

March 31, 2019

**Pennsylvania SERS**



**Investment Measurement Service  
Quarterly Review**

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## Resilience in the Face of Uncertainty

### ECONOMY

**2** PAGE Investor confidence has shifted wildly over the past six months. Markets swooned in the fourth quarter but rebounded in the first. GDP growth bounced back as well. Is everything fine again? Underneath the good news, there are signs we may be at the peak of the current cycle.

## Equity Rebound Fuels Strong Returns

### FUND SPONSOR

**4** PAGE After the drop in 2018, equity markets rebounded during the first quarter. Fund sponsors echoed that theme, producing strong results across the board. Funds continue to retain a strong tilt toward growth assets, with many citing the need to meet funding requirements.

## U.S., Global Stocks See Big Bounce Back

### EQUITY

**6** PAGE U.S. equity markets dramatically snapped back in the first quarter, driven by the Fed's unexpected dovish comments in January, solid corporate fundamentals, and low unemployment. Global equity markets were up in the first quarter following a sharp sell-off to end 2018.

## Bonds Join the Rally in Global Markets

### FIXED INCOME

**8** PAGE The first quarter's strong results recaptured most of the loss in the prior quarter for riskier U.S. fixed income. Developed market sovereign bonds rallied in tandem with Treasuries. Emerging market bonds also rebounded. Positive net inflows into the EM universe continued.

## Real Estate Healthy; Real Assets Rebound

### REAL ESTATE/REAL ASSETS

**10** PAGE The NCREIF Property Index, a measure of U.S. institutional real estate assets, gained 1.8% during the first quarter. REITs across the globe bounced back. Real assets of all varieties enjoyed a strong first quarter, with energy an especially big gainer.

## Down for Now, but It's Just a 'Gully'

### PRIVATE EQUITY

**12** PAGE Almost every private equity transaction measure in the first quarter was down substantially, with only fundraising dollar volume increasing. With the recovery in first quarter equity markets, we expect private equity to also shrug-off the "gully" as the year progresses.

## Hedge Funds Mixed; Some MACs Thrive

### HEDGE FUNDS/MACs

**13** PAGE The Credit Suisse Hedge Fund Index gained 4.0% in the first quarter, and the Callan Hedge Fund-of-Funds Database Group rose 3.6%. The Callan Multi-Asset Class (MAC) Style Groups showed positive but widely diverging results, with the overall group up 6.7%.

## DC Index Limp to the Finish Line

### DEFINED CONTRIBUTION

**15** PAGE The Callan DC Index™ fell 4.9% in 2018, but it outperformed the typical Age 45 Target Date Fund for the year by over 2 percentage points. For the first time in the history of the DC Index, target date funds did not experience the largest inflows; instead, stable value funds did.

## Broad Market Quarterly Returns

**U.S. Equity**  
Russell 3000



**Non-U.S. Equity**  
MSCI ACWI ex USA



**U.S. Fixed Income**  
Bloomberg Barclays Agg



**Non-U.S. Fixed Income**  
Bloomberg Barclays GBI ex US



Sources: Bloomberg Barclays, FTSE Russell, MSCI

# Resilience in the Face of Uncertainty

ECONOMY | Jay Kloepfer

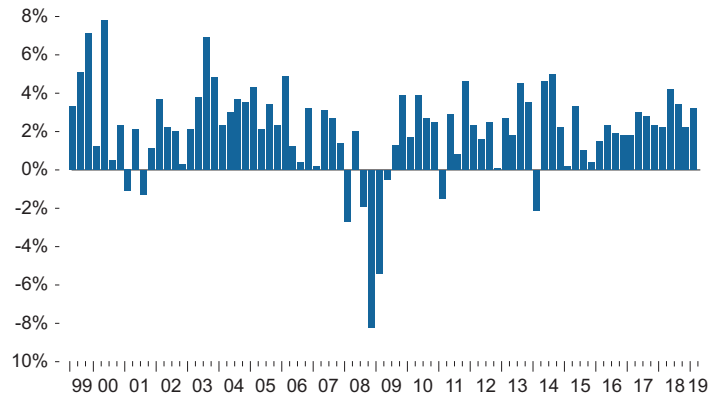
Investor confidence has shifted wildly over the past six months. Anxiety, panic, and gloom pushed equity markets down around the globe through the last three months of 2018, culminating in one of the worst Decembers in decades. The pessimism derailed global interest rate policy. The central banks in the euro zone had yet to join the U.S. in reversing years of monetary easing, and they may now skip this cycle of tightening altogether. The Fed pressed “pause” on its own tightening plan in January after nine rate hikes. The equity markets then surged during the first quarter of 2019, moving back toward the all-time high set last October, and volatility evaporated.

What changed in the fall of 2018 and then in the first quarter of 2019 to cause this whipsaw of sentiment? U.S. GDP growth softened in the fourth quarter to a still healthy 2.2%, but then notched a surprisingly strong 3.2% increase in the first quarter. This robust gain is a sign of resilience in the face of the fourth quarter market swoon and the uncertainty generated by the government shutdown in January of this year. The increase also reversed a pattern in recent years of inexplicably slower growth in first quarter GDP. The solid GDP report was accompanied by a surge in durable goods orders reported in March, strong exports, sustained job growth, and of course the reversal of the fourth quarter stock market slump.

All of the sudden, everything is fine again. Or is it? Underneath all the good news, there are signs that we may be at the peak of the current economic cycle. More than half of the robust first quarter GDP gain came from net exports and inventory accumulation. Greater investment in inventories now, which adds to GDP, means less investment in the future. Exports rose and imports slumped; both are positive contributions to GDP but neither may be sustainable. Final sales to domestic purchasers, which excludes both trade and inventory building, rose at a more modest 1.4% rate, down from a 2.1% gain in the fourth quarter. Personal consumption inched up 1.2%, less than half the growth rate enjoyed over the year in 2018. To be fair, the weakness in these quarterly data appears to have been concentrated at the

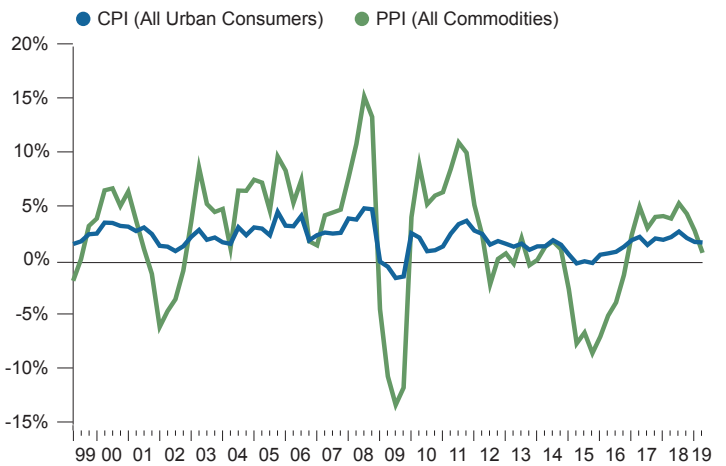
## Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

## Inflation Year-Over-Year



Source: Bureau of Labor Statistics

start of the year, and the reports for many indicators showed a big bounce in March.

On the positive side of the ledger, the government shutdown in January had a temporary effect, shifting the timing of activity and employment, but the net impact should be minimal. The job market saw a sharp drop in February, to just 33,000 new jobs, only to see a snap back to 196,000 in March. The average gain for the first three months was 180,000, lower than the average for last year but substantially above the bellwether mark

of 100,000 per month required to keep the economy growing. Manufacturing employment in the U.S. declined in the first quarter, despite the residual strength in capital goods orders. While both the Markit manufacturing and services PMIs slipped in the first quarter, they remain above readings of 50, the dividing line between expansion and contraction. Of particular interest is the eye-catching rebound in China's manufacturing PMI, which jumped from a borderline reading of 50 to 58 in March.

The narrative has changed sharply since the nadir of December 2018. The stock market slump reversed, credit spreads have narrowed, and the potential for the yield curve to steepen has returned. The rebound in GDP and durable goods orders in March, the resilience of the job market, and the gain in net exports reinforce the perception that we are poised to see economic growth reaccelerate in the second quarter. Not all the indicators suggest good news, however. Oil prices have rebounded, driving up gasoline prices and crimping household disposable income. Home price gains, which have an attendant wealth effect typically more widespread and powerful than the wealth effect from the equity market, are slowing. Finally, the continuing strength of the dollar adds to the headwinds facing manufacturing.

Trade and trade policy dominates headlines, but it is worth noting that the impact of trade in the U.S. is far lower than in most of our trading partners, both developed and emerging. One measure is the trade-to-GDP ratio, the sum of exports and imports as a percentage of GDP. (Note that exports add to GDP while imports subtract from GDP, but the sum of their share of GDP is a reasonable measure of the impact of total trade activity on an economy.) Exports and imports include both goods and services. Trade has certainly become a larger

### The Long-Term View

Index	2019 1st Qtr	Periods ended Dec. 31, 2018			
		Year	5 Yrs	10 Yrs	25 Yrs
<b>U.S. Equity</b>					
Russell 3000	14.04	-5.24	7.91	13.18	9.04
S&P 500	13.65	-4.38	8.49	13.12	9.07
Russell 2000	14.58	-11.01	4.41	11.97	8.28
<b>Non-U.S. Equity</b>					
MSCI EAFE	9.98	-13.79	0.53	6.32	4.63
MSCI ACWI ex USA	10.31	-14.20	0.68	6.57	--
MSCI Emerging Markets	9.93	-14.57	1.65	8.02	--
MSCI ACWI ex USA Small Cap	10.26	-18.20	1.96	10.02	--
<b>Fixed Income</b>					
Bloomberg Barclays Agg	2.94	0.01	2.52	3.48	5.09
90-Day T-Bill	0.60	1.87	0.63	0.37	2.55
Bloomberg Barclays Long G/C	6.45	-4.68	5.37	5.88	6.82
Bloomberg Barclays GI Agg ex US	1.52	-2.15	-0.01	1.73	4.39
<b>Real Estate</b>					
NCREIF Property	1.80	6.72	9.33	7.49	9.34
FTSE Nareit Equity	16.33	-4.62	7.90	12.12	9.76
<b>Alternatives</b>					
CS Hedge Fund	3.99	-3.19	1.66	5.10	7.27
Cambridge PE*	-0.53	10.61	11.94	13.76	15.20
Bloomberg Commodity	6.32	-11.25	-8.80	-3.78	2.03
Gold Spot Price	1.34	-2.14	1.28	3.78	4.85
<b>Inflation – CPI-U</b>	1.18	1.91	1.51	1.80	2.20

\*Data for most recent period lags by a quarter. Data as of December 31, 2018. Sources: Bloomberg, Bloomberg Barclays, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Standard & Poor's, Refinitiv/Cambridge

component of U.S. GDP over time, with exports rising from 7% in 1985 to 12.3% in 2018 while imports rose from 9% to 15.5%. Trade activity now involves 27.8% of U.S. GDP. By comparison, the World Bank calculates that trade accounts for 37.8% of China GDP, 62.5% for the U.K., 77.6% for Mexico, and 87% for Germany.

### Recent Quarterly Economic Indicators

	1Q19	4Q18	3Q18	2Q18	1Q18	4Q17	3Q17	2Q17
Employment Cost–Total Compensation Growth	2.8%	2.9%	2.8%	2.8%	2.7%	2.6%	2.5%	2.4%
Nonfarm Business–Productivity Growth	3.6%	1.3%	1.9%	2.9%	0.7%	-0.3%	2.3%	1.7%
GDP Growth	3.2%	2.2%	3.4%	4.2%	2.2%	2.3%	2.8%	3.0%
Manufacturing Capacity Utilization	76.6%	77.0%	76.9%	76.4%	76.1%	75.8%	74.9%	75.2%
Consumer Sentiment Index (1966=100)	94.5	98.2	98.1	98.3	98.9	98.4	95.1	96.4

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

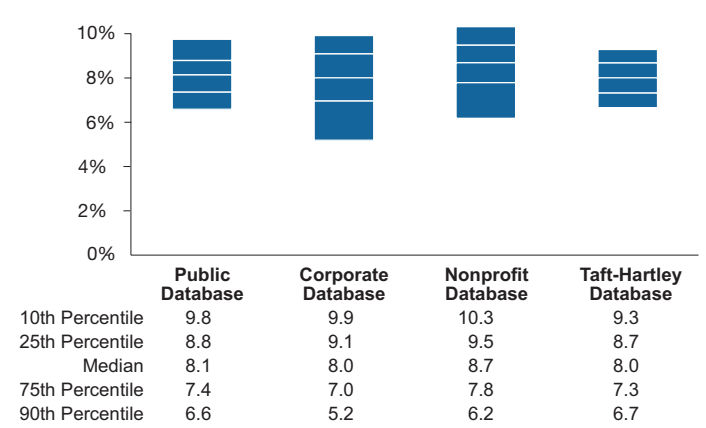


# Equity Rebound Fuels Returns

## FUND SPONSOR

- A quarterly rebalanced 60% S&P 500/40% Bloomberg Barclays Aggregate portfolio rose 7.5% over the one-year period ending March 31, topping all major fund sponsor categories. The Callan Total Fund Sponsor Database Group rose 3.8% over that same period.
- Both U.S. and non-U.S. equity markets fell during 2018 but rebounded during the first quarter of 2019. Fund sponsors echoed that theme, producing strong results across the board, topped by nonprofits (+8.7%).
- Over longer periods, fund sponsor returns were roughly in line with the equity-fixed income mix, with the Total Fund Sponsor Group gaining 6.5% over the last 15 years compared to 6.9% for the 60-40 index.
- Current equity exposure levels may cause concern among sponsors, leading some to seek further diversification opportunities, including diversifying cap-weighted equity with factor strategies and employing more conservative equity.
- Many sponsors' current strategic positioning remains unchanged but is actively monitored. Key questions being considered include:
  - What is the role of fixed income in a total return portfolio?
  - As cost pressure continues to drive passive implementation, how should passive strategies be employed across asset classes?

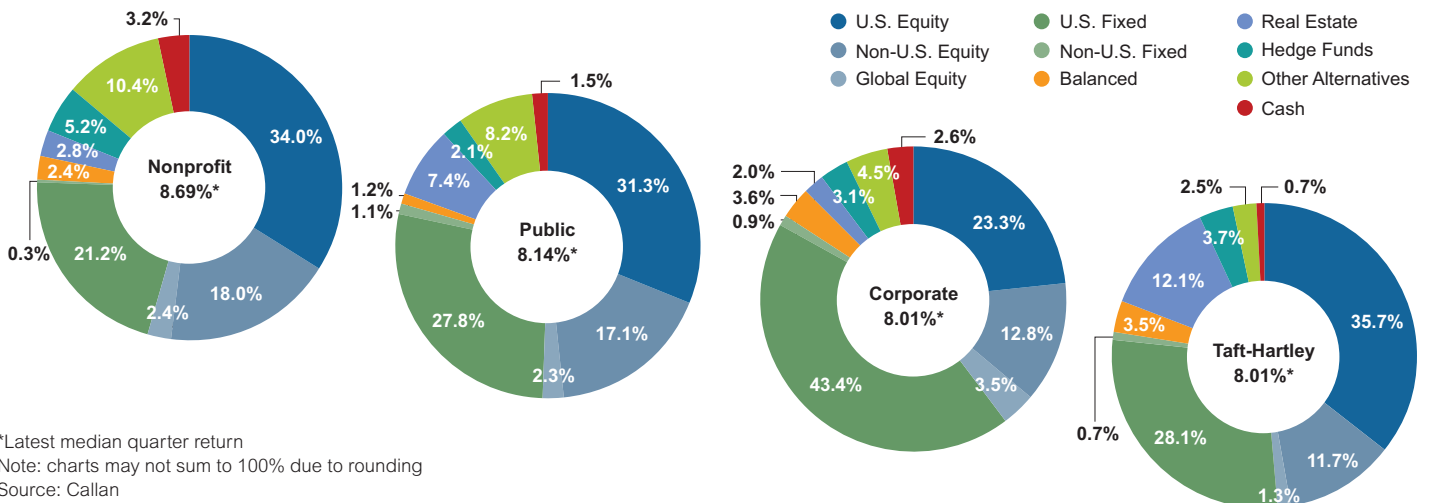
## Callan Fund Sponsor Returns for the Quarter



Source: Callan

- Plans continue to retain a strong tilt toward growth assets (at least 70% in some cases and as high as 90% in others), with many plans citing the need to meet funding requirements. This has coincided with a refined definition of growth to include high yield, convertibles, low-volatility equity, hedge funds, multi-asset class strategies, and option-based strategies.

## Callan Fund Sponsor Average Asset Allocation



\*Latest median quarter return  
 Note: charts may not sum to 100% due to rounding  
 Source: Callan

- Sponsors face continued fee pressure. Fund sponsor clients are focusing on fee studies, reviews of institutional vehicles, the addition of advisory services and/or vendor reviews, and evaluations of the fund structure lineup.
- Sponsors face challenges in setting capital market expectations in a volatile market environment. Where should they start? What is the time horizon? Does valuation matter? At what interest rate? Discipline in the face of uncertainty is difficult. In addition, interest rate volatility wreaks havoc with liability-driven investing glidepaths.
- The first quarter is the season for asset-liability reviews. Among the subjects being discussed:
  - Proper time horizon for the return on assets (ROA) for a public plan
  - Tension between 10-year assumptions and “equilibrium” assumptions
  - Concern about high risk exposure but resistance to de-risking when a shorter horizon ROA is less than the public plan’s ROA
- Corporate plans moving down de-risking glidepaths are reconsidering their equity structures. Growth exposure is typically concentrated in public equity. The focus is often on cost, full diversification to equity beta in the context of liability-driven investing, implementation, and whether equity is the place to spend any active management budget.
- These same corporate plans are examining their fixed income structures at both the current point in time and as they prepare to further de-risk once they move down their glidepaths. Plans expect to move from off-the-shelf, long government/credit exposures to custom portfolios that match their interest rate and credit spread exposures.

**Callan Database Median and Index Returns\* for Periods ended March 31, 2019**

Fund Sponsor	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Public Database	8.14	3.97	8.60	6.14	9.99	6.54
Corporate Database	8.01	3.83	7.82	5.79	9.92	6.56
Nonprofit Database	8.69	3.28	8.51	5.68	9.89	6.56
Taft-Hartley Database	8.01	4.52	8.54	6.62	10.05	6.49
All Funds	8.26	3.83	8.39	5.99	9.95	6.54
Large (>\$1 billion)	7.50	4.06	8.57	6.27	10.13	6.79
Medium (\$100mm - \$1bn)	8.26	3.85	8.40	6.01	9.92	6.44
Small (<\$100 million)	8.55	3.68	8.24	5.77	9.76	6.37

\*Returns less than one year are not annualized.

Source: Callan. Callan's database includes the following groups: public defined benefit, corporate defined benefit, nonprofits, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.

# Global Equity

## U.S. Equities

Equity markets dramatically snapped back in the first quarter, driven by the Fed's unexpected dovish comments in January, solid corporate fundamentals, and low unemployment.

### Large Cap ▶ S&P 500: +13.6% | Russell 1000: +14.0%

- All sectors delivered double-digit gains with the exception of Financials (+8.6%) and Health Care (+6.6%).
- Consumers remain in good shape, with household debt service as a percentage of disposable income at the lowest level in decades.
- The risk-on market was highlighted by low quality (S&P ratings B or lower) outperforming high quality (B+ or higher) by 440 basis points.
- Surprisingly, Utilities and REITs produced double-digit returns; investors sought yield in the face of a flattening yield curve and the end to rate hikes in the first quarter.

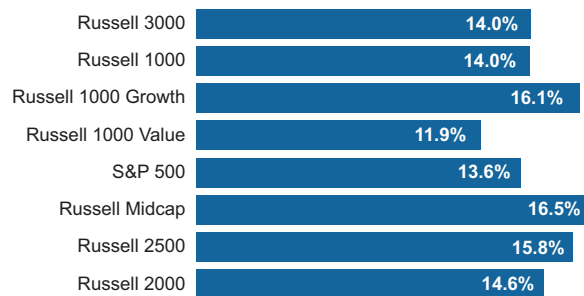
### Small Cap ▶ Russell 2000: +14.6% | Russell 2000 Growth: +17.1% | Russell 2000 Value: +11.9%

- Within the **Russell 2000 Growth Index**, the three largest sectors (Health Care, Consumer Discretionary, and Technology) surged 19%, 17%, and 23%, respectively. Software and biotechnology both posted 25% gains in the quarter; combined they are more than 23% of the benchmark weight.
- Influenced by excessive fourth quarter tax-loss selling, the market experienced a strong “January effect”—where last year’s losers became January 2019’s winners.

## Growth vs. Value ▶ Russell 1000 Growth: +16.1% | Russell 1000 Value: +11.9%

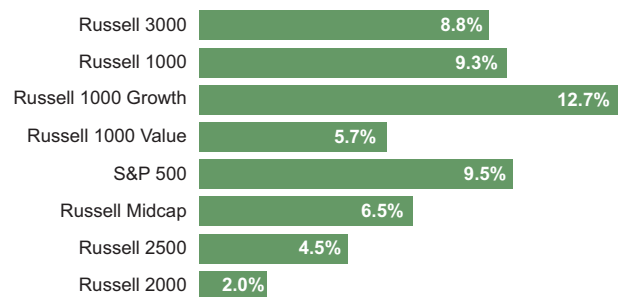
- The sharp change in Fed rhetoric influenced the stronger performance of growth stocks over value stocks during the quarter. Investors favored companies with stronger earnings prospects to counter a softer economic environment.
- Technology produced strong results, while the outlook for Financials weakened as the yield curve flattened.

## U.S. Equity: Quarterly Returns



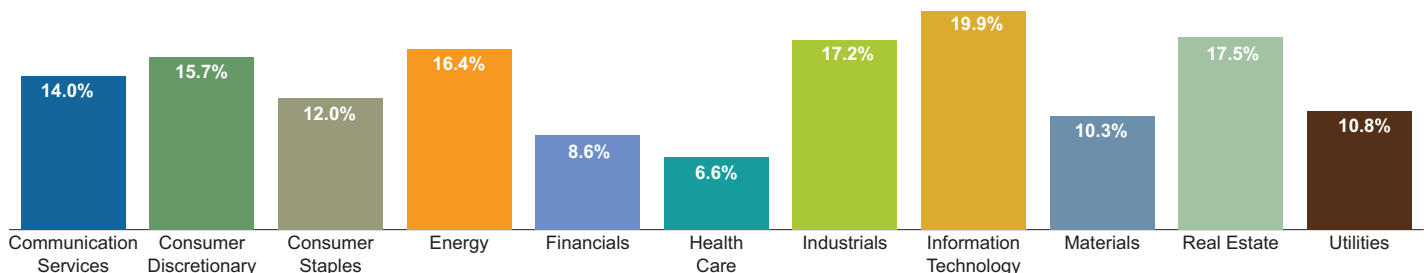
Sources: FTSE Russell and Standard & Poor's

## U.S. Equity: One-Year Returns



Sources: FTSE Russell and Standard & Poor's

## Quarterly Performance of Industry Sectors



Source: Standard & Poor's

### Non-U.S./Global Equity

Global equity markets were positive in the first quarter following a sharp sell-off to end 2018. Investors resumed a risk-on outlook as central banks telegraphed more accommodative positioning. Delayed outcomes regarding U.S./China trade talks and Brexit negotiations allowed markets to stabilize, although uncertain outcomes remain a future risk.

**Developed** ► *MSCI EAFE: +10.0% | MSCI Europe: +10.8% | MSCI World ex USA: +10.4% | MSCI Japan: +6.7%*

- Developed markets rallied as central banks around the world expressed more accommodative paths with interest rates and quantitative easing.
- Brexit negotiations continue and a “no-deal” Brexit remains a possibility, but with an extended deadline. The potential for investment paralysis drags on.
- European PMI continued to deteriorate, falling to 47.7 in March from 49.4.
- The currency effect was mixed as the U.S. dollar rose against the euro and yen, by 1.8% and 0.9%, but fell against the British pound by 2.3% as a delay in Brexit allowed for a temporary bounce.
- EAFE sector performance was mixed. Information Technology (+15.3%) and Materials (+13.2%) led economically sensitive sectors; Consumer Staples (+12.4%) led defensive sectors.

Interest rate-sensitive Financials (+6.9%) and Utilities (+9.0%) trailed the broad index.

- Factor performance favored growth (historical and projected) while value factors were generally negative.

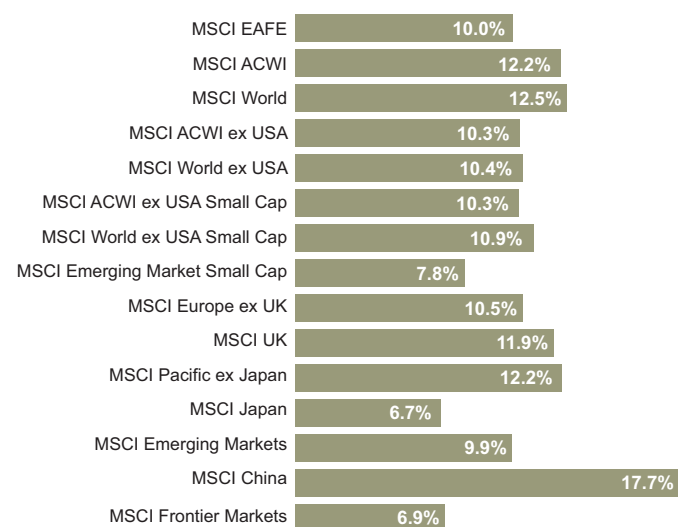
**Emerging Markets** ► *MSCI Emerging Markets Index: +9.9%*

- In a big reversal from the fourth quarter, China led emerging markets with **MSCI China** gaining 17.7% and **MSCI China A** up 30.9%.
- Trade talks continue but positive indications for a deal buoyed markets; uncertainty on the outcome remains.
- Asian Information Technology rebounded nicely with Chinese IT (+27.6%) leading the sector. An improving outlook on Chinese consumption positively influenced EM Consumer Discretionary (+20.8%), which was the top-performing sector.
- Growth led value with **MSCI Emerging Markets Growth** gaining 12.0% and EM Value up 7.8%.

**Non-U.S. Small Cap** ► *MSCI World ex USA Small Cap: +10.9% | MSCI EM Small Cap: +7.8%*

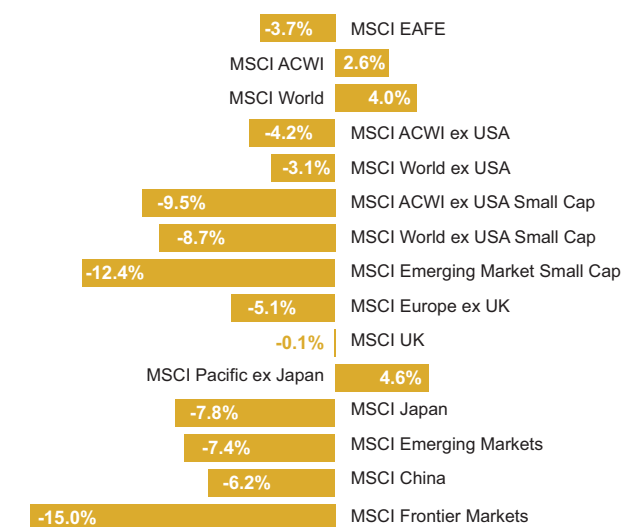
- Within developed markets, small cap performed in line with large cap.
- EM Small Cap trailed EM as **MSCI China Small Cap** has less exposure to IT, which led the risk-on rally.

**Non-U.S. Equity: Quarterly Returns** (U.S. Dollar)



Source: MSCI

**Non-U.S. Equity: One-Year Returns** (U.S. Dollar)



Source: MSCI

# Global Fixed Income

## U.S. Fixed Income

Risk markets sharply reversed from the fourth quarter sell-off supported by the Fed's unexpected dovish comments, solid U.S. economic growth data, and tempered concern over a slowing China. This quarter's strong results recaptured most of the loss experienced in the prior quarter by riskier bonds.

### U.S. Fixed Income ► *Bloomberg Barclays US Agg: +2.9%*

- U.S. Treasuries rose 2.1% as the yield curve shifted lower across maturities as growth and inflation expectations declined.
- The shape of the yield curve did not materially change during the quarter. The yield differential between the 10-year and 2-year key rates remained positive and traded around a range of +12 to +20 bps. However, the front-end of the curve inverted, with the 5-year offering less yield than the 2-year.
- TIPS outperformed nominal Treasuries as the Fed's balanced stance and unexpected wage pressures stoked higher inflation expectation.

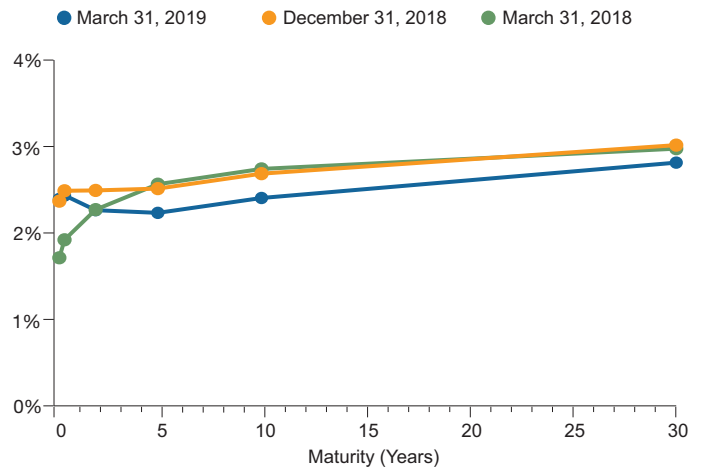
### Investment-Grade Corporates ► *Bloomberg Barclays Corporate (Inv. Grade): +5.1%*

- Credit spreads rallied on the back of a softer Fed stance, positive economic news, and better than expected corporate earnings.
- Net new corporate issuance during the first quarter of \$117 billion was roughly on par with a year ago.
- Surprisingly, Aaa-rated corporates (+5.0%) outperformed Aa- (+3.7%) and single A-rated issuers (+4.7%). BBB-rated issuers were the best performers (+5.7%).

### High Yield ► *Bloomberg Barclays Corporate HY: +7.3%*

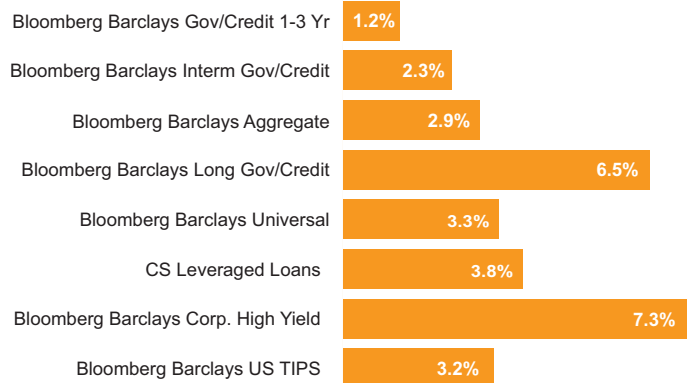
- Given the risk-on environment, below-investment grade issuers were the best performers, aided by strong asset inflows.
- Ba/B sectors (+7.2%) marginally outpaced CCC by 6 bps; this was an unusual occurrence given that the dispersion between high-quality and low-quality is typically wide during these periods of absolute returns.

## U.S. Treasury Yield Curves



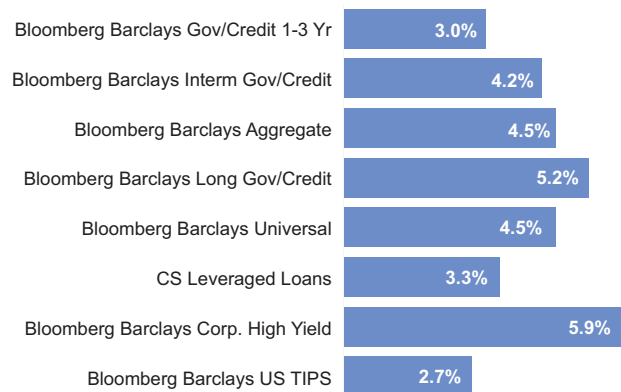
Source: Bloomberg

## U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

## U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and Credit Suisse

## GLOBAL FIXED INCOME (Continued)

### Leveraged Loans ▶ *CS Leveraged Loans: +3.8%*

- Leveraged loans participated in the rally but lagged both longer duration investment grade and high yield corporates. The sector was negatively impacted by the Fed's pause, retail outflows, and a slow-developing CLO pipeline.
- Bank loans have less sensitivity to interest rates but may have a similar spread duration profile to that of their high yield bond counterparts.

### Non-U.S. Fixed Income

#### Global Fixed Income ▶ *Bloomberg Barclays Global Aggregate: +2.2% | Global Aggregate (hdg): +3.0%*

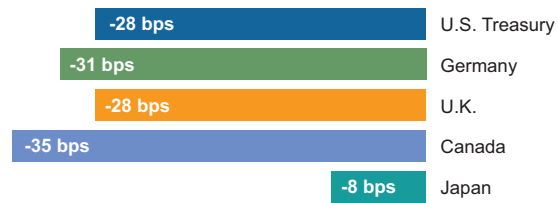
- Developed market sovereign bonds rallied in tandem with Treasuries. The U.S. dollar appreciated modestly versus the euro and yen, but lost ground versus the British pound and Canadian dollar.

#### Emerging market debt (\$US) ▶ *JPM EMBI Global Diversified: +7.0% | (Local currency) ▶ JPM GBI-EM Global Diversified: +2.9%*

- Country returns within the EMBI Global Diversified Index were nearly all positive for the quarter.
- Turkey (-10.2%) and Argentina (-10.5%) were notable underperformers in the local currency index.
- Positive net inflows into the EM universe continued through quarter-end.

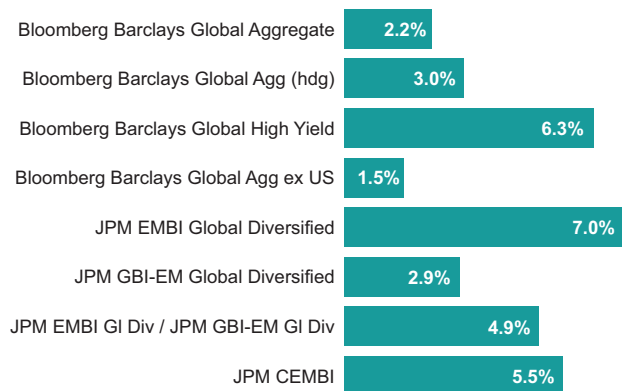
### Change in 10-Year Global Government Bond Yields

4Q18 to 1Q19



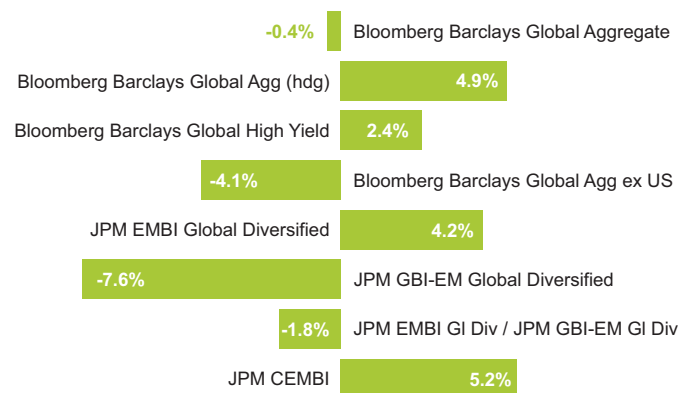
Source: Bloomberg Barclays

### Non-U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and JPMorgan Chase

### Non-U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and JPMorgan Chase

# Real Estate Stays Strong; Real Assets Show Big Gains

REAL ESTATE/REAL ASSETS | Munir Iman and David Welsch, CFA

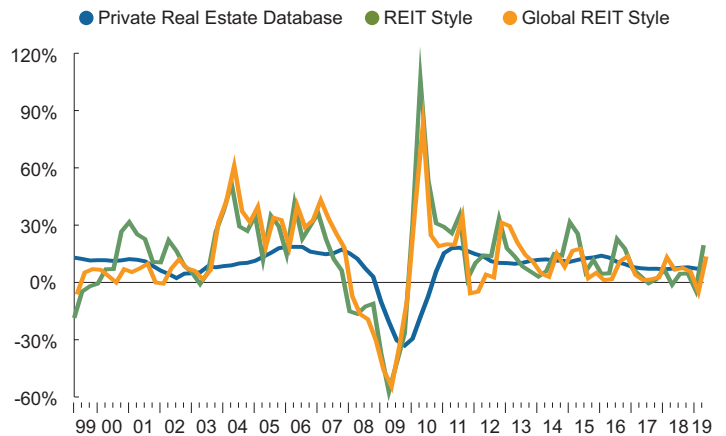
## Core Returns Driven by Income

- The **NCREIF Property Index**, a measure of U.S. institutional real estate assets, gained 1.8% during the first quarter. The income return was 1.1%, while appreciation contributed 0.7%.
- Industrial led property sector performance with a gain of 3.0%. Hotels finished last with a 0.4% increase.
- Regionally, the West led with a 2.2% return, while the Midwest was the worst performer at 1.0%.
- The **NCREIF Open-End Diversified Core Equity Index**, representing equity ownership positions in U.S. core real estate, rose 1.2% during the first quarter, with income providing 0.8% and appreciation 0.4%.
- U.S. core real estate returns are being driven by income with limited appreciation this late in the cycle.
- Appraisal capitalization rates decreased slightly from 4.34% to 4.31% during the first quarter, and capitalization rates measured in active trades ticked up to 5.60% from 5.20%.
- At quarter end, the 10-year average appraisal capitalization rate was 5.20%, and the 10-year average transactions capitalization rate was 6.34%. The spread between the two measures, which reflects pricing expectations between buyers and holders of real estate, stood at 114 basis points.
- Within the **NCREIF Property Index**, the vacancy rate for U.S. Retail was 7.5% in the first quarter, the highest in nearly two years.

## REITs Outperformed Global Equities

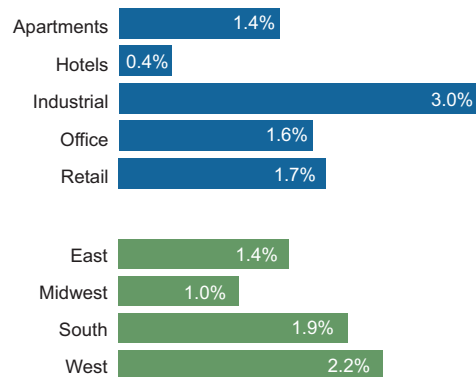
- The **FTSE EPRA/Nareit Developed REIT Index**, a measure of global real estate securities, rose 14.6% during the first quarter, compared to 12.2% for global equities (**MSCI ACWI**).
- European REITs returned 11.5% (USD). The **FTSE EPRA/Nareit Asia Index (USD)**, representing the Asia/Pacific region, increased 14.4%.

## Rolling One-Year Returns



Source: Callan

## Sector Quarterly Returns by Property Type and Region



Source: NCREIF

## U.S. Real Estate Securities Bounced Back

- U.S. REITs, as measured by the **EPRA Nareit Equity REITs Index**, bounced back and gained 16.3%.
- Infrastructure (+21.4%), Industrial (+21.3%), Timber (+21.1%), and Office (+20.3%) all led the surge.
- Self Storage (+9.9%), Health Care (+13.0%), and Retail (+14.4%) were the worst-performing sectors yet posted positive returns.

## REAL ESTATE (Continued)

- U.S. REITs raised \$19.6 billion during the quarter, including 23 secondary equity offerings raising \$7.3 billion, 6 preferred equity offering raising \$849 million, 28 unsecured debt offerings raising \$11.4 billion, and zero IPOs. Both U.S. and non-U.S. REITs are trading at net asset value.

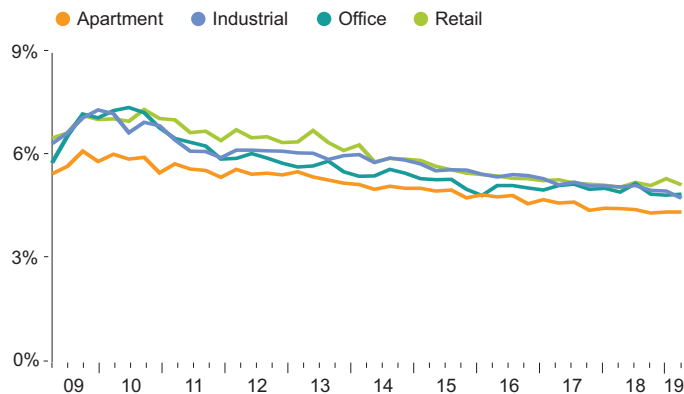
### Real Assets Driven Up, With Energy a Big Gainer

- Real assets of all varieties enjoyed a strong first quarter of the year, perhaps none more than crude oil as the price of West Texas Intermediate rose +30% through the end of March.
- Energy as a whole (measured by the **Bloomberg Commodity**

**Energy** subindex) was up nearly 16%, while commodities broadly produced a more modest positive return in the first quarter (**Bloomberg Commodity TR Index: +6.3%**) as gains in energy and metals were offset by negative returns for natural gas and the agriculture complex as a whole (**Bloomberg Commodity Agriculture** subindex: -3.2%).

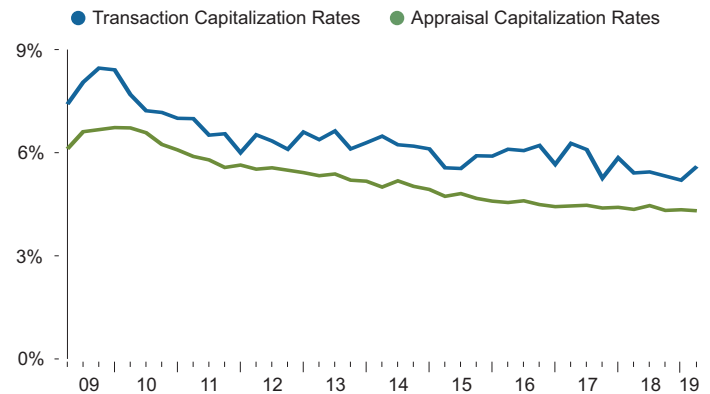
- MLPs (**Alerian MLP Index: +16.8%**) also enjoyed a strong start to the year with the yield spread between the Alerian Index and the 10-year Treasury remaining fairly wide at +500 bps.

### NCREIF Capitalization Rates by Property Type



Source: NCREIF  
Note: Capitalization rates are appraisal-based.

### NCREIF Transaction and Appraisal Capitalization Rates



Source: NCREIF  
Note: Transaction capitalization rate is equal weighted.

### Callan Database Median and Index Returns\* for Periods ended March 31, 2019

Private Real Assets	Quarter	Year to Date	Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	1.39	1.39	6.93	7.32	9.67	7.88	7.01
NFI-ODCE (value wt net)	1.20	1.20	6.55	7.01	9.17	7.73	7.17
NCREIF Property	1.80	1.80	6.83	7.07	9.13	8.50	8.81
NCREIF Farmland	0.70	0.70	6.08	6.43	8.20	11.10	14.37
NCREIF Timberland	0.11	0.11	2.61	3.35	4.68	3.76	7.09
Public Real Estate							
Global Real Estate Style	15.25	15.25	13.58	6.90	8.19	15.48	8.30
FTSE EPRA Nareit Developed	14.59	14.59	13.27	5.68	6.42	14.00	--
Global ex-U.S. Real Estate Style	13.92	13.92	7.54	8.27	6.47	12.96	8.12
FTSE EPRA Nareit Dev ex US	13.72	13.72	7.69	7.86	5.94	12.46	7.17
U.S. REIT Style	16.75	16.75	19.51	6.60	9.59	19.11	9.35
EPRA Nareit Equity REITs	16.33	16.33	20.86	6.13	9.12	18.28	8.52

\*Returns less than one year are not annualized.  
Sources: Callan, FTSE Russell, NCREIF



# It's Just a 'Gully'

## PRIVATE EQUITY | Gary Robertson

The fourth quarter's public equity bear market clawed through private equity transaction activity in the first quarter. Almost every private equity transaction measure in the first quarter was down substantially, with fundraising dollar volume showing the only increase. With the dramatic recovery in first quarter equity markets, we expect private equity to also shrug-off the "gully" as the year progresses.

- **Fundraising** ► Based on preliminary data, first quarter private equity partnerships holding final closes totaled \$129 billion, with 142 new partnerships formed (unless otherwise noted, all data in this commentary comes from PitchBook). Compared to the fourth quarter, the number of funds fell 10% but the dollar volume increased by 19%. The absolute pace of fundraising remains heated.
- **Buyouts** ► New buyout transactions declined notably, albeit from high levels. Funds closed 1,252 investments with \$67 billion in disclosed deal value, representing a 33% decline in count and a 65% dip in dollar value from the fourth quarter. The largest investment was the \$6.9 billion take-private of Dun & Bradstreet by Cannae Holdings, CC Capital, Thomas H. Lee Partners, and three additional firms.
- **VC Investments** ► New investments in venture capital companies totaled 3,332 rounds of financing with \$44 billion of announced value. The number of investments was down 23% and announced value fell 24%.

### Funds Closed January 1 to March 31, 2019

Strategy	No. of Funds	Amt (\$mm)	Share
Venture Capital	56	13,809	11%
Growth Equity	18	13,727	11%
Buyouts	49	79,895	62%
Mezzanine Debt	5	15,372	12%
Distressed	1	825	1%
Energy	1	1,200	1%
Secondary and Other	5	1,628	1%
Fund-of-funds	7	2,435	2%
<b>Totals</b>	<b>142</b>	<b>128,891</b>	<b>100%</b>

Source: PitchBook  
Figures may not total due to rounding.

- **Exits** ► There were 369 private M&A exits of private equity-backed companies, with disclosed values totaling \$71 billion. Both private sale count and announced dollar volume were down significantly from the prior quarter by 39% and 50%, respectively. There were 8 private equity-backed IPOs in the first quarter raising an aggregate \$2 billion, down 70% and 80%, respectively, from the fourth quarter.
- Venture-backed M&A exits totaled 264 transactions with disclosed value of \$38 billion. The number of sales declined 22% from the fourth quarter, and announced value fell 7%. There were 23 VC-backed IPOs in the first quarter with a combined float of \$4 billion; the count fell 34% but the issuance remained unchanged from the fourth quarter.

### Private Equity Performance Database (%) (Pooled Horizon IRRs through September 30, 2018\*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	4.83	21.65	10.97	16.85	11.79	11.09	19.08
Growth Equity	3.65	20.89	15.16	14.39	12.56	13.54	14.14
All Buyouts	3.18	15.95	15.61	14.00	11.42	14.45	12.46
Mezzanine	2.56	11.38	10.99	10.31	9.79	9.72	8.63
Credit Opportunities	2.11	9.64	9.29	7.99	11.52	10.21	10.42
Control Distressed	0.85	7.03	10.75	9.31	10.55	10.96	10.85
<b>All Private Equity</b>	<b>3.37</b>	<b>16.80</b>	<b>13.87</b>	<b>13.79</b>	<b>11.54</b>	<b>13.16</b>	<b>12.96</b>
S&P 500	7.71	17.91	17.31	13.95	11.97	9.65	7.42
Russell 3000	7.12	17.58	17.07	13.46	12.01	9.86	7.82

Note: Private equity returns are net of fees. Sources: Refinitiv/Cambridge and Standard & Poor's  
\*Most recent data available at time of publication

Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of *Capital Market Review* and other Callan publications.

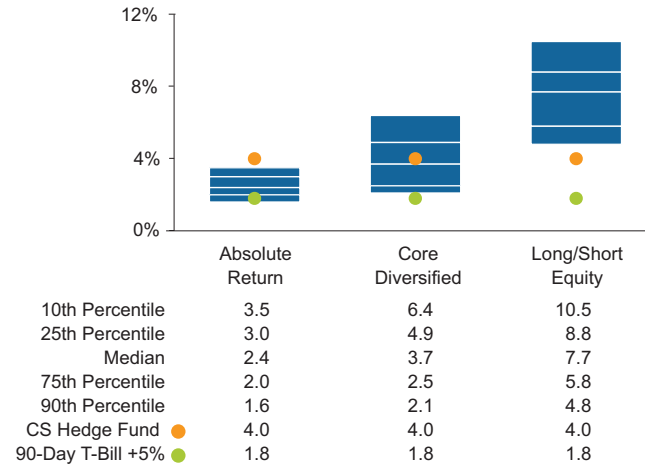
# Mixed Bag for Hedge Funds; Long-Biased MACs Thrive

HEDGE FUNDS/MACs | Jim McKee

## Hedge Funds Caught Flat-Footed

- Defensive positioning caught hedge funds flat-footed in the first quarter, but most strategies recovered the prior quarter's loss. The **Credit Suisse Hedge Fund Index** gained 4.0%.
- Among CS hedge fund strategies, *Long/Short Equity* (+5.4%) suffered from negative alpha due to poor market timing calls as equity indices rebounded faster than expected. *Event-Driven Multi* (+6.4%) recovered as soft catalyst-driven stocks bounced back. Relative value strategies, like *Convertible Arb* (+3.8%) and *Fixed-Income Arb* (+2.2%), performed well; *Equity Market Neutral* (+2.5%) recovered half of its fourth quarter loss from mean-reversion effects.
- Long-biased hedge funds beat absolute return funds in the first quarter, but trail over the last year.
- The **Callan Hedge Fund-of-Funds Database Group** rose 3.6% in the quarter. The *Long/Short Equity FOF Group* jumped 7.7%, trailed by *Core Diversified* (+3.7%) and *Absolute Return* (+2.4%).

## Hedge Fund-of-Funds Style Group Returns



Sources: Callan, Credit Suisse, and Federal Reserve

## Callan Database Median and Index Returns\* for Periods ended March 31, 2019

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	3.64	1.59	5.00	2.82	5.62	4.56
Callan Absolute Return FOF Style	2.44	1.46	4.62	2.82	5.58	3.97
Callan Core Diversified FOF Style	3.73	1.59	4.70	2.45	5.57	4.50
Callan Long/Short Equity FOF Style	7.68	0.89	6.45	3.56	6.02	5.71
Credit Suisse Hedge Fund	3.99	0.20	3.74	2.26	5.42	4.81
CS Convertible Arbitrage	3.78	0.59	4.46	1.90	7.04	3.61
CS Distressed	2.15	0.17	5.38	1.57	6.44	5.66
CS Emerging Markets	8.21	-3.94	6.32	4.18	6.91	6.16
CS Equity Market Neutral	2.54	-3.29	0.39	0.31	2.23	-0.19
CS Event-Driven Multi	6.36	1.31	4.61	-0.16	4.54	5.09
CS Fixed Income Arb	2.19	1.54	5.13	3.37	7.27	3.88
CS Global Macro	2.61	1.92	3.51	2.42	4.84	5.99
CS Long/Short Equity	5.35	-0.52	4.60	3.44	6.34	5.64
CS Managed Futures	3.21	-0.23	-3.87	2.58	0.62	2.19
CS Multi-Strategy	3.01	0.27	4.57	4.20	7.56	5.82
CS Risk Arbitrage	1.91	2.68	3.85	2.38	3.32	3.70
HFRI Asset Wtd Composite	3.08	1.90	4.70	3.03	5.59	--
90-Day T-Bill + 5%	1.81	7.12	6.19	5.75	5.43	6.35

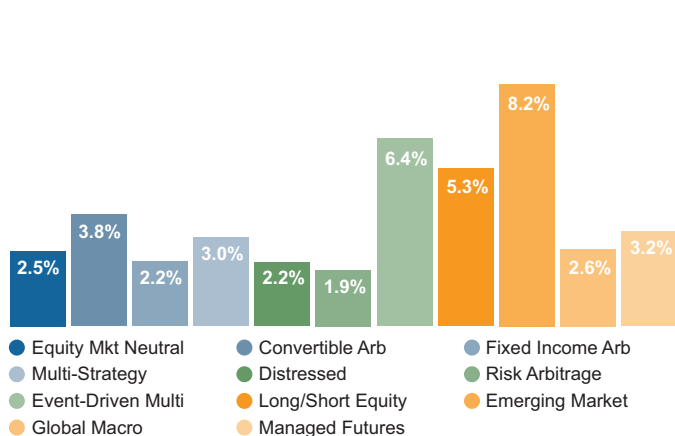
\*Gross of fees. Sources: Bloomberg Barclays, Callan, Credit Suisse, Hedge Fund Research, Societe Generale, and Standard & Poor's

- With volatility settling down with the risk-on sentiment and returning to more normalized levels, hedge funds are likely to lag without a market dislocation. But if hard economic data does not confirm this market sentiment, hedge funds are well positioned defensively for a downturn.
- The flat yield curve levels the playing field. Today's short-term rates provide support to hedge funds with positive returns on cash holdings and short interest rebates.
- Global economic tension is creating fundamental imbalances that may lead to more macro trading opportunities like those of 2018, especially if the trade war is not soon resolved positively.

### Rebound Boosts Long-Biased MACs

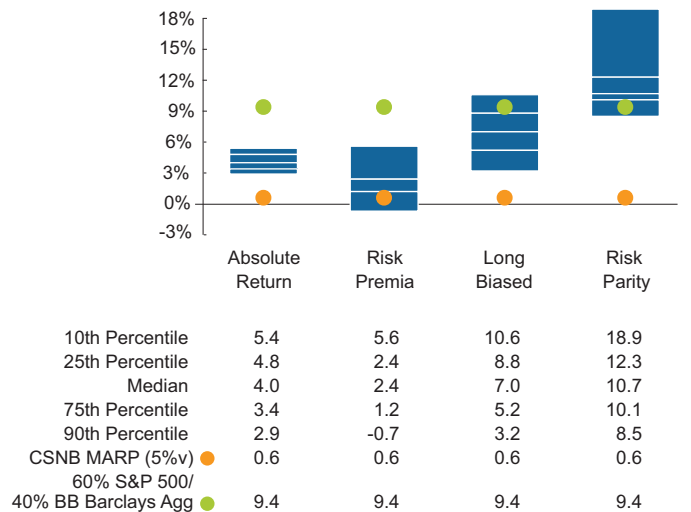
- The rebounding markets boosted long-biased multi-asset class (MAC) strategies in the first quarter. The **HFR Risk Parity Index** targeting 12% volatility was propelled by rising equity, commodity, and fixed income markets, amplified by portfolio leverage.
- Within the **CSNB Multi-Asset Risk Parity Index**, *Equity Momentum* (-22.2%) was an outsized setback, largely due to a 15.7% January loss from a violent market reversal over the prior month. Positive returns from *Currency Carry* (+4.8%) and *Fixed Momentum* (+3.7%) helped this risk premia proxy finish the quarter with a modestly positive gain.

### Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

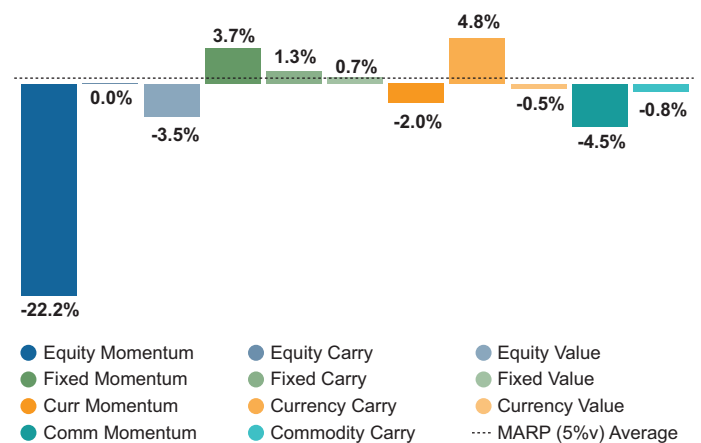
### MAC Style Group Returns



Sources: Bloomberg Barclays, Callan, Credit Suisse, Neuberger Berman, Standard & Poor's

- The **Callan Multi-Asset Class Style Groups** showed positive but widely diverging results, with the overall group up 6.7%. *Risk Parity* jumped 10.7%, while *Risk Premia* only gained 2.4%.

### Alternative Risk Factor Breakdown



Source: Credit Suisse Neuberger Berman

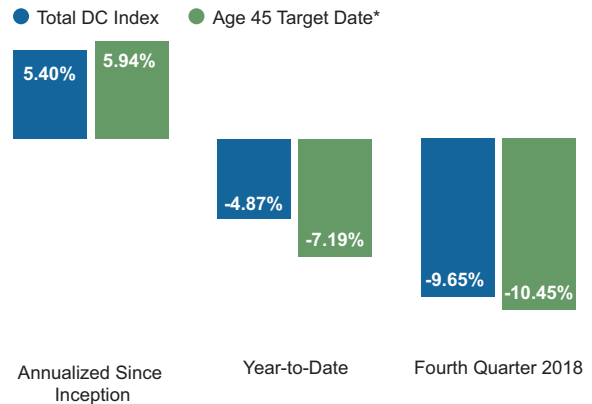
# Limping to the Finish Line

DEFINED CONTRIBUTION | James Veneruso, CFA, CAIA

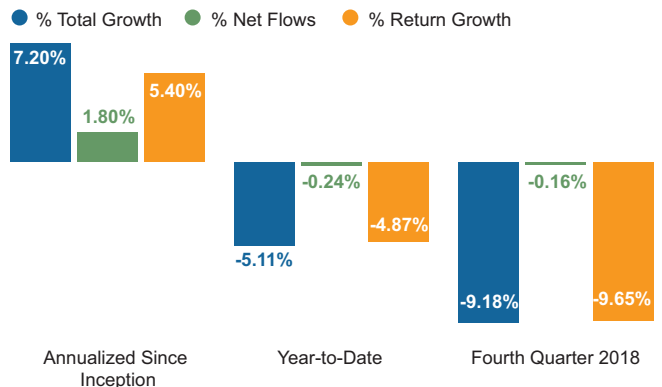
- The Callan DC Index™ was dragged down by a weak equity market in the fourth quarter and finished off 9.7%. The DC Index did outperform the typical Age 45 Target Date Fund over the quarter and the full year, largely attributable to the DC Index's lower equity allocation.
- As with the third quarter, flows for the fourth quarter were negative (-0.17%). Net flows will provide a critical measure for how effectively plans retain the balances of retiring workers.
- For the first time in the history of the DC Index, the story surrounding flows does not involve the inexorable rise of target date funds (TDFs). Although TDFs continued to gain net inflows, it was stable value that experienced the largest inflows. Sharp reversals in the broad equity markets may explain some of this presumed flight to safety.
- Fourth quarter turnover (i.e., net transfer activity levels within DC plans) in the DC Index increased to 0.41% from the previous quarter's 0.13%, well below the historical average at 0.61%.
- Given the flight to safety of flows as well as market performance, the overall share of equity dipped from 71% to 69%, modestly above the Index's historical average (68%).
- TDFs ended the year with a 33% share of assets, up from 31% a year ago. Stable value also increased its share (10.7% vs. 9.1%) while both small/mid cap and international equity dipped.
- Fewer plans offered company stock relative to a year ago (21% vs. 28%), while stable value rose in overall prevalence from 71% to 75% for the year.

*The Callan DC Index is an equally weighted index tracking the cash flows and performance of nearly 90 plans, representing more than one million DC participants and over \$150 billion in assets. The Index is updated quarterly and is available on Callan's website, as is the quarterly DC Observer newsletter.*

## Investment Performance



## Growth Sources



## Net Cash Flow Analysis (Fourth Quarter 2018) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Stable Value	65.46%
Money Market	11.27%
U.S. Smid Cap	-21.49%
U.S. Large Cap	-45.64%
<b>Total Turnover**</b>	<b>0.41%</b>

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

\* The Age 45 Fund transitioned from the average 2035 TDF to the 2040 TDF in June 2018.

\*\* Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.



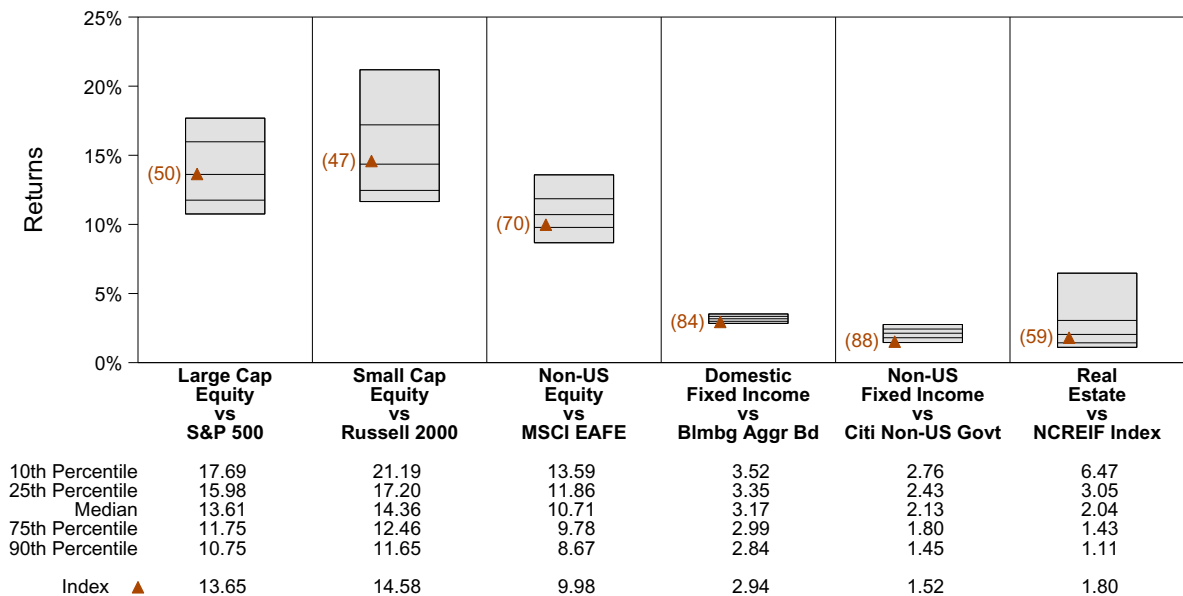
## Market Overview

### Active Management vs Index Returns

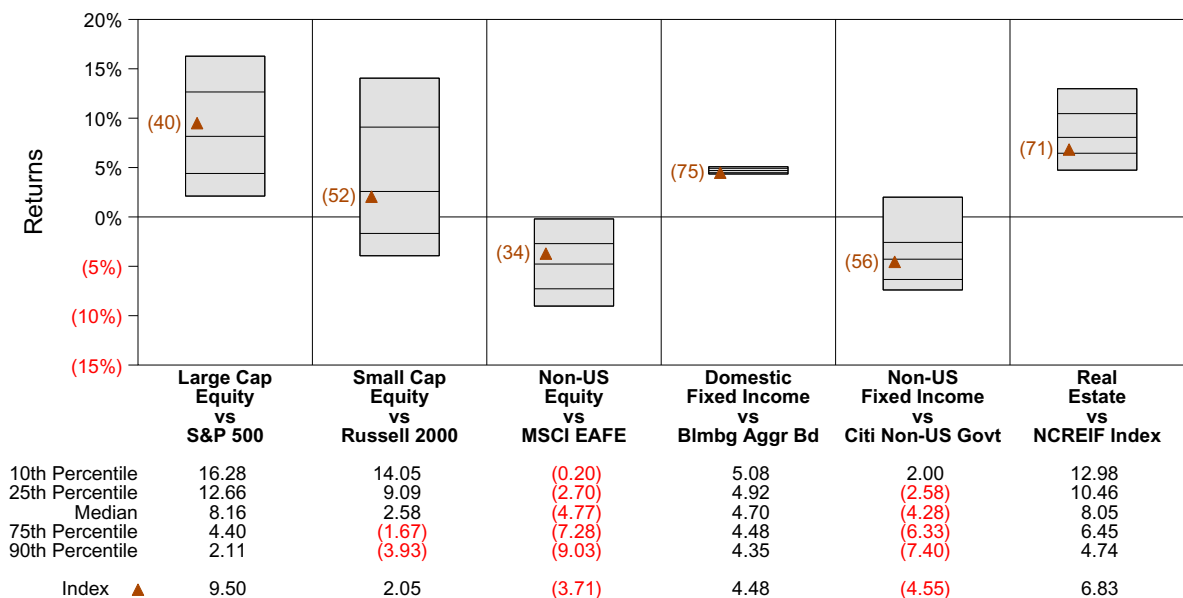
#### Market Overview

The charts below illustrate the range of returns across managers in Callan's Separate Account database over the most recent one quarter and one year time periods. The database is broken down by asset class to illustrate the difference in returns across those asset classes. An appropriate index is also shown for each asset class for comparison purposes. As an example, the first bar in the upper chart illustrates the range of returns for domestic equity managers over the last quarter. The triangle represents the S&P 500 return. The number next to the triangle represents the ranking of the S&P 500 in the Large Cap Equity manager database.

#### Range of Separate Account Manager Returns by Asset Class One Quarter Ended March 31, 2019



#### Range of Separate Account Manager Returns by Asset Class One Year Ended March 31, 2019





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## ASSET ALLOCATION AND PERFORMANCE

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### **Asset Allocation and Performance**

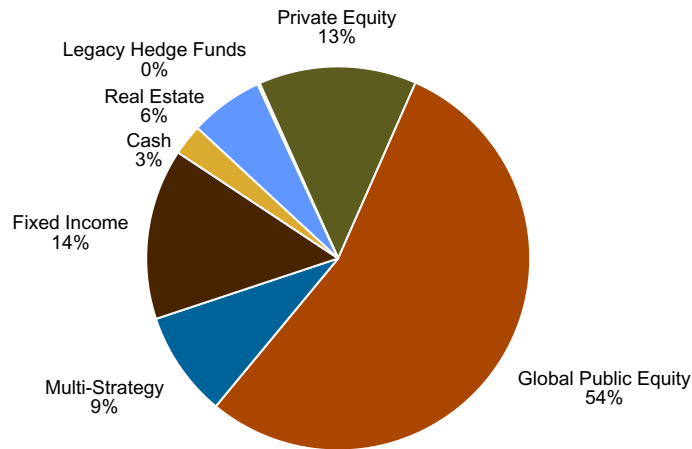
This section begins with an overview of the fund's asset allocation at the broad asset class level. This is followed by a top down performance attribution analysis which analyzes the fund's performance relative to the performance of the fund's policy target asset allocation. The fund's historical performance is then examined relative to funds with similar objectives. Performance of each asset class is then shown relative to the asset class performance of other funds. Finally, a summary is presented of the holdings of the fund's investment managers, and the returns of those managers over various recent periods.



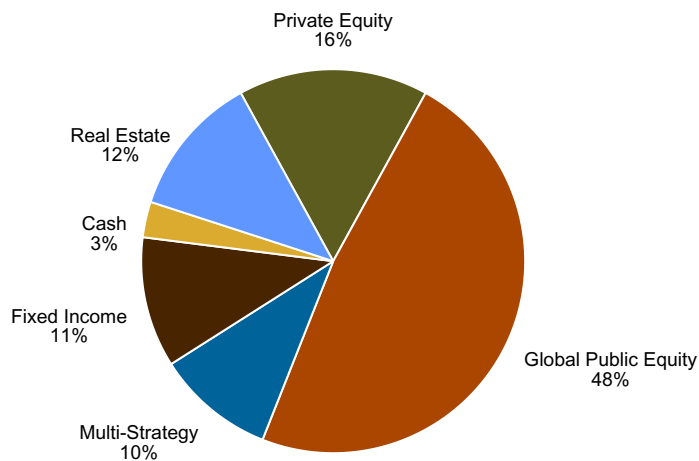
## Actual vs Target Asset Allocation As of March 31, 2019

The first chart below shows the Fund's asset allocation as of March 31, 2019. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

**Actual Asset Allocation**



**Target Asset Allocation**

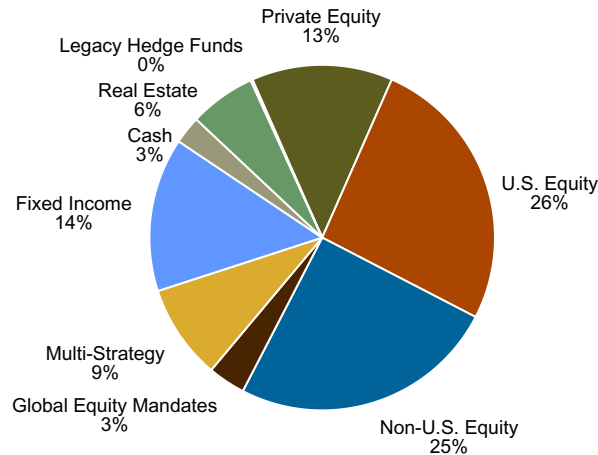


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Private Equity	3,870,849	13.4%	16.0%	(2.6%)	(741,690)
Global Public Equity	15,686,052	54.4%	48.0%	6.4%	1,848,436
Multi-Strategy	2,561,057	8.9%	10.0%	(1.1%)	(321,780)
Fixed Income	4,141,513	14.4%	11.0%	3.4%	970,393
Cash	744,061	2.6%	3.0%	(0.4%)	(120,790)
Real Estate	1,778,722	6.2%	12.0%	(5.8%)	(1,680,682)
Legacy Hedge Funds	46,114	0.2%	0.0%	0.2%	46,114
<b>Total</b>	<b>28,828,369</b>	<b>100.0%</b>	<b>100.0%</b>		

## Actual Asset Allocation As of March 31, 2019

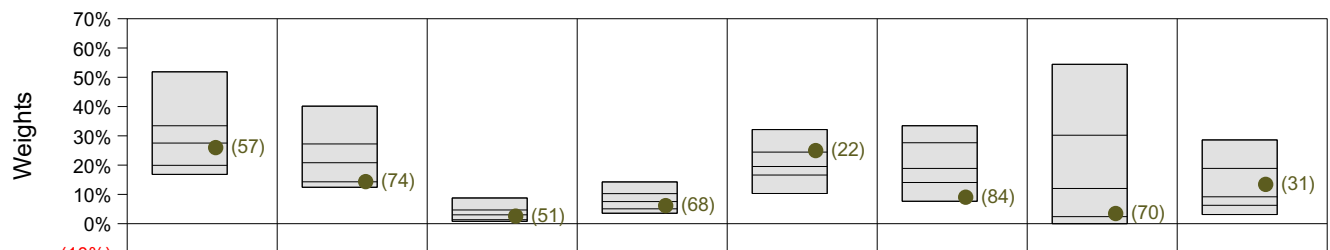
The first chart below shows the Fund's asset allocation as of March 31, 2019. The second chart ranks the fund's asset allocation versus the Callan Public Fund Spons- V Lg DB (>10B).

### Actual Asset Allocation



Asset Class	\$000s Actual	Weight Actual
Private Equity	3,870,849	13.4%
U.S. Equity	7,489,449	26.0%
Non-U.S. Equity	7,195,413	25.0%
Global Equity Mandates	999,949	3.5%
Multi-Strategy	2,561,057	8.9%
Fixed Income	4,141,513	14.4%
Cash	744,061	2.6%
Real Estate	1,778,722	6.2%
Legacy Hedge Funds	46,114	0.2%
<b>Total</b>	<b>28,827,128</b>	<b>100.0%</b>

### Asset Class Weights vs Callan Public Fund Spons- V Lg DB (>10B)



10th Percentile	51.86	40.14	8.78	14.26	32.14	33.45	54.43	28.61
25th Percentile	33.44	27.23	4.68	10.27	24.44	27.64	30.21	18.88
Median	27.53	20.82	3.02	7.55	19.53	18.87	12.03	9.18
75th Percentile	19.92	14.30	1.36	5.08	16.62	14.06	2.41	6.28
90th Percentile	16.83	12.43	0.81	3.56	10.31	7.65	0.00	3.12

<b>Fund</b>	● 25.98	14.37	2.58	6.17	24.96	9.04	3.47	13.43
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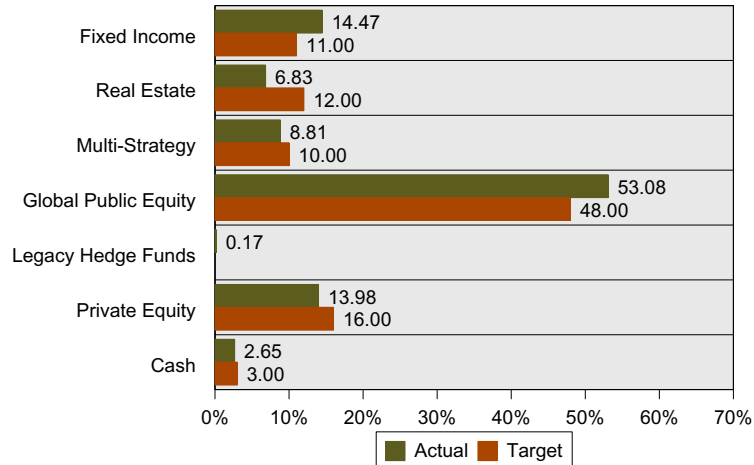
% Group Invested	100.00%	96.30%	77.78%	88.89%	96.30%	70.37%	18.52%	29.63%
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\*Excludes transition accounts

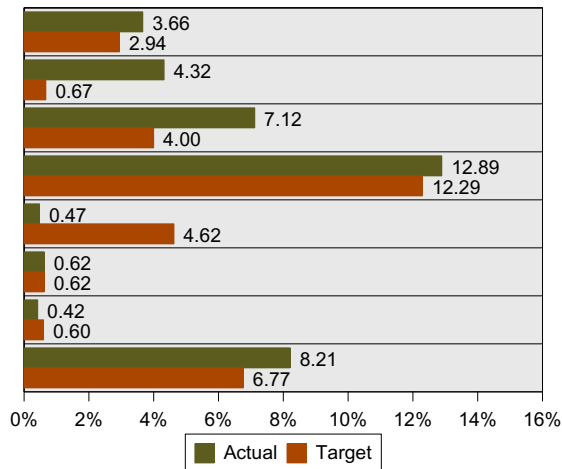
## Quarterly Total Fund Absolute Attribution - March 31, 2019

The following analysis approaches Total Fund Attribution from the perspective of Absolute Return Contribution. Absolute return attribution quantifies the contribution of each asset class to total fund absolute performance as well as target performance. Absolute return contribution is a function of both the size of the exposure (\$ weight) to each asset class as well as the actual return of each asset class.

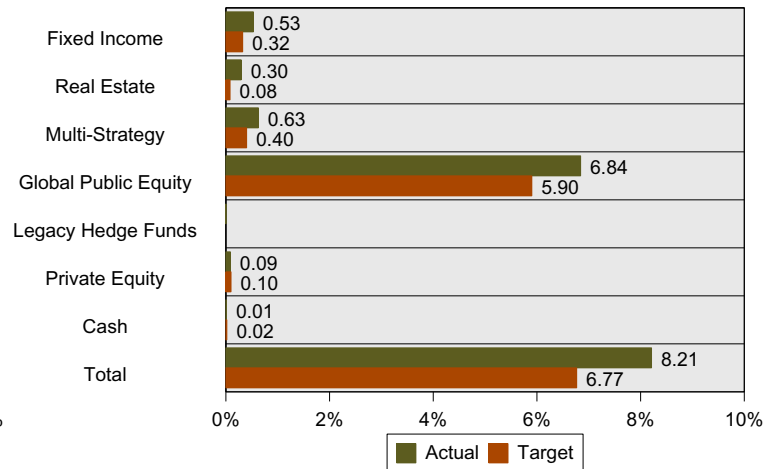
### Actual and Target Weights



### Actual and Target Returns



### Absolute Return Contributions



### Absolute Attribution Effects for Quarter ended March 31, 2019

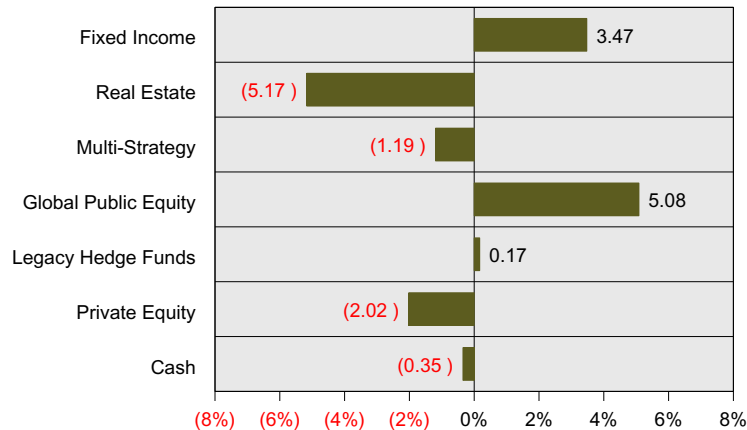
	Effective Actual Weight	Actual Return	Absolute Return Contribution	Effective Target Weight	Target Return	Target Return Contribution	Return Contribution Difference
Fixed Income	14%	3.66%	0.53%	11%	2.94%	0.32%	0.21%
Real Estate	7%	4.32%	0.30%	12%	0.67%	0.08%	0.21%
Multi-Strategy	9%	7.12%	0.63%	10%	4.00%	0.40%	0.23%
Global Public Equity	53%	12.89%	6.84%	48%	12.29%	5.90%	0.94%
Legacy Hedge Funds	0%	0.47%	0.00%	0%	4.62%	0.00%	0.00%
Private Equity	14%	0.62%	0.09%	16%	0.62%	0.10%	(0.01%)
Cash	3%	0.42%	0.01%	3%	0.60%	0.02%	(0.01%)
<b>Total Fund Return</b>			<b>8.21%</b>	<b>Target Return</b>		<b>6.77%</b>	<b>1.44%</b>

\* Current Quarter Target = 48.0% MSCI ACWI IMI, 16.0% Private Equity, 11.0% Blmbg Aggregate, 10.8% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 10.0% S&P/LSTA Leveraged Loan, 3.0% 3-month Treasury Bill, 1.2% FTSE EP/NA US Index lagged 3 months and 0.0% HFRI Fund of Funds Compos.

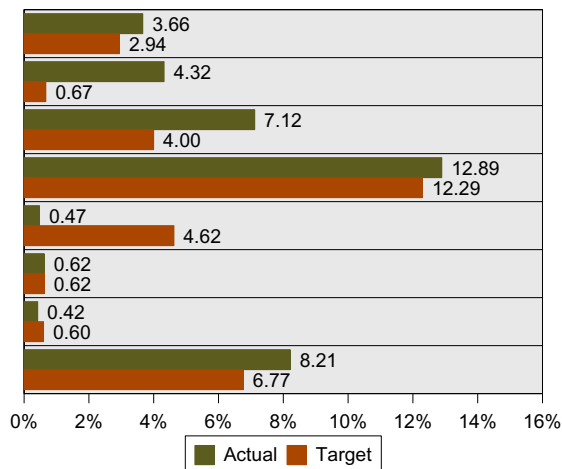
## Quarterly Total Fund Relative Attribution - March 31, 2019

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

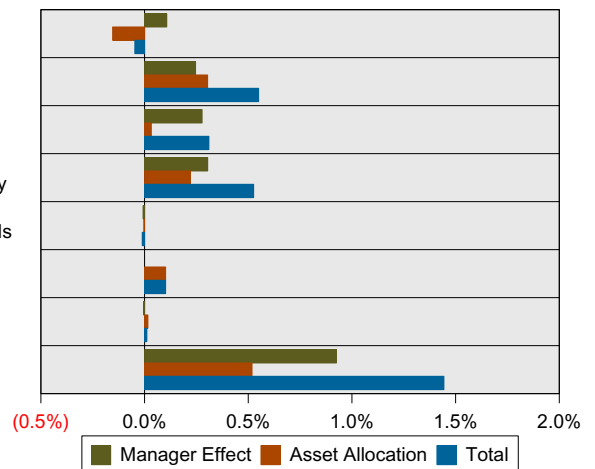
### Asset Class Under or Overweighting



### Actual vs Target Returns



### Relative Attribution by Asset Class



### Relative Attribution Effects for Quarter ended March 31, 2019

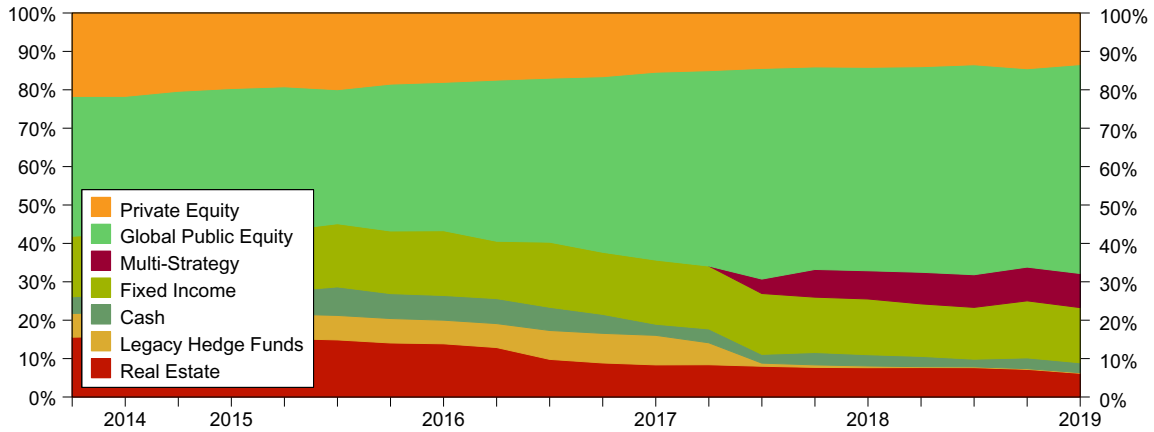
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Fixed Income	14%	11%	3.66%	2.94%	0.11%	(0.15%)	(0.05%)
Real Estate	7%	12%	4.32%	0.67%	0.25%	0.30%	0.55%
Multi-Strategy	9%	10%	7.12%	4.00%	0.28%	0.03%	0.31%
Global Public Equity	53%	48%	12.89%	12.29%	0.30%	0.22%	0.53%
Legacy Hedge Funds	0%	0%	0.47%	4.62%	(0.01%)	(0.00%)	(0.01%)
Private Equity	14%	16%	0.62%	0.62%	0.00%	0.10%	0.10%
Cash	3%	3%	0.42%	0.60%	(0.00%)	0.02%	0.01%
<b>Total</b>			<b>8.21%</b>	<b>6.77%</b>	<b>0.93%</b>	<b>0.52%</b>	<b>1.44%</b>

\* Current Quarter Target = 48.0% MSCI ACWI IMI, 16.0% Private Equity, 11.0% Blmbg Aggregate, 10.8% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 10.0% S&P/LSTA Leveraged Loan, 3.0% 3-month Treasury Bill, 1.2% FTSE EP/NA US Index lagged 3 months and 0.0% HFRI Fund of Funds Compos.

