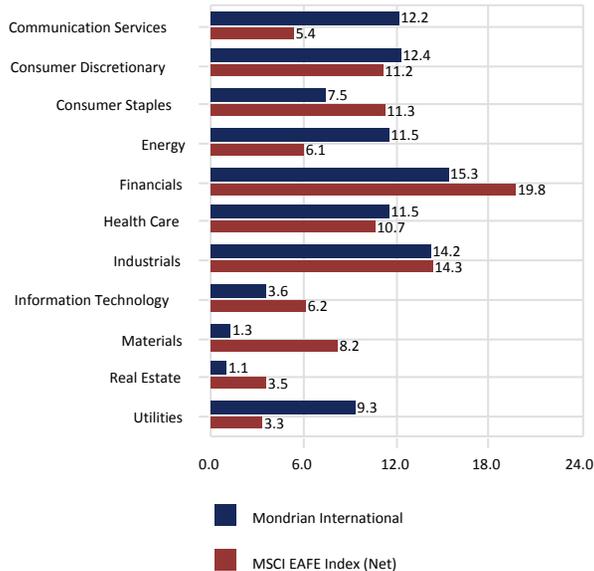
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
Mondrian International	0.28	0.93	10.45	0.88	-0.12	100.42	104.71
<i>MSCI EAFE Index (Net)</i>	0.00	1.00	10.62	1.00	-	100.00	100.00

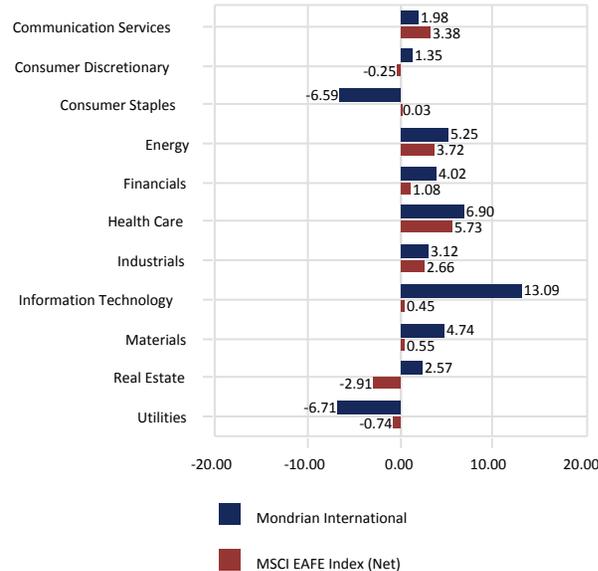
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	54,316,627	61,248,915
Median Mkt. Cap (\$000)	33,447,343	11,018,051
Price/Earnings ratio	12.88	14.43
Price/Book ratio	1.62	2.19
5 Yr. EPS Growth Rate (%)	12.23	10.83
Current Yield (%)	4.24	3.27
Beta (5 Years, Monthly)	0.97	1.00
Number of Stocks	55	924

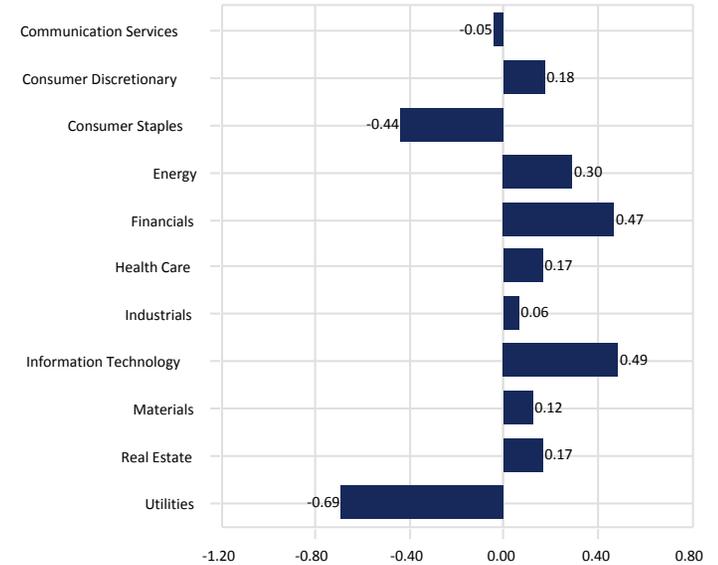
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

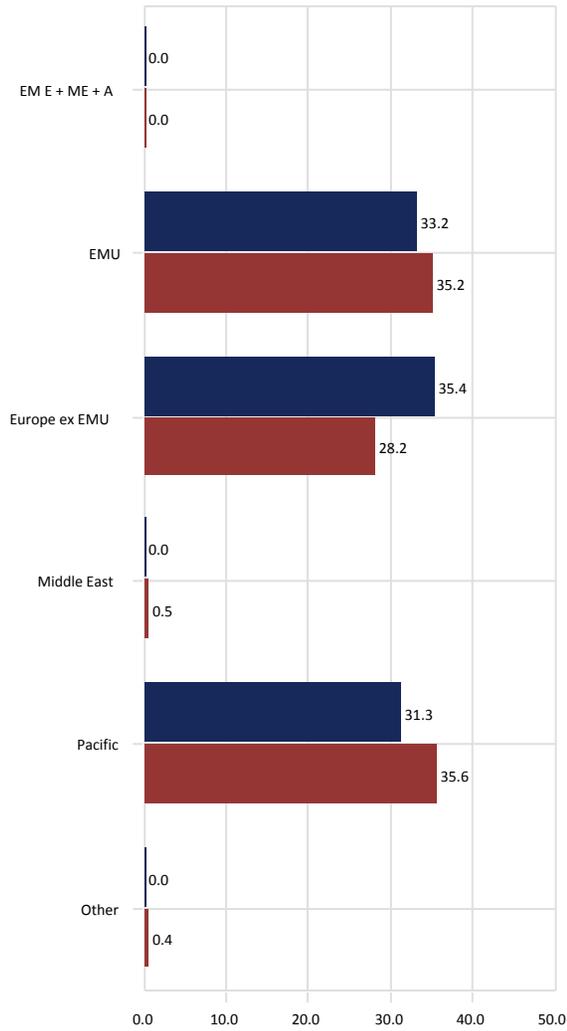


Howard County Retirement Plans

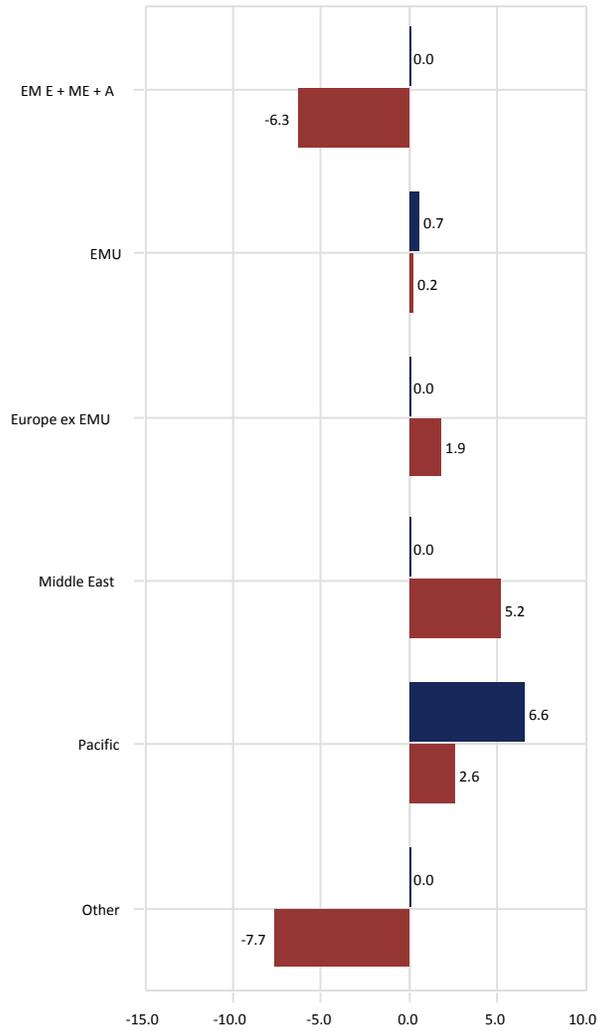
Mondrian International vs. MSCI EAFE Index (Net)

September 30, 2018

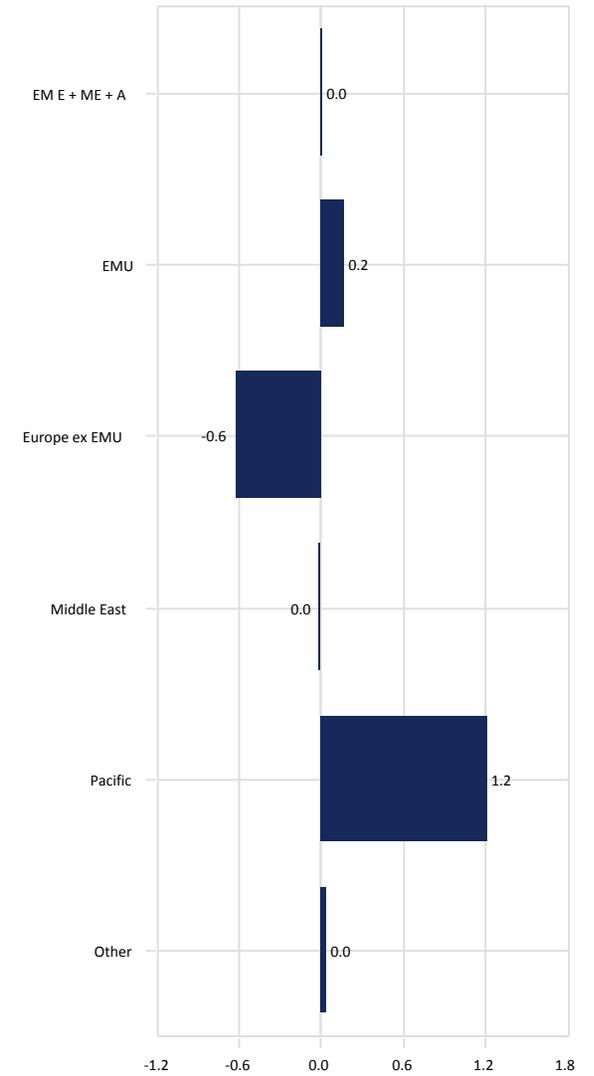
Allocation Quarterly



Performance Quarterly



Attribution Quarterly



■ Mondrian International ■ MSCI EAFE Index (Net)

■ Mondrian International ■ MSCI EAFE Index (Net)

gross of fees

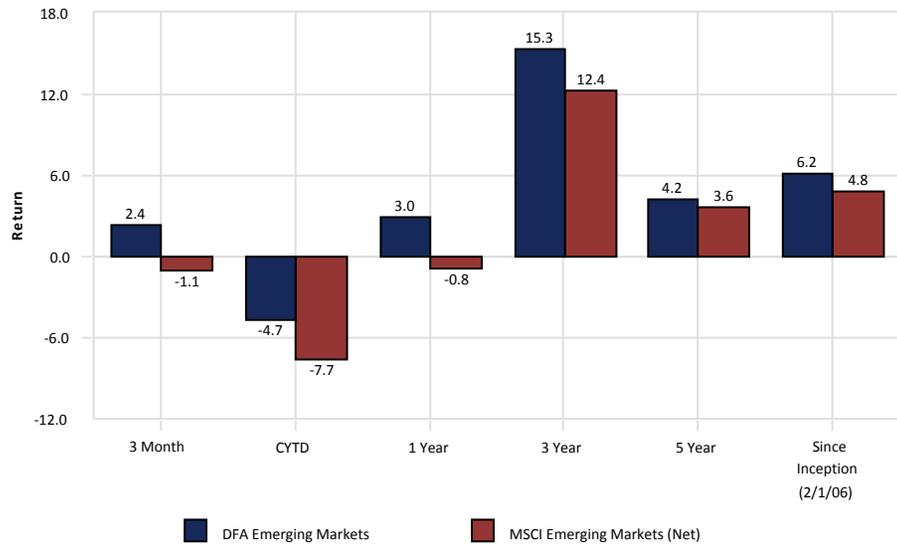


Howard County Retirement Plans

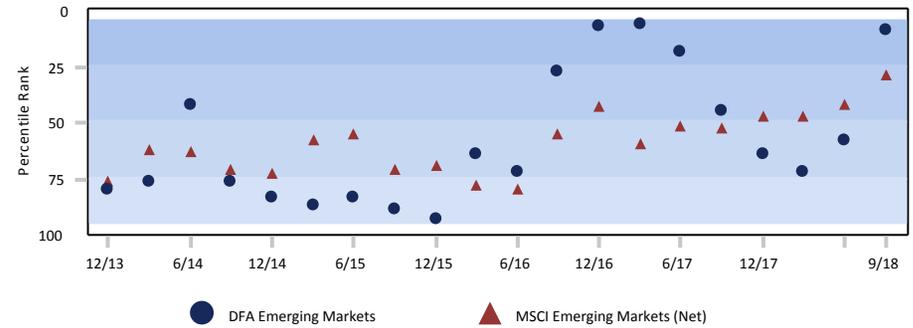
DFA Emerging Markets vs. IM Emerging Markets Equity (SA+CF)

