Investment Performance Review Period Ending December 31, 2019

Preliminary

# Delray Beach Firefighters' Retirement System



AndCo Consulting | (844) 44-ANDCO | AndCoConsulting.com

First and foremost, "Thank you" for giving AndCo the opportunity to serve you. On behalf of our entire organization, we are extremely grateful and appreciative of our client partnerships and will continue working hard to maintain your trust and confidence. Our mission statement reads "To represent the sole interest of our clients by redefining independence." We're happy to report that we remain steadfast in this core belief and continue to build an organization with a service model that is independent, singularly focused, customized and passionately delivered.

2020 is a big year for AndCo. We are celebrating our 20-year anniversary of serving our valuable clients. As we start 2020, we are 89 people strong advising approximately \$92 billion in client assets – a record high. In 2019 we hired 9 new team members. All departments within AndCo have grown over the years as we thoughtfully invest in our firm to provide the services you expect. We have included our organizational chart in this report which your consultant will review to provide you a visualization of our continued commitment to service and quality.

2020 will also represent another year of significant investment in the organization. As a result, your feedback is invaluable as we continue to focus our reinvestment in areas that will enhance our services to clients. We would like to thank everyone for their participation in our client survey last year. Your honesty and candor allowed us to accurately assess where we are strong and where there are opportunities for improvement. The areas where our clients indicate potential room for improvement drive much of our investment and focus. This is a primary reason why we hired 7 new team members in our research group last year to help promote investment ideas and support our consultants. Today, we have 19 dedicated research analysts. As 2020 progresses, we are targeting additional investments within our finance, compliance, human resources, information technology, marketing and research departments.

Moreover, each January we have our annual firmwide retreat. This retreat is a great time for all of our employees to spend time together and for us to reinforce everyone's understanding of AndCo's primary purpose, share results highlighted by our strategic goals, and review areas of focus for the upcoming year. Since the inception of AndCo, the idea has been to make the firm a multigenerational organization owned and operated by its employees. As a result, since 2015, along with the strategic elements of our annual retreat, we also announce new partners of the firm to support our succession plan and the long-term sustainability of the organization. Today we have a total of 10 partners controlling 100% of the company. This year we added two new partners Kim Spurlin and Evan Scussel. Kim has been on our Executive Leadership team for the past 7 years and currently serves as our CFO. Evan has been on our research team for 7 years and was recently promoted to a Research Director. We couldn't be happier for both Kim and Evan.

The evolution of our firm would not be possible without great client partners like you. Our name reminds us who we work for every day "Our Client" &Co. You will always be our first priority. As we continue to discuss strategic decisions regarding our firm, please know every decision is filtered through the following question "How does this benefit our clients?" and if it doesn't benefit you, we don't do it, it's that simple. We said this last year and we'll say it again next year. If this commitment ever falters, you need to find a new consultant.

We know each of our clients is facing many challenges and we want to be there to help support you through all environments. We are honored and humbled that you have chosen AndCo as your partner. We do not take that relationship and responsibility for granted and will continue to work tirelessly to exceed your expectations.

On behalf of AndCo, thank you for your valued partnership and the opportunity to serve you.

Mike Welker, CFA® CEO



# **Organizational Chart**

## PARTNERSHIP

Mike Welker, CFA	Evan Scussel, CFA, CAIA
Bryan Bakardjiev, CFA	Jason Purdy
Dan Johnson	Kim Spurlin, CPA
David Ray	Steve Gordon
Donna Sullivan	Troy Brown, CFA

## LEADERSHIP & MANAGEMENT

Mike Welker, CFA	Dan Johnson		
CEO	Consulting Director		
Bryan Bakardjiev, CFA COO	Derek Tangeman, CFP, CIMA Marketing Director		
Kim Spurlin, CPA	Evan Scussel, CFA, CAIA		
CFO	Research Director		
Sara Searle	Jack Evatt		
CCO	Consulting Director		
Rachel Brignoni, MHR	Jacob Peacock		
CHRO	Consulting Director		

**Steve Gordon** Partner

**Troy Brown, CFA Executive Director** 

**David Ray Executive Director** 

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Zac Chichinski, CFA, CIPM Public Equity

Updated as of 01/13/20

**Tala Chin** 

FMPI OYFES

I.T.

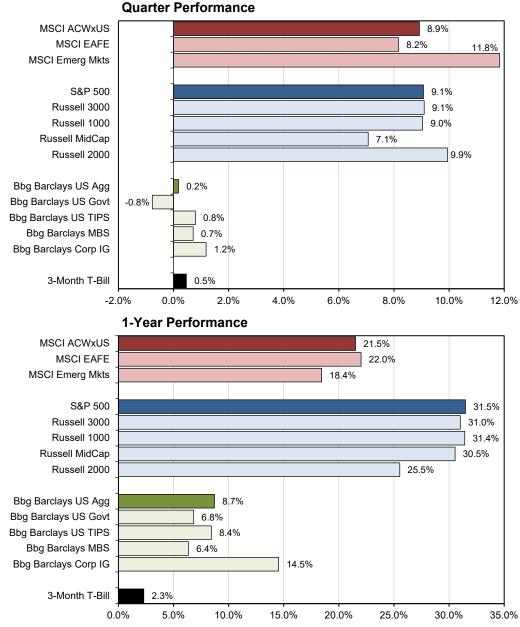
**Jamie Utt** 



4th Quarter 2019 Market Environment

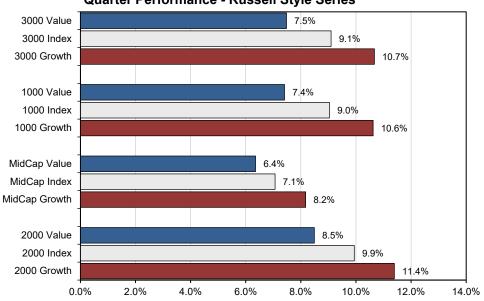


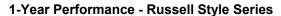
- . Broad asset class returns were positive during the 4<sup>th</sup> guarter of 2019 with the exception of the US Gov't bond index. Both US and international equity markets benefited from positive developments concerning trade disruptions. Generally, the dispersion between US and international developed equities was muted during the guarter. Emerging markets significantly outperformed as previously noted trade tensions between the US and China eased. Monetary policy remained supportive with the Federal Reserve (Fed) cutting rates once during the period in addition to providing liquidity to the market through security purchases which acted as a catalyst to risk assets. Within domestic equity markets, the performance dispersion between large cap and small cap stocks reversed during the quarter with the S&P 500 Index returning 9.1% versus a return of 9.9% for the small cap Russell 2000 Index. 2019 performance of US equity markets was the highest since 2013 with large and mid-cap stocks returning 31.5% and 30.5%, respectively, while small cap stocks posted a return of 25.5%.
- International equity market returns were strong during the 4<sup>th</sup> quarter. Similar to US markets, international performance was impacted by continued monetary policy relief from the Bank of Japan and the European Central Bank, positive developments around global trade, and likely resolution on Brexit. International returns were also buoyed by a weakening US dollar (USD) which declined against most major currencies during the period. Emerging markets outperformed relative to developed markets during the period with the MSCI Emerging Markets Index posting a gain of 11.8% compared to a return of 8.2% for the MSCI EAFE Index. Both developed and emerging markets posted strong returns over the 1-year period, returning 22.0% and 18.4% respectively.
- Fixed income index performance was muted during the 4<sup>th</sup> quarter. The broad market Bloomberg Barclays Aggregate Index managed to gain 0.2% as investors favored equities and interest rates were generally flat during the quarter as concerns over an immanent US recession eased. Investment grade corporate bonds delivered solid performance for the 4<sup>th</sup> quarter returning 1.2%, which outperformed Treasury and securitized issues. Corporate bonds benefitted from the same increased investor risk appetite that fueled equity returns during the quarter. Overall, the bond market delivered strong trailing 1-year returns with the Bloomberg Barclays Aggregate posting a return of 8.7%.

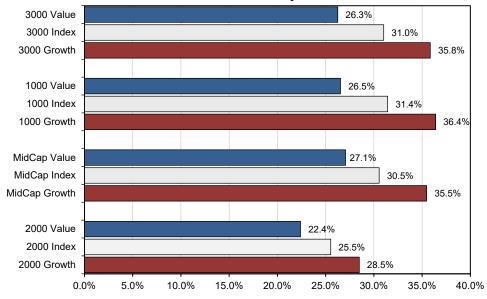




- Against the largely positive global economic backdrop detailed on the previous page, the US equity market delivered strong gains across the capitalization and style spectrum for the 4<sup>th</sup> quarter of 2019. Growth stocks outperformed value stocks for the full capitalization range during the period. Further, as is often the case during periods of strong "risk-on" performance, small cap growth stocks outpaced large cap growth stocks due primarily to an expectation that smaller companies have accelerated earnings growth relative to large companies.
- The Russell 2000 Growth Index was the best performing style index for the period, returning 11.4%, while large cap and mid-cap growth returned a solid 10.6% and 8.2% respectively. The outperformance of small cap stocks across the style spectrum for the period represented a reversal from previous quarters. The small cap Russell 2000 Index gained 9.9% during the period versus a 9.0% return for the large cap Russell 1000 Index.
- When viewed over the most recent 1-year period, large cap stocks significantly outperformed small cap stocks with the Russell 1000 posting a strong 31.4% gain while the Russell 2000 delivered a solid 25.5% return. Unsurprisingly, given the recent strong market environment, value stocks also trailed their growth counterparts over the trailing 1-year period. The technology-heavy Russell 1000 Growth Index was the best performing index over the 1-year period delivering a stellar 36.5% return compared to a return of 26.5% for the Russell 1000 Value Index



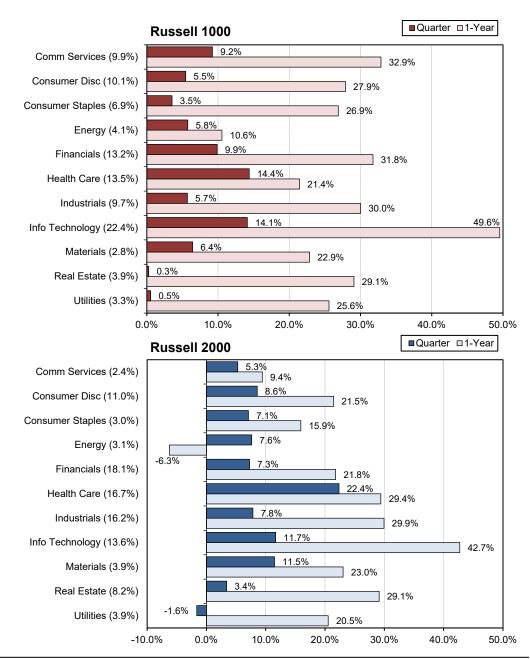




## **Quarter Performance - Russell Style Series**



- Performance was positive across all eleven large cap economic sectors for the 4th guarter but four outpaced the return of the broader Russell 1000 Index. The more economically sensitive sectors, such as technology, financials and communication services posted returns of 14.1%, 9.9% and 9.2%, respectively, as investors' expectations of future economic growth improved. Health care stocks rallied as the cost and drug pricing rhetoric from Democratic Presidential candidates softened. Technology was also a leader with stocks such as Apple experiencing strong holiday sales and Microsoft making a strong earnings announcement. Not surprisingly, defensive sectors such as consumer staples, industrials and energy underperformed the broader market during the period. All eleven economic sectors were also positive over the 1-year trailing period with each sector posting a return in excess of 20% for the year. Similar to the guarter's results, economically sensitive sectors outpaced defensive ones by a considerable margin. The technology sector was 2019's standout performer, posting an impressive 49.6% for the year. The sector was buoyed by Apple's 89.0% return and Microsoft's 57.6% return for the year. The financial sector, which returned 31.8% for the year, also experienced strong earnings as recessionary fears subsided and the US yield curve moved toward a more normal, positively slope. The only other economic sector to outperform the broader Russell 1000 index return of 31.4% for the 1-year period was the communication services sector, which posted a return of 32.9% for the year.
- Quarterly results for small cap sectors were mixed compared to their large cap counterparts with seven of the eleven economic sectors outpacing their corresponding large cap equivalents. Ten of the eleven small cap sectors produced positive absolute returns during the quarter, but similar to large cap performance, only three sectors managed to outpace the broad Russell 2000 Index. Economically sensitive sectors were also the strongest performers in the small cap space as investors expressed an appetite for risk. The health care sector was the quarter's standout, posting a return of 22.4% for the guarter. The technology and materials sectors also posted double-digit performance for the period with returns of 11.7% and 11.5% respectively. While not a significant weight in the index, the utilities, which are considered defensive, was the only negative sector, posting a loss of -1.6%. Over the trailing 1-year period, returns were broadly positive with only the highly cyclical energy sector, largely tied to oil prices, producing negative performance with a return of -6.3%. Similar to large cap performance, technology led the way with the sector returning a stellar 42.7% for the year. Returns were also impressive in the industrials, health care and real estate sectors, which posted gains of 29.9%, 29.4% and 29.1%, respectively, and finished ahead of the Russell 2000 index return of 25.5% for the year.



The Market Environment Top 10 Index Weights & Quarterly Performance for the Russell 1000 & 2000

> Top 10 Weighted Stocks 1-Qtr

1-Year

As of December 31, 2019

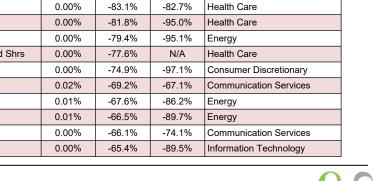
Top 10 Weighted Stocks						
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector		
Apple Inc	4.40%	31.5%	89.0%	Information Technology		
Microsoft Corp	4.02%	13.8%	57.6%	Information Technology		
Amazon.com Inc	2.57%	6.4%	23.0%	Consumer Discretionary		
Facebook Inc A	1.65%	15.3%	56.6%	Communication Services		
Berkshire Hathaway Inc B	1.49%	8.9%	10.9%	Financials		
JPMorgan Chase & Co	1.46%	19.4%	47.3%	Financials		
Alphabet Inc A	1.35%	9.7%	28.2%	Communication Services		
Alphabet Inc Class C	1.35%	9.7%	29.1%	Communication Services		
Johnson & Johnson	1.31%	13.5%	16.2%	Health Care		
Visa Inc Class A	1.08%	9.4%	43.3%	Information Technology		

Top 10 Performing Stocks (by Quarter)						
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector		
Tesla Inc	0.20%	73.7%	25.7%	Consumer Discretionary		
Sarepta Therapeutics Inc	0.03%	71.3%	18.2%	Health Care		
Ubiquiti Inc	0.01%	60.1%	91.6%	Information Technology		
Advanced Micro Devices Inc	0.16%	58.2%	148.4%	Information Technology		
Qorvo Inc	0.05%	56.8%	91.4%	Information Technology		
Zillow Group Inc A	0.01%	54.8%	45.5%	Communication Services		
Align Technology Inc	0.07%	54.2%	33.2%	Health Care		
Zillow Group Inc C	0.02%	54.1%	45.5%	Communication Services		
Transocean Ltd	0.01%	53.9%	-0.9%	Energy		
Skyworks Solutions Inc	0.07%	53.2%	84.1%	Information Technology		

Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector	
NovoCure Ltd	0.35%	12.7%	151.7%	Health Care	
The Medicines Co	0.30%	69.9%	343.8%	Health Care	
Generac Holdings Inc	0.29%	28.4%	102.4%	Industrials	
Lumentum Holdings Inc	0.29%	48.1%	88.8%	Information Technology	
Teladoc Health Inc	0.29%	23.6%	68.9%	Health Care	
Arrowhead Pharmaceuticals Inc	0.28%	125.1%	410.7%	Health Care	
Haemonetics Corp	0.28%	-8.9%	14.8%	Health Care	
Marriott Vacations Worldwide Corp	0.25%	24.8%	85.9%	Consumer Discretionary	
Performance Food Group Co	0.25%	11.9%	59.5%	Consumer Staples	
Trex Co Inc	0.25%	-1.2%	51.4%	Industrials	

Top 10 Performing Stocks (by Quarter)									
Russell 2000 Weight Heturn Return Sector									
Constellation Pharmaceuticals Inc	0.03%	629.3%	1074.8%	Health Care					
Forty Seven Inc	0.04%	513.2%	150.4%	Health Care					
ChemoCentryx Inc	0.08%	483.3%	262.5%	Health Care					
Axsome Therapeutics Inc	0.12%	410.7%	3565.2%	Health Care					
Kodiak Sciences Inc	0.08%	400.3%	913.4%	Health Care					
Karuna Therapeutics Inc	0.02%	361.6%	N/A	Health Care					
Intra-Cellular Therapies Inc	0.07%	359.3%	201.2%	Health Care					
Synthorx Inc	0.03%	329.6%	302.1%	Health Care					
Mersana Therapeutics Inc	0.01%	262.7%	40.4%	Health Care					
VBI Vaccines Inc	0.01%	192.9%	-13.8%	Health Care					