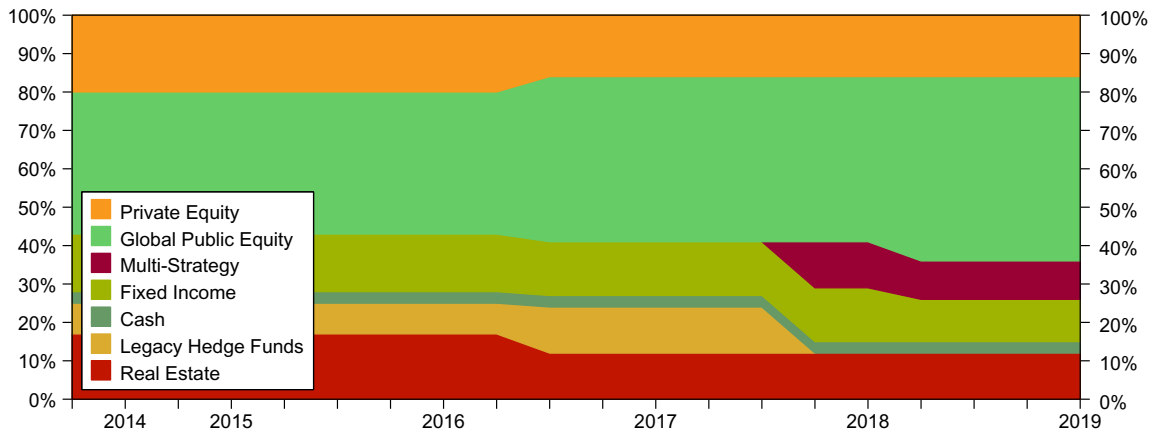
## Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Spons- V Lg DB (>10B).

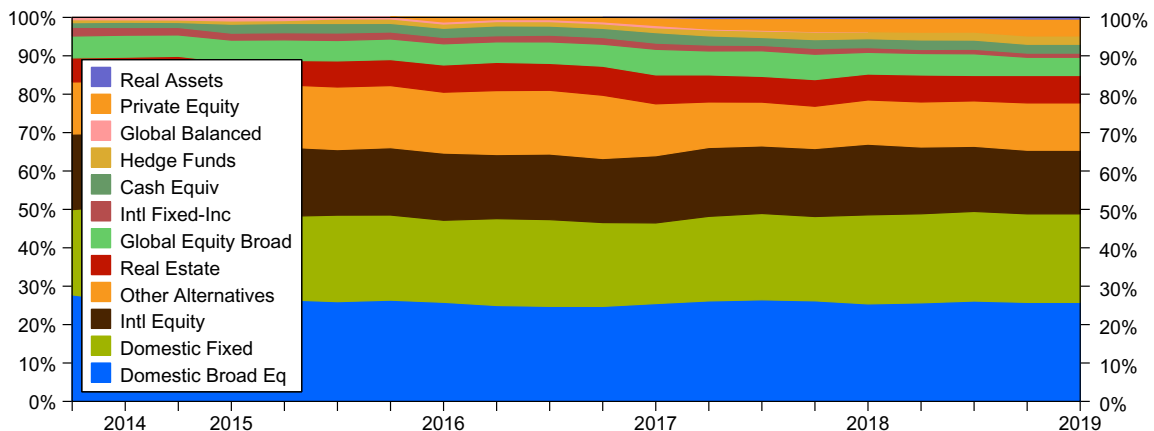
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Spons- V Lg DB (>10B) Historical Asset Allocation



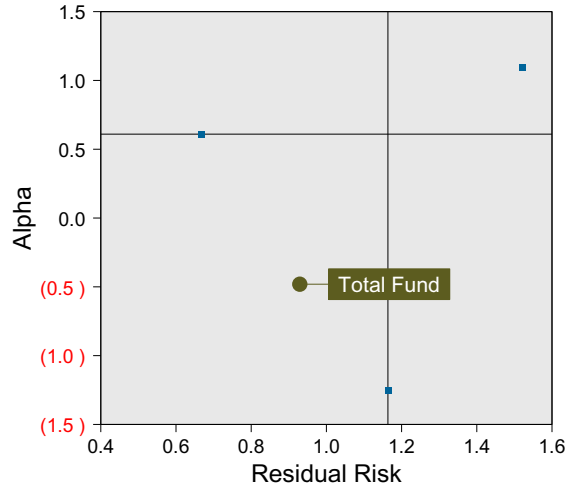
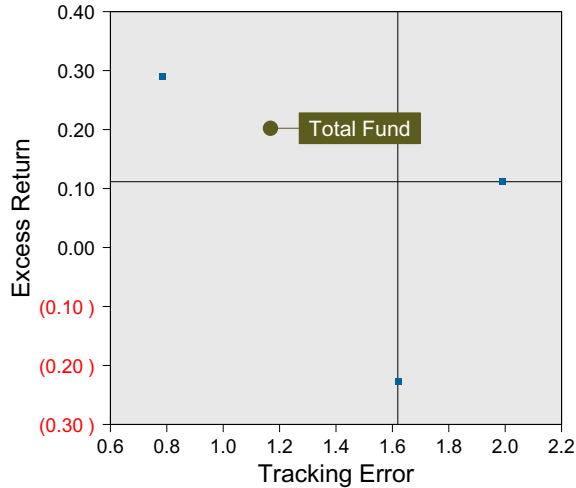
# Total Fund

## Total Fund vs Target Risk Analysis

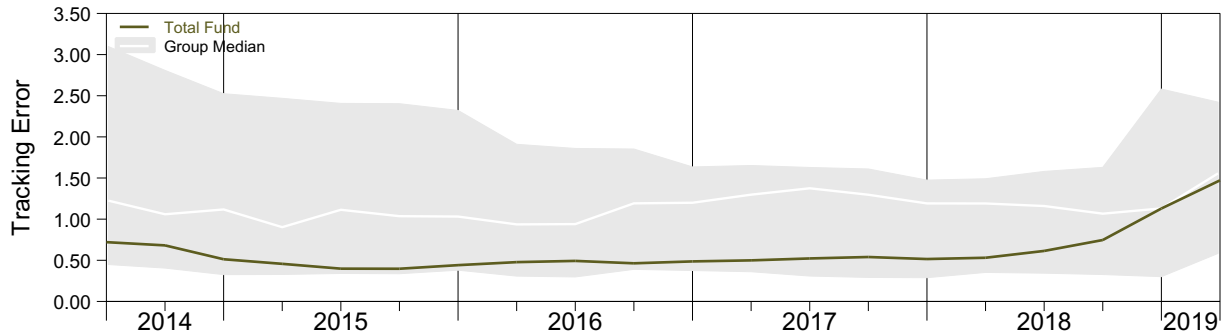
### Risk Analysis

The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the target. The second scatter chart displays the relationship, sometimes called Information Ratio, between alpha (market-risk or "beta" adjusted return) and residual risk (non-market or "unsystematic" risk). The third chart shows tracking error patterns over time compared to the range of tracking error patterns for the peer group. The last two charts show the ranking of the fund's risk statistics versus the peer group.

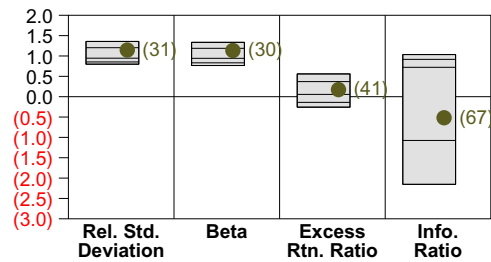
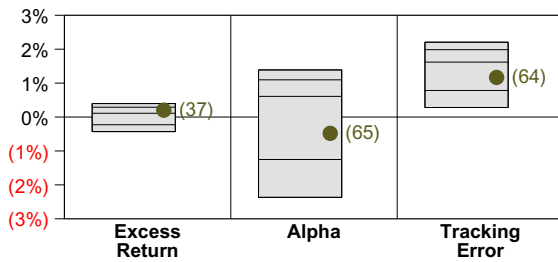
### Risk Analysis vs Callan Public Fund Spons- V Lg DB (>10B) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Targets Compared to Callan Public Fund Spons- V Lg DB (>10B)



### Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Spons- V Lg DB (>10B) Five Years Ended March 31, 2019



10th Percentile	0.40
25th Percentile	0.29
Median	0.11
75th Percentile	(0.23)
90th Percentile	(0.43)

10th Percentile	1.39
25th Percentile	1.10
Median	0.61
75th Percentile	(1.25)
90th Percentile	(2.37)

10th Percentile	2.21
25th Percentile	1.99
Median	1.62
75th Percentile	0.78
90th Percentile	0.28

10th Percentile	1.36
25th Percentile	1.20
Median	0.95
75th Percentile	0.85
90th Percentile	0.80

10th Percentile	1.34
25th Percentile	1.19
Median	0.94
75th Percentile	0.83
90th Percentile	0.77

10th Percentile	0.56
25th Percentile	0.37
Median	0.06
75th Percentile	(0.14)
90th Percentile	(0.26)

10th Percentile	1.03
25th Percentile	0.92
Median	0.72
75th Percentile	(1.08)
90th Percentile	(2.15)

**Total Fund** ● 0.20

**Total Fund** ● (0.48)

**Total Fund** ● 1.17

**Total Fund** ● 1.15

**Total Fund** ● 1.13

**Total Fund** ● 0.17

**Total Fund** ● (0.52)

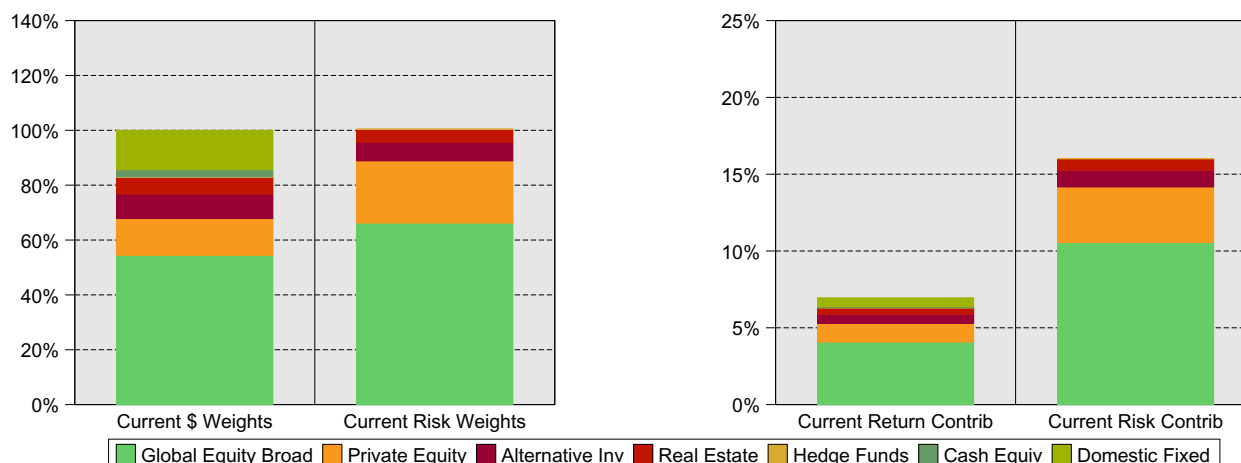
## Pennsylvania SERS Total Fund Projected Risk Analysis as of March 31, 2019

The following is forward-looking analysis of the **projected long-term** total fund risk, return, and diversification benefits (improvement in risk and Sharpe ratio) using long-term capital market assumptions. The top table displays the projected results and diversification benefits for the total fund using both the actual and target asset allocations. The middle and bottom exhibits give a detailed attribution by asset class of the sources of projected total fund risk and return. This analysis juxtaposes dollar weights with projected risk weights and examines the projected risk and return contribution by asset class.

### Capital Market Assumptions: Callan 2019 Total Fund Projected Risk Profile

	Projected Return	Projected Risk	Projected Sharpe	Risk w/o Diversification	Risk Diversification	Sharpe Diversification
Current Asset Allocation	6.95%	15.95%	0.28	17.62%	1.67%	0.03%
Target Asset Allocation	7.05%	16.26%	0.28	18.06%	1.80%	0.03%

### Projected Risk and Return Sources



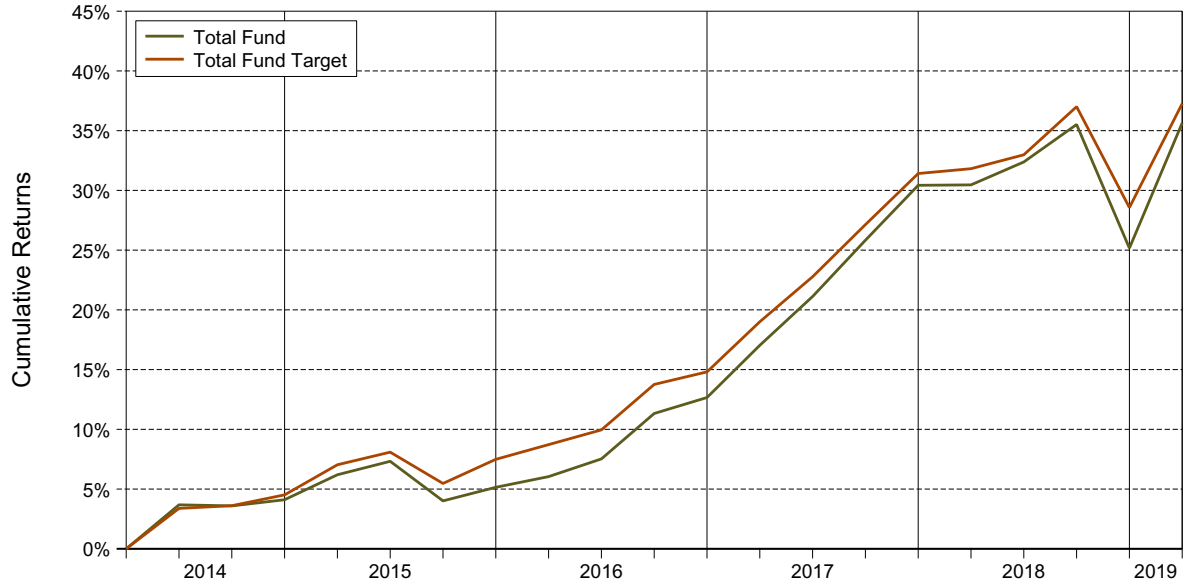
### Detailed Risk and Return Sources by Asset Class

	Current Dollar Weight	Target Dollar Weight	Projected Return	Projected Risk	Current Risk Weight	Target Risk Weight	Projected Return Contrib	Projected Risk Contrib	Projected Rtn/Risk Contrib
Global Equity Broad	54.41%	48.00%	7.00%	19.75%	<b>66.17%</b>	56.53%	4.07%	10.55%	0.39x
Private Equity	13.43%	16.00%	8.50%	29.30%	<b>22.69%</b>	26.73%	1.22%	3.62%	0.34x
Alternative Inv	8.88%	10.00%	6.25%	15.70%	<b>6.76%</b>	7.79%	0.59%	1.08%	0.55x
Real Estate	6.17%	12.00%	6.25%	15.70%	<b>4.73%</b>	9.29%	0.41%	0.75%	0.55x
Hedge Funds	0.16%	0.00%	5.48%	8.85%	<b>0.07%</b>	0.00%	0.01%	0.01%	0.88x
Cash Equiv	2.58%	3.00%	2.52%	0.90%	<b>(0.00%)</b>	(0.00%)	0.07%	(0.00%)	(251.68x)
Domestic Fixed	14.37%	11.00%	3.73%	3.75%	<b>(0.42%)</b>	(0.33%)	0.57%	(0.07%)	(8.55x)

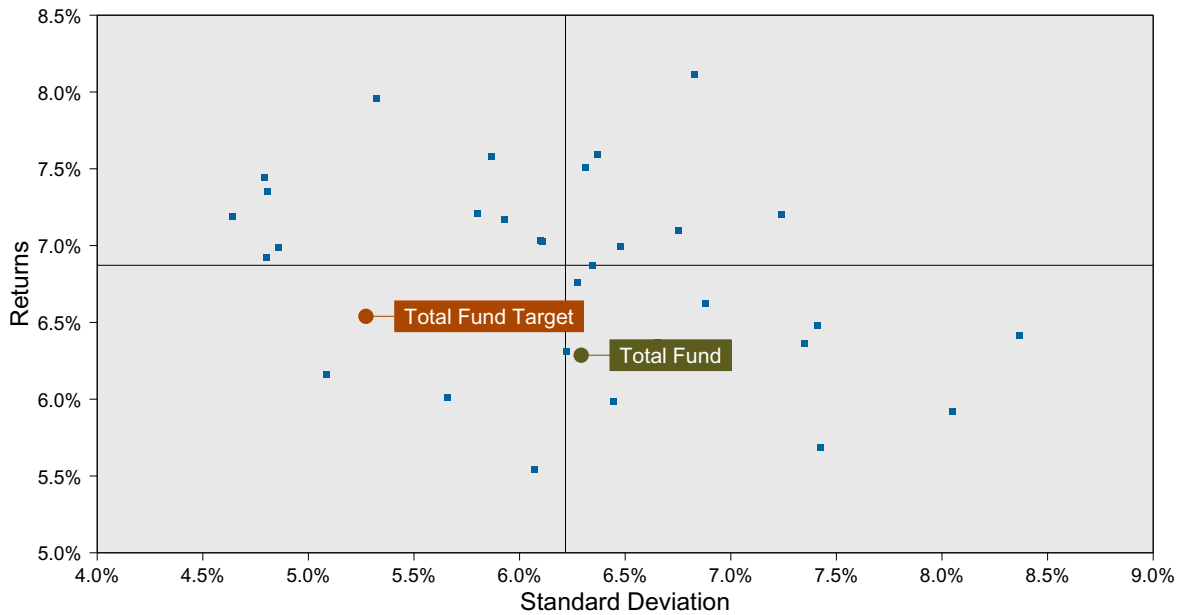
## Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Spons- V Lg DB (>10B).

### Cumulative Returns Actual vs Target



### Five Year Annualized Risk vs Return



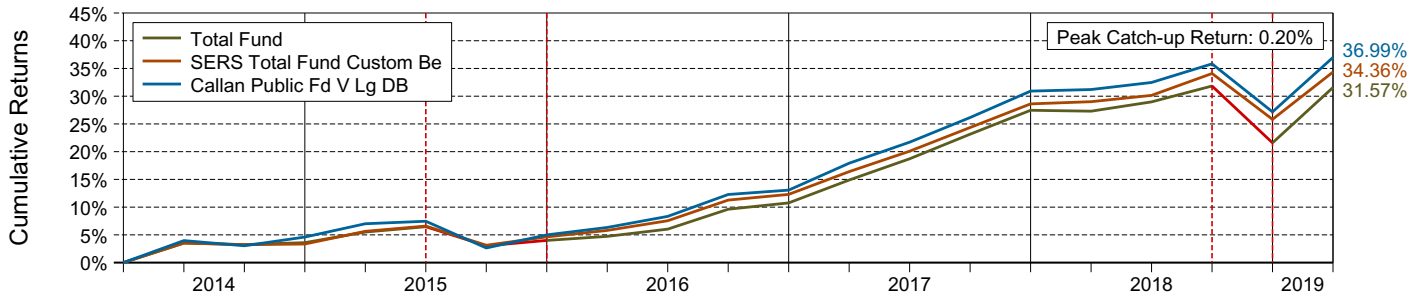
Squares represent membership of the Callan Public Fund Spons- V Lg DB (>10B)



# Total Fund Drawdown Analysis for Five Years Ended March 31, 2019

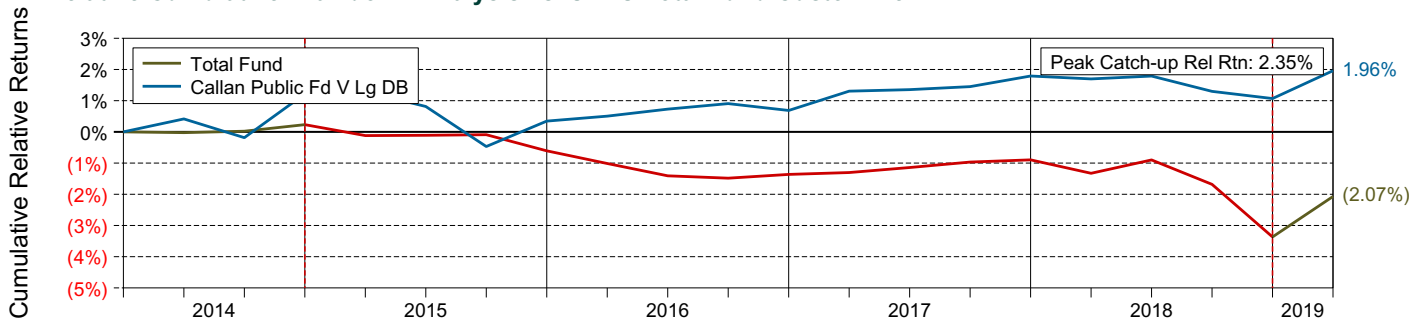
The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

## Absolute Cumulative Drawdown Analysis



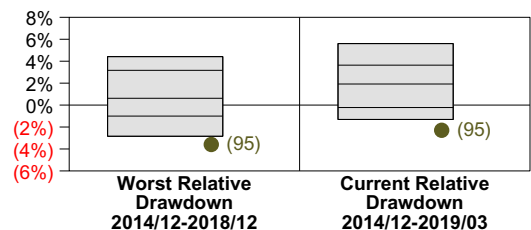
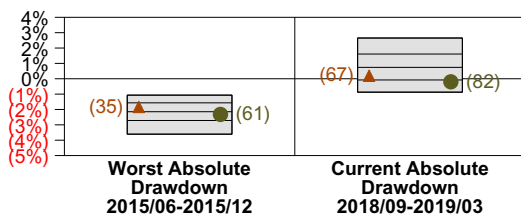
	Worst Absolute Drawdown					Current Absolute Drawdown				
	Return	Years	Period	Index	Peers	Return	Years	Period	Index	Peers
Total Fund	(2.32)%	0.50	2015/06-2015/12	(1.83)%	(2.29)%	(0.20)%	0.50	2018/09-2019/03	0.20%	0.85%
Recovery from Trough	5.40%	0.75	2015/12-2016/09	6.34%	6.94%	8.21%	0.25+	2018/12-2019/03	6.78%	7.72%
SERS Total Fund Custom Be	(6.16)%	0.25	2018/09-2018/12	-	-	-	-	-	-	-
Callan Public Fd V Lg DB	(6.38)%	0.25	2018/09-2018/12	-	-	-	-	-	-	-

## Relative Cumulative Drawdown Analysis vs. SERS Total Fund Custom Be



	Worst Relative Drawdown				Current Relative Drawdown			
	Rel Rtn	Years	Period	Peers	Rel Rtn	Years	Period	Peers
Total Fund	(3.59)%	4.00	2014/12-2018/12	(0.15)%	(2.30)%	4.25	2014/12-2019/03	0.74%
Recovery from Trough	1.34%	0.25+	2018/12-2019/03	0.88%	1.34%	0.25+	2018/12-2019/03	0.88%
Callan Public Fd V Lg DB	(1.74)%	0.50	2015/03-2015/09	-	-	-	-	-

## Drawdown Rankings vs. SERS Total Fund Custom Be Rankings against Callan Public Fund Spons- V Lg DB (>10B) Five Years Ended March 31, 2019



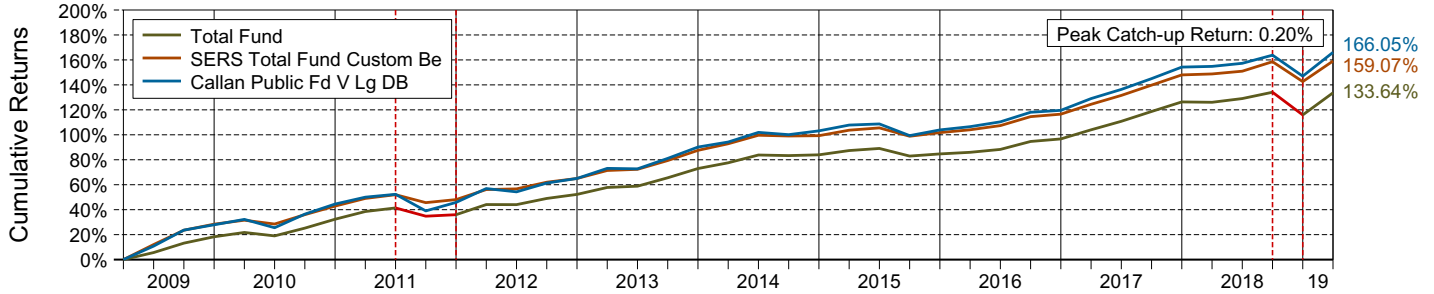
	Worst Absolute Drawdown 2015/06-2015/12	Current Absolute Drawdown 2018/09-2019/03
10th Percentile	(1.07)	2.65
25th Percentile	(1.57)	1.61
Median	(2.15)	0.74
75th Percentile	(2.72)	(0.08)
90th Percentile	(3.61)	(0.87)
<b>Total Fund</b> ●	<b>(2.32)</b>	<b>(0.20)</b>
SERS Total Fund Custom Be ▲	<b>(1.83)</b>	0.20

	Worst Relative Drawdown 2014/12-2018/12	Current Relative Drawdown 2014/12-2019/03
10th Percentile	4.42	5.60
25th Percentile	3.17	3.64
Median	0.62	1.92
75th Percentile	(1.00)	(0.22)
90th Percentile	(2.84)	(1.31)
<b>Total Fund</b> ●	<b>(3.59)</b>	<b>(2.30)</b>

# Total Fund Drawdown Analysis for Ten Years Ended March 31, 2019

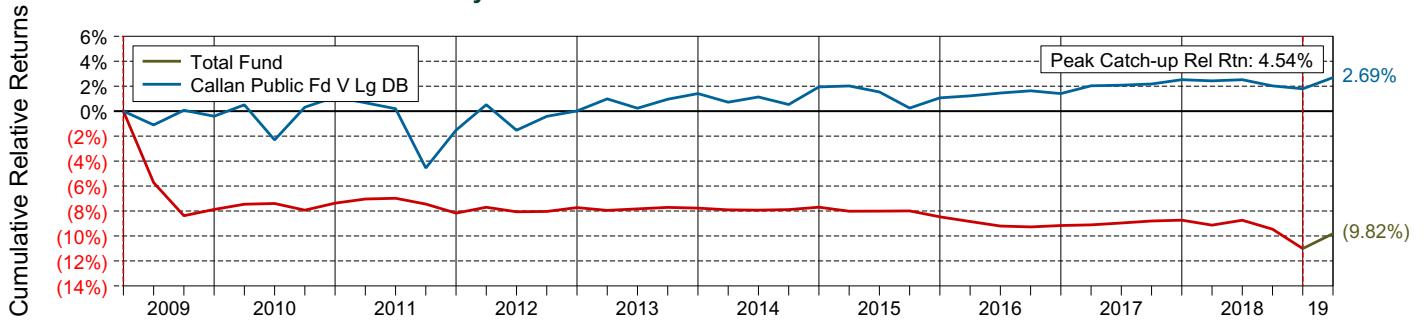
The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

## Absolute Cumulative Drawdown Analysis



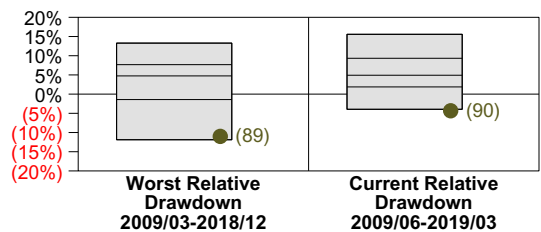
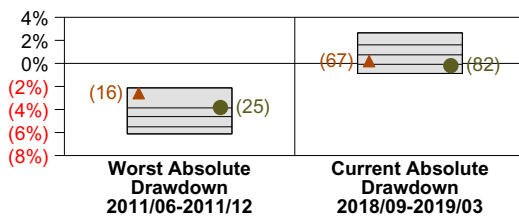
	Worst Absolute Drawdown					Current Absolute Drawdown				
	Return	Years	Period	Index	Peers	Return	Years	Period	Index	Peers
Total Fund	(3.83)%	0.50	2011/06-2011/12	(2.59)%	(4.26)%	(0.20)%	0.50	2018/09-2019/03	0.20%	0.85%
Recovery from Trough	5.98%	0.25	2011/12-2012/03	5.44%	7.63%	8.21%	0.25+	2018/12-2019/03	6.78%	7.72%
SERS Total Fund Custom Be	(6.16)%	0.25	2018/09-2018/12	-	-	-	-	-	-	-
Callan Public Fd V Lg DB	(6.38)%	0.25	2018/09-2018/12	-	-	-	-	-	-	-

## Relative Cumulative Drawdown Analysis vs. SERS Total Fund Custom Be



	Worst Relative Drawdown				Current Relative Drawdown			
	Rel Rtn	Years	Period	Peers	Rel Rtn	Years	Period	Peers
Total Fund	(11.01)%	9.75	2009/03-2018/12	1.79%	(4.34)%	9.75	2009/06-2019/03	3.84%
Recovery from Trough	1.34%	0.25+	2018/12-2019/03	0.88%	1.34%	0.25+	2018/12-2019/03	0.88%
Callan Public Fd V Lg DB	(5.63)%	0.75	2010/12-2011/09	-	-	-	-	-

## Drawdown Rankings vs. SERS Total Fund Custom Be Rankings against Callan Public Fund Spons- V Lg DB (>10B) Ten Years Ended March 31, 2019

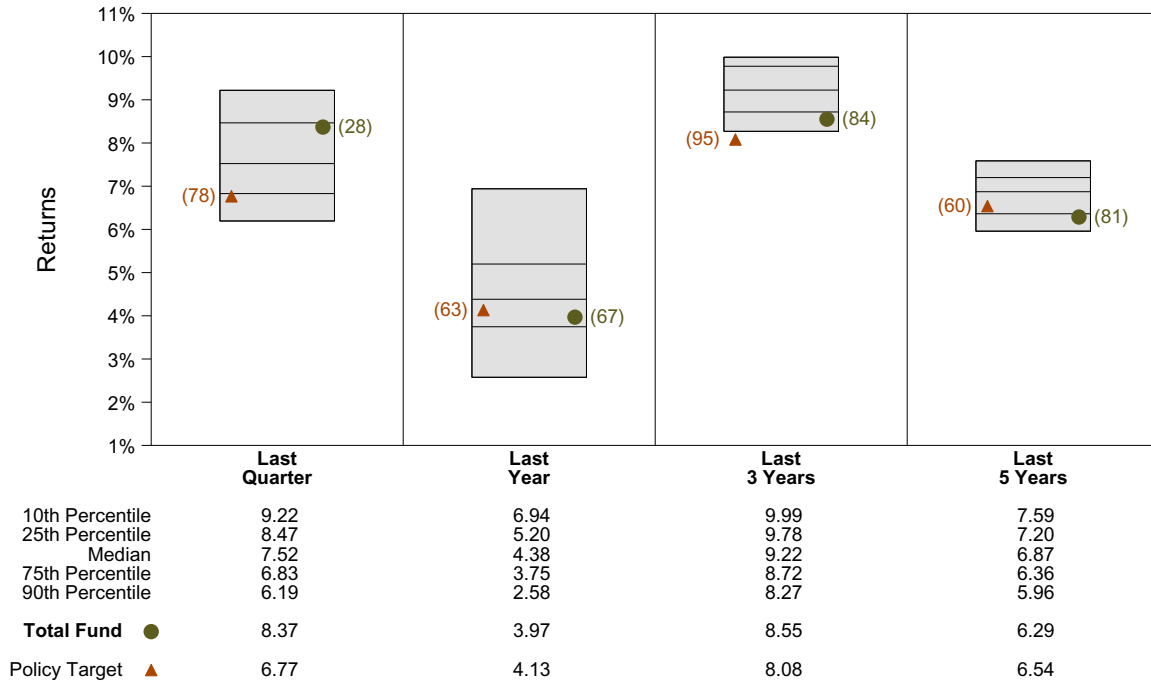


	Worst Absolute Drawdown 2011/06-2011/12	Current Absolute Drawdown 2018/09-2019/03	Worst Relative Drawdown 2009/03-2018/12	Current Relative Drawdown 2009/06-2019/03
10th Percentile	(2.13)	2.65	13.28	15.58
25th Percentile	(3.86)	1.61	7.68	9.33
Median	(4.62)	0.74	4.74	4.91
75th Percentile	(5.50)	(0.08)	(1.41)	1.88
90th Percentile	(6.12)	(0.87)	(11.88)	(3.95)
<b>Total Fund</b> ●	(3.83)	(0.20)	(11.01)	(4.34)
SERS Total Fund Custom Be ▲	(2.59)	0.20	-	-

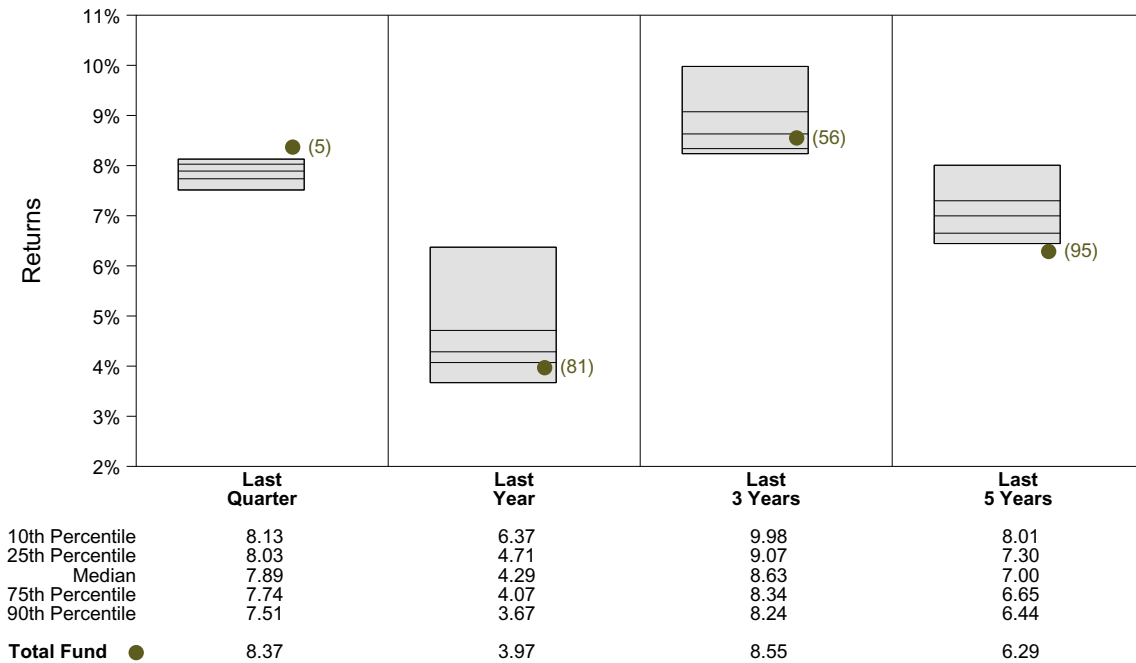
## Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Spons- V Lg DB (>10B) for periods ended March 31, 2019. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.

### Callan Public Fund Spons- V Lg DB (>10B)



### Asset Allocation Adjusted Ranking

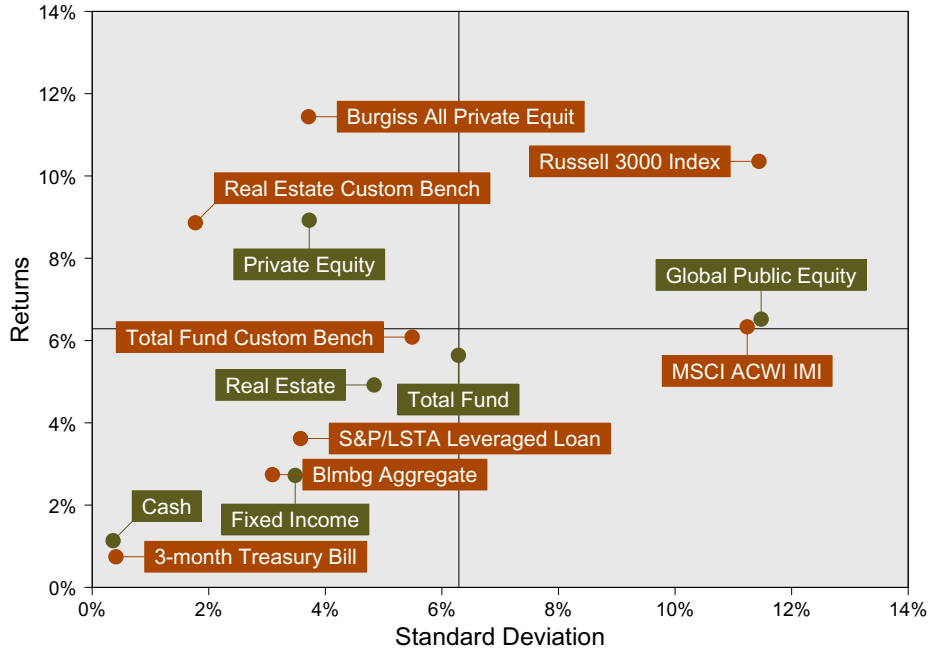


\* Current Quarter Target = 48.0% MSCI ACWI IMI, 16.0% Private Equity, 11.0% Blmbg Aggregate, 10.8% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 10.0% S&P/LSTA Leveraged Loan, 3.0% 3-month Treasury Bill, 1.2% FTSE EP/NA US Index lagged 3 months and 0.0% HFRI Fund of Funds Compos.

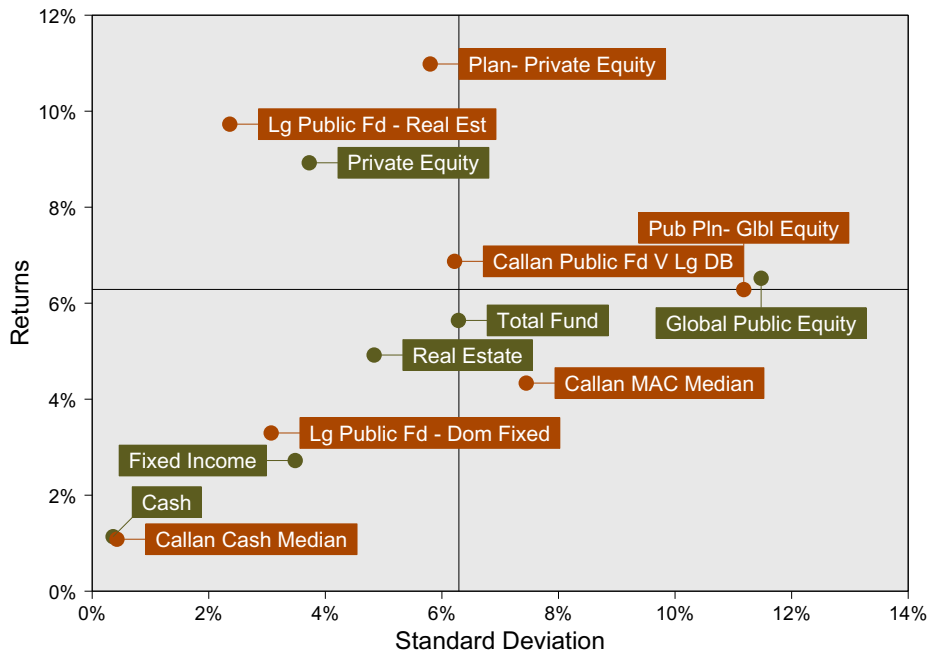
## Asset Class Risk and Return

The charts below show the five year annualized risk and return for each asset class component of the Total Fund. The first graph contrasts these values with those of the appropriate index for each asset class. The second chart contrasts them with the risk and return of the median portfolio in each of the appropriate CAI comparative databases. In each case, the crosshairs on the chart represent the return and risk of the Total Fund.

### Five Year Annualized Risk vs Return Asset Classes vs Benchmark Indices



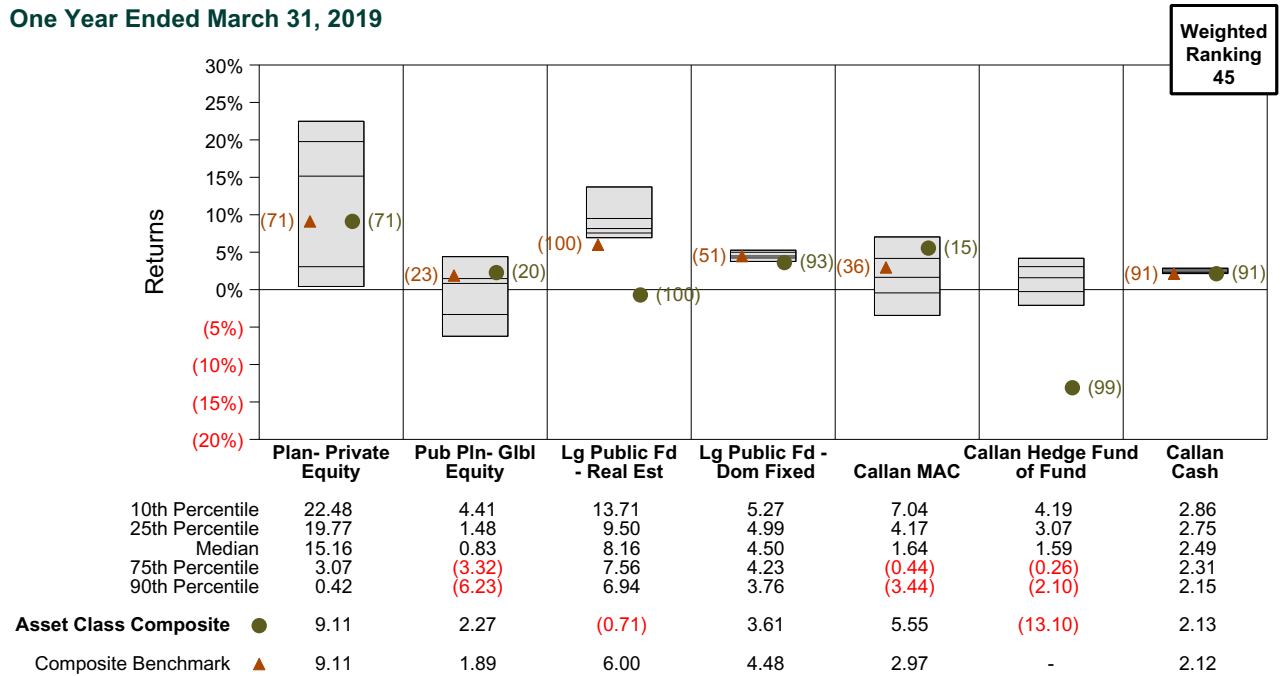
### Five Year Annualized Risk vs Return Asset Classes vs Asset Class Median



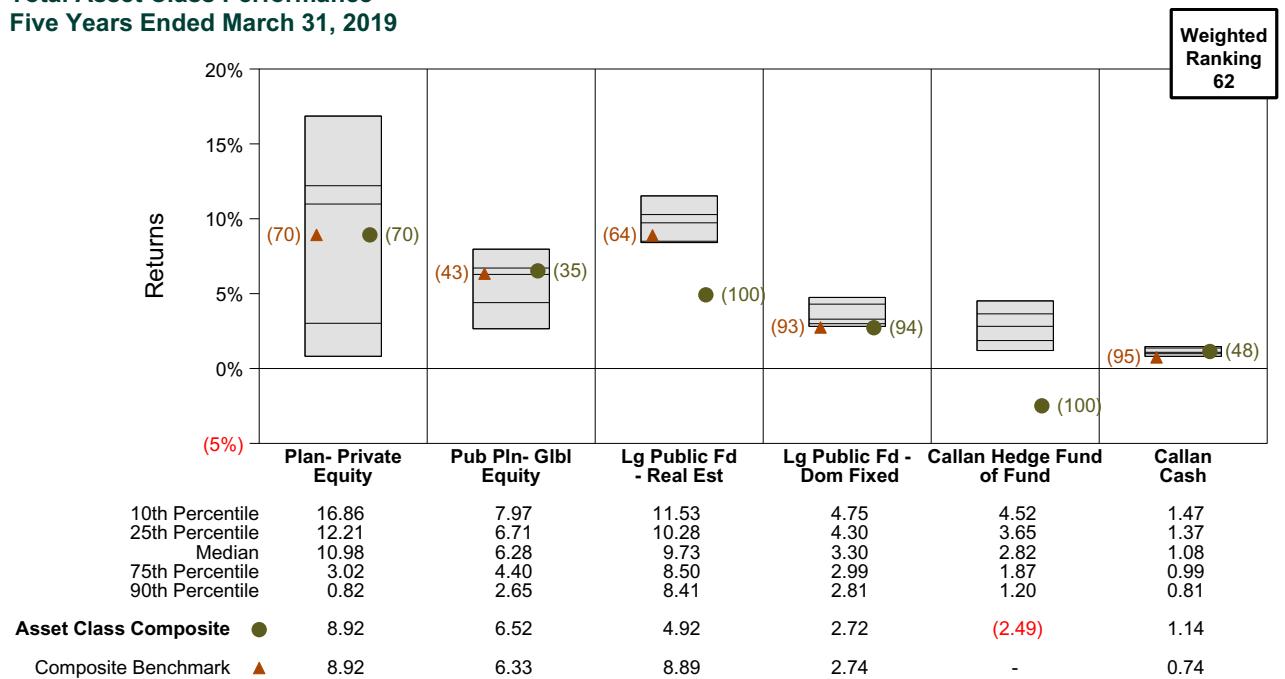
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

### Total Asset Class Performance One Year Ended March 31, 2019



### Total Asset Class Performance Five Years Ended March 31, 2019



\* Current Quarter Target = 48.0% MSCI ACWI IMI, 16.0% Private Equity, 11.0% Blmbg Aggregate, 10.8% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 10.0% S&P/LSTA Leveraged Loan, 3.0% 3-month Treasury Bill, 1.2% FTSE EP/NA US Index lagged 3 months and 0.0% HFRI Fund of Funds Compos.

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of March 31, 2019, with the distribution as of December 31, 2018.

### Asset Distribution Across Investment Managers

	March 31, 2019					December 31, 2018		
	Market Value	% of Total	(min)	Target	(max)	Market Value	% of Total	Target
	\$(000)	Weight	Weight	\$(000)	Weight	Weight		
<b>Total Equity</b>	<b>\$19,556,901</b>	<b>67.84%</b>	<b>59.00%</b>	<b>64.00%</b>	<b>69.00%</b>	<b>\$17,797,462</b>	<b>66.18%</b>	<b>64.00%</b>
<b>Global Public Equity</b>	<b>\$15,686,052</b>	<b>54.41%</b>	-	-	-	<b>\$13,894,463</b>	<b>51.66%</b>	-
Global Mandates	999,949	3.47%				865,924	3.22%	
U.S. Equity	7,489,449	25.98%				6,526,597	24.27%	
Non-U.S. Developed Markets Equity	5,445,216	18.89%				5,017,819	18.66%	
Emerging Mkts Equity	1,750,197	6.07%				1,482,862	5.51%	
<b>Private Equity (1)</b>	<b>\$3,870,849</b>	<b>13.43%</b>	-	-	-	<b>\$3,902,999</b>	<b>14.51%</b>	-
Buyouts	1,783,530	6.19%				1,778,075	6.61%	
Special Situations	560,900	1.95%				550,207	2.05%	
Venture Capital	592,947	2.06%				570,796	2.12%	
Keystone Legacy (2)	933,472	3.24%				1,003,922	3.73%	
<b>Fixed Income</b>	<b>\$4,141,513</b>	<b>14.37%</b>	<b>8.00%</b>	<b>11.00%</b>	<b>14.00%</b>	<b>\$3,995,245</b>	<b>14.86%</b>	<b>11.00%</b>
Core Fixed Income	1,881,872	6.53%				1,818,442	6.76%	
Core-Plus Fixed Income	862,548	2.99%				822,298	3.06%	
Nominal U.S. Treasuries	564,848	1.96%				548,758	2.04%	
Global TIPS	832,245	2.89%				805,748	3.00%	
<b>Multi-Strategy</b>	<b>\$2,561,057</b>	<b>8.88%</b>	<b>7.00%</b>	<b>10.00%</b>	<b>13.00%</b>	<b>\$2,361,803</b>	<b>8.78%</b>	<b>10.00%</b>
Opportunistic Equity & Fixed Income	1,525,276	5.29%				1,398,304	5.20%	
Private Credit (1)	124,334	0.43%				90,905	0.34%	
Credit Focused Strategies	911,448	3.16%				872,594	3.24%	
<b>Real Estate (1)</b>	<b>\$1,778,722</b>	<b>6.17%</b>	<b>9.00%</b>	<b>12.00%</b>	<b>15.00%</b>	<b>\$1,934,030</b>	<b>7.19%</b>	<b>12.00%</b>
Core/Core Plus Real Estate Funds	523,869	1.82%				589,383	2.19%	
Value Add/Opp. Real Estate	989,028	3.43%				1,115,349	4.15%	
REITS	260,268	0.90%				223,664	0.83%	
Natural Resources/Infrastructure	5,557	0.02%				5,634	0.02%	
<b>Legacy Hedge Funds</b>	<b>\$46,114</b>	<b>0.16%</b>	-	-	-	<b>\$48,903</b>	<b>0.18%</b>	-
<b>Cash</b>	<b>\$744,061</b>	<b>2.58%</b>	<b>0.00%</b>	<b>3.00%</b>	<b>6.00%</b>	<b>\$756,973</b>	<b>2.81%</b>	<b>3.00%</b>
<b>Total Fund</b>	<b>\$28,828,369</b>	<b>100.0%</b>		<b>100.0%</b>		<b>\$26,894,418</b>	<b>100.0%</b>	<b>100.0%</b>

(1) Private Equity, Real Estate, and Private Debt Market Values have a 1 Qtr lag

(2) As of 7/31/2018, Keystone Legacy SPV consists of 163 non-core funds, prior performance in previous sub-asset classes

## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of March 31, 2019, with the distribution as of December 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	March 31, 2019		Net New Inv. \$(000)	Inv. Return \$(000)	December 31, 2018	
	Market Value \$(000)	% of Total Weight			Market Value \$(000)	% of Total Weight
<b>Global Public Equity</b>	<b>\$15,686,052</b>	<b>54.41%</b>	<b>\$(2,044)</b>	<b>\$1,793,634</b>	<b>\$13,894,463</b>	<b>51.66%</b>
Global Mandates	999,949	3.47%	(879)	134,905	865,924	3.22%
<b>U.S. Equity</b>	<b>\$7,489,449</b>	<b>25.98%</b>	<b>\$(865)</b>	<b>\$963,717</b>	<b>\$6,526,597</b>	<b>24.27%</b>
U.S. Large/Mid Cap Equity	5,921,065	20.54%	(114)	744,454	5,176,725	19.25%
U.S. Small Cap Equity	1,568,384	5.44%	(751)	219,264	1,349,872	5.02%
<b>Non-U.S. Equity</b>	<b>\$7,195,413</b>	<b>24.96%</b>	<b>\$(300)</b>	<b>\$695,031</b>	<b>\$6,500,681</b>	<b>24.17%</b>
<b>Non-U.S. Developed Markets Equity</b>	<b>\$5,445,216</b>	<b>18.89%</b>	<b>\$(100,000)</b>	<b>\$527,397</b>	<b>\$5,017,819</b>	<b>18.66%</b>
Non-U.S. Dev Large/Mid Cap Equity	4,713,554	16.35%	(100,000)	449,210	4,364,344	16.23%
Non-U.S. Dev Small Cap Equity	731,662	2.54%	0	78,187	653,475	2.43%
<b>Emerging Mkts Equity</b>	<b>\$1,750,197</b>	<b>6.07%</b>	<b>\$99,700</b>	<b>\$167,634</b>	<b>\$1,482,862</b>	<b>5.51%</b>
<b>Fixed Income</b>	<b>\$4,141,513</b>	<b>14.37%</b>	<b>\$(1,743)</b>	<b>\$148,011</b>	<b>\$3,995,245</b>	<b>14.86%</b>
<b>Core Fixed Income</b>	<b>\$1,881,872</b>	<b>6.53%</b>	<b>\$(63)</b>	<b>\$63,494</b>	<b>\$1,818,442</b>	<b>6.76%</b>
<b>Core-Plus Fixed Income</b>	<b>\$862,548</b>	<b>2.99%</b>	<b>\$(1,492)</b>	<b>\$41,742</b>	<b>\$822,298</b>	<b>3.06%</b>
<b>Nominal U.S. Treasuries</b>	<b>\$564,848</b>	<b>1.96%</b>	<b>\$0</b>	<b>\$16,090</b>	<b>\$548,758</b>	<b>2.04%</b>
<b>Global TIPS</b>	<b>\$832,245</b>	<b>2.89%</b>	<b>\$(187)</b>	<b>\$26,684</b>	<b>\$805,748</b>	<b>3.00%</b>
<b>Multi-Strategy</b>	<b>\$2,561,057</b>	<b>8.88%</b>	<b>\$30,169</b>	<b>\$169,085</b>	<b>\$2,361,803</b>	<b>8.78%</b>
Opportunistic Equity & Fixed Income	1,525,276	5.29%	(51)	127,022	1,398,304	5.20%
Private Credit (1)	124,334	0.43%	30,222	3,207	90,905	0.34%
Credit Focused Strategies	911,448	3.16%	(2)	38,855	872,594	3.24%
<b>Private Equity (1)</b>	<b>\$3,870,849</b>	<b>13.43%</b>	<b>\$(67,823)</b>	<b>\$35,673</b>	<b>\$3,902,999</b>	<b>14.51%</b>
Buyouts	1,783,530	6.19%	7,414	(1,959)	1,778,075	6.61%
Special Situations	560,900	1.95%	(18,176)	28,870	550,207	2.05%
Venture Capital	592,947	2.06%	(7,045)	29,196	570,796	2.12%
Keystone Legacy (2)	933,472	3.24%	(50,015)	(20,435)	1,003,922	3.73%
<b>Real Estate (1)</b>	<b>\$1,778,722</b>	<b>6.17%</b>	<b>\$(235,331)</b>	<b>\$80,023</b>	<b>\$1,934,030</b>	<b>7.19%</b>
Core/Core Plus Real Estate Funds	523,869	1.82%	(71,429)	5,914	589,383	2.19%
Value Add/Opp. Real Estate	989,028	3.43%	(162,015)	35,694	1,115,349	4.15%
REITS	260,268	0.90%	(95)	36,700	223,664	0.83%
Natural Resources/Infrastructure	5,557	0.02%	0	(77)	5,634	0.02%
<b>Legacy Hedge Funds</b>	<b>\$46,114</b>	<b>0.16%</b>	<b>\$(3,043)</b>	<b>\$253</b>	<b>\$48,903</b>	<b>0.18%</b>
<b>Cash</b>	<b>\$744,061</b>	<b>2.58%</b>	<b>\$(16,415)</b>	<b>\$3,503</b>	<b>\$756,973</b>	<b>2.81%</b>
<b>Total Fund*</b>	<b>\$28,828,369</b>	<b>100.0%</b>	<b>\$(282,133)</b>	<b>\$2,216,084</b>	<b>\$26,894,418</b>	<b>100.0%</b>

\*Total Fund target allocation is: 48% Global Public Equity, 11% Fixed Income, 10% Multi-Strategy, 16% Private Equity, 12% Real Estate, 3% Cash, 0% Legacy Hedge Funds

\*Sub-composite market values may not sum to asset class composites as a result of accounts in liquidation.

(1) Private Equity, Real Estate, and Private Debt Market Values have a 1 Qtr lag

(2) As of 7/31/2018, Keystone Legacy SPV consists of 163 non-core funds, prior performance in previous sub-asset classes

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Net Performance</b>						
<b>Total Fund</b>	<b>\$28,828</b>	<b>100.00%</b>	<b>8.21%</b>	<b>3.36%</b>	<b>7.90%</b>	<b>5.64%</b>
Total Fund Custom Benchmark(1)	-	-	6.77%	4.13%	8.29%	6.08%
Public Market Equiv Benchmark(2)	-	-	4.42%	2.46%	8.42%	6.33%
<b>Global Public Equity</b>	<b>\$15,686</b>	<b>54.41%</b>	<b>12.89%</b>	<b>2.27%</b>	<b>10.75%</b>	<b>6.52%</b>
MSCI ACWI IMI	-	-	12.29%	1.89%	10.58%	6.33%
<b>Fixed Income</b>	<b>\$4,142</b>	<b>14.37%</b>	<b>3.66%</b>	<b>3.61%</b>	<b>3.57%</b>	<b>2.72%</b>
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%
<b>Multi-Strategy</b>	<b>\$2,561</b>	<b>8.88%</b>	<b>7.12%</b>	<b>5.55%</b>	-	-
S&P/LSTA Leveraged Loan	-	-	4.00%	2.97%	5.67%	3.62%
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>Real Estate</b>	<b>\$1,779</b>	<b>6.17%</b>	<b>4.32%</b>	<b>(0.71%)</b>	<b>1.87%</b>	<b>4.92%</b>
Real Estate Custom Benchmark	-	-	0.67%	6.05%	6.65%	8.90%
CPI +3% (Qtr lag)	-	-	0.27%	4.91%	5.03%	4.52%
<b>Private Equity</b>	<b>\$3,871</b>	<b>13.43%</b>	<b>0.62%</b>	<b>9.11%</b>	<b>10.01%</b>	<b>8.92%</b>
Burgiss Private Equity Custom Index	-	-	(0.73%)	10.15%	12.61%	11.44%
Russell 3000 +3% (Qtr lag)	-	-	(12.95%)	(1.76%)	12.25%	11.16%
<b>Cash</b>	<b>\$744</b>	<b>2.58%</b>	<b>0.42%</b>	<b>2.13%</b>	<b>1.50%</b>	<b>1.14%</b>
3-month Treasury Bill	-	-	0.60%	2.12%	1.19%	0.74%

(1) Total Fund Custom Benchmark returns provided by RVK. Benchmark consists of: 16% SERS Private Equity Composite, 48% MSCI ACW IM Index, 12% Real Estate Custom Benchmark, 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

(2) Public Market Equivalent Benchmark returns provided by RVK. Benchmark consists of: 16% Russell 3000+3% (Qtr Lag), 48% MSCI ACW IM Index, 12% CPI+3% (Qtr Lag), 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index



## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019		
	Last 7 Years	Last 10 Years
<b>Net Performance</b>		
<b>Total Fund</b>	<b>7.15%</b>	<b>8.86%</b>
Total Fund Custom Benchmark(1)	7.50%	9.99%
Public Market Equiv Benchmark(2)	8.30%	10.49%
<b>Global Public Equity</b>	<b>8.92%</b>	<b>12.81%</b>
MSCI ACWI IMI	8.47%	12.27%
<b>Fixed Income</b>	<b>3.07%</b>	<b>6.85%</b>
Blmbg Aggregate	2.48%	3.77%
<b>Multi-Strategy</b>		
S&P/LSTA Leveraged Loan	4.33%	7.97%
Russell 3000 Index	12.63%	16.00%
<b>Real Estate</b>	<b>6.90%</b>	<b>4.54%</b>
Real Estate Custom Benchmark	9.91%	6.73%
CPI +3% (Qtr lag)	4.55%	4.80%
<b>Private Equity</b>	<b>10.25%</b>	<b>11.35%</b>
Burgiss Private Equity Custom Index	12.85%	13.09%
Russell 3000 +3% (Qtr lag)	15.70%	16.57%
<b>Cash</b>	<b>0.89%</b>	<b>0.71%</b>
3-month Treasury Bill	0.56%	0.43%

(1) Total Fund Custom Benchmark returns provided by RVK. Benchmark consists of: 16% SERS Private Equity Composite, 48% MSCI ACW IM Index, 12% Real Estate Custom Benchmark, 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

(2) Public Market Equivalent Benchmark returns provided by RVK. Benchmark consists of: 16% Russell 3000+3% (Qtr Lag), 48% MSCI ACW IM Index, 12% CPI+3% (Qtr Lag), 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value (\$mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Net Performance- Equity</b>						
<b>Global Public Equity</b>	<b>\$15,686</b>	<b>100.00%</b>	<b>12.89%</b>	<b>2.27%</b>	<b>10.75%</b>	<b>6.52%</b>
MSCI ACWI IMI	-	-	12.29%	1.89%	10.58%	6.33%
<b>Global Mandates</b>	<b>\$1,000</b>	<b>6.37%</b>	<b>15.48%</b>	<b>12.34%</b>	<b>14.97%</b>	<b>10.72%</b>
Walter Scott & Prtnrs Gbl Gr Eq	1,000	6.37%	15.48%	12.34%	14.97%	10.72%
MSCI World	-	-	12.48%	4.01%	10.68%	6.78%
<b>U.S. Equity</b>	<b>\$7,489</b>	<b>47.75%</b>	<b>14.75%</b>	<b>7.20%</b>	<b>12.13%</b>	<b>9.19%</b>
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>U.S. Mid/Large Cap Equity</b>	<b>\$5,921</b>	<b>37.75%</b>	<b>14.38%</b>	<b>8.05%</b>	<b>12.85%</b>	<b>9.99%</b>
MCM Russell 1000 Index	5,476	34.91%	13.98%	9.46%	13.59%	10.67%
Russell 1000 Index	-	-	14.00%	9.30%	13.52%	10.63%
Iridian Asset Mgmt MCV	445	2.83%	19.56%	(7.67%)	5.28%	4.25%
Russell MidCap Index	-	-	16.54%	6.47%	11.82%	8.81%
Russell MidCap Value Idx	-	-	14.37%	2.89%	9.50%	7.22%
<b>U.S. Small Cap Equity</b>	<b>\$1,568</b>	<b>10.00%</b>	<b>16.19%</b>	<b>4.34%</b>	<b>9.12%</b>	<b>5.16%</b>
S&P 600 Small Cap Index	-	-	11.61%	1.57%	12.55%	8.45%
MCM Russell 2000 Core Index	318	2.03%	14.58%	2.04%	-	-
Russell 2000 Index	-	-	14.58%	2.05%	12.92%	7.05%
MCM Russell 2000 Val Index	568	3.62%	11.88%	0.10%	-	-
Russell 2000 Value Index	-	-	11.93%	0.17%	10.86%	5.59%
Emerald Adv Div Sm Cap Grth	682	4.35%	20.84%	9.34%	-	-
Russell 2000 Growth Index	-	-	17.14%	3.85%	14.87%	8.41%
<b>Non-U.S. Equity</b>	<b>\$7,195</b>	<b>45.87%</b>	<b>10.68%</b>	<b>(4.19%)</b>	<b>8.63%</b>	<b>2.92%</b>
MSCI ACWI ex US IMI	-	-	10.31%	(4.96%)	7.94%	2.67%
<b>Non-U.S. Developed Markets Equity</b>	<b>\$5,445</b>	<b>34.71%</b>	<b>10.69%</b>	<b>(3.56%)</b>	<b>8.24%</b>	<b>2.86%</b>
<b>Non-U.S. Dev Mid/Large Cap Equity</b>	<b>\$4,714</b>	<b>30.05%</b>	<b>10.49%</b>	<b>(2.69%)</b>	<b>9.19%</b>	<b>3.39%</b>
BlackRock MSCI World Ex US Index	4,703	29.98%	10.52%	(2.66%)	-	-
MSCI World ex US	-	-	10.45%	(3.14%)	7.29%	2.20%
<b>Non-U.S. Dev Small Cap Equity</b>	<b>\$732</b>	<b>4.66%</b>	<b>11.96%</b>	<b>(9.50%)</b>	<b>6.28%</b>	<b>1.79%</b>
FIS Group Non-U.S. Small Cap	190	1.21%	8.73%	-	-	-
MSCI ACWI ex US Small Cap	-	-	10.26%	(9.48%)	7.01%	3.26%
Harris Assoc Int'l SCV	542	3.46%	13.14%	(10.21%)	6.00%	1.63%
MSCI World ex US Sm Cap	-	-	10.93%	(8.66%)	7.28%	3.69%
<b>Emerging Mkts Equity</b>	<b>\$1,750</b>	<b>11.16%</b>	<b>10.67%</b>	<b>(7.90%)</b>	<b>11.76%</b>	<b>4.13%</b>
BlackRock Emg Mkts Index	685	4.37%	9.83%	(7.52%)	-	-
Leading Edge Emg Mkts Fund	216	1.38%	11.43%	-	-	-
Macquarie Emg Mkts Equity	324	2.07%	9.38%	(6.72%)	12.30%	4.16%
Martin Currie Emg Mkts Equity	432	2.76%	12.02%	(8.94%)	14.37%	5.65%
MSCI EM	-	-	9.93%	(7.40%)	10.68%	3.68%
GlobeFlex Emerging Small Cap	92	0.59%	10.14%	(10.12%)	8.94%	2.76%
MSCI EM Small Cap	-	-	7.76%	(12.42%)	5.95%	1.77%
Northern Trust Equity Transition	1	0.01%	(1.60%)	(16.23%)	(8.20%)	(5.00%)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended March 31, 2019

	Last 7 Years	Last 10 Years
<b>Net Performance- Equity</b>		
<b>Global Public Equity</b>	<b>8.92%</b>	<b>12.81%</b>
MSCI ACWI IMI	8.47%	12.27%
<b>Global Mandates</b>	<b>11.47%</b>	<b>15.10%</b>
Walter Scott & Prtnrs Gbl Gr Eq	11.48%	13.88%
MSCI World	9.17%	12.38%
<b>U.S. Equity</b>	<b>11.85%</b>	<b>15.50%</b>
Russell 3000 Index	12.63%	16.00%
<b>U.S. Mid/Large Cap Equity</b>	<b>12.43%</b>	<b>15.96%</b>
MCM Russell 1000 Index	12.78%	-
Russell 1000 Index	12.79%	16.05%
Iridian Asset Mgmt MCV	10.31%	15.23%
Russell MidCap Index	11.99%	16.88%
Russell MidCap Value Idx	11.30%	16.39%
<b>U.S. Small Cap Equity</b>	<b>9.03%</b>	<b>13.28%</b>
S&P 600 Small Cap Index	12.12%	17.00%
Russell 2000 Index	10.74%	15.36%
Russell 2000 Value Index	9.61%	14.12%
Russell 2000 Growth Index	11.79%	16.52%
<b>Non-U.S. Equity</b>	<b>5.34%</b>	<b>9.48%</b>
MSCI ACWI ex US IMI	4.90%	9.20%
<b>Non-U.S. Developed Markets Equity</b>	<b>6.10%</b>	<b>10.18%</b>
<b>Non-U.S. Dev Mid/Large Cap Equity</b>	<b>6.44%</b>	<b>9.98%</b>
MSCI World ex US	5.28%	8.82%
<b>Non-U.S. Dev Small Cap Equity</b>	<b>5.57%</b>	<b>11.85%</b>
MSCI ACWI ex US Small Cap	6.05%	11.86%
Harris Assoc Int'l SCV	5.45%	13.61%
MSCI World ex US Sm Cap	7.04%	12.25%
<b>Emerging Mkts Equity</b>	<b>2.98%</b>	<b>7.60%</b>
MSCI EM	2.69%	8.95%
MSCI EM Small Cap	2.60%	10.37%
Northern Trust Equity Transition	(3.74%)	-

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Net Performance - Fixed Income</b>						
<b>Fixed Income</b>	<b>\$4,142</b>	<b>100.00%</b>	<b>3.66%</b>	<b>3.61%</b>	<b>3.57%</b>	<b>2.72%</b>
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%
<b>Core Fixed Income</b>	<b>\$1,882</b>	<b>45.44%</b>	<b>3.49%</b>	<b>4.49%</b>	<b>2.53%</b>	<b>2.92%</b>
MCM Bond Index	1,059	25.58%	2.96%	4.53%	1.99%	2.71%
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%
PIMCO Core Bond Fund	635	15.32%	3.85%	4.66%	2.75%	3.09%
Blmbg Agg ex Treasury	-	-	3.47%	4.65%	2.60%	3.08%
Taplin, Canida & Habacht Corp FI	188	4.54%	5.26%	3.74%	4.25%	3.31%
Blmbg Credit	-	-	4.87%	4.89%	3.48%	3.61%
<b>Core-Plus Fixed Income</b>	<b>\$863</b>	<b>20.83%</b>	<b>4.89%</b>	<b>1.86%</b>	<b>7.05%</b>	<b>2.90%</b>
Brandywine Global Opp	192	4.65%	3.10%	(6.07%)	2.11%	1.55%
FTSE WGBI	-	-	1.74%	(1.57%)	0.95%	0.59%
Pyramis Gbl Adv HY CMBS	324	7.82%	2.66%	5.69%	4.93%	5.06%
Blmbg US Univ CMBS ex Aaa	-	-	4.37%	6.91%	4.78%	3.87%
Stone Harbor Gbl HY	183	4.43%	7.58%	6.02%	6.92%	3.42%
FTSE US High Yield	-	-	7.36%	5.86%	8.63%	4.35%
Stone Harbor EMD	163	3.93%	8.69%	(0.38%)	6.12%	4.49%
JPM EMBI Global	-	-	6.59%	3.52%	5.20%	4.80%
<b>Global TIPS</b>	<b>\$832</b>	<b>20.10%</b>	<b>3.29%</b>	<b>1.95%</b>	<b>1.80%</b>	<b>1.95%</b>
Brown Brothers TIPS	220	5.32%	3.08%	2.49%	1.63%	1.99%
NISA Inv Adv TIPS	497	11.99%	3.23%	2.66%	1.73%	1.96%
Blmbg US TIPS	-	-	3.19%	2.70%	1.70%	1.94%
New Century Global TIPS	115	2.79%	3.95%	(1.93%)	2.42%	1.85%
Blmbg Wld Gov I-L Undhdg	-	-	3.93%	(1.74%)	2.41%	1.69%
<b>Nominal U.S. Treasuries</b>	<b>\$565</b>	<b>13.64%</b>	<b>2.93%</b>	<b>5.63%</b>	<b>0.57%</b>	<b>2.87%</b>
PIMCO US Treasuries	565	13.64%	2.93%	5.63%	0.92%	3.12%
Blmbg US Treas Bell 10Y	-	-	3.08%	5.60%	0.11%	2.59%

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019		
	Last 7 Years	Last 10 Years
<b>Net Performance - Fixed Income</b>		
<b>Fixed Income</b>	<b>3.07%</b>	<b>6.85%</b>
Blmbg Aggregate	2.48%	3.77%
<b>Core Fixed Income</b>	<b>2.91%</b>	<b>5.44%</b>
MCM Bond Index	2.37%	3.63%
Blmbg Aggregate	2.48%	3.77%
Blmbg Agg ex Treasury	2.87%	4.36%
Taplin, Canida & Habacht Corp FI	3.82%	7.00%
Blmbg Credit	3.71%	6.22%
Brandywine Global Opp	2.62%	-
FTSE WGBI	0.52%	2.20%
Pyramis Gbl Adv HY CMBS	8.02%	13.49%
Blmbg US Univ CMBS ex Aaa	4.52%	10.55%
Stone Harbor Gbl HY	5.46%	9.59%
FTSE US High Yield	5.93%	10.88%
Stone Harbor EMD	4.25%	9.46%
JPM EMBI Global	4.73%	8.12%
<b>Global TIPS</b>	<b>1.02%</b>	<b>2.62%</b>
Brown Brothers TIPS	1.36%	-
NISA Inv Adv TIPS	0.67%	2.41%
Blmbg US TIPS	1.21%	3.41%
New Century Global TIPS	1.89%	-
Blmbg Wld Gov I-L Undhdg	1.48%	4.02%
<b>Nominal U.S. Treasuries</b>	<b>2.30%</b>	<b>-</b>
PIMCO US Treasuries	2.50%	-
Blmbg US Treas Bell 10Y	2.06%	2.84%

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## Investment Manager Returns

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Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Net Performance - Multi-Strategy</b>						
<b>Multi-Strategy</b>	<b>\$2,561</b>	<b>100.00%</b>	<b>7.12%</b>	<b>5.55%</b>	-	-
S&P/LSTA Leveraged Loan	-	-	4.00%	2.97%	5.67%	3.62%
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>Credit Focused Strategies</b>	<b>\$911</b>	<b>35.59%</b>	<b>4.45%</b>	<b>4.05%</b>	-	-
Blackstone Keystone(1)	911	35.59%	4.45%	4.05%	6.61%	4.71%
HFRI Fund of Funds Compos	-	-	4.63%	0.16%	3.94%	2.21%
<b>Opp. Equity &amp; Fixed Income</b>	<b>\$1,525</b>	<b>59.56%</b>	<b>9.08%</b>	<b>6.32%</b>	-	-
SEI Str. Credit: HY Bank Loans(2)	332	12.97%	0.04%	3.54%	17.49%	6.82%
FTSE US High Yield	-	-	7.36%	5.86%	8.63%	4.35%
Eaton Vance GMARA	193	7.54%	2.06%	-	-	-
3 month LIBOR + 6%	-	-	2.10%	8.56%	7.62%	7.10%
MCM Russell 3000 Index(3)	1,000	39.04%	14.02%	8.75%	-	-
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>Private Credit(4)</b>	<b>\$124</b>	<b>4.85%</b>	<b>2.64%</b>	<b>13.00%</b>	-	-

(1) Blackstone Keystone since inception returns are included in the Legacy Hedge Fund composite through 9/30/2017.

(2) SEI HY Bank Loans since inception returns are included in the Fixed Income composite through 9/30/2017.

(3) Russell 3000 Index since inception returns are included in the Global Public Equity composite through 9/30/2017.