September 30, 2018

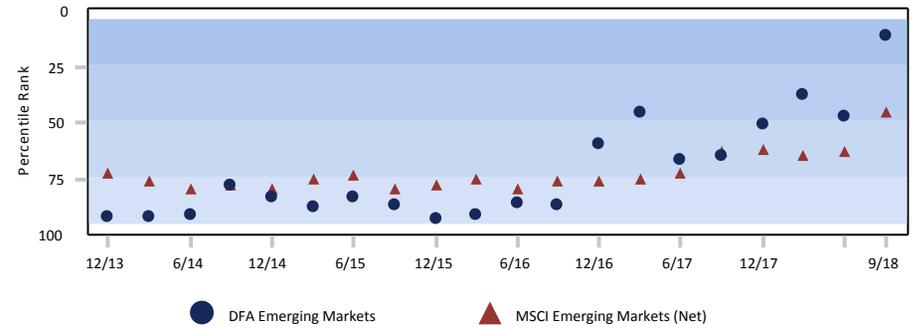
Comparative Performance



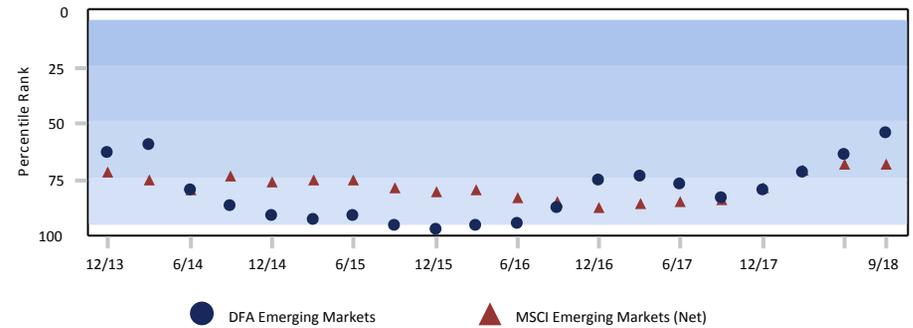
1 Year Rolling Percentile Ranking



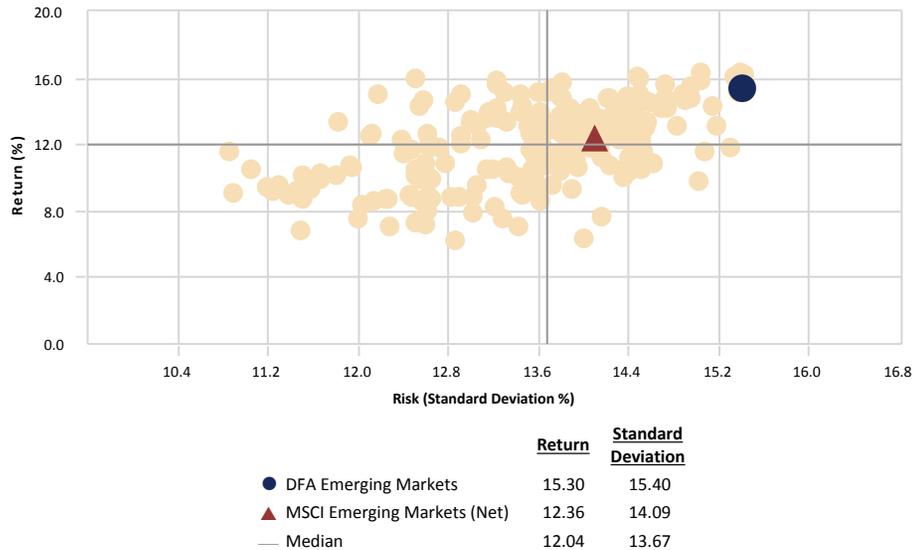
3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Risk/Return (10/01/15 - 09/30/18)



gross of fees



Howard County Retirement Plans

DFA Emerging Markets

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
DFA Emerging Markets	2.35	-4.70	3.00	15.30	4.22
<i>MSCI Emerging Markets (Net)</i>	-1.09	-7.68	-0.81	12.36	3.61
<i>IM Emerging Markets Equity (SA+CF) Median</i>	-2.21	-8.54	-2.53	12.04	4.33
DFA Emerging Markets Rank	5	12	9	11	54

Top 10 Positions

	Portfolio Weight (%)	Benchmark Weight (%)	Active Weight (%)	Quarterly Return (%)
Reliance Industries Ltd	3.27	0.95	2.32	22.11
China Construction Bank Corp	2.16	1.62	0.54	-0.69
Vale SA	2.13	0.91	1.22	18.31
Industrial & Commercial Bank of China Ltd	2.05	0.98	1.07	2.84
Vale SA	1.72	0.91	0.81	19.01
PTT Public Co Ltd	1.33	0.34	0.99	15.59
Oil Co LUKOIL PJSC	1.33	0.63	0.70	13.78
Standard Bank Group Ltd	1.17	0.31	0.86	-9.27
Cnooc Ltd	1.04	0.68	0.36	17.35
Petroleo Brasileiro S.A.- Petrobras	1.02	0.35	0.67	18.60

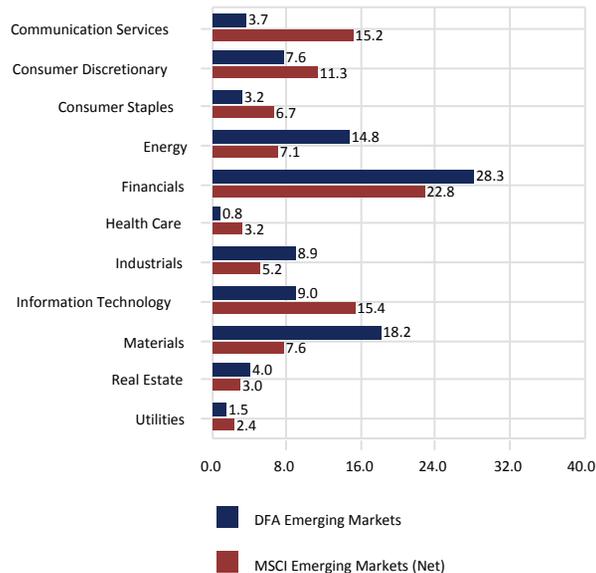
Historical Statistics (3 Year)

	Alpha	Beta	Standard Deviation	R-Squared	Information Ratio	Up Capture	Down Capture
DFA Emerging Markets	2.07	1.06	15.40	0.94	0.72	113.28	104.79
<i>MSCI Emerging Markets (Net)</i>	0.00	1.00	14.09	1.00	-	100.00	100.00

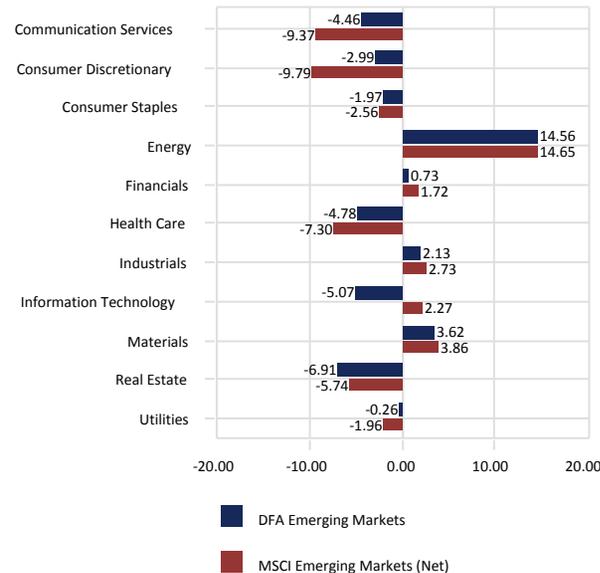
Portfolio Characteristics

	Portfolio	Benchmark
Wtd. Avg. Mkt. Cap (\$000)	27,728,270	78,601,645
Median Mkt. Cap (\$000)	355,075	5,211,026
Price/Earnings ratio	10.22	12.71
Price/Book ratio	1.50	2.30
5 Yr. EPS Growth Rate (%)	5.99	13.69
Current Yield (%)	3.34	2.83
Beta (5 Years, Monthly)	1.08	1.00
Number of Stocks	2,364	1,151

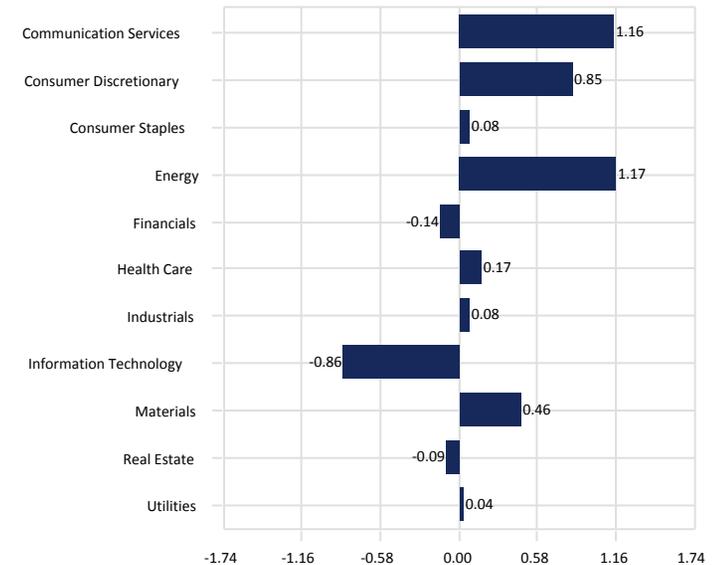
Sector Allocation



Sector Performance



Total Sector Attribution



gross of fees

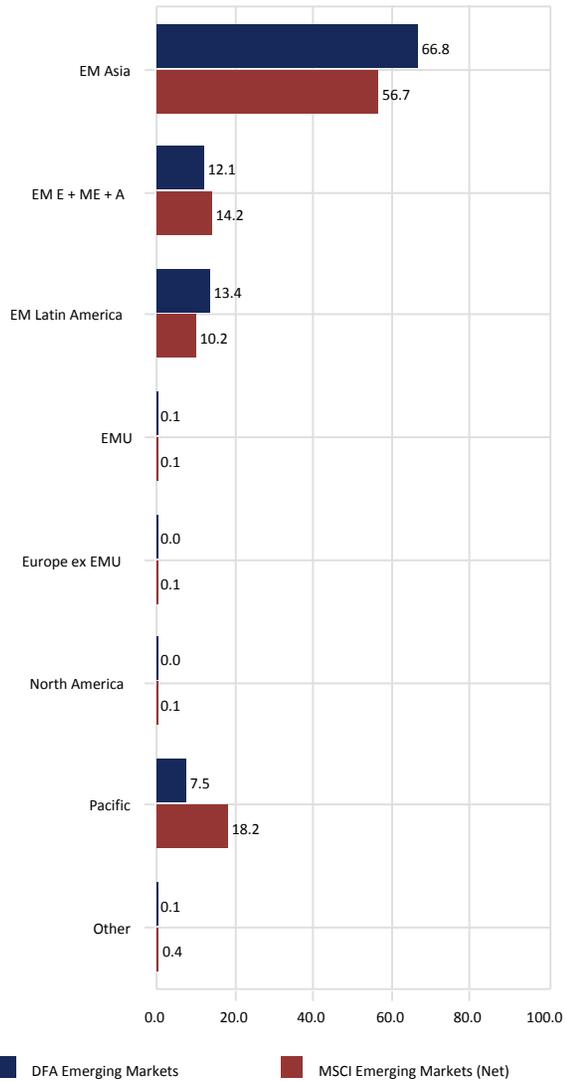


Howard County Retirement Plans

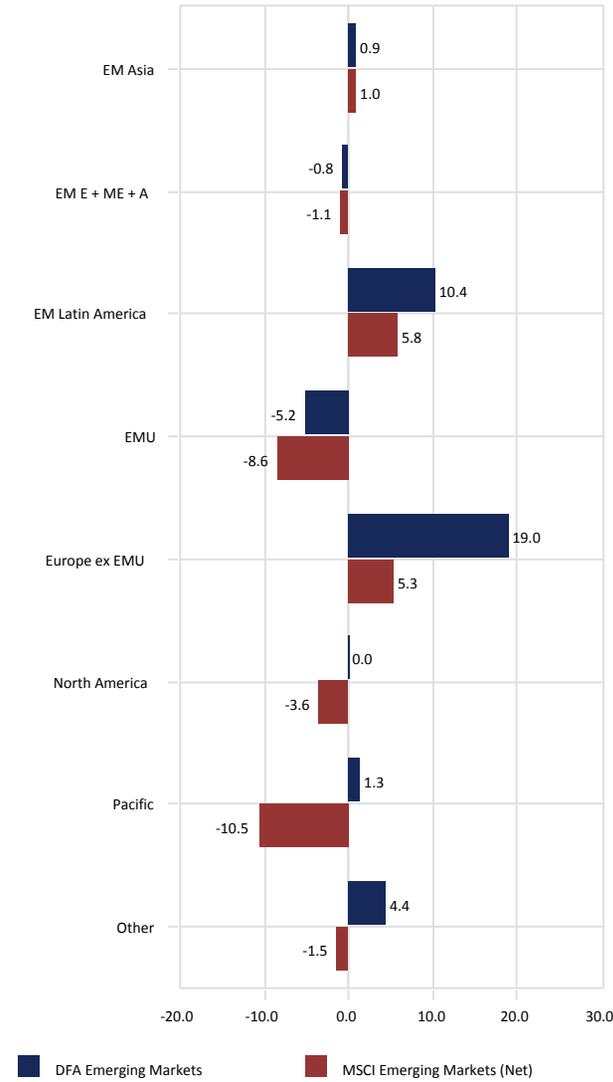
DFA vs. MSCI Emerging Markets Index (Net)