Botto	Bottom 10 Performing Stocks (by Quarter)					Bottor	n 10 Perform	ing Stocks (	by Quarter)	
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector		Russell 2000	Weight	1-Qtr Return	1-Year Return	
Beyond Meat Inc	0.01%	-49.1%	N/A	Consumer Staples		resTORbio Inc	0.00%	-83.1%	-82.7%	Ī
Sage Therapeutics Inc	0.01%	-48.5%	-24.6%	Health Care		TransEnterix Inc	0.00%	-81.8%	-95.0%	1
Chesapeake Energy Corp	0.00%	-41.4%	-60.7%	Energy		Unit Corp	0.00%	-79.4%	-95.1%	1
ServiceMaster Global Holdings Inc	0.02%	-30.8%	5.2%	Consumer Discretionary		Cyclerion Therapeutics Inc Ord Shrs	0.00%	-77.6%	N/A	1
Twitter Inc	0.08%	-22.2%	11.5%	Communication Services		Waitr Holdings Inc Class A	0.00%	-74.9%	-97.1%	Ī
Taubman Centers Inc	0.01%	-22.1%	-27.0%	Real Estate		Intelsat SA	0.02%	-69.2%	-67.1%	1
Elastic NV	0.01%	-21.9%	-10.0%	Information Technology		Contura Energy Inc	0.01%	-67.6%	-86.2%	1
Etsy Inc	0.02%	-21.6%	-6.9%	Consumer Discretionary		McDermott International Inc	0.01%	-66.5%	-89.7%	I
Sinclair Broadcast Group Inc	0.01%	-21.5%	29.0%	Communication Services		Pareteum Corp	0.00%	-66.1%	-74.1%	0
Ventas Inc	0.07%	-19.9%	3.4%	Real Estate		Exela Technologies Inc	0.00%	-65.4%	-89.5%	I

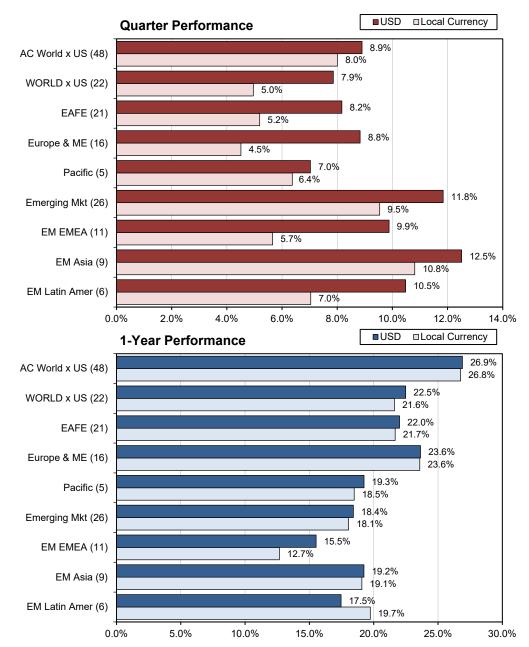


Sector

Health Care

- Broad international equity returns were positive in both local currency and USD terms for the 4th guarter as investors benefited from a broad "risk-on" environment. US investors also benefited as the USD weakened relative to most major developed and emerging market currencies during the period. Within the broader currency moves that boosted USD return, the British pound and the Euro appreciated relative to the USD during the guarter which acted as a headwind to holdings in those sub-markets. However, the macro impact of the USD weakness for the period was positive for US investors for the broad market international indexes. The MSCI EAFE and ACWI ex US Indexes returned 8.2% and 7.9% respectively for the quarter. Similar to US markets, international equity markets were buoyed by loose central bank monetary policies which supplied the markets with liquidity. Christine Lagarde assumed the presidency of the European Central Bank (ECB) and announced that interest rates would remain negative at -0.5% while the Bank of Japan's key rate also remains in negative territory at -0.1%. The People's Bank of China announced during the guarter that it would continue with its prudent monetary policy with the goal of providing stimulus measures as needed.
- As previously noted, results for developed market indexes were strongly positive for the 4th quarter. European stocks moved higher on expectations of a trade resolution between China and the US. In the UK, Prime Minster Boris Johnson received a resounding mandate in recent elections resulting in a large majority in Parliament. The results make it highly likely that the UK will leave the European Union. The decrease in Brexit uncertainty led the British pound to rally against most major currencies. In contrast, the economy in Hong Kong fell into recession as continued political protests and the Chinese government's response detracted from growth. While not as strong as US equity market returns, each of the broad, developed market benchmarks posted returns in excess of 20% for the trailing 1-year period.
- For the 4th quarter, emerging markets reversed the recent trend and managed to outperform developed international markets. The MSCI Emerging Markets Index returned a strong USD return of 11.8%. As previously noted, the prospect of reduced trade tensions between the US and China stoked returns in emerging markets. As a result, countries with greater sensitivities to commodity prices and global trade activity performed well during the period. As evidence, Russia and Brazil, both large energy exporters, returned 16.6% and 15.6%, respectively, during the quarter. For the full year, emerging markets delivered strong returns in both local currency and USD terms. The MSCI Emerging Markets Index climbed 18.4% in local currency and 18.1% in USD terms. The narrow performance differential between local currency and USD emerging market returns is also observable across each of the international benchmarks for the 1-year period as the year's currency volatility largely balanced out.

## The Market Environment International and Regional Market Index Performance (Country Count) As December 31, 2019





	The Market Environment
US Dollar International Index A	Attribution & Country Detail
	As of December 31, 2019

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	5.2%	4.8%	12.7%
Consumer Discretionary	11.6%	9.4%	24.8%
Consumer Staples	11.3%	1.9%	18.9%
Energy	4.9%	3.8%	7.6%
Financials	18.6%	8.4%	17.7%
Health Care	12.2%	12.4%	30.7%
Industrials	15.0%	10.0%	26.2%
Information Technology	7.1%	12.6%	37.7%
Materials	7.1%	10.5%	22.9%
Real Estate	3.5%	4.2%	14.8%
Utilities	3.7%	5.3%	19.2%
Total	100.0%	8.2%	22.0%
MSCI - ACWIXUS	Sector Weight	Quarter Return	1-Year Return

MSCI - ACWIXUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	6.7%	7.0%	12.1%
Consumer Discretionary	11.8%	11.4%	27.7%
Consumer Staples	9.4%	1.9%	17.5%
Energy	6.5%	6.5%	14.8%
Financials	21.4%	8.1%	17.2%
Health Care	8.9%	12.5%	27.7%
Industrials	11.9%	9.6%	24.0%
Information Technology	9.4%	15.5%	40.7%
Materials	7.4%	10.8%	18.6%
Real Estate	3.2%	7.3%	17.1%
Utilities	3.4%	4.8%	17.4%
Total	100.0%	8.9%	26.9%

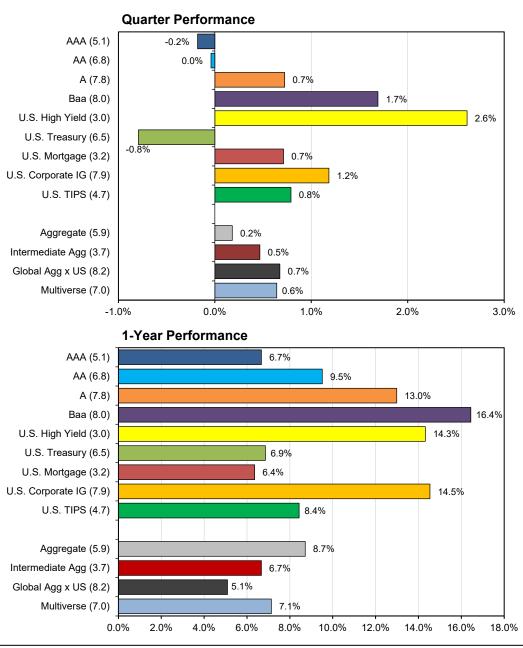
MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return	
Communication Services	11.0%	9.8%	11.2%	
Consumer Discretionary	14.2%	16.7%	35.1%	
Consumer Staples	6.3%	2.6%	10.7%	
Energy	7.4%	9.8%	19.8%	
Financials	24.2%	9.8%	12.6%	
Health Care	2.8%	14.7%	3.7%	
Industrials	5.3%	7.8%	7.1%	
Information Technology	15.7%	18.9%	41.6%	
Materials	7.4%	12.3%	5.9%	
Real Estate	3.0%	17.6%	23.9%	
Utilities	2.6%	4.3%	7.9%	
Total	100.0%	11.8%	18.4%	

	MSCI-EAFE	MSCI-ACWIXUS	Quarter	1- Year
Country	Weight	Weight	Return	Return
Japan	24.5%	16.1%	7.6%	19.6%
United Kingdom	16.5%	10.8%	10.0%	21.1%
France	11.4%	7.5%	8.5%	25.7%
Switzerland	9.3%	6.1%	7.6%	32.3%
Germany	8.7%	5.7%	9.9%	20.8%
Australia	6.8%	4.5%	4.3%	22.9%
Netherlands	4.0%	2.6%	7.4%	32.1%
Hong Kong	3.5%	2.3%	7.3%	10.3%
Spain	2.8%	1.9%	6.0%	12.0%
Sweden	2.7%	1.8%	13.1%	21.2%
Italy	2.3%	1.5%	8.1%	27.3%
Denmark	1.8%	1.2%	13.1%	28.2%
Singapore	1.3%	0.8%	7.4%	15.0%
Belgium	1.0%	0.7%	-1.1%	20.3%
Finland	0.9%	0.6%	3.0%	9.5%
Norway	0.9%	0.4%	4.3%	9.5%
Ireland	0.6%	0.4%	4.3%	37.5%
Israel	0.6%	0.4%	7.2%	9.6%
New Zealand	0.8%	0.2%	17.4%	38.2%
Austria	0.2%	0.2%	8.0%	14.5%
Portugal	0.2%	0.1%	8.7%	23.7%
Total EAFE Countries	100.0%	65.8%	8.2%	22.0%
Canada		6.7%	4.9%	27.5%
Total Developed Countries		72.5%	7.9%	22.5%
China		9.4%	14.7%	23.5%
Korea		3.2%	13.4%	12.5%
Taiwan		3.2%	17.9%	36.4%
India		2.4%	5.3%	7.6%
Brazil		2.1%	14.2%	26.3%
South Africa		1.3%	13.1%	10.0%
Russia		1.1%	16.8%	50.9%
Saudi Arabia		0.7%	2.7%	7.2%
Thailand		0.7%	-0.9%	9.5%
Mexico		0.6%	6.2%	11.4%
Indonesia		0.5%	7.0%	9.1%
Malaysia		0.5%	3.1%	-2.0%
Philippines		0.3%	2.9%	10.5%
Qatar		0.3%	2.2%	-1.0%
Poland		0.2%	4.1%	-5.9%
Chile		0.2%	-8.8%	-16.9%
Jnited Arab Emirates		0.2%	-1.5%	4.0%
Turkey		0.1%	-0.1%	11.1%
Colombia		0.1%	14.4%	30.8%
Peru		0.1%	6.0%	4.8%
Greece		0.1%	12.7%	43.2%
Hungary		0.1%	22.2%	19.4%
Argentina		0.0%	15.4%	-20.8%
Czech Republic		0.0%	8.9%	4.2%
Egypt		0.0%	5.6%	41.8%
Pakistan		0.0%	26.5%	9.7%
Total Emerging Countries		27.5%	11.8%	18.4%
Total ACWIxUS Countries		100.0%	8.9%	26.9%

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.

#### The Market Environment Domestic Bond Sector & Broad/Global Bond Market Performance (Duration) As of December 31, 2019

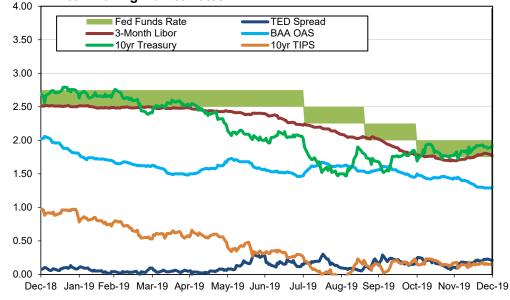
- Fixed income markets extended their gains in the 4th guarter, except for US Treasury bonds which declined during the period. Interest rates rose modestly across the US Treasury Yield Curve through the quarter as investors' confidence generally improved which resulted in bond prices falling. The Fed continued to provide liquidity by cutting short-term interest rates by 25 basis points to between 1.50% and 1.75% in October. The Fed began expanding its balance sheet by purchasing securities to provide the market with liquidity which is another form of monetary easing. The Fed made no changes to monetary policy at their December meeting and signaled that they would remain on hold but would continue to monitor the economy closely for any further deterioration. Importantly, the US Treasury Yield Curve normalized between the 2-year and 10-year issues which suggests that the threat of an imminent recession has been reduced. An inverted yield curve has historically preceded a recession within the next 6-24 months. The bellwether Bloomberg Barclays US Aggregate Index added 0.2% during the 4th guarter while returning 8.7% for the 1-year period ending in December.
- Within investment grade credit, lower quality issues resumed their outperformance over higher quality issues as investors' appetites for risk increased during the quarter. Bonds rated Baa were the best performing investment grade credit quality segment returning 1.7% for the quarter, while AAA was the worst performing, returning -0.2%. High yield corporate bonds outpaced all other credit sectors during the quarter returning 2.6%. For the full year both investment grade and high yield bonds delivered strong performance returning 14.5% and 14.3% respectively.
- Performance across defensive sectors such as US Treasury bonds, mortgage backed securities and TIPS were mixed during the quarter mostly due to their duration profiles. Rising interest rates during the quarter acted as a headwind to performance. As a result, US Treasury bonds, mortgage bonds and TIPS returned -0.8%, 0.7% and 0.8% respectively. Overall, fears of rising inflation remain relatively low while expectations for a positive economic environment remain strong. As a result, for the full 1-year period, US Treasury, mortgages and TIPS returned 6.9%, 6.4% and 8.4% respectively, trailing all corporate credit sectors significantly over the full year.

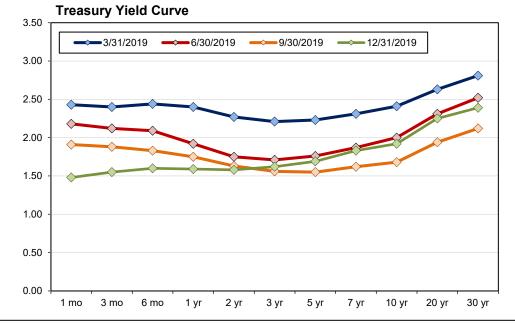




- Global fixed income returns were positive during the 4th quarter. Generally, global central bank monetary policy remains supportive as low economic growth persists in much of the world outside of the US. As a result, negative interest rates persist in much of Europe and Japan. However, the number of bonds with negative yields declined in recent months as future expectations for economic growth improved. As mentioned previously, we saw currency volatility increase during the quarter with the USD moving lower against most major developed and emerging market currencies. The depreciation of the USD acted as a catalyst for US investors compared to local investors. Global bonds, as represented by the Bloomberg Barclays Global Aggregate ex US Index, returned was 0.7% during the quarter which outperformed US bonds represented by the Bloomberg Barclays Aggregate Index. For the full 1-year period, global bonds underperformed domestic bonds 5.1% versus 8.7% respectively.
- 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 over the last year, the 10-year Treasury yield (green line) fell from highs near 2.8%, to yields below 1.5% before ending the guarter at 1.92%. 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 the continued decline from nearly 2.5% in the 1st guarter of 2019 to less than 1.6% in 4th guarter as investors sought out higher yielding assets and concerns regarding trade and the potential for a recession in the US declined. Spreads tightened by about 24 basis points during the guarter. Spread tightening is equivalent to an interest rate decrease on corporate bonds, which produces an additional tailwind for corporate bond index returns. The green band across the graph illustrates the decrease in the Federal Funds Rate due to the recent easing in US monetary policy. The Fed cut the Fed Funds Rate three times during the year on fears that economic growth was decelerating.
- The lower graph provides a snapshot of the US Treasury Yield Curve at the end of each of the last four calendar quarters. Interest rates were broadly lower over the full year as the Fed cut interest rates and expectations of future economic growth declined. During the year, the US Treasury curve was inverted between 2-year and 10-year rates. After multiple rate cuts, the curve finished the year with a more normalized shape with the long end of the curve higher than the short end.