(4) Private Debt performance has a 1 Qtr lag.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Net Performance - Real Estate</b>						
<b>Real Estate</b>	<b>\$1,779</b>	<b>100.00%</b>	<b>4.32%</b>	<b>(0.71%)</b>	<b>1.87%</b>	<b>4.92%</b>
Real Estate Custom Benchmark	-	-	0.67%	6.05%	6.65%	8.90%
CPI +3% (Qtr lag)	-	-	0.27%	4.91%	5.03%	4.52%
<b>Core/Core Plus Real Estate Funds</b>	<b>\$524</b>	<b>29.45%</b>	<b>1.05%</b>	<b>7.92%</b>	<b>7.40%</b>	<b>9.22%</b>
NCREIF ODCE Index (Qtr lag)	-	-	1.39%	7.30%	7.53%	9.60%
<b>Value Add/Opp. Real Estate</b>	<b>\$989</b>	<b>55.60%</b>	<b>3.50%</b>	<b>(5.31%)</b>	<b>0.10%</b>	<b>3.94%</b>
Real Estate Separate Accounts	598	33.61%	4.80%	(10.82%)	(3.18%)	1.77%
Non-Core Closed End Funds	391	21.99%	1.34%	7.27%	7.49%	8.69%
NCREIF ODCE Index (Qtr lag)	-	-	1.39%	7.30%	7.53%	9.60%
<b>Natural Resources/Infrastructure</b>	<b>\$6</b>	<b>0.31%</b>	<b>(1.37%)</b>	<b>(7.69%)</b>	<b>(4.57%)</b>	<b>(1.97%)</b>
CPI +3% (Qtr lag)	-	-	0.27%	4.91%	5.03%	4.52%
<b>REITS</b>	<b>\$260</b>	<b>14.63%</b>	<b>16.40%</b>	<b>9.09%</b>	<b>5.21%</b>	<b>6.56%</b>
FTSE NAREIT US Index (Qtr lag)	-	-	(6.00%)	(3.87%)	2.42%	7.62%

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019		
	Last 7 Years	Last 10 Years
<b>Net Performance - Real Estate</b>		
<b>Real Estate</b>	<b>6.90%</b>	<b>4.54%</b>
Real Estate Custom Benchmark	9.91%	6.73%
CPI +3% (Qtr lag)	4.55%	4.80%
<b>Core/Core Plus Real Estate Funds</b>	<b>10.24%</b>	<b>7.67%</b>
NCREIF ODCE Index (Qtr lag)	10.04%	5.92%
<b>Value Add/Opp. Real Estate</b>	<b>6.19%</b>	<b>3.03%</b>
Real Estate Separate Accounts	3.88%	0.86%
Non-Core Closed End Funds	10.68%	6.72%
NCREIF ODCE Index (Qtr lag)	10.04%	5.92%
<b>Natural Resources/Infrastructure</b>	<b>(0.78%)</b>	<b>(2.11%)</b>
CPI +3% (Qtr lag)	4.55%	4.80%
<b>REITS</b>	<b>9.02%</b>	<b>11.30%</b>
FTSE NAREIT US Index (Qtr lag)	8.28%	11.97%

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Net Performance - Private Equity</b>						
<b>Private Equity</b>	<b>\$3,871</b>	<b>100.00%</b>	<b>0.62%</b>	<b>9.11%</b>	<b>10.01%</b>	<b>8.92%</b>
Burgiss Private Eqty Idx (Qtr Lag)	-	-	(0.73%)	10.15%	12.61%	11.44%
Russell 3000 + 3% (Qtr Lag)	-	-	(12.95%)	(1.76%)	12.25%	11.16%
<b>Buyouts</b>	<b>\$1,784</b>	<b>46.08%</b>	<b>(0.62%)</b>	<b>8.54%</b>	<b>12.22%</b>	<b>10.97%</b>
Burgiss Buyout Index (Qtr Lag)	-	-	(1.71%)	7.49%	13.84%	11.44%
<b>Special Situations</b>	<b>\$561</b>	<b>14.49%</b>	<b>5.30%</b>	<b>11.88%</b>	<b>10.72%</b>	<b>7.12%</b>
Burgiss Special Sits Idx (Qtr Lag)	-	-	(1.28%)	3.63%	8.00%	6.69%
<b>Venture Capital</b>	<b>\$593</b>	<b>15.32%</b>	<b>4.73%</b>	<b>23.49%</b>	<b>9.05%</b>	<b>7.82%</b>
Burgiss Venture Cap Idx (Qtr Lag)	-	-	0.36%	18.51%	10.96%	14.18%
<b>Keystone Legacy (Qtr Lag) (1)</b>	<b>\$933</b>	<b>24.12%</b>	<b>(2.10%)</b>	-	-	-

(1) As of 7/31/2018, Keystone Legacy SPV consists of 163 non-core funds, prior performance in previous sub-asset classes

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## Investment Manager Returns

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The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019		
	Last 7 Years	Last 10 Years
<b>Net Performance - Private Equity</b>		
<b>Private Equity</b>	<b>10.25%</b>	<b>11.35%</b>
Burgiss Private Eqty Idx (Qtr Lag)	12.85%	13.09%
Russell 3000 + 3% (Qtr Lag)	15.70%	16.57%
<b>Buyouts</b>	<b>13.06%</b>	<b>13.47%</b>
Burgiss Buyout Index (Qtr Lag)	12.86%	13.19%
<b>Special Situations</b>	<b>9.54%</b>	<b>12.48%</b>
Burgiss Special Sits Idx (Qtr Lag)	9.27%	11.01%
<b>Venture Capital</b>	<b>7.97%</b>	<b>8.10%</b>
Burgiss Venture Cap Idx (Qtr Lag)	14.70%	13.40%

(1) As of 7/31/2018, Keystone Legacy SPV consists of 163 non-core funds, prior performance in previous sub-asset classes

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Gross Performance</b>						
<b>Total Fund</b>	<b>\$28,828</b>	<b>100.00%</b>	<b>8.37%</b>	<b>3.97%</b>	<b>8.55%</b>	<b>6.29%</b>
Total Fund Custom Benchmark(1)	-	-	6.77%	4.13%	8.29%	6.08%
Public Market Equiv Benchmark(2)	-	-	4.42%	2.46%	8.42%	6.33%
<b>Global Public Equity</b>	<b>\$15,686</b>	<b>54.41%</b>	<b>12.91%</b>	<b>2.38%</b>	<b>10.95%</b>	<b>6.74%</b>
MSCI ACWI IMI	-	-	12.29%	1.89%	10.58%	6.33%
<b>Fixed Income</b>	<b>\$4,142</b>	<b>14.37%</b>	<b>3.71%</b>	<b>3.75%</b>	<b>3.79%</b>	<b>2.97%</b>
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%
<b>Multi-Strategy</b>	<b>\$2,561</b>	<b>8.88%</b>	<b>7.13%</b>	<b>5.69%</b>	-	-
S&P/LSTA Leveraged Loan	-	-	4.00%	2.97%	5.67%	3.62%
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>Real Estate(3)</b>	<b>\$1,779</b>	<b>6.17%</b>	<b>4.32%</b>	<b>(0.71%)</b>	<b>1.88%</b>	<b>4.92%</b>
Real Estate Custom Benchmark	-	-	0.67%	6.05%	6.65%	8.90%
CPI +3% (Qtr lag)	-	-	0.27%	4.91%	5.03%	4.52%
<b>Private Equity(3)</b>	<b>\$3,871</b>	<b>13.43%</b>	<b>0.62%</b>	<b>9.11%</b>	<b>10.01%</b>	<b>8.92%</b>
Burgiss Private Equity Custom Index	-	-	(0.73%)	10.15%	12.61%	11.44%
Russell 3000 +3% (Qtr lag)	-	-	(12.95%)	(1.76%)	12.25%	11.16%
<b>Cash</b>	<b>\$744</b>	<b>2.58%</b>	<b>0.42%</b>	<b>2.13%</b>	<b>1.50%</b>	<b>1.14%</b>
3-month Treasury Bill	-	-	0.60%	2.12%	1.19%	0.74%

(1) Total Fund Custom Benchmark returns provided by RVK. Benchmark consists of: 16% SERS Private Equity Composite, 48% MSCI ACW IM Index, 12% Real Estate Custom Benchmark, 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

(2) Public Market Equivalent Benchmark returns provided by RVK. Benchmark consists of: 16% Russell 3000+3% (Qtr Lag), 48% MSCI ACW IM Index, 12% CPI+3% (Qtr Lag), 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

(3) Private Equity, Real Estate, and Private Debt (within Multi-Strategy) performance are shown Net of Fees.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019		
	Last 7 Years	Last 10 Years
<b>Gross Performance</b>		
<b>Total Fund</b>	<b>7.82%</b>	<b>9.61%</b>
Total Fund Custom Benchmark(1)	7.50%	9.99%
Public Market Equiv Benchmark(2)	8.30%	10.50%
<b>Global Public Equity</b>	<b>9.14%</b>	<b>13.06%</b>
MSCI ACWI IMI	8.47%	12.27%
<b>Fixed Income</b>	<b>3.32%</b>	<b>7.08%</b>
Blmbg Aggregate	2.48%	3.77%
<b>Multi-Strategy</b>		
S&P/LSTA Leveraged Loan	4.33%	7.97%
Russell 3000 Index	12.63%	16.00%
<b>Real Estate(3)</b>	<b>6.90%</b>	<b>4.54%</b>
Real Estate Custom Benchmark	9.88%	6.72%
CPI +3% (Qtr lag)	4.55%	4.80%
<b>Private Equity(3)</b>	<b>10.25%</b>	<b>11.35%</b>
Burgiss Private Equity Custom Index	12.85%	13.09%
Russell 3000 +3% (Qtr lag)	15.70%	16.57%
<b>Cash</b>	<b>0.89%</b>	<b>0.72%</b>
3-month Treasury Bill	0.56%	0.43%

(1) Total Fund Custom Benchmark returns provided by RVK. Benchmark consists of: 16% SERS Private Equity Composite, 48% MSCI ACW IM Index, 12% Real Estate Custom Benchmark, 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

(2) Public Market Equivalent Benchmark returns provided by RVK. Benchmark consists of: 16% Russell 3000+3% (Qtr Lag), 48% MSCI ACW IM Index, 12% CPI+3% (Qtr Lag), 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

(3) Private Equity, Real Estate, and Private Debt (within Multi-Strategy) performance are shown Net of Fees.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value (\$mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Gross Performance- Equity</b>						
<b>Global Public Equity</b>	<b>\$15,686</b>	<b>100.00%</b>	<b>12.91%</b>	<b>2.38%</b>	<b>10.95%</b>	<b>6.74%</b>
MSCI ACWI IMI	-	-	12.29%	1.89%	10.58%	6.33%
<b>Global Mandates</b>	<b>\$1,000</b>	<b>6.37%</b>	<b>15.58%</b>	<b>12.78%</b>	<b>15.46%</b>	<b>11.18%</b>
Walter Scott & Prtnrs Gbl Gr Eq	1,000	6.37%	15.58%	12.78%	15.46%	11.18%
MSCI World	-	-	12.48%	4.01%	10.68%	6.78%
<b>U.S. Equity</b>	<b>\$7,489</b>	<b>47.75%</b>	<b>14.77%</b>	<b>7.27%</b>	<b>12.26%</b>	<b>9.33%</b>
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>U.S. Large/Mid Cap Equity</b>	<b>\$5,921</b>	<b>37.75%</b>	<b>14.38%</b>	<b>8.09%</b>	<b>12.96%</b>	<b>10.11%</b>
MCM Russell 1000 Index	5,476	34.91%	13.98%	9.47%	13.60%	10.68%
Russell 1000 Index	-	-	14.00%	9.30%	13.52%	10.63%
Iridian Asset Mgmt MCV	445	2.83%	19.56%	(7.29%)	5.79%	4.74%
Russell MidCap Index	-	-	16.54%	6.47%	11.82%	8.81%
Russell MidCap Value Idx	-	-	14.37%	2.89%	9.50%	7.22%
<b>U.S. Small Cap Equity</b>	<b>\$1,568</b>	<b>10.00%</b>	<b>16.24%</b>	<b>4.56%</b>	<b>9.39%</b>	<b>5.47%</b>
S&P 600 Small Cap Index	-	-	11.61%	1.57%	12.55%	8.45%
MCM Russell 2000 Core Index	318	2.03%	14.59%	2.06%	-	-
Russell 2000 Index	-	-	14.58%	2.05%	12.92%	7.05%
MCM Russell 2000 Val Index	568	3.62%	11.88%	0.12%	-	-
Russell 2000 Value Index	-	-	11.93%	0.17%	10.86%	5.59%
Emerald Adv Div Sm Cap Grth	682	4.35%	20.97%	9.84%	-	-
Russell 2000 Growth Index	-	-	17.14%	3.85%	14.87%	8.41%
<b>Non-U.S. Equity</b>	<b>\$7,195</b>	<b>45.87%</b>	<b>10.69%</b>	<b>(4.09%)</b>	<b>8.88%</b>	<b>3.20%</b>
MSCI ACWI ex US IMI	-	-	10.31%	(4.96%)	7.94%	2.67%
<b>Non-U.S. Developed Markets Equity</b>	<b>\$5,445</b>	<b>34.71%</b>	<b>10.69%</b>	<b>(3.49%)</b>	<b>8.44%</b>	<b>3.09%</b>
<b>Non-U.S. Dev Large/Mid Cap Equity</b>	<b>\$4,714</b>	<b>30.05%</b>	<b>10.50%</b>	<b>(2.67%)</b>	<b>9.29%</b>	<b>3.54%</b>
BlackRock MSCI World Ex US Index	4,703	29.98%	10.52%	(2.65%)	-	-
MSCI World ex US	-	-	10.45%	(3.14%)	7.29%	2.20%
<b>Non-U.S. Dev Small Cap Equity</b>	<b>\$732</b>	<b>4.66%</b>	<b>11.96%</b>	<b>(9.12%)</b>	<b>6.95%</b>	<b>2.43%</b>
FIS Group Non-U.S. Small Cap	190	1.21%	8.73%	-	-	-
MSCI ACWI ex US Small Cap	-	-	10.26%	(9.48%)	7.01%	3.26%
Harris Assoc Int'l SCV	542	3.46%	13.14%	(9.70%)	6.72%	2.30%
MSCI World ex US Sm Cap	-	-	10.93%	(8.66%)	7.28%	3.69%
<b>Emerging Mkts Equity</b>	<b>\$1,750</b>	<b>11.16%</b>	<b>10.70%</b>	<b>(7.70%)</b>	<b>12.35%</b>	<b>4.69%</b>
BlackRock Emg Mkts Index	685	4.37%	9.86%	(7.46%)	-	-
Leading Edge Emg Mkts Fund	216	1.38%	11.43%	-	-	-
Macquarie Emg Mkts Equity	324	2.07%	9.48%	(6.39%)	13.06%	4.95%
Martin Currie Emg Mkts Equity	432	2.76%	12.02%	(8.65%)	15.08%	6.22%
MSCI EM	-	-	9.93%	(7.40%)	10.68%	3.68%
GlobeFlex Emerging Small Cap	92	0.59%	10.14%	(9.65%)	9.63%	3.36%
MSCI EM Small Cap	-	-	7.76%	(12.42%)	5.95%	1.77%
Northern Trust Equity Transition	1	0.01%	(1.60%)	(16.23%)	(8.20%)	(5.00%)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended March 31, 2019

	<b>Last 7 Years</b>	<b>Last 10 Years</b>
<b>Gross Performance- Equity</b>		
<b>Global Public Equity</b> MSCI ACWI IMI	<b>9.14%</b> 8.47%	<b>13.06%</b> 12.27%
<b>Global Mandates</b> Walter Scott & Prtnrs Gbl Gr Eq MSCI World	<b>11.93%</b> 11.94% 9.17%	<b>15.60%</b> 14.34% 12.38%
<b>U.S. Equity</b> Russell 3000 Index	<b>12.00%</b> 12.63%	<b>15.66%</b> 16.00%
<b>U.S. Large/Mid Cap Equity</b> MCM Russell 1000 Index Russell 1000 Index Iridian Asset Mgmt MCV Russell MidCap Index Russell MidCap Value Idx	<b>12.55%</b> 12.78% 12.79% 10.86% 11.99% 11.30%	<b>16.08%</b> - 16.05% 15.82% 16.88% 16.39%
<b>U.S. Small Cap Equity</b> S&P 600 Small Cap Index Russell 2000 Index Russell 2000 Value Index Russell 2000 Growth Index	<b>9.35%</b> 12.12% 10.74% 9.61% 11.79%	<b>13.66%</b> 17.00% 15.36% 14.12% 16.52%
<b>Non-U.S. Equity</b> MSCI ACWI ex US IMI	<b>5.62%</b> 4.90%	<b>9.80%</b> 9.20%
<b>Non-U.S. Developed Markets Equity</b>	<b>6.35%</b>	<b>10.48%</b>
<b>Non-U.S. Dev Large/Mid Cap Equity</b> MSCI World ex US	<b>6.62%</b> 5.28%	<b>10.20%</b> 8.82%
<b>Non-U.S. Dev Small Cap Equity</b> MSCI ACWI ex US Small Cap Harris Assoc Int'l SCV MSCI World ex US Sm Cap	<b>6.24%</b> 6.05% 6.15% 7.04%	<b>12.60%</b> 11.86% 14.41% 12.25%
<b>Emerging Mkts Equity</b> MSCI EM MSCI EM Small Cap	<b>3.43%</b> 2.69% 2.60%	<b>8.05%</b> 8.95% 10.37%
Northern Trust Equity Transition	<b>(3.74%)</b>	-

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Gross Performance - Fixed Income</b>						
<b>Fixed Income</b>	<b>\$4,142</b>	<b>100.00%</b>	<b>3.71%</b>	<b>3.75%</b>	<b>3.79%</b>	<b>2.97%</b>
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%
<b>Core Fixed Income</b>	<b>\$1,882</b>	<b>45.44%</b>	<b>3.49%</b>	<b>4.60%</b>	<b>2.64%</b>	<b>3.02%</b>
MCM Bond Index	1,059	25.58%	2.97%	4.56%	2.01%	2.74%
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%
PIMCO Core Bond Fund	635	15.32%	3.85%	4.78%	2.79%	3.12%
Blmbg Agg ex Treasury	-	-	3.47%	4.65%	2.60%	3.08%
Taplin, Canida & Habacht Corp FI	188	4.54%	5.26%	3.92%	4.51%	3.57%
Blmbg Credit	-	-	4.87%	4.89%	3.48%	3.61%
<b>Core-Plus Fixed Income</b>	<b>\$863</b>	<b>20.83%</b>	<b>5.08%</b>	<b>2.55%</b>	<b>7.73%</b>	<b>3.57%</b>
Brandywine Global Opp	192	4.65%	3.19%	(5.35%)	2.50%	1.96%
FTSE WGBI	-	-	1.74%	(1.57%)	0.95%	0.59%
Pyramis Gbl Adv HY CMBS	324	7.82%	2.97%	6.51%	5.65%	5.76%
Blmbg US Univ CMBS ex Aaa	-	-	4.37%	6.91%	4.78%	3.87%
Stone Harbor Gbl HY	183	4.43%	7.68%	6.56%	7.36%	3.86%
FTSE US High Yield	-	-	7.36%	5.86%	8.63%	4.35%
Stone Harbor EMD	163	3.93%	8.80%	0.13%	6.54%	4.94%
JPM EMBI Global	-	-	6.59%	3.52%	5.20%	4.80%
<b>Global TIPS</b>	<b>\$832</b>	<b>20.10%</b>	<b>3.31%</b>	<b>2.06%</b>	<b>1.92%</b>	<b>2.08%</b>
Brown Brothers TIPS	220	5.32%	3.11%	2.62%	1.76%	2.13%
NISA Inv Adv TIPS	497	11.99%	3.25%	2.74%	1.82%	2.06%
Blmbg US TIPS	-	-	3.19%	2.70%	1.70%	1.94%
New Century Global TIPS	115	2.79%	3.95%	(1.75%)	2.65%	2.11%
Blmbg Wld Gov I-L Undhdg	-	-	3.93%	(1.74%)	2.41%	1.69%
<b>Nominal U.S. Treasuries</b>	<b>\$565</b>	<b>13.64%</b>	<b>2.93%</b>	<b>5.70%</b>	<b>0.65%</b>	<b>2.97%</b>
PIMCO US Treasuries	565	13.64%	2.93%	5.70%	1.00%	3.22%
Blmbg US Treas Bell 10Y	-	-	3.08%	5.60%	0.11%	2.59%

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019		
	Last 7 Years	Last 10 Years
<b>Gross Performance - Fixed Income</b>		
<b>Fixed Income</b>	<b>3.32%</b>	<b>7.08%</b>
Blmbg Aggregate	2.48%	3.77%
<b>Core Fixed Income</b>	<b>3.04%</b>	<b>5.62%</b>
MCM Bond Index	2.40%	3.67%
Blmbg Aggregate	2.48%	3.77%
Blmbg Agg ex Treasury	2.87%	4.36%
Taplin, Canida & Habacht Corp FI	4.08%	7.26%
Blmbg Credit	3.71%	6.22%
Brandywine Global Opp	3.01%	-
FTSE WGBI	0.52%	2.20%
Pyramis Gbl Adv HY CMBS	8.71%	14.22%
Blmbg US Univ CMBS ex Aaa	4.52%	10.55%
Stone Harbor Gbl HY	5.92%	10.07%
FTSE US High Yield	5.93%	10.88%
Stone Harbor EMD	4.69%	9.91%
JPM EMBI Global	4.73%	8.12%
<b>Global TIPS</b>	<b>1.15%</b>	<b>2.74%</b>
Brown Brothers TIPS	1.48%	-
NISA Inv Adv TIPS	0.77%	2.51%
Blmbg US TIPS	1.21%	3.41%
New Century Global TIPS	2.14%	-
Blmbg Wld Gov I-L Undhdg	1.48%	4.02%
<b>Nominal U.S. Treasuries</b>	<b>2.39%</b>	<b>-</b>
PIMCO US Treasuries	2.59%	-
Blmbg US Treas Bell 10Y	2.06%	2.84%

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.



## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019						
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Gross Performance - Multi-Strategy</b>						
<b>Multi-Strategy</b>	<b>\$2,561</b>	<b>100.00%</b>	<b>7.13%</b>	<b>5.69%</b>	-	-
S&P/LSTA Leveraged Loan	-	-	4.00%	2.97%	5.67%	3.62%
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>Credit Focused Strategies</b>	<b>\$911</b>	<b>35.59%</b>	<b>4.45%</b>	<b>4.05%</b>	-	-
Blackstone Keystone(1)	911	35.59%	4.45%	4.05%	6.61%	4.71%
HFRI Fund of Funds Compos	-	-	4.63%	0.16%	3.94%	2.21%
<b>Opp. Equity &amp; Fixed Income</b>	<b>\$1,525</b>	<b>59.56%</b>	<b>9.08%</b>	<b>6.54%</b>	-	-
SEI Str. Credit: HY Bank Loans(2)	332	12.97%	0.04%	4.42%	18.51%	7.77%
FTSE US High Yield	-	-	7.36%	5.86%	8.63%	4.35%
Eaton Vance GMARA	193	7.54%	2.06%	-	-	-
3 month LIBOR + 6%	-	-	2.10%	8.56%	7.62%	7.10%
MCM Russell 3000 Index(3)	1,000	39.04%	14.03%	8.78%	-	-
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%
<b>Private Credit(4)</b>	<b>\$124</b>	<b>4.85%</b>	<b>2.64%</b>	<b>13.00%</b>	-	-

(1) Blackstone Keystone since inception returns are included in the Legacy Hedge Fund composite through 9/30/2017.

(2) SEI HY Bank Loans since inception returns are included in the Fixed Income composite through 9/30/2017.

(3) Russell 3000 Index since inception returns are included in the Global Public Equity composite through 9/30/2017.

(4) Private Debt performance is shown Net of Fees with a 1 Qtr lag.



# Global Public Equity Period Ended March 31, 2019

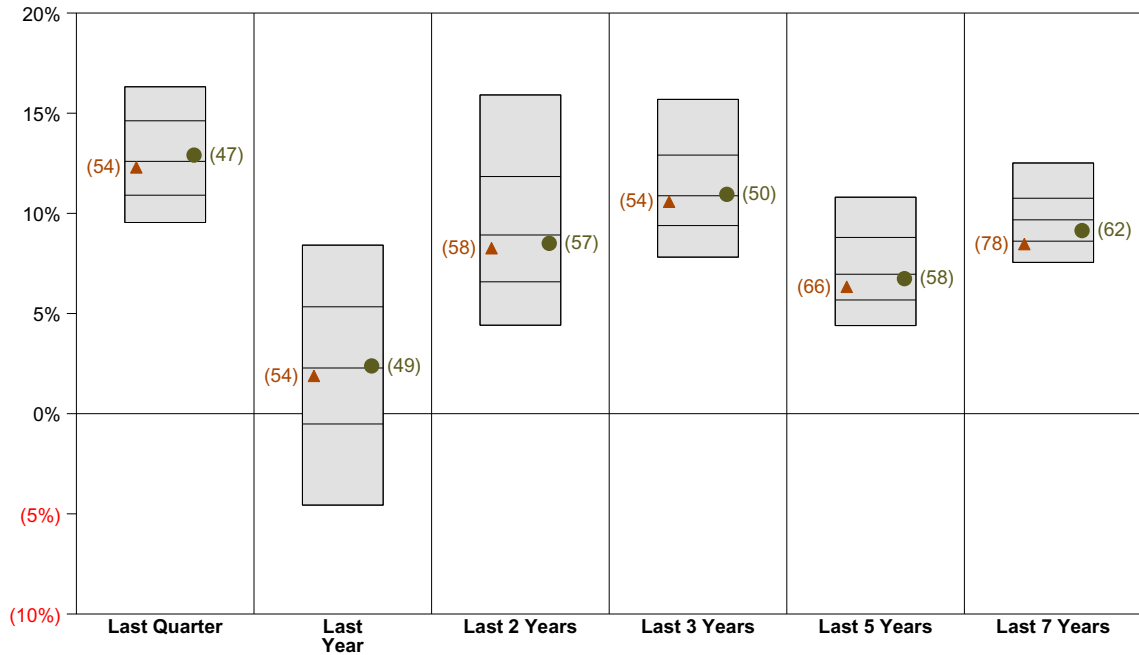
## Quarterly Summary and Highlights

- Global Public Equity's portfolio posted a 12.91% return for the quarter placing it in the 47 percentile of the Callan Global Equity group for the quarter and in the 49 percentile for the last year.
- Global Public Equity's portfolio outperformed the MSCI ACWI IMI by 0.61% for the quarter and outperformed the MSCI ACWI IMI for the year by 0.49%.

## Quarterly Asset Growth

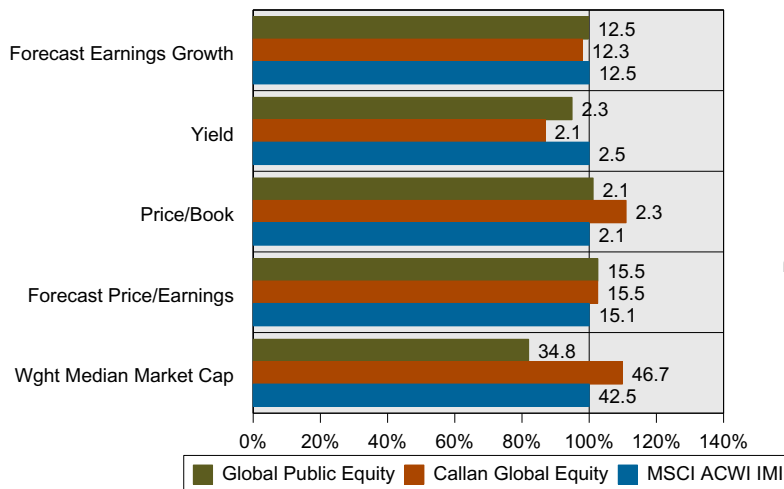
Beginning Market Value	\$13,894,463,238
Net New Investment	\$-2,044,372
Investment Gains/(Losses)	\$1,793,633,585
Ending Market Value	\$15,686,052,451

## Performance vs Callan Global Equity (Gross)

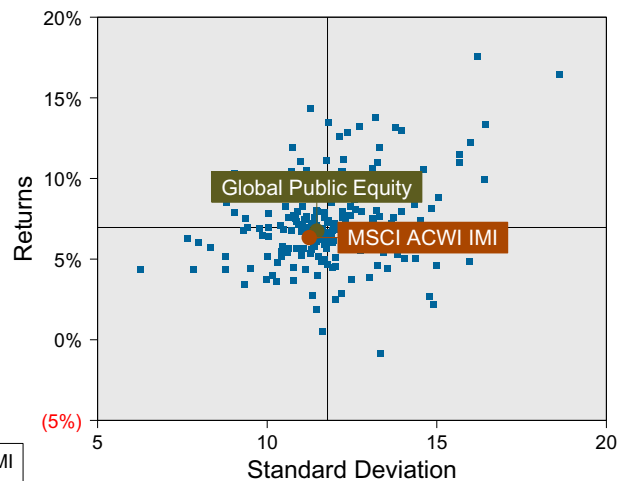


		Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years
10th Percentile		16.32	8.41	15.91	15.69	10.81	12.51
25th Percentile		14.62	5.34	11.84	12.91	8.80	10.76
Median		12.60	2.28	8.92	10.88	6.96	9.68
75th Percentile		10.91	(0.51)	6.58	9.39	5.68	8.61
90th Percentile		9.54	(4.56)	4.42	7.81	4.40	7.55
<b>Global Public Equity</b>	●	12.91	2.38	8.50	10.95	6.74	9.14
<b>MSCI ACWI IMI</b>	▲	12.29	1.89	8.26	10.58	6.33	8.47

## Portfolio Characteristics as a Percentage of the MSCI ACWI IMI



## Callan Global Equity (Gross) Annualized Five Year Risk vs Return

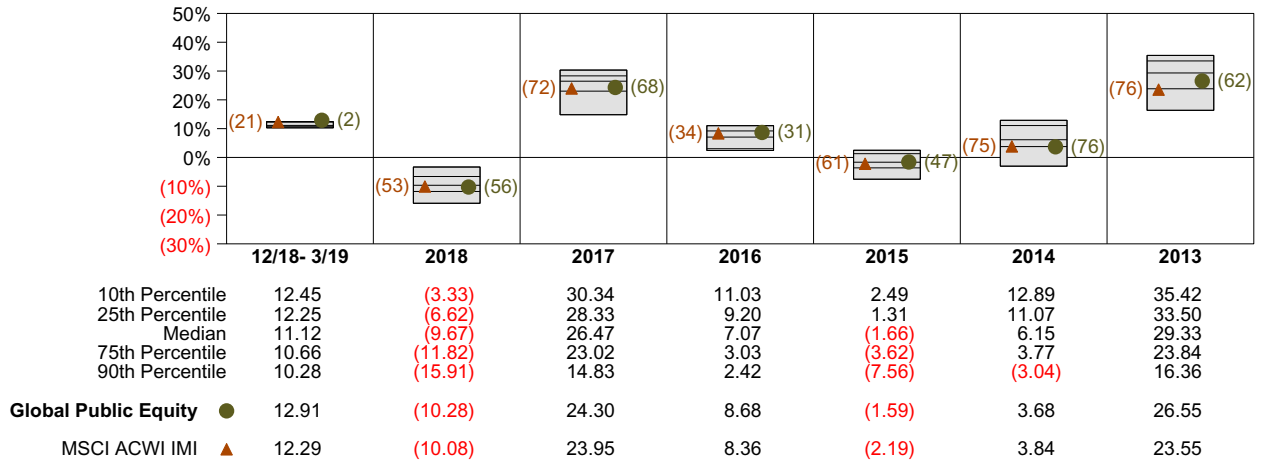


# Global Public Equity Return Analysis Summary

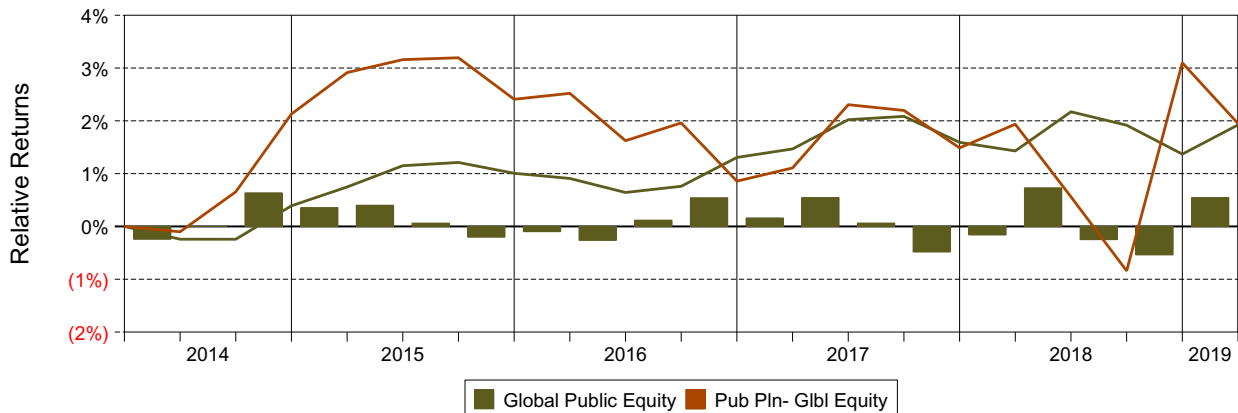
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

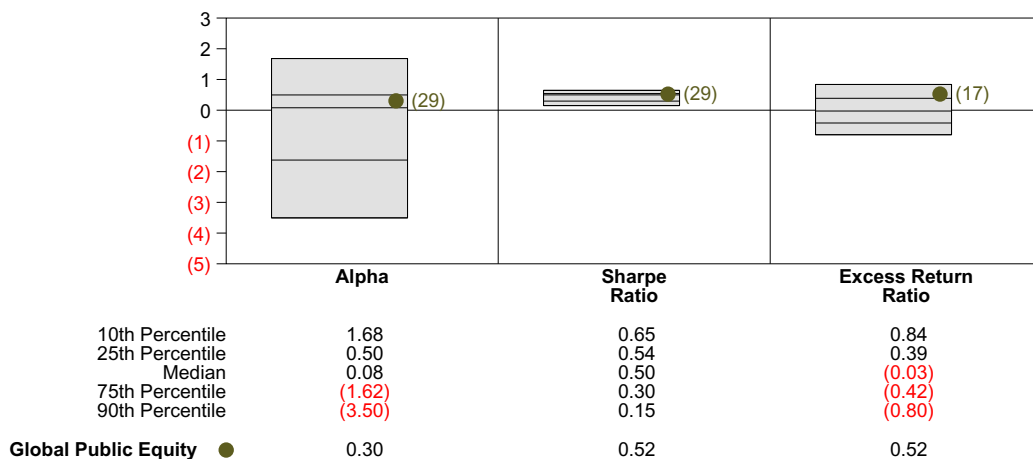
### Performance vs Public Fund - Global Equity (Gross)



### Cumulative and Quarterly Relative Return vs MSCI ACWI IMI



### Risk Adjusted Return Measures vs MSCI ACWI IMI Rankings Against Public Fund - Global Equity (Gross) Five Years Ended March 31, 2019

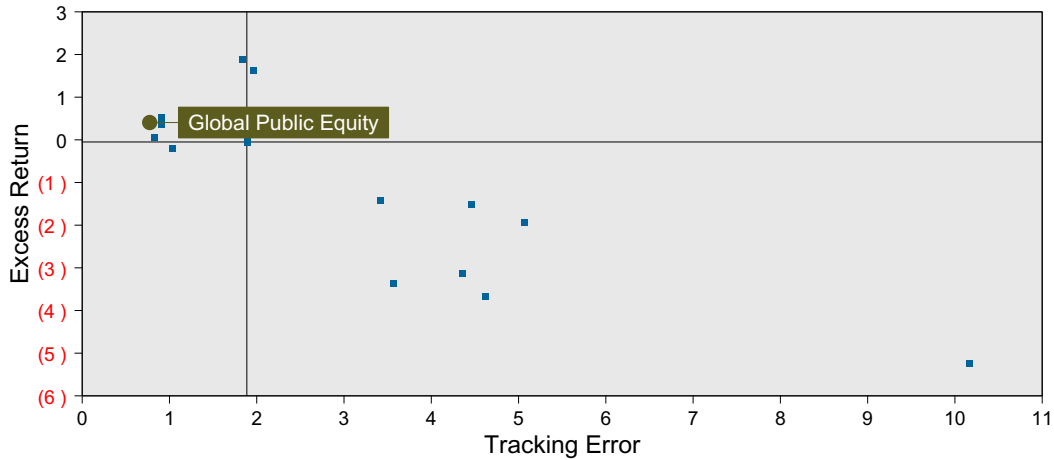


# Global Public Equity Risk Analysis Summary

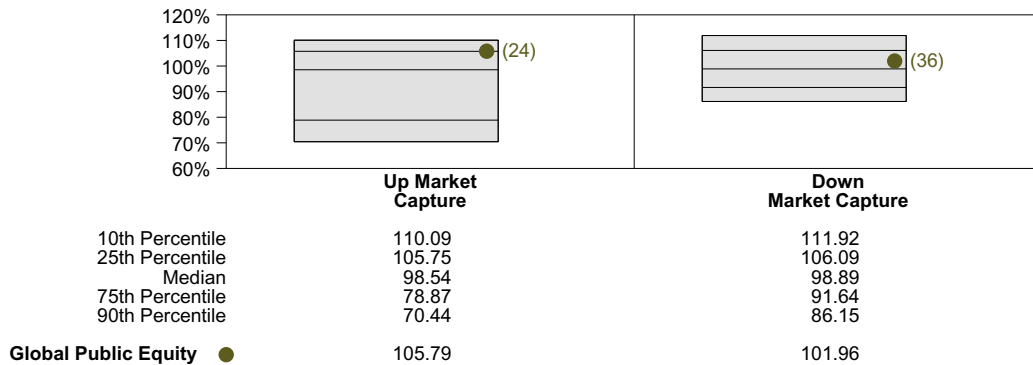
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

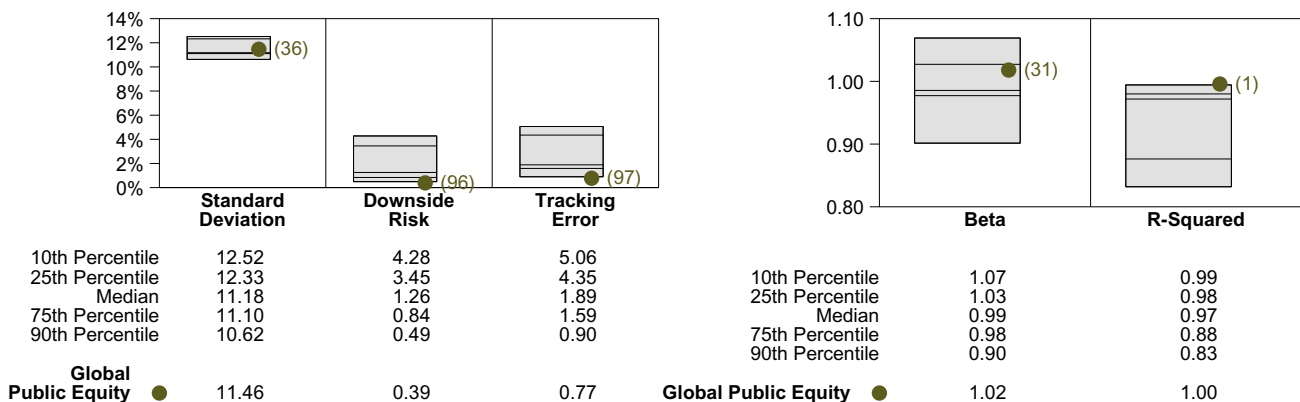
### Risk Analysis vs Public Fund - Global Equity (Gross) Five Years Ended March 31, 2019



### Market Capture vs MSCI ACWI IMI Index (USD Net Div) Rankings Against Public Fund - Global Equity (Gross) Five Years Ended March 31, 2019



### Risk Statistics Rankings vs MSCI ACWI IMI Index (USD Net Div) Rankings Against Public Fund - Global Equity (Gross) Five Years Ended March 31, 2019



# Global Public Equity Drawdown Analysis for Five Years Ended March 31, 2019

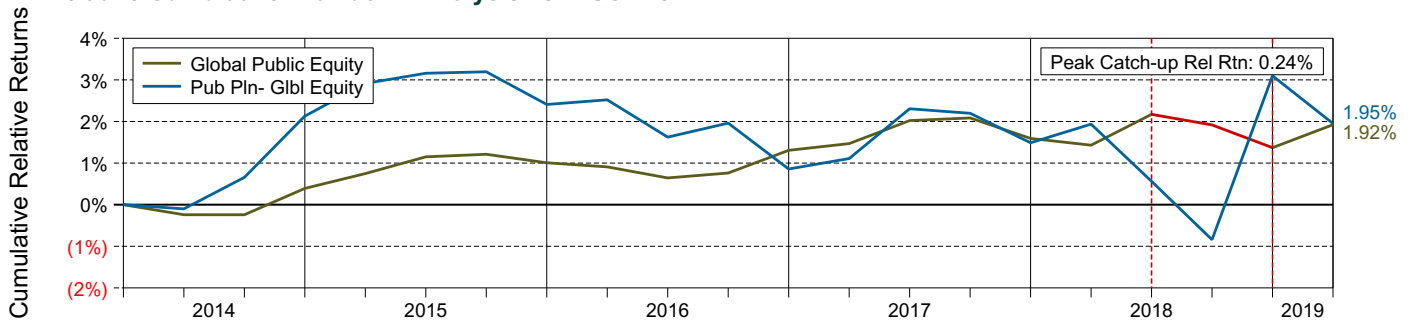
The following analysis focuses on downside risk by looking at cumulative drawdowns experienced from peak-to-trough for the portfolio, index, and peer group. Drawdown is measured from the "high-water mark" of cumulative return to the subsequent "trough". The first chart illustrates the Worst Absolute Drawdown as well as the Current Drawdown (cumulative return from high-water mark to now). The second chart focuses on Relative Drawdown (negative excess return vs. index). The bottom charts highlight the portfolio's peer rankings during drawdown periods.

## Absolute Cumulative Drawdown Analysis



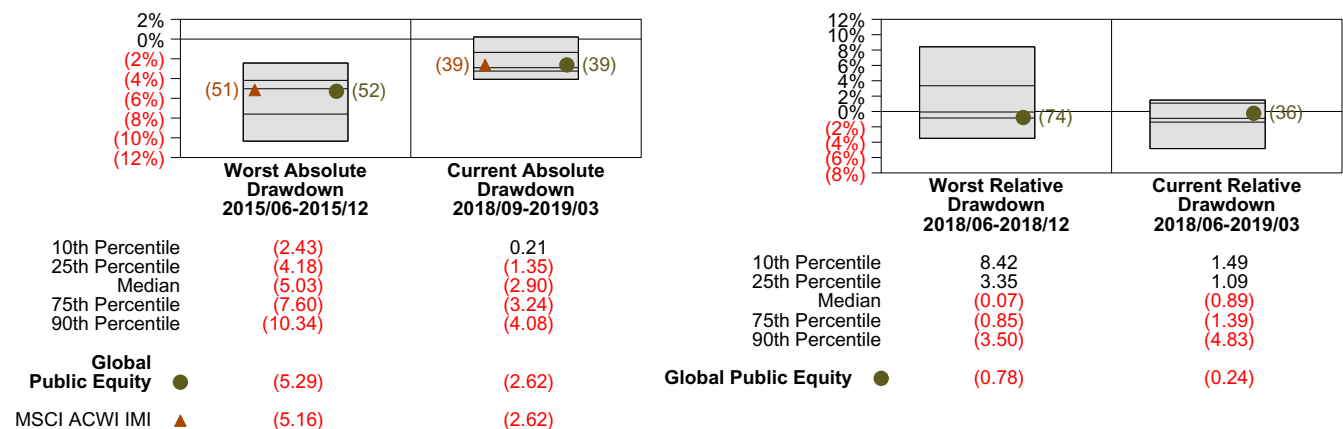
	Worst Absolute Drawdown					Current Absolute Drawdown				
	Return	Years	Period	Index	Peers	Return	Years	Period	Index	Peers
Global Public Equity	(5.29)%	0.50	2015/06-2015/12	(5.16)%	(5.85)%	(2.62)%	0.50	2018/09-2019/03	(2.62)%	0.12%
Recovery from Trough	6.74%	0.75	2015/12-2016/09	7.00%	6.53%	12.91%	0.25+	2018/12-2019/03	12.29%	11.04%
MSCI ACWI IMI	(5.16)%	0.50	2015/06-2015/12			(2.62)%	0.50	2018/09-2019/03		
Pub Pln- Gbl Equity	(9.84)%	0.25	2018/09-2018/12			-	-	-		

## Relative Cumulative Drawdown Analysis vs. MSCI ACWI IMI



	Worst Relative Drawdown				Current Relative Drawdown			
	Rel Rtn	Years	Period	Peers	Rel Rtn	Years	Period	Peers
Global Public Equity	(0.78)%	0.50	2018/06-2018/12	2.52%	(0.24)%	0.75	2018/06-2019/03	1.38%
Recovery from Trough	0.54%	0.25+	2018/12-2019/03	(1.11)%	0.54%	0.25+	2018/12-2019/03	(1.11)%
Pub Pln- Gbl Equity	(3.91)%	3.00	2015/09-2018/09		(1.21)%	3.50	2015/09-2019/03	

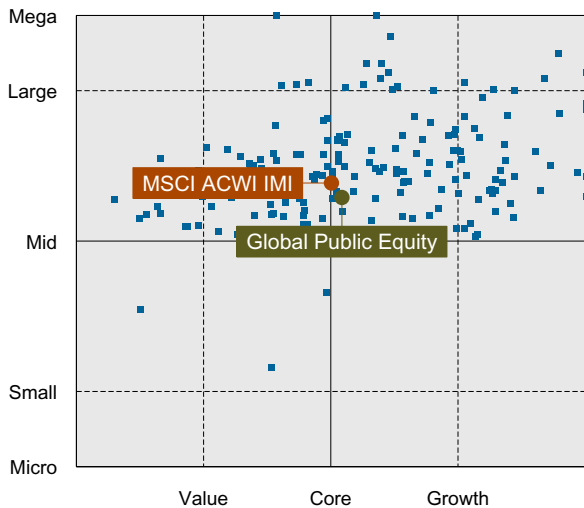
## Drawdown Rankings vs. MSCI ACWI IMI Rankings against Public Fund - Global Equity Five Years Ended March 31, 2019



# Current Holdings Based Style Analysis Global Public Equity As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

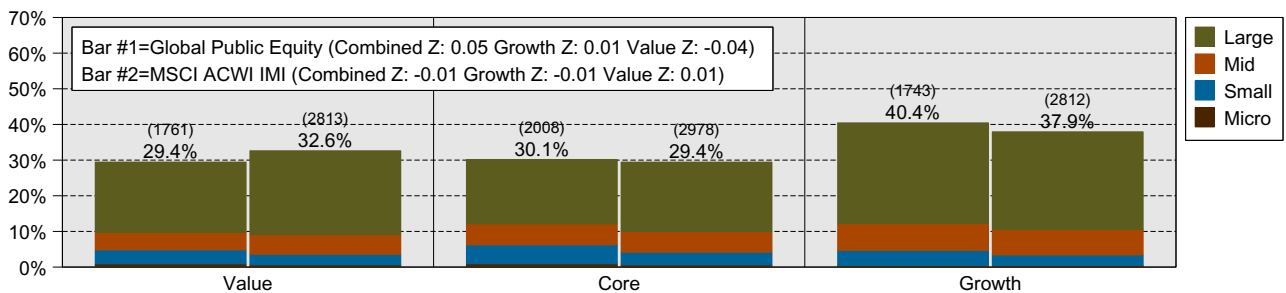
**Style Map vs Callan Global Equity Holdings as of March 31, 2019**



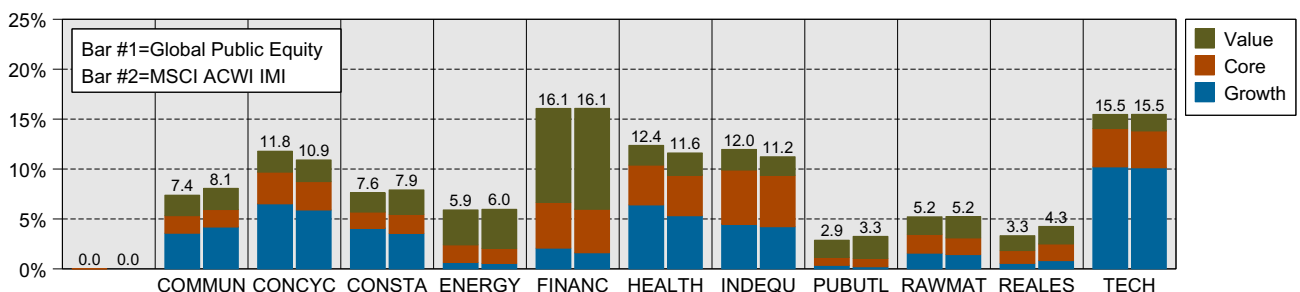
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	19.7% (291)	18.0% (274)	28.2% (295)	65.9% (860)
	23.5% (293)	19.5% (269)	27.4% (298)	70.4% (860)
Mid	4.9% (454)	5.9% (512)	7.6% (597)	18.4% (1563)
	5.5% (485)	5.8% (559)	7.1% (677)	18.5% (1721)
Small	3.9% (562)	5.3% (667)	4.2% (560)	13.5% (1789)
	3.0% (1074)	3.6% (1260)	2.9% (1107)	9.4% (3441)
Micro	0.9% (454)	0.9% (555)	0.4% (291)	2.2% (1300)
	0.6% (961)	0.6% (890)	0.5% (730)	1.7% (2581)
Total	29.4% (1761)	30.1% (2008)	40.4% (1743)	100.0% (5512)
	32.6% (2813)	29.4% (2978)	37.9% (2812)	100.0% (8603)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

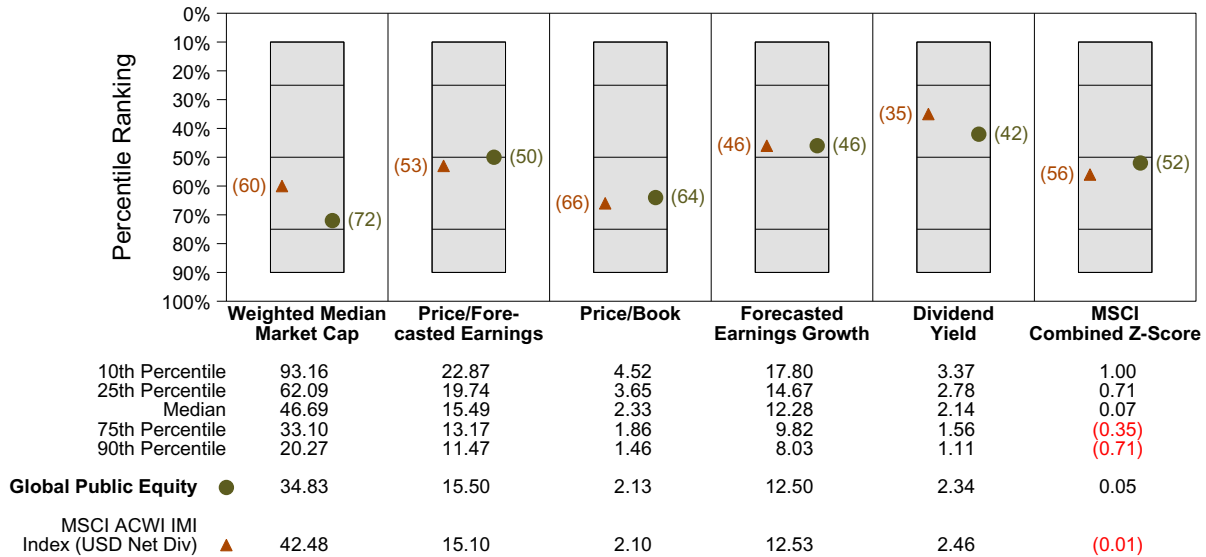


# Global Public Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

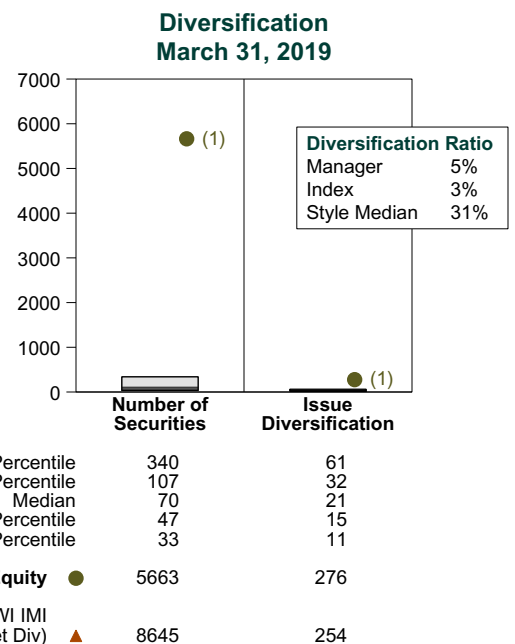
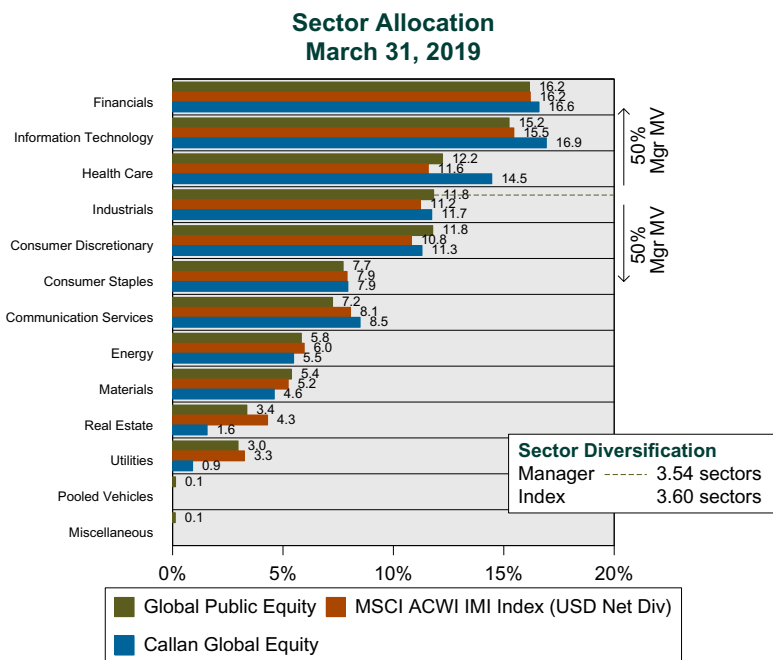
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Global Equity as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.

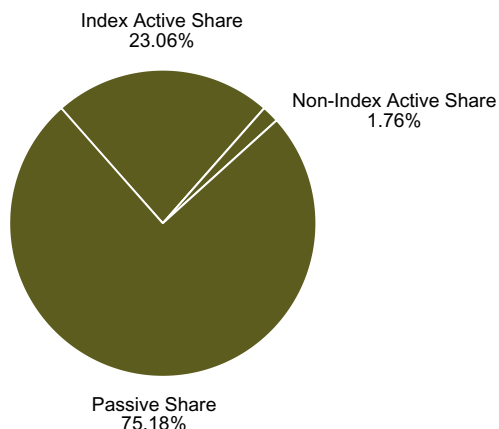




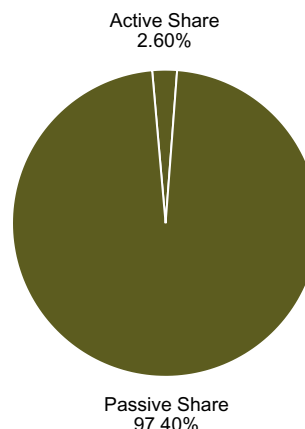
## Global Public Equity Active Share Analysis as of March 31, 2019 vs. MSCI ACWI IMI Index (USD Net Div)

Active Share analysis compares the holdings of a portfolio to an index to measure how aggressively it differs from the index. Active share is measured at the individual stock level ("holdings-level active share") and using sector weights ("sector exposure active share"). Holdings-level active share comes from: 1) Index Active Share - over/under weighting of stocks in the index, and 2) Non-Index Active Share - positions in stocks not in the index. This analysis displays active share by sector and compares the portfolio to a relevant peer group.

### Holdings-Level Active Share



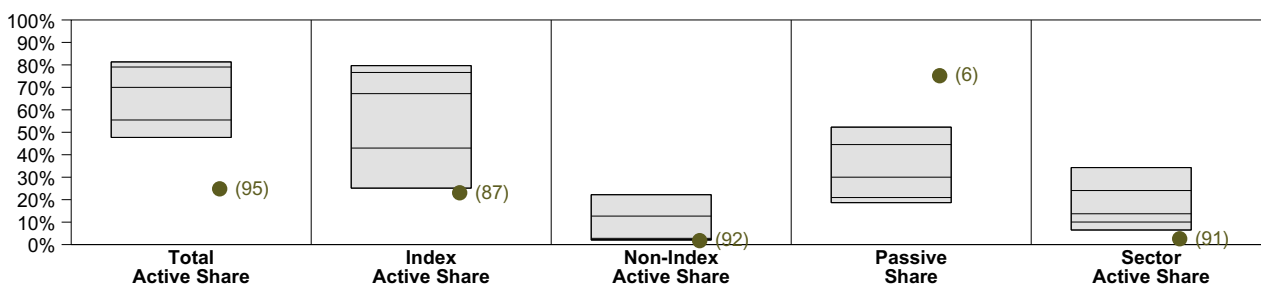
### Sector Exposure Active Share



**Total Active Share: 24.82%**

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	19.00%	1.26%	20.27%	8.06%	7.24%	1.68%
Consumer Discretionary	26.54%	1.45%	27.99%	10.82%	11.78%	3.12%
Consumer Staples	21.20%	2.00%	23.20%	7.90%	7.72%	1.80%
Energy	17.70%	1.72%	19.41%	5.96%	5.83%	1.14%
Financials	20.31%	2.47%	22.77%	16.20%	16.16%	3.69%
Health Care	24.26%	0.71%	24.96%	11.58%	12.22%	2.92%
Industrials	27.77%	1.66%	29.44%	11.23%	11.82%	3.37%
Information Technology	21.77%	0.76%	22.54%	15.45%	15.24%	3.47%
Materials	26.78%	2.75%	29.54%	5.24%	5.38%	1.58%
Miscellaneous	0.00%	100.00%	100.00%	-	0.12%	0.05%
Pooled Vehicles	0.00%	100.00%	100.00%	-	0.13%	0.07%
Real Estate	25.30%	2.38%	27.68%	4.30%	3.36%	1.13%
Utilities	22.02%	2.83%	24.85%	3.26%	2.96%	0.78%
<b>Total</b>	<b>23.06%</b>	<b>1.76%</b>	<b>24.82%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>24.81%</b>

### Active Share vs. Pub Pln- Gbl Equity



	Total Active Share	Index Active Share	Non-Index Active Share	Passive Share	Sector Active Share
10th Percentile	81.33	79.66	22.21	52.29	34.29
25th Percentile	79.05	76.63	12.68	44.53	24.07
Median	69.99	67.20	2.79	30.01	13.72
75th Percentile	55.47	42.97	2.23	20.95	10.04
90th Percentile	47.71	25.13	2.04	18.67	6.50

Global Public Equity ●

24.82	23.06	1.76	75.18	2.60
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# Walter Scott & Prtnrs Gbl Gr Eq Period Ended March 31, 2019

## Investment Philosophy

Walter Scott believes that the objective for all long term investors is to maintain and enhance the real after inflation purchasing power of their assets. This is most likely to be achieved by investing in companies with high rates of internal wealth generation which in time translates into total return for the investor. Thus, the firm's research efforts are directed towards identifying companies that meet its investment criteria. Their research process combines historic and forecasted financial analysis with business and management analysis at the company level.

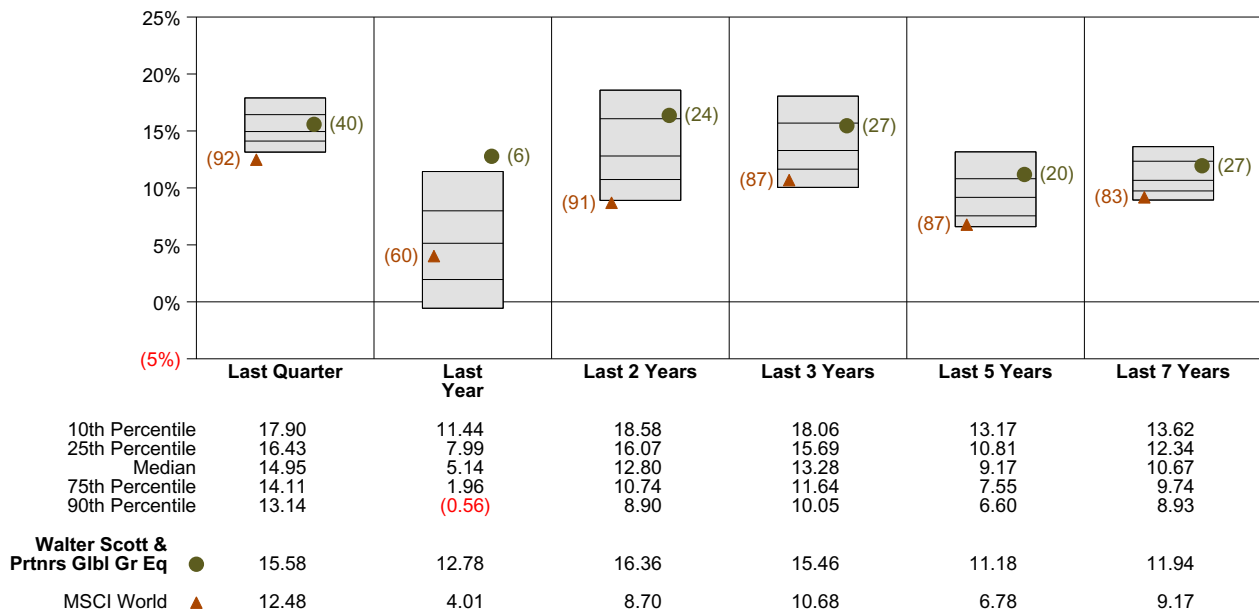
## Quarterly Summary and Highlights

- Walter Scott & Prtnrs Gbl Gr Eq's portfolio posted a 15.58% return for the quarter placing it in the 40 percentile of the Callan Global Broad Growth Equity group for the quarter and in the 6 percentile for the last year.
- Walter Scott & Prtnrs Gbl Gr Eq's portfolio outperformed the MSCI World by 3.10% for the quarter and outperformed the MSCI World for the year by 8.76%.

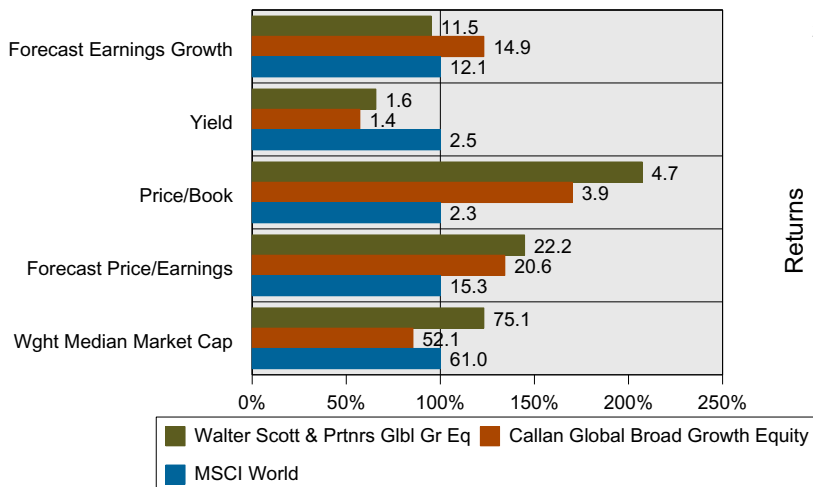
## Quarterly Asset Growth

Beginning Market Value	\$865,923,869
Net New Investment	\$-879,472
Investment Gains/(Losses)	\$134,904,928
Ending Market Value	\$999,949,325

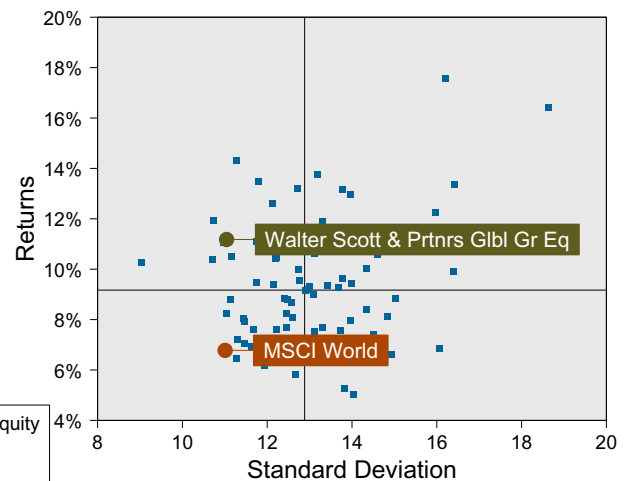
## Performance vs Callan Global Broad Growth Equity (Gross)



## Portfolio Characteristics as a Percentage of the MSCI World



## Callan Global Broad Growth Equity (Gross) Annualized Five Year Risk vs Return

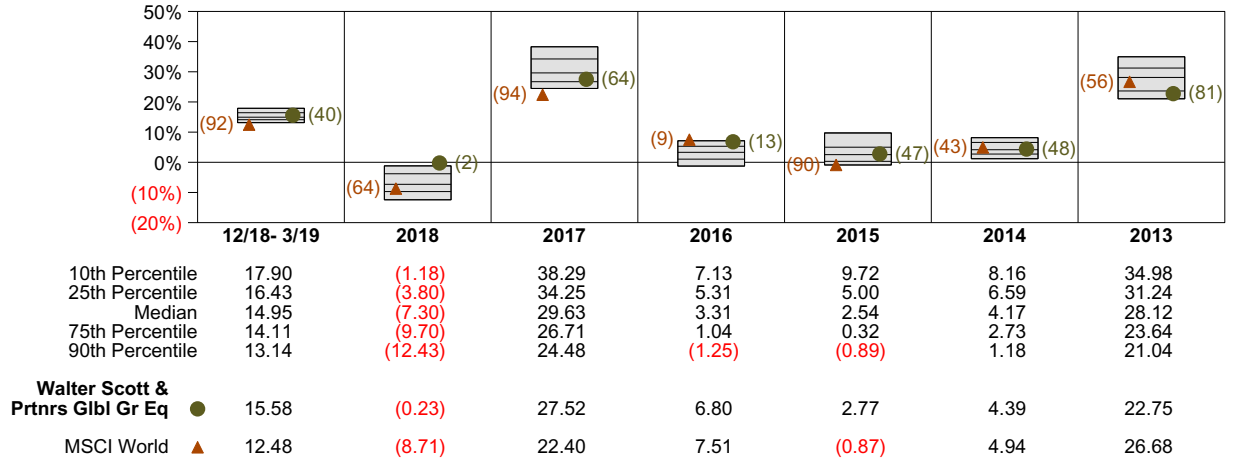


# Walter Scott & Prtnrs Gbl Gr Eq Return Analysis Summary

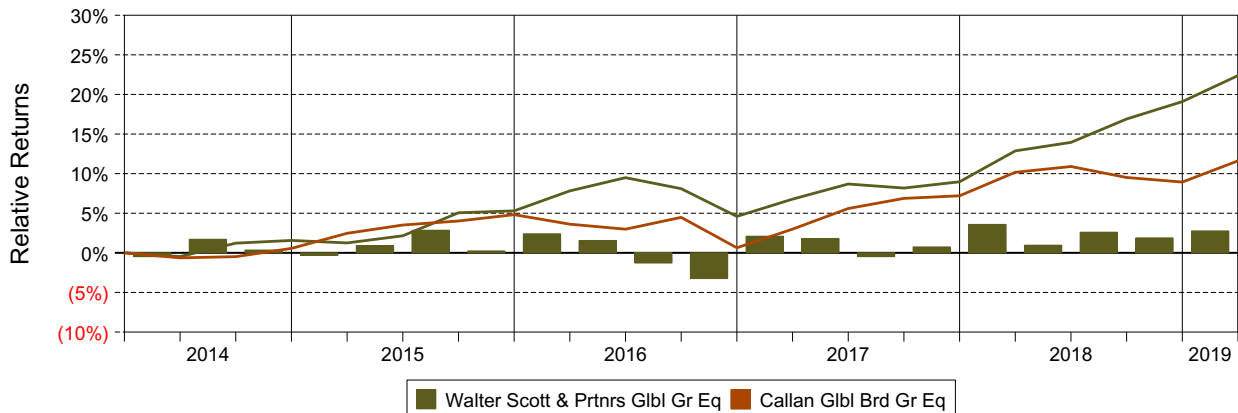
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

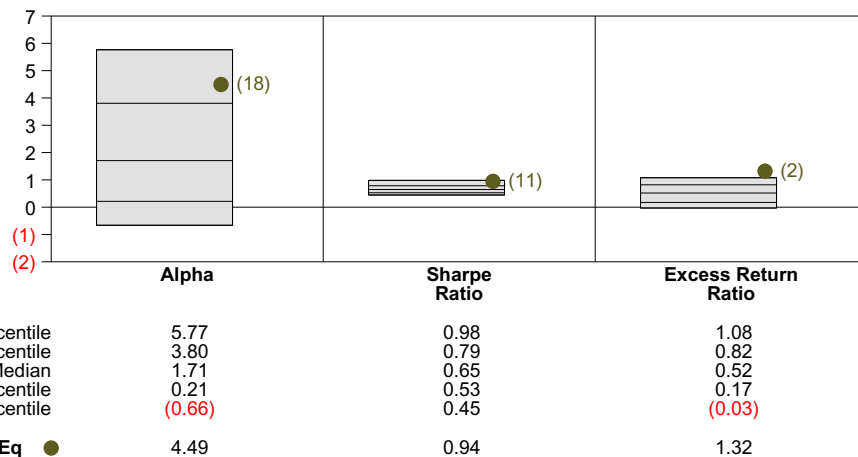
### Performance vs Callan Global Broad Growth Equity (Gross)



### Cumulative and Quarterly Relative Return vs MSCI World



### Risk Adjusted Return Measures vs MSCI World Rankings Against Callan Global Broad Growth Equity (Gross) Five Years Ended March 31, 2019

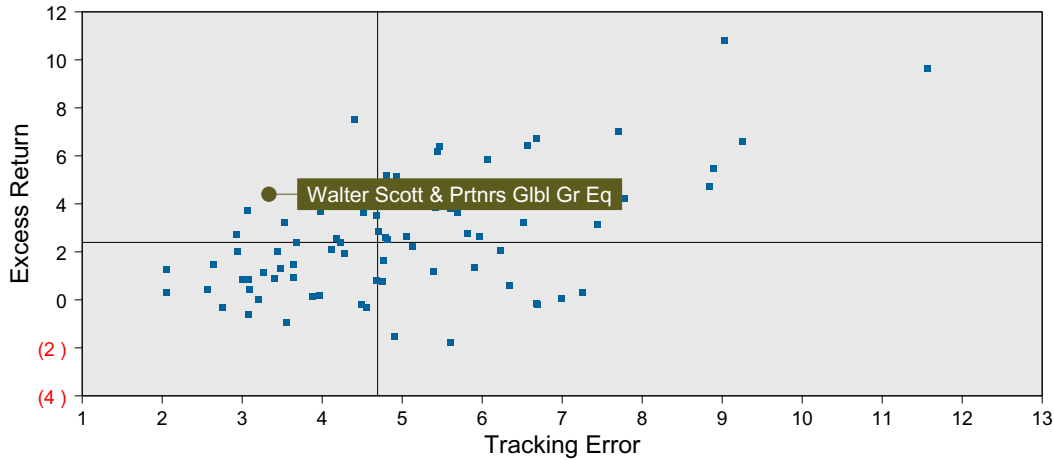


# Walter Scott & Prtnrs Gbl Gr Eq Risk Analysis Summary

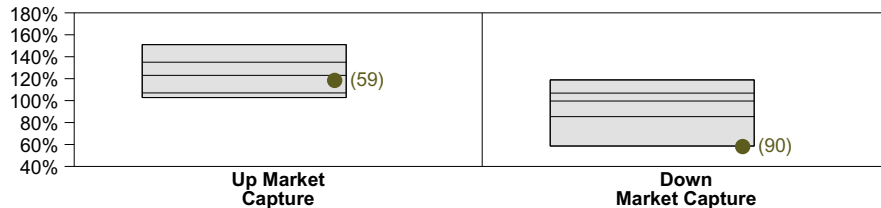
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

### Risk Analysis vs Callan Global Broad Growth Equity (Gross) Five Years Ended March 31, 2019



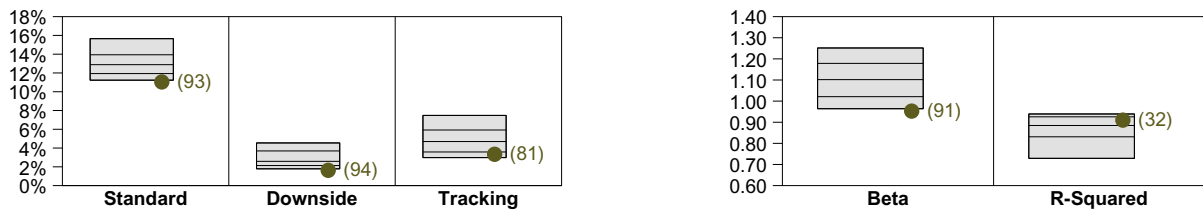
### Market Capture vs MSCI World Index (USD Net Div) Rankings Against Callan Global Broad Growth Equity (Gross) Five Years Ended March 31, 2019



	<b>Up Market Capture</b>	<b>Down Market Capture</b>
10th Percentile	151.04	118.86
25th Percentile	135.01	106.84
Median	123.01	99.62
75th Percentile	107.01	85.41
90th Percentile	102.77	58.59

Walter Scott & Prtnrs Gbl Gr Eq ● 118.40 58.10

### Risk Statistics Rankings vs MSCI World Index (USD Net Div) Rankings Against Callan Global Broad Growth Equity (Gross) Five Years Ended March 31, 2019



	<b>Standard Deviation</b>	<b>Downside Risk</b>	<b>Tracking Error</b>	<b>Beta</b>	<b>R-Squared</b>
10th Percentile	15.65	4.54	7.48	1.25	0.94
25th Percentile	13.94	3.69	5.92	1.18	0.93
Median	12.88	2.59	4.69	1.10	0.88
75th Percentile	11.94	2.14	3.58	1.02	0.83
90th Percentile	11.23	1.79	2.98	0.96	0.73

Walter Scott & Prtnrs Gbl Gr Eq ● 11.04 1.63 3.33 ● 0.95 0.91

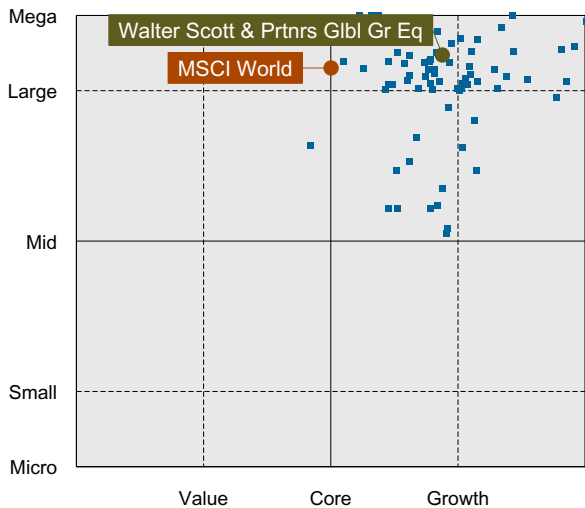
# Current Holdings Based Style Analysis

## Walter Scott & Prtnrs Gbl Gr Eq

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left chart illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

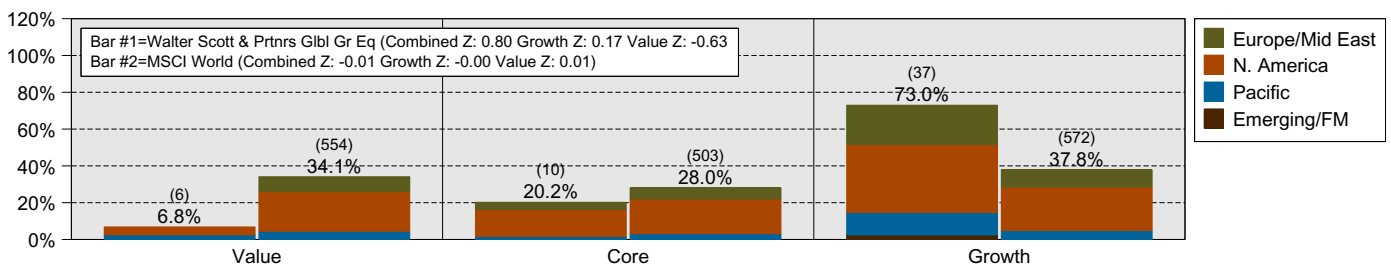
**Style Map vs Callan Gbl Brd Gr Eq Holdings as of March 31, 2019**



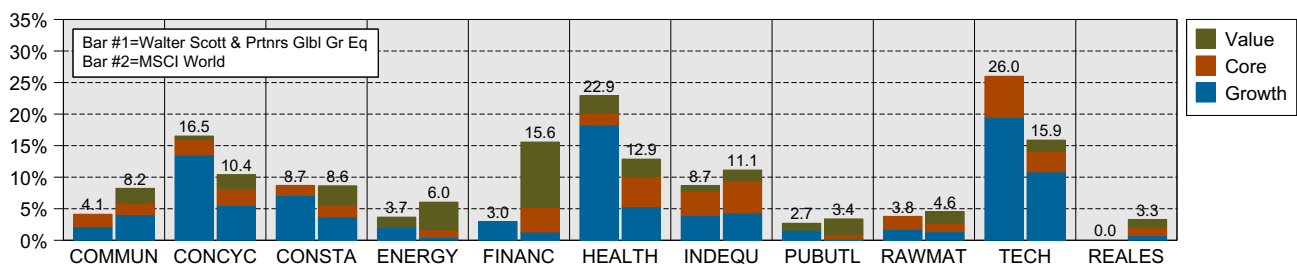
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Europe/Mid East	0.0% (0)	3.9% (2)	21.2% (13)	25.1% (15)
N. America	8.1% (152)	6.0% (126)	9.3% (186)	23.4% (464)
Pacific	4.3% (3)	14.7% (7)	37.0% (17)	56.1% (27)
Emerging/FM	21.5% (250)	18.9% (243)	23.5% (197)	63.9% (690)
Total	2.5% (3)	1.6% (1)	12.3% (6)	16.4% (10)
	4.5% (152)	3.1% (132)	5.0% (187)	12.6% (471)
	0.0% (0)	0.0% (0)	2.5% (1)	2.5% (1)
	0.0% (0)	0.0% (2)	0.1% (2)	0.1% (4)
<b>Total</b>	<b>6.8% (6)</b>	<b>20.2% (10)</b>	<b>73.0% (37)</b>	<b>100.0% (53)</b>
	<b>34.1% (554)</b>	<b>28.0% (503)</b>	<b>37.8% (572)</b>	<b>100.0% (1629)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

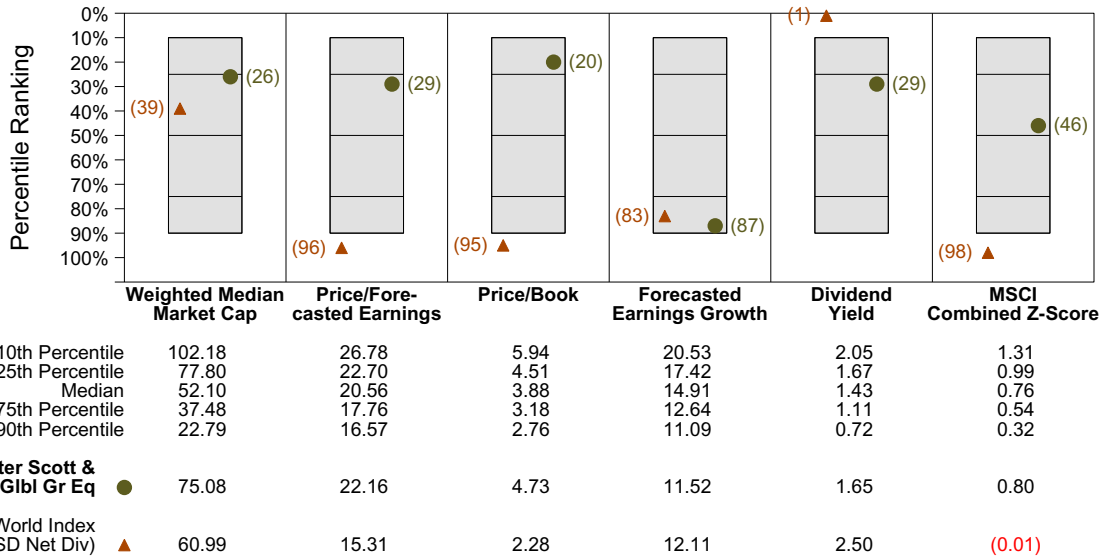


# Walter Scott & Prtnrs Gbl Gr Eq Equity Characteristics Analysis Summary

## Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

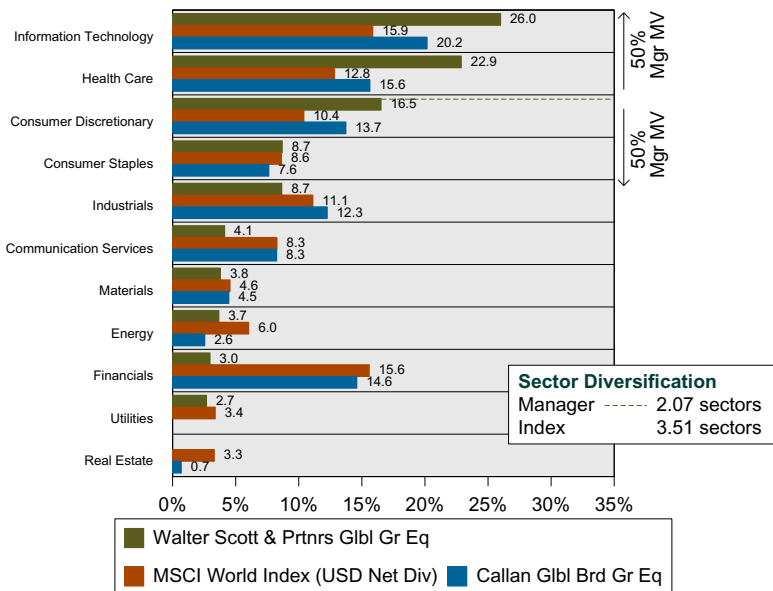
## Portfolio Characteristics Percentile Rankings Rankings Against Callan Global Broad Growth Equity as of March 31, 2019



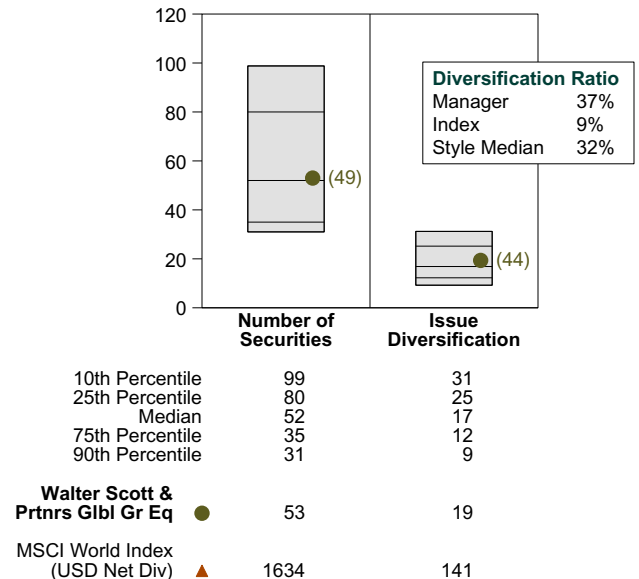
## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.