September 30, 2018

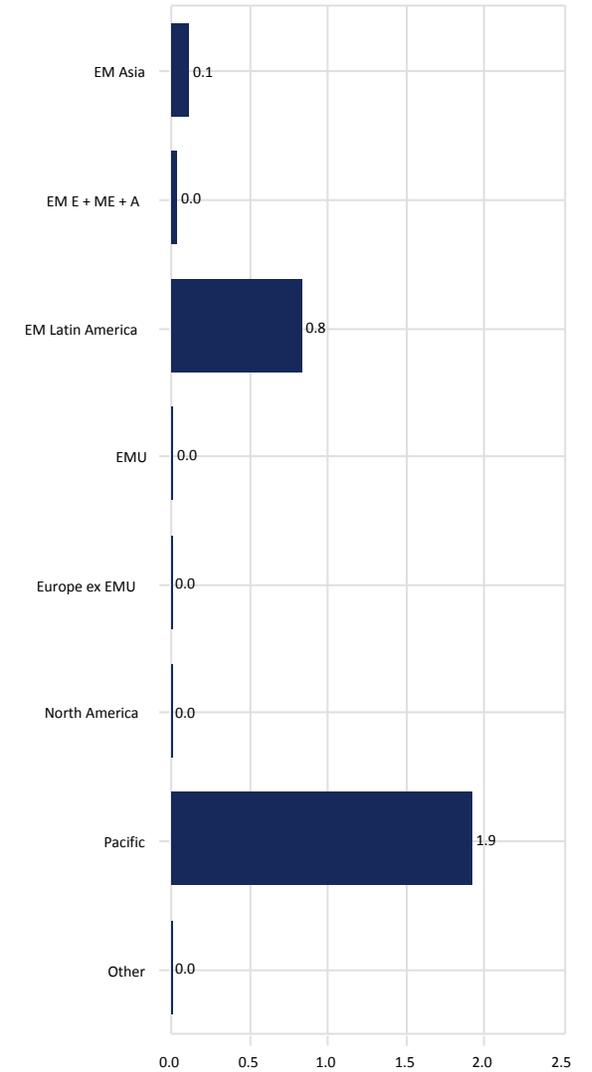
Allocation Quarterly



Performance Quarterly



Attribution Quarterly



gross of fees

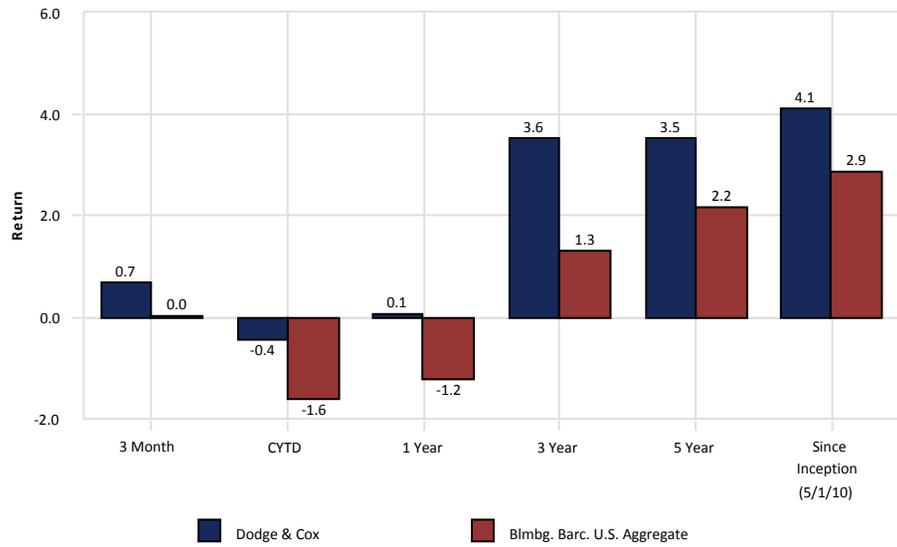


Howard County Retirement Plans

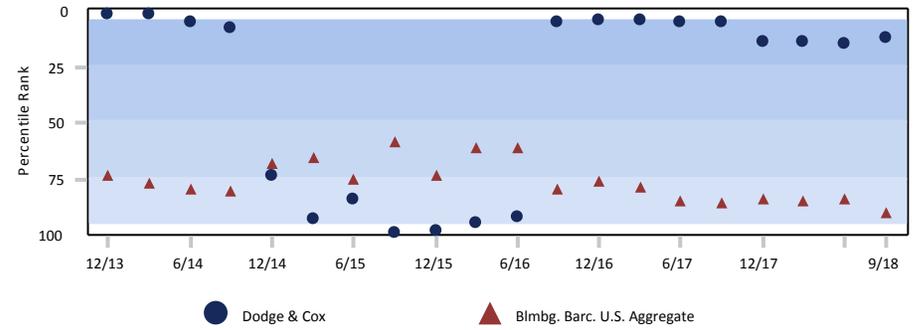
Dodge & Cox vs. IM U.S. Broad Market Core Fixed Income (SA+CF)

September 30, 2018

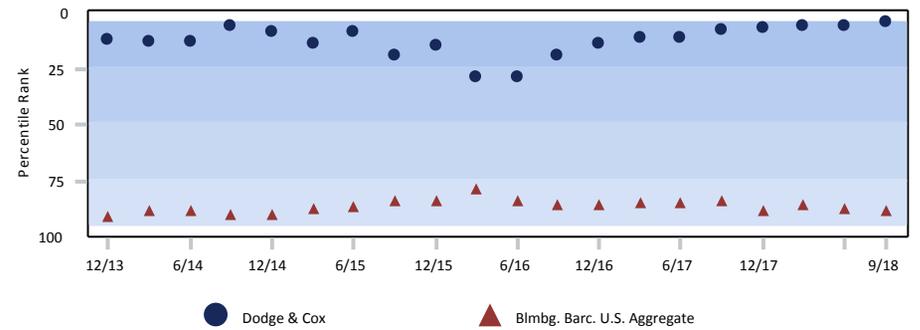
Comparative Performance



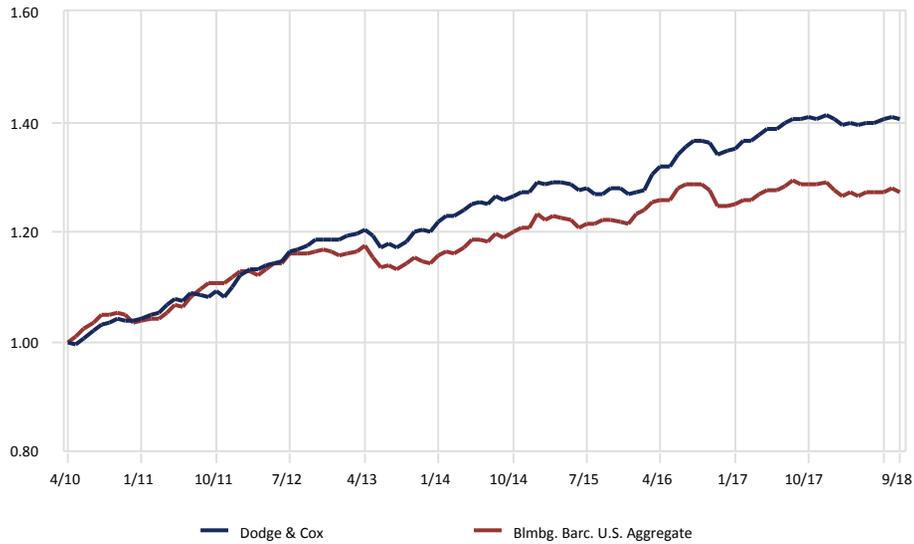
1 Year Rolling Percentile Ranking



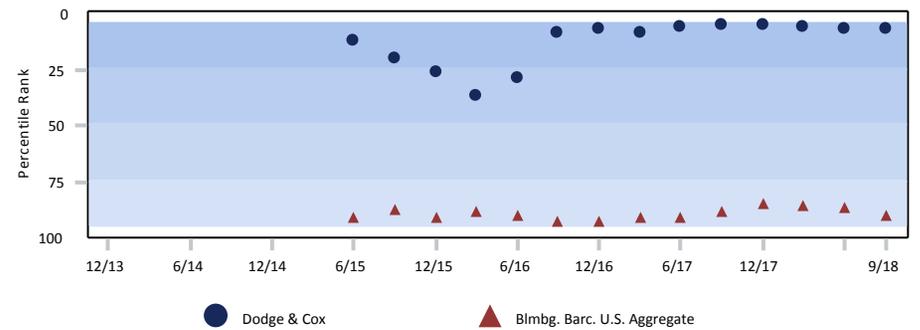
3 Year Rolling Percentile Ranking



Growth of \$1



5 Year Rolling Percentile Ranking



gross of fees



Howard County Retirement Plans

Dodge & Cox

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
Dodge & Cox	0.69	-0.43	0.07	3.55	3.53
<i>Blmbg. Barc. U.S. Aggregate</i>	<i>0.02</i>	<i>-1.60</i>	<i>-1.22</i>	<i>1.31</i>	<i>2.16</i>
<i>IM U.S. Broad Mkt Core Fixed Income (SA+CF)</i>	<i>0.18</i>	<i>-1.29</i>	<i>-0.74</i>	<i>1.84</i>	<i>2.61</i>
Dodge & Cox Rank	6	9	12	4	7

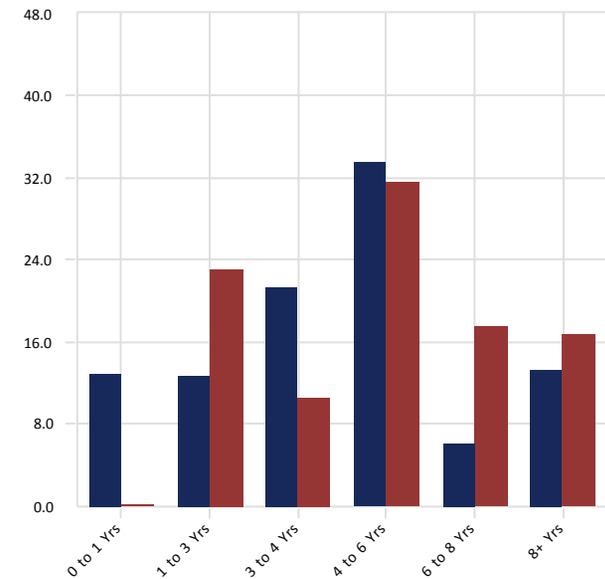
Portfolio Characteristics

	Portfolio	Benchmark
Modified Duration	4.63	6.03
Yield To Maturity (%)	3.96	3.46
Avg. Maturity	8.12	8.42
Avg. Quality	AA-	AA1/AA2
Coupon Rate (%)	4.27	3.16

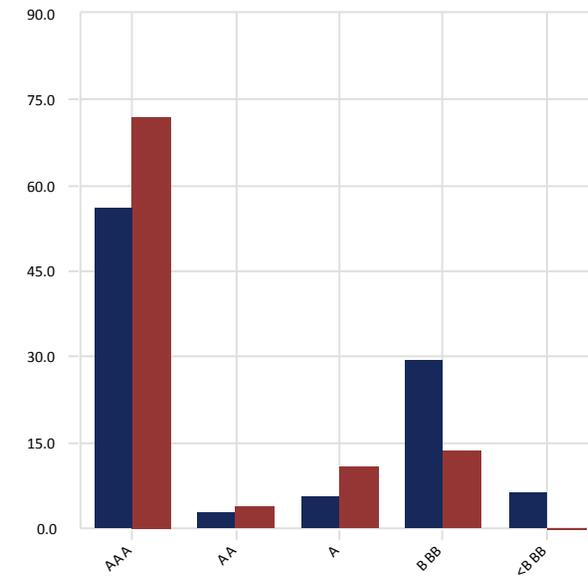
Historical Statistics (3 Year)

	Sharpe Ratio	Information Ratio	Standard Deviation
Dodge & Cox	1.10	1.36	2.43
<i>Blmbg. Barc. U.S. Aggregate</i>	<i>0.20</i>	<i>-</i>	<i>2.62</i>
FTSE 3 Month T-Bill	-	-0.20	0.18

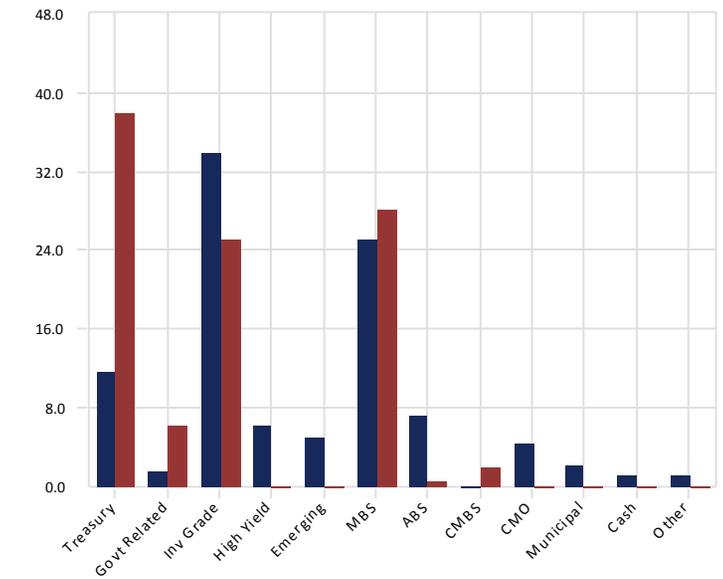
Duration Distribution (%)



Credit Quality Distribution (%)



Sector Distribution (%)