#### 1-Year Trailing Market Rates







#### Delray Beach Fire Pension Plan Compliance Checklist As of December 31, 2019

Total Fund Compliance:	Yes	No	N/A
1. The Total Plan return equaled or exceeded the 7.25% actuarial earnings assumption over the trailing three and five year periods.		٠	
2. The Total Plan return equaled or exceeded the total plan benchmark over the trailing three and five year periods.		٠	
3. The Total Plan return ranked within the top 40th percentile of its peer group over the trailing three and five year periods.	•		

\* Based off gross of fees and public plan peer group.

Total Equity Compliance:	Yes	No	N/A
1. Total equity returns meet or exceed the benchmark over the trailing three and five year periods.		•	
2. Total equity returns ranked within the top 40th percentile of its peer group over the trailing three and five year periods.			•
3. The total equity allocation was less than 70% of the total plan assets at market.	•		
4. Total foreign equity was less than 25% of the total plan assets at market.	•		

Total Fixed Income Compliance:	Yes	No	N/A
1. Total fixed income returns meet or exceed the benchmark over the trailing three and five year periods.	•		
2. Total fixed income returns ranked within the top 40th percentile of its peer group over the trailing three and five year periods.	•		
3. No more than 15% of the fixed income portfolio was rated below BBB/Baa.	•		

	VG To	tal Stoc	k Mkt		Boston		Rhum	bline R1	000G
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
1. Manager outperformed the index over the trailing three and five year periods.*			•			•			•
2. Manager ranked within the top 40th percentile over trailing three and five year periods.*			•			•			•
3. Less than four consecutive quarters of under performance relative to the benchmark.			•	•			•		
4. Three and five-year down-market capture ratio less than the index.*			•			•			•
5. Manager reports compliance with PFIA.			•			•			•

	P	olen LC	3	V	G Mid-C	Cap	G	reat Lake	s
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
1. Manager outperformed the index over the trailing three and five year periods.*			•		•				•
2. Manager ranked within the top 40th percentile over trailing three and five year periods.*			•	•					•
3. Less than four consecutive quarters of under performance relative to the benchmark.	٠			•					•
4. Three and five-year down-market capture ratio less than the index.*			•		•				•
5. Manager reports compliance with PFIA.			•			•	•		



\*3 years used when 5 years unavailable

## Delray Beach Fire Pension Plan Compliance Checklist

As of December 31, 2019

	H.L.	Intl Equ	uity		GHA		Tem	pleton Gl	obal
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
1. Manager outperformed the index over the trailing three and five year periods.*	•					٠		•	
2. Manager ranked within the top 40th percentile over trailing three and five year periods.*	•					٠		•	
3. Less than four consecutive quarters of under performance relative to the benchmark.	•				•		•		
4. Three and five-year down-market capture ratio less than the index.*	•					٠	•		
5. Manager reports compliance with PFIA.			•	•					•

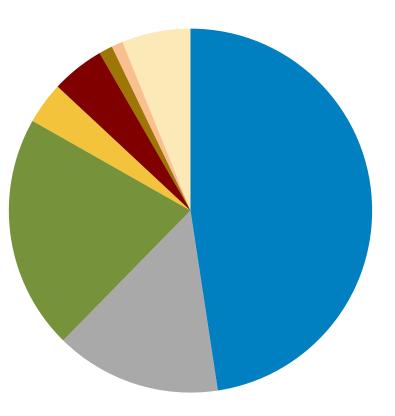
	Ame	rican Re	alty						
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
1. Manager outperformed the index over the trailing three and five year periods.*		٠							
2. Manager ranked within the top 40th percentile over trailing three and five year periods.*		٠							
3. Less than four consecutive quarters of under performance relative to the benchmark.	•								
4. Three and five-year down-market capture ratio less than the index.*			•						
5. Manager reports compliance with PFIA.			•						

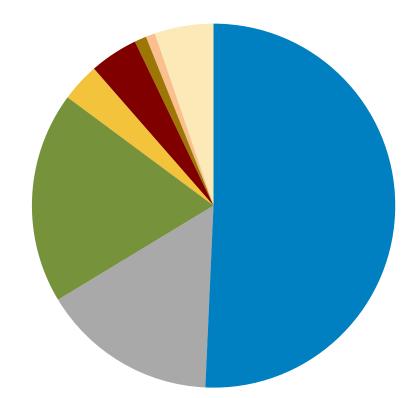
\*3 years used when 5 years unavailable



December 31, 2019 : \$120,818,031

September 30, 2019 : \$108,961,593

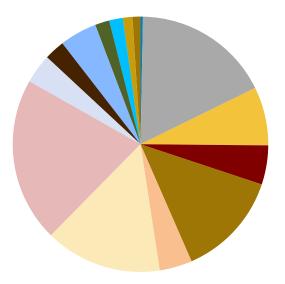




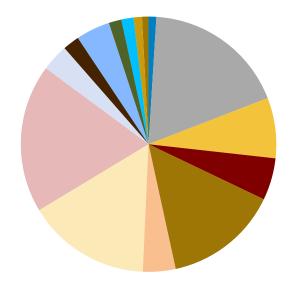
ocation			Allocation		
	Market Value	Allocation		Market Value	Allocation
US Equity	51,861,548	47.6	US Equity	61,274,675	50.7
International Equity	16,086,255	14.8	International Equity	18,891,727	15.6
US Fixed Income	22,715,527	20.8	US Fixed Income	22,697,277	18.8
Global Fixed Income	4,057,331	3.7	Global Fixed Income	4,133,660	3.4
US Private Real Estate	5,144,225	4.7	US Private Real Estate	5,205,045	4.3
US Real Return	1,325,625	1.2	US Real Return	1,281,307	1.1
Cash	1,110,696	1.0	Cash	993,718	0.8
US Private Equity	6,660,386	6.1	US Private Equity	6,340,622	5.2



## September 30, 2019 : \$108,961,593



December 31, 2019 : \$120,818,031

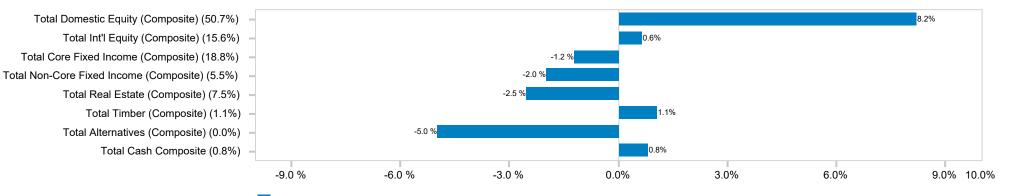


Allocation			Allocation		
	Market Value	Allocation		Market Value	Allocation
Vanguard Total Stock Mkt (VTSAX)	338,783	0.3	Vanguard Total Stock Mkt (VTSAX)	1,190,435	1.0
Boston LCV	18,977,428	17.4	Boston LCV	21,894,223	18.1
Lazard SMid Cap Core	1	0.0	Lazard SMid Cap Core	-	0.0
Great Lakes SMid Cap	8,082,080	7.4	Great Lakes SMid Cap	9,248,928	7.7
Vanguard Mid-Cap Index (VIMAX)	5,398,559	5.0	Vanguard Mid-Cap Index (VIMAX)	6,452,105	5.3
Polen Capital LCG	14,554,755	13.4	Polen Capital LCG	17,500,830	14.5
Rhumbline R1000G	4,509,941	4.1	Rhumbline R1000G	4,988,154	4.1
Harding Loevner Intl Equity (HLIZX)	16,086,255	14.8	Harding Loevner Intl Equity (HLIZX)	18,891,727	15.6
Garcia Hamilton Fixed Income	22,715,527	20.8	Garcia Hamilton Fixed Income	22,697,277	18.8
Templeton Global Total Return (FTTRX)	4,057,331	3.7	Templeton Global Total Return (FTTRX)	4,133,660	3.4
Crescent Direct Lending Levered Fund	2,817,878	2.6	Crescent Direct Lending Levered Fund	2,532,064	2.1
American Core Realty	5,144,225	4.7	American Core Realty	5,205,045	4.3
Angelo Gordon Net Lease Realty Fund III, L.P.	1,974,273	1.8	Angelo Gordon Net Lease Realty Fund III, L.P.	1,940,323	1.6
Dune Real Estate Fund III	1,868,235	1.7	Dune Real Estate Fund III	1,868,235	1.5
Molpus Woodlands Timber	1,325,625	1.2	Molpus Woodlands Timber	1,281,307	1.1
Mutual Fund Cash	3,246	0.0	Mutual Fund Cash	3,329	0.0
R&D	1,107,450	1.0	R&D	990,389	0.8

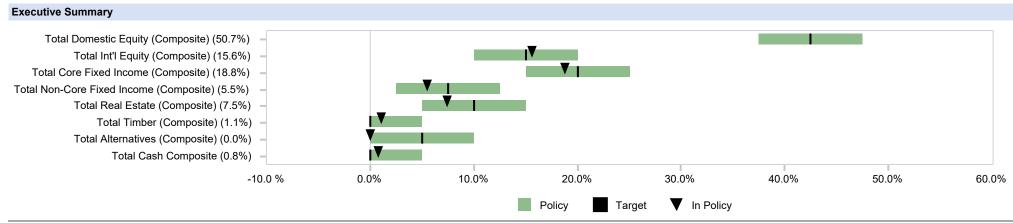


# Asset Allocation Compliance Delray Beach Firefighters' Retirement System Total Fund (Composite)

Asset Allocation Compliance					
	Asset Allocation \$	Current Allocation (%)	Target Allocation (%)	Differences (%)	Target Rebal. (\$000)
Total Fund (Composite)	120,818,031	100.00	100.00	0.00	-
Total Domestic Equity (Composite)	61,274,675	50.72	42.50	8.22	-9,927,012
Total Int'l Equity (Composite)	18,891,727	15.64	15.00	0.64	-769,022
Total Core Fixed Income (Composite)	22,697,277	18.79	20.00	-1.21	1,466,329
Total Non-Core Fixed Income (Composite)	6,665,724	5.52	7.50	-1.98	2,395,629
Total Real Estate (Composite)	9,013,603	7.46	10.00	-2.54	3,068,200
Total Timber (Composite)	1,281,307	1.06	0.00	1.06	-1,281,307
Total Alternatives (Composite)	-	0.00	5.00	-5.00	6,040,902
Total Cash Composite	993,718	0.82	0.00	0.82	-993,718



Allocation Differences





## Comparative Performance Total Fund Trailing Returns As of December 31, 2019

Comparative Performance																	
	Q	ſR	Y	ΓD	FY	TD	1 `	YR	2 \	ŕR	3	(R	5	YR	Ince	ption	Inception Date
Total Fund (Net)	5.98	(7)	20.77	(10)	5.98	(7)	20.77	(10)	7.80	(8)	9.64	(10)	7.00	(12)	5.68	(47)	10/01/2005
Total Fund Policy	5.50	(19)	19.97	(18)	5.50	(19)	19.97	(18)	7.59	(10)	10.03	(8)	7.87	(4)	6.62	(14)	
Difference	0.48		0.80		0.48		0.80		0.21		-0.39		-0.87		-0.94		
IM Mixed-Asset Target Alloc Moderate (MF) Median	4.44		17.85		4.44		17.85		5.30		7.79		5.63		5.58		
Total Fund (Gross)	6.04	(19)	21.10	(30)	6.04	(19)	21.10	(30)	8.13	(9)	10.00	(33)	7.43	(37)	6.13	(84)	10/01/2005
Total Fund Policy	5.50	(44)	19.97	(48)	5.50	(44)	19.97	(48)	7.59	(22)	10.03	(31)	7.87	(11)	6.62	(62)	
Difference	0.54		1.13		0.54		1.13		0.54		-0.03		-0.44		-0.49		
All Public Plans-Total Fund Median	5.33		19.88		5.33		19.88		7.08		9.57		7.13		6.72		
Total Equity	9.13		31.33		9.13		31.33		9.95		13.42		9.18		7.35		10/01/2005
Total Equity Policy	8.91		28.04		8.91		28.04		8.82		13.21		9.49		6.91		
Difference	0.22		3.29		0.22		3.29		1.13		0.21		-0.31		0.44		
Total Domestic Equity	8.81	(38)	33.37	(18)	8.81	(38)	33.37	(18)	12.26	(24)	13.91	(43)	10.15	(37)	8.33	(48)	10/01/2005
Total Domestic Equity Policy	8.88	(37)	30.24	(36)	8.88	(37)	30.24	(36)	11.06	(35)	14.28	(39)	10.97	(27)	9.14	(33)	
Difference	-0.07		3.13		-0.07		3.13		1.20		-0.37		-0.82		-0.81		
IM U.S. All Cap Equity (SA+CF+MF) Median	8.15		28.58		8.15		28.58		9.47		13.02		9.32		8.22		
Total Int'l Equity	10.15	(20)	25.35	(36)	10.15	(20)	25.35	(36)	3.85	(30)	11.89	(24)	6.21	(51)	4.49	(15)	05/01/2007
Total Int'l Policy	8.92	(53)	21.51	(72)	8.92	(53)	21.51	(72)	2.11	(65)	9.87	(54)	5.51	(79)	1.71	(97)	
Difference	1.23		3.84		1.23		3.84		1.74		2.02		0.70		2.78		
IM International Large Cap Core Equity (SA+CF) Median	9.06		23.92		9.06		23.92		2.52		10.08		6.23		3.45		
Total Fixed Income	0.24	(61)	6.31	(94)	0.24	(61)	6.31	(94)	4.18	(50)	4.12	(55)	3.90	(22)	5.09	(25)	10/01/2005
Total Fixed Policy	0.18	(67)	8.72	(64)	0.18	(67)	8.72	(64)	4.27	(44)	4.03	(61)	3.05	(64)	4.28	(69)	
Difference	0.06		-2.41		0.06		-2.41		-0.09		0.09		0.85		0.81		
IM U.S. Broad Market Fixed Income (SA+CF+MF) Median	0.36		9.25		0.36		9.25		4.18		4.19		3.28		4.59		
Total Real Estate	0.84	(87)	5.60	(81)	0.84	(87)	5.60	(81)	7.41	(67)	8.31	(44)	9.52	(51)	4.53	(100)	07/01/2007
NCREIF ODCE	1.53	(58)	6.08	(77)	1.53	(58)	6.08	(77)	7.16	(73)	7.37	(72)	9.27	(62)	5.53	(66)	
Difference	-0.69		-0.48		-0.69		-0.48		0.25		0.94		0.25		-1.00		
IM U.S. Open End Private Real Estate (SA+CF) Median	1.59		7.02		1.59		7.02		7.85		7.71		9.54		5.71		
Total Timber	0.00		1.34		0.00		1.34		2.38		-1.34		0.60		2.81		07/01/2007
NCREIF Timberland Index	-0.04		1.30		-0.04		1.30		2.25		2.71		3.13		4.96		
Difference	0.04		0.04		0.04		0.04		0.13		-4.05		-2.53		-2.15		