### Sector Allocation March 31, 2019



### Diversification March 31, 2019





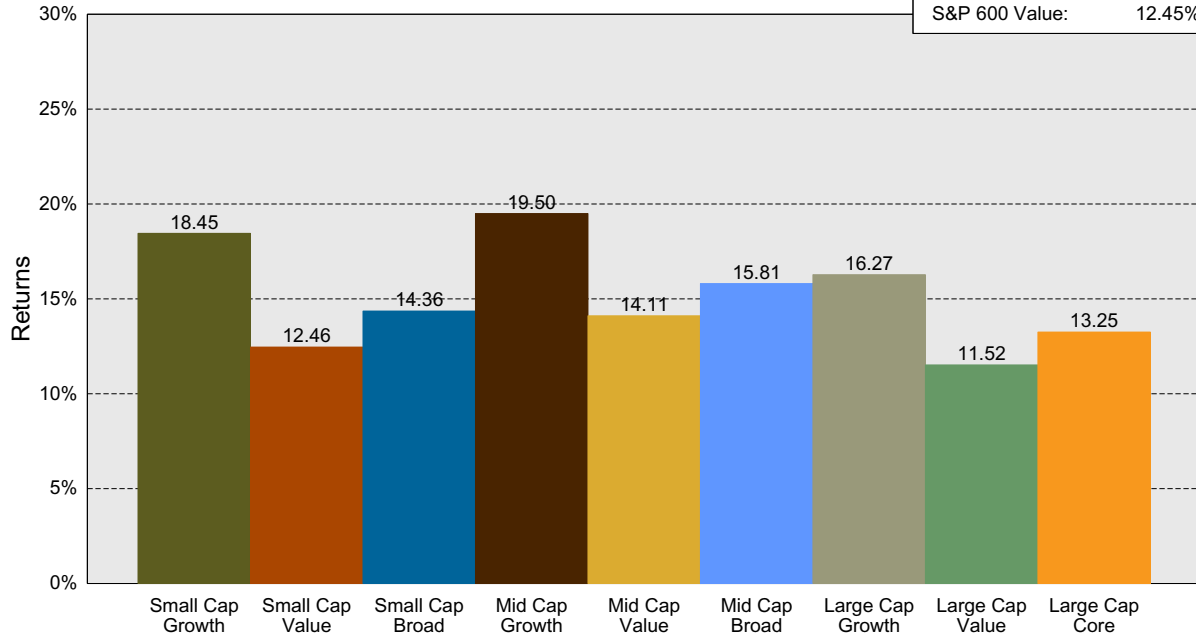


## Domestic Equity Active Management Overview

U.S. equity markets had no problem erasing the pain of the fourth quarter as the S&P 500 rose 13.7% with double-digit gains across cap and style spectrums. On a relative basis, Growth outperformed Value (R1000 Growth: +16.1% vs. R1000 Value: +11.9%), Small Cap outperformed Large Cap (R2000: +14.6% vs. R1000: +14.0%), and virtually all sectors delivered double-digit results with the exceptions being Financials (+8.6%) and Health Care (+6.6%). Volatility returned to more normalized levels, with just a few trading days seeing market movement of more than 2% in either direction (versus nearly 20% in the fourth quarter.)

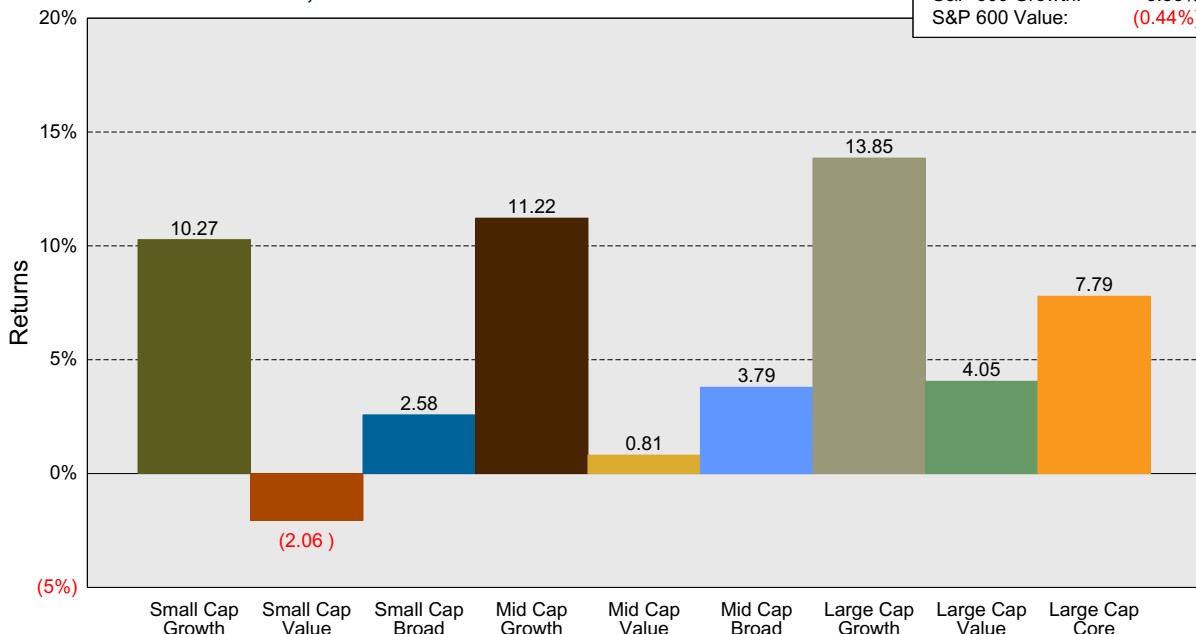
S&P 500:	13.65%
S&P 500 Growth:	14.95%
S&P 500 Value:	12.19%
S&P Mid Cap:	14.49%
S&P 600:	11.61%
S&P 600 Growth:	10.84%
S&P 600 Value:	12.45%

### Separate Account Style Group Median Returns for Quarter Ended March 31, 2019



S&P 500:	9.50%
S&P 500 Growth:	12.77%
S&P 500 Value:	5.93%
S&P Mid Cap:	2.59%
S&P 600:	1.57%
S&P 600 Growth:	3.83%
S&P 600 Value:	(0.44%)

### Separate Account Style Group Median Returns for One Year Ended March 31, 2019



S&P 500:	9.50%
S&P 500 Growth:	12.77%
S&P 500 Value:	5.93%
S&P Mid Cap:	2.59%
S&P 600:	1.57%
S&P 600 Growth:	3.83%
S&P 600 Value:	(0.44%)

# U.S. Equity Period Ended March 31, 2019

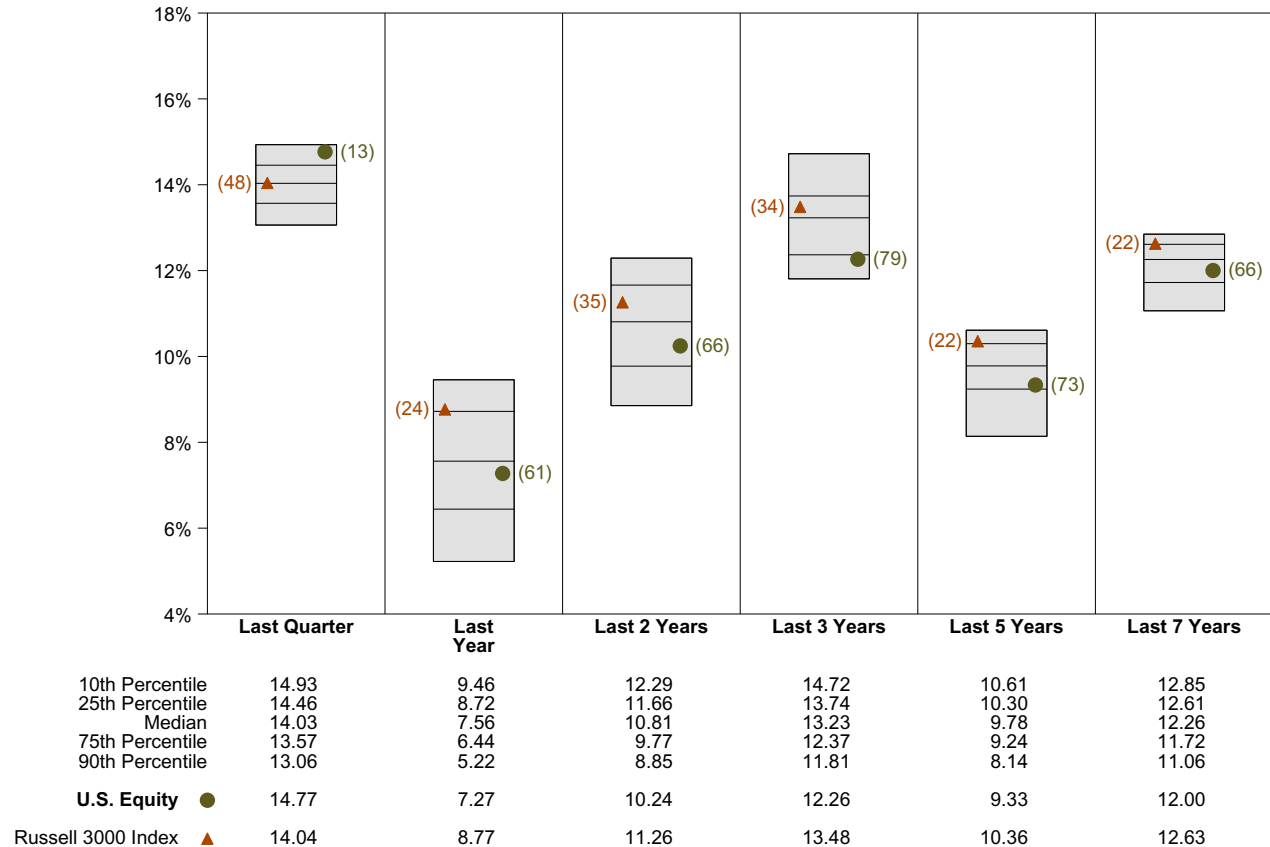
## Quarterly Summary and Highlights

- U.S. Equity's portfolio posted a 14.77% return for the quarter placing it in the 13 percentile of the Public Fund - Domestic Equity group for the quarter and in the 61 percentile for the last year.
- U.S. Equity's portfolio outperformed the Russell 3000 Index by 0.72% for the quarter and underperformed the Russell 3000 Index for the year by 1.49%.

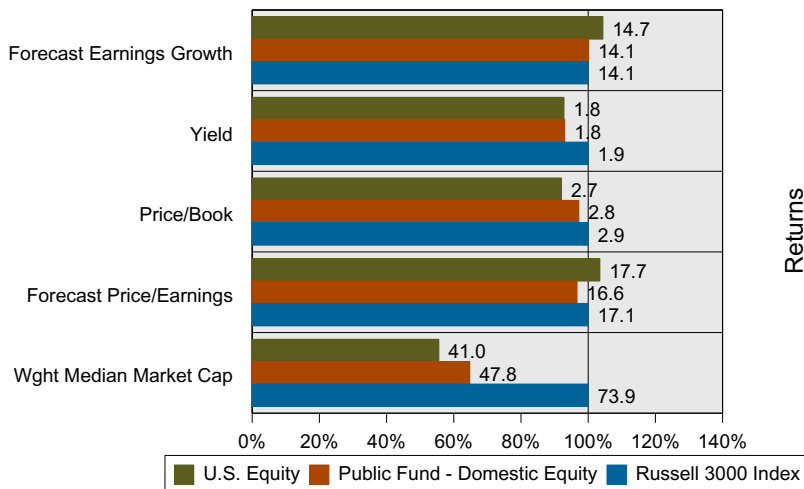
## Quarterly Asset Growth

Beginning Market Value	\$6,526,596,773
Net New Investment	\$-865,296
Investment Gains/(Losses)	\$963,717,406
Ending Market Value	\$7,489,448,883

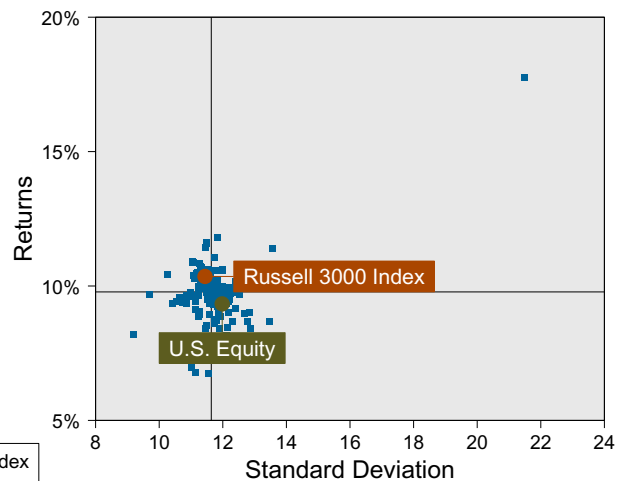
## Performance vs Public Fund - Domestic Equity (Gross)



## Portfolio Characteristics as a Percentage of the Russell 3000 Index



## Public Fund - Domestic Equity (Gross) Annualized Five Year Risk vs Return

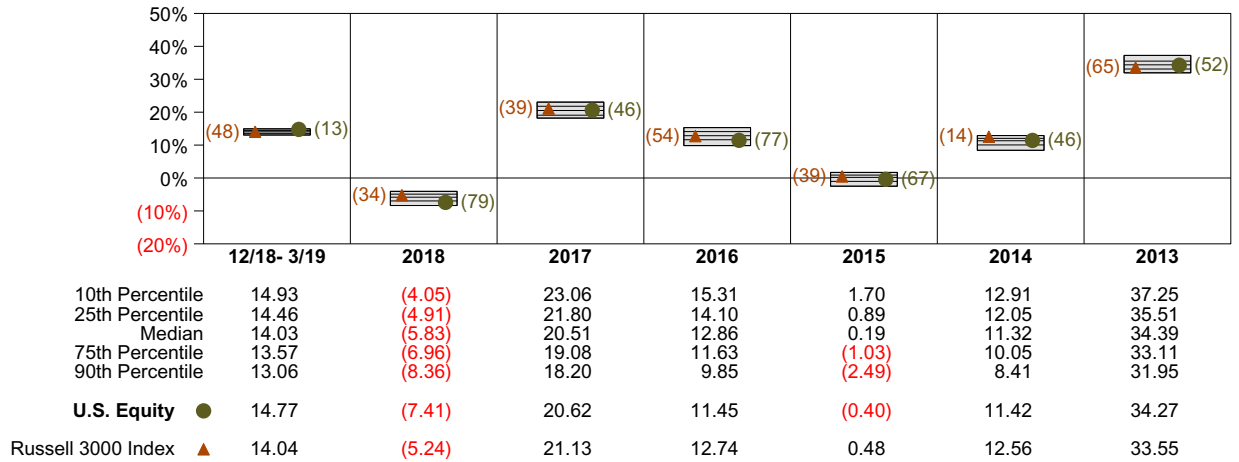


# U.S. Equity Return Analysis Summary

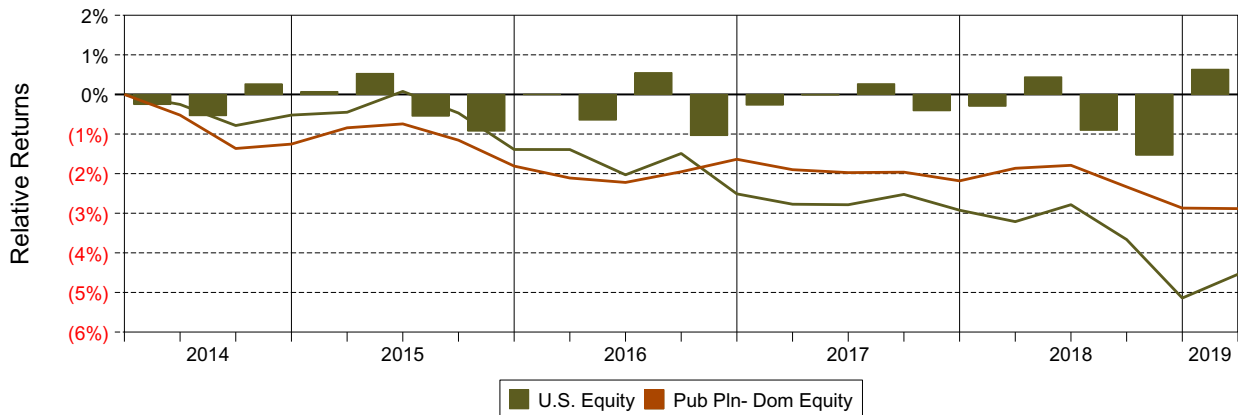
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

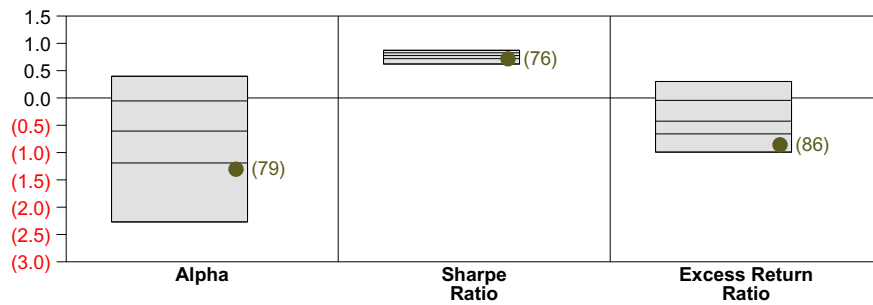
### Performance vs Public Fund - Domestic Equity (Gross)



### Cumulative and Quarterly Relative Return vs Russell 3000 Index



### Risk Adjusted Return Measures vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended March 31, 2019

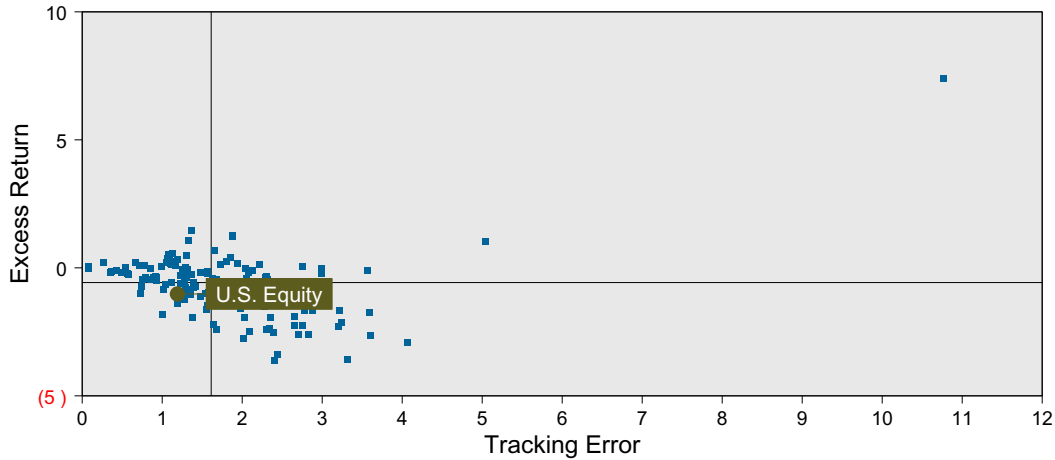


# U.S. Equity Risk Analysis Summary

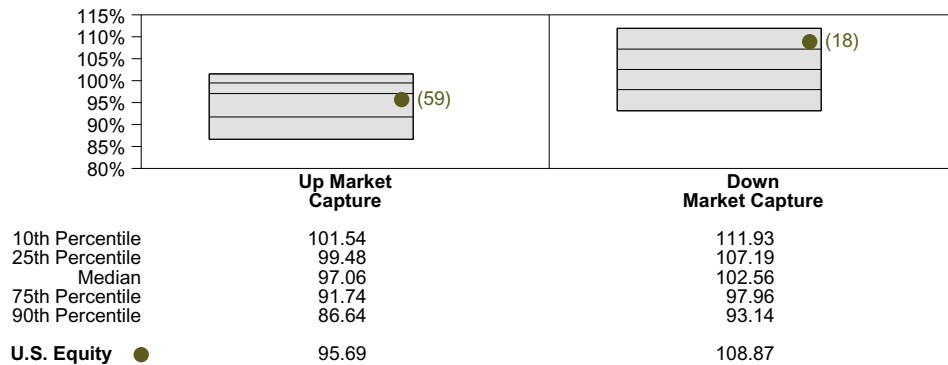
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

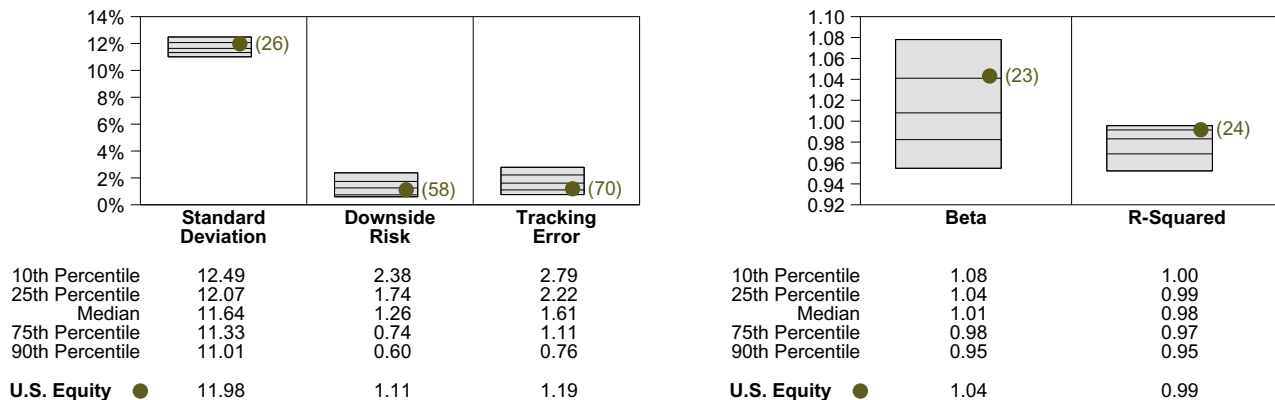
### Risk Analysis vs Public Fund - Domestic Equity (Gross) Five Years Ended March 31, 2019



### Market Capture vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended March 31, 2019



### Risk Statistics Rankings vs Russell 3000 Index Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended March 31, 2019



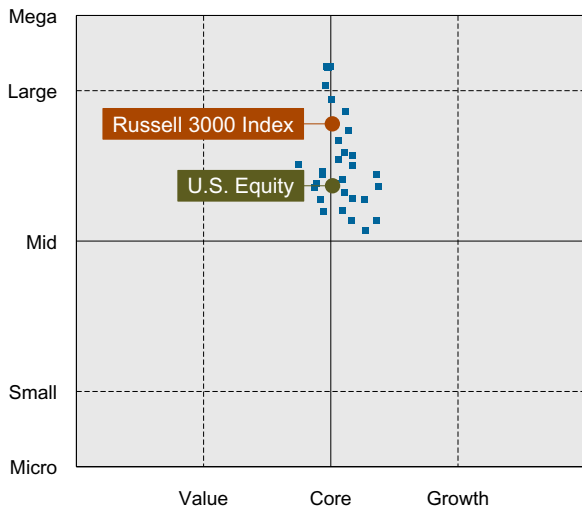
# Current Holdings Based Style Analysis

## U.S. Equity

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

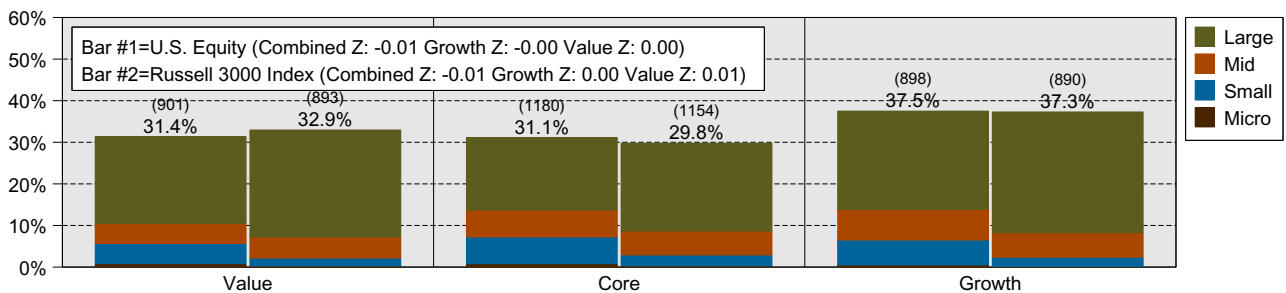
**Style Map vs Pub Pln- Dom Equity Holdings as of March 31, 2019**



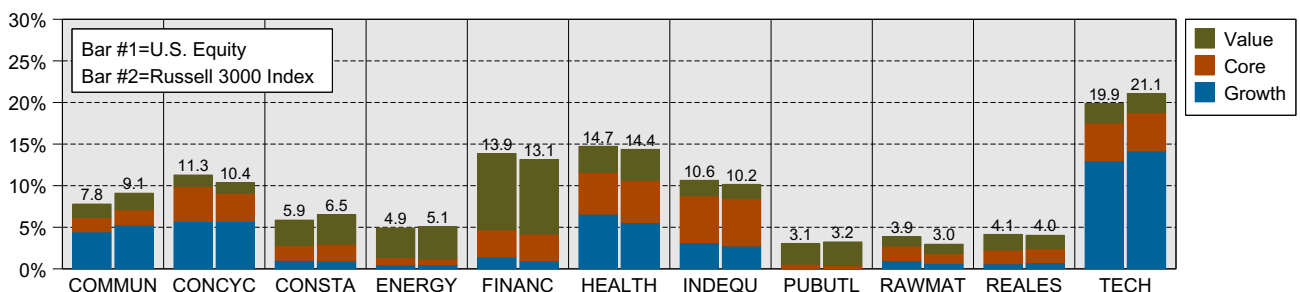
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	20.9% (106)	17.4% (97)	23.7% (91)	62.0% (294)
	25.7% (105)	21.1% (97)	29.0% (91)	75.8% (293)
Mid	4.8% (176)	6.5% (209)	7.3% (211)	18.7% (596)
	5.1% (175)	5.8% (204)	5.9% (209)	16.7% (588)
Small	4.8% (337)	6.4% (471)	6.0% (381)	17.3% (1189)
	1.9% (336)	2.6% (461)	2.2% (378)	6.7% (1175)
Micro	0.8% (282)	0.8% (403)	0.5% (215)	2.1% (900)
	0.3% (277)	0.3% (392)	0.2% (212)	0.8% (881)
Total	31.4% (901)	31.1% (1180)	37.5% (898)	100.0% (2979)
	32.9% (893)	29.8% (1154)	37.3% (890)	100.0% (2937)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



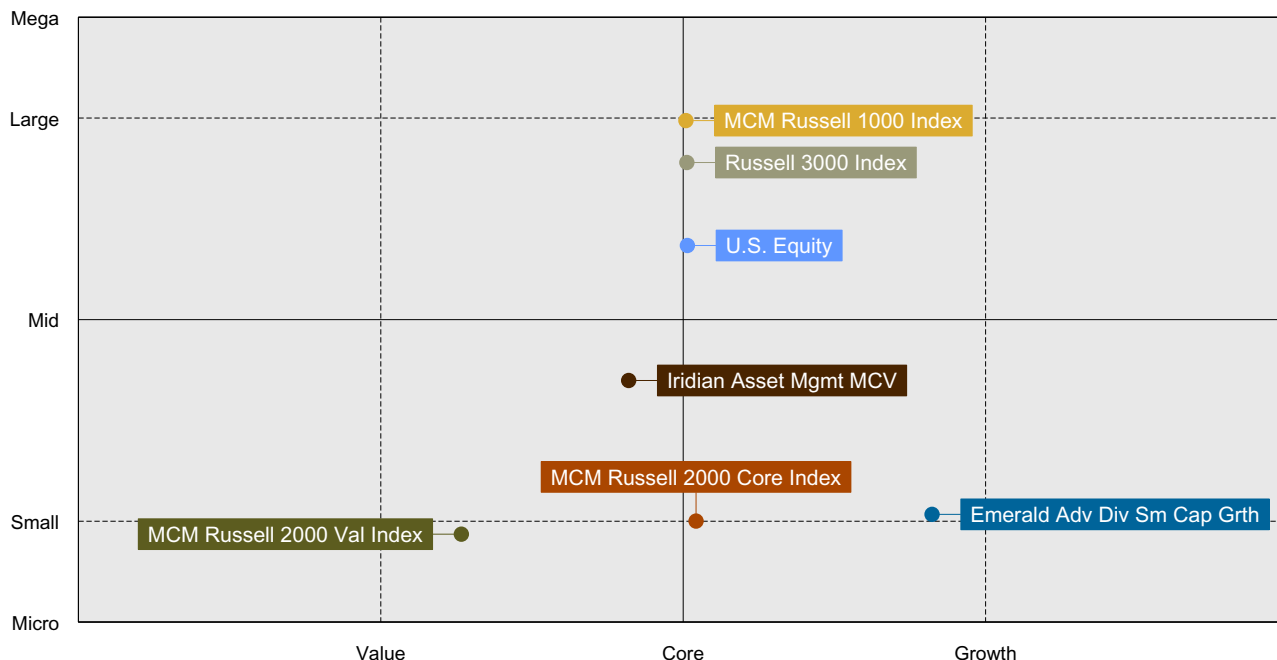
**Sector Weights Distribution Holdings as of March 31, 2019**



## Holdings Based Style Analysis For One Quarter Ended March 31, 2019

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

### Style Map Holdings for One Quarter Ended March 31, 2019



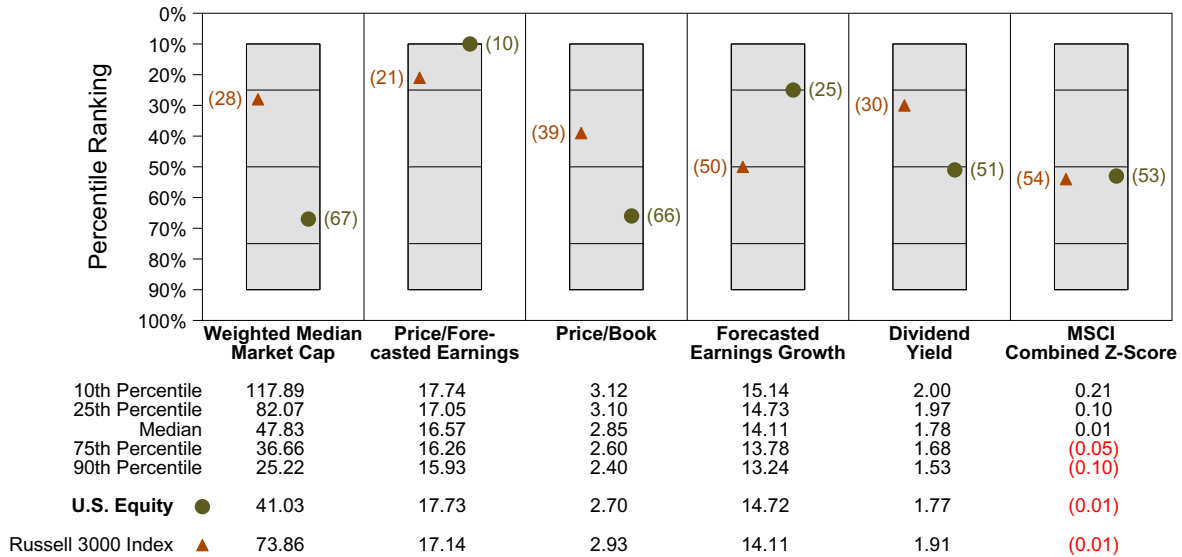
	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
MCM Russell 2000 Val Index	7.59%	1.88	(0.57)	(0.15)	0.43	1365	195.52
MCM Russell 2000 Core Index	4.24%	2.09	0.01	(0.01)	(0.02)	2002	340.22
Emerald Adv Div Sm Cap Grth	9.11%	2.41	0.59	0.08	(0.51)	122	32.19
Iridian Asset Mgmt MCV	5.94%	8.80	(0.15)	(0.04)	0.12	46	16.27
MCM Russell 1000 Index	73.12%	90.45	(0.01)	0.00	0.01	978	62.10
U.S. Equity	100.00%	41.03	(0.01)	(0.00)	0.00	2989	127.16
Russell 3000 Index	-	73.86	(0.01)	0.00	0.01	2968	74.80

# U.S. Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

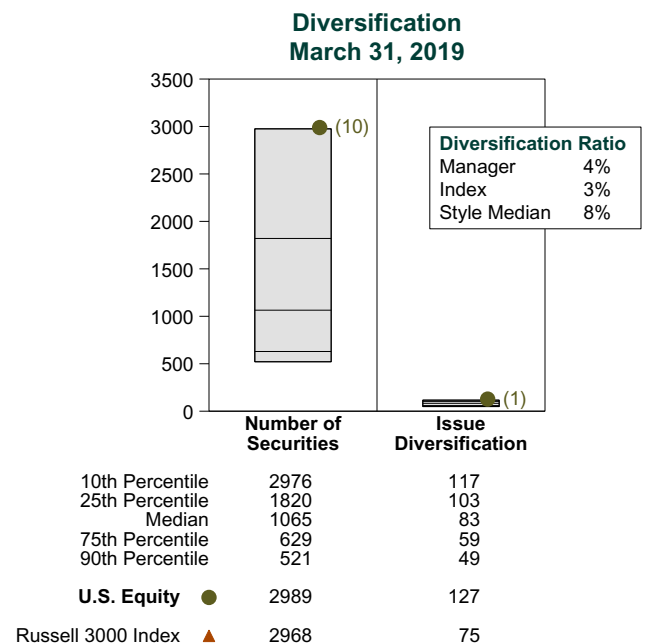
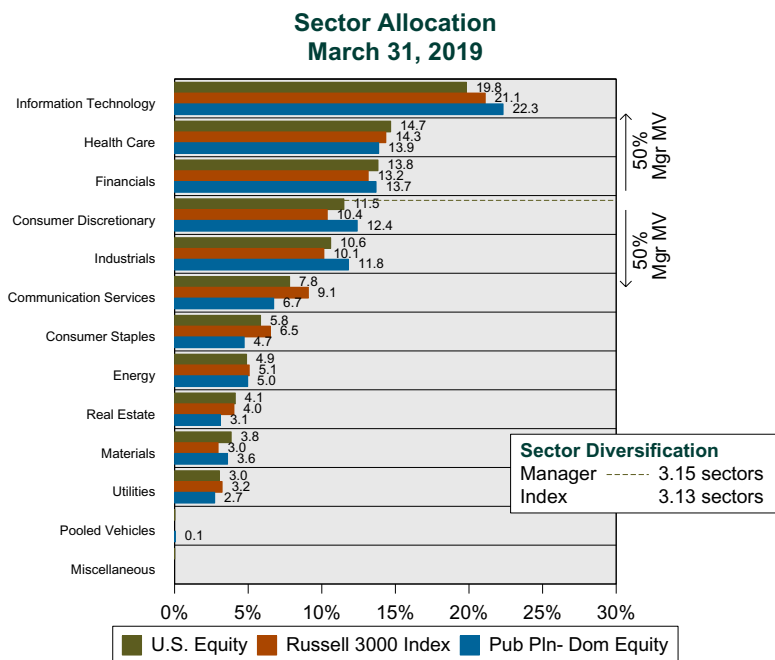
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - Domestic Equity as of March 31, 2019



## Sector Weights

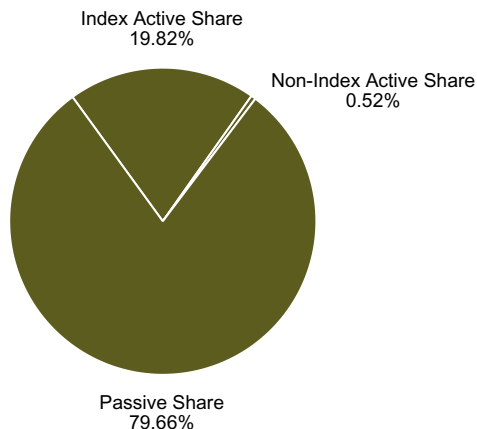
The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



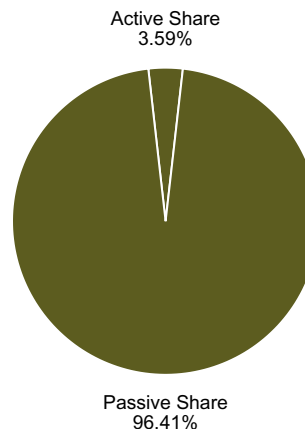
## U.S. Equity Active Share Analysis as of March 31, 2019 vs. Russell 3000 Index

Active Share analysis compares the holdings of a portfolio to an index to measure how aggressively it differs from the index. Active share is measured at the individual stock level ("holdings-level active share") and using sector weights ("sector exposure active share"). Holdings-level active share comes from: 1) Index Active Share - over/under weighting of stocks in the index, and 2) Non-Index Active Share - positions in stocks not in the index. This analysis displays active share by sector and compares the portfolio to a relevant peer group.

### Holdings-Level Active Share



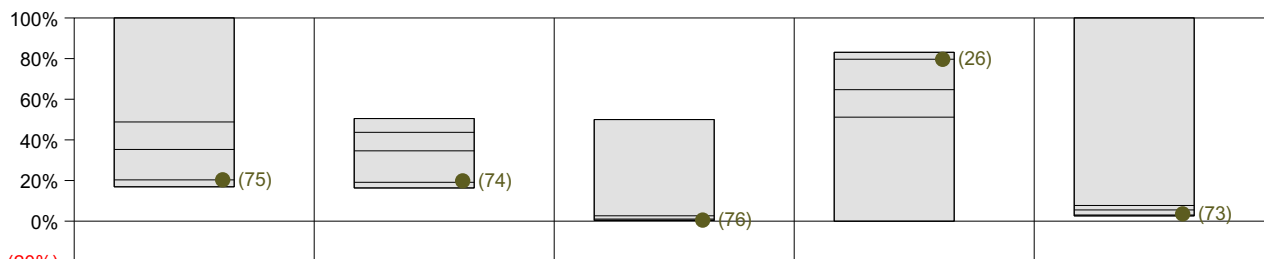
### Sector Exposure Active Share



**Total Active Share: 20.34%**

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	8.97%	0.52%	9.49%	9.09%	7.81%	1.36%
Consumer Discretionary	26.83%	0.52%	27.35%	10.37%	11.50%	2.66%
Consumer Staples	11.96%	0.18%	12.14%	6.51%	5.84%	1.02%
Energy	16.09%	0.98%	17.07%	5.07%	4.89%	0.91%
Financials	21.77%	0.54%	22.32%	13.15%	13.82%	2.83%
Health Care	21.39%	0.79%	22.18%	14.35%	14.68%	3.12%
Industrials	23.78%	0.02%	23.80%	10.14%	10.60%	2.32%
Information Technology	15.51%	0.60%	16.11%	21.10%	19.83%	3.78%
Materials	32.20%	0.00%	32.20%	2.95%	3.85%	0.96%
Miscellaneous	0.00%	100.00%	100.00%	-	0.00%	0.00%
Pooled Vehicles	0.00%	100.00%	100.00%	-	0.01%	0.01%
Real Estate	20.08%	1.05%	21.13%	4.03%	4.13%	0.84%
Utilities	15.19%	0.00%	15.19%	3.23%	3.05%	0.54%
<b>Total</b>	<b>19.82%</b>	<b>0.52%</b>	<b>20.34%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>20.34%</b>

### Active Share vs. Pub Pln- Dom Equity



	Total Active Share	Index Active Share	Non-Index Active Share	Passive Share	Sector Active Share
10th Percentile	100.00	50.49	50.00	83.10	100.00
25th Percentile	48.81	43.71	2.64	79.68	7.72
Median	35.28	34.61	1.04	64.72	5.52
75th Percentile	20.32	19.12	0.55	51.19	3.05
90th Percentile	16.90	16.34	0.34	0.00	2.60
<b>U.S. Equity</b>	<b>20.34</b>	<b>19.82</b>	<b>0.52</b>	<b>79.66</b>	<b>3.59</b>





# MCM Russell 1000 Index Period Ended March 31, 2019

## Investment Philosophy

The Russell 1000 Stock Index Fund attempts to replicate the performance and portfolio characteristics of the Russell 1000 Index.

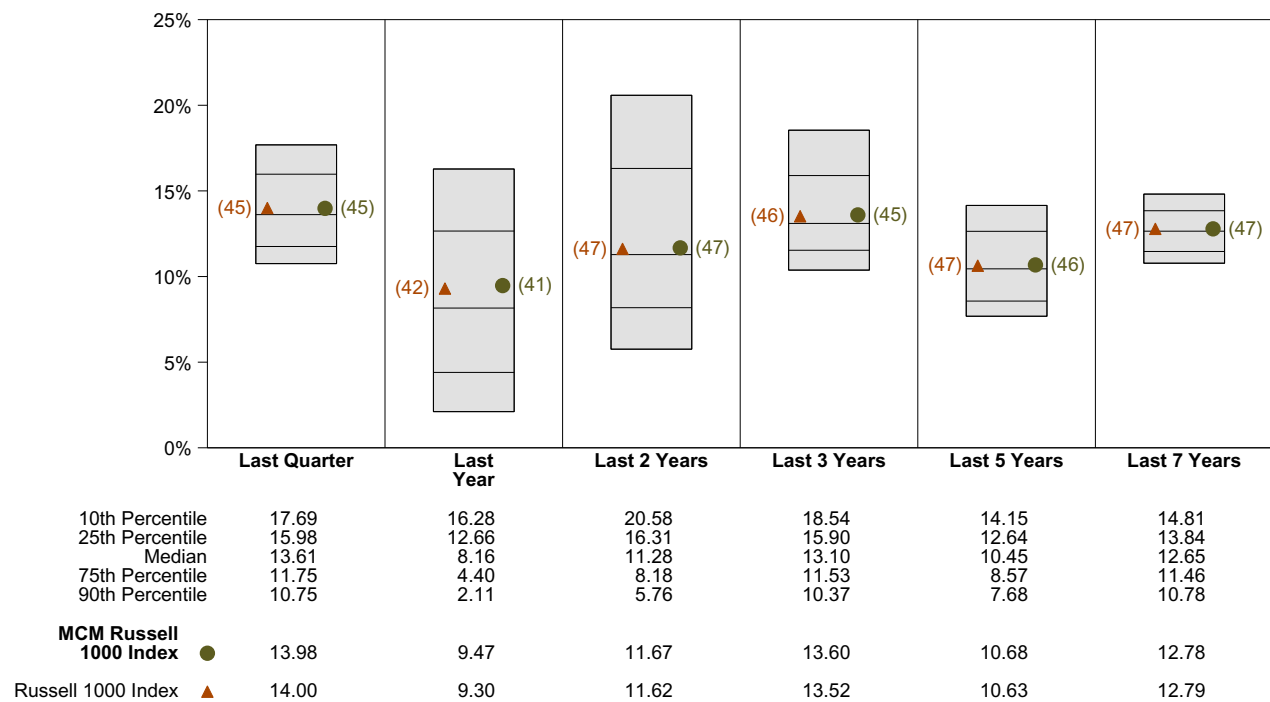
## Quarterly Summary and Highlights

- MCM Russell 1000 Index's portfolio posted a 13.98% return for the quarter placing it in the 45 percentile of the Callan Large Capitalization group for the quarter and in the 41 percentile for the last year.
- MCM Russell 1000 Index's portfolio underperformed the Russell 1000 Index by 0.02% for the quarter and outperformed the Russell 1000 Index for the year by 0.17%.

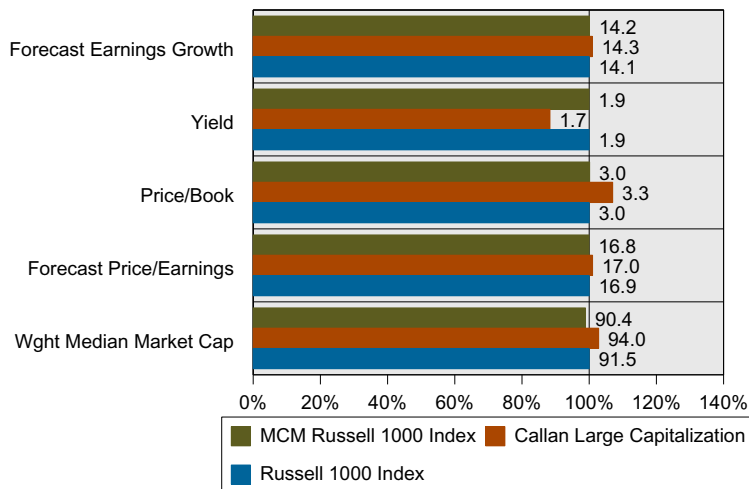
## Quarterly Asset Growth

Beginning Market Value	\$4,804,814,529
Net New Investment	\$-114,148
Investment Gains/(Losses)	\$671,700,361
Ending Market Value	\$5,476,400,742

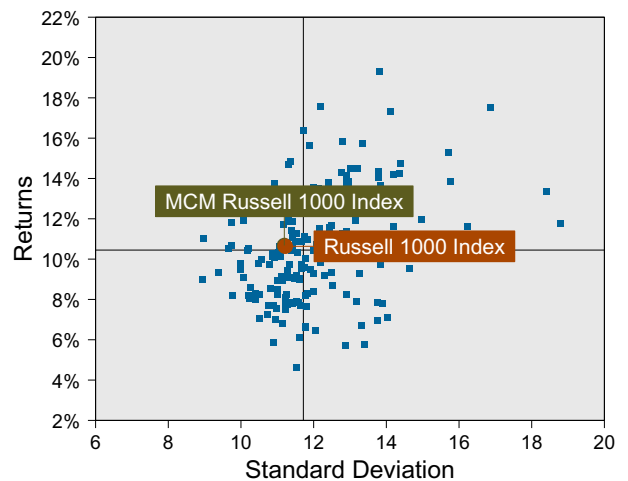
## Performance vs Callan Large Capitalization (Gross)



## Portfolio Characteristics as a Percentage of the Russell 1000 Index



## Callan Large Capitalization (Gross) Annualized Five Year Risk vs Return

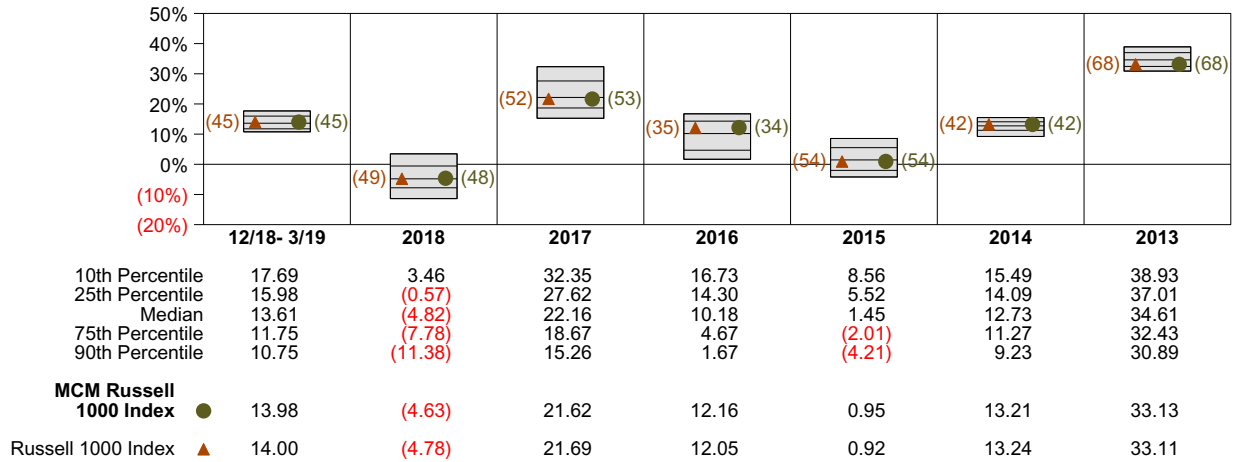


# MCM Russell 1000 Index Return Analysis Summary

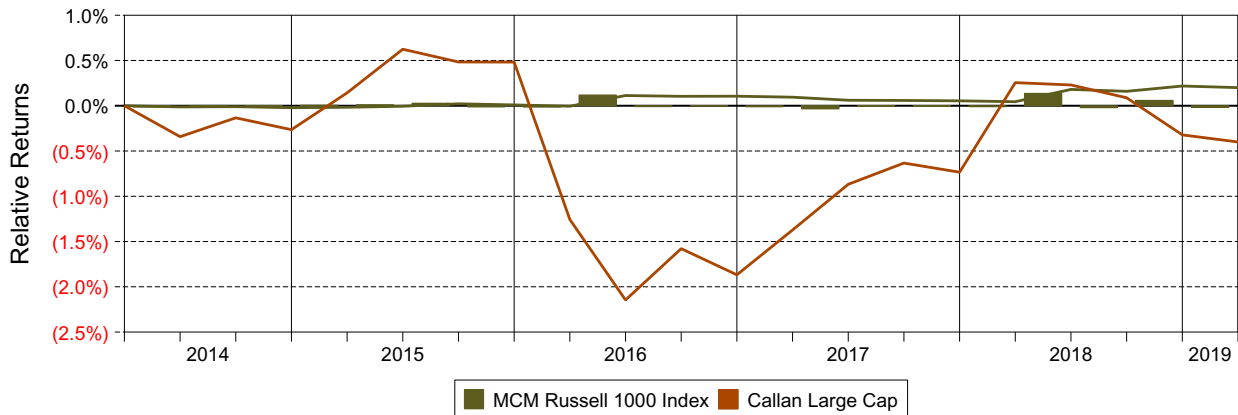
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

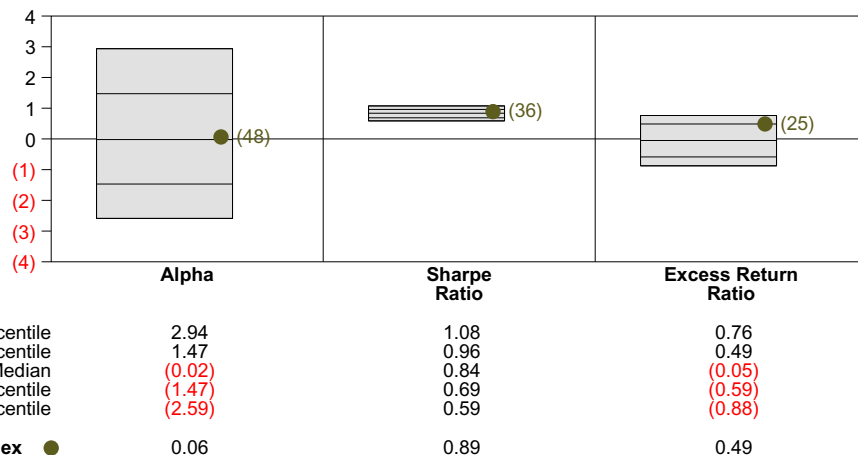
### Performance vs Callan Large Capitalization (Gross)



### Cumulative and Quarterly Relative Return vs Russell 1000 Index



### Risk Adjusted Return Measures vs Russell 1000 Index Rankings Against Callan Large Capitalization (Gross) Five Years Ended March 31, 2019

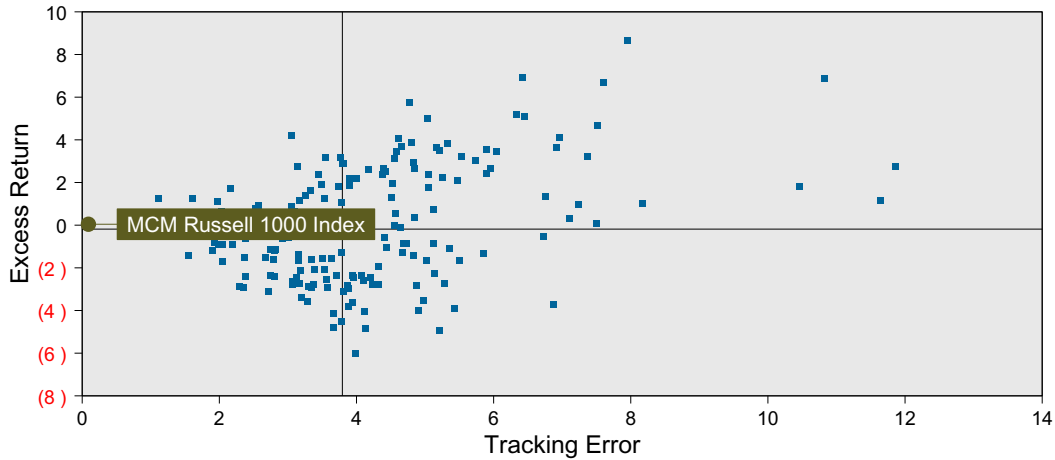


# MCM Russell 1000 Index Risk Analysis Summary

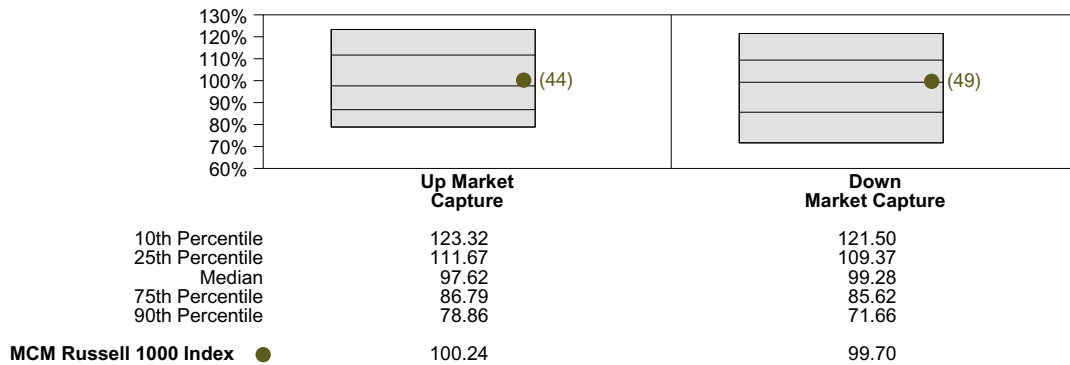
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

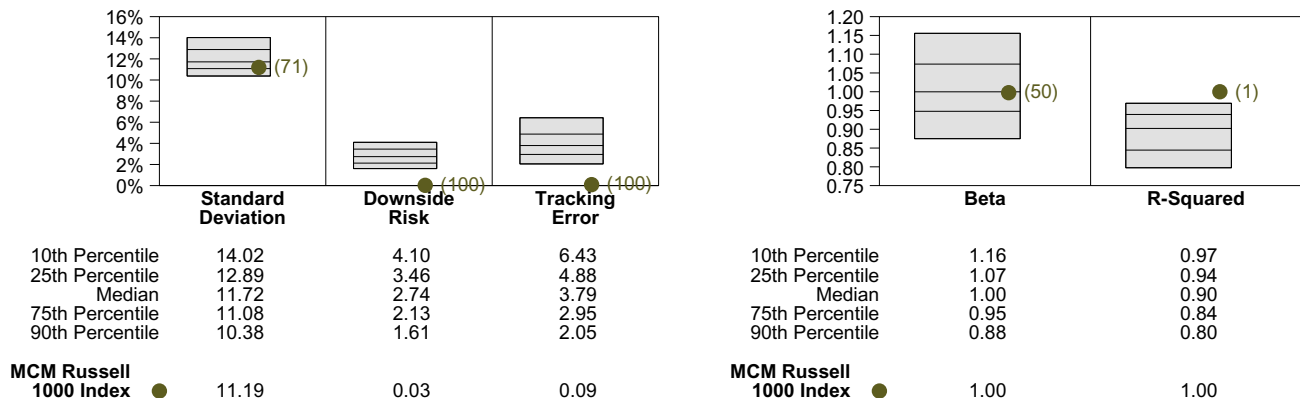
### Risk Analysis vs Callan Large Capitalization (Gross) Five Years Ended March 31, 2019



### Market Capture vs Russell 1000 Index Rankings Against Callan Large Capitalization (Gross) Five Years Ended March 31, 2019



### Risk Statistics Rankings vs Russell 1000 Index Rankings Against Callan Large Capitalization (Gross) Five Years Ended March 31, 2019



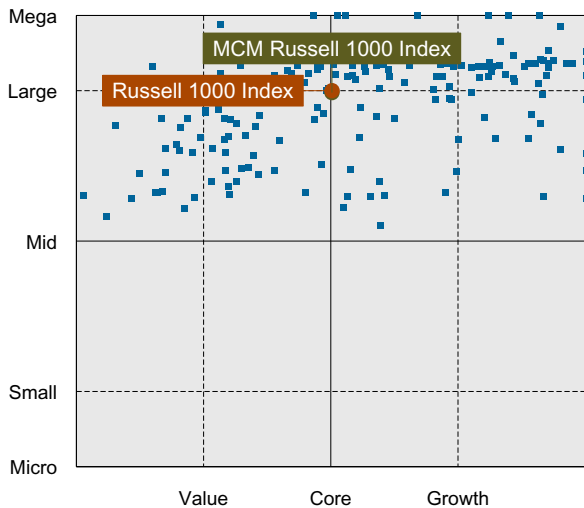
# Current Holdings Based Style Analysis

## MCM Russell 1000 Index

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

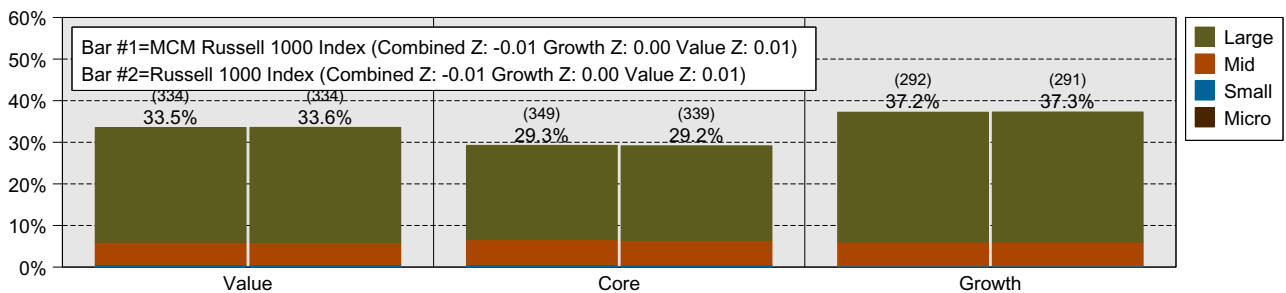
**Style Map vs Callan Large Cap Holdings as of March 31, 2019**



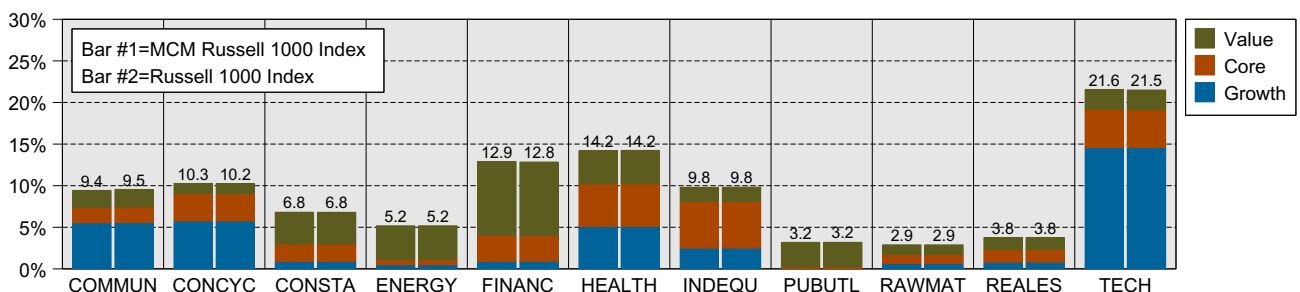
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	27.7% (106)	22.7% (97)	31.2% (91)	81.5% (294)
Mid	27.6% (105)	22.7% (97)	31.2% (91)	81.6% (293)
Small	5.3% (167)	6.0% (189)	5.7% (174)	17.0% (530)
Micro	5.3% (168)	5.9% (185)	5.8% (174)	17.0% (527)
Total	0.6% (60)	0.6% (61)	0.3% (27)	1.5% (148)
	0.6% (60)	0.6% (56)	0.3% (26)	1.4% (142)
	0.0% (1)	0.0% (2)	0.0% (0)	0.0% (3)
	0.0% (1)	0.0% (1)	0.0% (0)	0.0% (2)
<b>Total</b>	<b>33.5% (334)</b>	<b>29.3% (349)</b>	<b>37.2% (292)</b>	<b>100.0% (975)</b>
	<b>33.6% (334)</b>	<b>29.2% (339)</b>	<b>37.3% (291)</b>	<b>100.0% (964)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

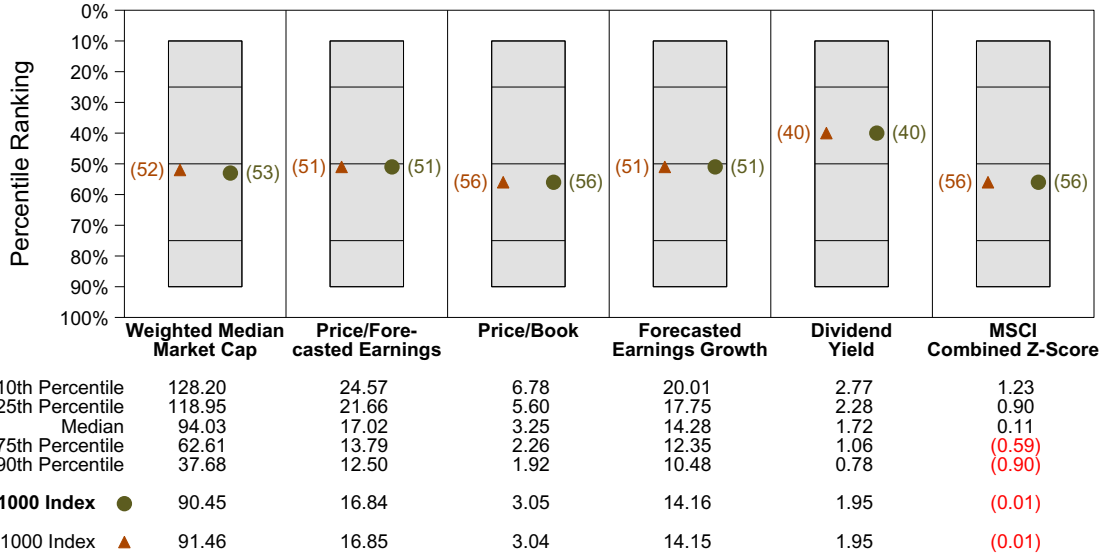


# MCM Russell 1000 Index Equity Characteristics Analysis Summary

## Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

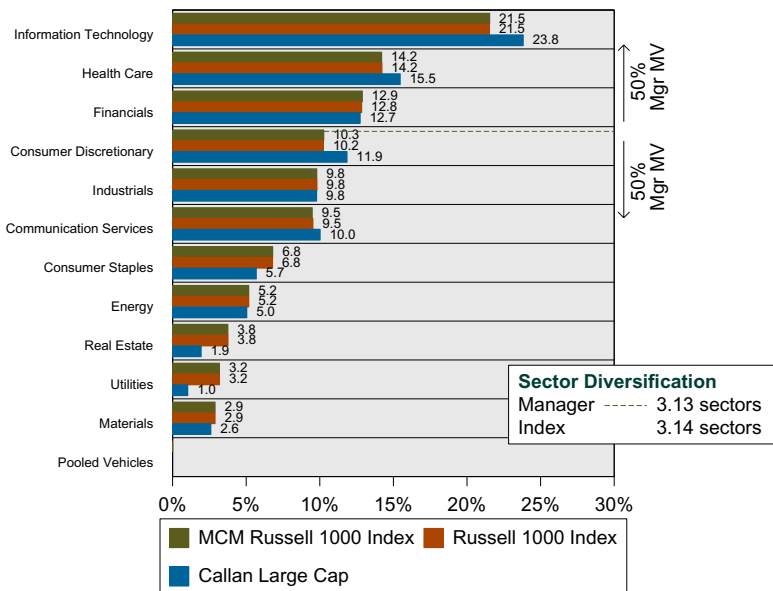
## Portfolio Characteristics Percentile Rankings Rankings Against Callan Large Capitalization as of March 31, 2019



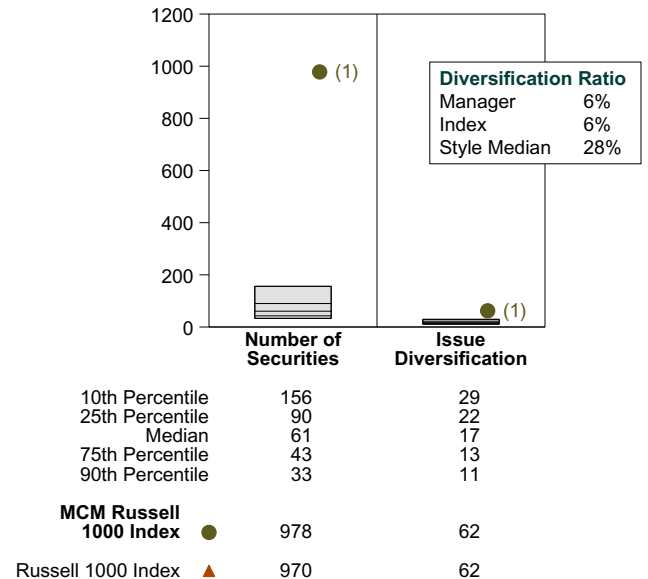
## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.

### Sector Allocation March 31, 2019



### Diversification March 31, 2019



# Iridian Asset Mgmt MCV Period Ended March 31, 2019

## Investment Philosophy

Iridian believes the market is efficient in processing information, but does not recognize the more profound implications of corporate change. They believe this change creates inefficiencies which lead to investment opportunities.

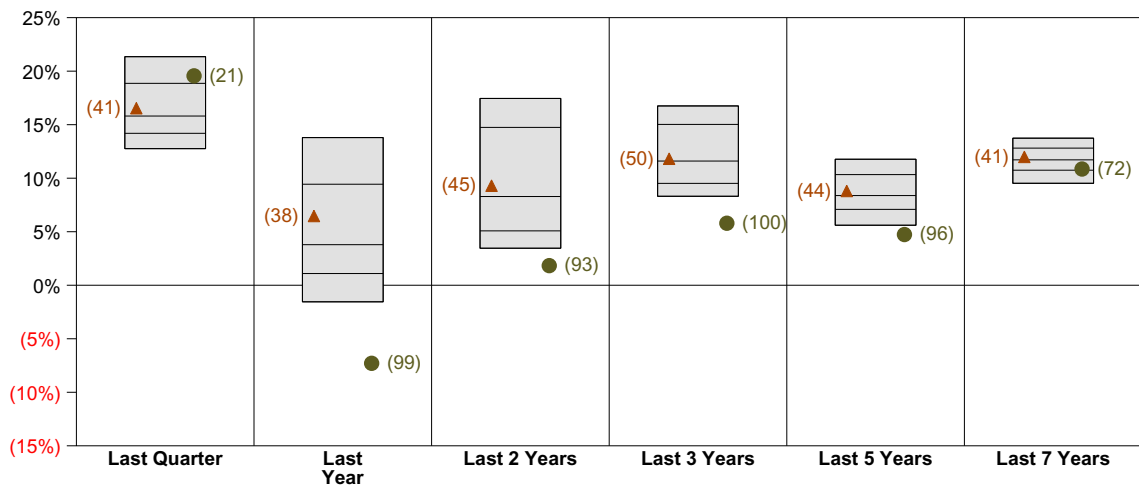
## Quarterly Summary and Highlights

- Iridian Asset Mgmt MCV's portfolio posted a 19.56% return for the quarter placing it in the 21 percentile of the Callan Mid Capitalization group for the quarter and in the 99 percentile for the last year.
- Iridian Asset Mgmt MCV's portfolio outperformed the Russell MidCap Index by 3.03% for the quarter and underperformed the Russell MidCap Index for the year by 13.76%.

## Quarterly Asset Growth

Beginning Market Value	\$371,910,641
Net New Investment	\$0
Investment Gains/(Losses)	\$72,753,219
Ending Market Value	\$444,663,860

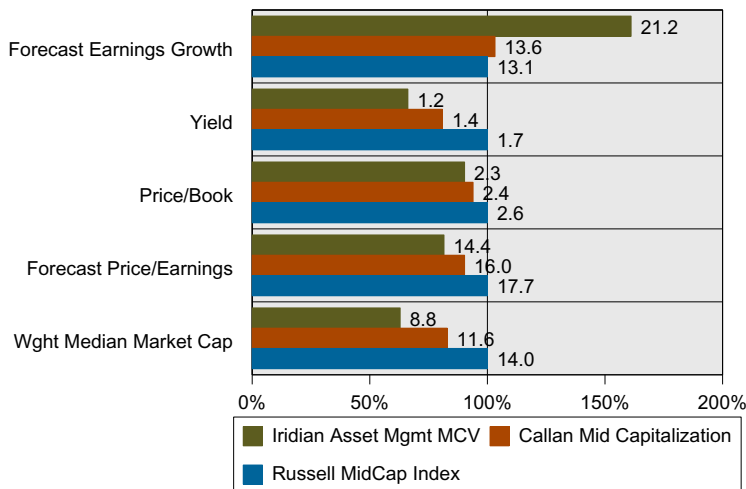
## Performance vs Callan Mid Capitalization (Gross)



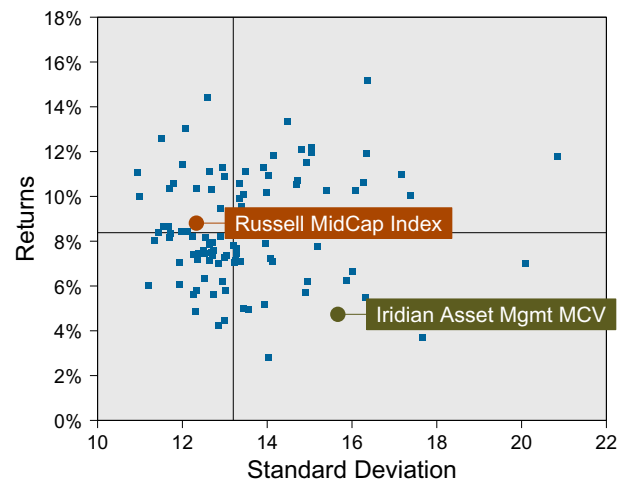
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years
10th Percentile	21.35	13.79	17.45	16.75	11.77	13.74
25th Percentile	18.86	9.44	14.75	15.02	10.34	12.81
Median	15.81	3.79	8.29	11.60	8.38	11.71
75th Percentile	14.19	1.09	5.08	9.52	7.09	10.75
90th Percentile	12.76	(1.55)	3.46	8.31	5.61	9.52

	Iridian Asset Mgmt MCV	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years
Russell MidCap Index	▲	16.54	6.47	9.30	11.82	8.81	11.99
Iridian Asset Mgmt MCV	●	19.56	(7.29)	1.83	5.79	4.74	10.86

## Portfolio Characteristics as a Percentage of the Russell MidCap Index



## Callan Mid Capitalization (Gross) Annualized Five Year Risk vs Return

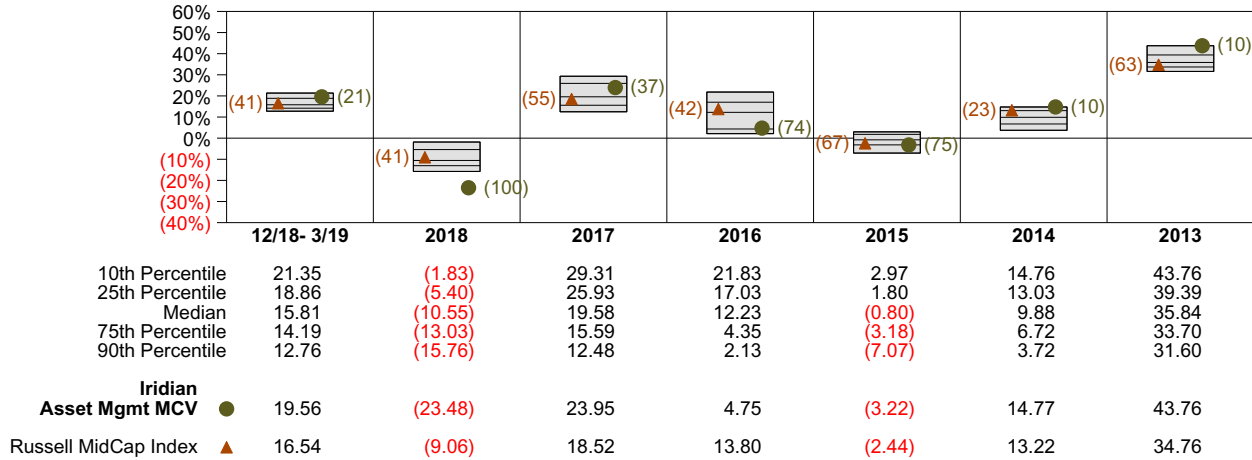


# Iridian Asset Mgmt MCV Return Analysis Summary

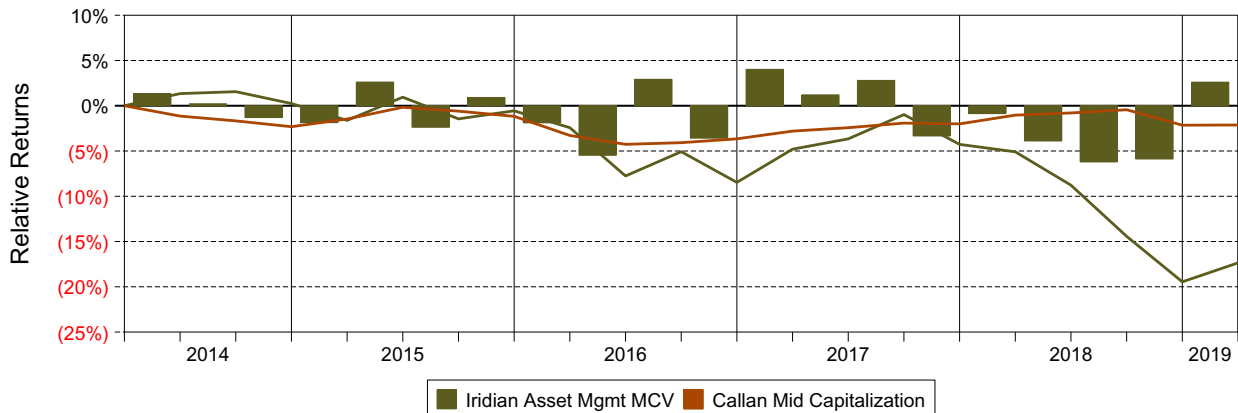
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

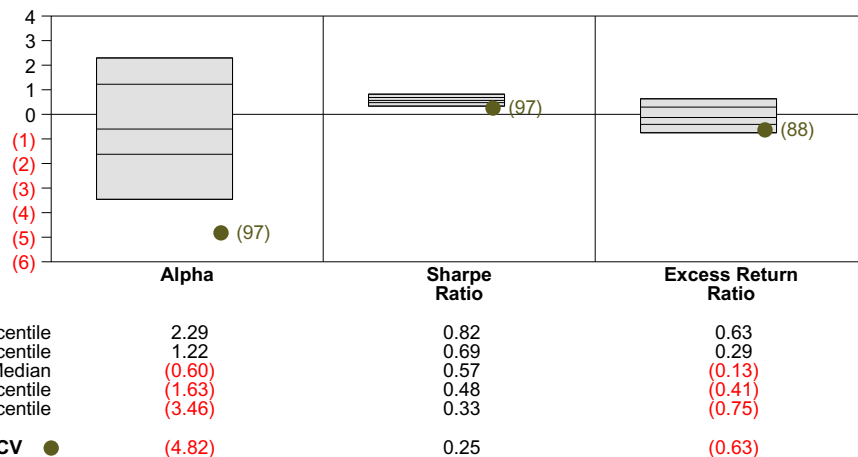
### Performance vs Callan Mid Capitalization (Gross)



### Cumulative and Quarterly Relative Return vs Russell MidCap Index



### Risk Adjusted Return Measures vs Russell MidCap Index Rankings Against Callan Mid Capitalization (Gross) Five Years Ended March 31, 2019



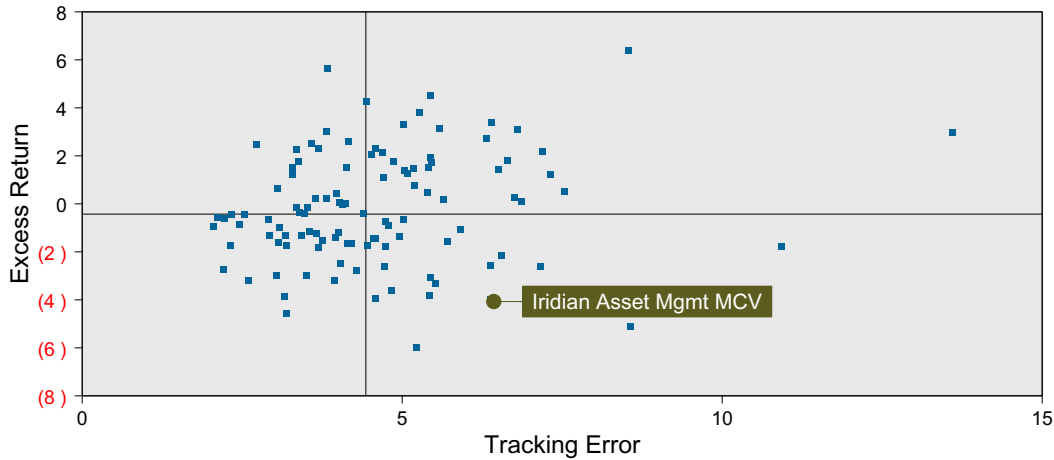


# Iridian Asset Mgmt MCV Risk Analysis Summary

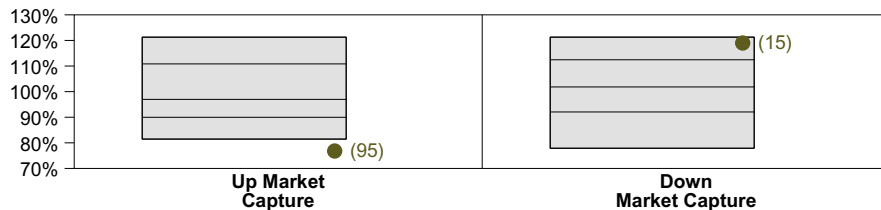
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

### Risk Analysis vs Callan Mid Capitalization (Gross) Five Years Ended March 31, 2019



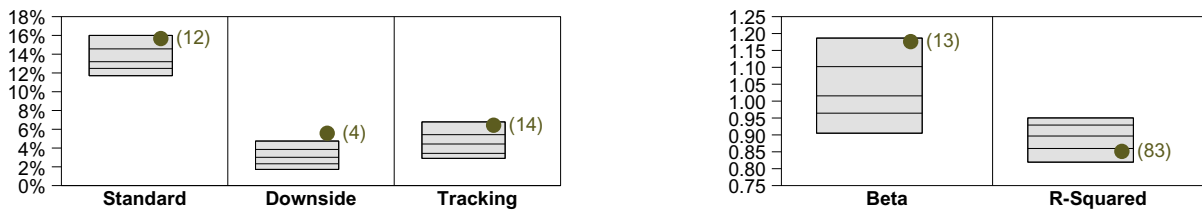
### Market Capture vs Russell Mid-Cap Index Rankings Against Callan Mid Capitalization (Gross) Five Years Ended March 31, 2019



	Up Market Capture	Down Market Capture
10th Percentile	121.28	121.29
25th Percentile	110.83	112.45
Median	96.98	101.83
75th Percentile	89.98	92.06
90th Percentile	81.45	77.89

Iridian Asset Mgmt MCV ● 76.80 118.99

### Risk Statistics Rankings vs Russell Mid-Cap Index Rankings Against Callan Mid Capitalization (Gross) Five Years Ended March 31, 2019



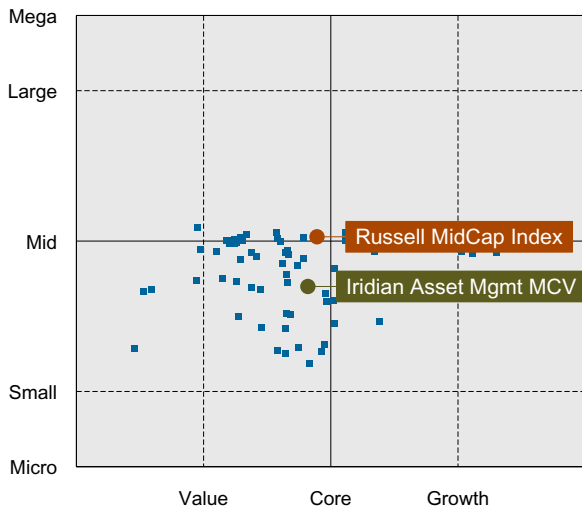
	Standard Deviation	Downside Risk	Tracking Error	Beta	R-Squared
10th Percentile	16.00	4.75	6.79	1.19	0.95
25th Percentile	14.56	3.85	5.43	1.10	0.93
Median	13.20	3.01	4.43	1.02	0.90
75th Percentile	12.49	2.32	3.43	0.96	0.86
90th Percentile	11.71	1.72	2.90	0.91	0.82