Dodge & Cox

Blmbg. Barc. U.S. Aggregate

gross of fees

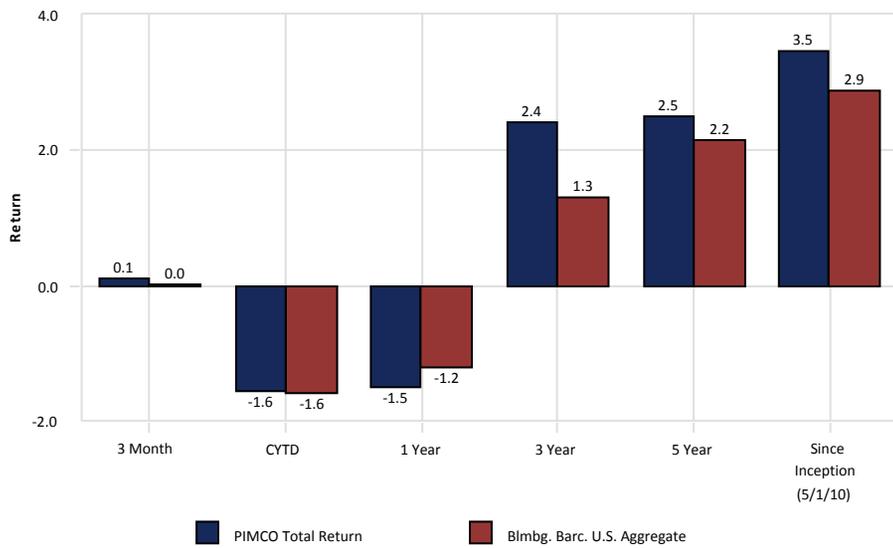


Howard County Retirement Plans

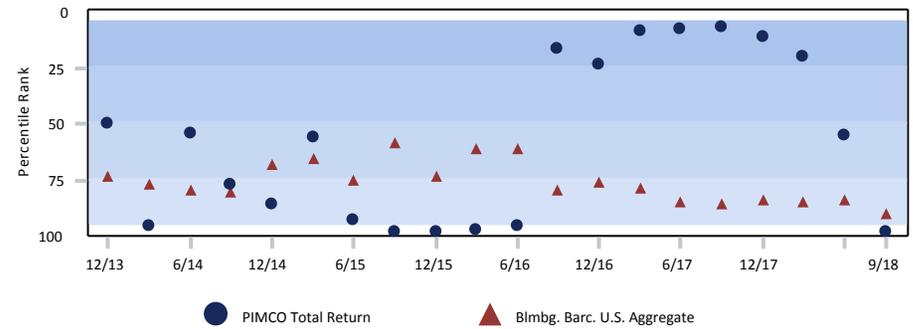
PIMCO Total Return vs. IM U.S. Broad Market Core Fixed Income (SA+CF)

September 30, 2018

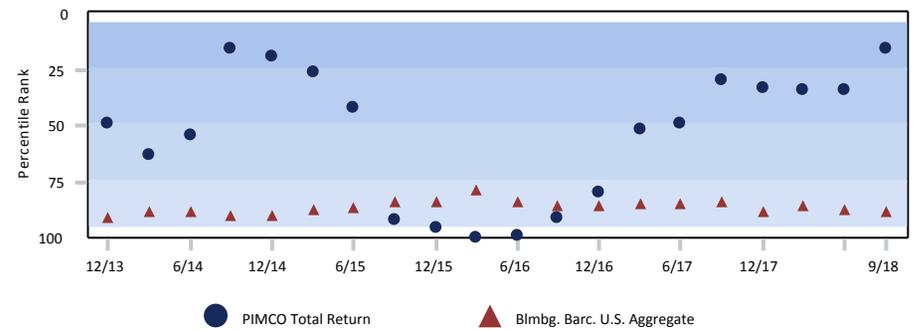
Comparative Performance



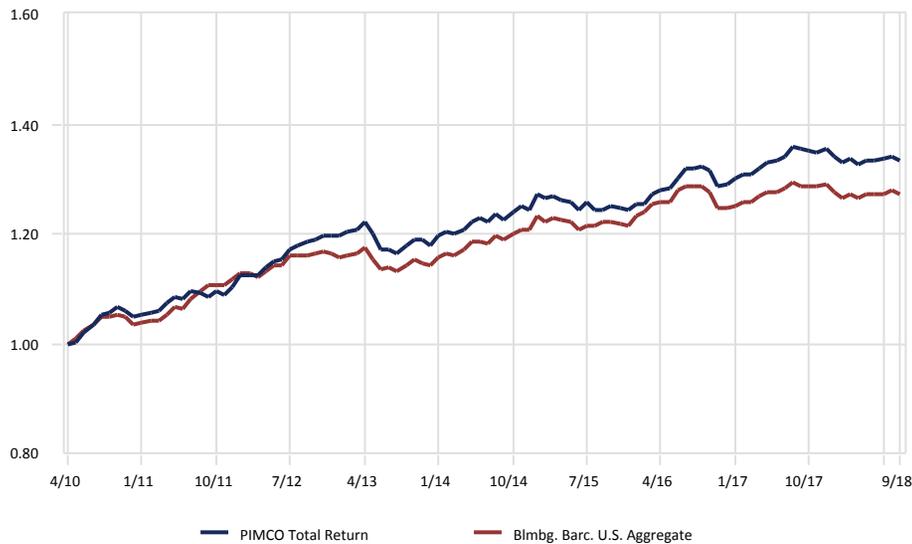
1 Year Rolling Percentile Ranking



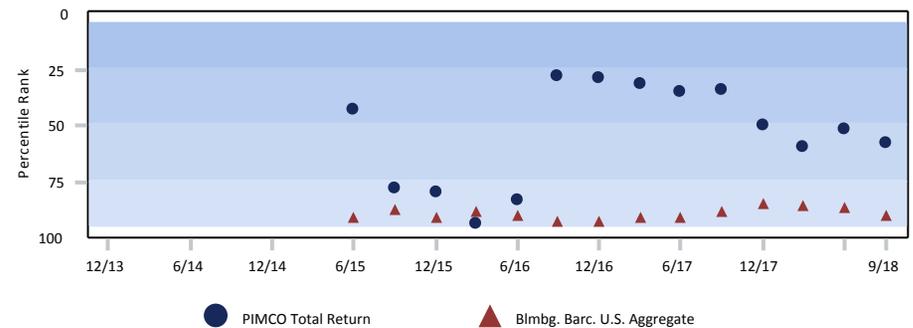
3 Year Rolling Percentile Ranking



Growth of \$1



5 Year Rolling Percentile Ranking



gross of fees



Howard County Retirement Plans

PIMCO Total Return

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
PIMCO Total Return	0.10	-1.55	-1.51	2.41	2.50
<i>Blmbg. Barc. U.S. Aggregate</i>	<i>0.02</i>	<i>-1.60</i>	<i>-1.22</i>	<i>1.31</i>	<i>2.16</i>
<i>IM U.S. Broad Mkt Core Fixed Income (SA+CF)</i>	<i>0.18</i>	<i>-1.29</i>	<i>-0.74</i>	<i>1.84</i>	<i>2.61</i>
PIMCO Total Return Rank	66	81	98	16	58

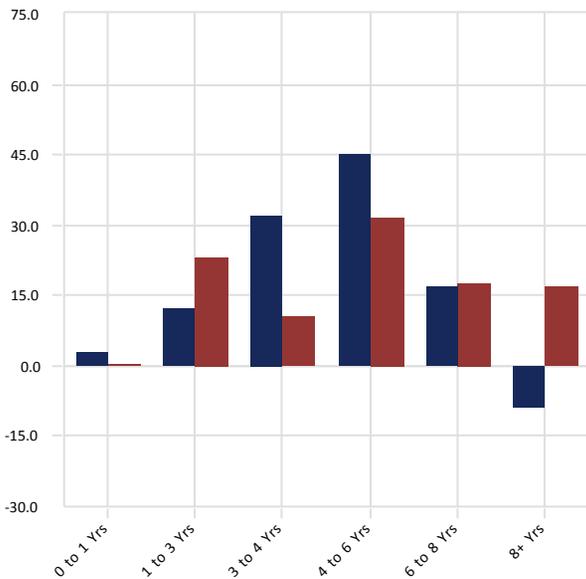
Portfolio Characteristics

	Portfolio	Benchmark
Modified Duration	4.70	6.03
Yield To Maturity (%)	5.19	3.46
Avg. Maturity	5.19	8.42
Avg. Quality	AA-	AA1/AA2
Coupon Rate (%)	2.93	3.16

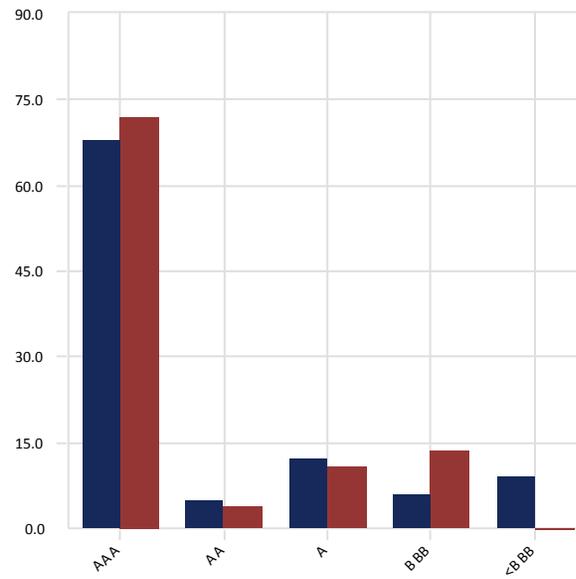
Historical Statistics (3 Year)

	Sharpe Ratio	Information Ratio	Standard Deviation
PIMCO Total Return	0.61	1.13	2.63
<i>Blmbg. Barc. U.S. Aggregate</i>	<i>0.20</i>	<i>-</i>	<i>2.62</i>
FTSE 3 Month T-Bill	-	-0.20	0.18

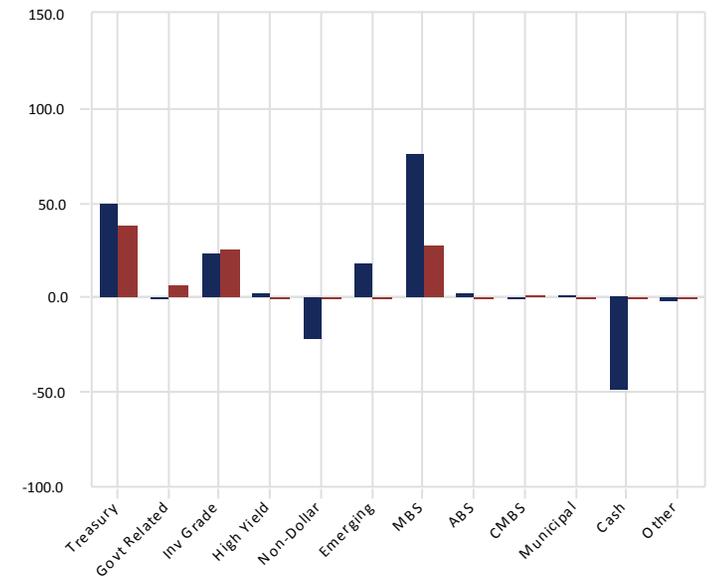
Duration Distribution (%)



Credit Quality Distribution (%)



Sector Distribution (%)



gross of fees

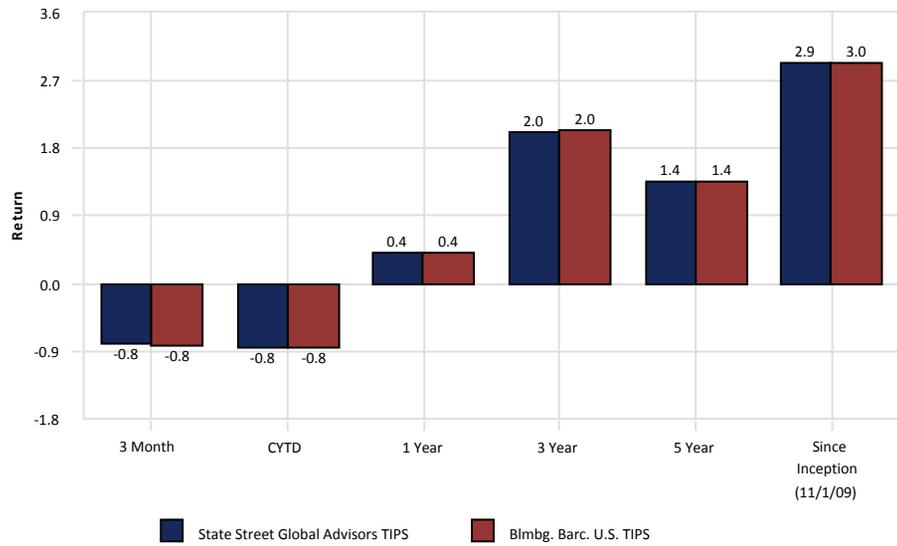


Howard County Retirement Plans

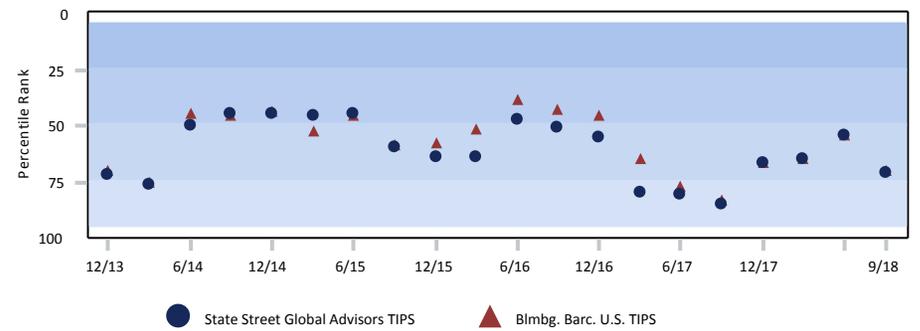
State Street Global Advisors TIPS vs. IM U.S. TIPS (SA+CF)