# Comparative Performance Total Fund Trailing Returns

	Q	ſR	YI	D	FY	TD	1`	YR	2 `	YR	3 \	/R	5 YR		Inception		n Inception Date	
Total Domestic Equity (Composite)	8.81		33.37		8.81		33.37		12.26		13.91		10.15		8.33		10/01/2005	
Vanguard Total Stock Mkt (VTSAX)	9.01	(33)	N/A		9.01	(33)	N/A		N/A		N/A		N/A		14.70	(25)	04/01/2019	
CRSP U.S. Total Market TR Index	9.00	(34)	30.84	(30)	9.00	(34)	30.84	(30)	11.39	(28)	14.56	(30)	11.21	(23)	14.71	(25)		
Difference	0.01		N/A		0.01		N/A		N/A		N/A		N/A		-0.01			
IM U.S. Equity (MF) Median	7.91		27.35		7.91		27.35		8.08		11.00		8.69		12.02			
Boston LCV	8.30	(40)	30.08	(25)	8.30	(40)	30.08	(25)	8.98	(36)	N/A		N/A		8.98	(36)	01/01/2018	
Russell 1000 Value Index	7.41	(61)	26.54	(55)	7.41	(61)	26.54	(55)	7.74	(50)	9.68	(70)	8.29	(65)	7.74	(50)		
Difference	0.89		3.54		0.89		3.54		1.24		N/A		N/A		1.24			
IM U.S. Large Cap Value Equity (SA+CF) Median	7.92		27.39		7.92		27.39		7.71		10.75		8.86		7.71			
Great Lakes SMid Cap	6.18	(82)	N/A		6.18	(82)	N/A		N/A		N/A		N/A		5.15	(82)	08/01/2019	
Russell 2500 Index	8.54	(34)	27.77	(73)	8.54	(34)	27.77	(73)	7.23	(64)	10.33	(70)	8.93	(76)	6.04	(68)		
Difference	-2.36		N/A		-2.36		N/A		N/A		N/A		N/A		-0.89			
IM U.S. SMID Cap Core Equity (SA+CF) Median	8.07		29.80		8.07		29.80		7.79		11.13		9.96		6.52			
Fotal Growth	10.79	(24)	38.62		10.79	(24)	38.62	(9)	19.11	(7)	19.59	(53)	12.31	(71)	7.38	(96)	07/01/2007	
Russell 1000 Growth Index	10.62	(26)	36.39	(22)	10.62	(26)	36.39	(22)	15.90	(35)	20.49	(40)	14.63	(23)	10.80	(27)		
Difference	0.17		2.23		0.17		2.23		3.21		-0.90		-2.32		-3.42			
IM U.S. Large Cap Growth Equity (SA+CF+MF) Median	9.65		33.48		9.65		33.48		15.00		19.77		13.30		10.16			
Rhumbline R1000G	10.60	(25)	36.34	(26)	10.60	(25)	36.34	(26)	15.88	(43)	N/A		N/A		15.88	(43)	01/01/2018	
Russell 1000 Growth Index	10.62	(25)	36.39	(26)	10.62	(25)	36.39	(26)	15.90	(42)	20.49	(41)	14.63	(31)	15.90	(42)		
Difference	-0.02		-0.05		-0.02		-0.05		-0.02		N/A		N/A		-0.02			
IM U.S. Large Cap Growth Equity (SA+CF) Median	9.58		33.80		9.58		33.80		15.40		19.28		13.50		15.40			
Polen Capital LCG	10.84	(21)	39.30	(10)	10.84	(21)	39.30	(10)	N/A		N/A		N/A		39.30	(10)	01/01/2019	
Russell 1000 Growth Index	10.62	(25)	36.39	(26)	10.62	(25)	36.39	(26)	15.90	(42)	20.49	(41)	14.63	(31)	36.39	(26)		
Difference	0.22		2.91		0.22		2.91		N/A		N/A		N/A		2.91			
IM U.S. Large Cap Growth Equity (SA+CF) Median	9.58		33.80		9.58		33.80		15.40		19.28		13.50		33.81			
/anguard Mid-Cap Index (VIMAX)	6.88	(50)	31.03	(20)	6.88	(50)	31.03	(20)	9.06	(15)	12.35	(12)	N/A		9.59	(21)	07/01/2015	
CRSP U.S. Mid Cap TR Index	6.88	(50)	31.09	(19)	6.88	(50)	31.09	(19)	9.09	(13)	12.39	(11)	9.29	(21)	9.63	(20)		
Difference	0.00		-0.06		0.00		-0.06		-0.03		-0.04		N/A		-0.04			
IM U.S. Mid Cap Core Equity (MF) Median	6.85		28.08		6.85		28.08		6.23		9.32		7.45		7.51			
Total Int'l Equity (Composite)	10.15		25.35		10.15		25.35		3.85		11.89		6.21		4.49		05/01/2007	
Harding Loevner Intl Equity (HLIZX)	10.09	(42)	25.25	(32)	10.09	(42)	25.25	(32)	3.81	(22)	11.87	(28)	N/A		9.22	(35)	09/01/2016	
MSCI AC World ex USA (Net)	8.92	(62)	21.51	(55)	8.92	(62)	21.51	(55)	2.11	(40)	9.87	(50)	5.51	(50)	8.82	(40)		
Difference	1.17		3.74		1.17		3.74		1.70		2.00		N/A		0.40			
IM International Equity (MF) Median	9.60		21.99		9.60		21.99		1.20		9.86		5.48		8.30			



# Comparative Performance Total Fund Trailing Returns

As of December 31, 2019

	Q	ſR	Y	TD	FY	TD	1`	YR	2	YR	3 \	′R	5 `	/R	Ince	ption	Inception Date
Total Core Fixed Income	-0.02		7.37		-0.02		7.37		4.12		3.68		3.31		4.26		10/01/2005
Core Fixed Policy	0.18		8.72		0.18		8.72		4.27		4.03		3.05		4.22		
Difference	-0.20		-1.35		-0.20		-1.35		-0.15		-0.35		0.26		0.04		
Garcia Hamilton Fixed Income	-0.02	(87)	7.37	(96)	-0.02	(87)	7.37	(96)	4.12	(92)	N/A		N/A		4.12	(92)	01/01/2018
Blmbg. Barc. U.S. Aggregate Index	0.18	(56)	8.72	(77)	0.18	(56)	8.72	(77)	4.27	(84)	4.03	(87)	3.05	(89)	4.27	(84)	
Difference	-0.20		-1.35		-0.20		-1.35		-0.15		N/A		N/A		-0.15		
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	0.22		9.24		0.22		9.24		4.59		4.41		3.46		4.59		
Total Non-Core Fixed Income	1.15		3.12		1.15		3.12		3.82		4.81		4.92		7.48		07/01/2010
Bloomberg Barclays Global Aggregate	0.49		6.84		0.49		6.84		2.74		4.27		2.31		2.64		
Difference	0.66		-3.72		0.66		-3.72		1.08		0.54		2.61		4.84		
Templeton Global Total Return (FTTRX)	1.88	(8)	2.12	(100)	1.88	(8)	2.12	(100)	2.10	(80)	2.48	(96)	2.25	(60)	3.19	(26)	07/01/2011
Blmbg. Barc. Global Multiverse	0.64	(55)	7.13	(72)	0.64	(55)	7.13	(72)	2.80	(62)	4.40	(37)	2.51	(48)	1.95	(65)	
Difference	1.24		-5.01		1.24		-5.01		-0.70		-1.92		-0.26		1.24		
IM Global Fixed Income (MF) Median	0.68		8.12		0.68		8.12		3.11		4.04		2.46		2.33		
Total Real Estate (Composite)	0.84		5.60		0.84		5.60		7.41		8.31		9.52		4.53		07/01/2007
American Core Realty	1.46	(72)	6.31	(65)	1.46	(72)	6.31	(65)	7.51	(58)	7.70	(55)	9.07	(77)	5.56	(59)	07/01/2007
NCREIF ODCE	1.53	(58)	6.08	(77)	1.53	(58)	6.08	(77)	7.16	(73)	7.37	(72)	9.27	(62)	5.53	(66)	
Difference	-0.07		0.23		-0.07		0.23		0.35		0.33		-0.20		0.03		
IM U.S. Open End Private Real Estate (SA+CF) Median	1.59		7.02		1.59		7.02		7.85		7.71		9.54		5.71		
Total Timber (Composite)	0.00		1.34		0.00		1.34		2.38		-1.34		0.60		2.81		07/01/2007
Molpus Woodlands Timber	0.00		1.33		0.00		1.33		2.93		1.04		2.10		2.62		06/01/2008
NCREIF Timberland Index	-0.04		1.30		-0.04		1.30		2.25		2.71		3.13		3.76		
Difference	0.04		0.03		0.04		0.03		0.68		-1.67		-1.03		-1.14		

^ Some products shown on IRR page.



# **Comparative Performance - IRR**

Comparative Performance - IRR			
	QTR	Inception	Inception Date
Molpus Woodlands Timber	0.00	2.19	06/24/2008
Angelo Gordon Net Lease Realty Fund III, L.P.	0.00	6.80	03/10/2014
Dune Real Estate Fund III	0.00	11.22	11/06/2014
Crescent Direct Lending Levered Fund	0.00	7.59	10/09/2014



Comparative Performance Total Fund Trailing Returns As of December 31, 2019

Comparative Performance																		
	FY	TD	Oct-/ T Sep-	0	Oct-2 T Sep-2	0	Oct-/ T Sep-	0	Oct-2 T Sep-2	0	Oct-/ T Sep-/	0	Oct-2 T Sep-2	0	Oct-2012 To Sep-2013	То		2010 o 2011
Total Fund (Net)	5.98	(7)	4.50	(45)	8.29	(13)	11.09	(29)	8.82	(51)	-1.22		10.01	(29)	10.96 (41)	16.79 (51)		(20)
Total Fund Policy	5.50	(19)	5.02	(34)	8.59	(12)	11.90	(17)	10.34	(19)	0.55	(5)	10.23	(26)	10.24 (52)	15.21 (75)	2.15	(12)
Difference	0.48		-0.52		-0.30		-0.81		-1.52		-1.77		-0.22		0.72	1.58	-0.89	
IM Mixed-Asset Target Alloc Moderate (MF) Median	4.44		4.00		5.09		10.04		8.82		-2.35		8.37		10.34	16.89	-0.53	
Total Fund (Gross)	6.04	(19)	4.81	(34)	8.66	(23)	11.49	(58)	9.41	(61)	-0.72	(49)	10.58	(38)	11.52 (58)	17.35 (53)	1.61	(34)
Total Fund Policy	5.50	(44)	5.02	(29)	8.59	(24)	11.90	(50)	10.34	(33)	0.55	(21)	10.23	(46)	10.24 (71)	15.21 (77)	2.15	(24)
Difference	0.54		-0.21		0.07		-0.41		-0.93		-1.27		0.35		1.28	2.14	-0.54	
All Public Plans-Total Fund Median	5.33		4.30		7.09		11.82		9.74		-0.78		9.93		12.00	17.58	0.67	
Total Equity	9.13		3.19		13.13		16.40		11.59		-3.61		13.96		21.06	25.94	-0.85	
Total Equity Policy	8.91		1.49		13.60		18.94		13.34		-6.20		11.73		19.62	22.72	-4.71	
Difference	0.22		1.70		-0.47		-2.54		-1.75		2.59		2.23		1.44	3.22	3.86	
Total Domestic Equity	8.81	(38)	5.47	(19)	16.10	(45)	14.99	(78)	12.80	(36)	-1.73	(53)	17.23	(34)	22.56 (56)	27.44 (46)	3.01	(15)
Total Domestic Equity Policy	8.88	(37)	2.36	(41)	17.73	(32)	18.62	(45)	14.77	(18)	-1.18	(47)	17.67	(29)	22.03 (60)	29.64 (25)	0.48	(32)
Difference	-0.07		3.11		-1.63		-3.63		-1.97		-0.55		-0.44		0.53	-2.20	2.53	
IM U.S. All Cap Equity (SA+CF+MF) Median	8.15		0.95		15.05		18.19		11.46		-1.47		15.77		23.35	26.94	-1.62	
Total Int'l Equity	10.15	(20)	-3.33	(73)	5.85	(14)	18.68	(69)	7.98	(51)	-8.63	(65)	6.07	(51)	16.67 (89)	21.58 (5)	-10.95	(69)
Total Int'l Policy	8.92	(53)	-1.23	(47)	1.76	(60)	19.61	(59)	9.26	(33)	-12.16	(90)	4.77	(64)	16.48 (90)	14.49 (83)	-10.81	(69)
Difference	1.23		-2.10		4.09		-0.93		-1.28		3.53		1.30		0.19	7.09	-0.14	
IM International Large Cap Core Equity (SA+CF) Median	9.06		-1.56		2.52		20.25		8.00		-7.18		6.09		22.59	17.31	-9.42	
Total Fixed Income	0.24	(61)	7.41	(79)	0.99	(12)	3.93	(19)	5.81	(48)	2.09	(44)	6.00	(22)	2.81 (8)	11.79 (14)		(76)
Total Fixed Policy	0.18	(67)	10.30	(29)	-1.22	(64)	0.07	(84)	5.19	(68)	2.94	(18)	3.96	(74)	-2.35 (90)	5.75 (84)	5.96	(9)
Difference	0.06		-2.89		2.21		3.86		0.62		-0.85		2.04		5.16	6.04	-2.84	
IM U.S. Broad Market Fixed Income (SA+CF+MF) Median	0.36		9.66		-0.91		1.29		5.72		1.85		4.74		-0.98	7.74	4.40	
Total Real Estate	0.84	(87)	6.53	(73)	10.10		9.82	(30)	9.06	(94)	14.70		12.33	(67)	8.10 (10	) 13.00 (47)		(88)
NCREIF ODCE	1.53	(58)	6.17	(75)	8.82	(57)	7.81	(58)	10.62	(67)	14.71	(60)	12.39	(66)	12.47 (68)	· · · · ·	18.03	(43)
Difference	-0.69		0.36		1.28		2.01		-1.56		-0.01		-0.06		-4.37	1.23	-3.92	
IM U.S. Open End Private Real Estate (SA+CF) Median	1.59		6.97		9.01		8.17		11.14		15.39		12.66		13.22	12.89	16.62	
Total Timber	0.00		5.58		-9.38		0.28		6.48		6.70		9.49		4.51	-5.86	3.87	
NCREIF Timberland Index	-0.04		2.10		4.00		3.28		3.28		9.26		10.38		9.68	2.25	0.26	
Difference	0.04		3.48		-13.38		-3.00		3.20		-2.56		-0.89		-5.17	-8.11	3.61	
Total Alternatives	N/A		N/A		4.94		8.16		9.11		-3.68		6.84		-9.88	-8.55	-0.85	
Alternatives Policy	4.56		7.72		8.07		9.04		10.41		1.10		7.56		-3.91	-2.59	1.58	
Difference	N/A		N/A		-3.13		-0.88		-1.30		-4.78		-0.72		-5.97	-5.96	-2.43	



**Comparative Performance** 

**Total Fund Trailing Returns** 

																	A0 01 0000	
	FY	TD	Oct-/ T Sep-	0	Oct-2 T Sep-2	0	Oct-: T Sep-	0		2015 o 2016	Oct-2 To Sep-2	D C	Oct-2 To Sep-2	)	Oct-2 T Sep-2	0	Oct-2011 To Sep-2012	Oct-2010 To Sep-2011
Total Domestic Equity (Composite)	8.81		5.47		16.10		14.99		12.80		-1.73		17.23		22.56		27.44	3.01
Vanguard Total Stock Mkt (VTSAX)	9.01	(33)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
CRSP U.S. Total Market TR Index	9.00	(34)	2.92	(34)	17.62	(31)	18.64	(40)	14.99	(27)	-0.55	(46)	17.77	(23)	21.59	(55)	29.96 (29)	0.46 (32)
Difference	0.01		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
IM U.S. Equity (MF) Median	7.91		0.12		13.31		17.49		12.10		-0.93		13.75		22.53		27.33	-1.87
Macquarie (Delaware Value)	N/A		N/A		N/A		12.49	(89)	19.29	(10)	-3.67	(57)	21.59	(17)	24.74	(40)	29.80 (34)	6.36 (7)
Russell 1000 Value Index	7.41	(61)	4.00	(38)	9.45	(77)	15.12	(76)	16.19	(26)	-4.42	(65)	18.89	(42)	22.30	(60)	30.92 (26)	-1.89 (62)
Difference	N/A		N/A		N/A		-2.63		3.10		0.75		2.70		2.44		-1.12	8.25
IM U.S. Large Cap Value Equity (SA+CF) Median	7.92		2.24		11.72		17.92		13.30		-3.28		18.36		23.68		28.14	-0.98
Boston LCV	8.30	(40)	3.47	(42)	N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
Russell 1000 Value Index	7.41	(61)	4.00	(38)	9.45	(77)	15.12	(76)	16.19	(26)	-4.42	(65)	18.89	(42)	22.30	(60)	30.92 (26)	-1.89 (62)
Difference	0.89		-0.53		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
IM U.S. Large Cap Value Equity (SA+CF) Median	7.92		2.24		11.72		17.92		13.30		-3.28		18.36		23.68		28.14	-0.98
Great Lakes SMid Cap	6.18	(82)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
Russell 2500 Index	8.54	(34)	-4.04	(66)	16.19	(57)	17.79	(71)	14.44	(35)	0.38	(74)	8.97	(72)	29.79	(58)	30.93 (41)	-2.22 (71)
Difference	-2.36		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
IM U.S. SMID Cap Core Equity (SA+CF) Median	8.07		-2.24		16.28		18.86		12.61		2.28		11.29		30.27		30.24	-0.86
Total Growth	10.79	(24)	11.18	(5)	22.19	(73)	14.70	(95)	7.63	(88)	4.20	(36)	18.19	(40)	18.74	(62)	29.37 (35)	8.43 (2)
Russell 1000 Growth Index	10.62	(26)	3.71	(39)	26.30	(38)	21.94	(31)	13.76	(20)	3.17	(48)	19.15	(28)	19.27	(56)	29.19 (37)	3.78 (22)
Difference	0.17		7.47		-4.11		-7.24		-6.13		1.03		-0.96		-0.53		0.18	4.65
IM U.S. Large Cap Growth Equity (SA+CF+MF) Median	9.65		2.77		24.87		20.28		11.16		3.02		17.25		19.76		27.49	0.80
Rhumbline R1000G	10.60	(25)	3.70	(53)	N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
Russell 1000 Growth Index	10.62	(25)	3.71	(53)	26.30	(37)	21.94	(38)	13.76	(23)	3.17	(54)	19.15	(40)	19.27	(64)	29.19 (39)	3.78 (30)
Difference	-0.02		-0.01		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
IM U.S. Large Cap Growth Equity (SA+CF) Median	9.58		3.86		24.44		20.82		11.64		3.53		18.19		20.25		27.69	1.38
Sawgrass Large Cap Growth	N/A		N/A		21.72	(66)	14.70	(92)	7.63	(87)	4.20	(40)	18.19	(51)	18.74	(69)	29.37 (38)	N/A
Russell 1000 Growth Index	10.62	(25)	3.71	(53)	26.30	(37)	21.94	(38)	13.76	(23)	3.17	(54)	19.15	(40)	19.27	(64)	29.19 (39)	3.78 (30)
Difference	N/A		N/A		-4.58		-7.24		-6.13		1.03		-0.96		-0.53		0.18	N/A
IM U.S. Large Cap Growth Equity (SA+CF) Median	9.58		3.86		24.44		20.82		11.64		3.53		18.19		20.25		27.69	1.38
Polen Capital LCG	10.84	(21)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
Russell 1000 Growth Index	10.62	(25)	3.71	(53)	26.30	(37)	21.94	(38)	13.76	(23)	3.17	(54)	19.15	(40)	19.27	(64)	29.19 (39)	3.78 (30)
Difference	0.22		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
IM U.S. Large Cap Growth Equity (SA+CF) Median	9.58		3.86		24.44		20.82		11.64		3.53		18.19		20.25		27.69	1.38