Iridian Asset Mgmt MCV ● 15.67 5.58 6.43 1.18 0.85

## Current Holdings Based Style Analysis Iridian Asset Mgmt MCV As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

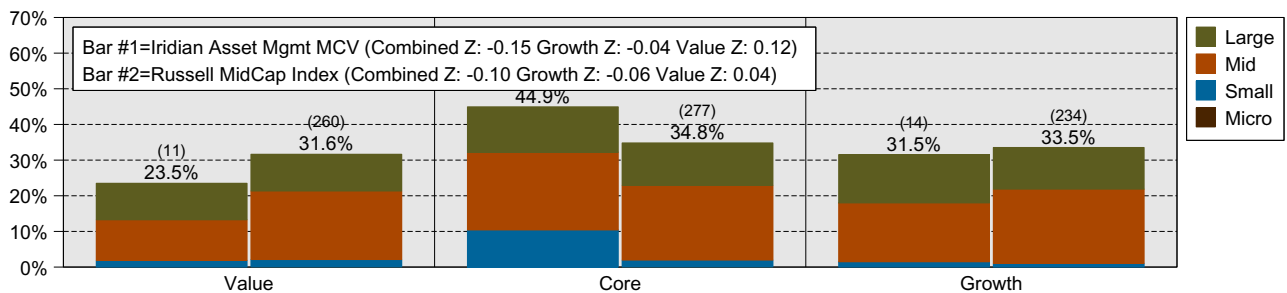
**Style Map vs Callan Mid Capitalization Holdings as of March 31, 2019**



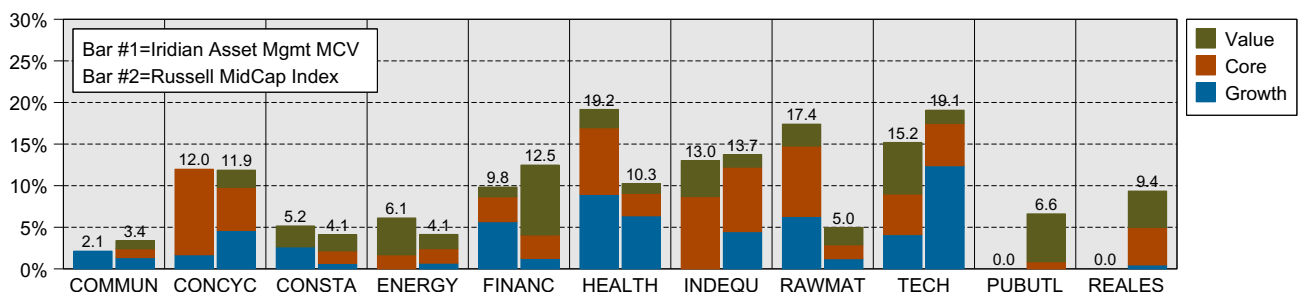
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	10.2% (4)	12.8% (4)	13.5% (5)	36.6% (13)
	10.3% (32)	11.9% (38)	11.7% (34)	33.9% (104)
Mid	11.4% (6)	21.8% (10)	16.5% (8)	49.6% (24)
	19.2% (167)	21.0% (183)	20.8% (174)	61.0% (524)
Small	1.9% (1)	10.4% (6)	1.5% (1)	13.8% (8)
	2.1% (60)	2.0% (55)	1.0% (26)	5.1% (141)
Micro	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
	0.0% (1)	0.0% (1)	0.0% (0)	0.0% (2)
Total	23.5% (11)	44.9% (20)	31.5% (14)	100.0% (45)
	31.6% (260)	34.8% (277)	33.5% (234)	100.0% (771)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

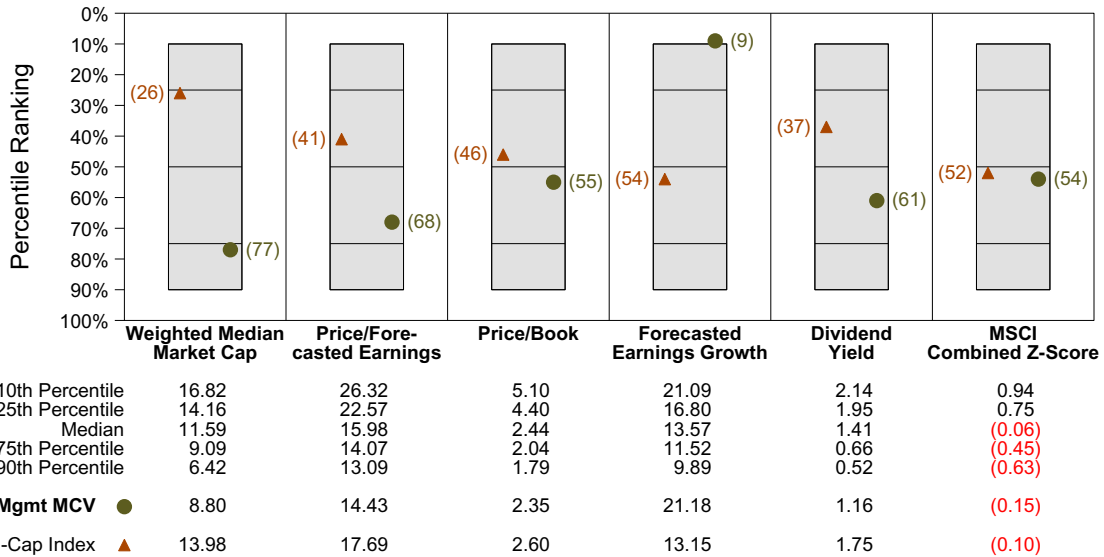


# Iridian Asset Mgmt MCV Equity Characteristics Analysis Summary

## Portfolio Characteristics

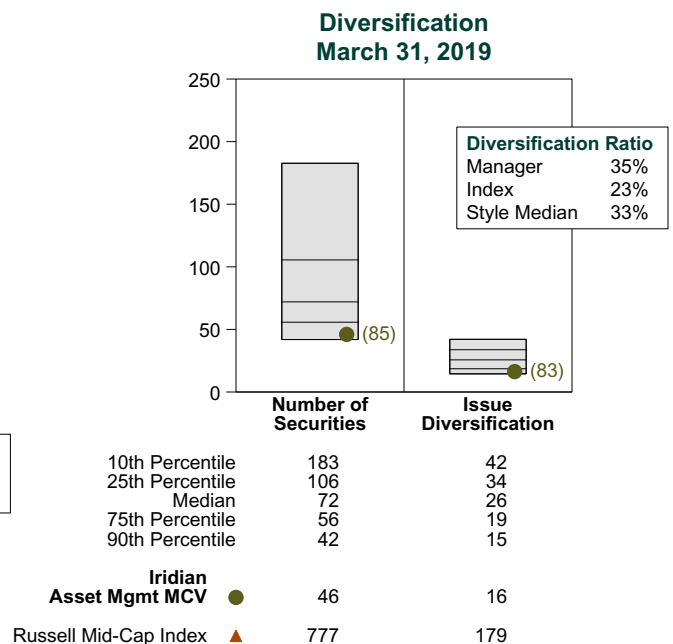
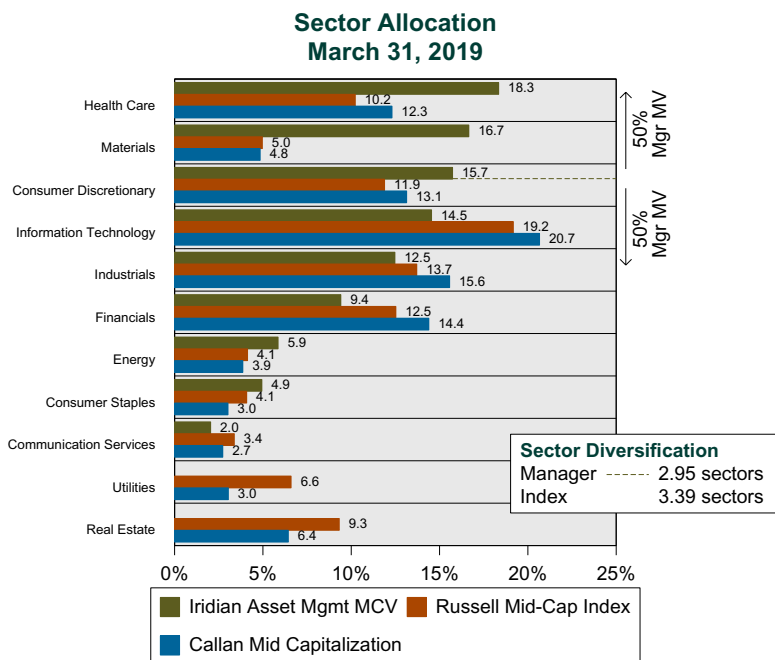
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Mid Capitalization as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



# MCM Russell 2000 Core Index Period Ended March 31, 2019

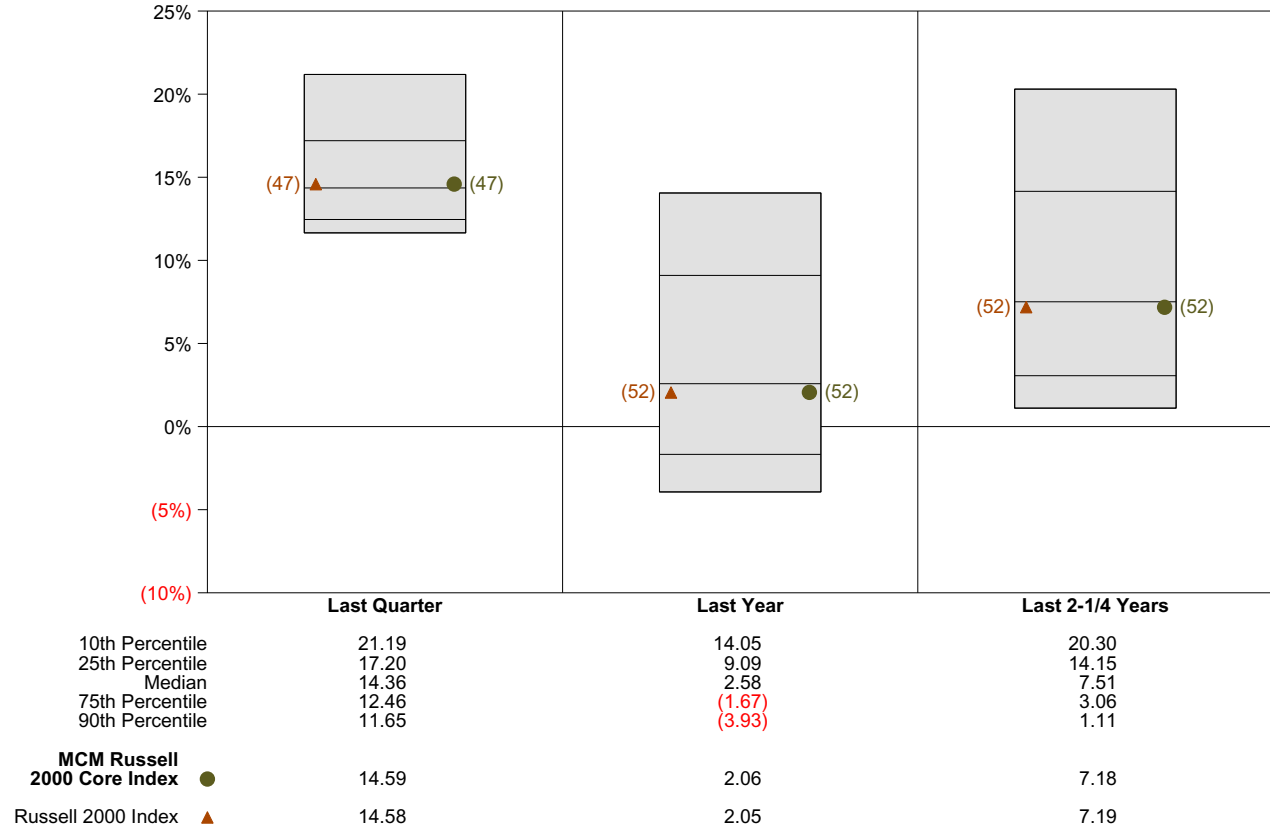
## Quarterly Summary and Highlights

- MCM Russell 2000 Core Index's portfolio posted a 14.59% return for the quarter placing it in the 47 percentile of the Callan Small Capitalization group for the quarter and in the 52 percentile for the last year.
- MCM Russell 2000 Core Index's portfolio outperformed the Russell 2000 Index by 0.00% for the quarter and outperformed the Russell 2000 Index for the year by 0.01%.

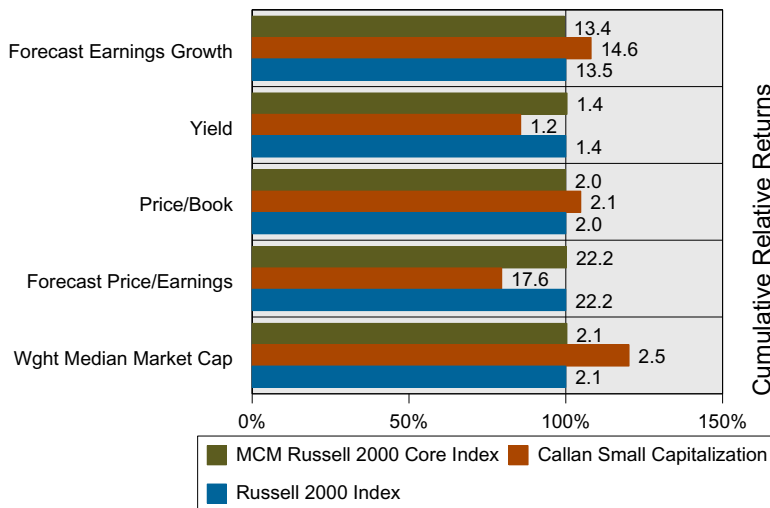
## Quarterly Asset Growth

Beginning Market Value	\$277,377,768
Net New Investment	\$-17,413
Investment Gains/(Losses)	\$40,464,072
Ending Market Value	\$317,824,427

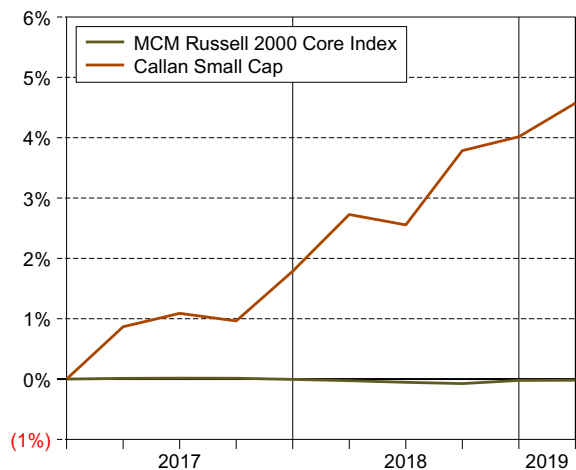
## Performance vs Callan Small Capitalization (Gross)



## Portfolio Characteristics as a Percentage of the Russell 2000 Index



## Cumulative Returns vs Russell 2000 Index



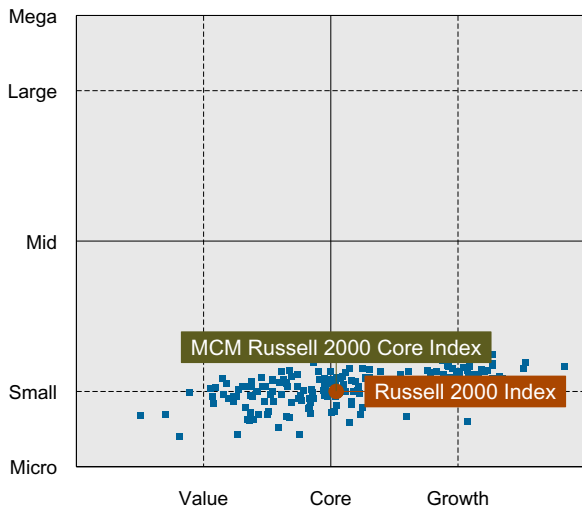
# Current Holdings Based Style Analysis

## MCM Russell 2000 Core Index

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

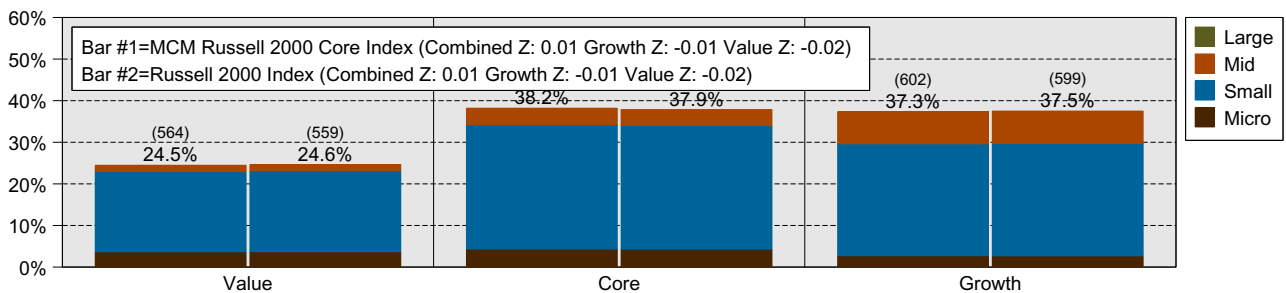
**Style Map vs Callan Small Cap Holdings as of March 31, 2019**



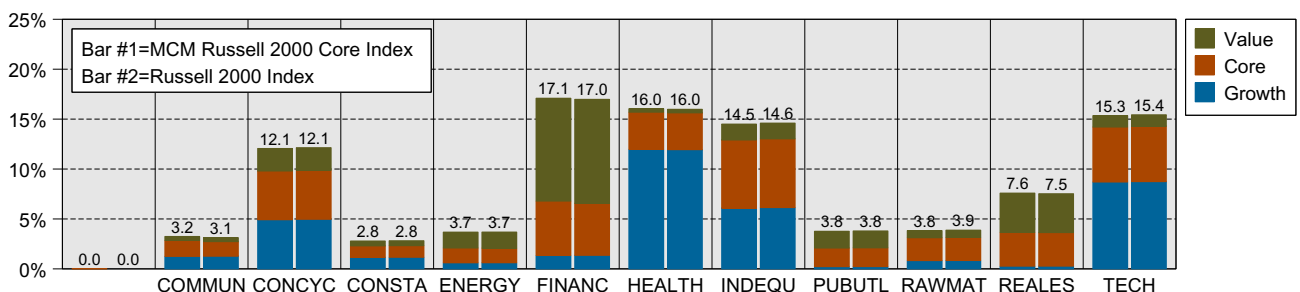
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Mid	1.5% (7)	4.0% (20)	7.7% (35)	13.2% (62)
Small	19.3% (277)	29.8% (410)	26.9% (353)	76.0% (1040)
Micro	3.7% (280)	4.4% (400)	2.7% (214)	10.8% (894)
<b>Total</b>	<b>24.5% (564)</b>	<b>38.2% (830)</b>	<b>37.3% (602)</b>	<b>100.0% (1996)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

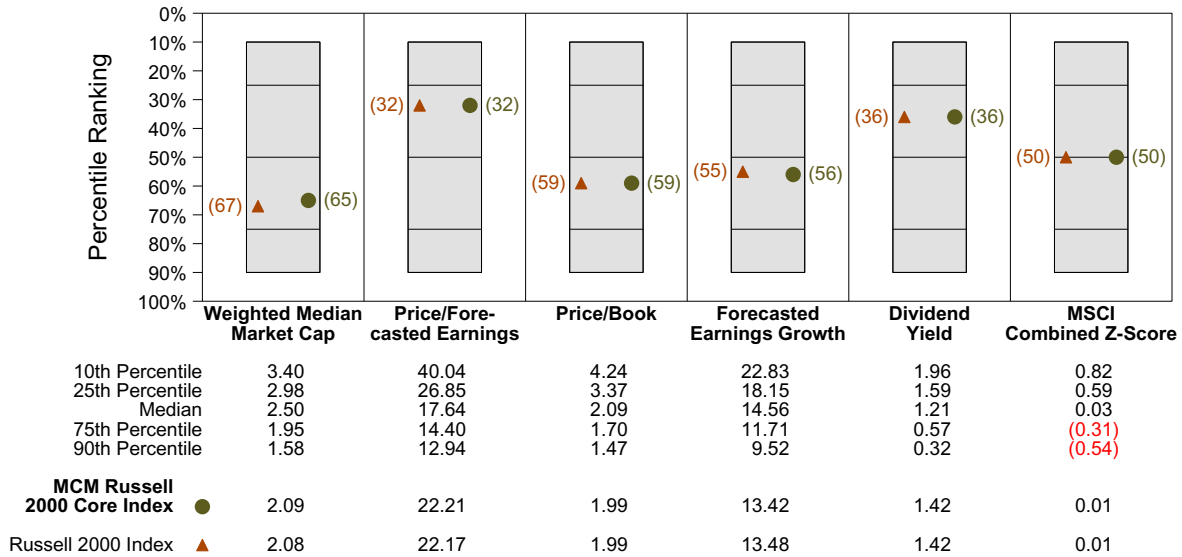


# MCM Russell 2000 Core Index Equity Characteristics Analysis Summary

## Portfolio Characteristics

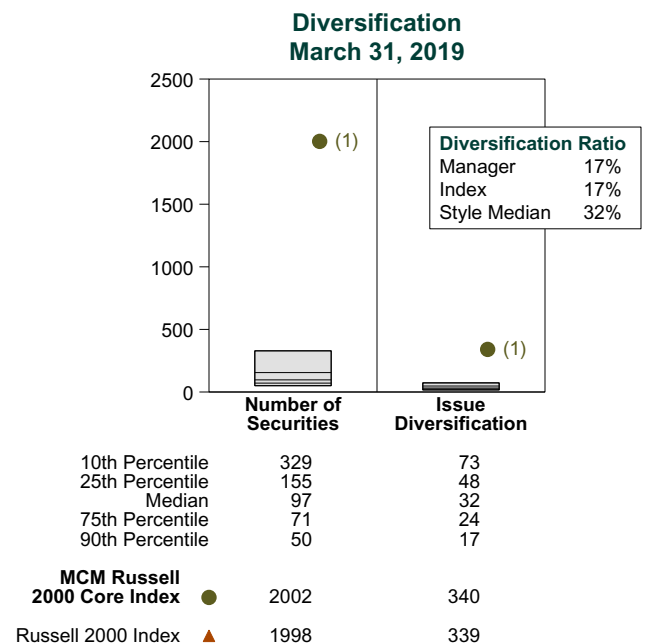
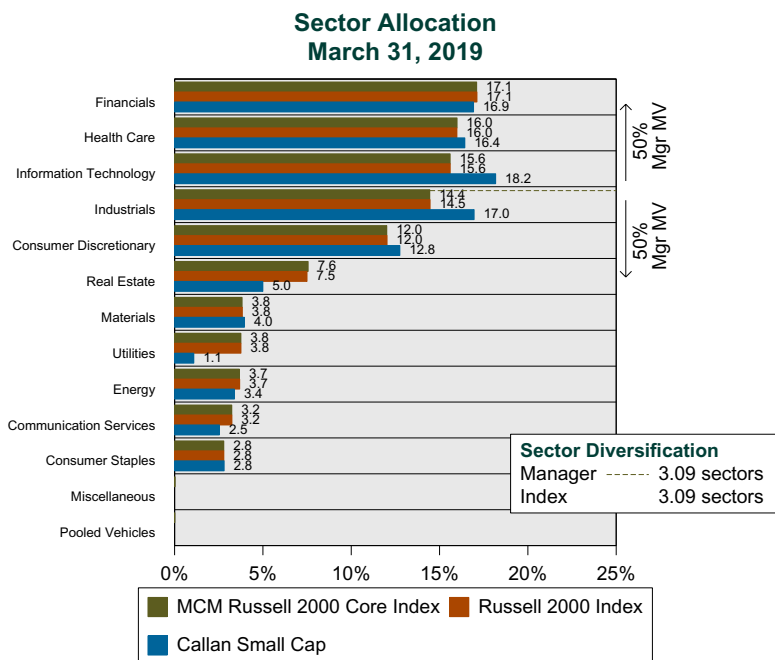
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Small Capitalization as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



# MCM Russell 2000 Val Index Period Ended March 31, 2019

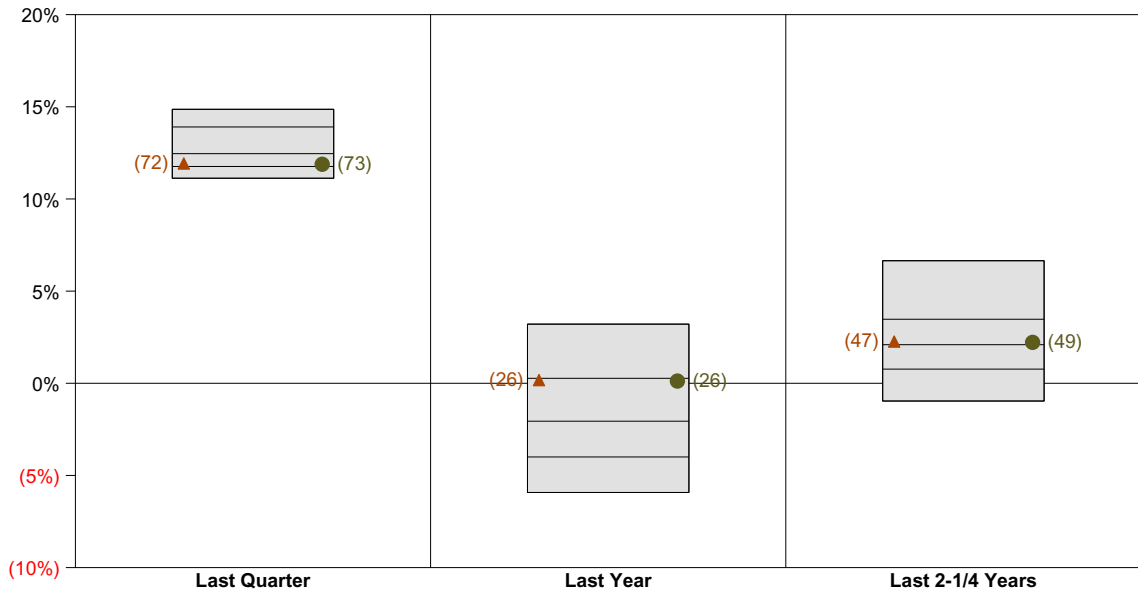
## Quarterly Summary and Highlights

- MCM Russell 2000 Val Index's portfolio posted a 11.88% return for the quarter placing it in the 73 percentile of the Callan Small Cap Value group for the quarter and in the 26 percentile for the last year.
- MCM Russell 2000 Val Index's portfolio underperformed the Russell 2000 Value Index by 0.04% for the quarter and underperformed the Russell 2000 Value Index for the year by 0.05%.

## Quarterly Asset Growth

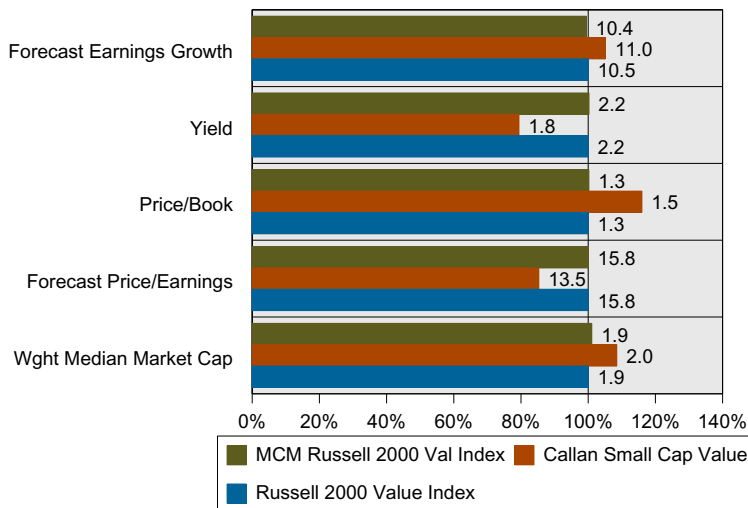
Beginning Market Value	\$508,042,350
Net New Investment	\$-31,498
Investment Gains/(Losses)	\$60,364,420
Ending Market Value	\$568,375,272

## Performance vs Callan Small Cap Value (Gross)

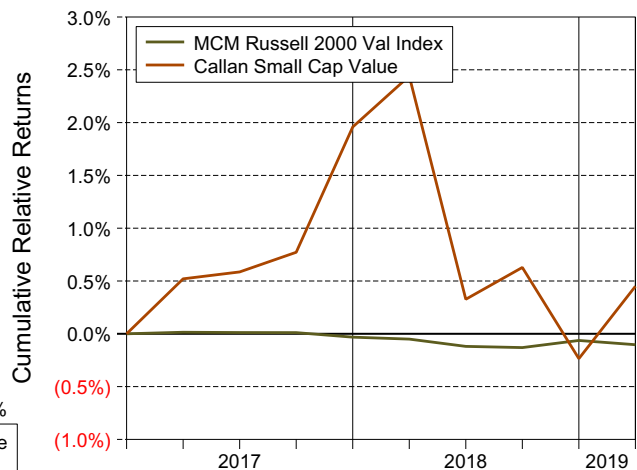


	Last Quarter	Last Year	Last 2-1/4 Years
10th Percentile	14.86	3.21	6.65
25th Percentile	13.91	0.27	3.47
Median	12.46	(2.06)	2.09
75th Percentile	11.76	(4.00)	0.77
90th Percentile	11.12	(5.92)	(0.96)
<b>MCM Russell 2000 Val Index</b>	11.88	0.12	2.22
Russell 2000 Value Index	11.93	0.17	2.27

## Portfolio Characteristics as a Percentage of the Russell 2000 Value Index



## Cumulative Returns vs Russell 2000 Value Index



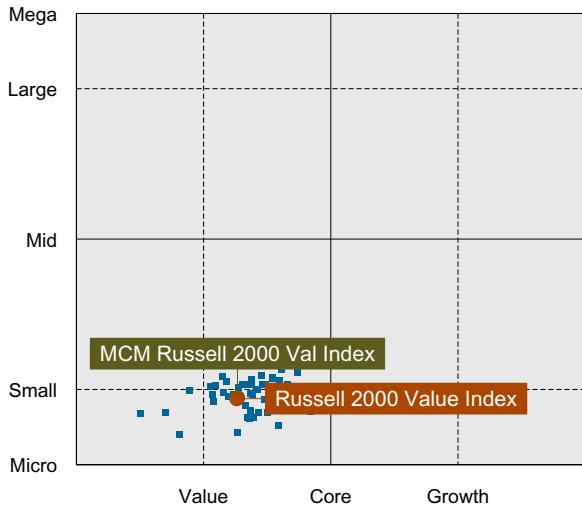
# Current Holdings Based Style Analysis

## MCM Russell 2000 Val Index

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

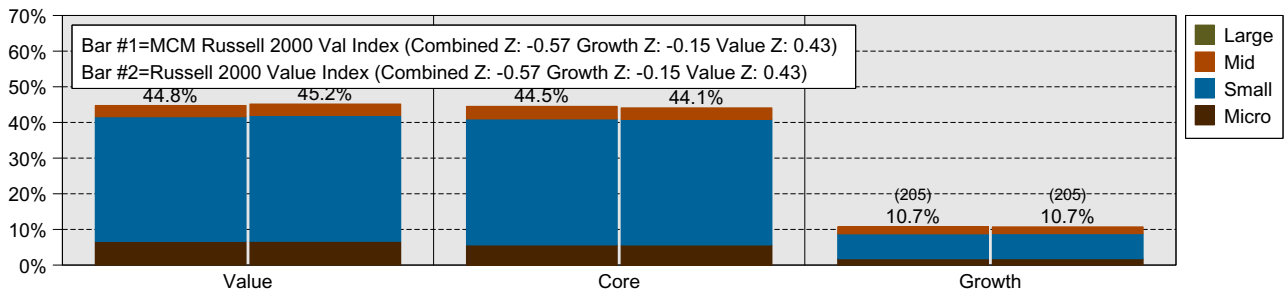
**Style Map vs Callan Small Cap Value Holdings as of March 31, 2019**



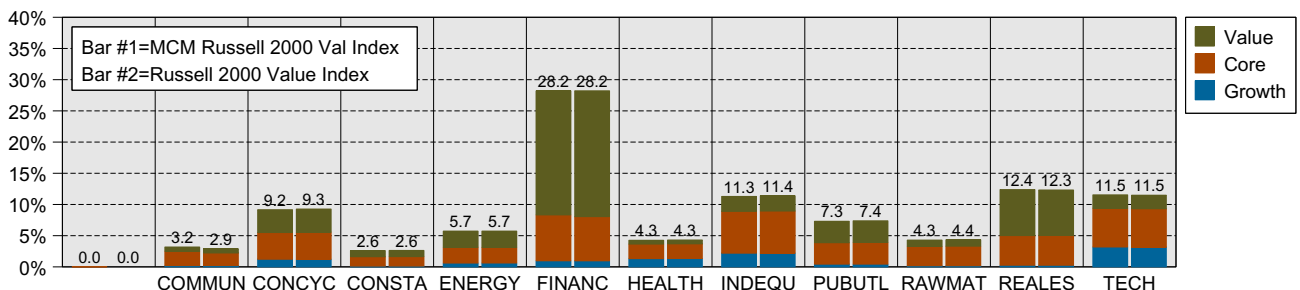
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Mid	3.2% (7)	3.5% (13)	2.0% (8)	8.7% (28)
Small	35.0% (260)	35.3% (314)	7.0% (91)	77.3% (665)
Micro	6.6% (258)	5.6% (303)	1.8% (106)	14.0% (667)
<b>Total</b>	<b>44.8% (525)</b>	<b>44.5% (630)</b>	<b>10.7% (205)</b>	<b>100.0% (1360)</b>
	<b>45.2% (520)</b>	<b>44.1% (617)</b>	<b>10.7% (205)</b>	<b>100.0% (1342)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**



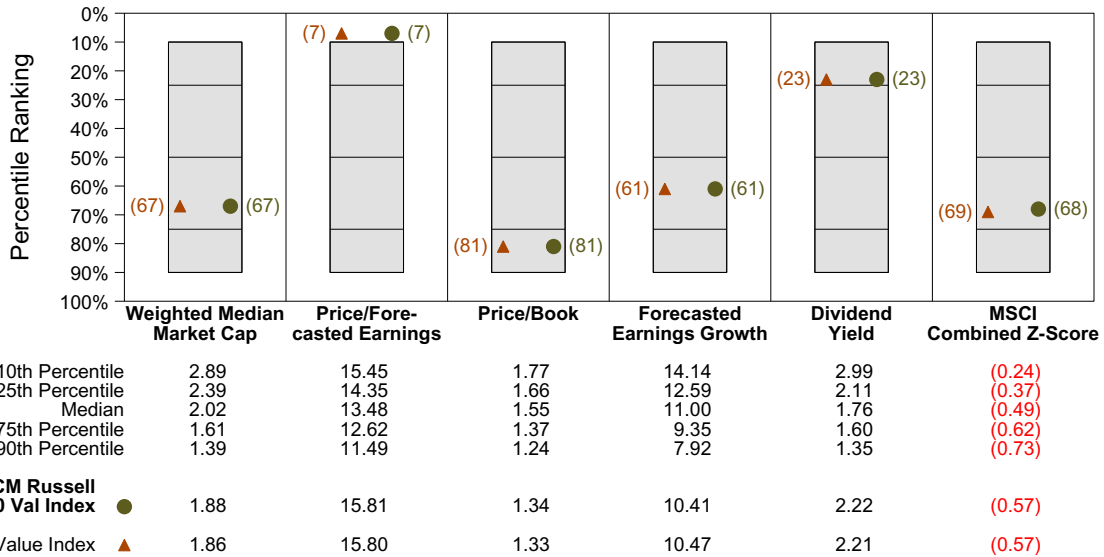


# MCM Russell 2000 Val Index Equity Characteristics Analysis Summary

## Portfolio Characteristics

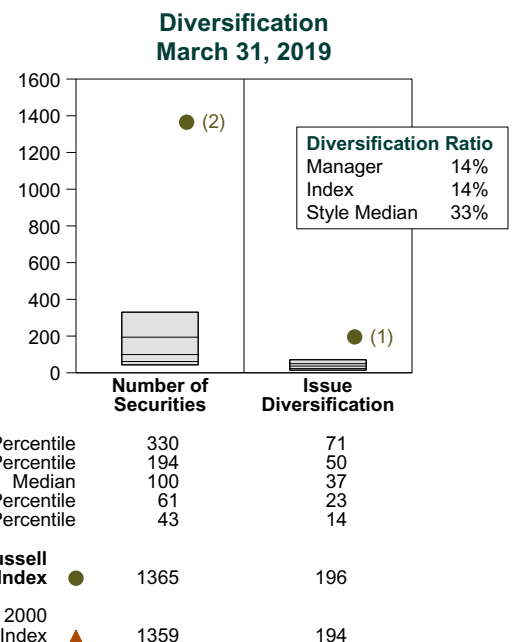
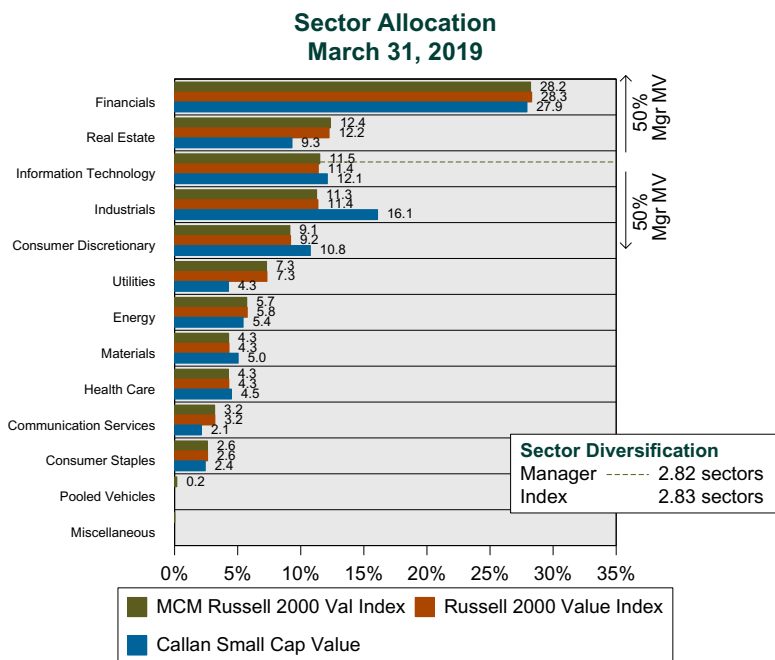
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Small Cap Value as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



# Emerald Adv Div Sm Cap Grth Period Ended March 31, 2019

## Investment Philosophy

Emerald is dedicated to fundamental, bottom-up research designed to identify unrecognized, under-researched and undervalued growth companies.

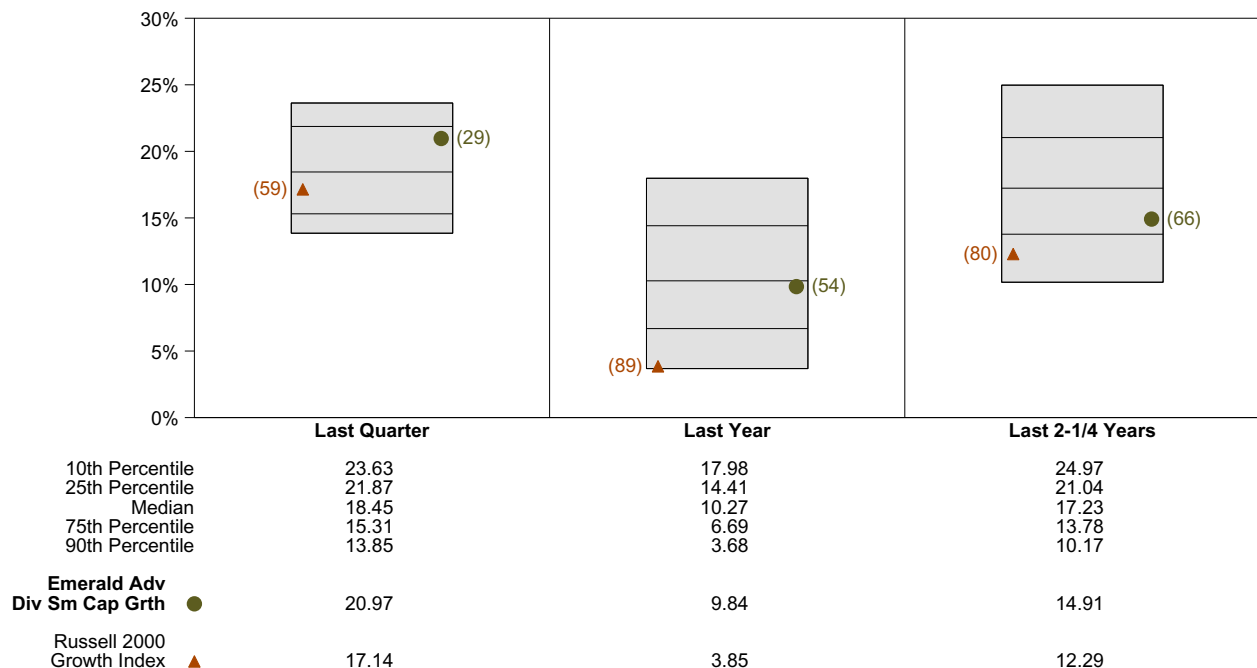
## Quarterly Summary and Highlights

- Emerald Adv Div Sm Cap Grth's portfolio posted a 20.97% return for the quarter placing it in the 29 percentile of the Callan Small Cap Growth group for the quarter and in the 54 percentile for the last year.
- Emerald Adv Div Sm Cap Grth's portfolio outperformed the Russell 2000 Growth Index by 3.82% for the quarter and outperformed the Russell 2000 Growth Index for the year by 5.99%.

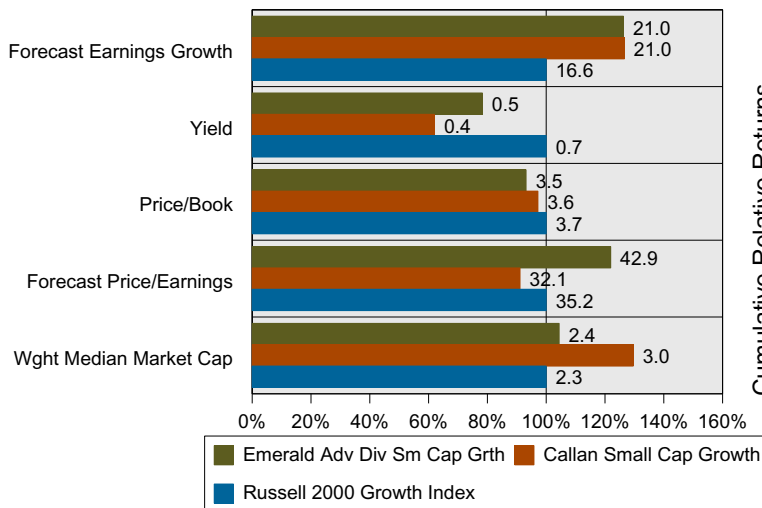
## Quarterly Asset Growth

Beginning Market Value	\$564,384,606
Net New Investment	\$-702,237
Investment Gains/(Losses)	\$118,331,274
Ending Market Value	\$682,013,643

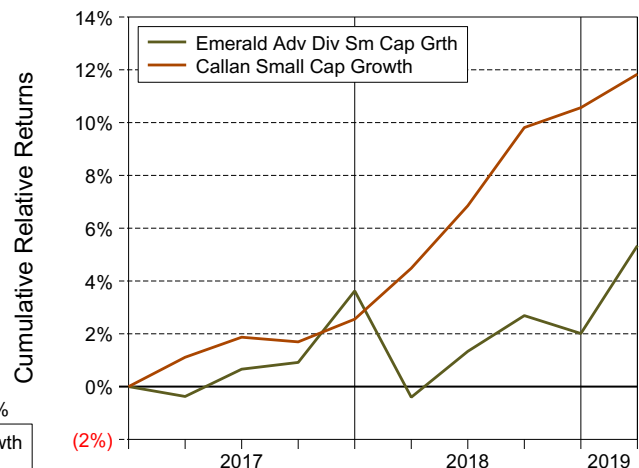
## Performance vs Callan Small Cap Growth (Gross)



## Portfolio Characteristics as a Percentage of the Russell 2000 Growth Index



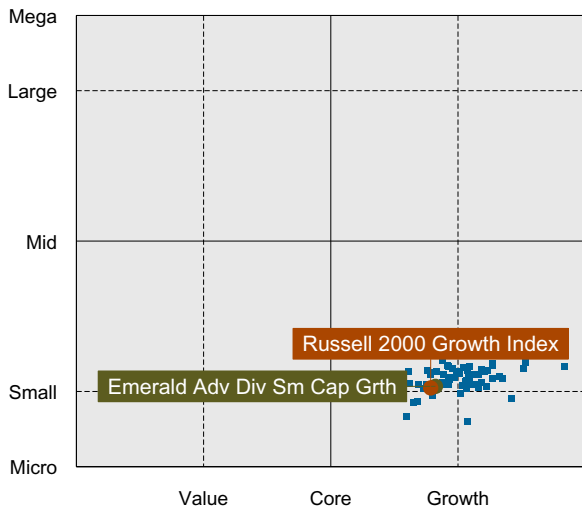
## Cumulative Returns vs Russell 2000 Growth Index



# Current Holdings Based Style Analysis Emerald Adv Div Sm Cap Grth As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various market capitalization and style segments of the domestic equity market. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

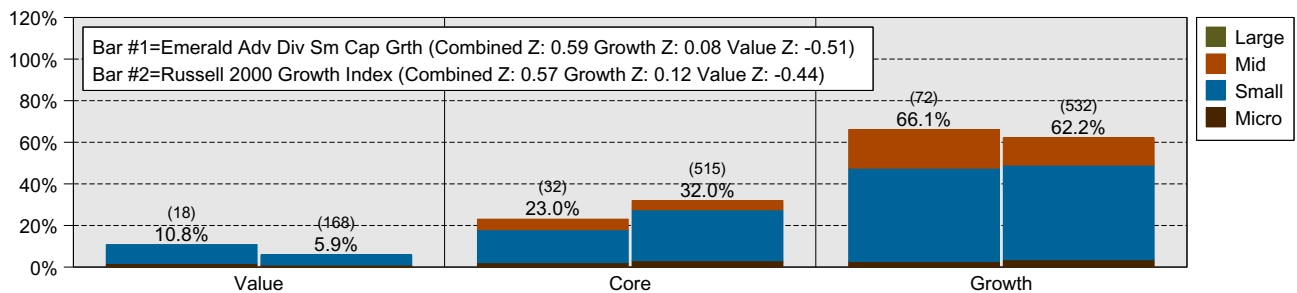
**Style Map vs Callan Small Cap Growth Holdings as of March 31, 2019**



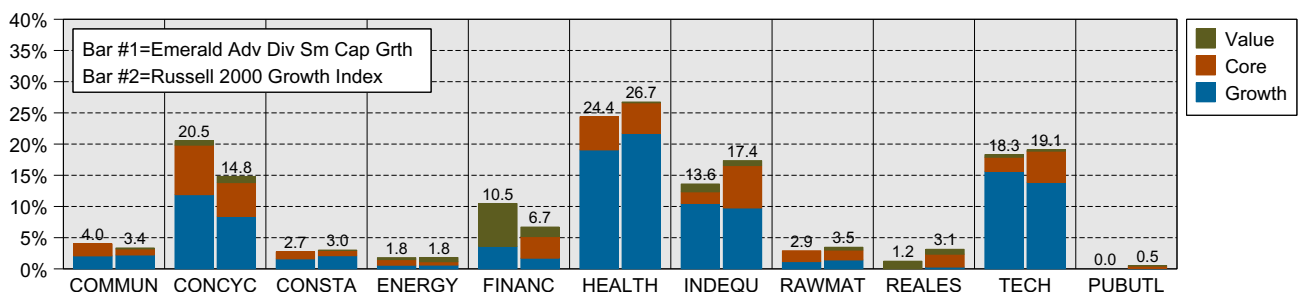
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Mid	0.0% (0)	5.1% (4)	18.6% (16)	23.6% (20)
Small	9.1% (14)	15.9% (21)	44.8% (49)	69.8% (84)
Micro	1.7% (4)	2.1% (7)	2.7% (7)	6.6% (18)
<b>Total</b>	<b>10.8% (18)</b>	<b>23.0% (32)</b>	<b>66.1% (72)</b>	<b>100.0% (122)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

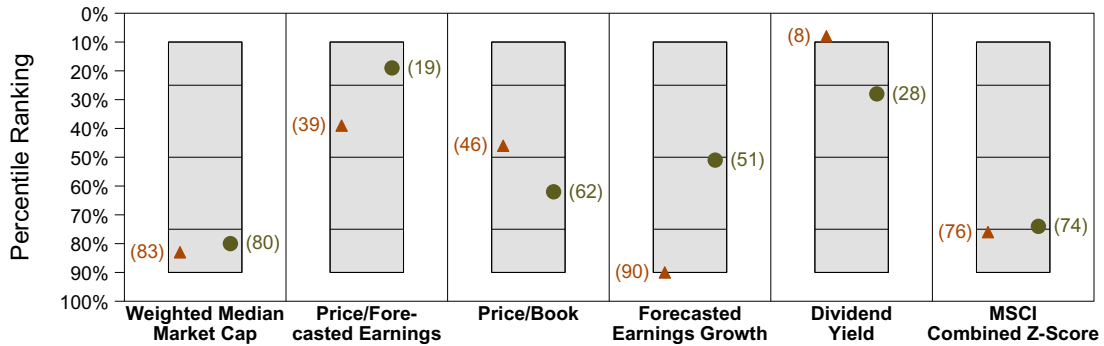


# Emerald Adv Div Sm Cap Grth Equity Characteristics Analysis Summary

## Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

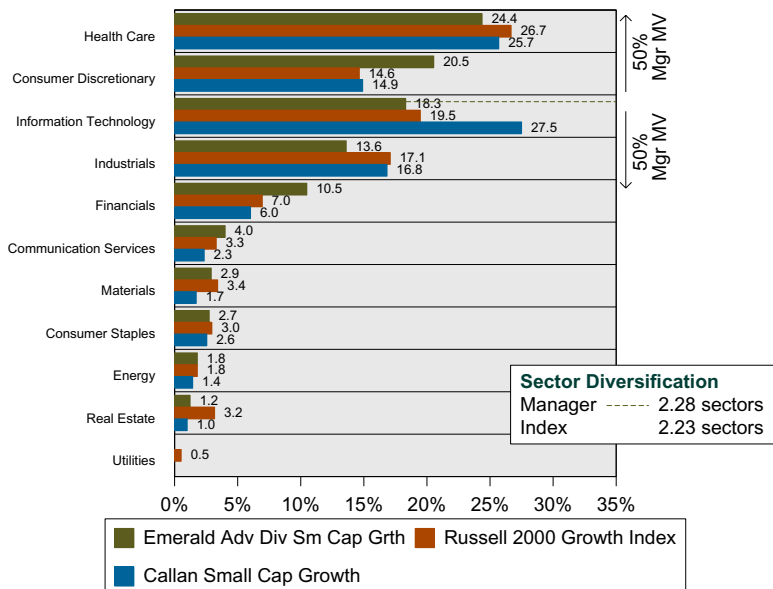
## Portfolio Characteristics Percentile Rankings Rankings Against Callan Small Cap Growth as of March 31, 2019



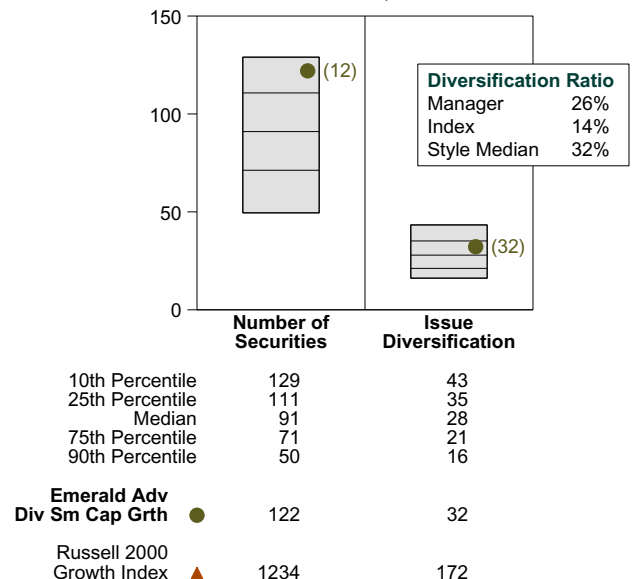
## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.

### Sector Allocation March 31, 2019



### Diversification March 31, 2019

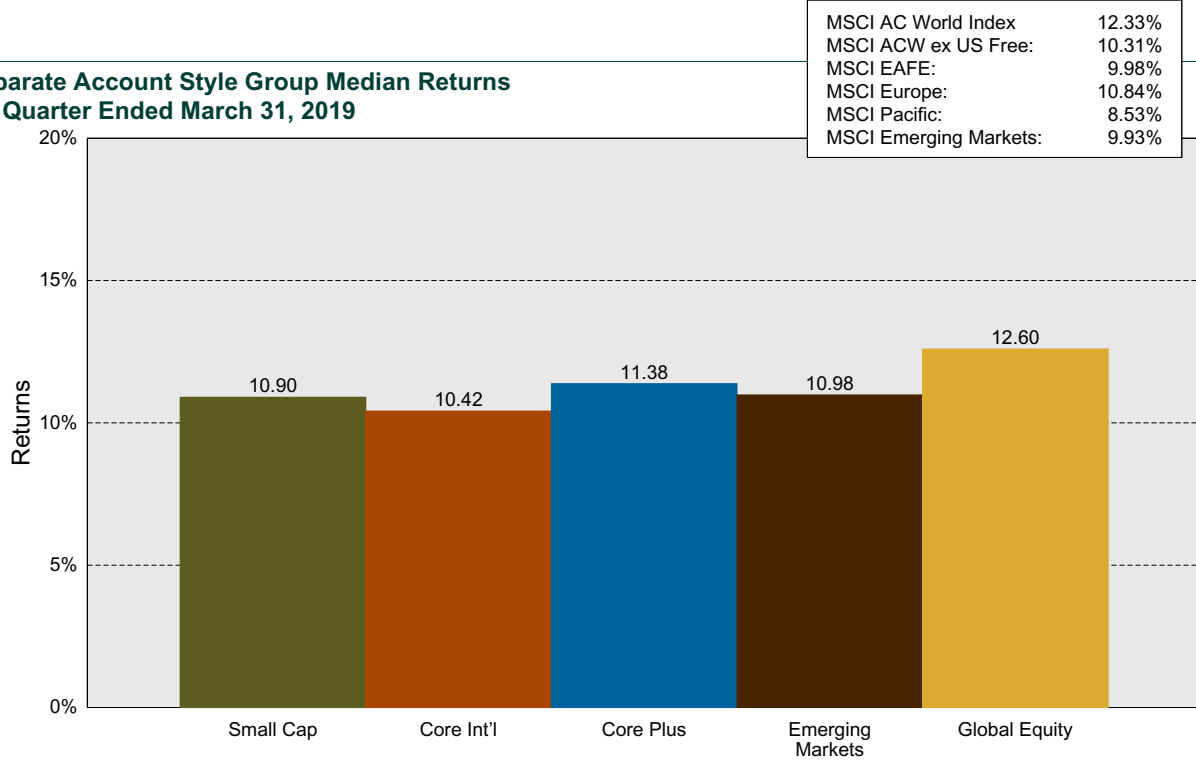




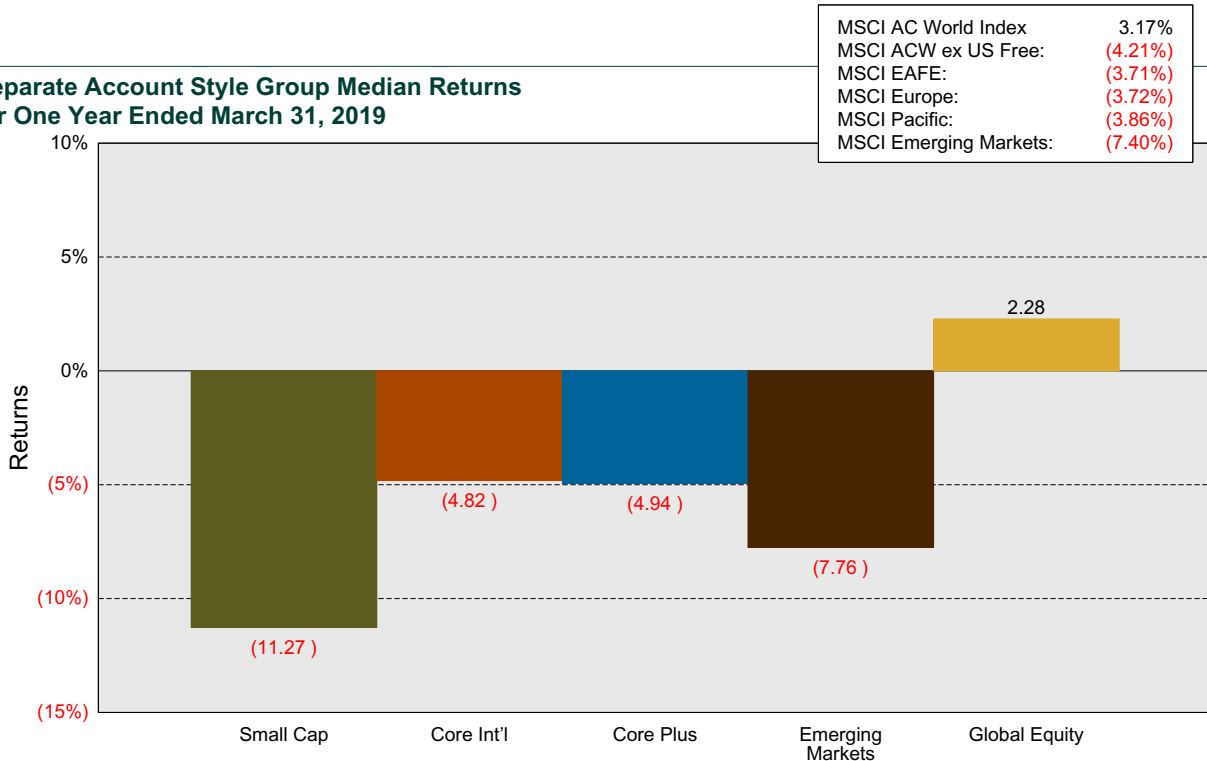
## International Equity Active Management Overview

Non-U.S. developed (MSCI EAFE: 10.0%) and emerging market equities (MSCI Emg Mkts: +9.9%) also rebounded strongly in the first quarter, but trailed their U.S. counterparts (and failed to make up for the pain felt in the fourth quarter). The U.K. (+11.9%), Canada (+15.4%), and Italy (+14.6%) were among the standout performers, while Japan (+6.7%) was a laggard but positive nonetheless. Similarly, emerging market performance was robust across the board with all the BRIC countries up strongly: China (+17.7%), India (+7.2%), Russia (+12.2%), and Brazil (+8.1%). Turkey's GDP dropped 3% y-o-y in the fourth quarter amid economic and political woes and was the worst-performing country (-3.2%).

### Separate Account Style Group Median Returns for Quarter Ended March 31, 2019



### Separate Account Style Group Median Returns for One Year Ended March 31, 2019





# Non-U.S. Developed Markets Equity Period Ended March 31, 2019

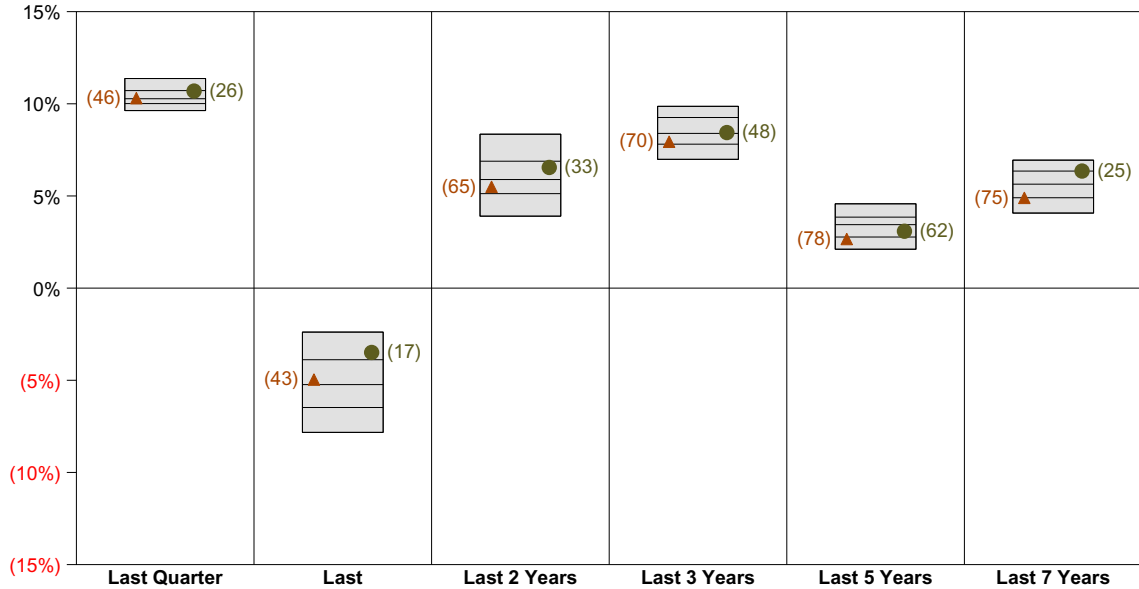
## Quarterly Summary and Highlights

- Non-U.S. Developed Markets Equity's portfolio posted a 10.69% return for the quarter placing it in the 26 percentile of the Public Fund - International Equity group for the quarter and in the 17 percentile for the last year.
- Non-U.S. Developed Markets Equity's portfolio outperformed the MSCI ACWI ex US IMI by 0.38% for the quarter and outperformed the MSCI ACWI ex US IMI for the year by 1.47%.

## Quarterly Asset Growth

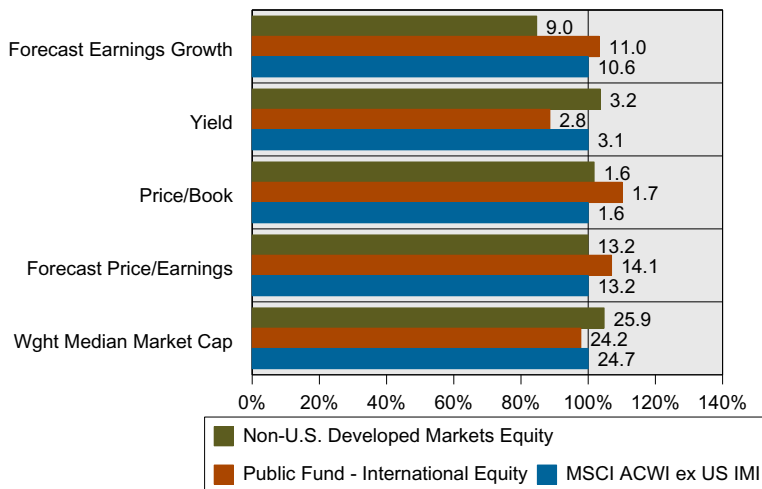
Beginning Market Value	\$5,017,818,817
Net New Investment	\$-100,000,000
Investment Gains/(Losses)	\$527,397,095
Ending Market Value	\$5,445,215,912

## Performance vs Public Fund - International Equity (Gross)

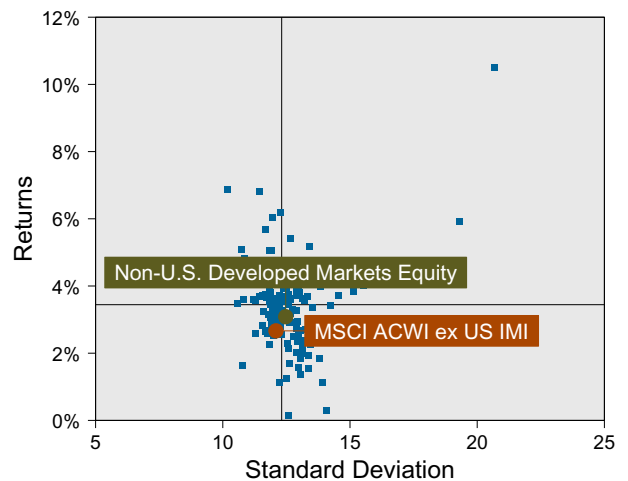


Non-U.S. Developed Markets Equity ●  
MSCI ACWI ex US IMI ▲

## Portfolio Characteristics as a Percentage of the MSCI ACWI ex US IMI



## Public Fund - International Equity (Gross) Annualized Five Year Risk vs Return



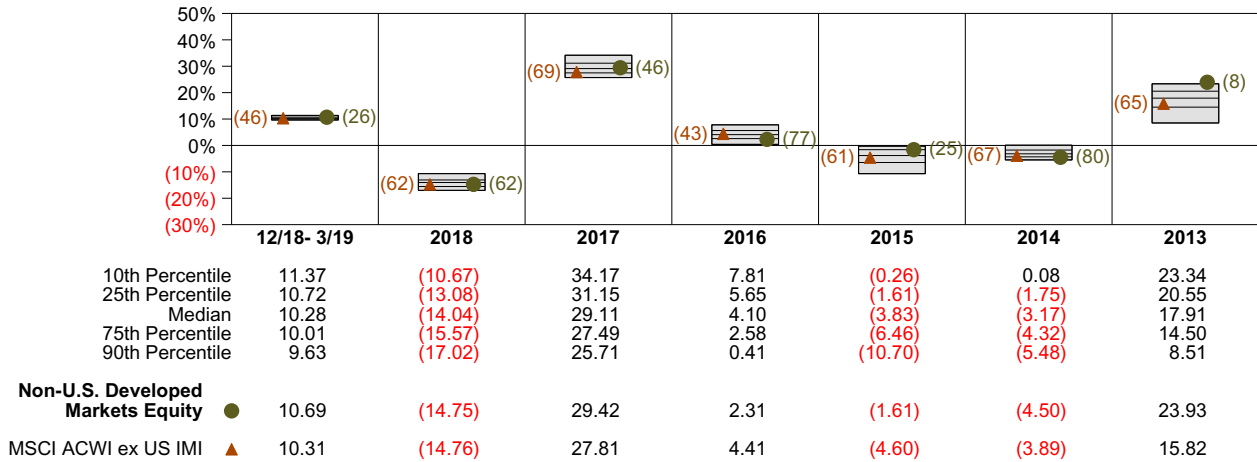


# Non-U.S. Developed Markets Equity Return Analysis Summary

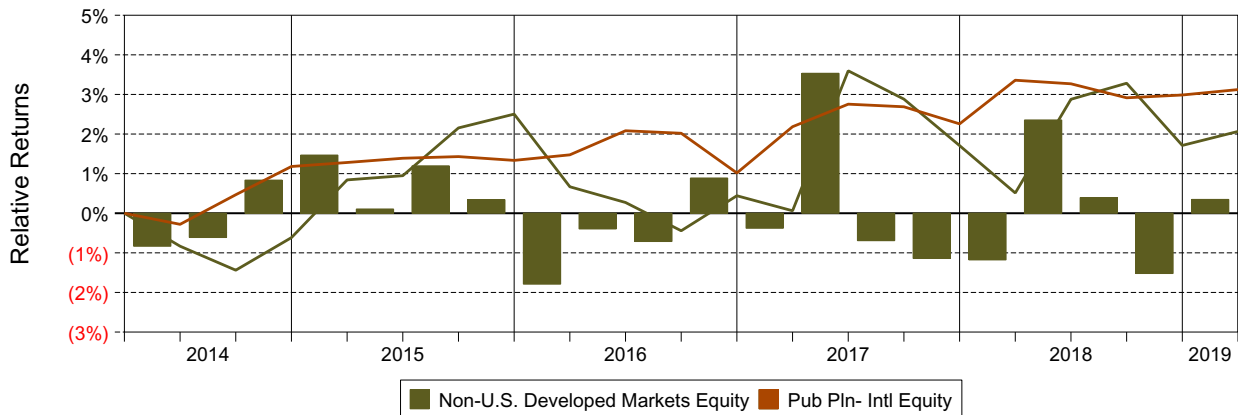
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

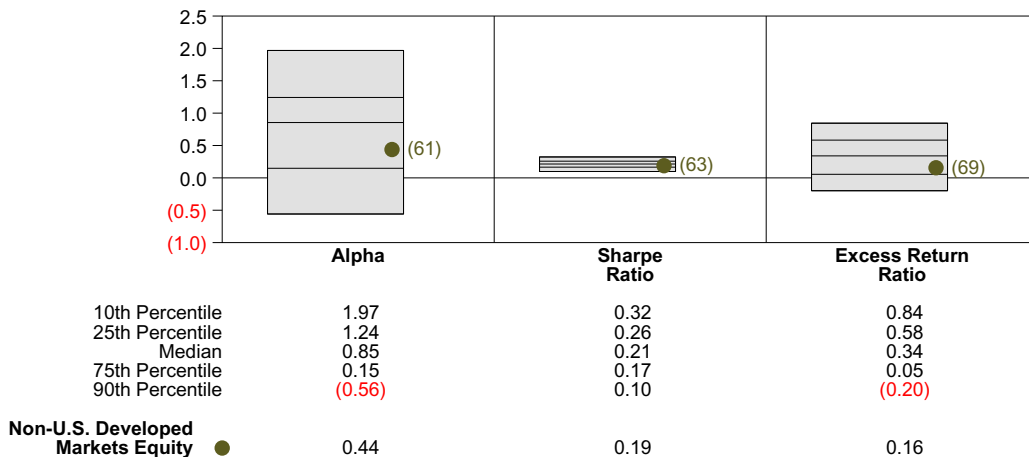
### Performance vs Public Fund - International Equity (Gross)



### Cumulative and Quarterly Relative Return vs MSCI ACWI ex US IMI



### Risk Adjusted Return Measures vs MSCI ACWI ex US IMI Rankings Against Public Fund - International Equity (Gross) Five Years Ended March 31, 2019

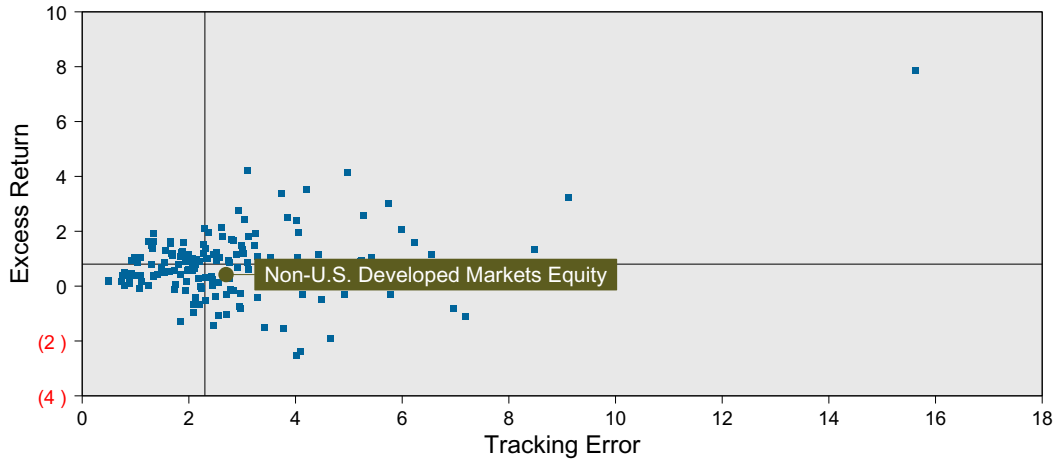


# Non-U.S. Developed Markets Equity Risk Analysis Summary

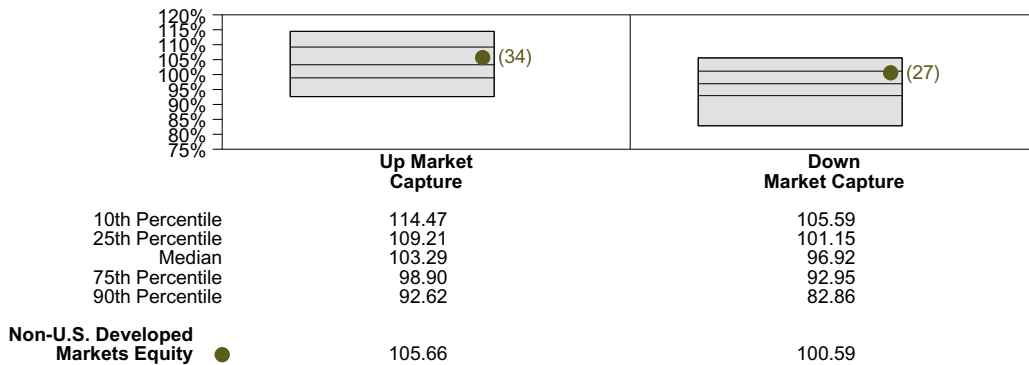
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

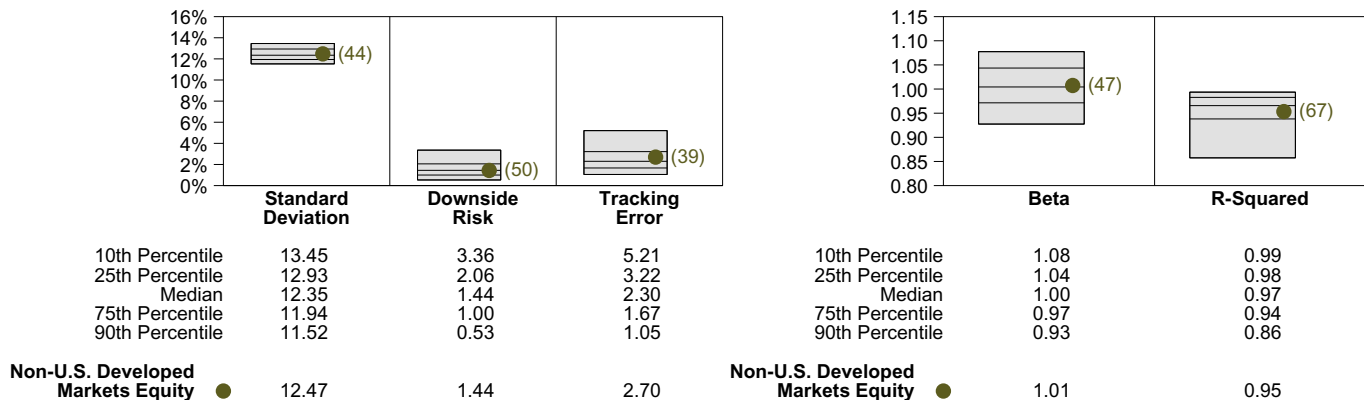
### Risk Analysis vs Public Fund - International Equity (Gross) Five Years Ended March 31, 2019



### Market Capture vs MSCI ACWI ex US IMI Index (USD Net Div) Rankings Against Public Fund - International Equity (Gross) Five Years Ended March 31, 2019



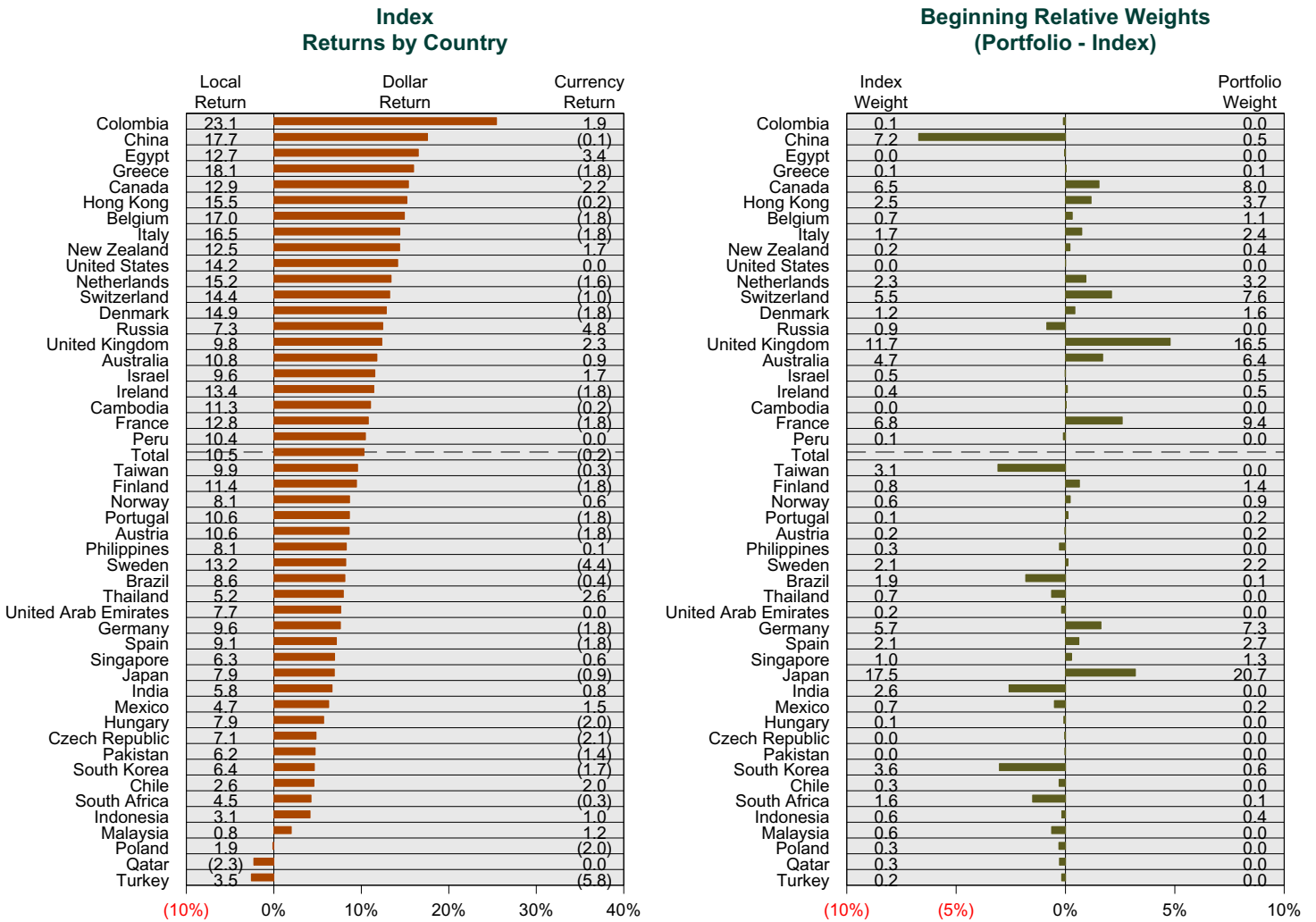
### Risk Statistics Rankings vs MSCI ACWI ex US IMI Index (USD Net Div) Rankings Against Public Fund - International Equity (Gross) Five Years Ended March 31, 2019



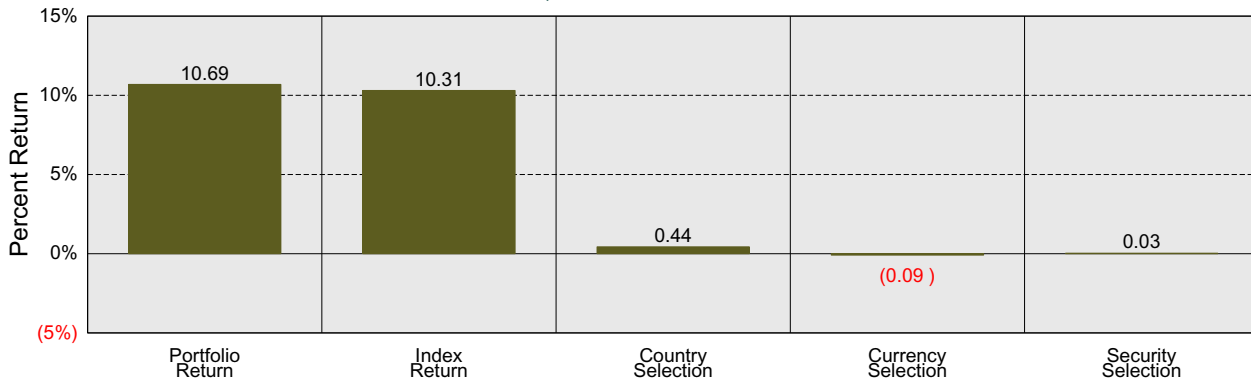
# Non-U.S. Developed Markets Equity vs MSCI ACWI ex US IMI Attribution for Quarter Ended March 31, 2019

## International Attribution

The first chart below illustrates the return for each country in the index sorted from high to low. The total return for the index is highlighted with a dotted line. The second chart (countries presented in the same order) illustrates the manager's country allocation decisions relative to the index. To the extent that the manager over-weighted a country that had a higher return than the total return for the index (above the dotted line) it contributes positively to the manager's country (or currency) selection effect. The last chart details the manager return, the index return, and the attribution factors for the quarter.