September 30, 2018

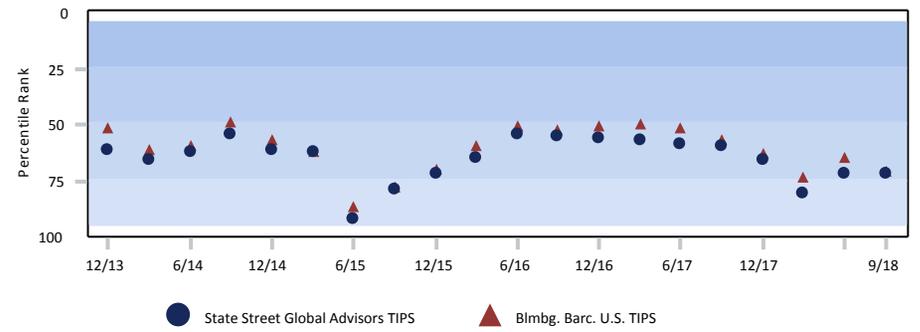
Comparative Performance



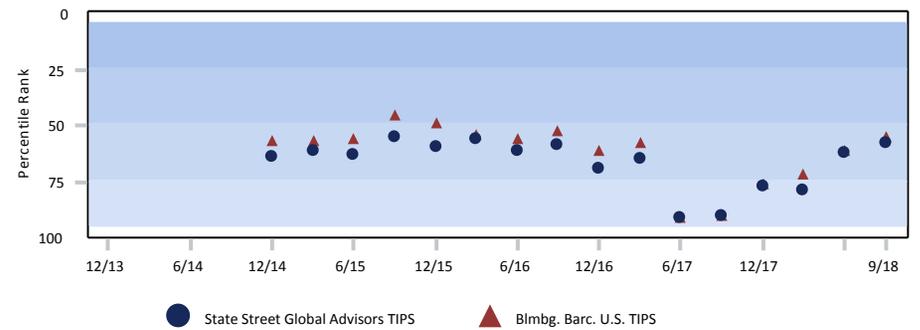
1 Year Rolling Percentile Ranking



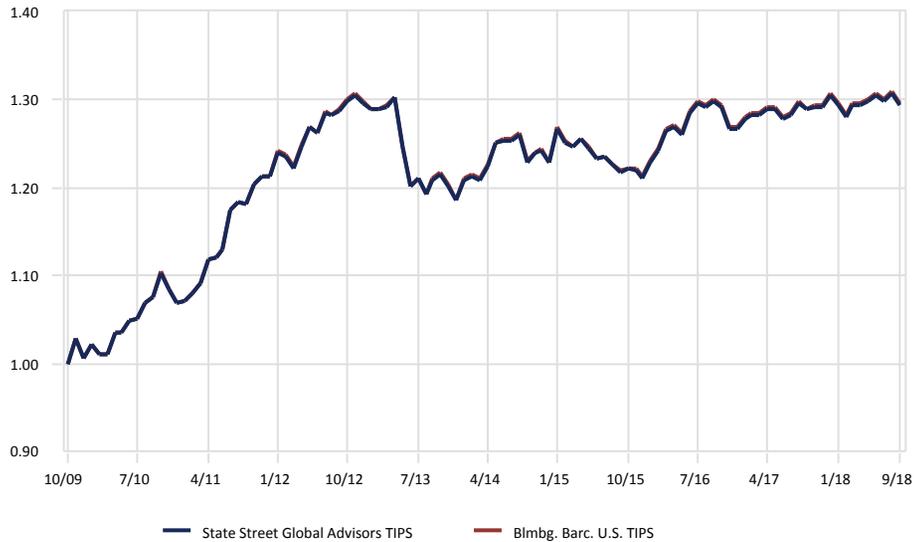
3 Year Rolling Percentile Ranking



5 Year Rolling Percentile Ranking



Growth of \$1



gross of fees



Howard County Retirement Plans

State Street Global Advisors TIPS

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
State Street Global Advisors TIPS	-0.81	-0.85	0.41	2.02	1.36
<i>Blmbg. Barc. U.S. TIPS</i>	<i>-0.82</i>	<i>-0.84</i>	<i>0.41</i>	<i>2.04</i>	<i>1.37</i>
<i>IM U.S. TIPS (SA+CF) Median</i>	<i>-0.74</i>	<i>-0.74</i>	<i>0.43</i>	<i>2.11</i>	<i>1.38</i>
State Street Global Advisors TIPS Rank	66	71	71	72	58

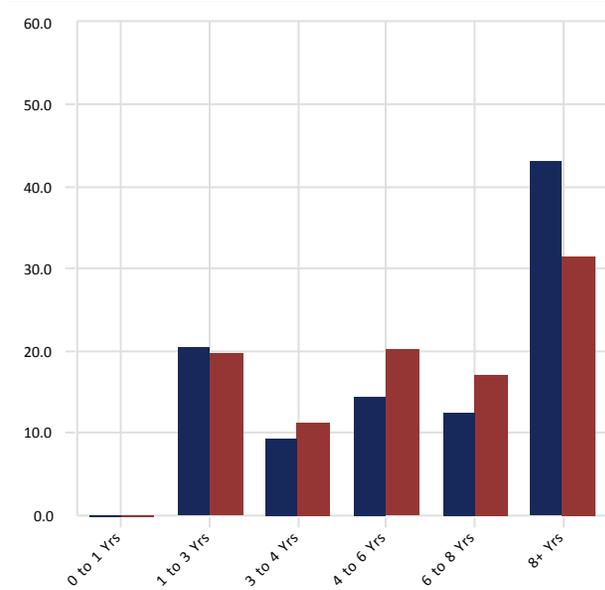
Portfolio Characteristics

	<u>Portfolio</u>	<u>Benchmark</u>
Modified Duration	5.44	5.44
Yield To Maturity (%)	3.14	3.17
Avg. Maturity	8.16	8.16
Avg. Quality	AAA	AAA
Coupon Rate (%)	0.82	0.76

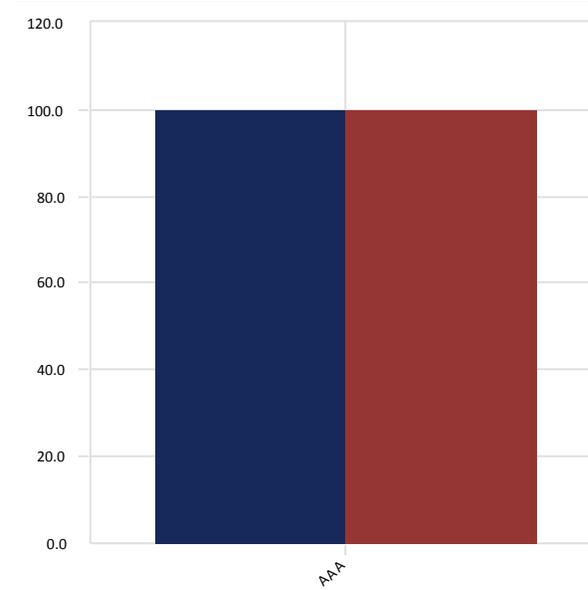
Historical Statistics (3 Year)

	Sharpe Ratio	Information Ratio	Standard Deviation
State Street Global Advisors TIPS	0.42	-0.51	2.96
<i>Blmbg. Barc. U.S. TIPS</i>	<i>0.42</i>	<i>-</i>	<i>2.95</i>
FTSE 3 Month T-Bill	-	-0.42	0.18

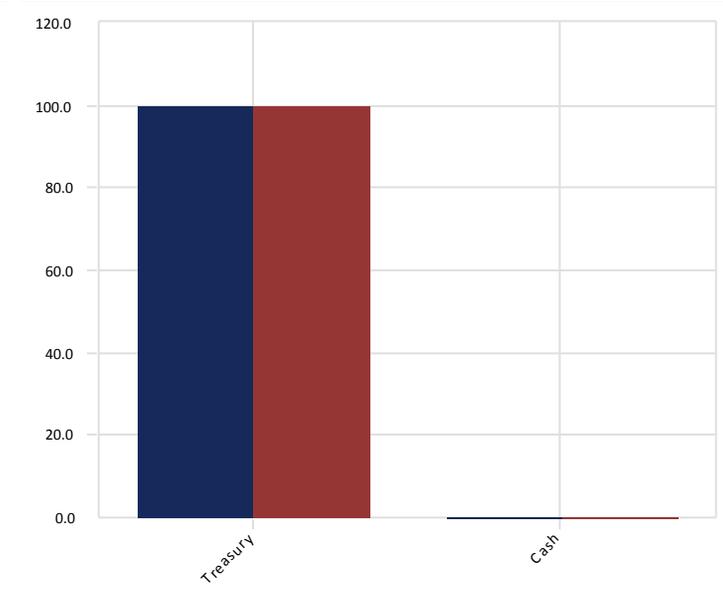
Duration Distribution (%)



Credit Quality Distribution (%)



Sector Distribution (%)



■ State Street Global Advisors TIPS ■ Blmbg. Barc. U.S. TIPS

gross of fees

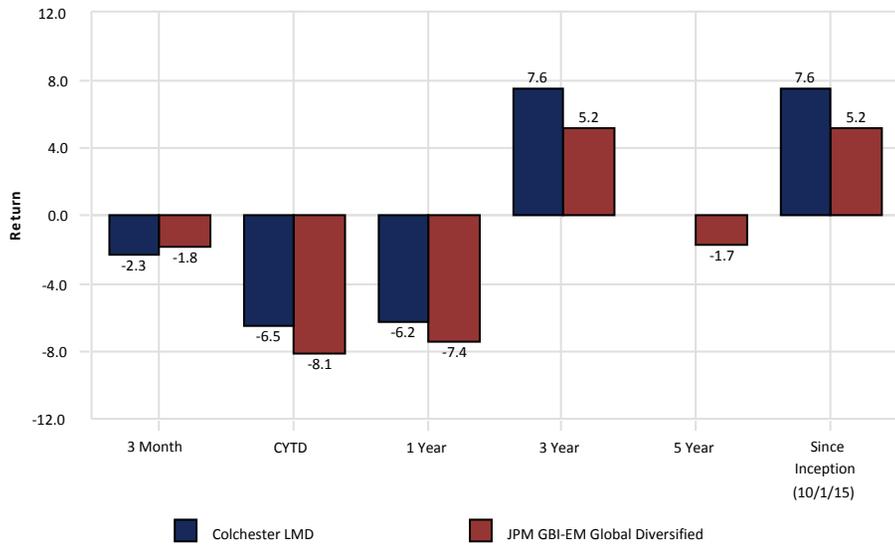


Howard County Retirement Plans

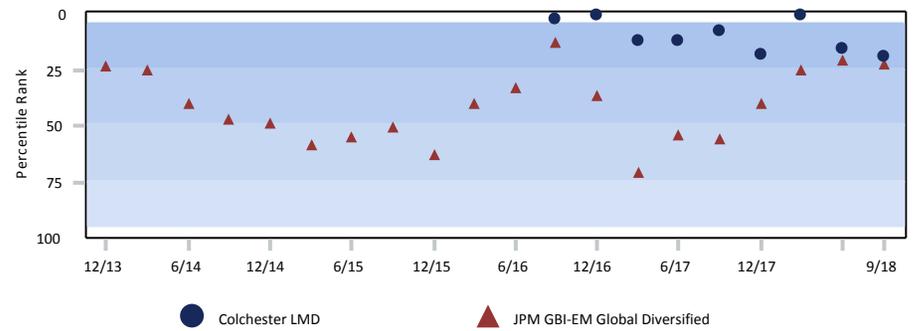
Colchester LMD vs. IM Emerging Markets Debt - LC (MF)

September 30, 2018

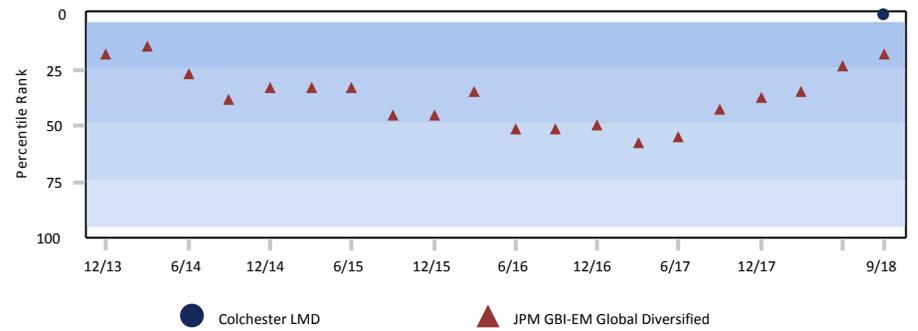
Comparative Performance



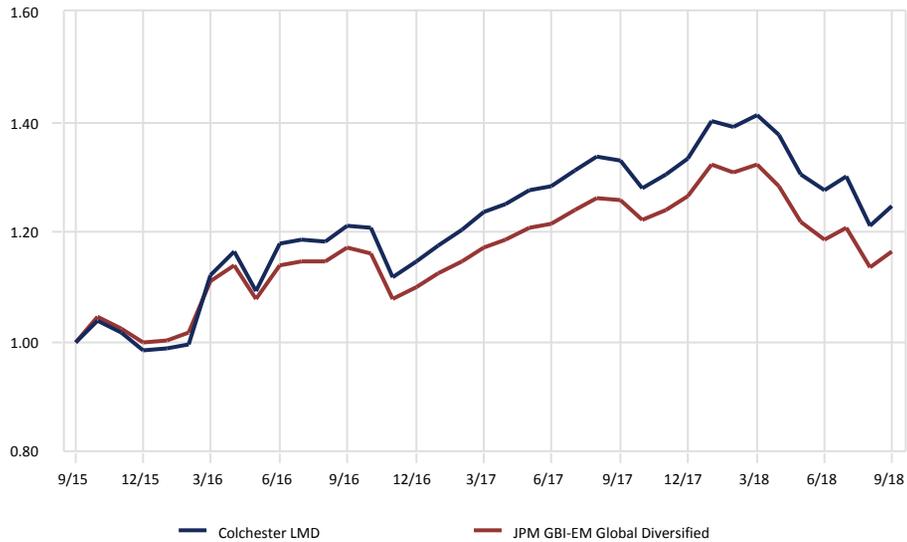
1 Year Rolling Percentile Ranking



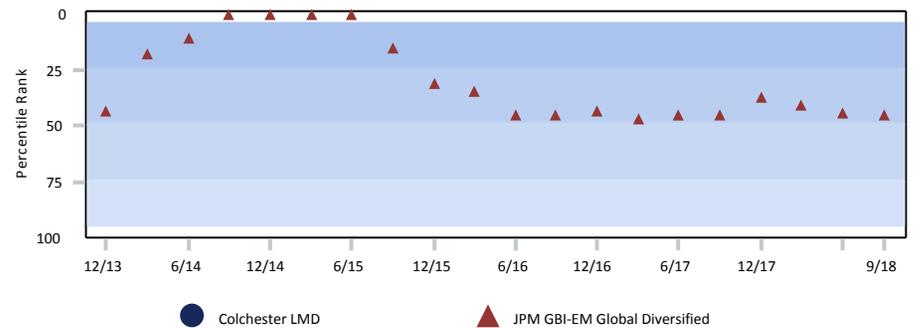
3 Year Rolling Percentile Ranking



Growth of \$1



5 Year Rolling Percentile Ranking



gross of fees



Howard County Retirement Plans

Colchester LMD

September 30, 2018

Comparative Performance

	3 Month	CYTD	1 Year	3 Year	5 Year
Colchester LMD	-2.28	-6.53	-6.23	7.60	-
<i>JPM GBI-EM Global Diversified</i>	-1.83	-8.15	-7.40	5.17	-1.68
<i>IM Emerging Markets Debt - LC (MF) Median</i>	-2.27	-9.15	-8.73	4.44	-1.83
Colchester LMD Rank	51	18	19	1	-