# Comparative Performance Total Fund Trailing Returns

	FYTD	٦	2018 o 2019	Oct-20 To Sep-2		Oct-2 T Sep-2	0	Oct-2 To Sep-2	0	Oct-2 To Sep-2	0	Oct-/ T Sep-	0	Oct-2012 To Sep-2013	Oct-2011 To Sep-2012	Oct-2010 To Sep-2017
Lazard SMid Cap Core	N/A	N/A		13.70	(69)	20.53	(25)	10.26	(88)	4.02	(40)	11.99	(36)	31.12 (33)	30.14 (52)	-9.00 (97
Russell 2500 Index	8.54 (3	34) -4.04	(66)	16.19	(57)	17.79	(71)	14.44	(35)	0.38	(74)	8.97	(72)	29.79 (58)	30.93 (41)	-2.22 (71
Difference	N/A	N/A		-2.49		2.74		-4.18		3.64		3.02		1.33	-0.79	-6.78
IM U.S. SMID Cap Core Equity (SA+CF) Median	8.07	-2.24		16.28		18.86		12.61		2.28		11.29		30.27	30.24	-0.86
Vanguard Mid-Cap Index (VIMAX)	6.88 (5	50) 3.65	(24)	13.42	(30)	15.30	(49)	12.63	(40)	N/A		N/A		N/A	N/A	N/A
CRSP U.S. Mid Cap TR Index	6.88 (5	50) 3.70	(22)	13.44	(30)	15.33	(47)	12.68	(39)	1.76	(22)	15.94	(13)	28.08 (41)	26.23 (50)	-0.18 (22
Difference	0.00	-0.05		-0.02		-0.03		-0.05		N/A		N/A		N/A	N/A	N/A
IM U.S. Mid Cap Core Equity (MF) Median	6.85	1.09		10.84		15.23		11.87		-1.05		12.32		27.52	26.17	-3.68
Total Int'l Equity (Composite)	10.15	-3.33		5.85		18.68		7.98		-8.63		6.07		16.67	21.58	-10.95
Harding Loevner Intl Equity (HLIZX)	10.09 (4	2) -3.34	(62)	5.85	(10)	18.65	(58)	N/A		N/A		N/A		N/A	N/A	N/A
MSCI AC World ex USA (Net)	8.92 (6	52) -1.23	(44)	1.76	(34)	19.61	(48)	9.26	(51)	-12.16	(64)	4.77	(43)	16.48 (56)	14.49 (65)	-10.81 (38
Difference	1.17	-2.11		4.09		-0.96		N/A		N/A		N/A		N/A	N/A	N/A
IM International Equity (MF) Median	9.60	-1.94		0.08		19.36		9.32		-8.75		4.26		17.81	16.20	-12.08



Comparative Performance Total Fund Trailing Returns

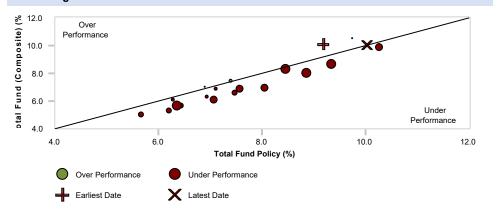
	FY	TD	Oct-2 To Sep-2	0	Oct-2 To Sep-2	<b>)</b>	Oct-2 T Sep-2	0	Oct-2 T Sep-2	0	Oct-2 To Sep-2	0	Oct-2 To Sep-2	5	Т	2012 o 2013	Oct-2011 To Sep-2012	Oct-2010 To Sep-2011
Total Core Fixed Income	-0.02		8.74		-0.67		0.82		5.78		3.88		4.40		-1.26		7.71	4.42
Core Fixed Policy	0.18		10.30		-1.22		0.07		5.19		2.94		3.96		-1.68		5.16	5.26
Difference	-0.20		-1.56		0.55		0.75		0.59		0.94		0.44		0.42		2.55	-0.84
Garcia Hamilton Fixed Income	-0.02	(87)	8.74	(96)	N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
Blmbg. Barc. U.S. Aggregate Index	0.18	(56)	10.30	(70)	-1.22	(87)	0.07	(85)	5.19	(81)	2.94	(61)	3.96	(81)	-1.68	(79)	5.16 (90)	5.26 (50)
Difference	-0.20		-1.56		N/A		N/A		N/A		N/A		N/A		N/A		N/A	N/A
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	0.22		10.46		-0.75		0.61		5.66		3.02		4.47		-1.26		6.60	5.26
Mutual of America Core Fixed	N/A		N/A		N/A		0.82	(39)	5.78	(43)	3.88	(7)	4.43	(52)	-1.01	(38)	7.24 (37)	N/A
Blmbg. Barc. U.S. Aggregate Index	0.18	(56)	10.30	(70)	-1.22	(87)	0.07	(85)	5.19	(81)	2.94	(61)	3.96	(81)	-1.68	(79)	5.16 (90)	5.26 (50)
Difference	N/A		N/A		N/A		0.75		0.59		0.94		0.47		0.67		2.08	N/A
IM U.S. Broad Market Core Fixed Income (SA+CF) Median	0.22		10.46		-0.75		0.61		5.66		3.02		4.47		-1.26		6.60	5.26
Total Non-Core Fixed Income	1.15		3.13		4.97		11.18		6.07		-2.56		9.33		11.74		24.76	-3.22
Bloomberg Barclays Global Aggregate	0.49		7.60		-1.31		-1.26		8.83		-3.26		1.19		-2.64		5.07	4.00
Difference	0.66		-4.47		6.28		12.44		-2.76		0.70		8.14		14.38		19.69	-7.22
Templeton Global Total Return (FTTRX)	1.88	(8)	2.50	(99)	-1.90	(66)	13.82	(1)	2.64	(94)	-8.23	(95)	5.71	(22)	5.29	(2)	15.90 (3)	N/A
Blmbg. Barc. Global Multiverse	0.64	(55)	7.54	(51)	-1.32	(51)	-0.56	(77)	9.23	(25)	-3.56	(42)	1.40	(79)	-2.22	(56)	5.57 (81)	3.85 (11)
Difference	1.24		-5.04		-0.58		14.38		-6.59		-4.67		4.31		7.51		10.33	N/A
IM Global Fixed Income (MF) Median	0.68		7.65		-1.29		1.02		7.42		-3.85		3.37		-1.81		7.17	1.74
Total Real Estate (Composite)	0.84		6.53		10.10		9.82		9.06		14.70		12.33		8.10		13.00	14.11
American Core Realty	1.46	(72)	6.81	(54)	8.50	(63)	7.52	(65)	9.04	(94)	13.98	(67)	12.49	(62)	12.27	(71)	11.56 (66)	16.11 (63)
NCREIF ODCE	1.53	(58)	6.17	(75)	8.82	(57)	7.81	(58)	10.62	(67)	14.71	(60)	12.39	(66)	12.47	(68)	11.77 (64)	18.03 (43)
Difference	-0.07		0.64		-0.32		-0.29		-1.58		-0.73		0.10		-0.20		-0.21	-1.92
IM U.S. Open End Private Real Estate (SA+CF) Median	1.59		6.97		9.01		8.17		11.14		15.39		12.66		13.22		12.89	16.62
Total Timber (Composite)	0.00		5.58		-9.38		0.28		6.48		6.70		9.49		4.51		-5.86	3.87
Amsouth Timber Fund	N/A		N/A		-15.26		-0.52		6.12		11.73		7.98		3.85		-1.33	2.00
NCREIF Timberland Index	-0.04		2.10		4.00		3.28		3.28		9.26		10.38		9.68		2.25	0.26
Difference	N/A		N/A		-19.26		-3.80		2.84		2.47		-2.40		-5.83		-3.58	1.74
Molpus Woodlands Timber	0.00		5.90		-2.66		1.18		6.08		1.64		10.96		5.25		-10.32	5.68
NCREIF Timberland Index	-0.04		2.10		4.00		3.28		3.28		9.26		10.38		9.68		2.25	0.26
Difference	0.04		3.80		-6.66		-2.10		2.80		-7.62		0.58		-4.43		-12.57	5.42
Alternatives																		
Westwood Income Opportunity Fund (WHGIX)	N/A		N/A		4.94	(36)	8.14	(60)	9.20	(40)	-3.83	(46)	N/A		N/A		N/A	N/A
Alternatives Policy	4.56	(43)	7.72	(15)	8.07	(18)	9.04	(50)	10.41	(24)	1.10	(11)	7.56	(55)	-3.91	(95)	-2.59 (100)	1.58 (24)
Difference	N/A		N/A		-3.13		-0.90		-1.21		-4.93		N/A		N/A		N/A	N/A
IM Flexible Portfolio (MF) Median	4.09		2.59		3.38		9.02		8.55		-4.23		7.99		8.17		15.66	-0.87





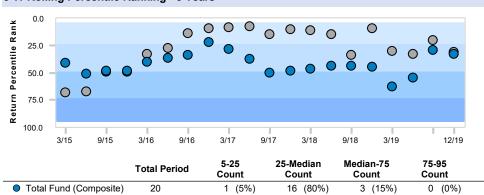


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#### 3 Yr Rolling Under/Over Performance - 5 Years

3 Yr Rolling Percentile Ranking - 5 Years



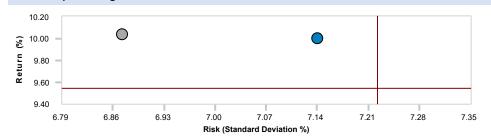
10 (50%)

8 (40%)

2 (10%)

0 (0%)

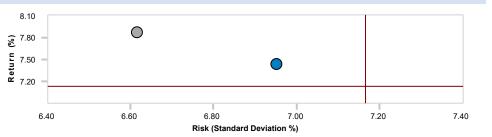
Peer Group Scattergram	1 - 3 Years	



#### Peer Group Scattergram - 5 Years

20

Total Fund Policy



	Return	Standard Deviation		Return	Standard Deviation
<ul> <li>Total Fund (Composite)</li> </ul>	10.00	7.14	Total Fund (Composite)	7.43	6.95
Total Fund Policy	10.03	6.87	Total Fund Policy	7.87	6.62
Median	9.55	7.22	Median	7.13	7.17

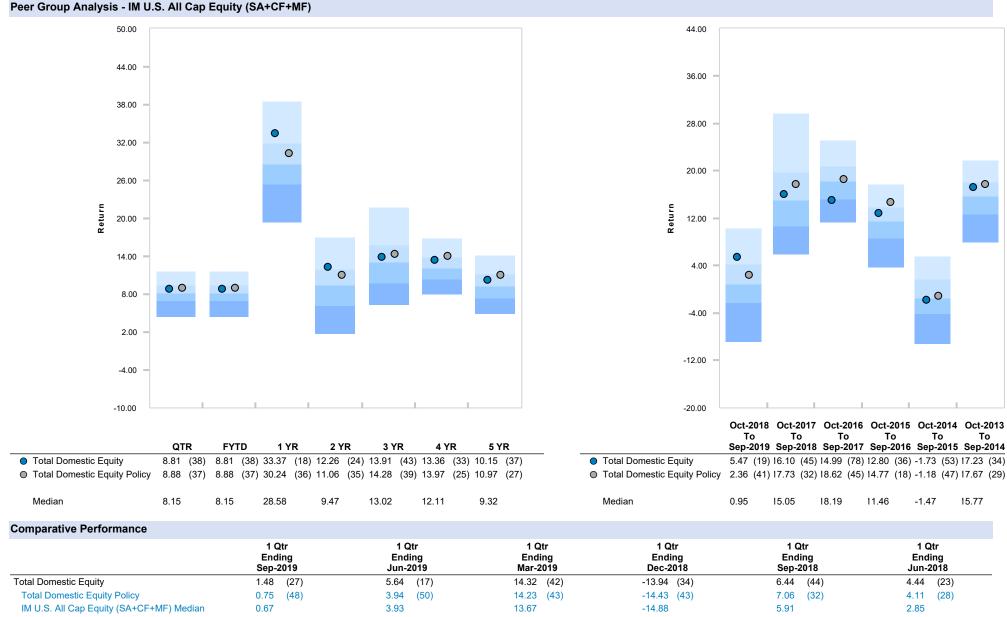
#### **Historical Statistics - 3 Years**

101 52						
101.53	104.47	-0.29	-0.01	1.14	1.03	4.68
100.00	100.00	0.00	N/A	1.19	1.00	4.42
	100.00	100.00 100.00	100.00 100.00 0.00	100.00 100.00 N/A	100.00 100.00 0.00 N/A 1.19	100.00 100.00 0.00 N/A 1.19 1.00

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Fund (Composite)	1.03	98.33	109.10	-0.71	-0.38	0.93	1.04	4.25
Total Fund Policy	0.00	100.00	100.00	0.00	N/A	1.04	1.00	3.85



## **Performance Review Total Domestic Equity** As of December 31, 2019







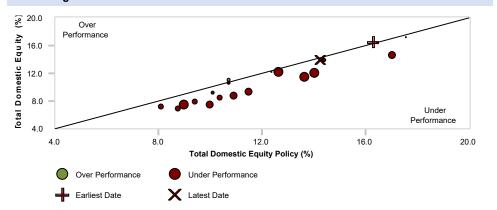
Standard

Deviation

11.66

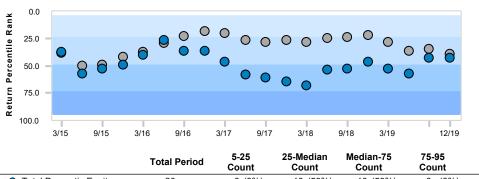
12.16

12.85



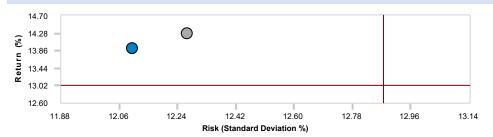
#### 3 Yr Rolling Under/Over Performance - 5 Years

3 Yr Rolling Percentile Ranking - 5 Years

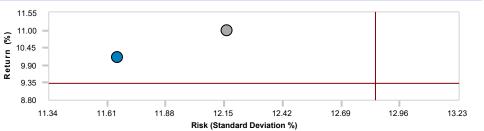


		Count	Count	Count	Count	
Total Domestic Equity	20	0 (0%)	10 (50%)	10 (50%)	0 (0%)	
Total Domestic Equity Policy	20	6 (30%)	14 (70%)	0 (0%)	0 (0%)	

#### Peer Group Scattergram - 3 Years



## Peer Group Scattergram - 5 Years



	Return	Standard Deviation		Return
Total Domestic Equity	13.91	12.10	Total Domestic Equity	10.15
Total Domestic Equity Policy	14.28	12.27	Total Domestic Equity Policy	10.97
Median	13.02	12.88	Median	9.32