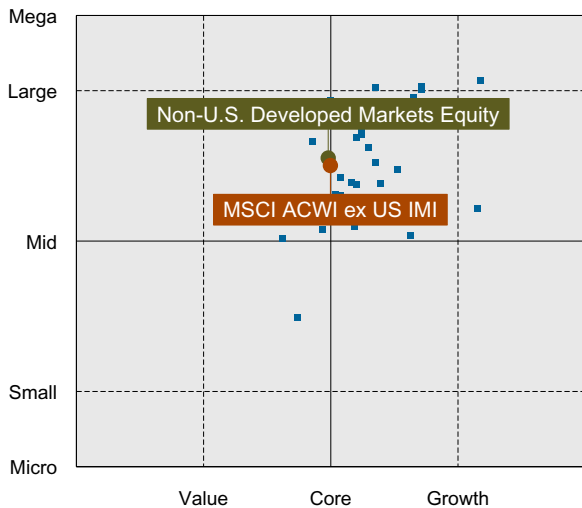
## Attribution Factors for Quarter Ended March 31, 2019



# Current Holdings Based Style Analysis Non-U.S. Developed Markets Equity As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

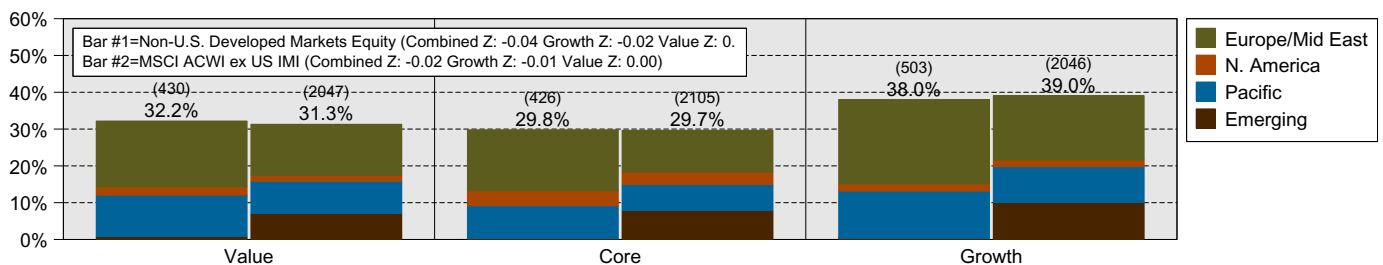
**Style Map vs Pub Pln- Intl Equity Holdings as of March 31, 2019**



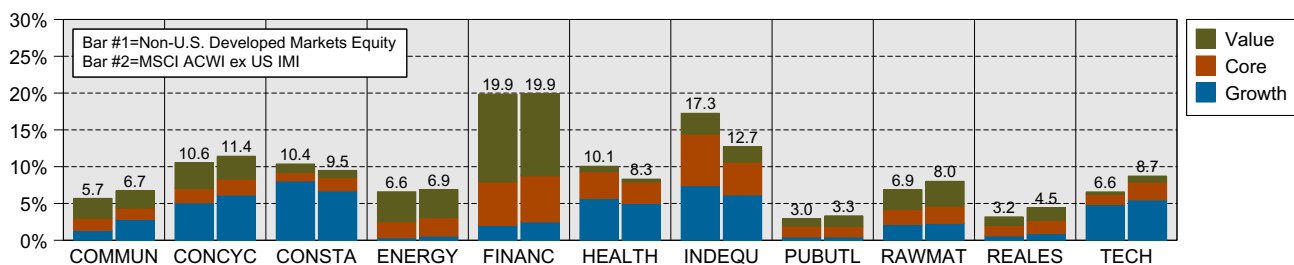
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Europe/ Mid East	17.8% (178)	16.6% (197)	22.8% (228)	57.2% (603)
N. America	13.9% (477)	11.3% (509)	17.4% (495)	42.6% (1481)
Pacific	2.3% (36)	4.1% (35)	2.0% (31)	8.4% (102)
Emerging	1.6% (100)	3.3% (116)	1.8% (86)	6.8% (302)
<b>Total</b>	<b>32.2% (430)</b>	<b>29.8% (426)</b>	<b>38.0% (503)</b>	<b>100.0% (1359)</b>
	31.3% (2047)	29.7% (2105)	39.0% (2046)	100.0% (6198)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



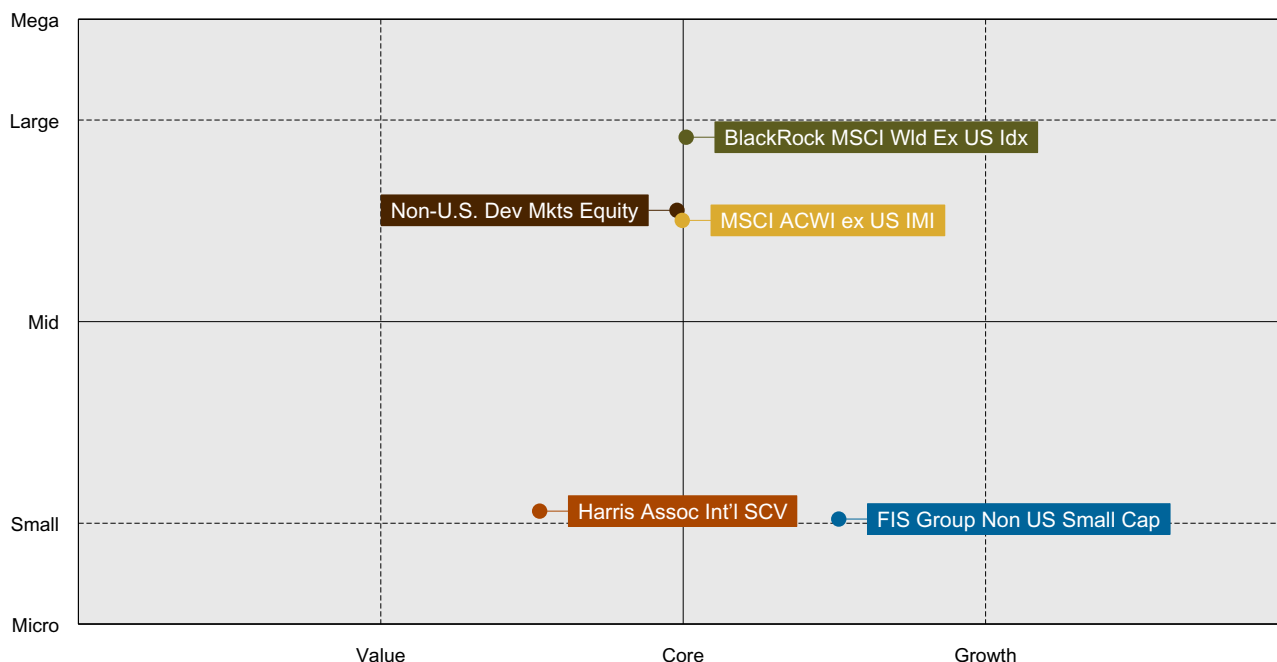
**Sector Weights Distribution Holdings as of March 31, 2019**



## International Holdings Based Style Analysis For One Quarter Ended March 31, 2019

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

### Style Map Holdings for One Quarter Ended March 31, 2019



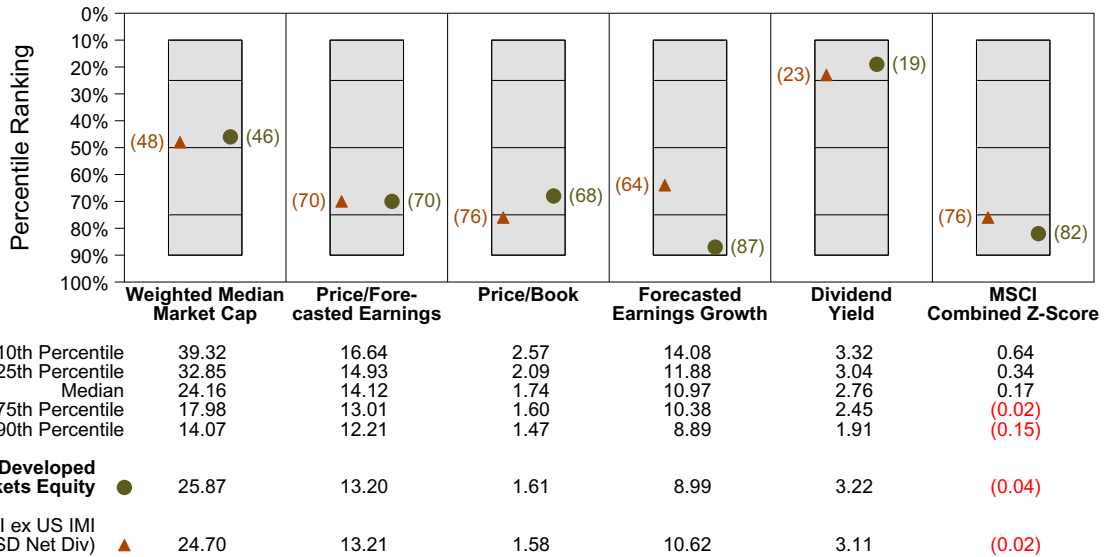
	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
BlackRock MSCI Wld Ex US Idx	86.38%	34.35	(0.01)	(0.01)	(0.00)	1016	122.80
Harris Assoc Int'l SCV	9.96%	2.81	(0.47)	(0.16)	0.31	61	17.90
FIS Group Non US Small Cap	3.48%	2.39	0.46	0.24	(0.22)	372	51.24
Non-U.S. Dev Mkts Equity	100.00%	25.87	(0.04)	(0.02)	0.02	1416	148.50
MSCI ACWI ex US IMI	-	24.70	(0.02)	(0.01)	0.00	6234	249.45

# Non-U.S. Developed Markets Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

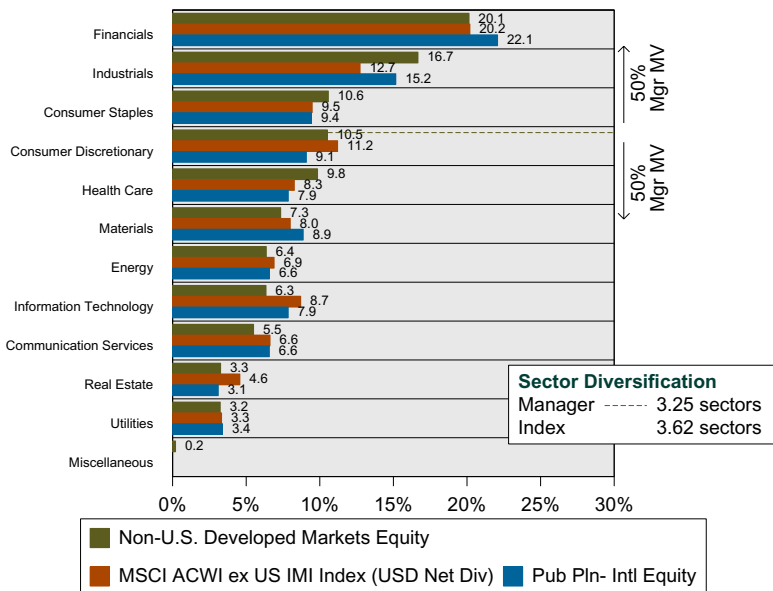
## Portfolio Characteristics Percentile Rankings Rankings Against Public Fund - International Equity as of March 31, 2019



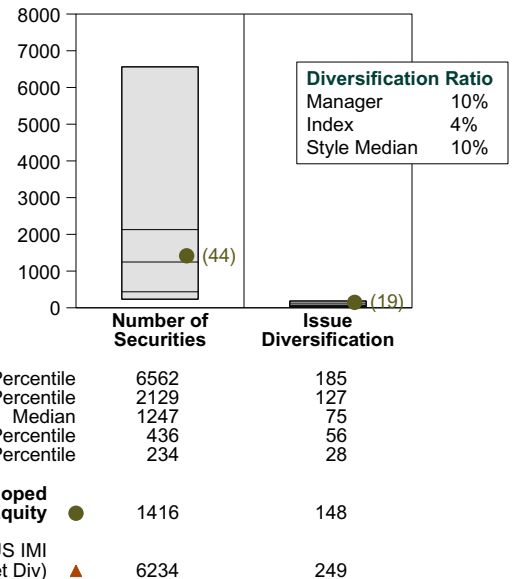
## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.

### Sector Allocation March 31, 2019



### Diversification March 31, 2019



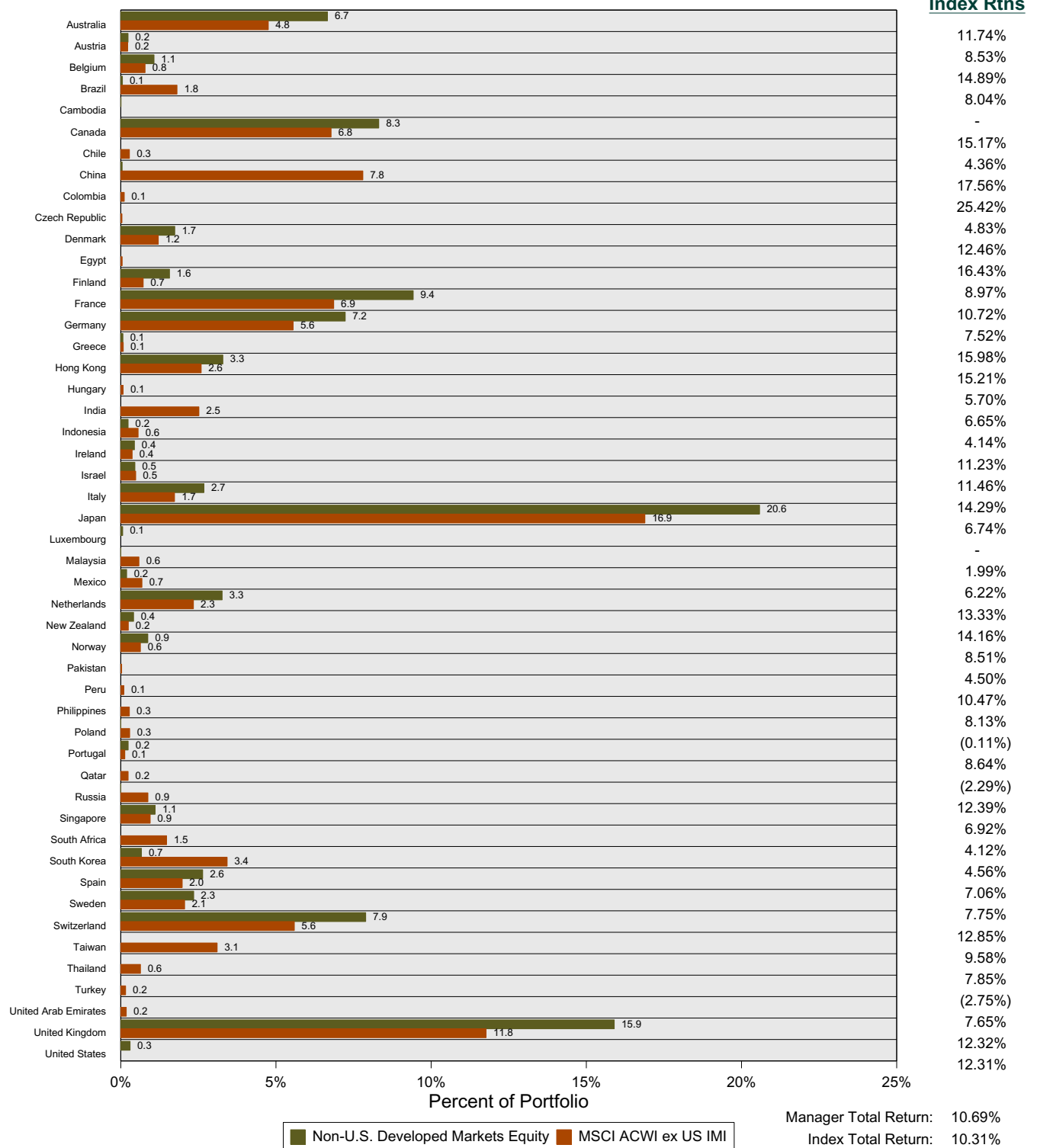
# Country Allocation

## Non-U.S. Developed Markets Equity VS MSCI ACWI ex US IMI Index (USD Net Div)

### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

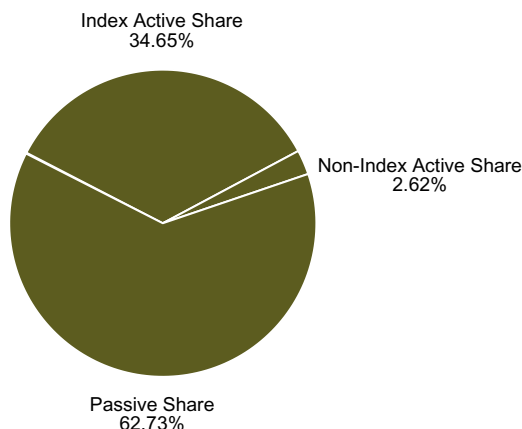
### Country Weights as of March 31, 2019



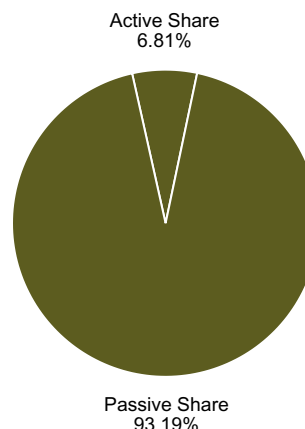
## Non-U.S. Developed Markets Equity Active Share Analysis as of March 31, 2019 vs. MSCI ACWI ex US IMI Index (USD Net Div)

Active Share analysis compares the holdings of a portfolio to an index to measure how aggressively it differs from the index. Active share is measured at the individual stock level ("holdings-level active share") and using sector weights ("sector exposure active share"). Holdings-level active share comes from: 1) Index Active Share - over/under weighting of stocks in the index, and 2) Non-Index Active Share - positions in stocks not in the index. This analysis displays active share by sector and compares the portfolio to a relevant peer group.

### Holdings-Level Active Share



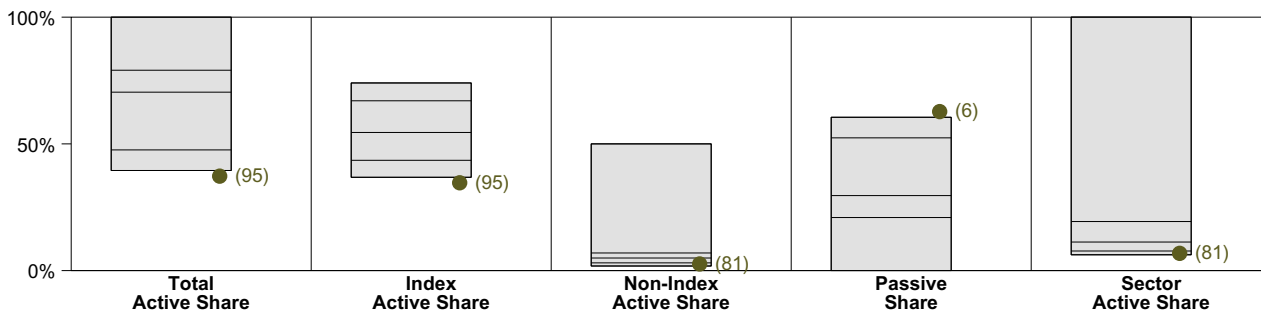
### Sector Exposure Active Share



**Total Active Share: 37.27%**

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	46.01%	2.96%	48.97%	6.62%	5.50%	2.69%
Consumer Discretionary	38.93%	3.38%	42.31%	11.21%	10.52%	4.37%
Consumer Staples	24.81%	3.11%	27.92%	9.48%	10.58%	3.19%
Energy	32.52%	0.11%	32.63%	6.89%	6.37%	1.98%
Financials	34.06%	2.38%	36.44%	20.20%	20.14%	7.31%
Health Care	18.57%	1.04%	19.60%	8.27%	9.85%	2.41%
Industrials	26.43%	2.12%	28.55%	12.74%	16.67%	5.67%
Information Technology	52.24%	0.24%	52.48%	8.70%	6.35%	3.40%
Materials	38.31%	4.79%	43.10%	8.00%	7.34%	3.11%
Miscellaneous	0.00%	100.00%	100.00%	-	0.20%	0.10%
Real Estate	49.19%	5.13%	54.33%	4.57%	3.26%	1.83%
Utilities	31.31%	6.09%	37.40%	3.33%	3.24%	1.20%
<b>Total</b>	<b>34.65%</b>	<b>2.62%</b>	<b>37.27%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>37.27%</b>

### Active Share vs. Pub Pln- Intl Equity



Non-U.S. Developed Markets Equity ●



## Comparative Manager Matrix

This page allows for detailed comparisons of multiple managers against each other, as well as versus market indices and peer groups. The holding overlap matrices illustrate the degree of individual stock overlap between various portfolios' holdings. The number in parentheses in the lower left corner of each box is the number of stocks that a given portfolio pair hold in common. The number in the upper left corner is the total weight of these overlapping holdings in the y-axis (vertical) portfolio. The number in the lower right corner is the total weight of those same stocks in the x-axis (horizontal) portfolio.

### Holding Overlap for Period Ended March 31, 2019

FIS Group Non US Small Cap	6% (12)	0%	3% (8)	11%	
Harris Assoc Int'l SCV	26% (14)	0%			11% (8)
BlackRock MSCI World Ex US Index			0% (14)	26%	0% (12)
	BlackRock MSCI World Ex US Index		Harris Assoc Int'l SCV		FIS Group Non US Small Cap



# BlackRock MSCI World Ex US Index Period Ended March 31, 2019

## Investment Philosophy

The objective of the World ex-U.S. Index Fund is to track the performance of the MSCI World ex-U.S. Index. The Fund fully replicates the index, holding every stock in the index in its market capitalization weight to ensure close tracking and minimize transaction costs.

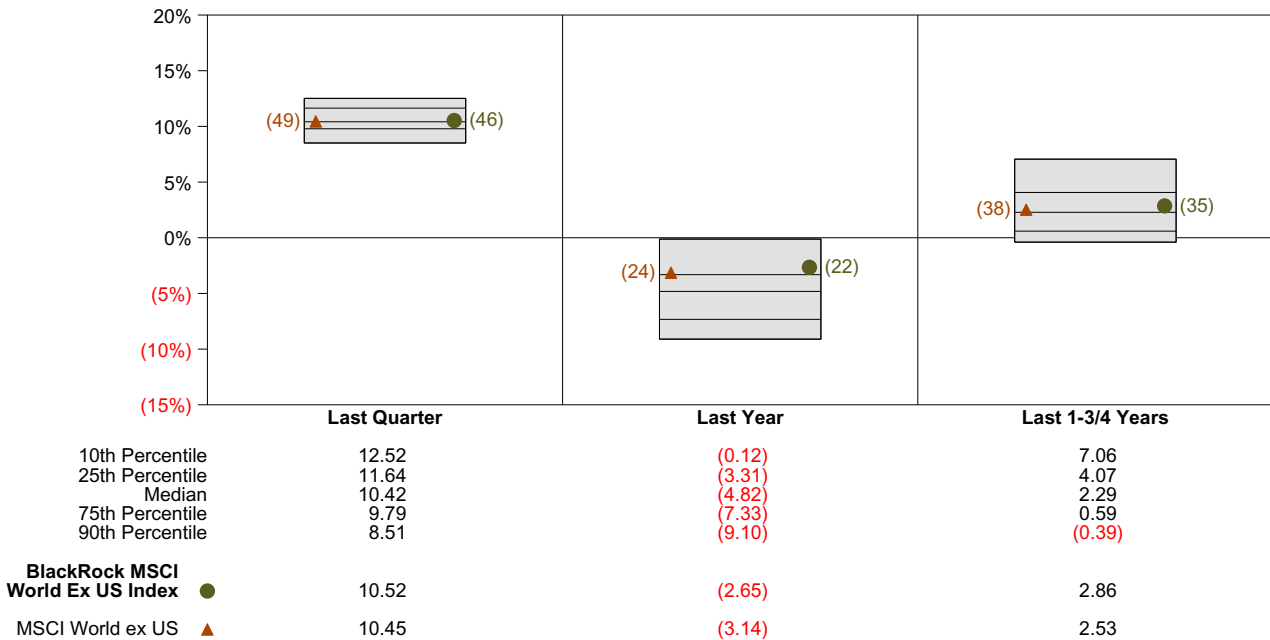
## Quarterly Summary and Highlights

- BlackRock MSCI World Ex US Index's portfolio posted a 10.52% return for the quarter placing it in the 46 percentile of the Callan Non-US Developed Broad Equity group for the quarter and in the 22 percentile for the last year.
- BlackRock MSCI World Ex US Index's portfolio outperformed the MSCI World ex US by 0.08% for the quarter and outperformed the MSCI World ex US for the year by 0.49%.

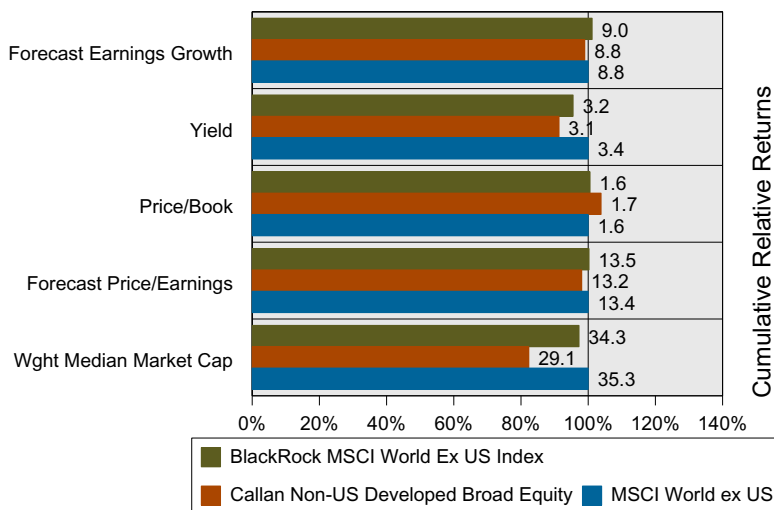
## Quarterly Asset Growth

Beginning Market Value	\$4,354,000,129
Net New Investment	\$-100,000,000
Investment Gains/(Losses)	\$449,341,784
Ending Market Value	\$4,703,341,913

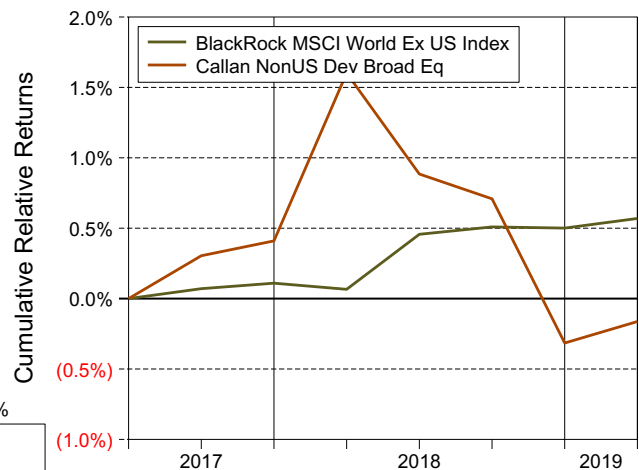
## Performance vs Callan Non-US Developed Broad Equity (Gross)



## Portfolio Characteristics as a Percentage of the MSCI World ex US



## Cumulative Returns vs MSCI World ex US



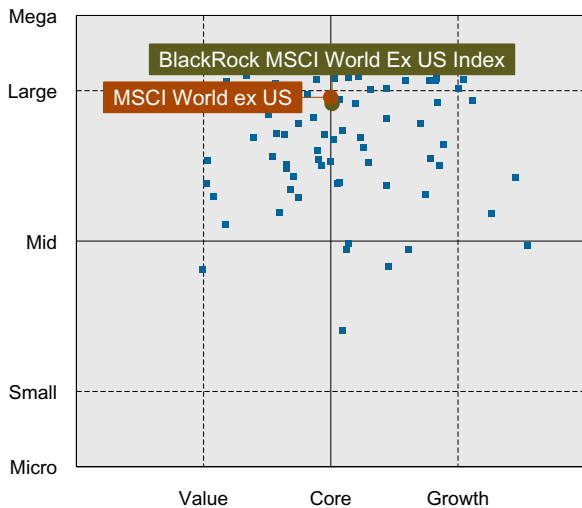
# Current Holdings Based Style Analysis

## BlackRock MSCI World Ex US Index

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left chart illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

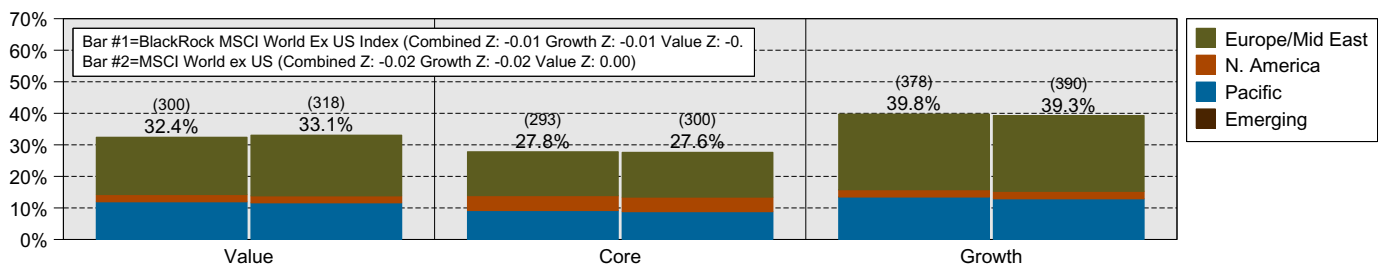
**Style Map vs Callan NonUS Dev Broad Eq Holdings as of March 31, 2019**



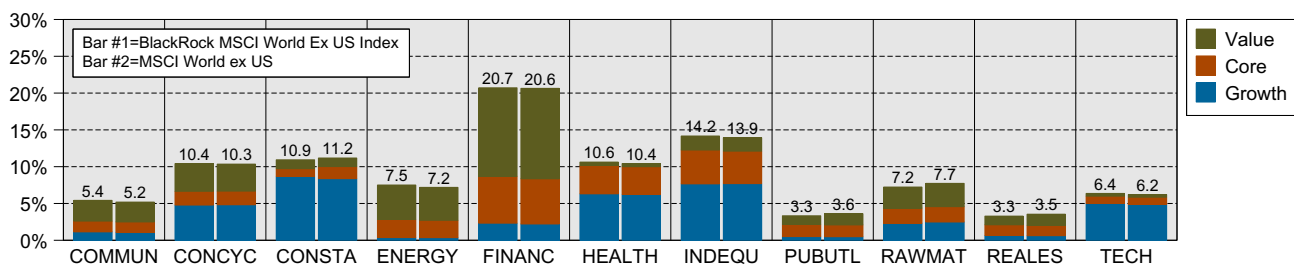
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Europe/ Mid East	18.2% (128)	13.9% (119)	24.0% (170)	56.1% (417)
N. America	2.3% (27)	4.7% (34)	2.3% (27)	9.3% (88)
Pacific	11.9% (145)	9.2% (140)	13.4% (181)	34.5% (466)
Emerging	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
<b>Total</b>	<b>32.4% (300)</b>	<b>27.8% (293)</b>	<b>39.8% (378)</b>	<b>100.0% (971)</b>
	<b>33.1% (318)</b>	<b>27.6% (300)</b>	<b>39.3% (390)</b>	<b>100.0% (1008)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

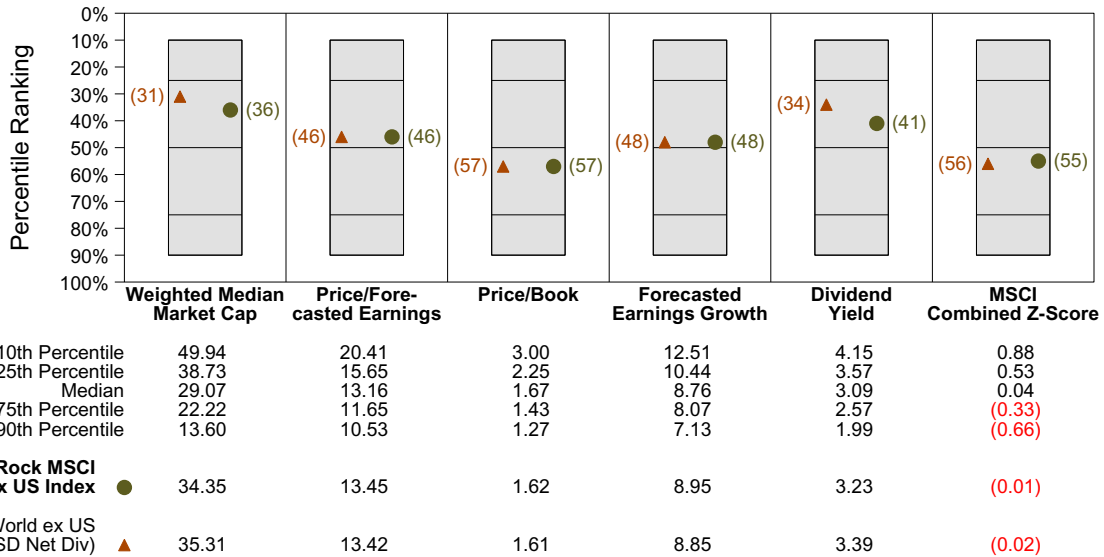


# BlackRock MSCI World Ex US Index Equity Characteristics Analysis Summary

## Portfolio Characteristics

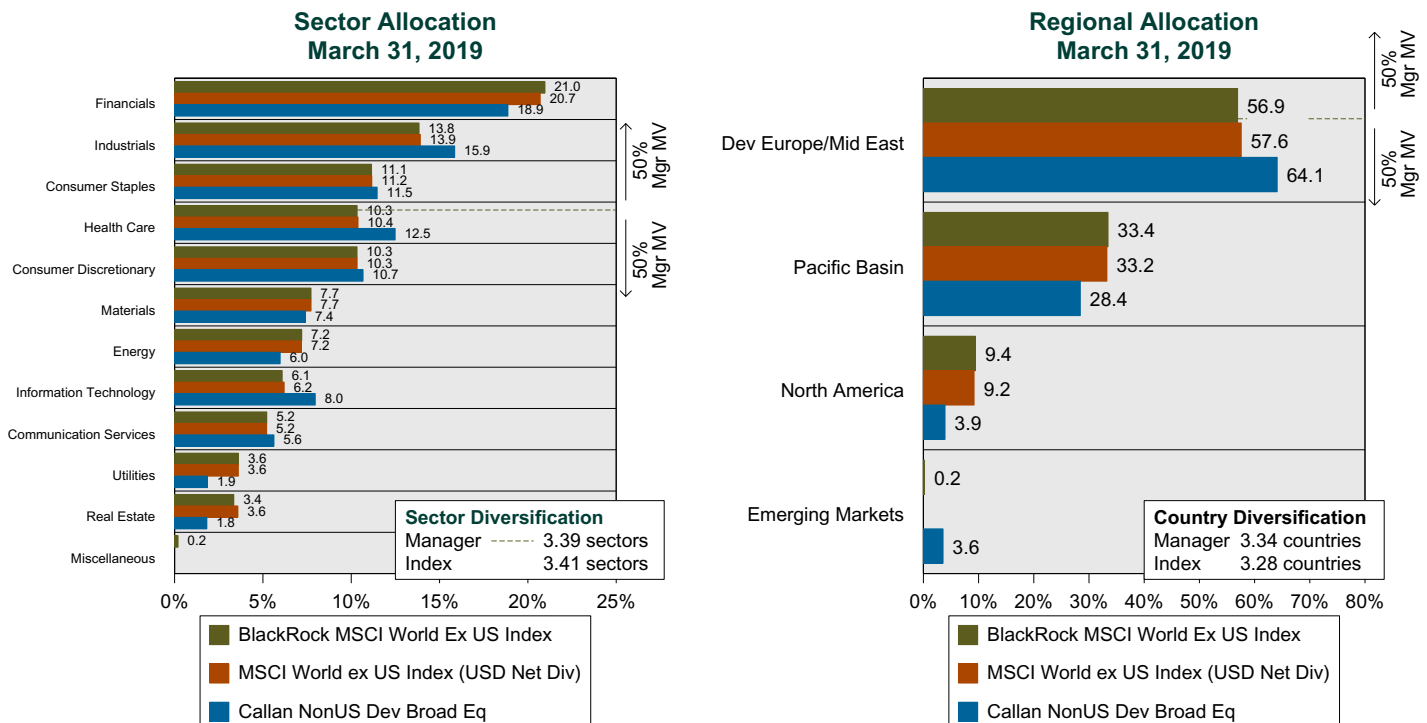
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Non-US Developed Broad Equity as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.



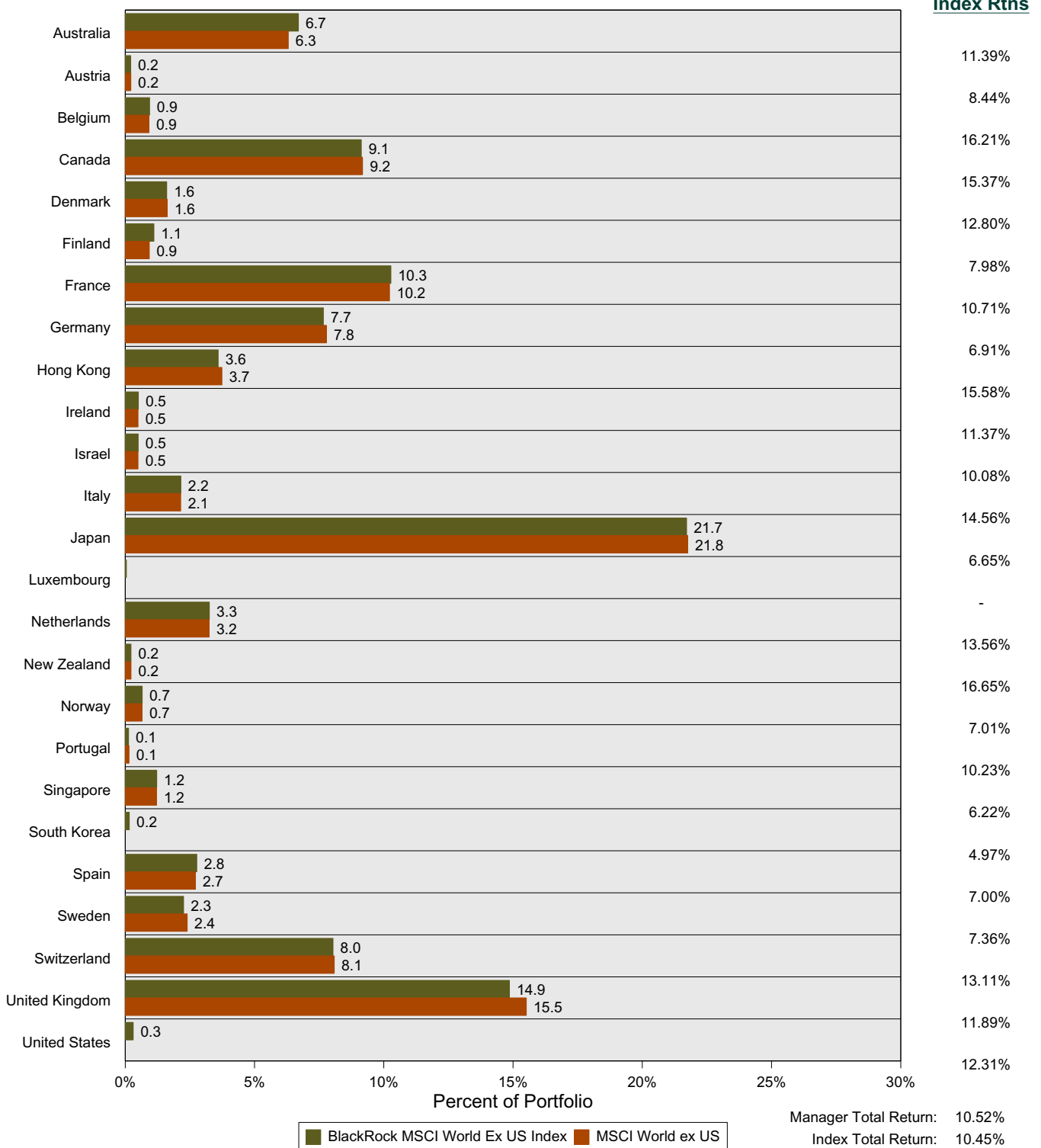
## Country Allocation

### BlackRock MSCI World Ex US Index VS MSCI World ex US Index (USD Net Div)

#### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

#### Country Weights as of March 31, 2019



# FIS Group Non-U.S. Small Cap Period Ended March 31, 2019

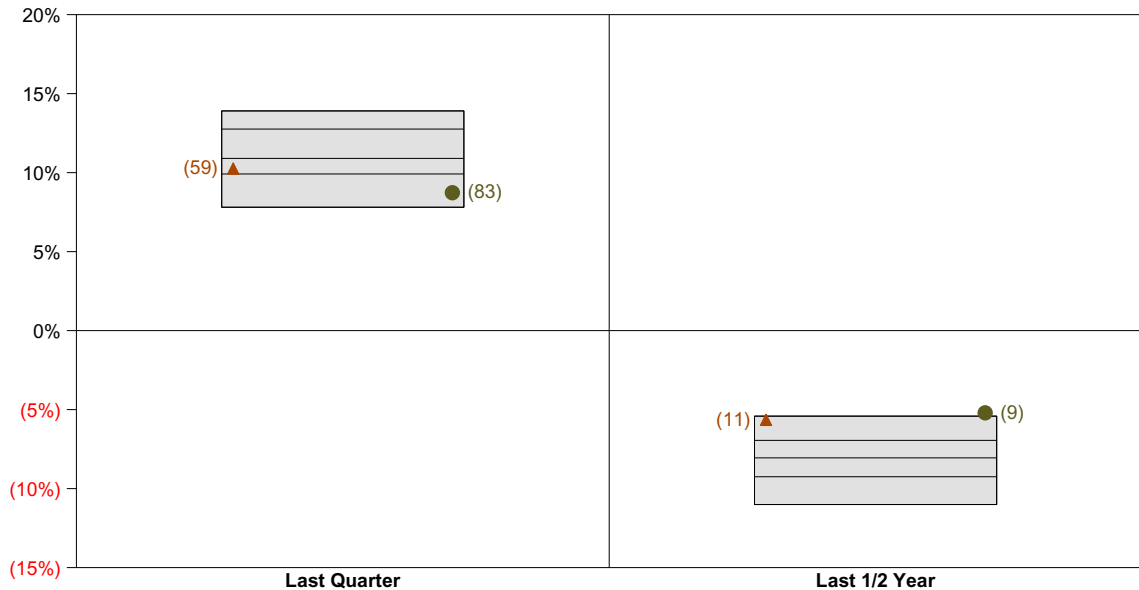
## Quarterly Summary and Highlights

- FIS Group Non-U.S. Small Cap's portfolio posted a 8.73% return for the quarter placing it in the 83 percentile of the Callan International Small Cap group for the quarter and in the 9 percentile for the last one-half year.
- FIS Group Non-U.S. Small Cap's portfolio underperformed the MSCI ACWI ex US Small Cap by 1.53% for the quarter and outperformed the MSCI ACWI ex US Small Cap for the one-half year by 0.44%.

## Quarterly Asset Growth

Beginning Market Value	\$174,368,000
Net New Investment	\$0
Investment Gains/(Losses)	\$15,220,000
Ending Market Value	\$189,588,000

## Performance vs Callan International Small Cap (Gross)



10th Percentile  
25th Percentile  
Median  
75th Percentile  
90th Percentile

Last Quarter

Last 1/2 Year

**FIS Group Non-U.S. Small Cap** ●  
MSCI ACWI ex US Small Cap ▲

8.73

10.26

(5.41)

(6.95)

(8.05)

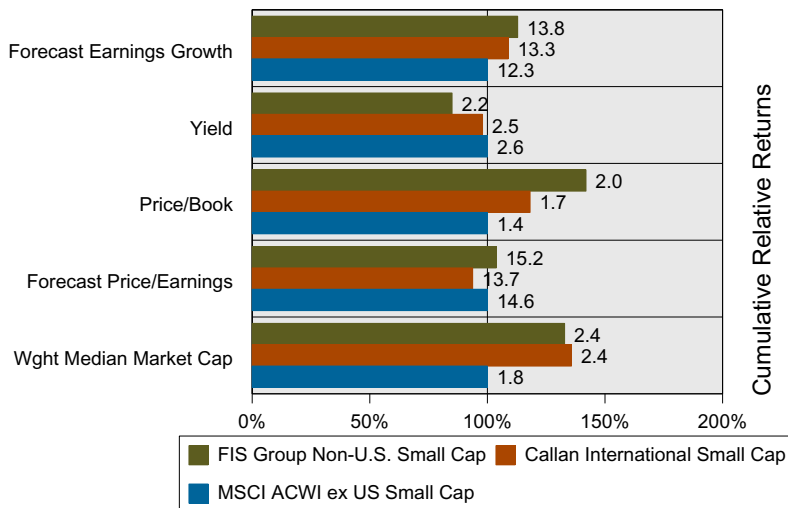
(9.25)

(11.01)

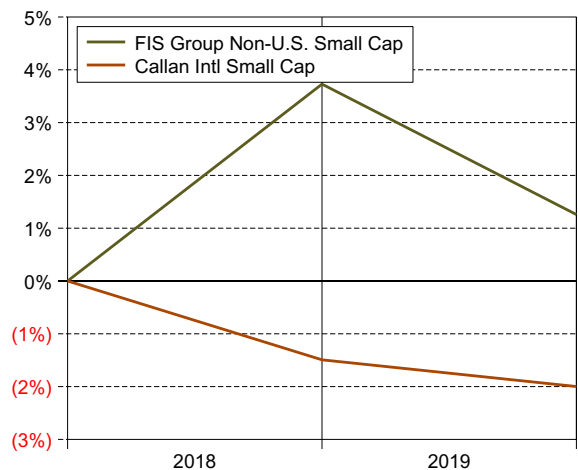
(5.21)

(5.64)

## Portfolio Characteristics as a Percentage of the MSCI ACWI ex US Small Cap



## Cumulative Returns vs MSCI ACWI ex US Small Cap



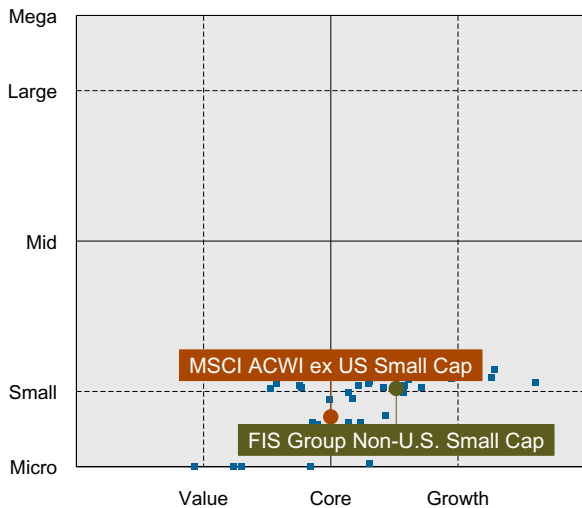
# Current Holdings Based Style Analysis

## FIS Group Non-U.S. Small Cap

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

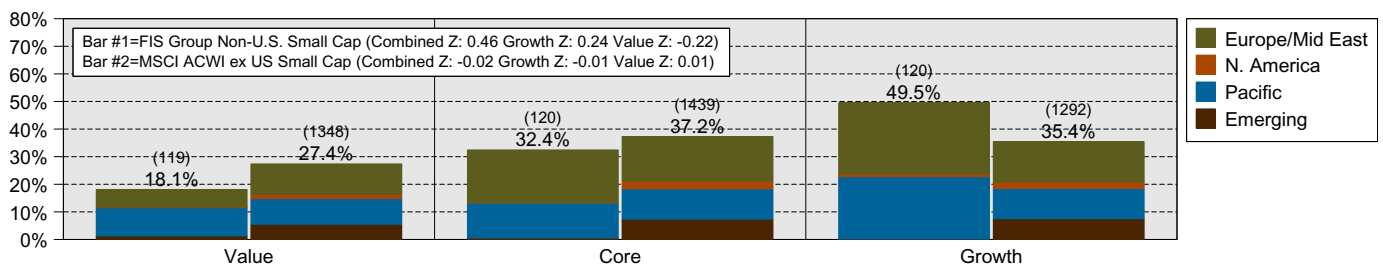
**Style Map vs Callan Intl Small Cap Holdings as of March 31, 2019**



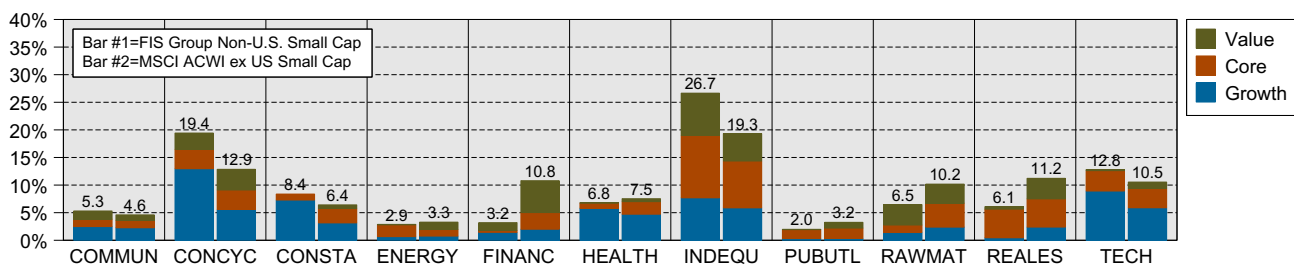
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Europe/ Mid East	6.2% (44)	19.1% (65)	25.8% (53)	51.2% (162)
N. America	11.0% (334)	16.1% (386)	14.5% (315)	41.6% (1035)
Pacific	0.3% (7)	0.0% (1)	0.9% (5)	1.3% (13)
Emerging	1.6% (72)	2.8% (80)	2.4% (58)	6.8% (210)
Total	10.2% (62)	12.7% (47)	22.6% (57)	45.5% (166)
	9.3% (462)	10.9% (424)	10.9% (398)	31.2% (1284)
	1.3% (6)	0.5% (7)	0.2% (5)	2.0% (18)
	5.5% (480)	7.4% (549)	7.5% (521)	20.4% (1550)
<b>Total</b>	<b>18.1% (119)</b>	<b>32.4% (120)</b>	<b>49.5% (120)</b>	<b>100.0% (359)</b>
	<b>27.4% (1348)</b>	<b>37.2% (1439)</b>	<b>35.4% (1292)</b>	<b>100.0% (4079)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**





# FIS Group Non-U.S. Small Cap Equity Characteristics Analysis Summary

## Portfolio Characteristics

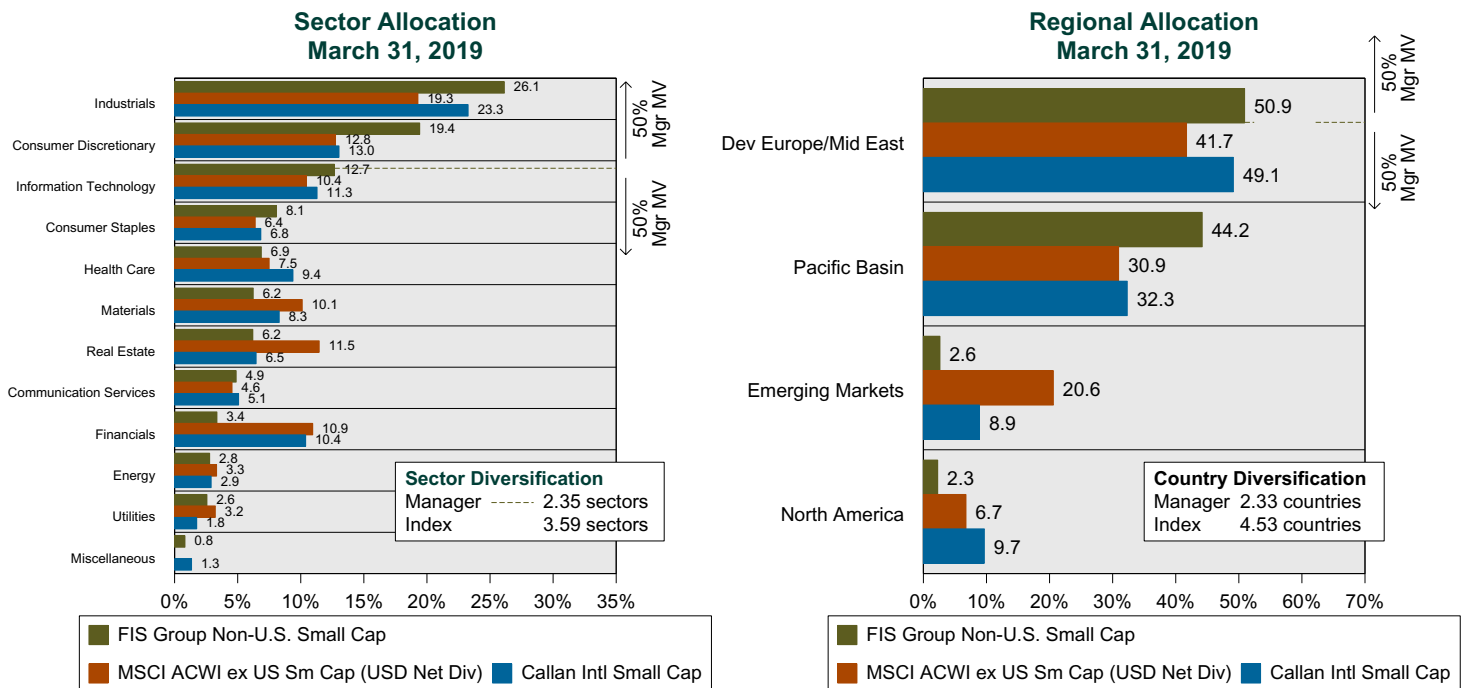
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan International Small Cap as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.



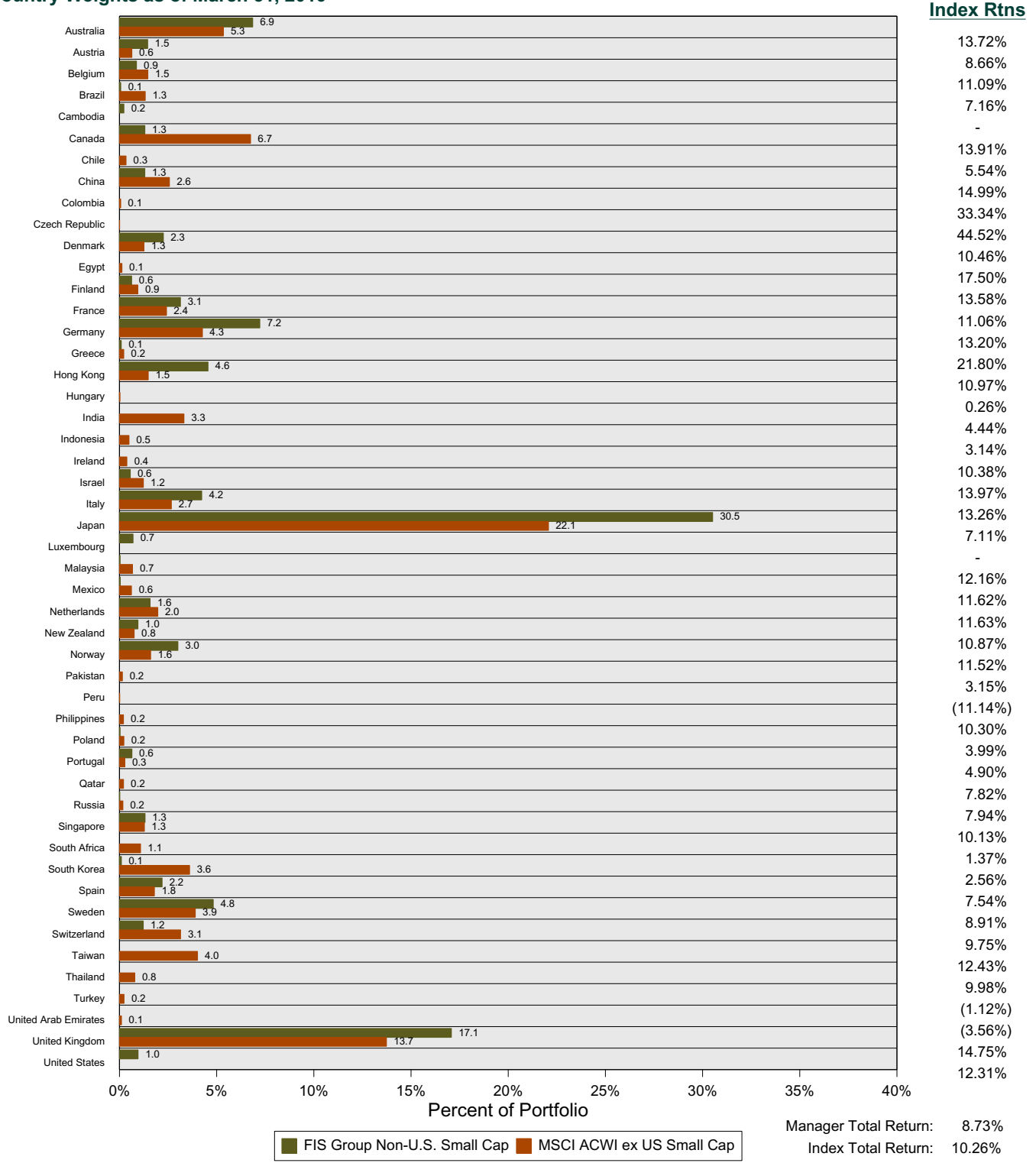
# Country Allocation

## FIS Group Non-U.S. Small Cap VS MSCI ACWI ex US Sm Cap (USD Net Div)

### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

Country Weights as of March 31, 2019



# Harris Assoc Int'l SCV Period Ended March 31, 2019

## Investment Philosophy

The team seeks to invest in companies that trade at a substantial discount to their underlying business values and are run by managers who think and act as owners. Portfolio managers believe that purchasing a quality business at a discount to its underlying value minimizes risk while providing substantial profit potential.

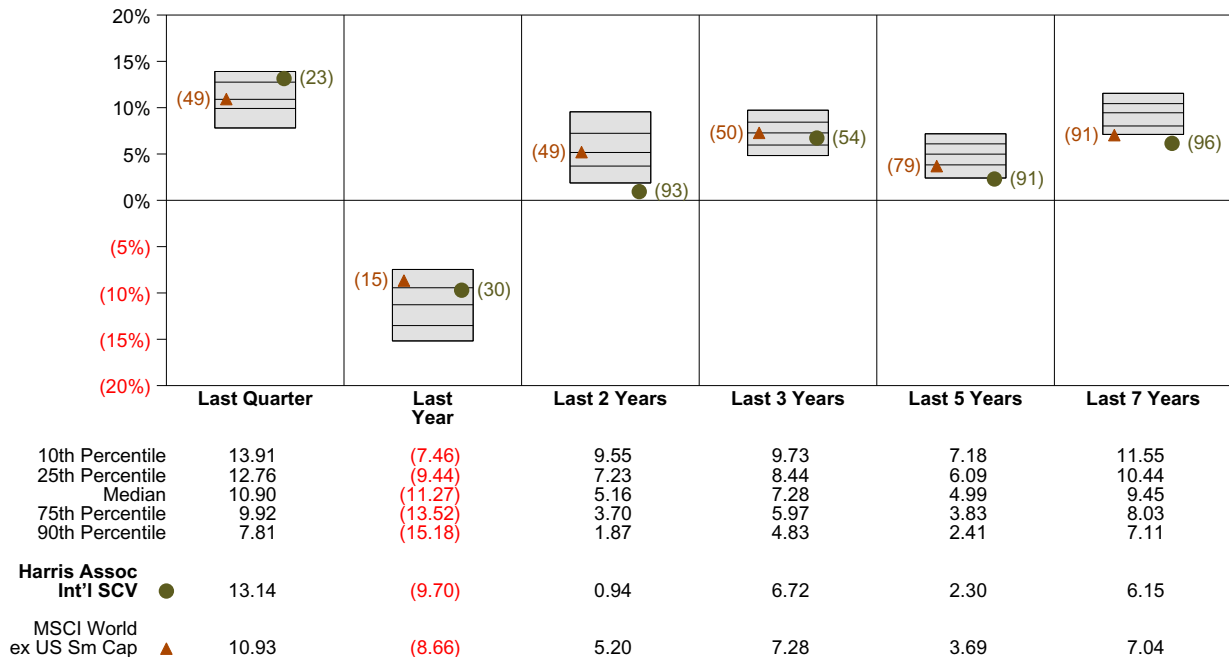
## Quarterly Summary and Highlights

- Harris Assoc Int'l SCV's portfolio posted a 13.14% return for the quarter placing it in the 23 percentile of the Callan International Small Cap group for the quarter and in the 30 percentile for the last year.
- Harris Assoc Int'l SCV's portfolio outperformed the MSCI World ex US Sm Cap by 2.22% for the quarter and underperformed the MSCI World ex US Sm Cap for the year by 1.04%.

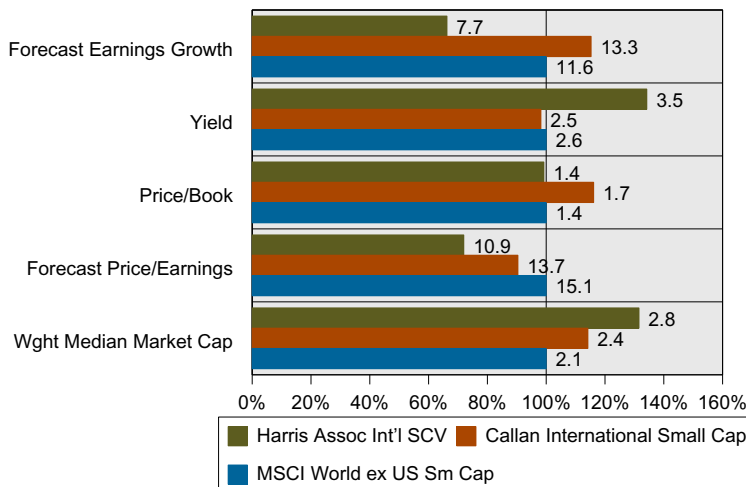
## Quarterly Asset Growth

Beginning Market Value	\$479,106,666
Net New Investment	\$0
Investment Gains/(Losses)	\$62,966,948
Ending Market Value	\$542,073,613

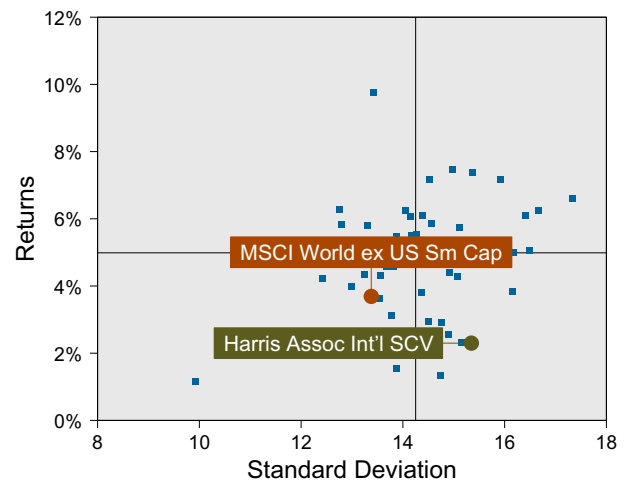
## Performance vs Callan International Small Cap (Gross)



## Portfolio Characteristics as a Percentage of the MSCI World ex US Sm Cap



## Callan International Small Cap (Gross) Annualized Five Year Risk vs Return

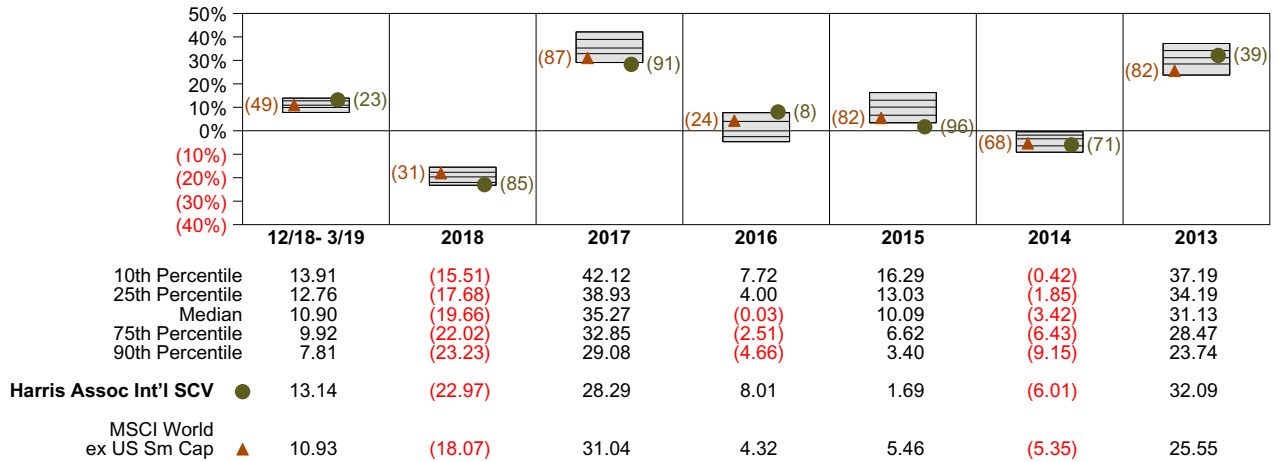


# Harris Assoc Int'l SCV Return Analysis Summary

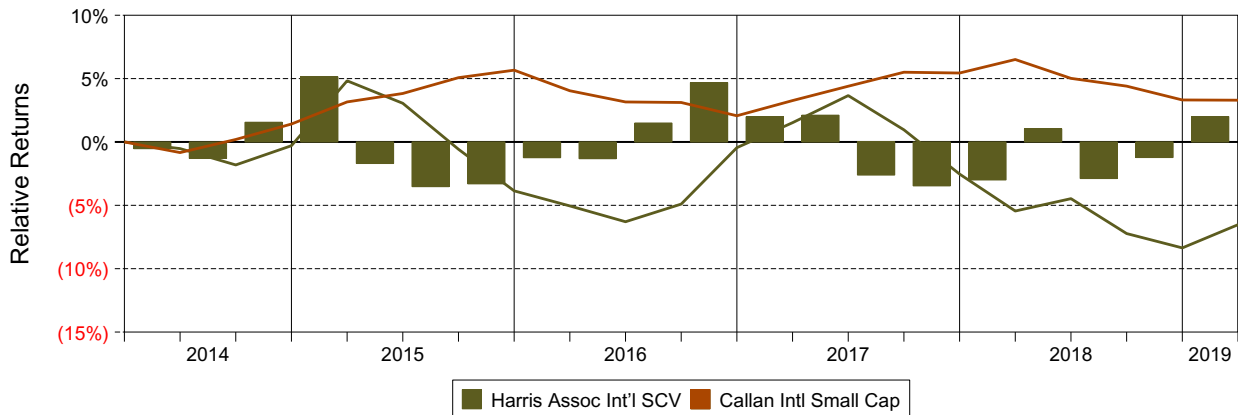
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

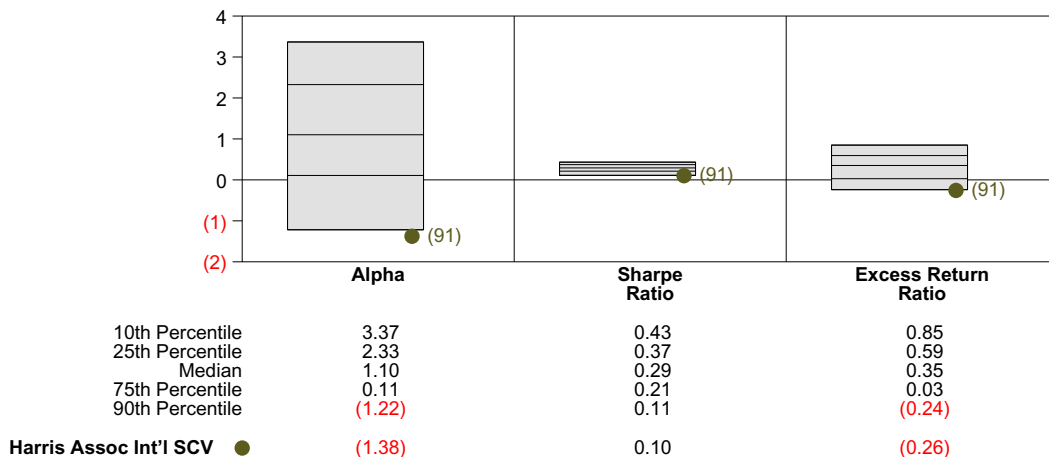
### Performance vs Callan International Small Cap (Gross)



### Cumulative and Quarterly Relative Return vs MSCI World ex US Sm Cap



### Risk Adjusted Return Measures vs MSCI World ex US Sm Cap Rankings Against Callan International Small Cap (Gross) Five Years Ended March 31, 2019

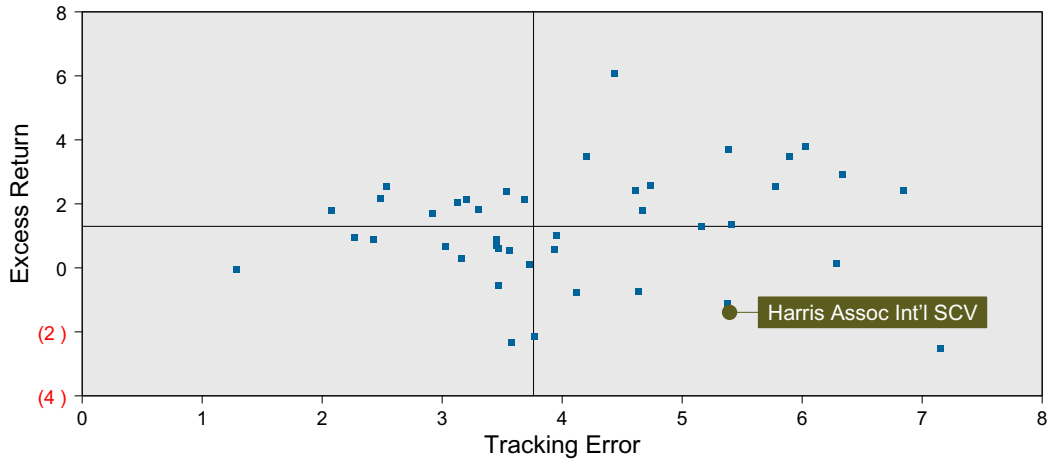


# Harris Assoc Int'l SCV Risk Analysis Summary

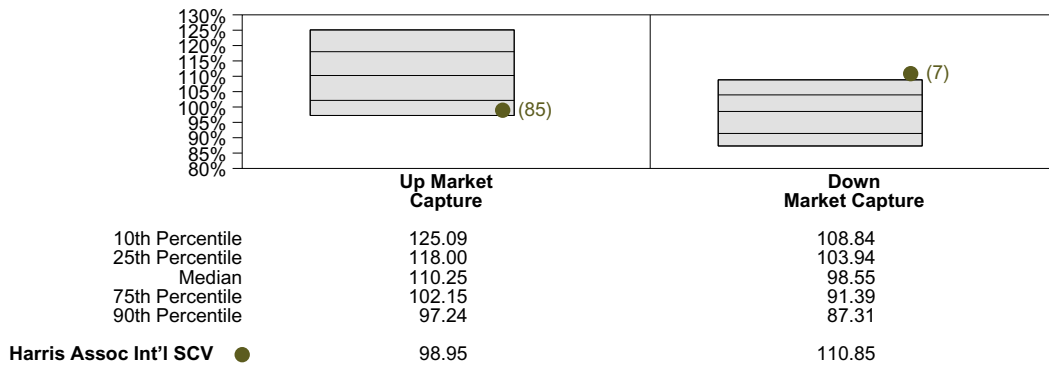
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

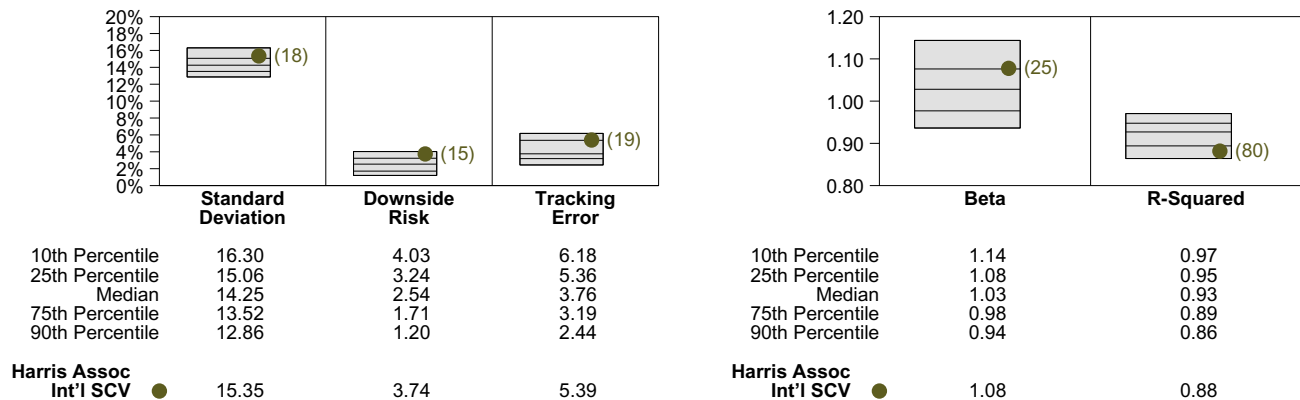
### Risk Analysis vs Callan International Small Cap (Gross) Five Years Ended March 31, 2019



### Market Capture vs MSCI World ex US Small Cap (USD Net Div) Rankings Against Callan International Small Cap (Gross) Five Years Ended March 31, 2019



### Risk Statistics Rankings vs MSCI World ex US Small Cap (USD Net Div) Rankings Against Callan International Small Cap (Gross) Five Years Ended March 31, 2019



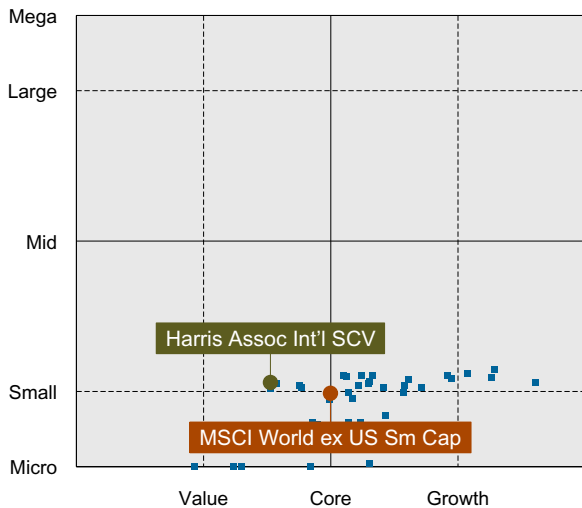
# Current Holdings Based Style Analysis

## Harris Assoc Int'l SCV

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left chart illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

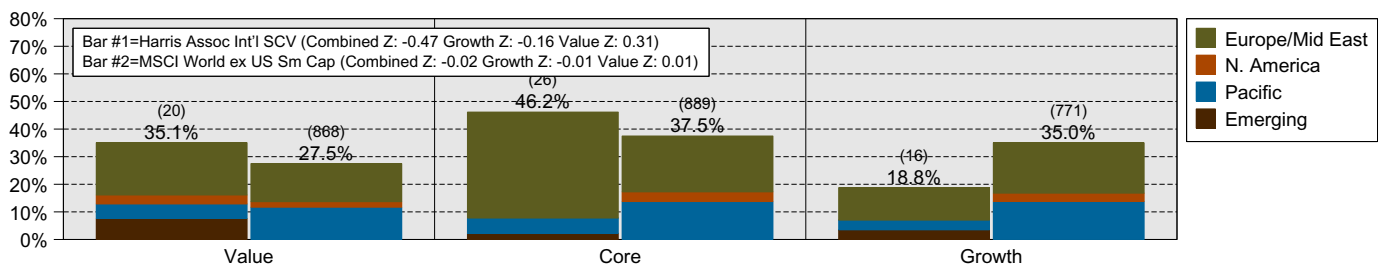
**Style Map vs Callan Intl Small Cap Holdings as of March 31, 2019**



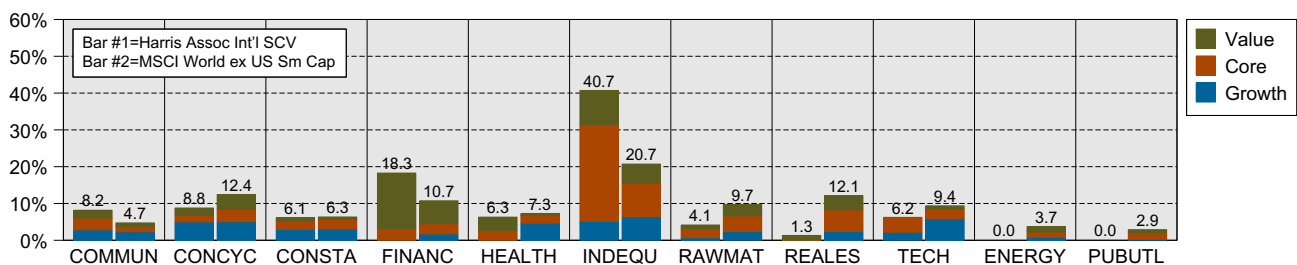
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Europe/ Mid East	18.9% (10) 13.8% (334)	38.4% (22) 20.2% (386)	11.8% (10) 18.2% (315)	69.1% (42) 52.3% (1035)
N. America	3.3% (2) 2.0% (72)	0.0% (0) 3.5% (80)	0.0% (0) 3.0% (58)	3.3% (2) 8.5% (210)
Pacific	5.3% (4) 11.7% (462)	5.6% (3) 13.7% (423)	3.5% (2) 13.8% (398)	14.3% (9) 39.2% (1283)
Emerging	7.6% (4) 0.0% (0)	2.2% (1) 0.0% (0)	3.5% (4) 0.0% (0)	13.3% (9) 0.0% (0)
<b>Total</b>	<b>35.1% (20)</b> <b>27.5% (868)</b>	<b>46.2% (26)</b> <b>37.5% (889)</b>	<b>18.8% (16)</b> <b>35.0% (771)</b>	<b>100.0% (62)</b> <b>100.0% (2528)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

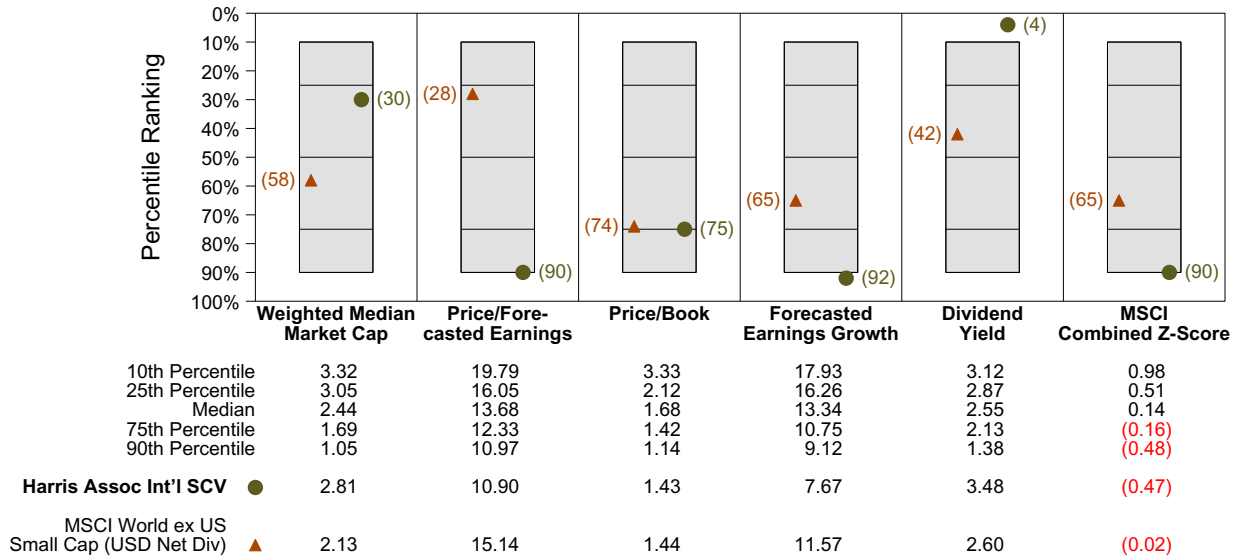


# Harris Assoc Int'l SCV Equity Characteristics Analysis Summary

## Portfolio Characteristics

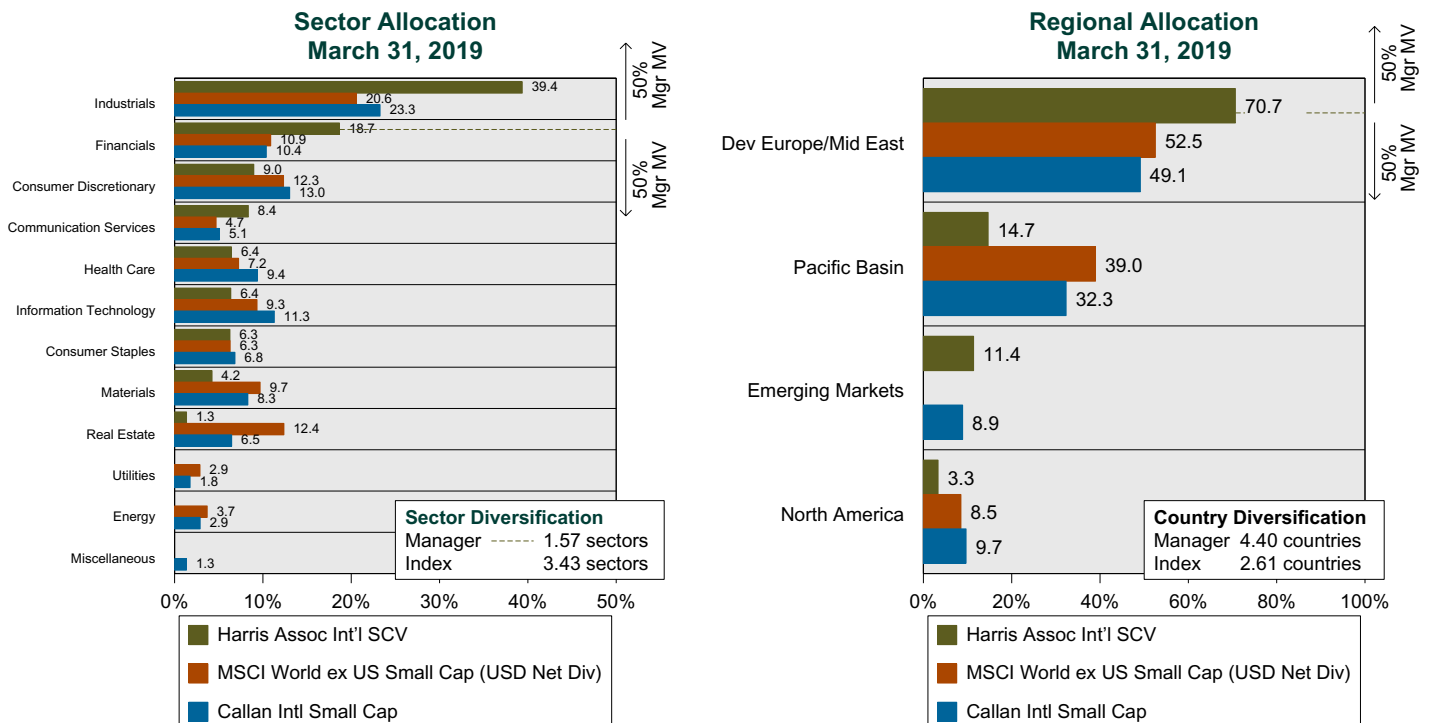
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan International Small Cap as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.