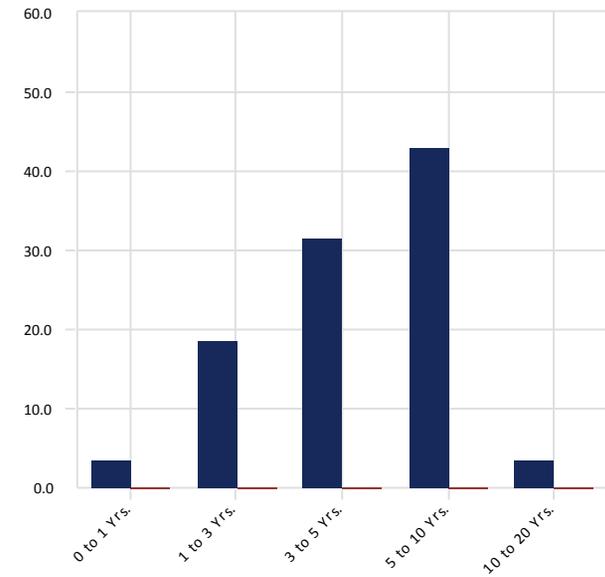
Portfolio Characteristics

	<u>Portfolio</u>	<u>Benchmark</u>
Modified Duration	5.05	5.13
Yield To Maturity (%)	7.32	6.74
Avg. Maturity	7.49	7.55
Avg. Quality	BBB	BBB+
Coupon Rate (%)	6.73	6.02

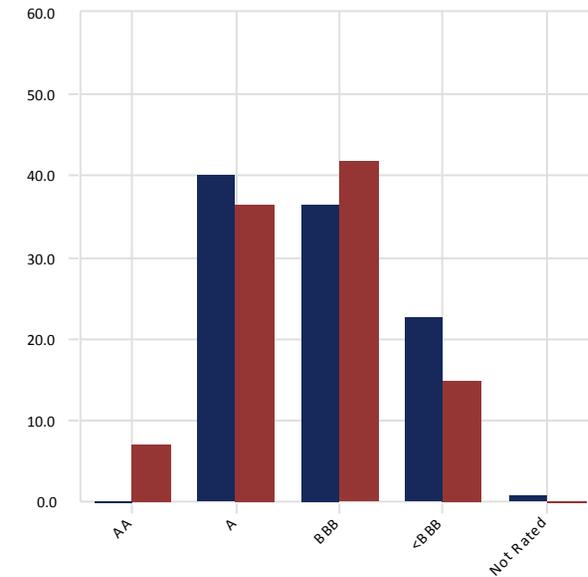
Historical Statistics (3 Year)

	Sharpe Ratio	Information Ratio	Standard Deviation
Colchester LMD	0.55	0.91	13.35
<i>JPM GBI-EM Global Diversified</i>	0.43	-	11.37
FTSE 3 Month T-Bill	-	-0.43	0.18

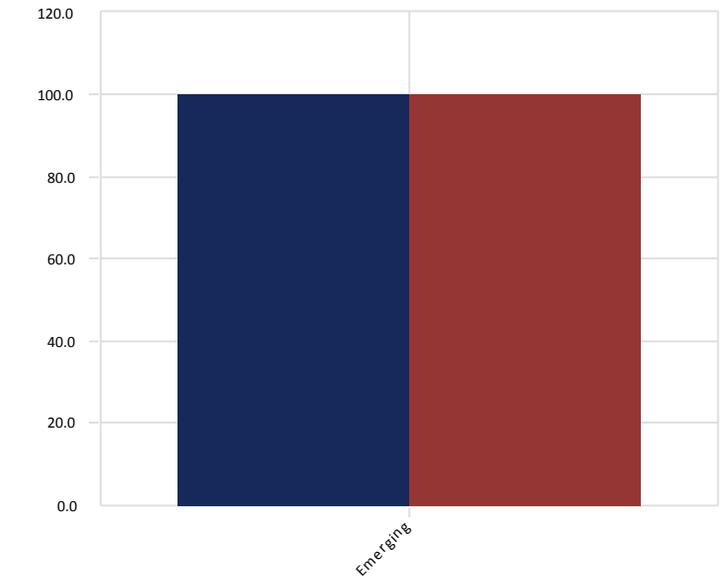
Duration Distribution (%)



Credit Quality Distribution (%)



Sector Distribution (%)



■ Colchester LMD ■ JPM GBI-EM Global Diversified

gross of fees

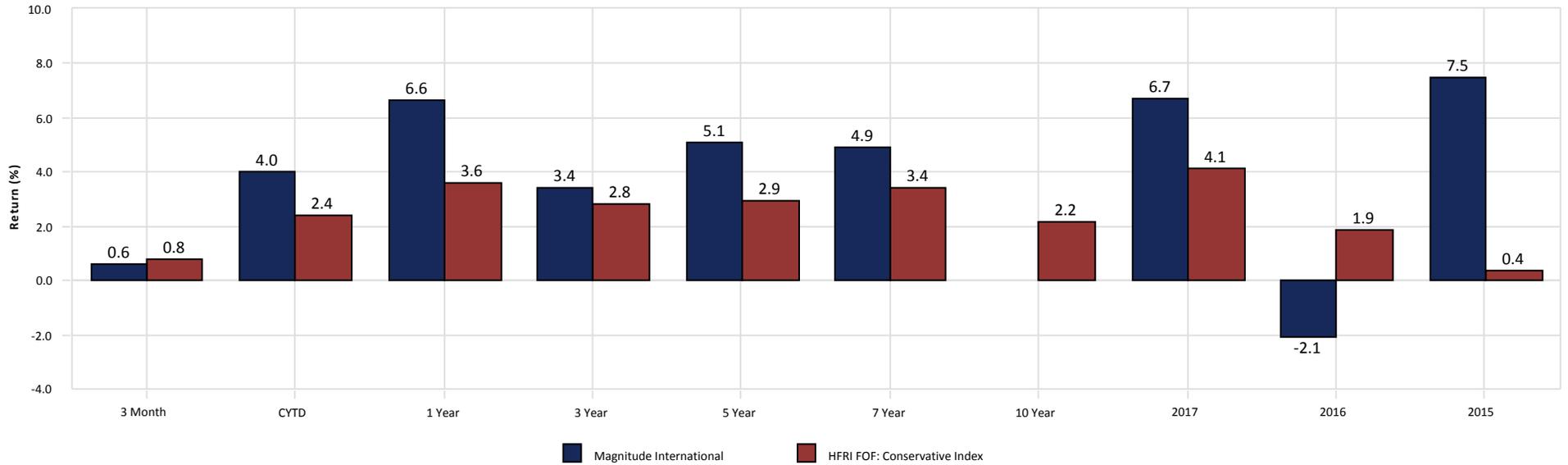


Howard County Retirement Plans

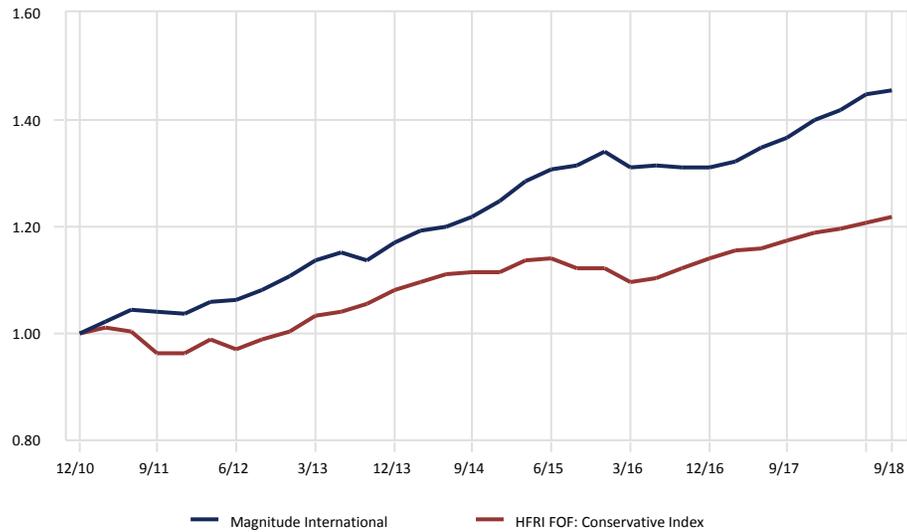
Magnitude International

September 30, 2018

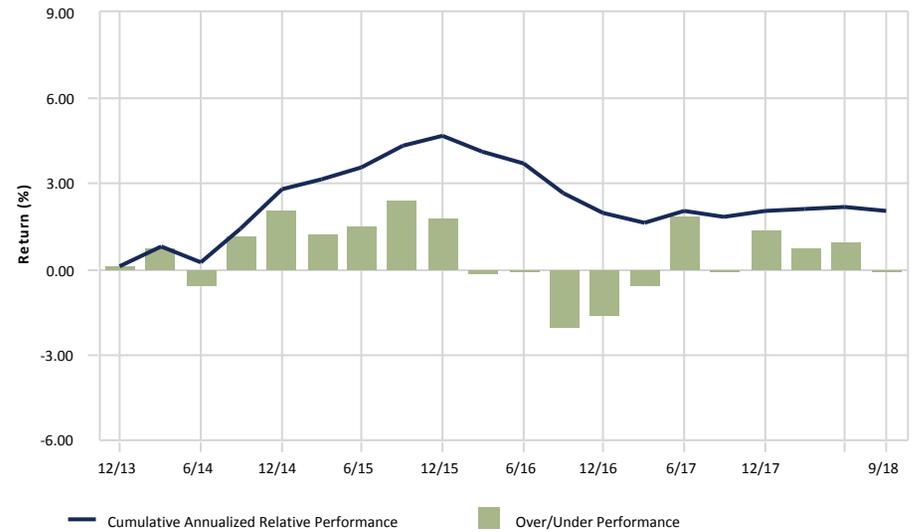
Comparative Performance



Growth of \$1 - Since Inception (01/01/11)