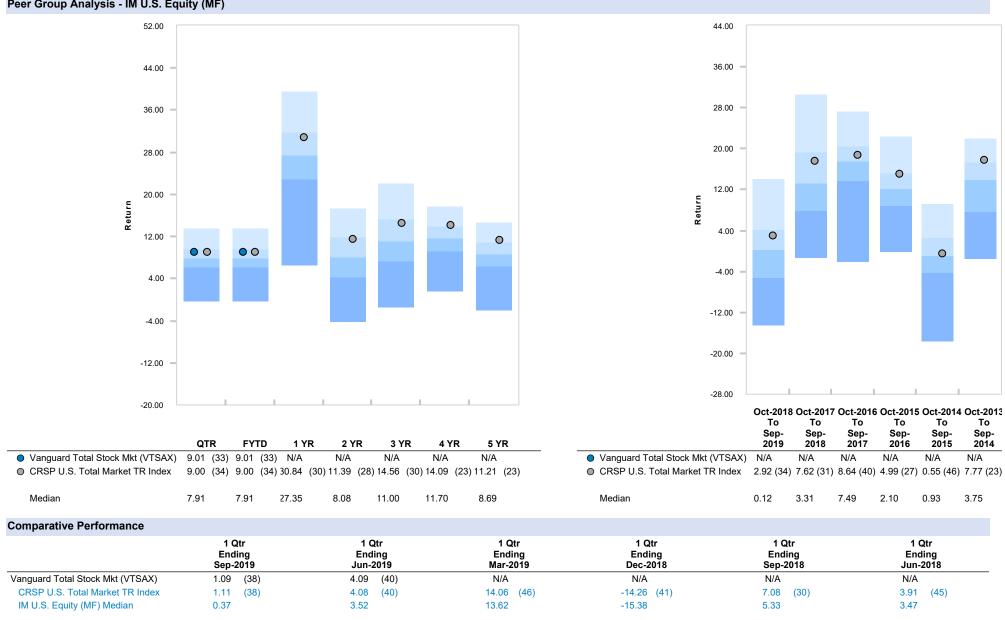
**Historical Statistics - 3 Years** 

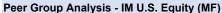
	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Domestic Equity	1.63	96.90	96.02	-0.03	-0.21	1.01	0.98	8.14
Total Domestic Equity Policy	0.00	100.00	100.00	0.00	N/A	1.02	1.00	8.31

#### **Historical Statistics - 5 Years**

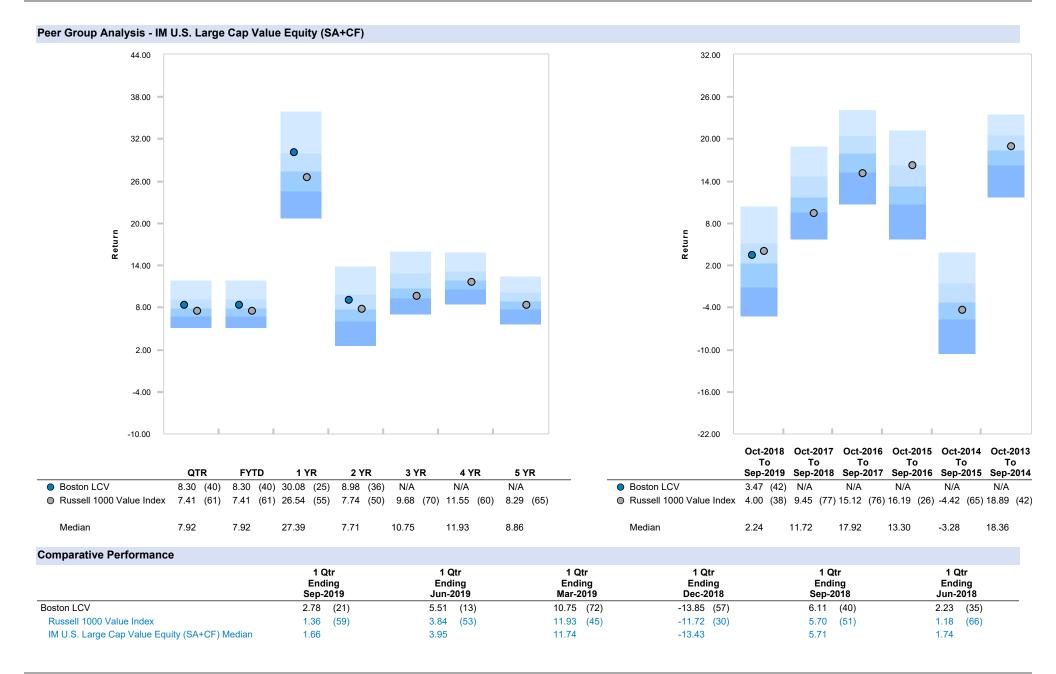
	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Domestic Equity	1.98	93.49	94.21	-0.21	-0.41	0.80	0.95	7.52
Total Domestic Equity Policy	0.00	100.00	100.00	0.00	N/A	0.84	1.00	7.83





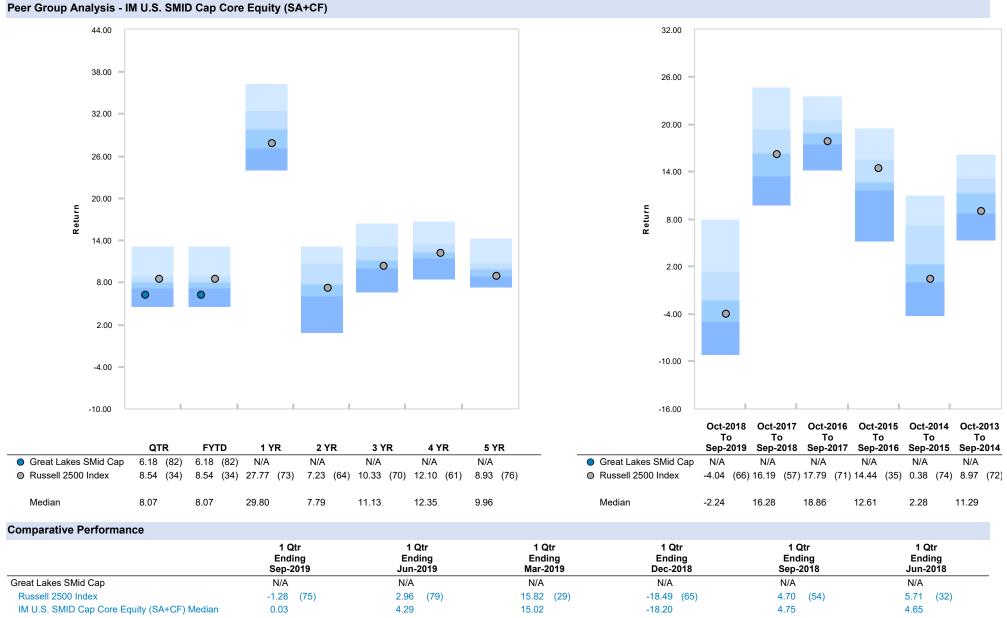




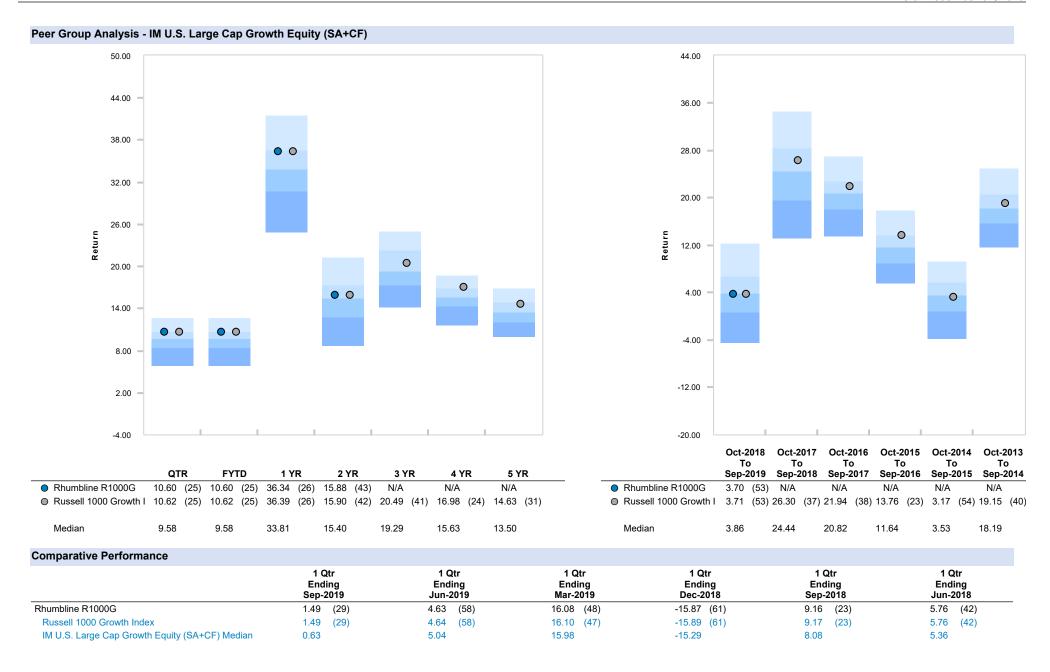




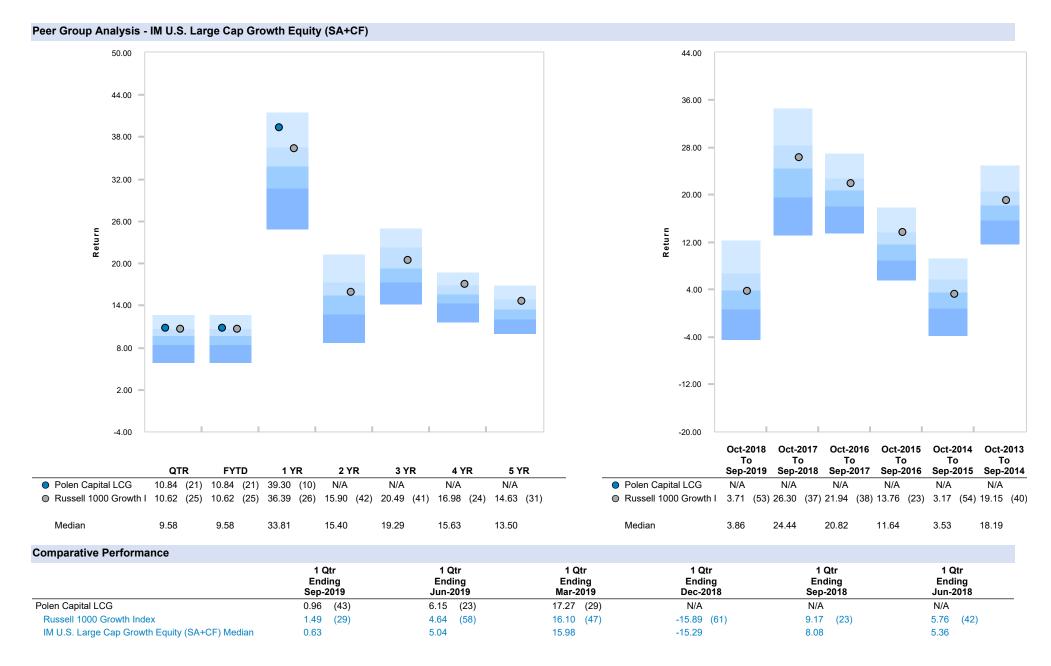
#### Page 30





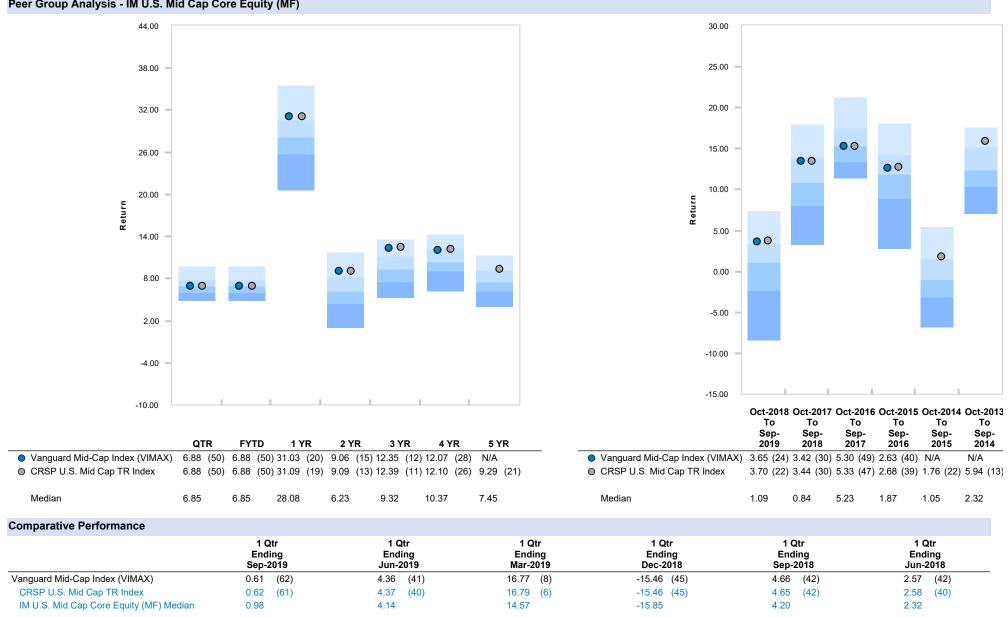


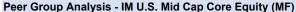






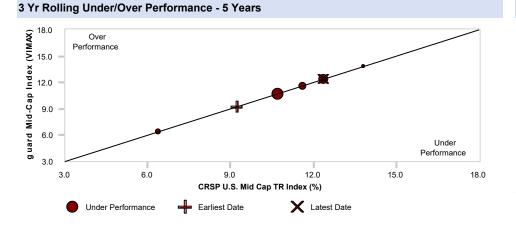
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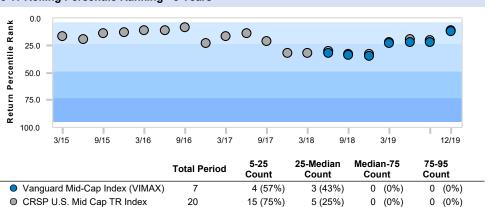




## Performance Review Vanguard Mid-Cap Index (VIMAX) As of December 31, 2019



3 Yr Rolling Percentile Ranking - 5 Years



#### Peer Group Scattergram - 3 Years



#### Peer Group Scattergram - 5 Years



	Return	Standard Deviation		Return	Standard Deviation
<ul> <li>Vanguard Mid-Cap Index (VIMAX)</li> </ul>	12.35	12.82	Vanguard Mid-Cap Index (VIMAX)	N/A	N/A
CRSP U.S. Mid Cap TR Index	12.39	12.81	CRSP U.S. Mid Cap TR Index	9.29	12.65
Median	9.32	13.03	Median	7.45	12.88

**Historical Statistics - 3 Years** 

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Vanguard Mid-Cap Index (VIMAX)	0.02	99.94	100.15	-0.03	-1.48	0.85	1.00	8.74
CRSP U.S. Mid Cap TR Index	0.00	100.00	100.00	0.00	N/A	0.85	1.00	8.73

#### **Historical Statistics - 5 Years**

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Vanguard Mid-Cap Index (VIMAX)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CRSP U.S. Mid Cap TR Index	0.00	100.00	100.00	0.00	N/A	0.69	1.00	8.34



#### Fund Information

Fund Name :Vanguard Index Funds: Vanguard Mid-Cap Index Fund; Admiral SharesFund Family :Vanguard Group IncTicker :VIMAXInception Date :11/12/2001Fund Assets :\$45,117 MillionPortfolio Turnover :16%

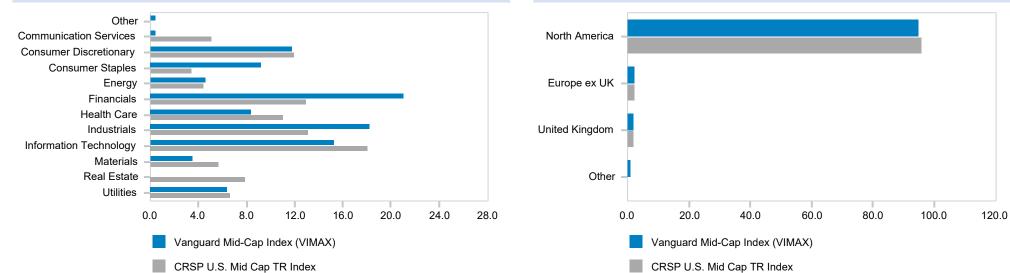
Portfolio Manager :Butler/JohnsonPM Tenure :20012016Fund Style :IM U.S. Mid Cap Core Equity (MfStyle Benchmark :CRSP U.S. Mid Cap TR Index	Portfolio Assets :	\$110,878 Million
Fund Style : IM U.S. Mid Cap Core Equity (Mi	Portfolio Manager :	Butler/Johnson
, , , , , , , , , , , , , , , , , , , ,	PM Tenure :	20012016
Style Benchmark : CRSP U.S. Mid Cap TR Index	Fund Style :	IM U.S. Mid Cap Core Equity (MF)
	Style Benchmark :	CRSP U.S. Mid Cap TR Index