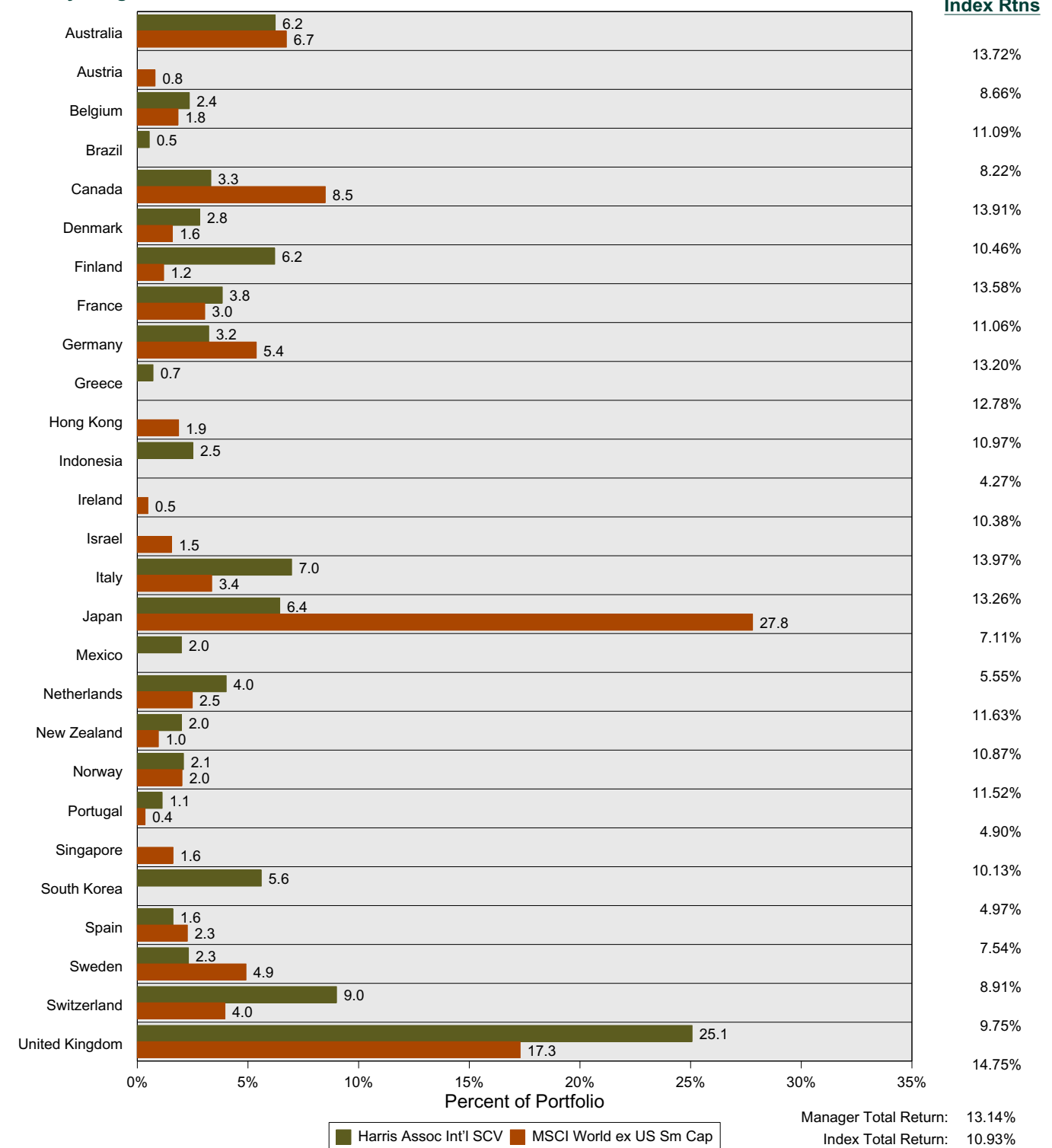
## Country Allocation

### Harris Assoc Int'l SCV VS MSCI World ex US Small Cap (USD Net Div)

#### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

#### Country Weights as of March 31, 2019







# Emerging Mkts Equity Period Ended March 31, 2019

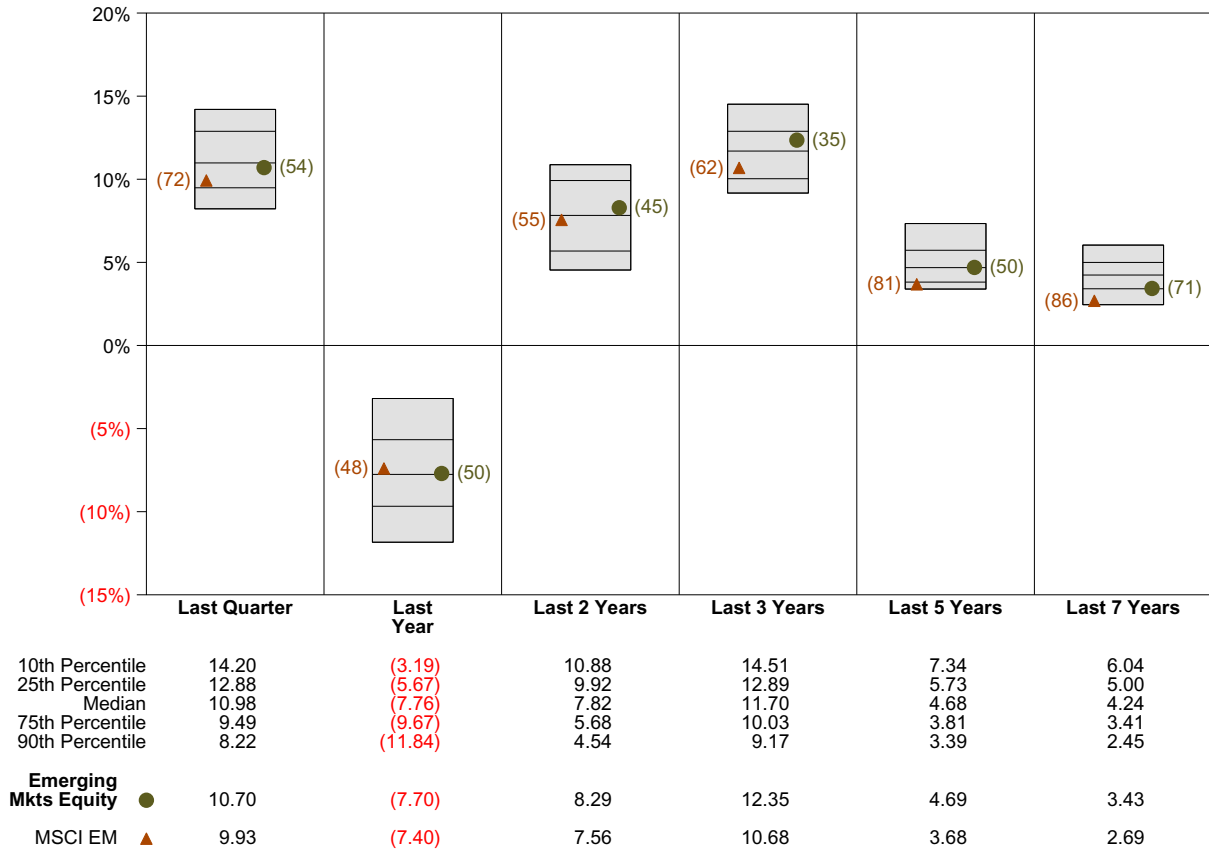
## Quarterly Summary and Highlights

- Emerging Mkts Equity's portfolio posted a 10.70% return for the quarter placing it in the 54 percentile of the Callan Emerging Broad group for the quarter and in the 50 percentile for the last year.
- Emerging Mkts Equity's portfolio outperformed the MSCI EM by 0.77% for the quarter and underperformed the MSCI EM for the year by 0.30%.

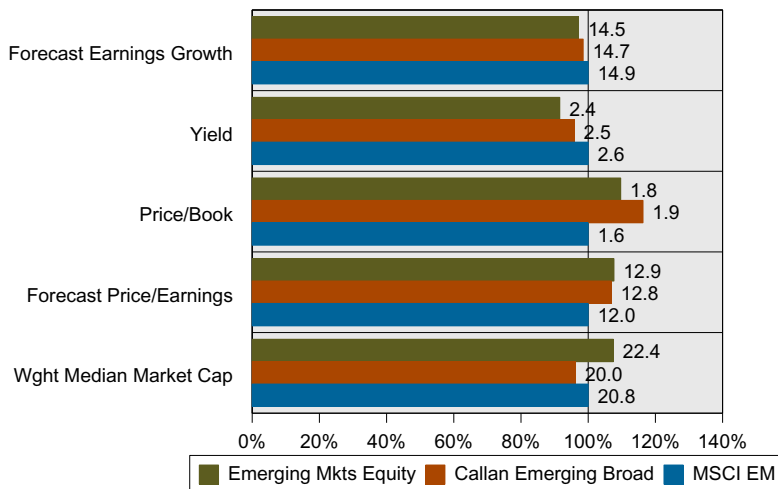
## Quarterly Asset Growth

Beginning Market Value	\$1,482,862,418
Net New Investment	\$99,700,396
Investment Gains/(Losses)	\$167,634,294
Ending Market Value	\$1,750,197,108

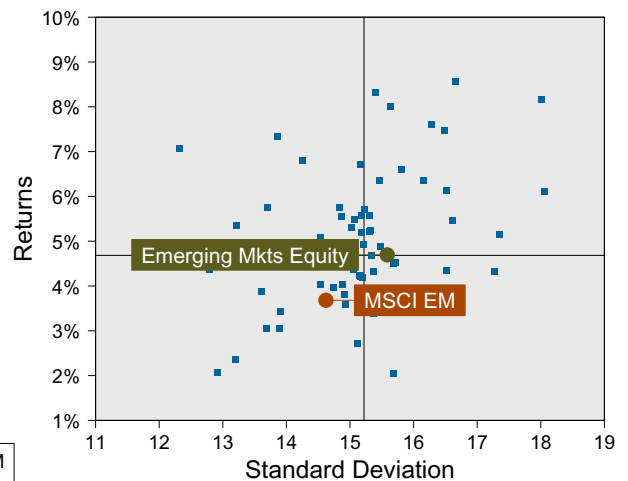
## Performance vs Callan Emerging Broad (Gross)



## Portfolio Characteristics as a Percentage of the MSCI EM



## Callan Emerging Broad (Gross) Annualized Five Year Risk vs Return

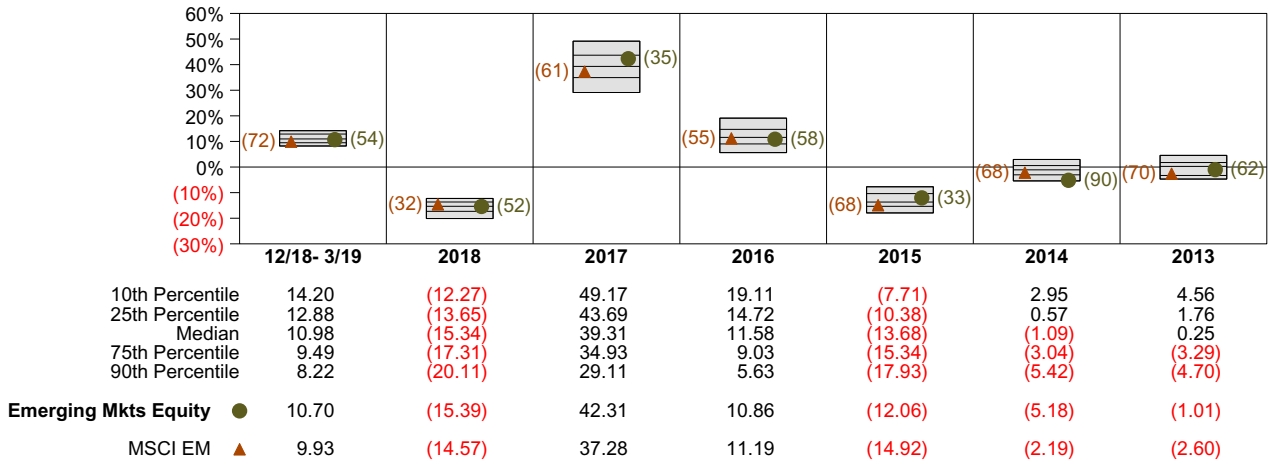


# Emerging Mkts Equity Return Analysis Summary

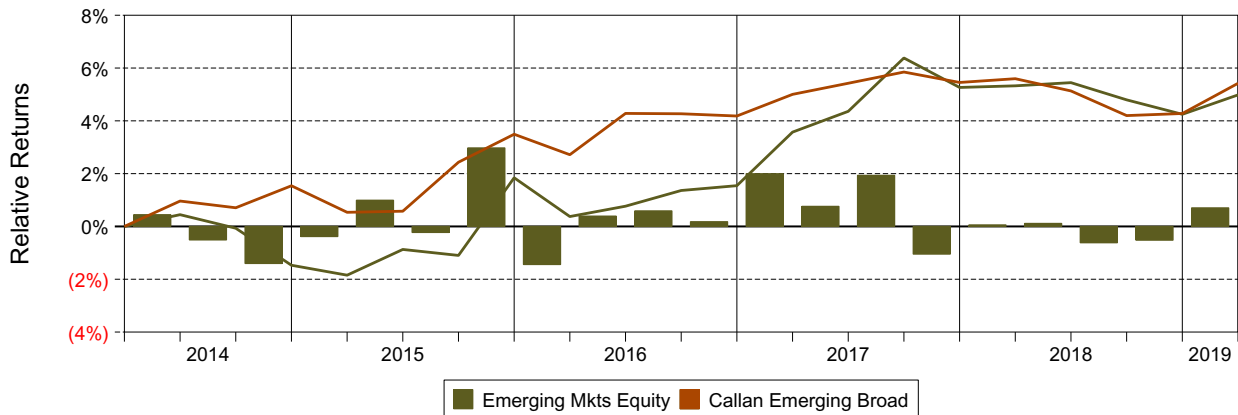
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

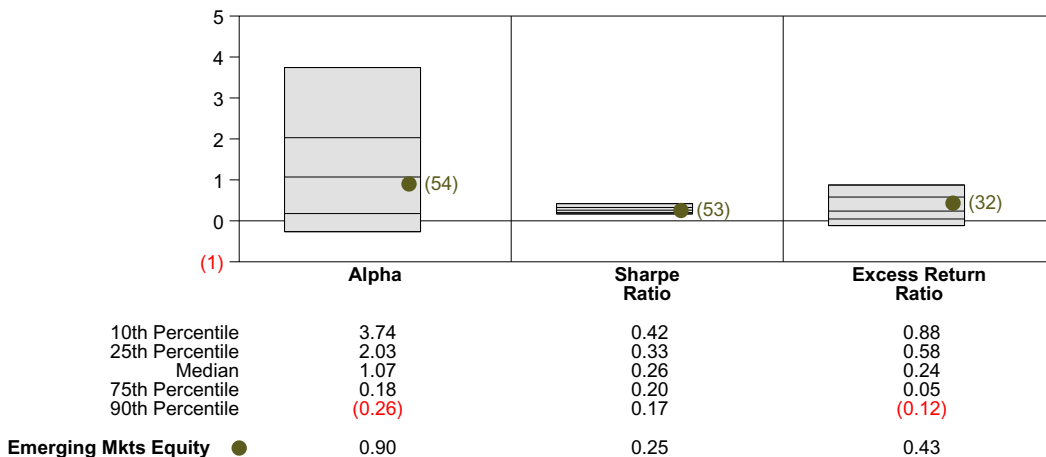
### Performance vs Callan Emerging Broad (Gross)



### Cumulative and Quarterly Relative Return vs MSCI EM



### Risk Adjusted Return Measures vs MSCI EM Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019

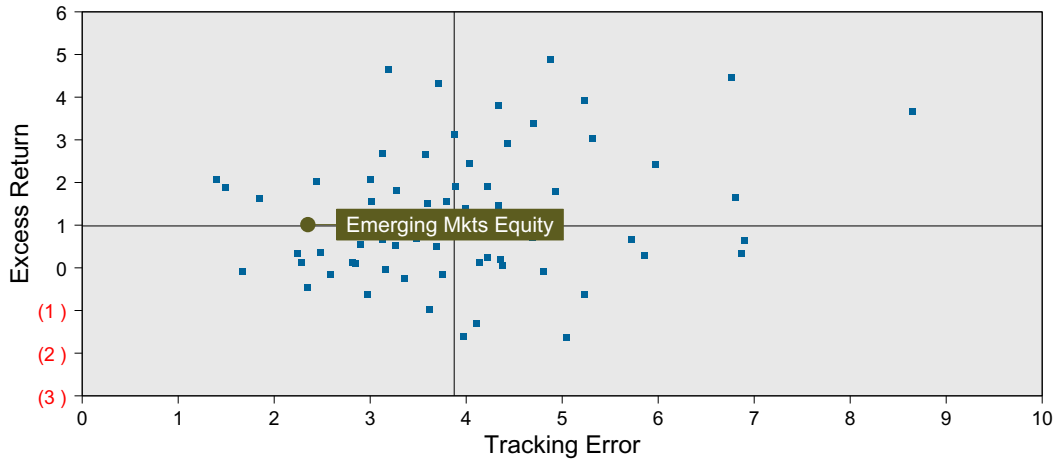


# Emerging Mkts Equity Risk Analysis Summary

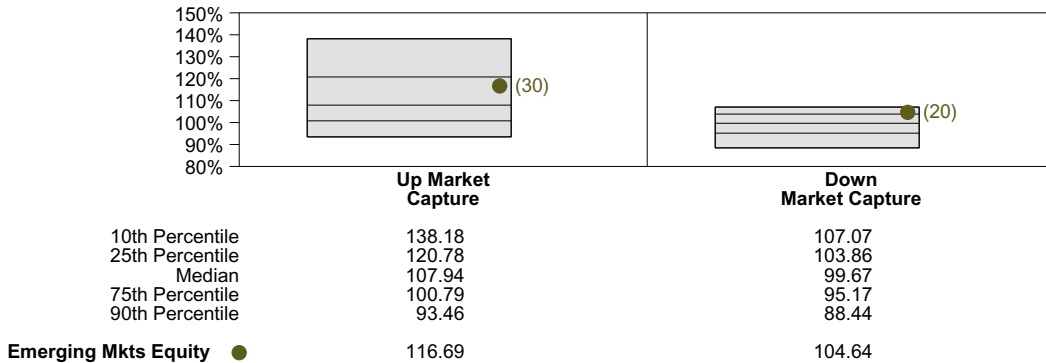
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

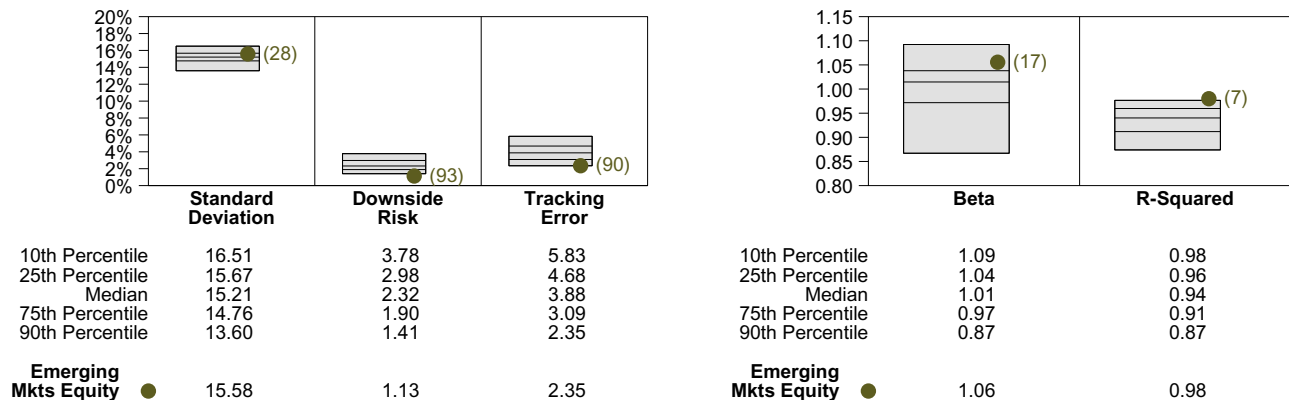
### Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



### Market Capture vs MSCI EM - Emerging Mkts (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



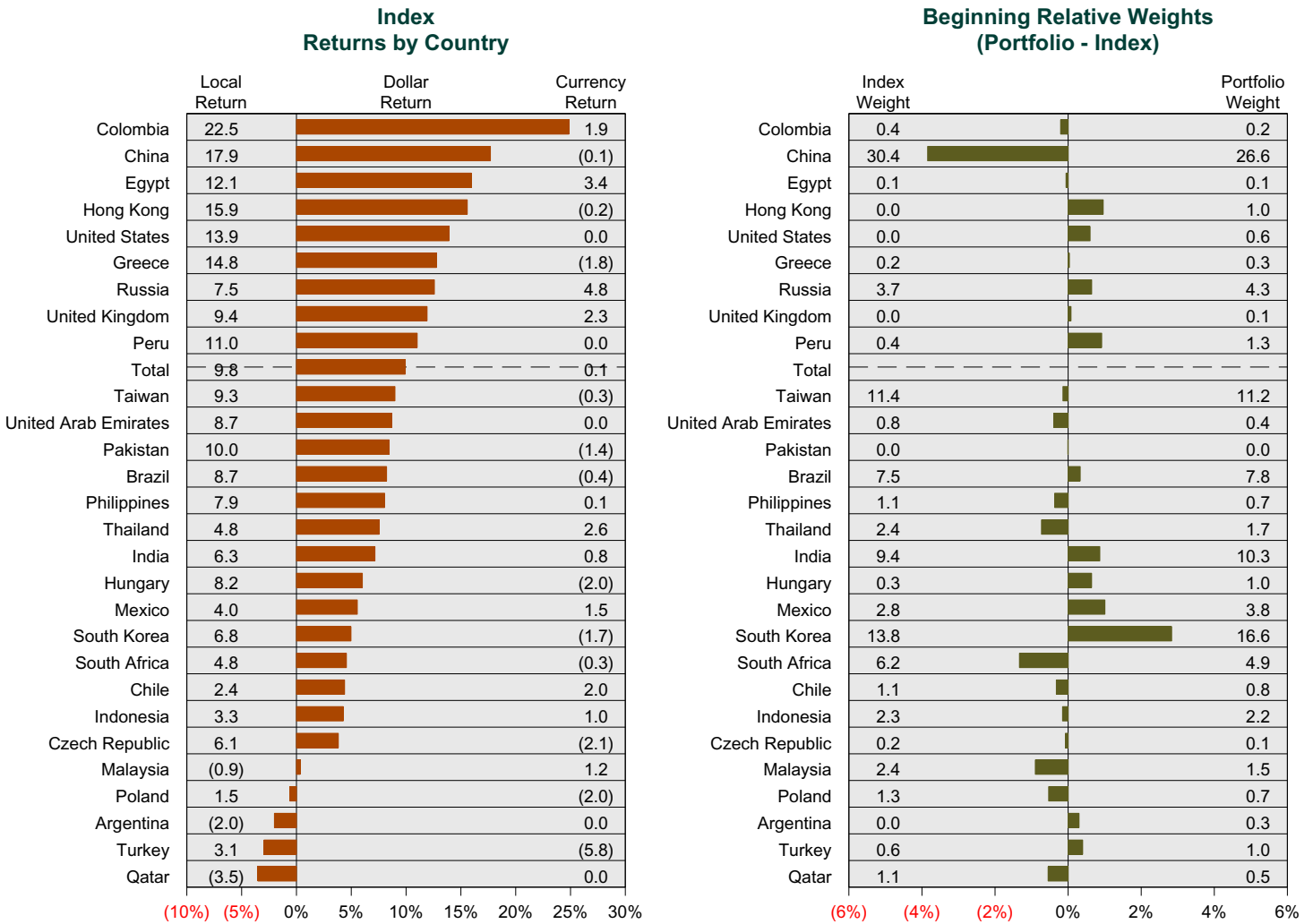
### Risk Statistics Rankings vs MSCI EM - Emerging Mkts (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



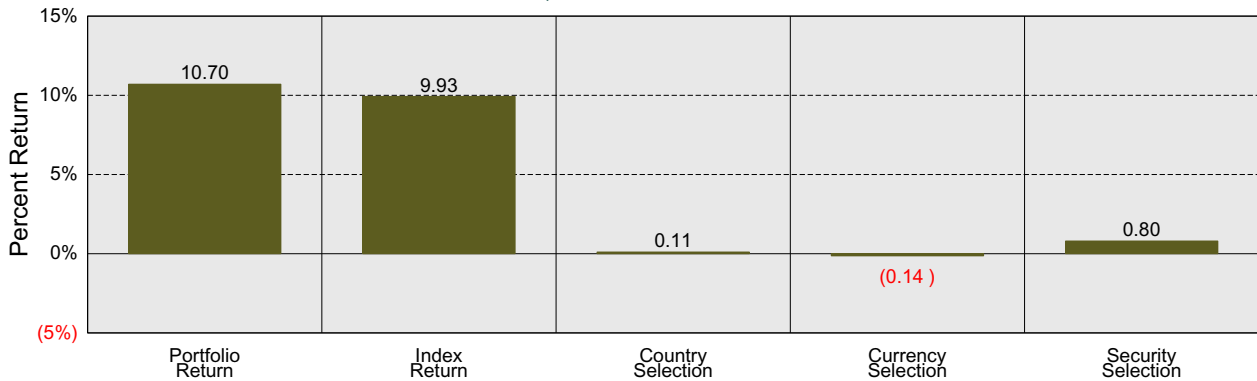
# Emerging Mkts Equity vs MSCI EM Attribution for Quarter Ended March 31, 2019

## International Attribution

The first chart below illustrates the return for each country in the index sorted from high to low. The total return for the index is highlighted with a dotted line. The second chart (countries presented in the same order) illustrates the manager's country allocation decisions relative to the index. To the extent that the manager over-weighted a country that had a higher return than the total return for the index (above the dotted line) it contributes positively to the manager's country (or currency) selection effect. The last chart details the manager return, the index return, and the attribution factors for the quarter.



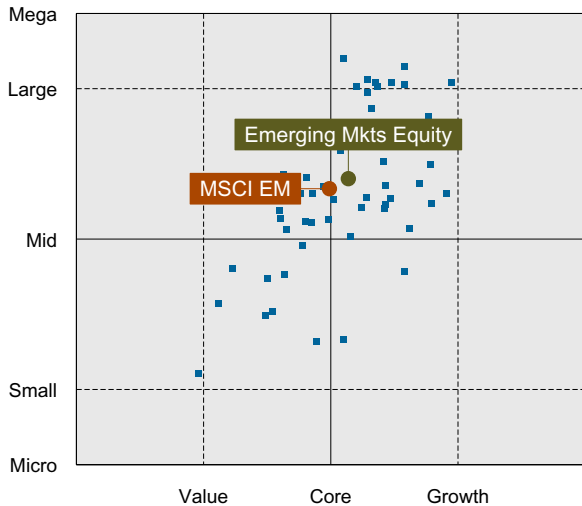
## Attribution Factors for Quarter Ended March 31, 2019



# Current Holdings Based Style Analysis Emerging Mkts Equity As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left chart illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right chart displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

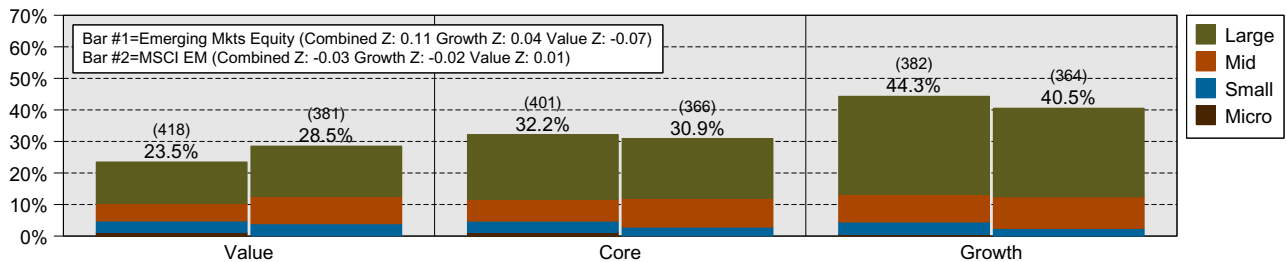
**Style Map vs Callan Emerging Broad Holdings as of March 31, 2019**



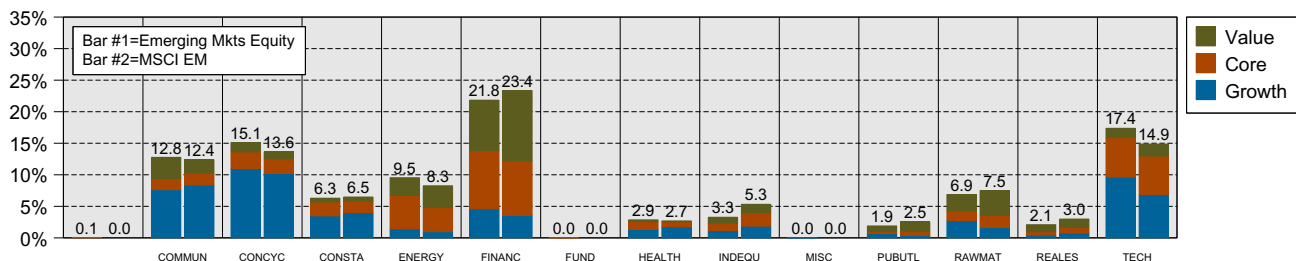
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	13.2% (80)	20.6% (92)	31.1% (83)	64.8% (255)
	15.9% (72)	19.0% (83)	28.1% (81)	62.9% (236)
Mid	5.5% (144)	6.9% (159)	8.8% (170)	21.2% (473)
	8.7% (164)	9.1% (185)	10.0% (196)	27.9% (545)
Small	3.6% (155)	3.6% (117)	3.8% (114)	11.0% (386)
	3.9% (144)	2.8% (97)	2.4% (87)	9.2% (328)
Micro	1.2% (39)	1.1% (33)	0.6% (15)	2.9% (87)
	0.0% (1)	0.0% (1)	0.0% (0)	0.0% (2)
Total	23.5% (418)	32.2% (401)	44.3% (382)	100.0% (1201)
	28.5% (381)	30.9% (366)	40.5% (364)	100.0% (1111)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



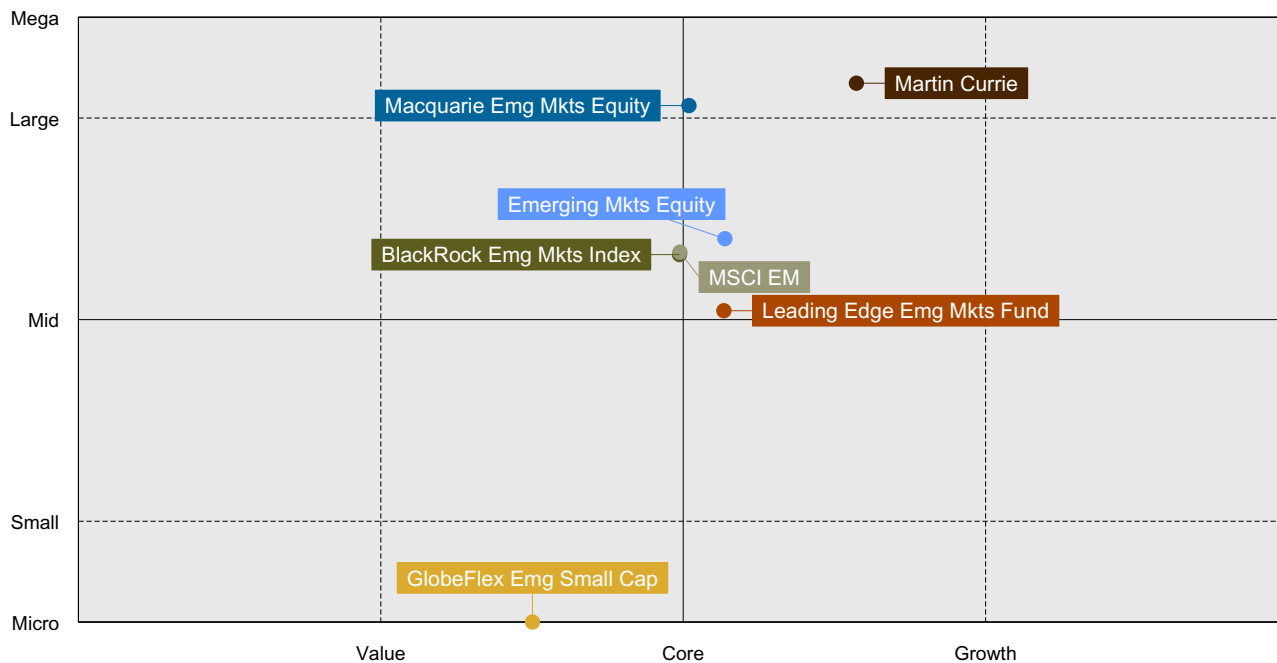
**Sector Weights Distribution Holdings as of March 31, 2019**



## International Holdings Based Style Analysis For One Quarter Ended March 31, 2019

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

### Style Map Holdings for One Quarter Ended March 31, 2019



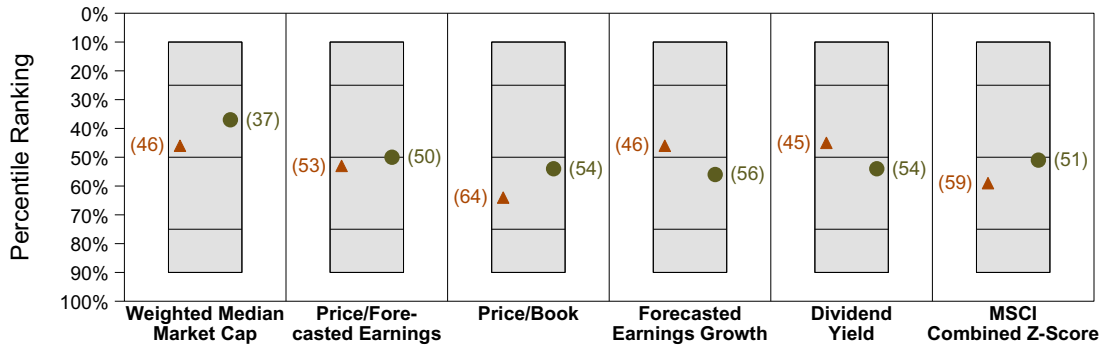
	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
BlackRock Emg Mkts Index	39.14%	20.50	(0.03)	(0.02)	0.01	1024	68.61
Leading Edge Emg Mkts Fund	12.36%	13.99	0.11	0.08	(0.03)	237	44.45
Macquarie Emg Mkts Equity	18.51%	46.46	0.00	(0.12)	(0.12)	82	12.79
Martin Currie	24.71%	64.56	0.52	0.21	(0.31)	46	10.63
GlobeFlex Emg Small Cap	5.28%	0.50	(0.50)	0.11	0.61	127	24.06
Emerging Mkts Equity	100.00%	22.35	0.11	0.04	(0.07)	1284	46.66
MSCI EM	-	20.79	(0.03)	(0.02)	0.01	1121	70.36

# Emerging Mkts Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

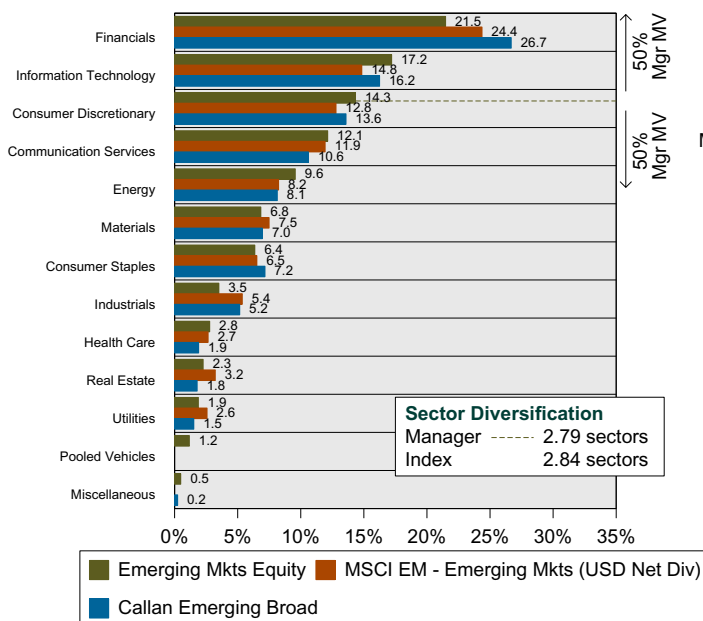
## Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of March 31, 2019



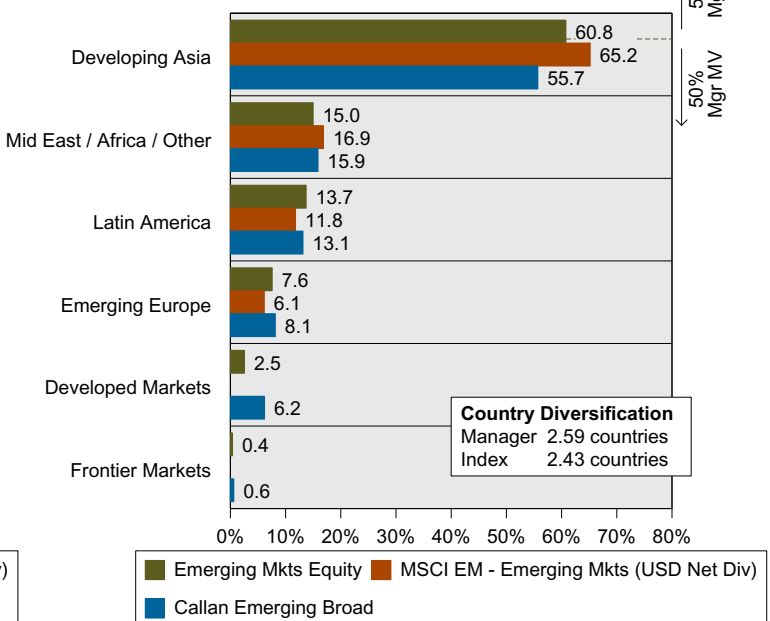
## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.

### Sector Allocation March 31, 2019



### Regional Allocation March 31, 2019



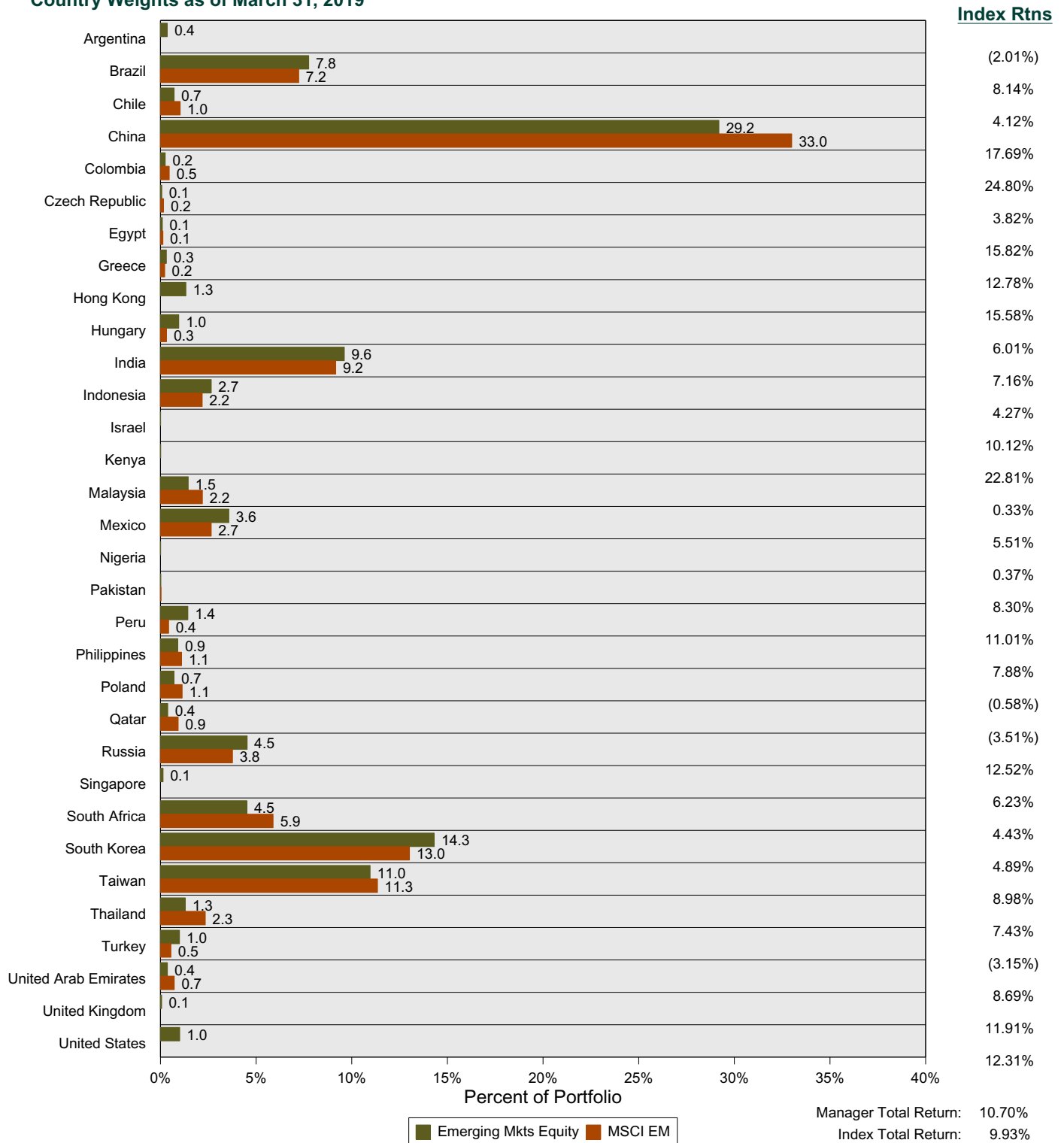


## Country Allocation Emerging Mkts Equity VS MSCI EM - Emerging Mkts (USD Net Div)

### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

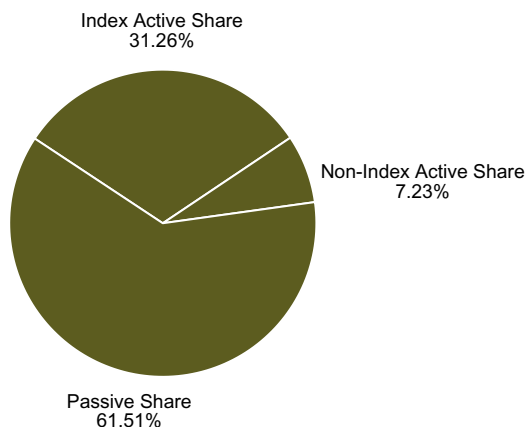
### Country Weights as of March 31, 2019



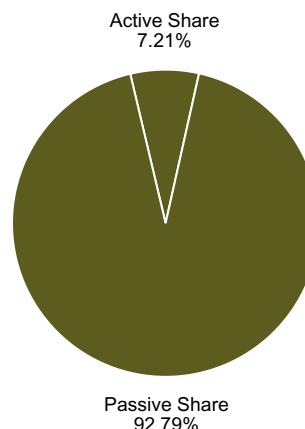
## Emerging Mkts Equity Active Share Analysis as of March 31, 2019 vs. MSCI EM - Emerging Mkts (USD Net Div)

Active Share analysis compares the holdings of a portfolio to an index to measure how aggressively it differs from the index. Active share is measured at the individual stock level ("holdings-level active share") and using sector weights ("sector exposure active share"). Holdings-level active share comes from: 1) Index Active Share - over/under weighting of stocks in the index, and 2) Non-Index Active Share - positions in stocks not in the index. This analysis displays active share by sector and compares the portfolio to a relevant peer group.

### Holdings-Level Active Share



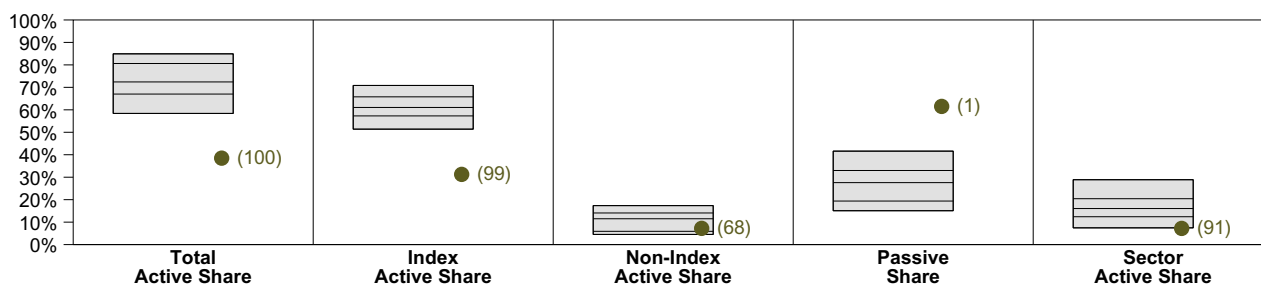
### Sector Exposure Active Share



**Total Active Share: 38.49%**

	Index Active Share Within Sector	Non-Index Active Share Within Sector	Total Active Share Within Sector	Index Weight	Manager Weight	Contribution to Total Portfolio Active Share
Communication Services	38.80%	2.46%	41.26%	11.93%	12.13%	5.07%
Consumer Discretionary	25.53%	6.20%	31.73%	12.79%	14.33%	4.60%
Consumer Staples	35.73%	5.86%	41.58%	6.52%	6.36%	2.65%
Energy	31.58%	6.06%	37.64%	8.24%	9.57%	3.02%
Financials	30.24%	7.61%	37.85%	24.37%	21.48%	8.98%
Health Care	36.76%	13.86%	50.62%	2.66%	2.78%	1.36%
Industrials	24.15%	14.26%	38.41%	5.37%	3.51%	2.08%
Information Technology	21.89%	4.96%	26.85%	14.84%	17.20%	4.23%
Materials	40.42%	6.08%	46.50%	7.49%	6.84%	3.36%
Miscellaneous	0.00%	100.00%	100.00%	-	0.49%	0.14%
Pooled Vehicles	0.00%	100.00%	100.00%	-	1.17%	0.57%
Real Estate	23.59%	17.53%	41.11%	3.22%	2.26%	1.35%
Utilities	33.02%	4.96%	37.98%	2.57%	1.89%	0.98%
<b>Total</b>	<b>31.26%</b>	<b>7.23%</b>	<b>38.49%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>38.39%</b>

### Active Share vs. Callan Emerging Broad



	Total Active Share	Index Active Share	Non-Index Active Share	Passive Share	Sector Active Share
10th Percentile	84.93	70.85	17.36	41.61	28.88
25th Percentile	80.61	65.78	14.08	32.98	20.43
Median	72.42	61.06	11.51	27.58	16.05
75th Percentile	67.02	57.29	5.91	19.39	12.40
90th Percentile	58.39	51.39	4.52	15.07	7.46
<b>Emerging Mkts Equity</b>	<b>38.49</b>	<b>31.26</b>	<b>7.23</b>	<b>61.51</b>	<b>7.21</b>



# BlackRock Emg Mkts Index Period Ended March 31, 2019

## Investment Philosophy

As with all indexing strategies, the objective of the Emerging Markets Index Funds is to match the performance of the benchmark, the MSCI EMF indexes. BlackRock's objective in managing the fund is to deliver a high quality and cost-effective index-based portfolio available to institutional investors. BlackRock's goal in the management of its emerging market country funds is to provide cost-effective and risk controlled exposure with close benchmark tracking. As such, country selection is dictated by the index, and BlackRock's funds approximate the sector and industry breakdowns of the respective country index. The team seeks to construct its country funds using the widest possible range of index constituent stocks to allow for replication of index returns while minimizing transaction costs. Therefore stock selection and weighting is generally dictated by the composition of the index. However, where investment restrictions exist, BlackRock may choose to use alternative investment approaches. In general, BlackRock aims to cover a significant percentage of the security market capitalization of each country index.

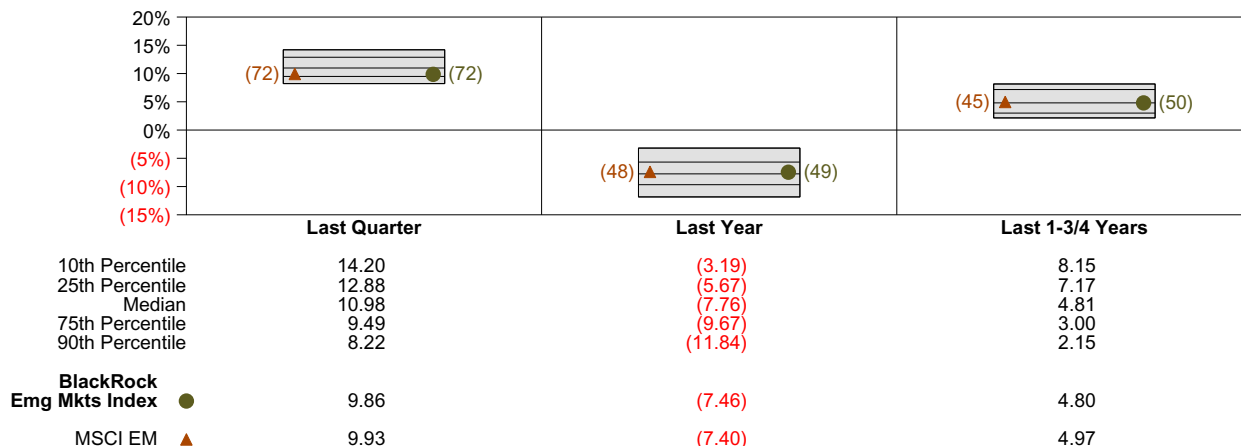
## Quarterly Summary and Highlights

- BlackRock Emg Mkts Index's portfolio posted a 9.86% return for the quarter placing it in the 72 percentile of the Callan Emerging Broad group for the quarter and in the 49 percentile for the last year.
- BlackRock Emg Mkts Index's portfolio underperformed the MSCI EM by 0.07% for the quarter and underperformed the MSCI EM for the year by 0.06%.

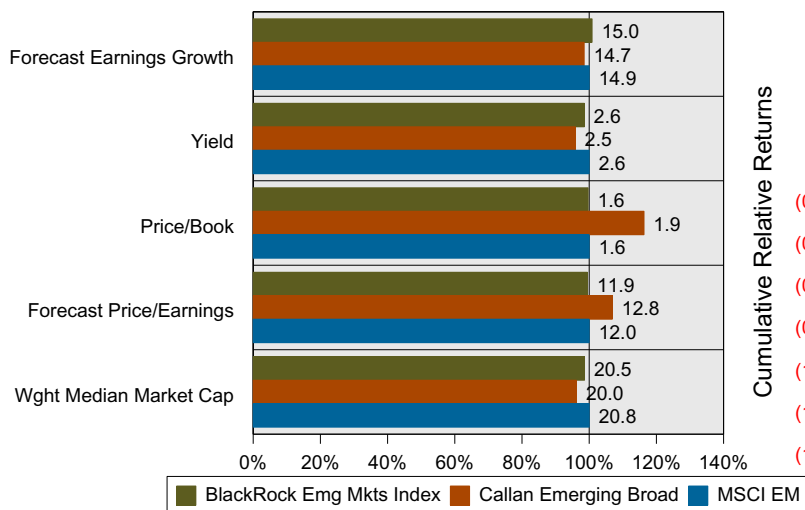
## Quarterly Asset Growth

Beginning Market Value	\$623,517,441
Net New Investment	\$0
Investment Gains/(Losses)	\$61,476,395
Ending Market Value	\$684,993,835

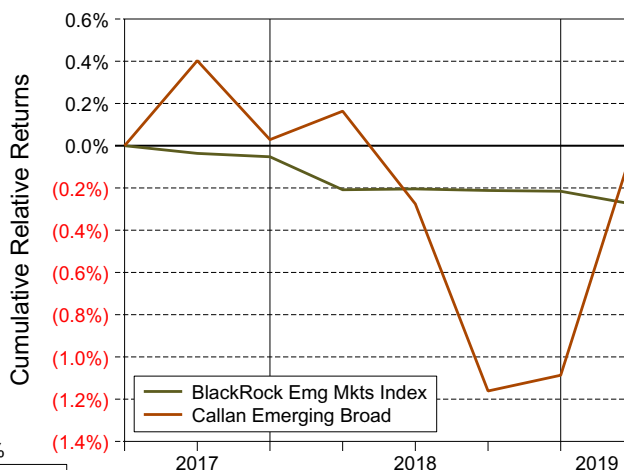
## Performance vs Callan Emerging Broad (Gross)



## Portfolio Characteristics as a Percentage of the MSCI EM



## Cumulative Returns vs MSCI EM



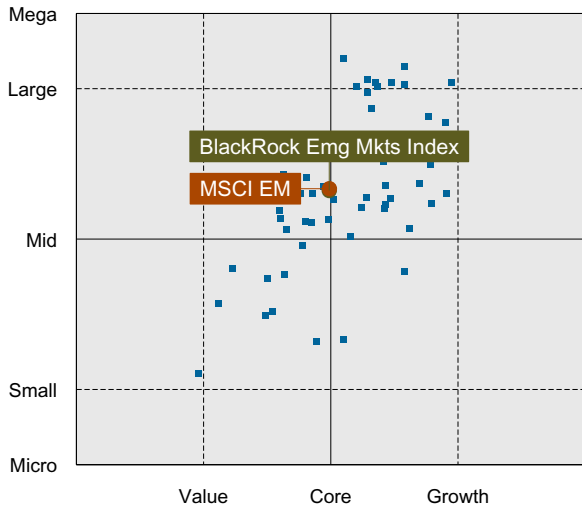
# Current Holdings Based Style Analysis

## BlackRock Emg Mkts Index

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

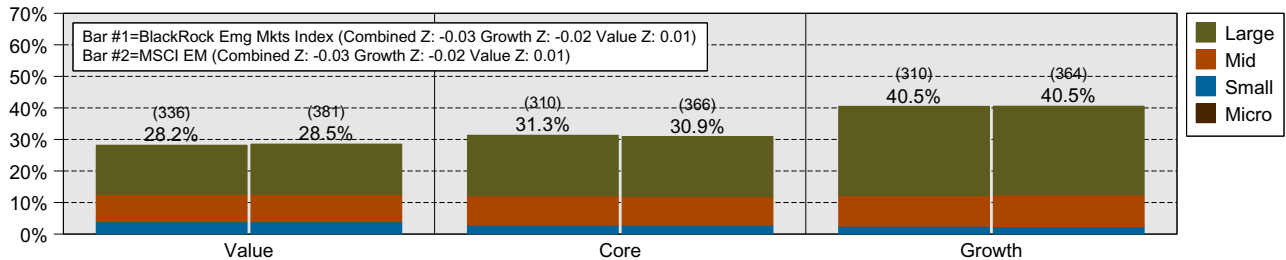
**Style Map vs Callan Emerging Broad Holdings as of March 31, 2019**



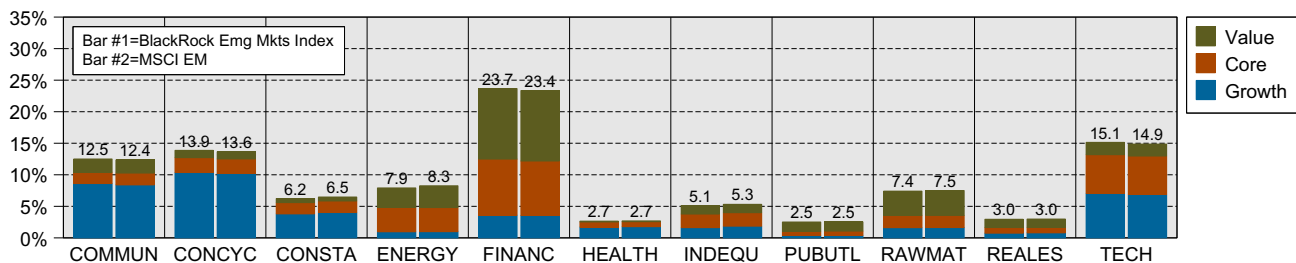
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	15.6% (66)	19.2% (73)	28.3% (70)	63.1% (209)
	15.9% (72)	19.0% (83)	28.1% (81)	62.9% (236)
Mid	8.7% (136)	9.3% (147)	9.7% (158)	27.7% (441)
	8.7% (164)	9.1% (185)	10.0% (196)	27.9% (545)
Small	3.9% (132)	2.8% (89)	2.5% (82)	9.2% (303)
	3.9% (144)	2.8% (97)	2.4% (87)	9.2% (328)
Micro	0.0% (2)	0.0% (1)	0.0% (0)	0.0% (3)
	0.0% (1)	0.0% (1)	0.0% (0)	0.0% (2)
Total	28.2% (336)	31.3% (310)	40.5% (310)	100.0% (956)
	28.5% (381)	30.9% (366)	40.5% (364)	100.0% (1111)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**



# BlackRock Emg Mkts Index Equity Characteristics Analysis Summary

## Portfolio Characteristics

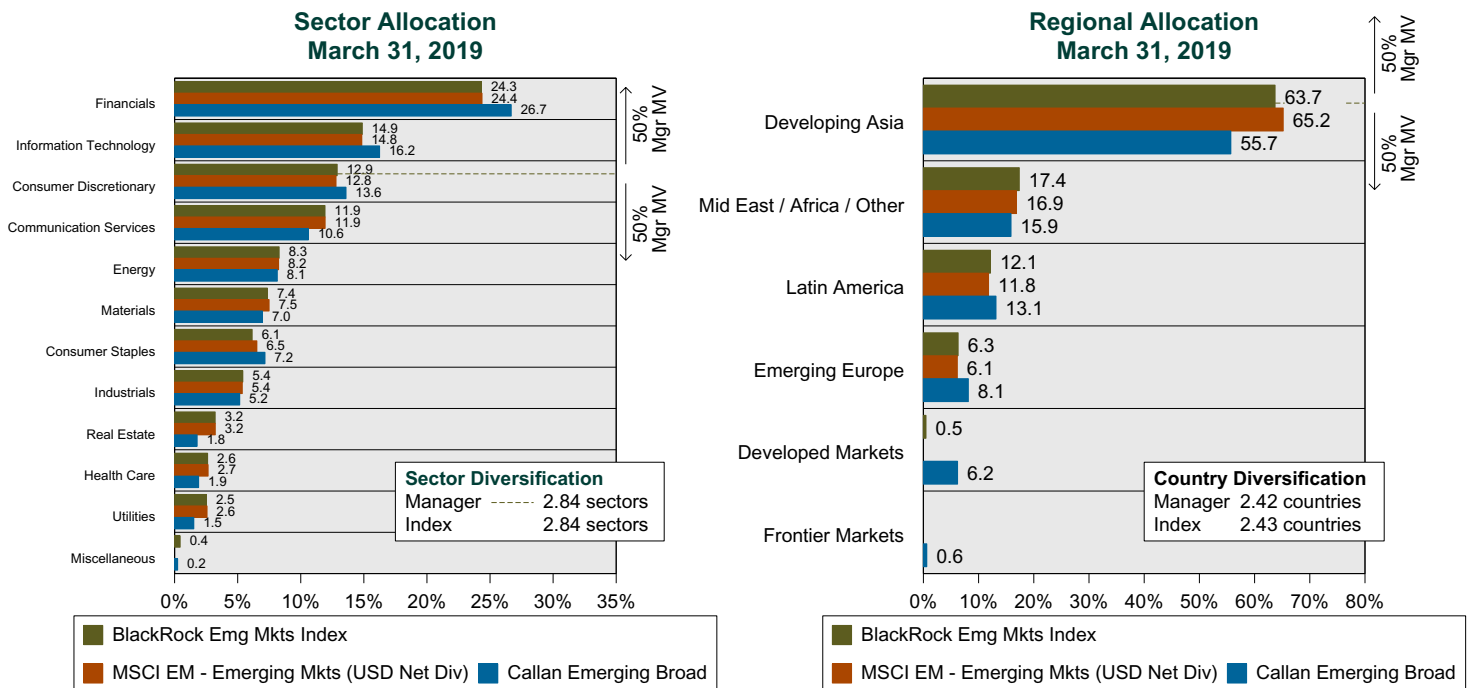
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.

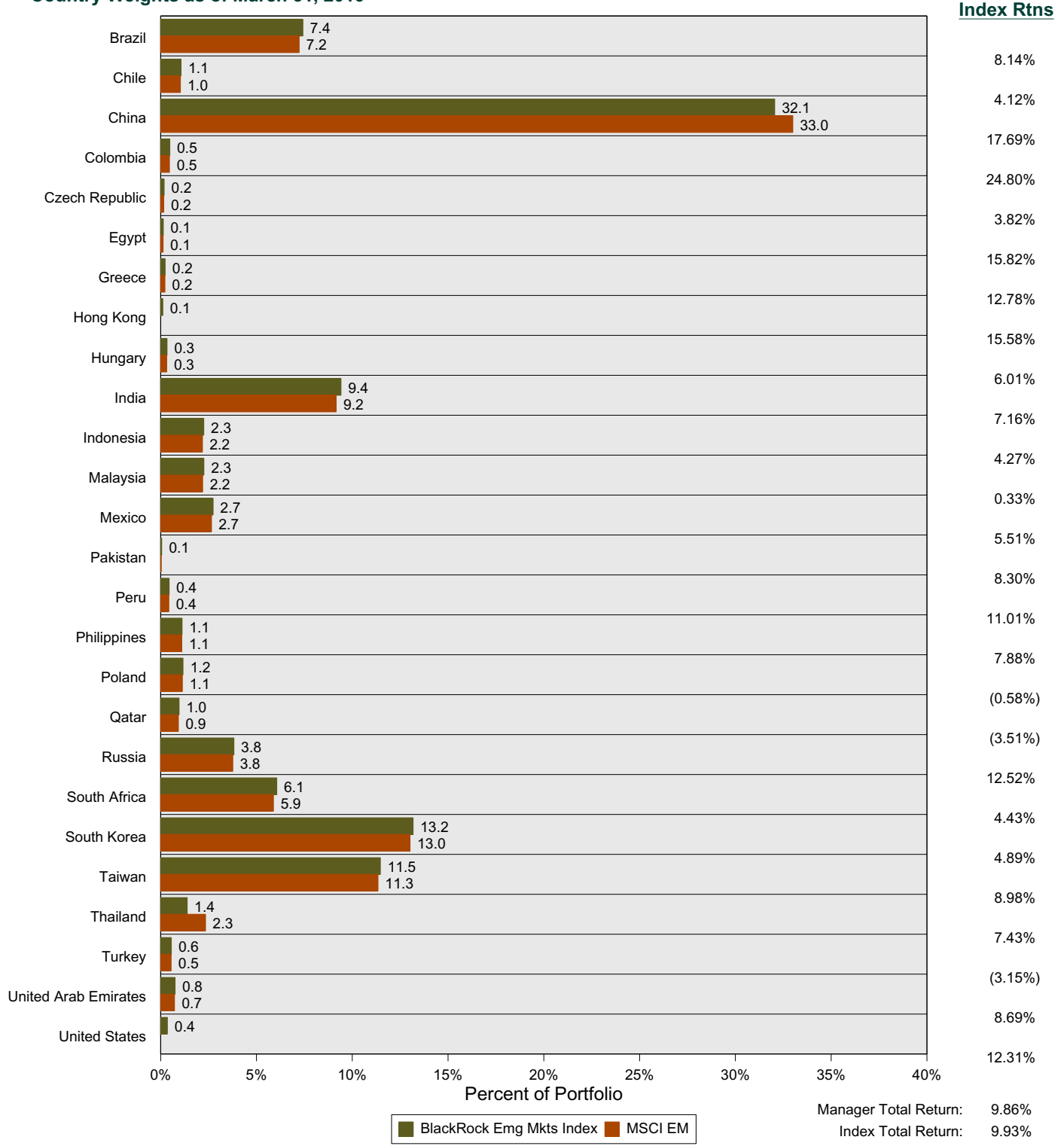


## Country Allocation BlackRock Emg Mkts Index VS MSCI EM - Emerging Mkts (USD Net Div)

### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

Country Weights as of March 31, 2019



# Leading Edge Emg Mkts Fund Period Ended March 31, 2019

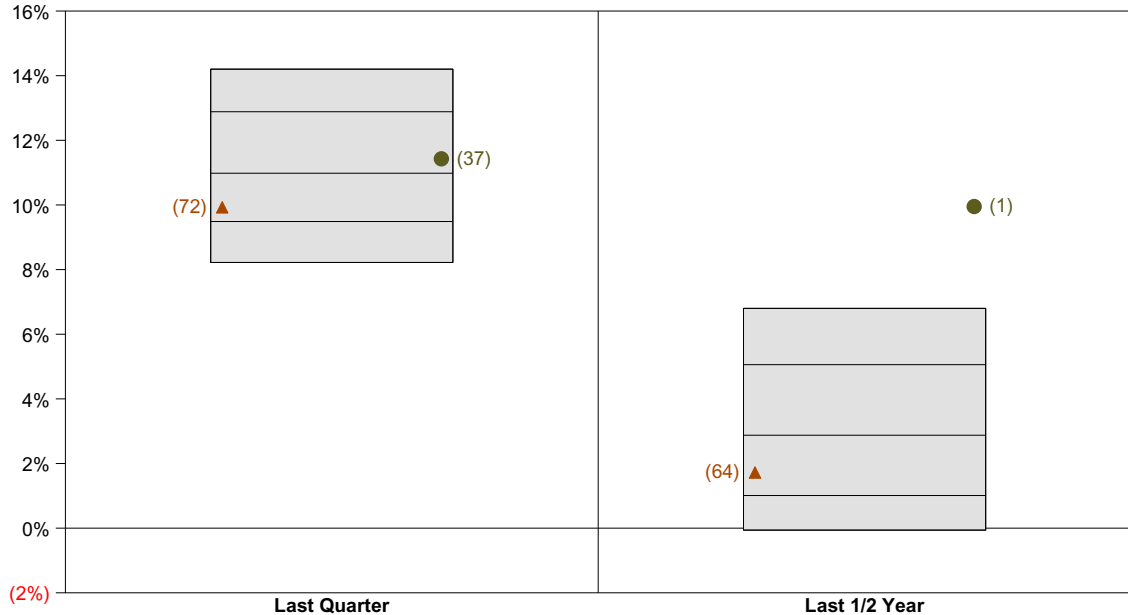
## Quarterly Summary and Highlights

- Leading Edge Emg Mkts Fund's portfolio posted a 11.43% return for the quarter placing it in the 37th percentile of the Callan Emerging Broad group for the quarter.
- Leading Edge Emg Mkts Fund's portfolio outperformed the MSCI EM by 1.50% for the quarter.

## Quarterly Asset Growth

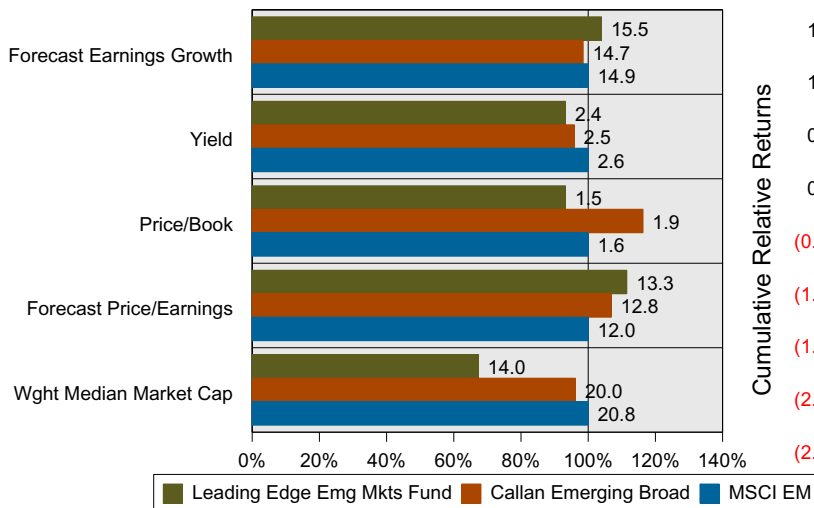
Beginning Market Value	\$194,103,380
Net New Investment	\$0
Investment Gains/(Losses)	\$22,180,420
Ending Market Value	\$216,283,800

## Performance vs Callan Emerging Broad (Gross)

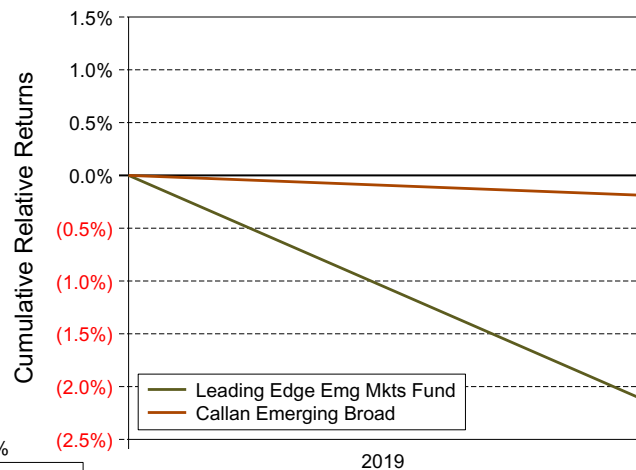


10th Percentile	14.20	6.80
25th Percentile	12.88	5.06
Median	10.98	2.88
75th Percentile	9.49	1.01
90th Percentile	8.22	(0.06)
Leading Edge Emg Mkts Fund	11.43	9.95
MSCI EM	9.93	1.72

## Portfolio Characteristics as a Percentage of the MSCI EM



## Cumulative Returns vs MSCI EM





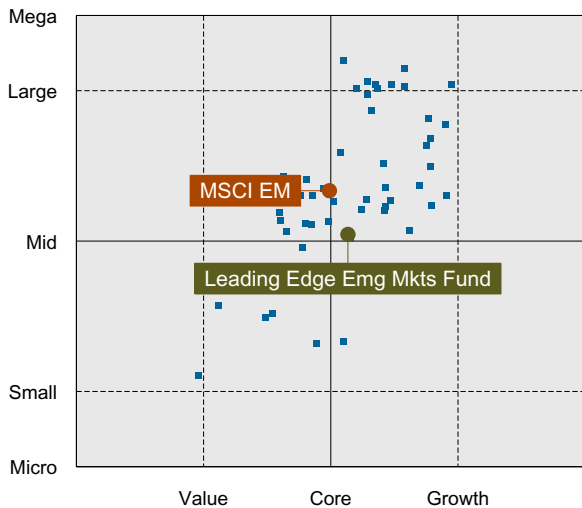
# Current Holdings Based Style Analysis

## Leading Edge Emg Mkts Fund

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

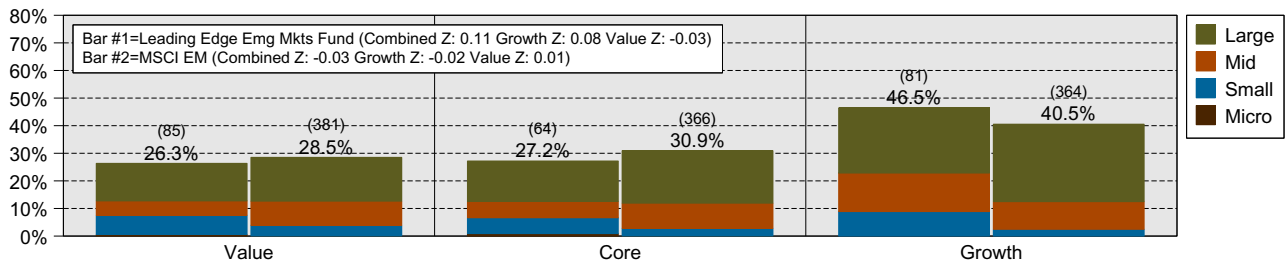
**Style Map vs Callan Emerging Broad Holdings as of March 31, 2019**



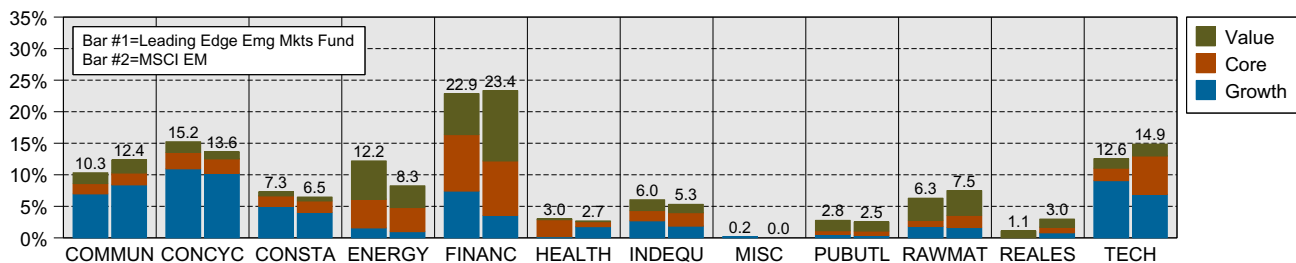
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	13.6% (29)	14.7% (24)	23.6% (23)	51.9% (76)
	15.9% (72)	19.0% (83)	28.1% (81)	62.9% (236)
Mid	5.2% (23)	5.9% (16)	14.0% (33)	25.0% (72)
	8.7% (164)	9.1% (185)	10.0% (196)	27.9% (545)
Small	7.0% (30)	5.7% (22)	8.9% (25)	21.6% (77)
	3.9% (144)	2.8% (97)	2.4% (87)	9.2% (328)
Micro	0.6% (3)	0.9% (2)	0.0% (0)	1.5% (5)
	0.0% (1)	0.0% (1)	0.0% (0)	0.0% (2)
Total	26.3% (85)	27.2% (64)	46.5% (81)	100.0% (230)
	28.5% (381)	30.9% (366)	40.5% (364)	100.0% (1111)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**



# Leading Edge Emg Mkts Fund Equity Characteristics Analysis Summary

## Portfolio Characteristics

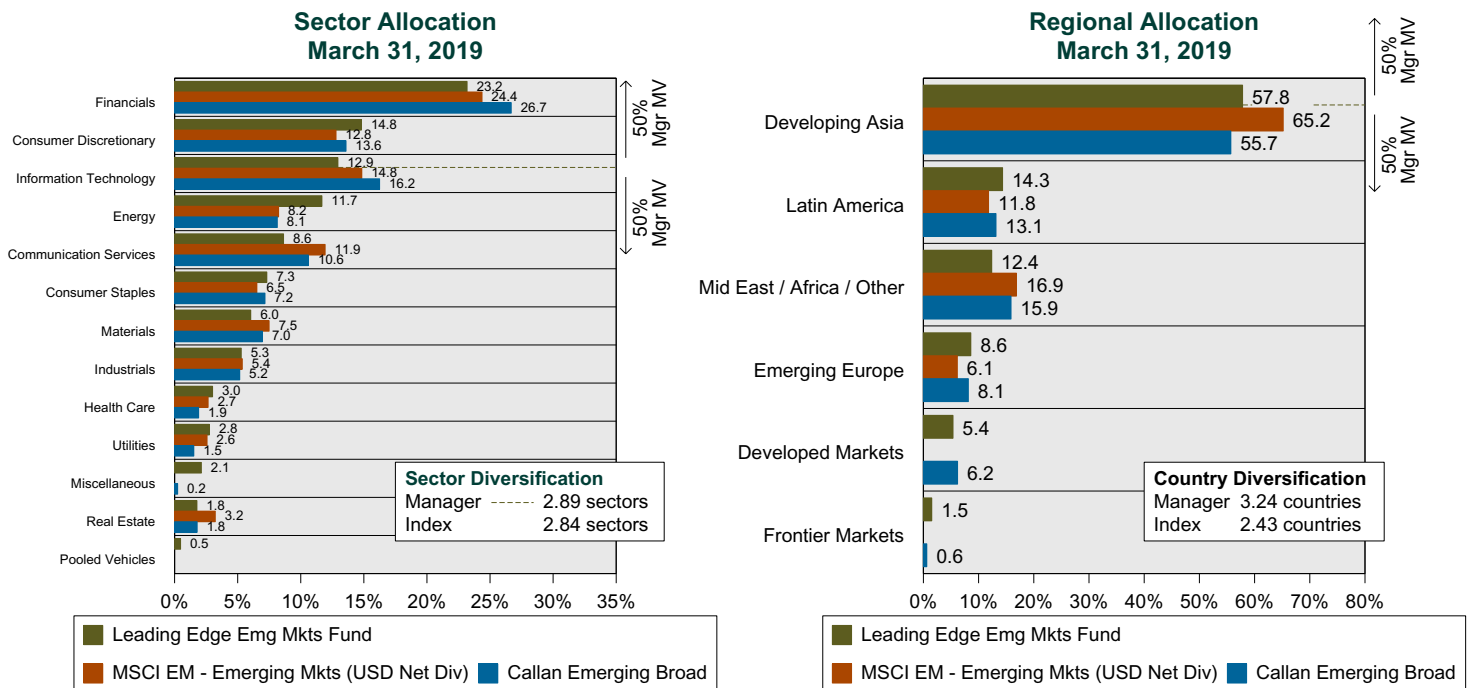
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.