Relative Performance vs. HFRI FOF: Conservative Index



net of fees

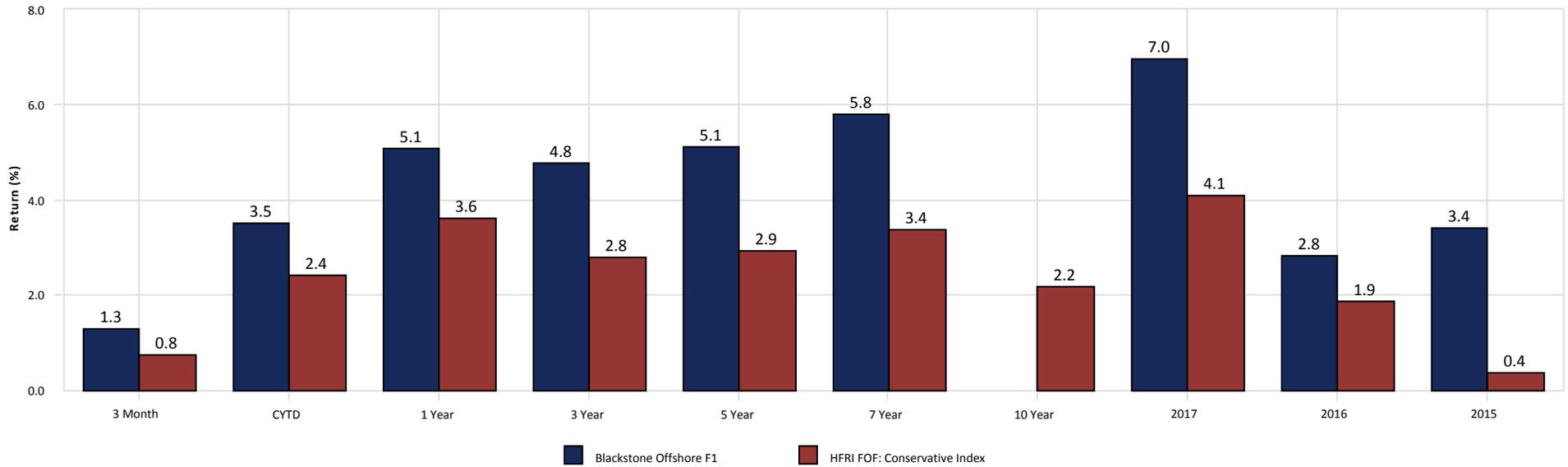


Howard County Retirement Plans

Blackstone Offshore F1

September 30, 2018

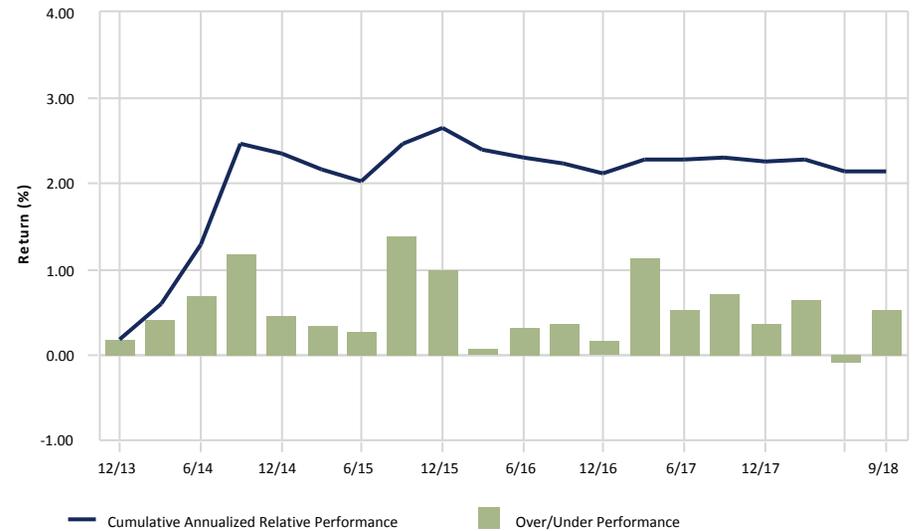
Comparative Performance



Growth of \$1 - Since Inception (03/01/11)



Relative Performance vs. HFRI FOF: Conservative Index



net of fees



Appendix



Howard County Retirement Plans

Composite Asset Allocation & Performance % | Net of Fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
Total Fund Composite	1,041,340,053	100.00	2.69	4.09	2.69	7.73	9.85	7.62	7.06	Apr-1997
<i>Total Implementation Index</i>			2.22	2.64	2.22	5.90	8.59	7.01	6.84	
Excess Return			0.47	1.45	0.47	1.83	1.26	0.61	0.22	
<i>Total Policy Index</i>			2.15	2.53	2.15	5.85	8.70	7.02	7.34	<i>Apr-1997</i>
Total Fund EX Alternatives	796,455,947	76.48	2.59	2.88	2.59	6.47	9.97	7.10	6.28	Jul-2008
Total Fund EX Real Assets	1,007,680,175	96.77	2.74	3.85	2.74	7.41	9.78	7.50	6.92	Jan-2004
Total Equity Composite	464,772,087	44.63	4.44	5.54	4.44	11.37	14.64	9.57	8.28	Jan-2004
US Equity Composite	270,947,635	26.02	6.62	11.63	6.62	18.48	17.91	13.76	10.15	Jan-2004
<i>Russell 3000 Index</i>			7.12	10.57	7.12	17.58	17.07	13.46	9.17	
Excess Return			-0.50	1.06	-0.50	0.90	0.84	0.30	0.98	
<i>US Equity Allocation Index</i>			6.86	10.93	6.86	17.64	17.20	13.17	9.48	<i>Jan-2004</i>
Large Cap Composite	208,033,973	19.98	6.70	9.81	6.70	17.10	16.98	13.62	9.43	Jan-2004
<i>Russell 1000 Index</i>			7.42	10.49	7.42	17.76	17.07	13.67	9.16	
Excess Return			-0.72	-0.68	-0.72	-0.66	-0.09	-0.05	0.27	
Non-Large Cap Composite	62,913,662	6.04	6.34	18.08	6.34	23.27	20.99	14.74	11.39	Jan-2004
<i>Russell 2500 Index</i>			4.70	10.41	4.70	16.19	16.13	11.37	9.89	
Excess Return			1.64	7.67	1.64	7.08	4.86	3.37	1.50	
International Equity Composite	193,824,452	18.61	1.54	-1.93	1.54	2.78	10.46	4.14	5.82	Jan-2004
<i>MSCI AC World ex USA (Net)</i>			0.71	-3.09	0.71	1.76	9.97	4.12	6.18	
Excess Return			0.83	1.16	0.83	1.02	0.49	0.02	-0.36	
International Developed Markets Composite	128,037,212	12.30	1.20	-0.15	1.20	3.04	8.47	4.36	-	Dec-2007
<i>MSCI EAFE Index (Net)</i>			1.42	-0.98	1.42	3.25	9.77	4.90	1.93	
Excess Return			-0.22	0.83	-0.22	-0.21	-1.30	-0.54	-	
International Emerging Markets Composite	65,787,240	6.32	2.20	-5.13	2.20	2.37	14.61	3.58	5.69	Feb-2006
<i>MSCI Emerging Markets Index (Net)</i>			-0.95	-7.39	-0.95	-0.44	12.77	3.99	5.13	
Excess Return			3.15	2.26	3.15	2.81	1.84	-0.41	0.56	
Fixed Income Composite	287,078,618	27.57	-0.14	-2.11	-0.14	-1.84	3.36	3.09	4.12	Jan-2004
<i>Fixed Income Policy Index</i>			0.02	-1.60	0.02	-1.22	1.31	2.16	3.93	
Excess Return			-0.16	-0.51	-0.16	-0.62	2.05	0.93	0.19	



Howard County Retirement Plans

Composite Asset Allocation & Performance % | Net of Fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
Real Assets Composite	33,659,878	3.23	1.11	11.48	1.11	17.84	12.14	10.78	7.24	Jul-2003
<i>NCREIF Property Index [3 Month Lag]</i>			<i>1.81</i>	<i>5.40</i>	<i>1.81</i>	<i>7.19</i>	<i>8.25</i>	<i>9.77</i>	<i>9.06</i>	
Excess Return			-0.70	6.08	-0.70	10.65	3.89	1.01	-1.82	
<i>NCREIF Fund Index-ODCE (VW) [M]</i>			<i>2.09</i>	<i>6.48</i>	<i>2.09</i>	<i>8.68</i>	<i>8.80</i>	<i>10.72</i>	<i>8.30</i>	<i>Jul-2003</i>
Alternatives Composite	247,750,677	23.79	3.09	8.29	3.09	12.09	9.35	9.93	8.73	Jul-2008
Private Equity Composite	129,314,921	12.42	5.12	12.87	5.12	18.65	15.61	16.54	12.76	Jul-2008
Hedge Fund Composite	118,435,757	11.37	0.97	3.78	0.97	5.86	4.10	5.10	4.89	Jan-2011
<i>HFRI FOF: Conservative Index</i>			<i>0.77</i>	<i>2.43</i>	<i>0.77</i>	<i>3.62</i>	<i>2.81</i>	<i>2.92</i>	<i>2.57</i>	
Excess Return			0.20	1.35	0.20	2.24	1.29	2.18	2.32	
Cash Composite	8,078,793	0.78	0.38	0.93	0.38	1.11	0.51	0.31	1.31	Jan-2004
<i>FTSE 3 Month T-Bill</i>			<i>0.50</i>	<i>1.29</i>	<i>0.50</i>	<i>1.57</i>	<i>0.80</i>	<i>0.49</i>	<i>1.24</i>	
Excess Return			-0.12	-0.36	-0.12	-0.46	-0.29	-0.18	0.07	



Howard County Retirement Plans

Manager Allocation & Performance % | Net of Fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
US Equity										
Invesco	68,479,341	6.58	7.22	9.81	7.22	17.57	16.47	13.43	9.13	Jan-2004
<i>S&P 500</i>			7.71	10.56	7.71	17.91	17.31	13.95	8.97	
Excess Return			-0.49	-0.75	-0.49	-0.34	-0.84	-0.52	0.16	
LSV Asset Management*	63,854,910	6.13	4.52	2.16	4.52	9.31	14.23	11.88	9.68	Jan-2004
<i>Russell 1000 Value Index</i>			5.70	3.92	5.70	9.45	13.55	10.72	8.07	
Excess Return			-1.18	-1.76	-1.18	-0.14	0.68	1.16	1.61	
Westfield	75,699,722	7.27	8.14	17.23	8.14	24.10	20.03	15.40	16.82	Jul-2010
<i>Russell 1000 Growth Index</i>			9.17	17.09	9.17	26.30	20.55	16.58	17.91	
Excess Return			-1.03	0.14	-1.03	-2.20	-0.52	-1.18	-1.09	
William Blair	19,887,561	1.91	8.50	20.61	8.50	27.50	19.76	15.74	12.03	Jun-2006
<i>Russell 2500 Growth Index</i>			7.17	15.78	7.17	23.13	17.96	12.88	10.39	
Excess Return			1.33	4.83	1.33	4.37	1.80	2.86	1.64	
Investment Counselors of Maryland	24,506,429	2.35	1.16	8.49	1.16	12.27	18.57	11.81	11.70	Apr-1993
<i>Russell 2000 Value Index</i>			1.60	7.14	1.60	9.33	16.12	9.91	10.41	
Excess Return			-0.44	1.35	-0.44	2.94	2.45	1.90	1.29	
Brown Capital Management	18,519,672	1.78	11.50	30.41	11.50	36.06	26.34	17.44	20.38	Aug-2011
<i>Russell 2000 Growth Index</i>			5.52	15.76	5.52	21.06	17.98	12.14	13.67	
Excess Return			5.98	14.65	5.98	15.00	8.36	5.30	6.71	
International Equity										
Mondrian International	60,981,886	5.86	1.98	-2.00	1.98	1.16	8.20	4.39	1.33	Dec-2007
<i>MSCI EAFE Index (Net)</i>			1.42	-0.98	1.42	3.25	9.77	4.90	1.93	
Excess Return			0.56	-1.02	0.56	-2.09	-1.57	-0.51	-0.60	
Baillie Gifford	67,055,326	6.44	0.50	-	0.50	-	-	-	1.42	May-2018
<i>MSCI EAFE Index (Net)</i>			1.35	-	1.35	-	-	-	-2.13	
Excess Return			-0.85	-	-0.85	-	-	-	3.55	
DFA Emerging Markets	65,787,240	6.32	2.20	-5.13	2.20	2.37	14.61	3.59	5.61	Feb-2006
<i>MSCI Emerging Markets (Net)</i>			-0.95	-7.39	-0.95	-0.44	12.77	3.99	5.13	
Excess Return			3.15	2.26	3.15	2.81	1.84	-0.40	0.48	

All returns are time-weighted and calculated using custodian data.

* Inception date differs from manager; Summit does not calculate partial month returns.



Howard County Retirement Plans

Manager Allocation & Performance % | Net of Fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
Fixed Income										
Dodge & Cox	118,404,775	11.37	0.63	-0.59	0.63	-0.15	3.33	3.32	3.93	May-2010
<i>Blmbg. Barc. U.S. Aggregate</i>			0.02	-1.60	0.02	-1.22	1.31	2.16	2.89	
Excess Return			0.61	1.01	0.61	1.07	2.02	1.16	1.04	
PIMCO Total Return	108,315,124	10.40	0.02	-1.76	0.02	-1.80	2.10	2.20	3.18	May-2010
<i>Blmbg. Barc. U.S. Aggregate</i>			0.02	-1.60	0.02	-1.22	1.31	2.16	2.89	
Excess Return			0.00	-0.16	0.00	-0.58	0.79	0.04	0.29	
State Street Global Advisors TIPS	21,333,840	2.05	-0.81	-0.86	-0.81	0.36	1.97	1.31	2.88	Nov-2009
<i>Blmbg. Barc. U.S. TIPS</i>			-0.82	-0.84	-0.82	0.41	2.04	1.37	2.95	
Excess Return			0.01	-0.02	0.01	-0.05	-0.07	-0.06	-0.07	
Colchester LMD	39,024,879	3.75	-2.45	-7.03	-2.45	-6.90	6.83	-	6.83	Oct-2015
<i>JPM GBI-EM Global Diversified</i>			-1.83	-8.15	-1.83	-7.40	5.17	-	5.17	
Excess Return			-0.62	1.12	-0.62	0.50	1.66	-	1.66	
Real Assets										
TA Realty Associates VIII	169,451	0.02	4.11	11.13	4.11	14.36	8.65	9.96	1.59	Jul-2007
TA Realty Associates IX	21,475	0.00	0.36	1.22	0.36	-0.04	3.98	7.88	7.77	Apr-2010
Partners Group Global RE 2011	7,028,684	0.67	-3.99	2.94	-3.99	10.60	9.45	9.04	6.74	Mar-2012
Partners Group Global RE 2014	17,460,320	1.68	1.20	12.99	1.20	17.56	15.56	-	10.20	Dec-2014
Commonfund Natural Resources X	4,468,390	0.43	7.55	26.37	7.55	35.17	-	-	24.82	Apr-2016
Aether Real Assets IV	3,997,794	0.38	3.61	8.75	3.61	23.67	-	-	3.25	Jun-2016
Private Equity										
Siguler Guff Distressed Opps III	1,766,132	0.17	3.85	10.22	3.85	13.06	7.73	9.11	9.21	Jul-2008
Greenspring IV	5,122,095	0.49	8.32	10.94	8.32	14.77	10.70	19.25	16.04	Jul-2009
Pantheon Global Secondaries IV	670,868	0.06	4.99	13.31	4.99	20.00	9.69	12.01	13.34	Sep-2010
LGT Crown Asia-Pacific II	14,439,805	1.39	1.14	9.21	1.14	14.09	13.63	15.83	-10.96	Jul-2011
Greenspring V	7,687,284	0.74	3.43	10.92	3.43	14.41	17.72	20.94	17.75	Sep-2011
Adveq Europe V	7,338,787	0.70	2.74	16.87	2.74	27.67	15.89	7.11	8.56	Jan-2013
LGT Crown Global Secondaries III	5,359,774	0.51	4.80	7.35	4.80	11.40	12.78	15.27	16.56	Feb-2013

All returns are time-weighted and calculated using custodian data.