#### Portfolio Characteristics As of 07/31/2019

Sector Weights As of 07/31/2019

	Portfolio	Benchmark
Total Securities	373	354
Avg. Market Cap (\$)	17,605,287,789	13,109,349,300
Price/Earnings (P/E)	30.21	21.63
Price/Book (P/B)	5.58	3.07
Dividend Yield	2.29	1.61
Annual EPS	24.12	4.08
5 Yr EPS	12.97	11.51
3 Yr EPS Growth	18.04	N/A
Beta (3 Years, Monthly)	1.00	1.00

Top Ten Securities As of 07/31/2019	
Twitter Inc ORD	0.7 %
Newmont Goldcorp Corp ORD	0.7 %
Fiserv Inc ORD	0.7 %
Advanced Micro Devices Inc ORD	0.7 %
Xilinx Inc ORD	0.7 %
ONEOK Inc ORD	0.7 %
Amphenol Corp ORD	0.7 %
SBA Communications Corp ORD	0.6 %
Motorola Solutions Inc ORD	0.6 %
WEC Energy Group Inc ORD	0.6 %



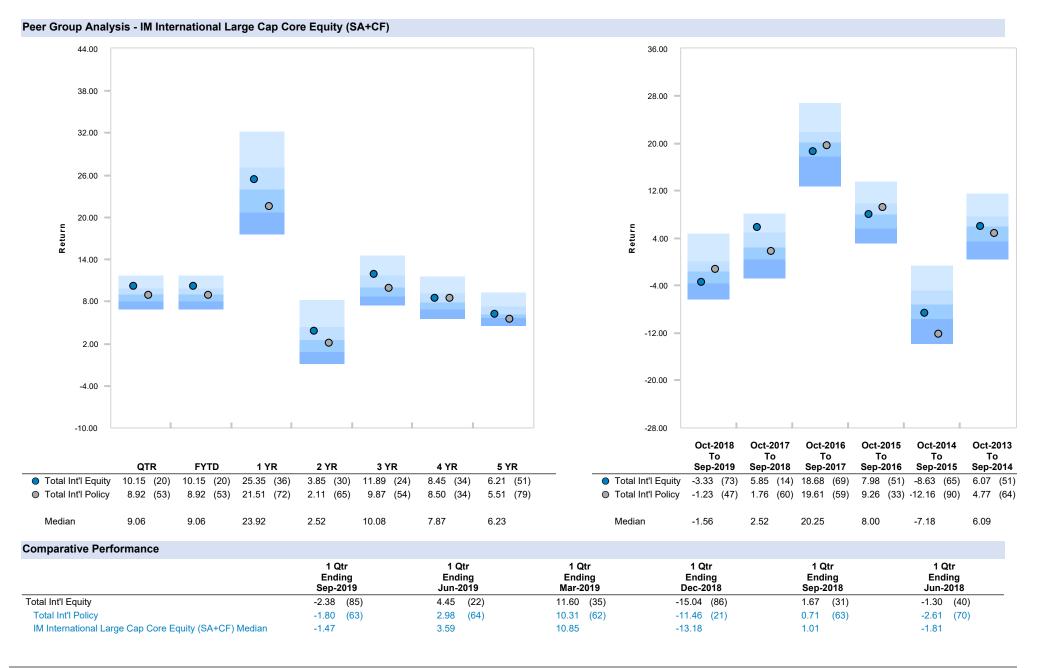
#### Statistics provided by Lipper. Most recent available data shown.

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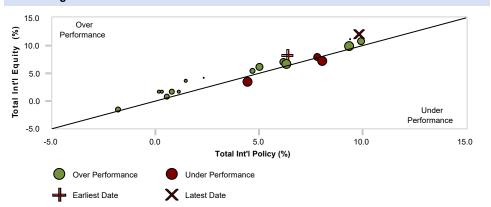
#### Region Weights As of 07/31/2019

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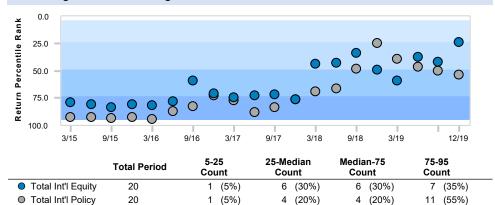




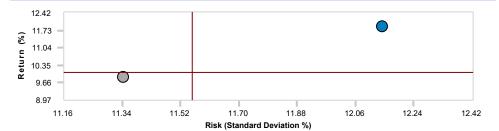


#### 3 Yr Rolling Under/Over Performance - 5 Years

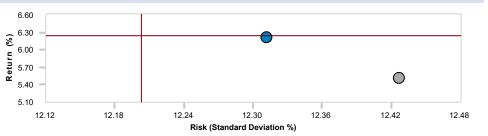
#### 3 Yr Rolling Percentile Ranking - 5 Years



#### Peer Group Scattergram - 3 Years



#### Peer Group Scattergram - 5 Years



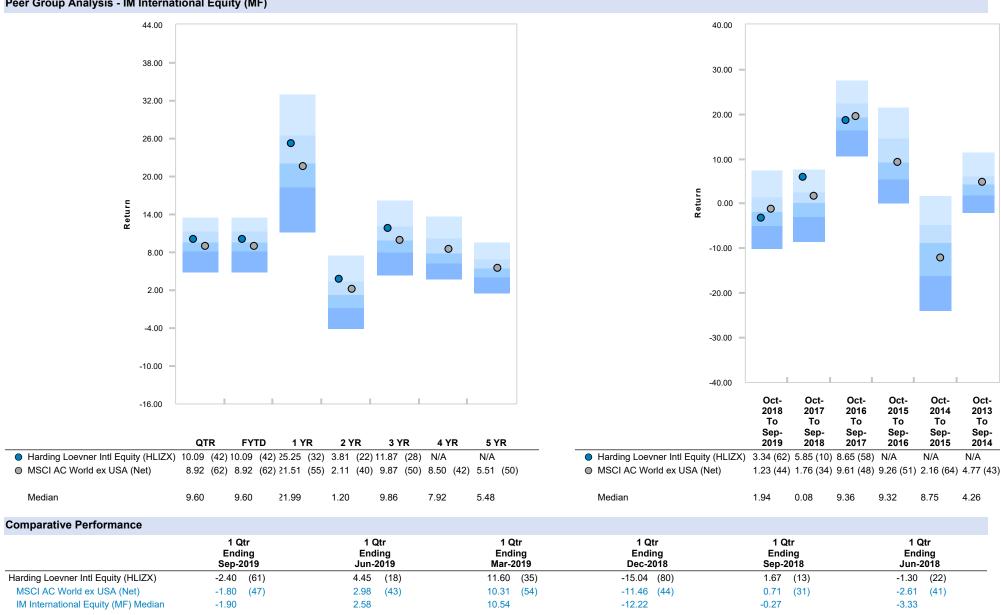
	Return	Standard Deviation		Return	Standard Deviation
Total Int'l Equity	11.89	12.14	Total Int'l Equity	6.21	12.31
Total Int'l Policy	9.87	11.34	Total Int'l Policy	5.51	12.43
Median	10.08	11.56	Median	6.23	12.20

#### **Historical Statistics - 3 Years**

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Int'l Equity	2.99	105.35	93.39	1.57	0.65	0.85	1.04	8.00
Total Int'l Policy	0.00	100.00	100.00	0.00	N/A	0.74	1.00	7.42
Historical Statistic	s - 5 Years							
	Tracking	Up	Down		Information	Sharpa		Downoido

	Tracking Error	Market Capture	Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Int'l Equity	3.67	97.16	91.42	0.99	0.18	0.47	0.95	8.17
Total Int'l Policy	0.00	100.00	100.00	0.00	N/A	0.41	1.00	8.07

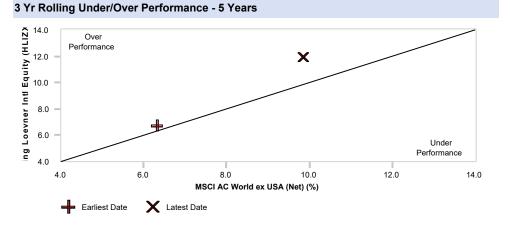




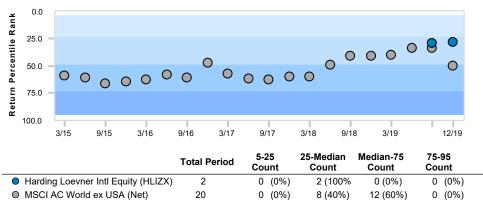
#### Peer Group Analysis - IM International Equity (MF)



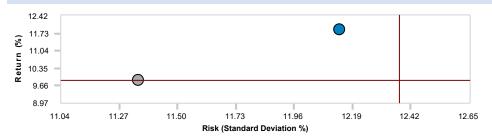
#### Performance Review Harding Loevner Intl Equity (HLIZX) As of December 31, 2019



#### 3 Yr Rolling Percentile Ranking - 5 Years



#### Peer Group Scattergram - 3 Years



Return

11.87

9.87

9.86

#### Peer Group Scattergram - 5 Years



	Return	Standard Deviation
 Harding Loevner Intl Equity (HLIZX)	N/A	N/A
MSCI AC World ex USA (Net)	5.51	12.43
Median	5.48	12.87

#### **Historical Statistics - 3 Years**

\_\_\_ Median

Harding Loevner Intl Equity (HLIZX)

MSCI AC World ex USA (Net)

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Harding Loevner Intl Equity (HLIZX)	3.00	105.28	93.43	1.55	0.64	0.85	1.04	8.00
MSCI AC World ex USA (Net)	0.00	100.00	100.00	0.00	N/A	0.74	1.00	7.42

Standard

Deviation

12.14

11.34

12.38

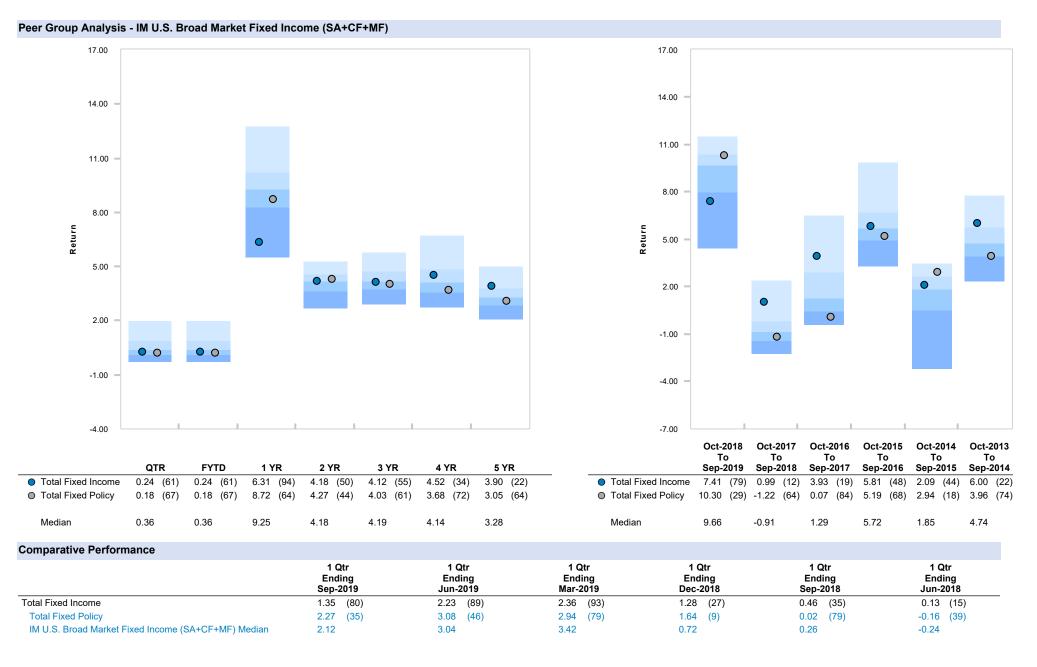
#### **Historical Statistics - 5 Years**

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Harding Loevner Intl Equity (HLIZX)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA (Net)	0.00	100.00	100.00	0.00	N/A	0.41	1.00	8.07

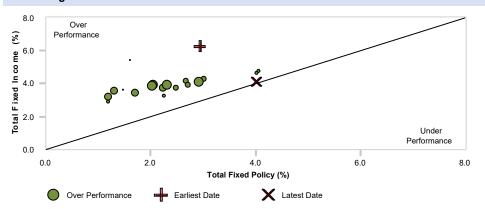


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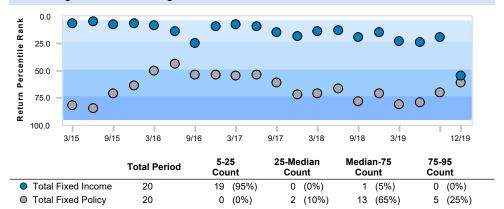




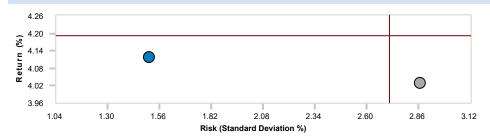


#### 3 Yr Rolling Under/Over Performance - 5 Years

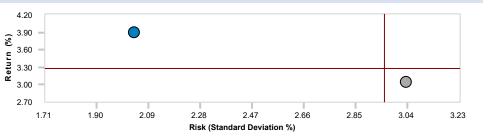
3 Yr Rolling Percentile Ranking - 5 Years



#### Peer Group Scattergram - 3 Years



#### Peer Group Scattergram - 5 Years

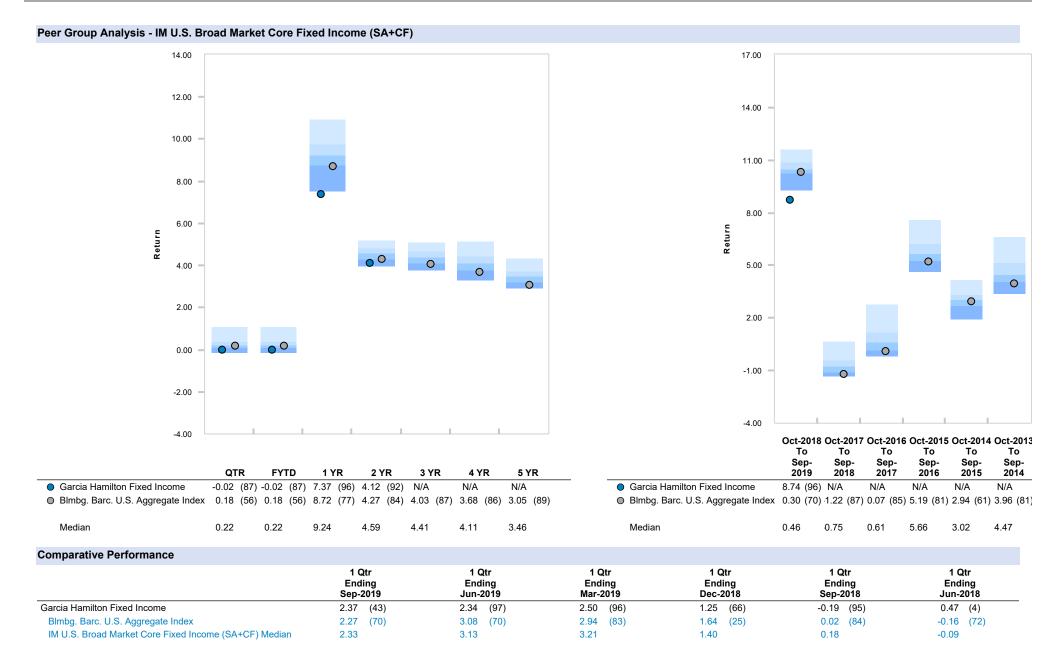


	Return	Standard Deviation		Return	Standard Deviation
Total Fixed Income	4.12	1.51	Total Fixed Income	3.90	2.04
Total Fixed Policy	4.03	2.87	Total Fixed Policy	3.05	3.04
Median	4.19	2.72	Median	3.28	2.96

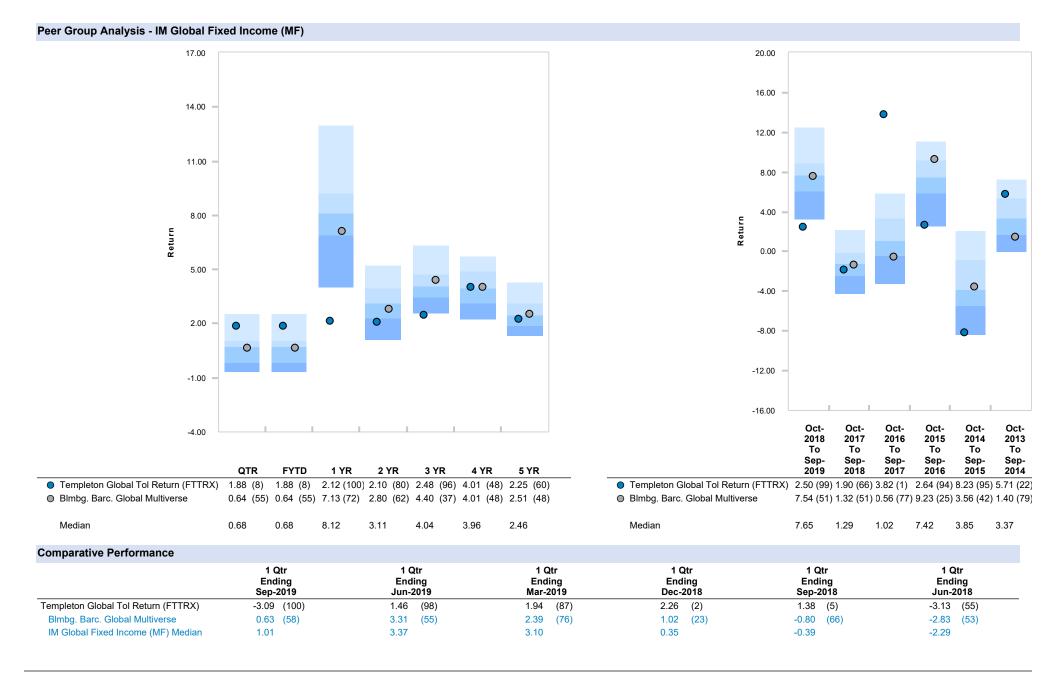
#### **Historical Statistics - 3 Years**

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Fixed Income	1.82	66.37	-5.08	2.33	0.03	1.63	0.44	0.40
Total Fixed Policy	0.00	100.00	100.00	0.00	N/A	0.83	1.00	1.21
Historical Statistics	- 5 Years							
	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Total Fixed Income	1.88	76.60	16.32	2.25	0.42	1.39	0.53	0.88
Total Fixed Policy	0.00	100.00	100.00	0.00	N/A	0.67	1.00	1.61



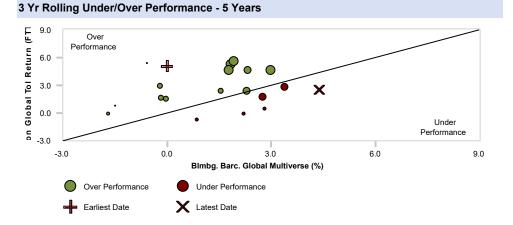




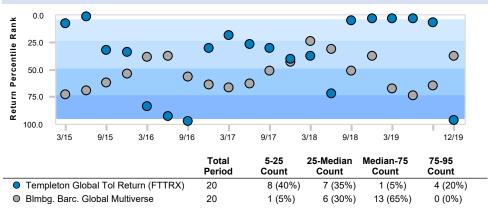




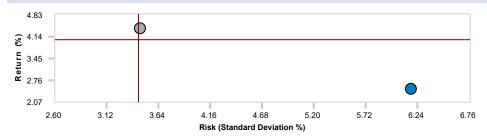
#### Performance Review Templeton Global Tol Return (FTTRX) As of December 31, 2019



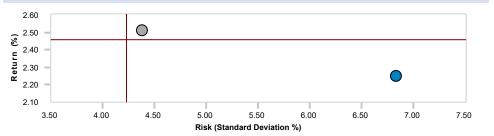
3 Yr Rolling Percentile Ranking - 5 Years



#### Peer Group Scattergram - 3 Years



#### Peer Group Scattergram - 5 Years



	Return	Standard Deviation		Return	Standard Deviation
<ul> <li>Templeton Global Tol Return (FTTRX)</li> </ul>	2.48	6.18	Templeton Global Tol Return (FTTRX)	2.25	6.84
Blmbg. Barc. Global Multiverse	4.40	3.46	BImbg. Barc. Global Multiverse	2.51	4.38
Median	4.04	3.44	Median	2.46	4.23

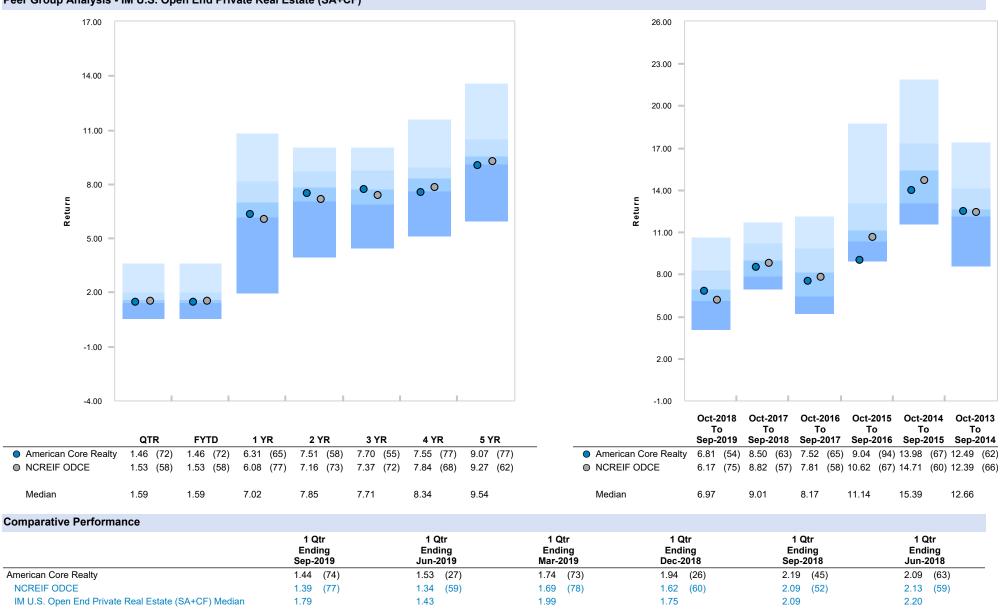
#### **Historical Statistics - 3 Years**

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Templeton Global Tol Return (FTTRX)	7.55	11.21	-56.11	3.96	-0.23	0.16	-0.28	4.43
Blmbg. Barc. Global Multiverse	0.00	100.00	100.00	0.00	N/A	0.79	1.00	1.69

#### **Historical Statistics - 5 Years**

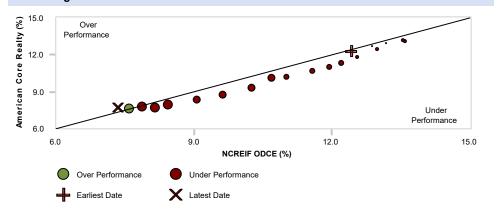
	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
Templeton Global Tol Return (FTTRX)	8.55	-7.65	-63.42	2.98	-0.01	0.21	-0.19	4.55
Blmbg. Barc. Global Multiverse	0.00	100.00	100.00	0.00	N/A	0.35	1.00	2.82





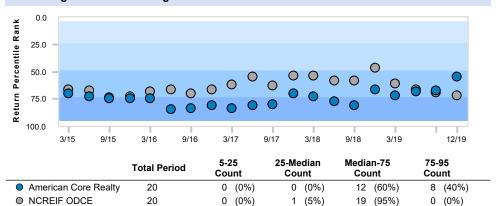
#### Peer Group Analysis - IM U.S. Open End Private Real Estate (SA+CF)



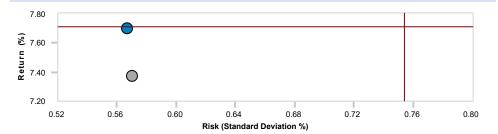


#### 3 Yr Rolling Under/Over Performance - 5 Years

#### 3 Yr Rolling Percentile Ranking - 5 Years



#### Peer Group Scattergram - 3 Years

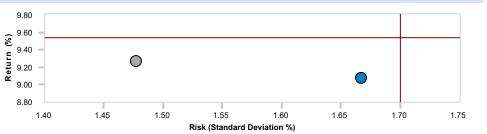


100.00

N/A

#### Peer Group Scattergram - 5 Years

N/A



1.99

	Return	Standard Deviation		Return	Standard Deviation
American Core Realty	7.70	0.57	American Core Realty	9.07	1.67
NCREIF ODCE	7.37	0.57	NCREIF ODCE	9.27	1.48
Median	7.71	0.75	Median	9.54	1.70

#### **Historical Statistics - 3 Years**

0.00

	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
American Core Realty	0.44	104.32	N/A	0.08	0.70	1.87	1.03	0.00
NCREIF ODCE	0.00	100.00	N/A	0.00	N/A	1.85	1.00	0.00
Historical Statistics -	5 Years							
	Tracking Error	Up Market Capture	Down Market Capture	Alpha	Information Ratio	Sharpe Ratio	Beta	Downside Risk
American Core Realty	0.89	97.94	N/A	0.03	-0.21	1.94	0.98	0.00

0.00



0.00

1.00

NCREIF ODCE

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	Market Value	Uncalled Capital Commitment	QTD IRR	Inception IRR	Inception Date	Expected Termination
*Angelo Gordon Net Lease Realty Fund III, L.P.	\$1,974,273.00	\$84,111	0	6.75	3/10/2014	4/1/2027
*Crescent Direct Lending Levered Fund	\$2,817,878.00	\$668,697	0	7.59	10/9/2014	12/1/2022
*Dune Real Estate Fund III	\$1,868,235	\$135,491	0.88	13.13	11/6/2014	12/1/2024
*Molpus Woodlands Timber	\$1,325,625.00	\$0	0	2.18	6/24/2008	5/2018-5/2022

\* Market Value as of 09-30-2019

Market Value includes contributions & distributions since end of period.



Allocation MandateWeight (%)Allocation MandateJan-1978Oct-2013S&P 500 Index65.00Blmbg. Barc. U.S. Gov't/Credit30.00FTSE 3 Month T-Bill5.00Blmbg. Barc. U.S. Aggregate Index NCREIF ODCE	Weight (%) 35.00 15.00 27.50 5.00 5.00
S&P 500 Index65.00Wilshire 5000 Total Market Index (full-cap) IndexBImbg. Barc. U.S. Gov't/Credit30.00MSCI AC World ex USA (Net)FTSE 3 Month T-Bill5.00BImbg. Barc. U.S. Aggregate Index	15.00 27.50 5.00 5.00
Blmbg. Barc. U.S. Gov't/Credit30.00MSCI AC World ex USA (Net)FTSE 3 Month T-Bill5.00Blmbg. Barc. U.S. Aggregate Index	15.00 27.50 5.00 5.00
FTSE 3 Month T-Bill 5.00 BImbg. Barc. U.S. Aggregate Index	27.50 5.00 5.00
	5.00 5.00
	5.00
Apr-2007 Quadrant Custom Policy	
Blmbg. Barc. U.S. Gov't/Credit 30.00 NCREIF Timberland Index	5.00
BImbg. Barc. U.S. TIPS 1-10 Year 5.00 CPI+5%	7.50
S&P 500 Index 60.00	
MSCI EAFE (Net) Index 5.00 May-2014	
Wilshire 5000 Total Market Index (full-cap) Index	35.00
Oct-2007 MSCI AC World ex USA (Net)	15.00
MSCI EAFE (Net) Index 10.00 BImbg. Barc. U.S. Aggregate Index	27.50
Bloomberg Barclays Intermed Aggregate Index 30.00 NCREIF ODCE	10.00
Blmbg. Barc. U.S. TIPS 1-10 Year 5.00 NCREIF Timberland Index	5.00
Russell 3000 Index         50.00         CPI+5%	7.50
NCREIF Property Index 5.00	
Jan-2010 Jul-2015	
Wishing 5000 Total Market Index (tur-cap) index	35.00
	15.00
	27.50
	10.00
	5.00
NCREIF Property Index 5.00 Alternatives Policy	7.50
Jul-2010 Nov-2015	
Wilshire 5000 Total Market Index (full-cap) Index 35.00 Wilshire 5000 Total Market Index (full-cap) Index	42.50
MSCI AC World ex USA (Net) 15.00 MSCI AC World ex USA (Net)	15.00
Blmbg. Barc. U.S. Aggregate Index 25.00 Blmbg. Barc. U.S. Aggregate Index	27.50
Bloomberg Barclays U.S. TIPS Index 5.00 NCREIF ODCE	10.00
NCREIF ODCE 5.00 Alternatives Policy	5.00
Barclay BTOP 50 5.00	0.00
Quadrant Custom Policy 5.00	
NCREIF Timberland Index 5.00	



Total Equity Policy	
Allocation Mandate	Weight (%)
Oct-2005	
S&P 500 Index	95.00
FTSE 3 Month T-Bill	5.00
Apr-2007	
FTSE 3 Month T-Bill	5.00
S&P 500 Index	85.00
MSCI EAFE (Net) Index	10.00
	10.00
Oct-2007	
MSCI EAFE (Net) Index	15.00
Russell 3000 Index	85.00
lan 0040	
Jan-2010	25.00
MSCI AC World ex USA (Net) Russell 3000 Index	25.00 75.00
Russell 5000 Index	75:00
Jul-2010	
MSCI AC World ex USA (Net)	45.00
Wilshire 5000 Total Market Index (full-cap) Index	55.00
Nov-2015	
MSCI AC World ex USA (Net)	25.00
Wilshire 5000 Total Market Index (full-cap) Index	75.00

Domestic Equity Policy	
Allocation Mandate	Weight (%)
Oct-2005	
S&P 500 Index	100.00
Oct-2007	
Russell 3000 Index	100.00
Jul-2010	
Wilshire 5000 Total Market Index (full-cap) Index	100.00

Allocation Mandate	Weight (%)
Jan-1970	
MSCI EAFE (Net) Index	100.00
Jan-2010	
MSCI AC World ex USA (Net)	100.00
Alternatives Policy	
Allocation Mandate	Weight (%)
Aug-2010	
Barclay BTOP 50	100.00
Nov-2013	
CPI+5%	100.00
Jul-2015	
S&P 500 Index	50.00
Blmbg. Barc. U.S. Aggregate Index	50.00
Total Fixed Policy	
Allocation Mandate	Weight (%)
Oct-2005	
Blmbg. Barc. U.S. Gov't/Credit	95.00
FTSE 3 Month T-Bill	5.00
Jan-2007	
Blmbg. Barc. U.S. Gov't/Credit	85.00
Blmbg. Barc. U.S. TIPS 1-10 Year	15.00
Oct-2007	
Blmbg. Barc. U.S. TIPS 1-10 Year	15.00
Bloomberg Barclays Intermed Aggregate Index	85.00
Jan-2010	
Bloomberg Barclays U.S. TIPS Index	15.00
Blmbg. Barc. U.S. Aggregate Index	85.00
Blmbg. Barc. U.S. Aggregate Index	85.00
Oct-2013 Bimbg. Barc. U.S. Aggregate Index	100.00



#### Delray Beach Firefighters' Retirement System Fee Analysis As of December 31, 2019

	Market Value (\$)	Estimated Annual Fee (\$)	Estimated Annual Fee (%)	Fee Schedule
Vanguard Total Stock Mkt (VTSAX)	1,190,435	476	0.04	0.04 % of Assets
Boston LCV	21,894,223	120,418	0.55	0.55 % of First \$25 M 0.45 % of Next \$25 M 0.35 % of Next \$50 M 0.25 % Thereafter
Great Lakes SMid Cap	9,248,928	-		
Rhumbline R1000G	4,988,154	1,995	0.04	0.04 % of Assets
Polen Capital LCG	17,500,830	105,005	0.60	0.60 % of Assets
Vanguard Mid-Cap Index (VIMAX)	6,452,105	5,162	0.08	0.08 % of Assets
Harding Loevner Intl Equity (HLIZX)	18,891,727	158,691	0.84	0.84 % of Assets
Garcia Hamilton Fixed Income	22,697,277	56,743	0.25	0.25 % of Assets
Templeton Global Total Return (FTTRX)	4,133,660	27,696	0.67	0.67 % of Assets
American Core Realty	5,205,045	57,255	1.10	1.10 % of Assets
Total Fund (Composite)	120,818,031	533,441	0.44	



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.



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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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