* Inception date differs from manager; Summit does not calculate partial month returns.



Howard County Retirement Plans

Manager Allocation & Performance % | Net of Fees

September 30, 2018

	Asset \$	Asset %	3 Month	CYTD	FYTD	1 Year	3 Year	5 Year	Since Inception	Inception Date
Flag Private Equity V	14,296,084	1.37	9.21	16.81	9.21	34.54	18.77	16.62	16.62	Oct-2013
HarbourVest Partners 2013 Direct	16,373,015	1.57	2.28	5.56	2.28	10.44	17.77	-	18.05	Jan-2014
Greenspring VI	8,799,033	0.84	6.31	19.79	6.31	23.29	21.14	-	16.58	Apr-2014
Greenspring Secondaries Fund I	3,972,255	0.38	28.70	46.94	28.70	43.17	29.49	-	26.24	May-2014
Greenspring VIII	1,608,800	0.15	12.55	9.44	12.55	-8.25	-	-	-7.64	Sep-2017
Adveq Europe VI	3,340,424	0.32	0.83	16.99	0.83	19.26	-5.48	-	5.85	Feb-2015
Flag Private Equity VI	12,072,678	1.16	8.69	24.24	8.69	27.17	19.33	-	18.22	Aug-2015
57 Stars	4,558,988	0.44	4.27	1.81	4.27	6.19	-0.14	-	-0.14	Oct-2015
NB Crossroads XXI	8,464,688	0.81	1.17	6.71	1.17	9.97	4.61	-	4.61	Oct-2015
LGT Crown Asia-Pacific III	4,312,480	0.41	2.03	20.87	2.03	28.04	-	-	21.55	Nov-2015
HarbourVest IV	7,873,961	0.76	3.70	4.69	3.70	9.98	-	-	10.88	Jan-2017
Aberdeen US PE VII	1,257,772	0.12	14.80	14.04	14.80	-	-	-	14.04	Dec-2017
Hedge Funds										
Magnitude International	58,630,932	5.63	0.64	4.03	0.64	6.64	3.42	5.07	4.97	Jan-2011
<i>HFRI FOF: Conservative Index</i>			<i>0.77</i>	<i>2.43</i>	<i>0.77</i>	<i>3.62</i>	<i>2.81</i>	<i>2.92</i>	<i>2.57</i>	
Excess Return			-0.13	1.60	-0.13	3.02	0.61	2.15	2.40	
Blackstone Offshore F1	59,804,824	5.74	1.30	3.53	1.30	5.11	4.78	5.13	4.88	Mar-2011
<i>HFRI FOF: Conservative Index</i>			<i>0.77</i>	<i>2.43</i>	<i>0.77</i>	<i>3.62</i>	<i>2.81</i>	<i>2.92</i>	<i>2.44</i>	
Excess Return			0.53	1.10	0.53	1.49	1.97	2.21	2.44	
Cash										
Cash - General Employees	3,231,260	0.31	0.42	1.04	0.42	1.26	0.57	0.35	1.31	Jan-2004
Cash - Police & Fire	4,344,629	0.42	0.38	0.95	0.38	1.10	0.49	0.29	1.26	Jan-2004

All returns are time-weighted and calculated using custodian data.

* Inception date differs from manager; Summit does not calculate partial month returns.



Howard County Retirement Plans

Historical Footnotes

September 30, 2018

All asset class and master trust returns prior to 4/1/00 were approximated by using the actual quarterly returns from each plan and weighting them by the plans' beginning of period asset values.

Large Cap and Non-Large Cap Composites prior to 12/31/03 are approximated by using the actual quarterly returns for each manager and weighting them by the the accounts' beginning of period asset values.



Howard County Retirement Plans

US Equity Policy Index

September 30, 2018

	(%)
Jul-2006	
Russell 3000 Index	100.00
Jun-2002	
S&P 500	55.60
S&P MidCap 400	22.20
Russell 2000 Index	22.20
May-1992	
S&P 500	80.00
Russell 2000 Index	20.00



Howard County Retirement Plans

Fixed Income Policy Index

September 30, 2018

	(%)
Jul-2006	
Blmbg. Barc. U.S. Aggregate	100.00
Jun-2002	
Blmbg. Barc. U.S. Aggregate	85.70
Blmbg. Barc. U.S. Corp: High Yield	14.30
Apr-2002	
Blmbg. Barc. U.S. Aggregate	87.50
Blmbg. Barc. U.S. Corp: High Yield	12.50
Dec-1993	
Blmbg. Barc. U.S. Aggregate	100.00



Howard County Retirement Plans

Total Implementation Index

September 30, 2018

	(%)		(%)
Dec-2015		Sep-1986	
Russell 3000 Index	20.00	Russell 3000 Index	45.00
MSCI AC World ex USA (Net)	20.00	MSCI EAFE Index	15.00
Blmbg. Barc. U.S. Aggregate	25.00	Blmbg. Barc. U.S. Aggregate	30.00
JPM GBI-EM Global Diversified	5.00	ICE BofAML High Yield Master II	5.00
NCREIF Property Index [3 Month Lag]	7.50	NCREIF Property Index [3 Month Lag]	5.00
Private Equity Composite	10.00		
HFRI FOF: Conservative Index	12.50		
FTSE 3 Month T-Bill	0.00		
Jan-2012			
Russell 3000 Index	22.50		
MSCI AC World ex USA (Net)	22.50		
Blmbg. Barc. U.S. Aggregate	32.50		
NCREIF Property Index [3 Month Lag]	5.00		
Private Equity Composite	10.00		
HFRI FOF: Conservative Index	7.50		
FTSE 3 Month T-Bill	0.00		
Dec-2007			
Russell 3000 Index	39.00		
MSCI World ex US	21.00		
Blmbg. Barc. U.S. Aggregate	35.00		
NCREIF Property Index [3 Month Lag]	5.00		
FTSE 3 Month T-Bill	0.00		
Jul-2006			
Russell 3000 Index	39.00		
MSCI World ex US	21.00		
Blmbg. Barc. U.S. Aggregate	35.00		
NCREIF Property Index [3 Month Lag]	5.00		



Howard County Retirement Plans

Total Fund Policy Composition

September 30, 2018

	(%)		(%)
Dec-2015		Dec-2007	
S&P 500	15.00	S&P 500	24.00
Russell 2500 Index	5.00	Russell 2500 Index	15.00
MSCI EAFE Index (Net)	13.00	MSCI EAFE Index	16.00
MSCI Emerging Markets (Net)	7.00	MSCI Emerging Markets Index	5.00
Blmbg. Barc. U.S. Aggregate	25.00	Blmbg. Barc. U.S. Aggregate	35.00
JPM GBI-EM Global Diversified	5.00	NCREIF Property Index [3 Month Lag]	5.00
NCREIF Property Index [3 Month Lag]	7.50	FTSE 3 Month T-Bill	0.00
Private Equity Composite	10.00		
HFRI FOF: Conservative Index	12.50	Jul-2006	
FTSE 3 Month T-Bill	0.00	S&P 500	24.00
		Russell 2500 Index	15.00
Jan-2012		MSCI EAFE Index	16.00
S&P 500	16.90	MSCI Emerging Markets Index	5.00
Russell 2500 Index	5.60	Blmbg. Barc. U.S. Aggregate	35.00
MSCI EAFE Index (Net)	14.60	NCREIF Property Index [3 Month Lag]	5.00
MSCI Emerging Markets (Net)	7.90		
Blmbg. Barc. U.S. Aggregate	32.50	Oct-2003	
NCREIF Property Index [3 Month Lag]	5.00	S&P 500	25.00
Private Equity Composite	10.00	S&P MidCap 400	10.00
HFRI Fund of Funds Composite Index	7.50	Russell 2000 Index	10.00
FTSE 3 Month T-Bill	0.00	MSCI EAFE Index	15.00
		Blmbg. Barc. U.S. Aggregate	30.00
Jul-2008		Blmbg. Barc. U.S. Corp: High Yield	5.00
S&P 500	22.00	NCREIF Property Index [3 Month Lag]	5.00
Russell 2500 Index	13.80		
MSCI EAFE Index	14.70		
MSCI Emerging Markets Index	4.50		
Blmbg. Barc. U.S. Aggregate	35.00		
NCREIF Property Index [3 Month Lag]	5.00		
FTSE 3 Month T-Bill	5.00		
FTSE 3 Month T-Bill	0.00		



Howard County Retirement Plans

Total Fund Policy Composition

September 30, 2018

	(%)		(%)
Jun-2002		Jul-1990	
S&P 500	26.00	S&P 500	55.00
S&P MidCap 400	11.00	Blmbg. Barc. U.S. Aggregate	45.00
Russell 2000 Index	11.00		
MSCI EAFE Index	15.00		
Blmbg. Barc. U.S. Aggregate	32.00		
Blmbg. Barc. U.S. Corp: High Yield	5.00		
Apr-2002			
S&P 500	40.00		
Russell 2000 Index	10.00		
MSCI EAFE Index	10.00		
Blmbg. Barc. U.S. Aggregate	35.00		
Blmbg. Barc. U.S. Corp: High Yield	5.00		
Jul-1998			
S&P 500	40.00		
Russell 2000 Index	10.00		
MSCI EAFE Index	10.00		
Blmbg. Barc. U.S. Aggregate	40.00		
Jan-1997			
S&P 500	60.00		
Blmbg. Barc. U.S. Aggregate	40.00		
Jan-1996			
S&P 500	50.00		
Blmbg. Barc. U.S. Aggregate	50.00		
Oct-1994			
S&P 500	55.00		
Blmbg. Barc. U.S. Aggregate	45.00		



Active Return	- Arithmetic difference between the manager's performance and the designated benchmark return over a specified time period.
Alpha	- A measure of the difference between a portfolio's actual performance and its expected return based on its level of risk as determined by beta. It determines the portfolio's non-systemic return, or its historical performance not explained by movements of the market.
Beta	- A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of the portfolio's systematic risk.
Consistency	- The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. Higher consistency indicates the manager has contributed more to the product's performance.
Distributed to Paid In (DPI)	- The ratio of money distributed to Limited Partners by the fund, relative to contributions. It is calculated by dividing cumulative distributions by paid in capital. This multiple shows the investor how much money they got back. It is a good measure for evaluating a fund later in its life because there are more distributions to measure against.
Down Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of negative returns. A lower value indicates better product performance
Downside Risk	- A measure similar to standard deviation that utilizes only the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. A higher factor is indicative of a riskier product.
Excess Return	- Arithmetic difference between the manager's performance and the risk-free return over a specified time period.
Excess Risk	- A measure of the standard deviation of a portfolio's performance relative to the risk free return.
Information Ratio	- This calculates the value-added contribution of the manager and is derived by dividing the active rate of return of the portfolio by the tracking error. The higher the Information Ratio, the more the manager has added value to the portfolio.
Public Market Equivalent (PME)	- Designs a set of analyses used in the Private Equity Industry to evaluate the performance of a Private Equity Fund against a public benchmark or index.
R-Squared	- The percentage of a portfolio's performance that can be explained by the behavior of the appropriate benchmark. A high R-Squared means the portfolio's performance has historically moved in the same direction as the appropriate benchmark.
Return	- Compounded rate of return for the period.
Sharpe Ratio	- Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is an absolute rate of return per unit of risk. A higher value demonstrates better historical risk-adjusted performance.
Standard Deviation	- A statistical measure of the range of a portfolio's performance. It represents the variability of returns around the average return over a specified time period.
Total Value to Paid In (TVPI)	- The ratio of the current value of remaining investments within a fund, plus the total value of all distributions to date, relative to the total amount of capital paid into the fund to date. It is a good measure of performance before the end of a fund's life
Tracking Error	- This is a measure of the standard deviation of a portfolio's returns in relation to the performance of its designated market benchmark.
Treynor Ratio	- Similar to Sharpe ratio but utilizes beta rather than excess risk as determined by standard deviation. It is calculated by taking the excess rate of return above the risk free rate divided by beta to derive the absolute rate of return per unit of risk. A higher value indicates a product has achieved better historical risk-adjusted performance.
Up Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of positive returns. A higher value indicates better product performance.



AndCo compiled this report for the sole use of the client for which it was prepared. AndCo is responsible for evaluating the performance results of the Total Fund along with the investment advisors by comparing their performance with indices and other related peer universe data that is deemed appropriate. AndCo uses the results from this evaluation to make observations and recommendations to the client.

AndCo uses time-weighted calculations which are founded on standards recommended by the CFA Institute. The calculations and values shown are based on information that is received from custodians. AndCo analyzes transactions as indicated on the custodian statements and reviews the custodial market values of the portfolio. As a result, this provides AndCo with a reasonable basis that the investment information presented is free from material misstatement. This methodology of evaluating and measuring performance provides AndCo with a practical foundation for our observations and recommendations. Nothing came to our attention that would cause AndCo to believe that the information presented is significantly misstated.

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