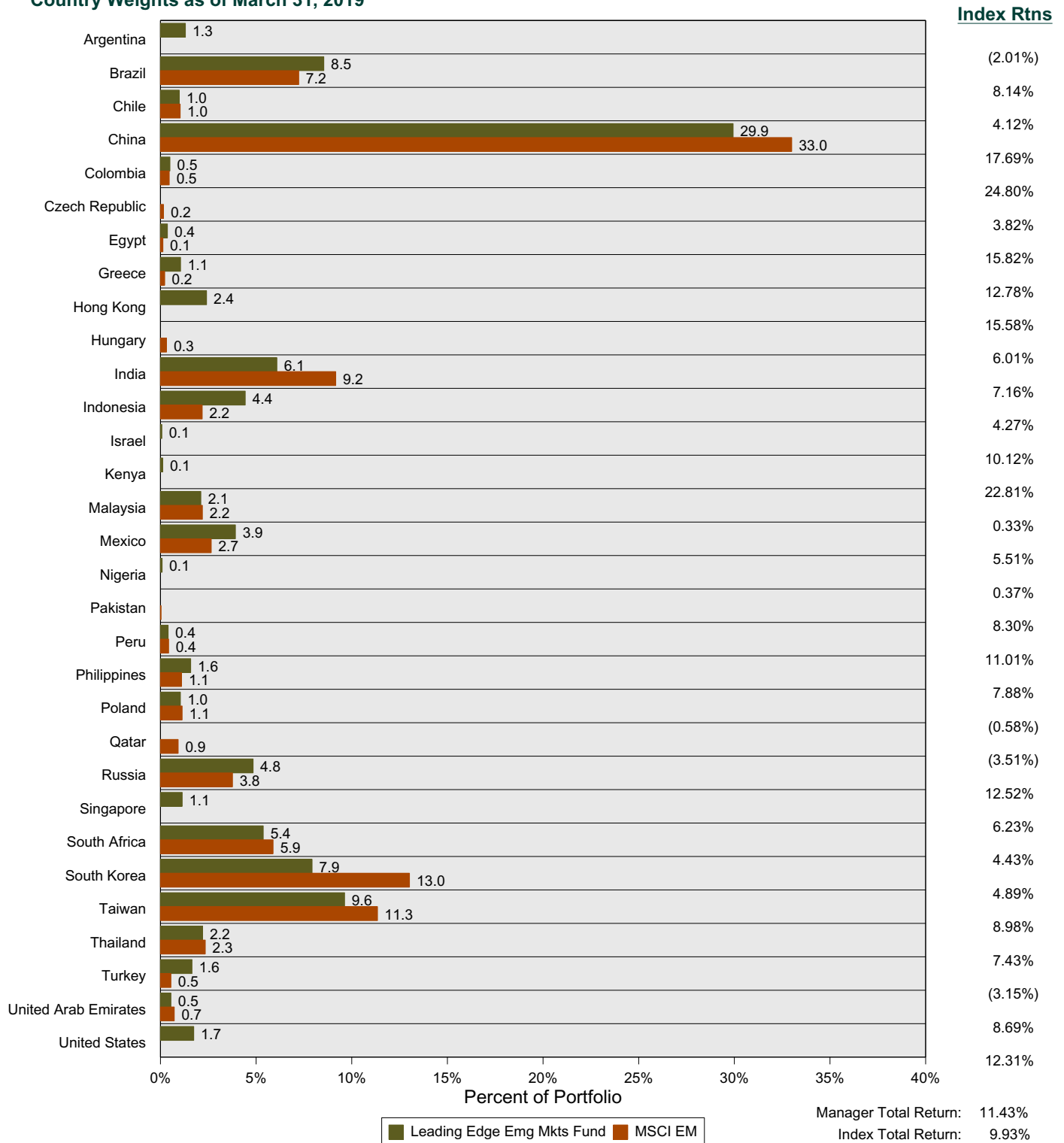
## Country Allocation

### Leading Edge Emg Mkts Fund VS MSCI EM - Emerging Mkts (USD Net Div)

#### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

#### Country Weights as of March 31, 2019



# Macquarie Emerging Markets Equity Period Ended March 31, 2019

## Investment Philosophy

Macquarie believes that market price and intrinsic business value are correlated in the long-run and short-term divergences offer disciplined, bottom-up, fundamental investors, attractive risk-adjusted opportunities. The team defines intrinsic value as the appropriately discounted value of a business' cash flow stream. They buy only when the business trades at a significant discount to their intrinsic value estimate. The team focuses resources on franchises, defined as those companies with high potential to earn excess returns above their cost of capital over the long-run. The team aims to capture market inefficiencies by:

1. Judging a franchise's sustainability and secular growth prospects better than the market
2. Maintaining a long-term, structural bias to capture franchises oversold due to temporary setbacks
3. Exploiting public market and private market valuation discrepancies
4. Buying assets below their replacement costs.

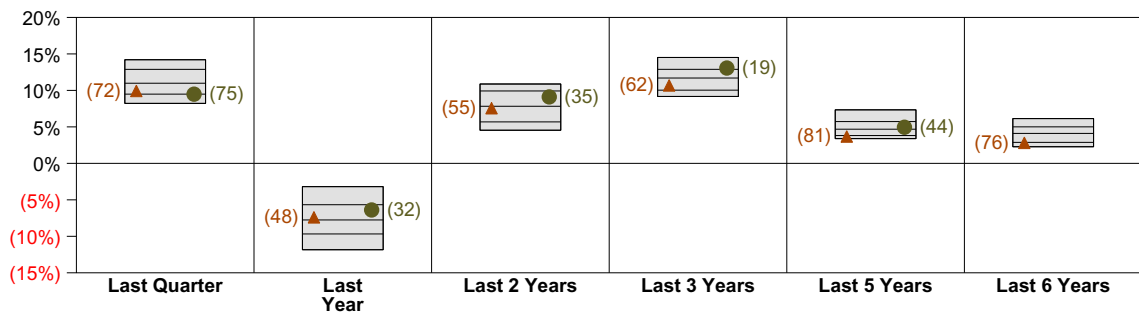
## Quarterly Summary and Highlights

- Macquarie Emerging Markets Equity's portfolio posted a 9.48% return for the quarter placing it in the 75 percentile of the Callan Emerging Broad group for the quarter and in the 32 percentile for the last year.
- Macquarie Emerging Markets Equity's portfolio underperformed the MSCI EM by 0.45% for the quarter and outperformed the MSCI EM for the year by 1.01%.

## Quarterly Asset Growth

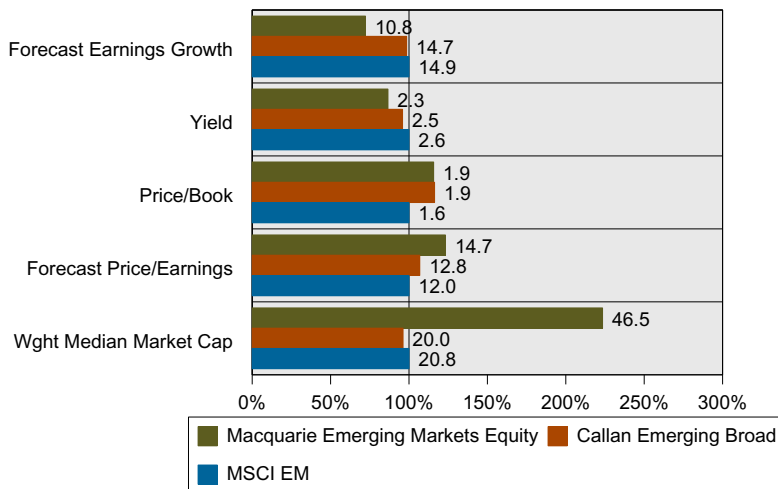
Beginning Market Value	\$296,168,636
Net New Investment	\$-299,604
Investment Gains/(Losses)	\$28,081,843
Ending Market Value	\$323,950,876

## Performance vs Callan Emerging Broad (Gross)

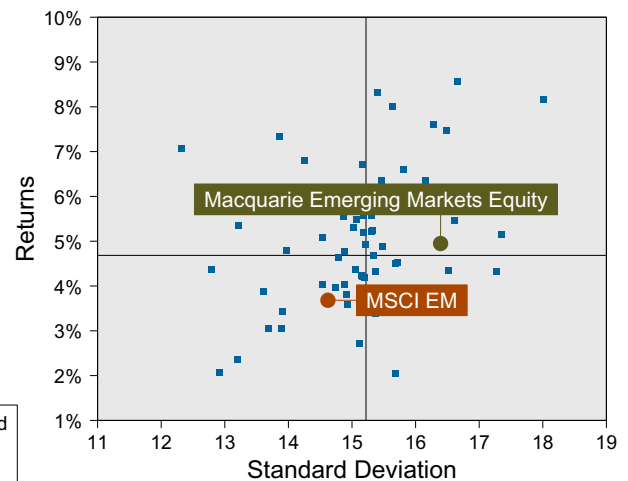


	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years
10th Percentile	14.20	(3.19)	10.88	14.51	7.34	6.14
25th Percentile	12.88	(5.67)	9.92	12.89	5.73	5.00
Median	10.98	(7.76)	7.82	11.70	4.68	4.10
75th Percentile	9.49	(9.67)	5.68	10.03	3.81	2.88
90th Percentile	8.22	(11.84)	4.54	9.17	3.39	2.28
<b>Macquarie Emerging Markets Equity</b> ●	9.48	(6.39)	9.11	13.06	4.95	-
<b>MSCI EM</b> ▲	9.93	(7.40)	7.56	10.68	3.68	2.81

## Portfolio Characteristics as a Percentage of the MSCI EM



## Callan Emerging Broad (Gross) Annualized Five Year Risk vs Return

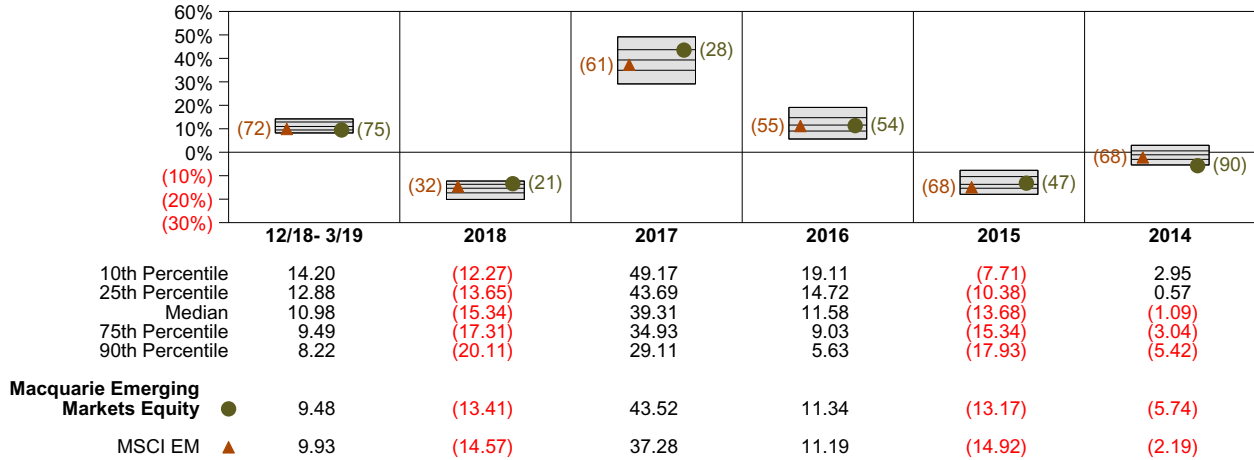


# Macquarie Emerging Markets Equity Return Analysis Summary

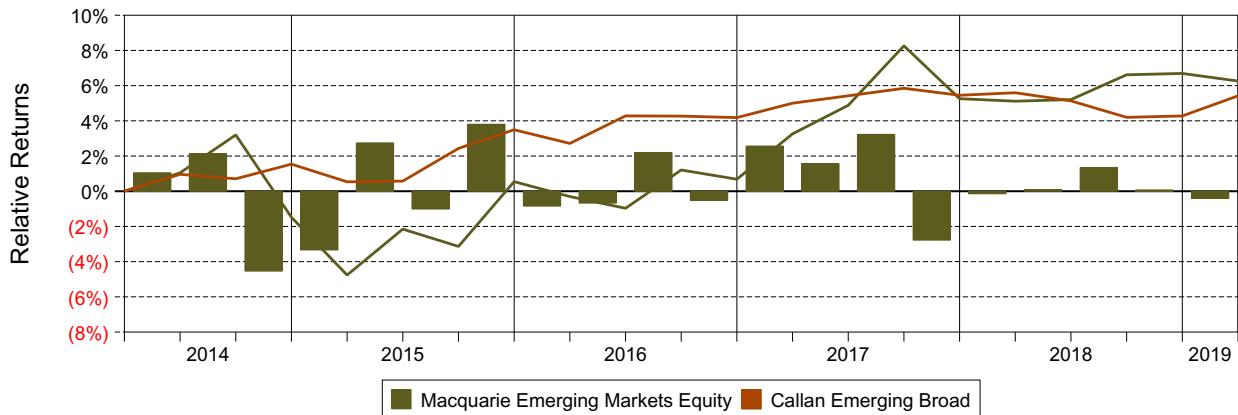
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

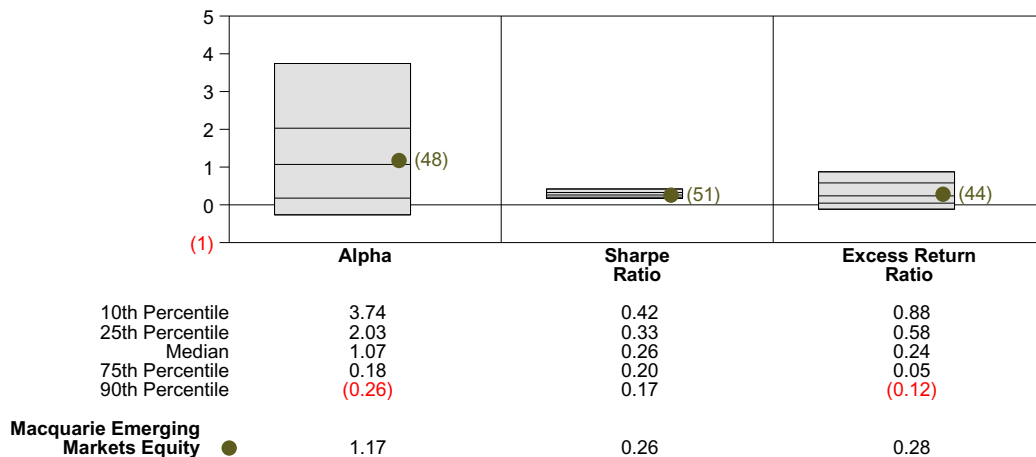
### Performance vs Callan Emerging Broad (Gross)



### Cumulative and Quarterly Relative Return vs MSCI EM



### Risk Adjusted Return Measures vs MSCI EM Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019

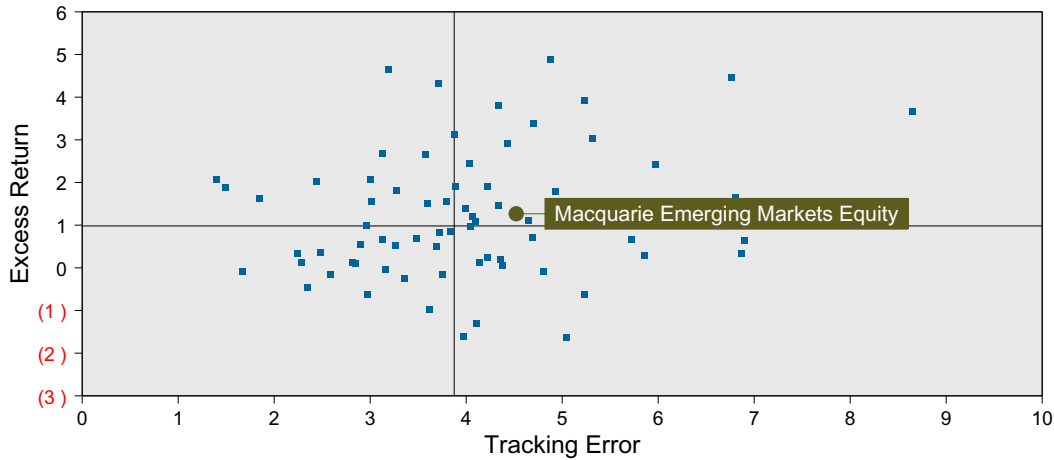


# Macquarie Emerging Markets Equity Risk Analysis Summary

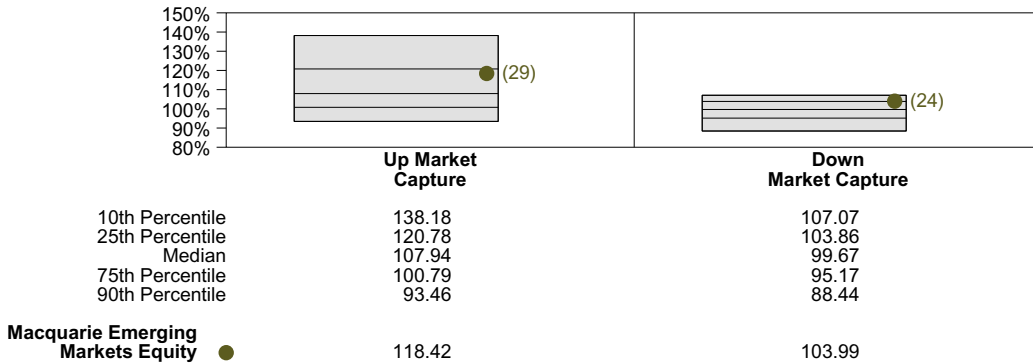
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

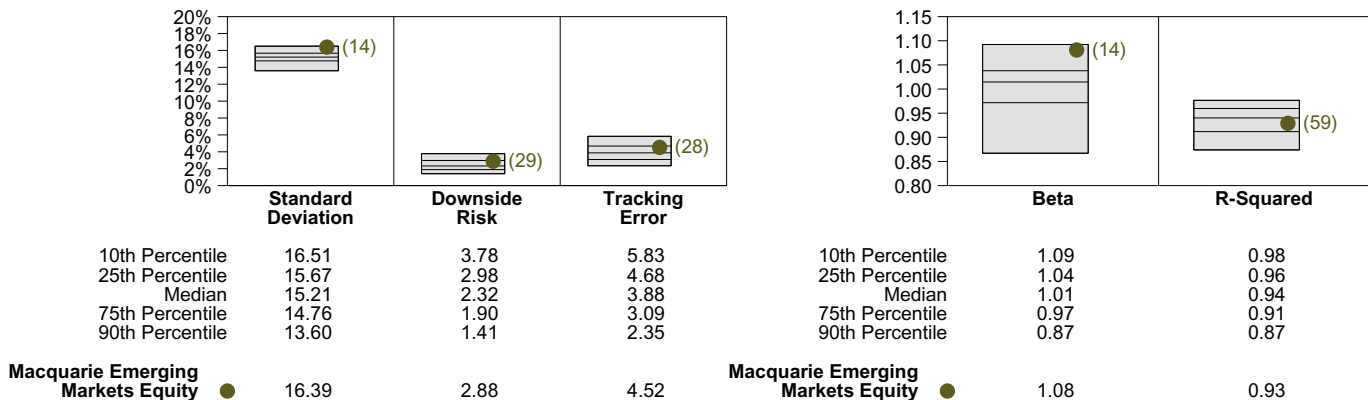
### Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



### Market Capture vs MSCI EM - Emerging Mkts (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



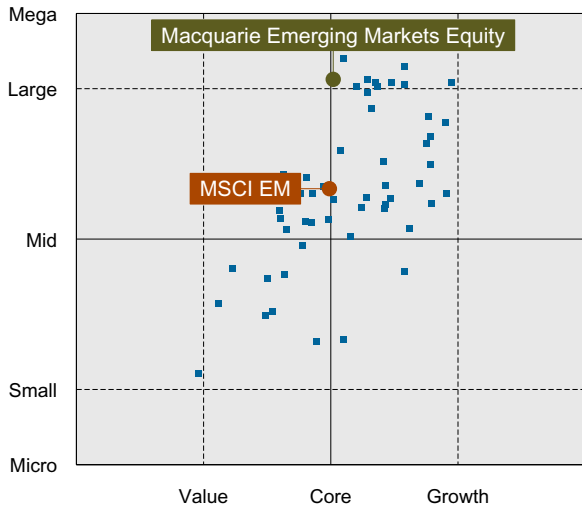
### Risk Statistics Rankings vs MSCI EM - Emerging Mkts (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



# Current Holdings Based Style Analysis Macquarie Emerging Markets Equity As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

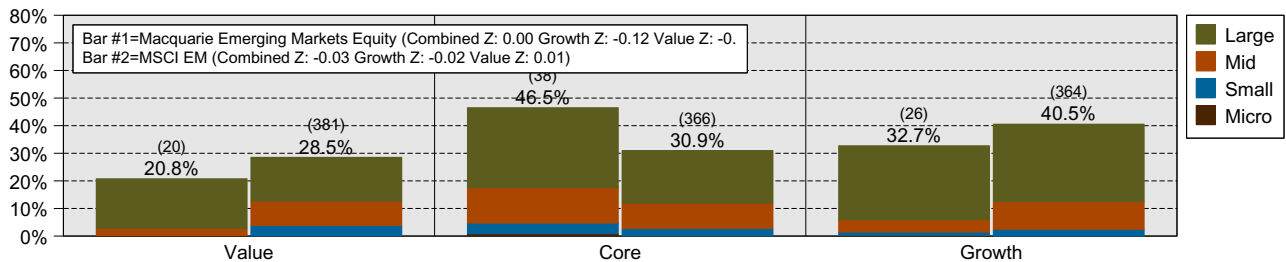
**Style Map vs Callan Emerging Broad Holdings as of March 31, 2019**



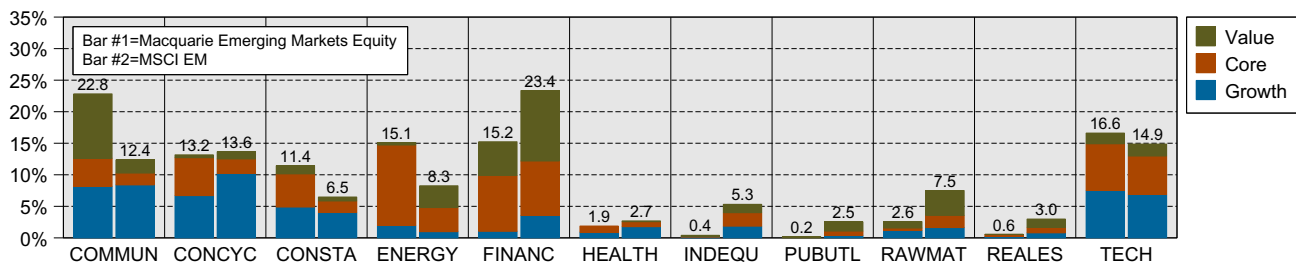
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
<b>Large</b>	18.0% (12) 15.9% (72)	29.0% (14) 19.0% (83)	26.8% (13) 28.1% (81)	73.8% (39) 62.9% (236)
<b>Mid</b>	2.6% (6) 8.7% (164)	12.8% (16) 9.1% (185)	4.5% (8) 10.0% (196)	19.9% (30) 27.9% (545)
<b>Small</b>	0.0% (0) 3.9% (144)	3.8% (6) 2.8% (97)	1.2% (4) 2.4% (87)	5.1% (10) 9.2% (328)
<b>Micro</b>	0.2% (2) 0.0% (1)	0.8% (2) 0.0% (1)	0.2% (1) 0.0% (0)	1.3% (5) 0.0% (2)
<b>Total</b>	20.8% (20) 28.5% (381)	46.5% (38) 30.9% (366)	32.7% (26) 40.5% (364)	100.0% (84) 100.0% (1111)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**



# Macquarie Emerging Markets Equity Equity Characteristics Analysis Summary

## Portfolio Characteristics

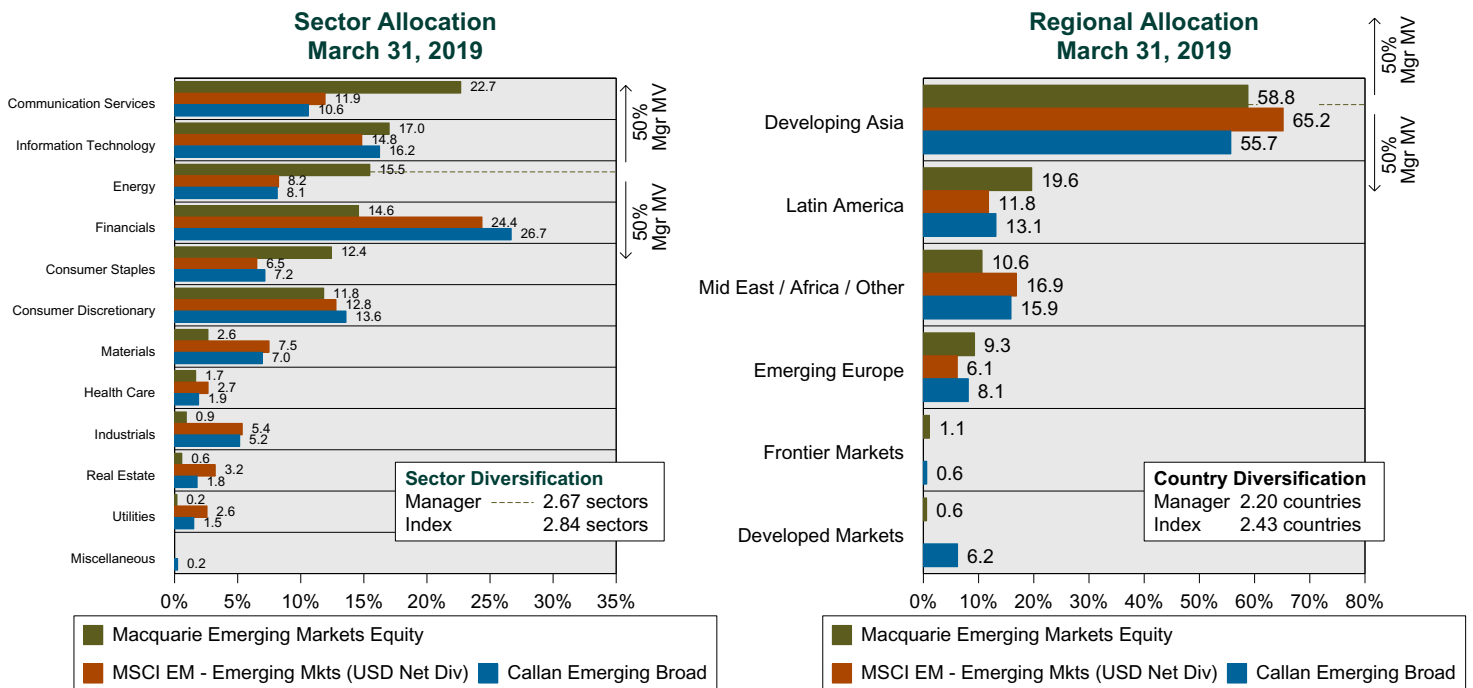
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.





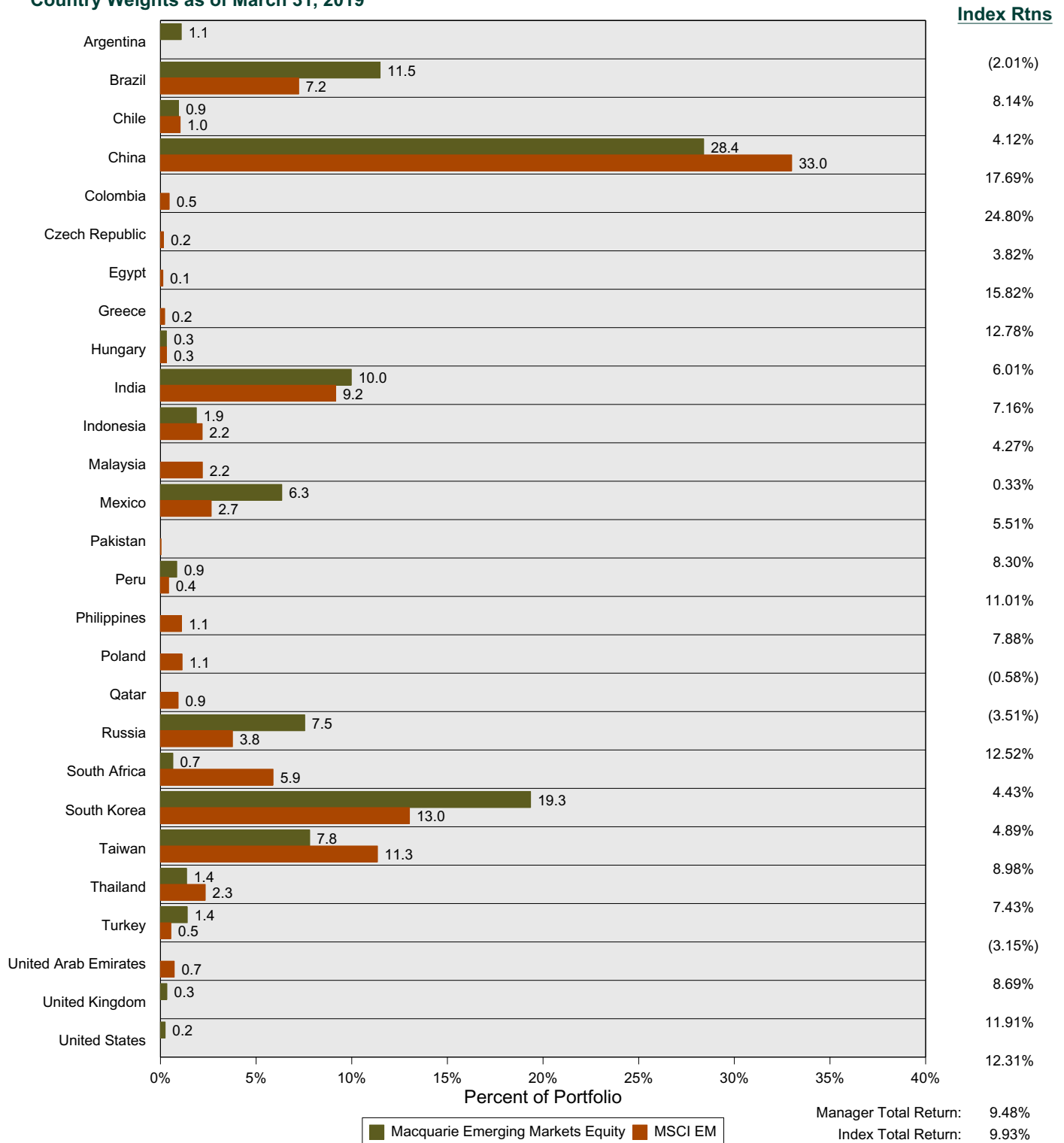
## Country Allocation

### Macquarie Emerging Markets Equity VS MSCI EM - Emerging Mkts (USD Net Div)

#### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

#### Country Weights as of March 31, 2019



# Martin Currie

## Period Ended March 31, 2019

### Investment Philosophy

Macquarie believes that market price and intrinsic business value are correlated in the long-run and short-term divergences offer disciplined, bottom-up, fundamental investors, attractive risk-adjusted opportunities. The team defines intrinsic value as the appropriately discounted value of a business' cash flow stream. They buy only when the business trades at a significant discount to their intrinsic value estimate. The team focuses resources on franchises, defined as those companies with high potential to earn excess returns above their cost of capital over the long-run. The team aims to capture market inefficiencies by:

1. Judging a franchise's sustainability and secular growth prospects better than the market
2. Maintaining a long-term, structural bias to capture franchises oversold due to temporary setbacks
3. Exploiting public market and private market valuation discrepancies
4. Buying assets below their replacement costs.

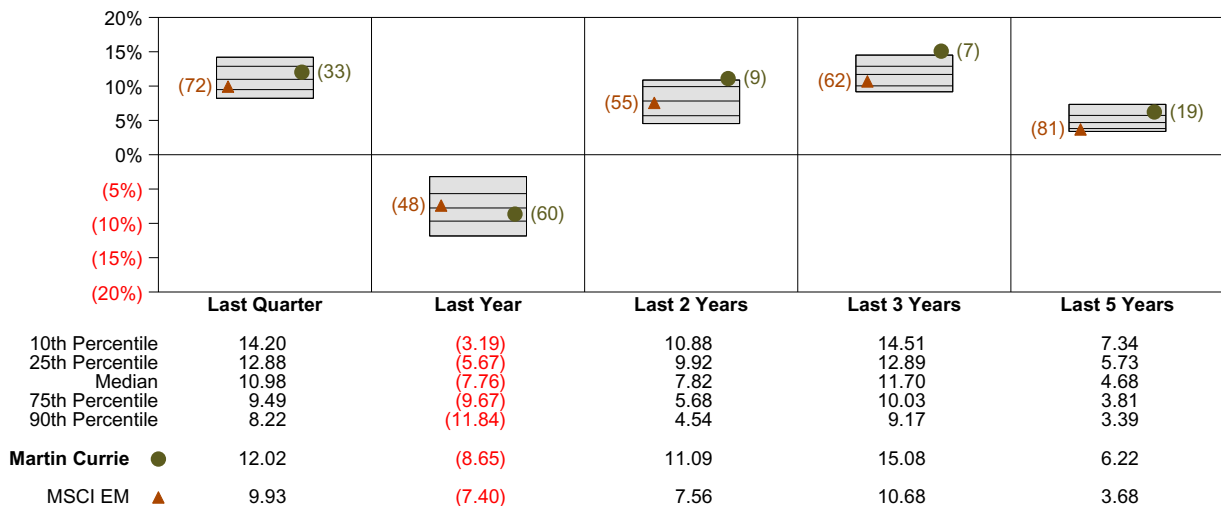
### Quarterly Summary and Highlights

- Martin Currie's portfolio posted a 12.02% return for the quarter placing it in the 33 percentile of the Callan Emerging Broad group for the quarter and in the 60 percentile for the last year.
- Martin Currie's portfolio outperformed the MSCI EM by 2.09% for the quarter and underperformed the MSCI EM for the year by 1.25%.

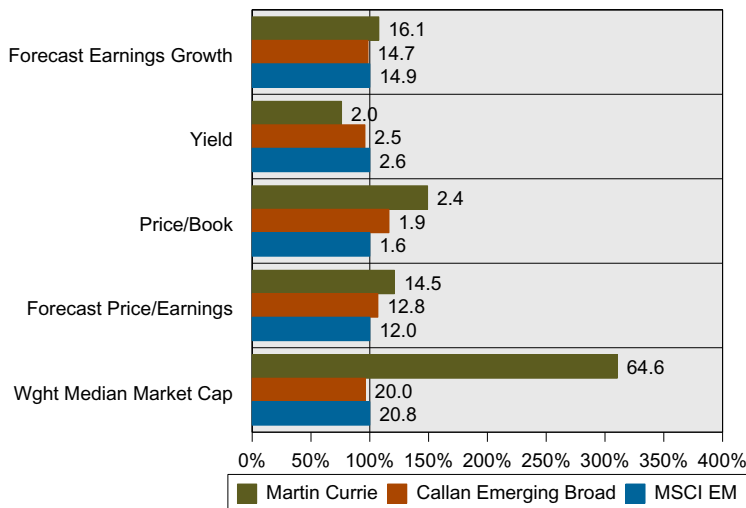
### Quarterly Asset Growth

Beginning Market Value	\$285,089,603
Net New Investment	\$100,000,000
Investment Gains/(Losses)	\$47,389,980
Ending Market Value	\$432,479,583

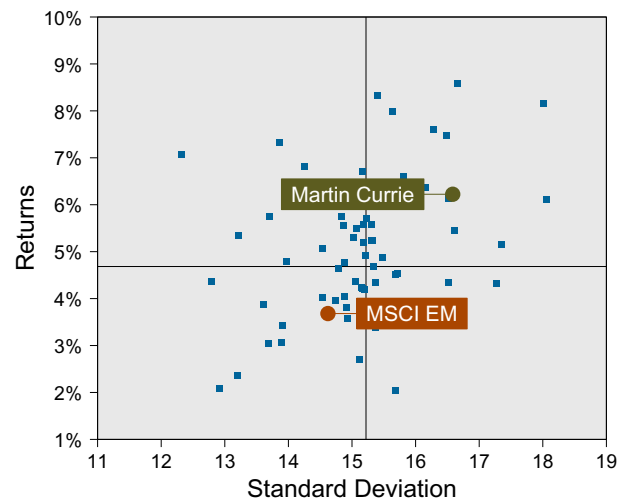
### Performance vs Callan Emerging Broad (Gross)



### Portfolio Characteristics as a Percentage of the MSCI EM



### Callan Emerging Broad (Gross) Annualized Five Year Risk vs Return

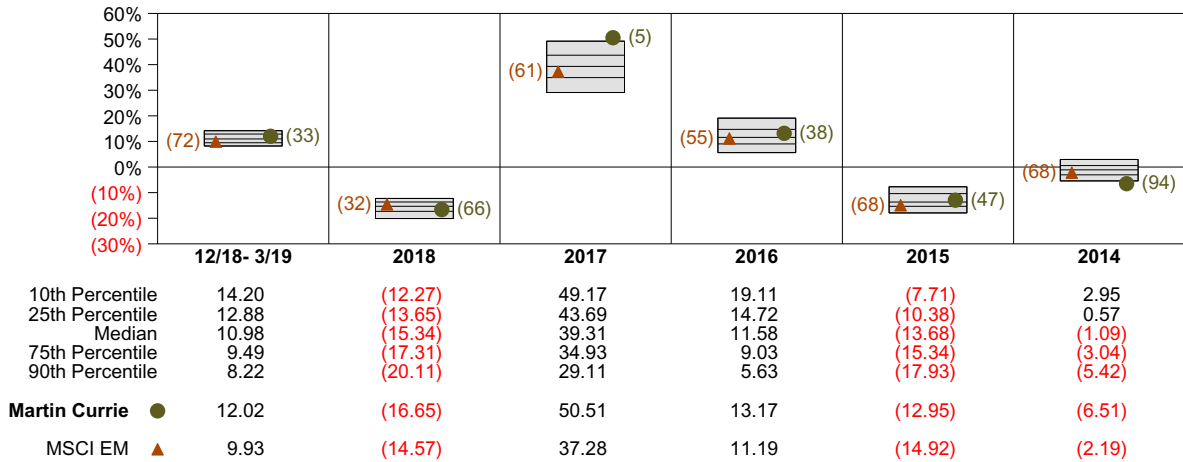


# Martin Currie Return Analysis Summary

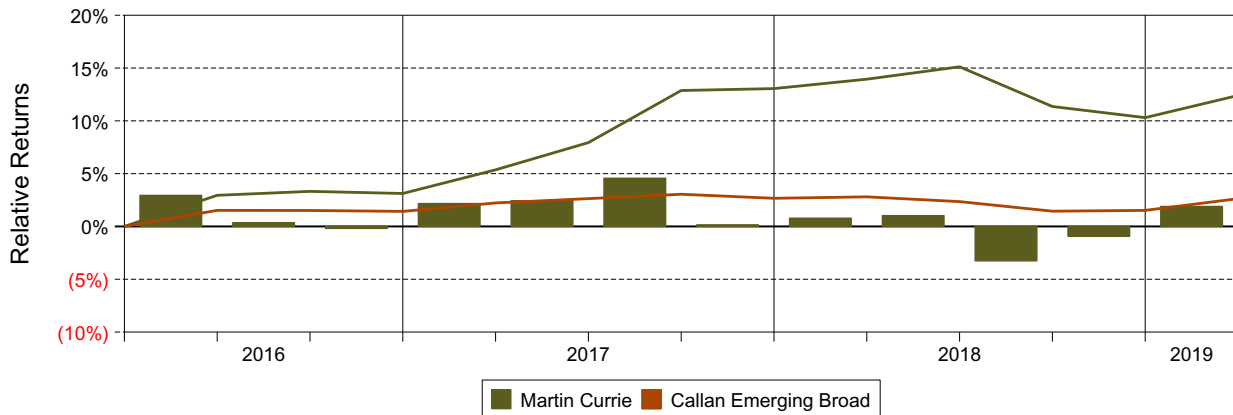
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

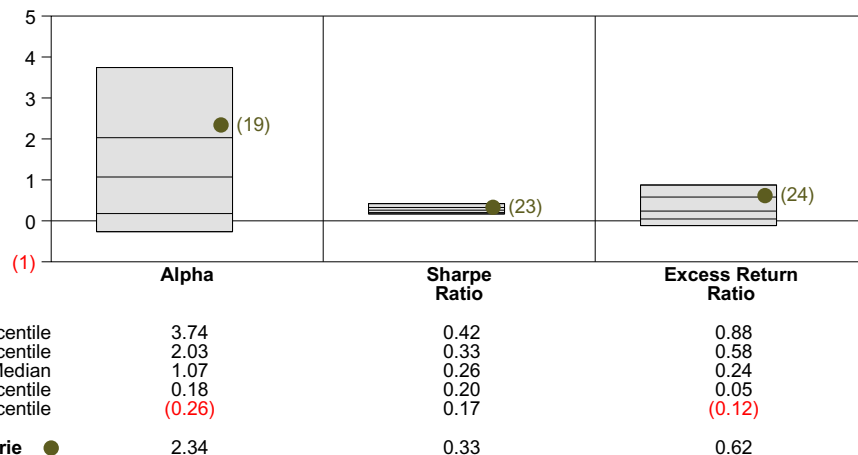
### Performance vs Callan Emerging Broad (Gross)



### Cumulative and Quarterly Relative Return vs MSCI EM



### Risk Adjusted Return Measures vs MSCI EM Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019

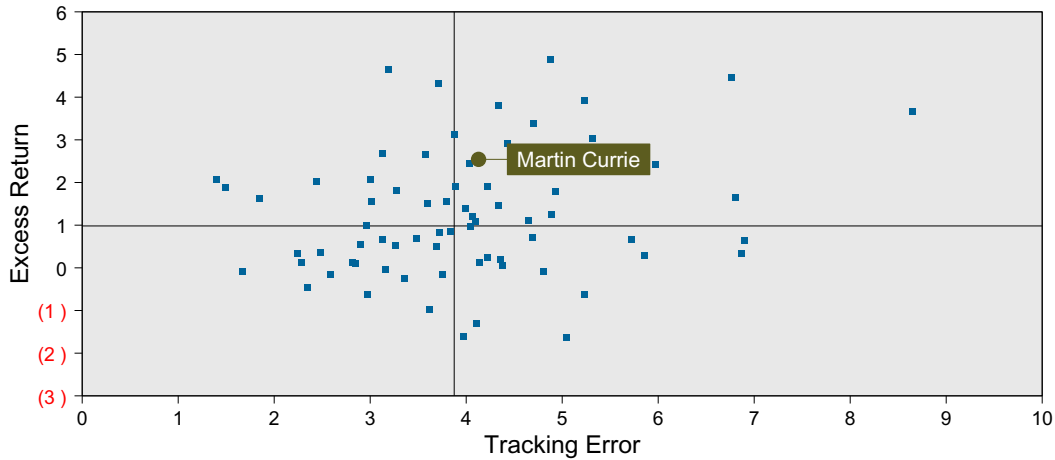


# Martin Currie Risk Analysis Summary

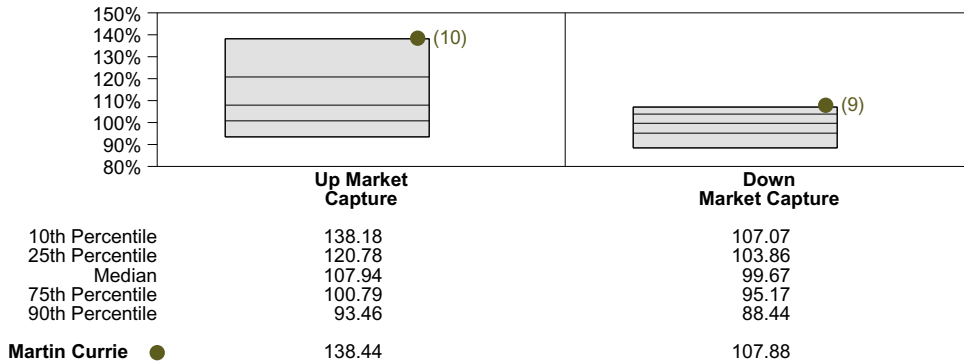
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

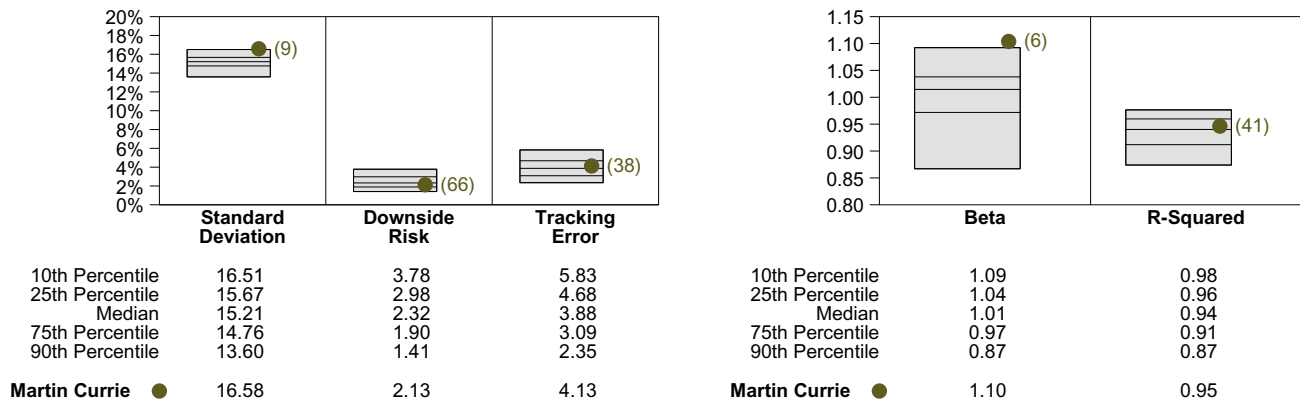
### Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



### Market Capture vs MSCI EM - Emerging Mkts (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



### Risk Statistics Rankings vs MSCI EM - Emerging Mkts (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



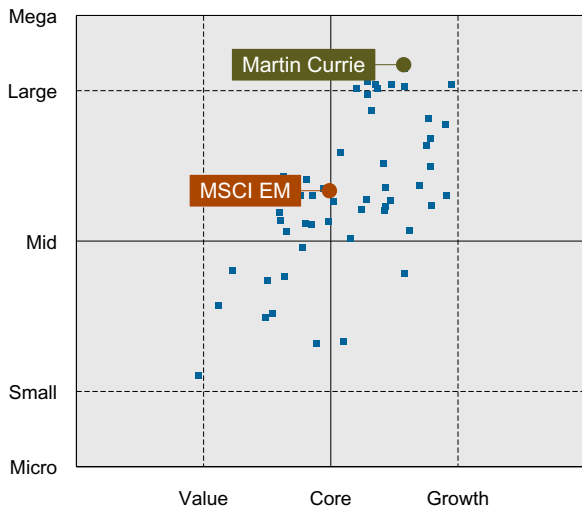
# Current Holdings Based Style Analysis

## Martin Currie

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

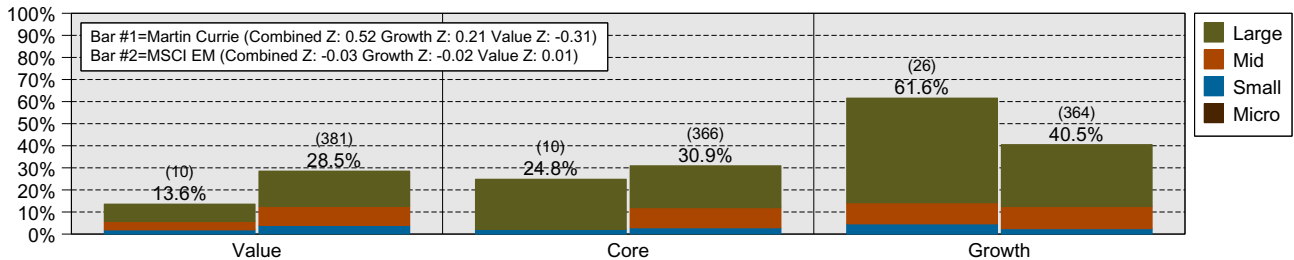
**Style Map vs Callan Emerging Broad Holdings as of March 31, 2019**



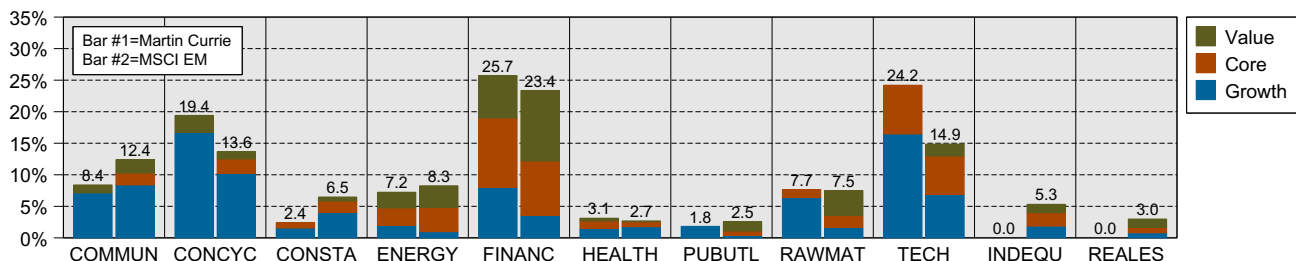
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	7.8% (3)	22.8% (8)	47.4% (16)	77.9% (27)
	15.9% (72)	19.0% (83)	28.1% (81)	62.9% (236)
Mid	3.9% (4)	0.0% (0)	9.6% (6)	13.5% (10)
	8.7% (164)	9.1% (185)	10.0% (196)	27.9% (545)
Small	1.9% (3)	2.1% (2)	4.6% (4)	8.6% (9)
	3.9% (144)	2.8% (97)	2.4% (87)	9.2% (328)
Micro	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
	0.0% (1)	0.0% (1)	0.0% (0)	0.0% (2)
Total	13.6% (10)	24.8% (10)	61.6% (26)	100.0% (46)
	28.5% (381)	30.9% (366)	40.5% (364)	100.0% (1111)

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**

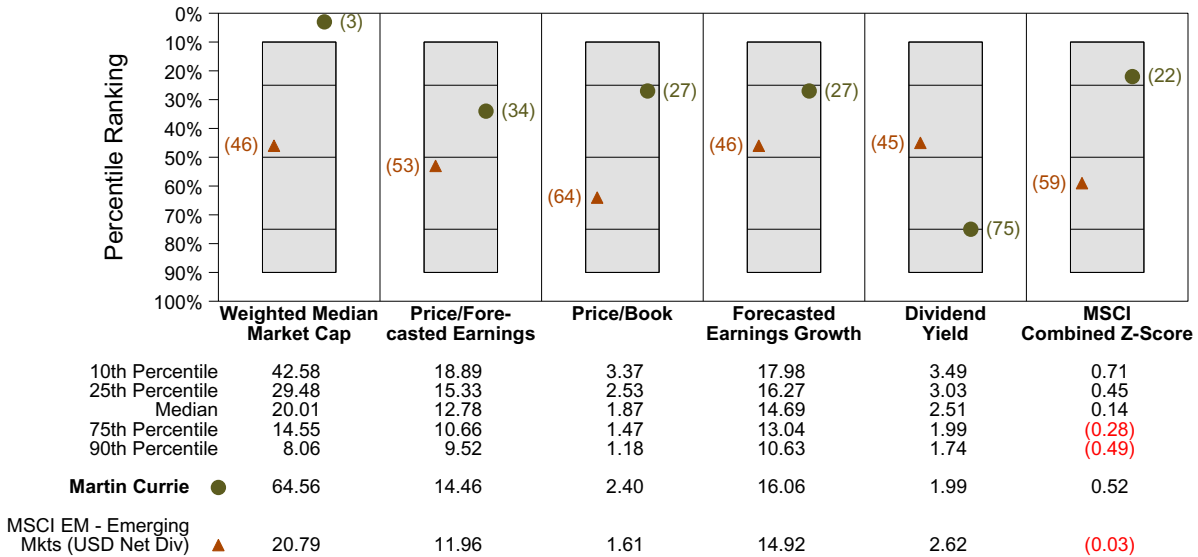


# Martin Currie Equity Characteristics Analysis Summary

## Portfolio Characteristics

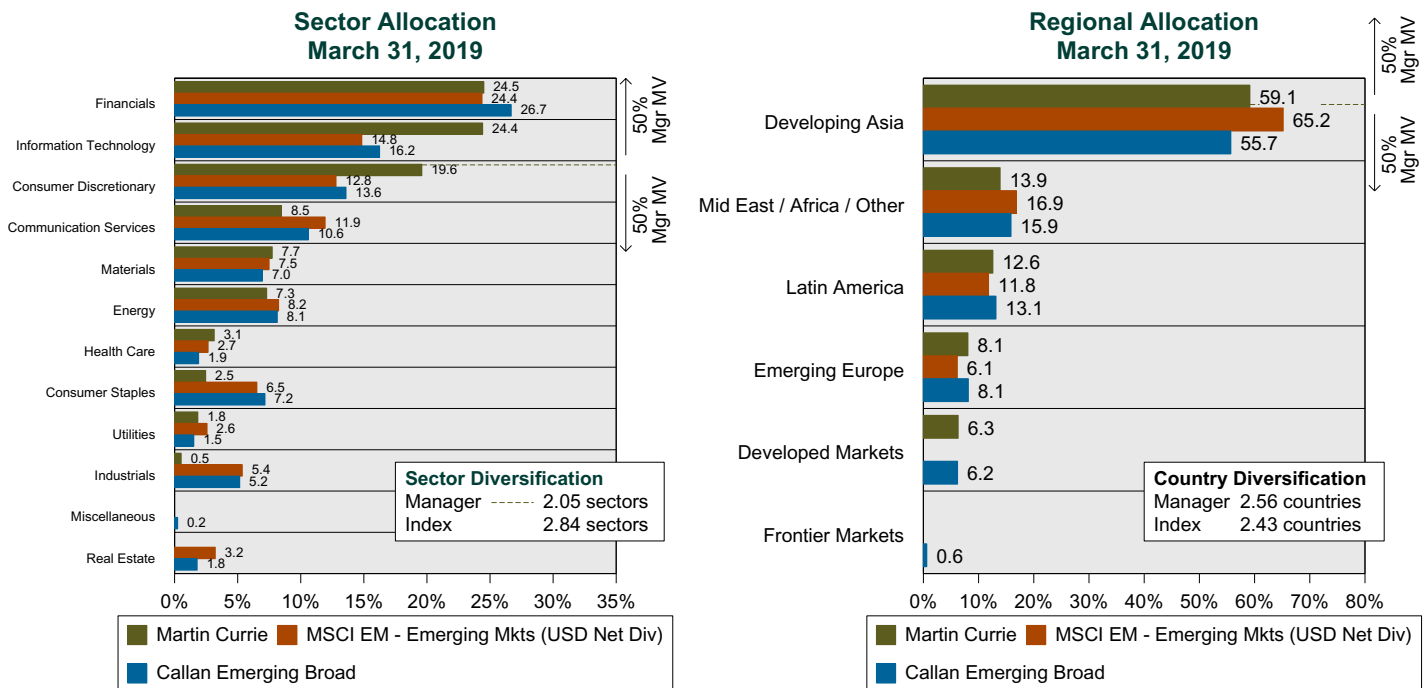
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.

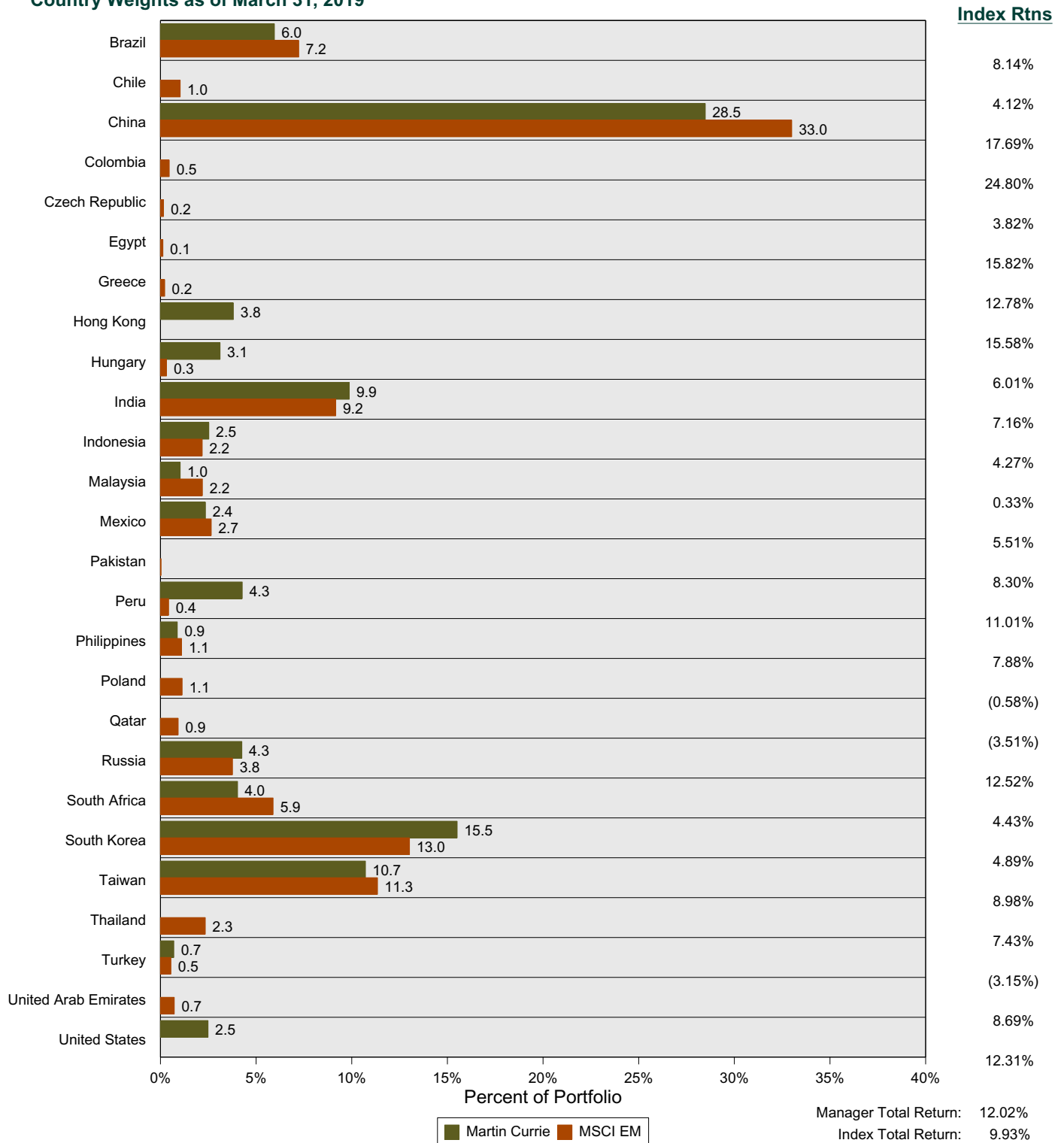


## Country Allocation Martin Currie VS MSCI EM - Emerging Mkts (USD Net Div)

### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

### Country Weights as of March 31, 2019



# GlobeFlex Emerging Small Cap Period Ended March 31, 2019

## Investment Philosophy

GlobeFlex is an active equity manager focused on bottom-up, stock selection. Their philosophy is based on the early identification of fundamental growth before it is recognized by other investors, defined by: Business Improvement: Finding companies with accelerating business conditions to identify early signs of growth; Management Quality: Evaluating the long-term growth sustainability through in-depth analysis of prospective operating performance and management's skill to increase shareholder wealth; and Relative Value: Recognizing accelerating business conditions early, buying and holding companies below fair market value given future growth prospects.

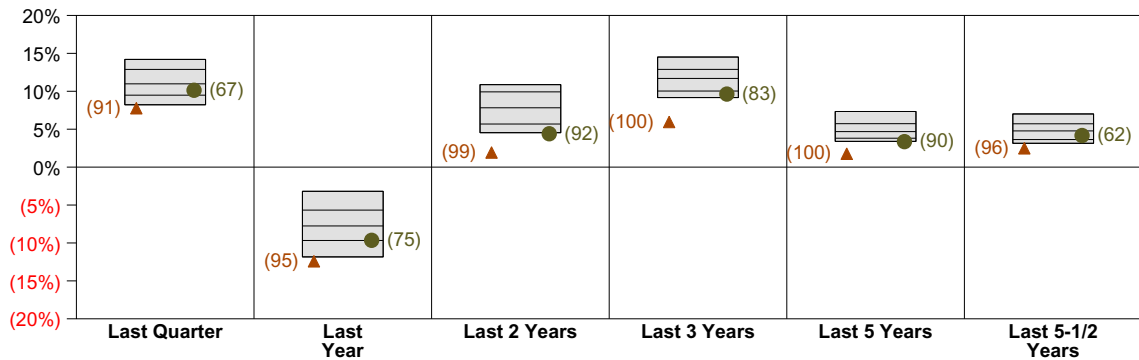
## Quarterly Summary and Highlights

- GlobeFlex Emerging Small Cap's portfolio posted a 10.14% return for the quarter placing it in the 67 percentile of the Callan Emerging Broad group for the quarter and in the 75 percentile for the last year.
- GlobeFlex Emerging Small Cap's portfolio outperformed the MSCI EM Small Cap by 2.37% for the quarter and outperformed the MSCI EM Small Cap for the year by 2.76%.

## Quarterly Asset Growth

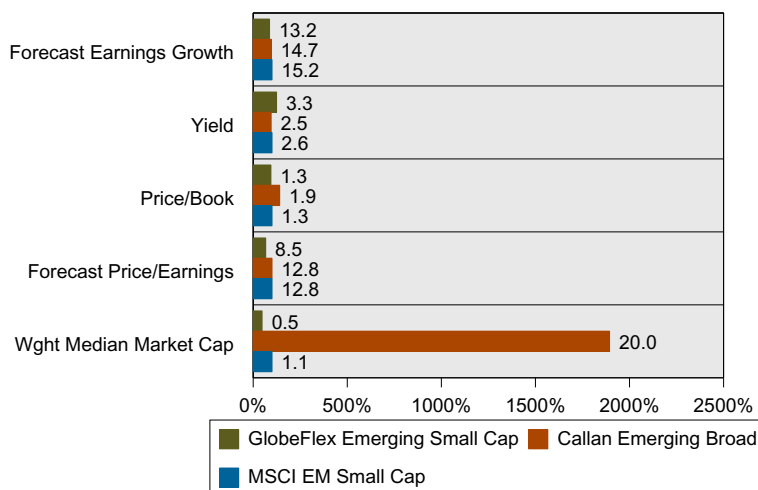
Beginning Market Value	\$83,913,941
Net New Investment	\$0
Investment Gains/(Losses)	\$8,504,773
Ending Market Value	\$92,418,714

## Performance vs Callan Emerging Broad (Gross)

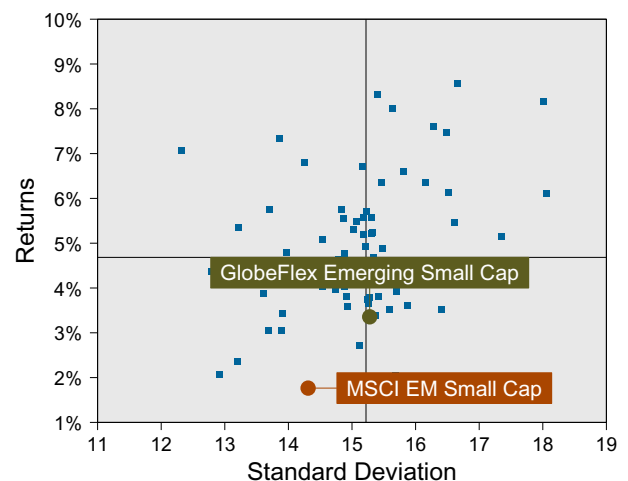


	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 5-1/2 Years
10th Percentile	14.20	(3.19)	10.88	14.51	7.34	7.01
25th Percentile	12.88	(5.67)	9.92	12.89	5.73	5.71
Median	10.98	(7.76)	7.82	11.70	4.68	4.78
75th Percentile	9.49	(9.67)	5.68	10.03	3.81	3.64
90th Percentile	8.22	(11.84)	4.54	9.17	3.39	3.14
<b>GlobeFlex Emerging Small Cap</b> ●	10.14	(9.65)	4.40	9.63	3.36	4.17
MSCI EM Small Cap ▲	7.76	(12.42)	1.93	5.95	1.77	2.48

## Portfolio Characteristics as a Percentage of the MSCI EM Small Cap



## Callan Emerging Broad (Gross) Annualized Five Year Risk vs Return



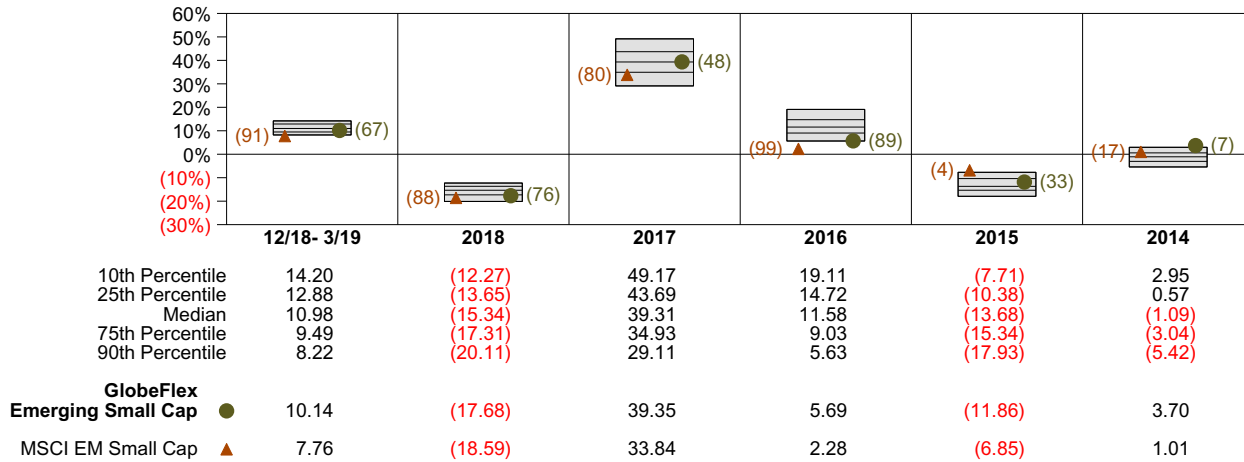


# GlobeFlex Emerging Small Cap Return Analysis Summary

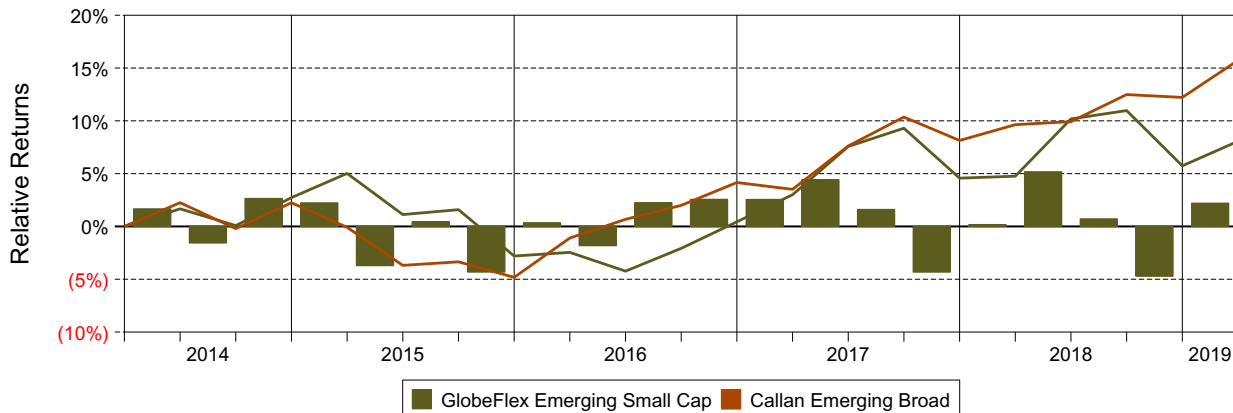
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

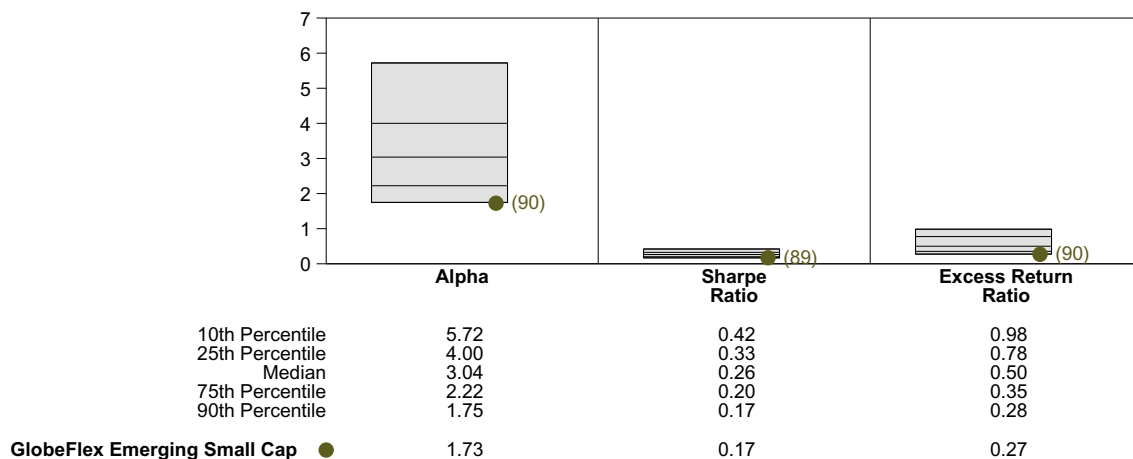
### Performance vs Callan Emerging Broad (Gross)



### Cumulative and Quarterly Relative Return vs MSCI EM Small Cap



### Risk Adjusted Return Measures vs MSCI EM Small Cap Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019

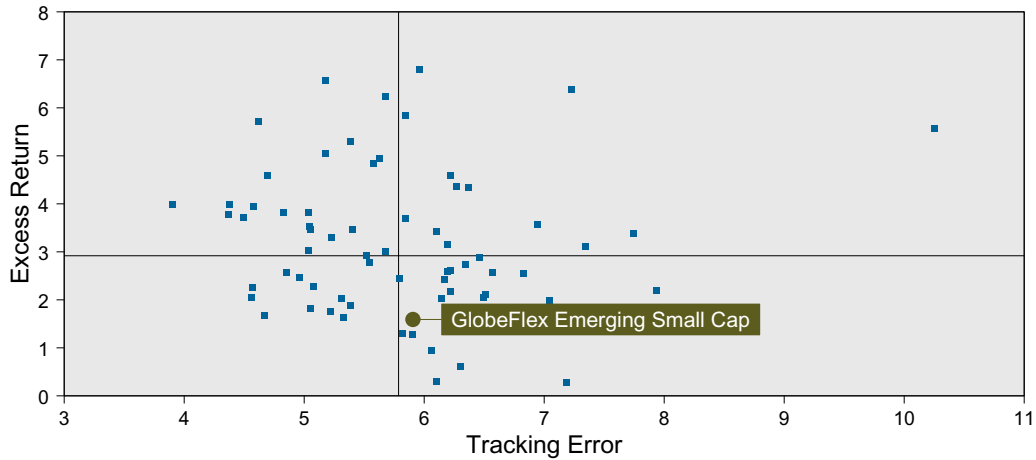


# GlobeFlex Emerging Small Cap Risk Analysis Summary

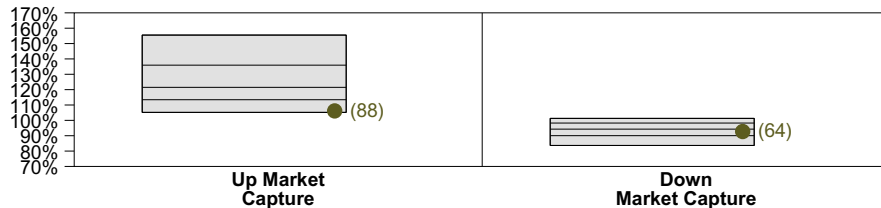
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

### Risk Analysis vs Callan Emerging Broad (Gross) Five Years Ended March 31, 2019

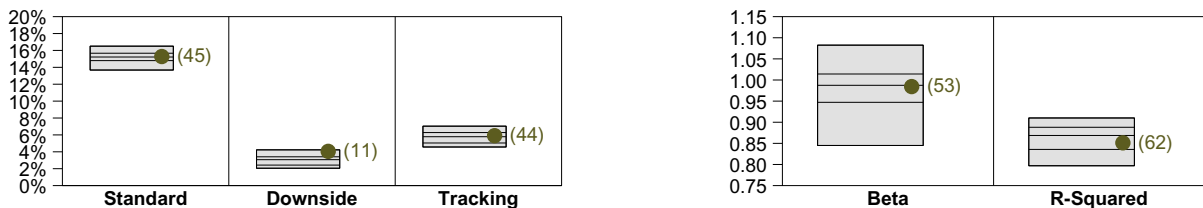


### Market Capture vs MSCI EM Small Cap Index (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



	Up Market Capture	Down Market Capture
10th Percentile	155.52	101.28
25th Percentile	135.93	98.25
Median	121.48	94.28
75th Percentile	113.43	90.03
90th Percentile	105.19	83.67
<b>GlobeFlex Emerging Small Cap</b>	<b>106.15</b>	<b>92.72</b>

### Risk Statistics Rankings vs MSCI EM Small Cap Index (USD Net Div) Rankings Against Callan Emerging Broad (Gross) Five Years Ended March 31, 2019



	Standard Deviation	Downside Risk	Tracking Error	Beta	R-Squared
10th Percentile	16.51	4.23	7.03	1.08	0.91
25th Percentile	15.67	3.41	6.28	1.01	0.89
Median	15.22	3.07	5.79	0.99	0.87
75th Percentile	14.79	2.43	5.04	0.95	0.84
90th Percentile	13.68	2.06	4.57	0.84	0.80
<b>GlobeFlex Emerging Small Cap</b>	<b>15.28</b>	<b>4.05</b>	<b>5.91</b>	<b>0.98</b>	<b>0.85</b>

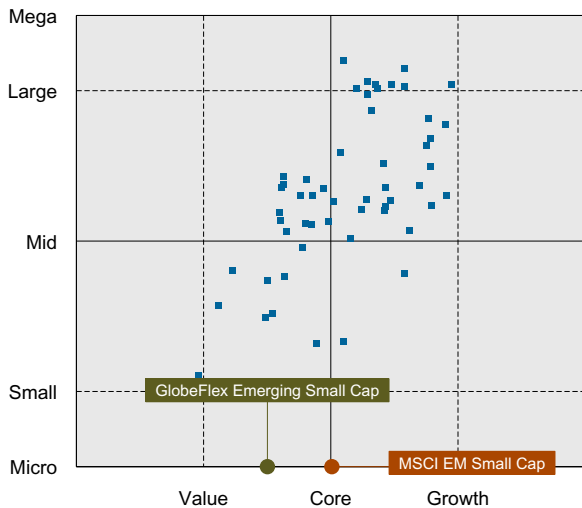
# Current Holdings Based Style Analysis

## GlobeFlex Emerging Small Cap

### As of March 31, 2019

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

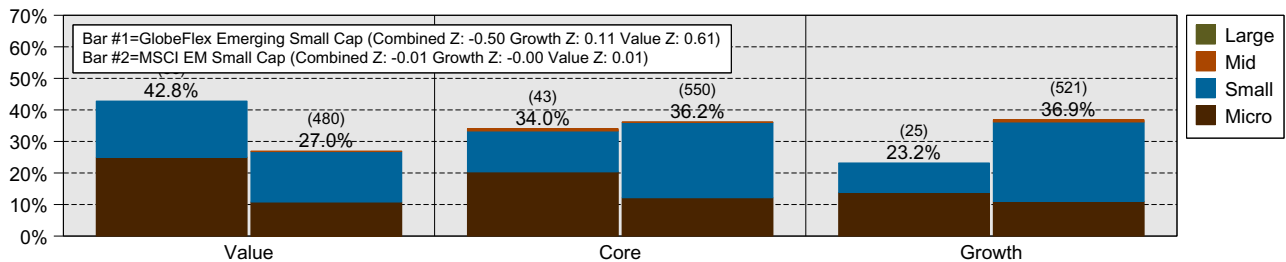
**Style Map vs Callan Emerging Broad Holdings as of March 31, 2019**



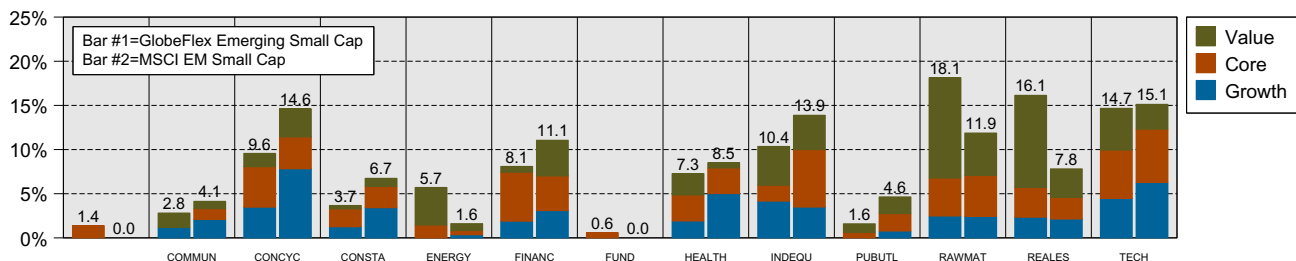
**Style Exposure Matrix Holdings as of March 31, 2019**

	Value	Core	Growth	Total
Large	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Mid	0.0% (0)	0.7% (1)	0.0% (0)	0.7% (1)
Small	17.8% (21)	13.0% (14)	9.4% (11)	40.1% (46)
Micro	25.0% (32)	20.4% (28)	13.8% (14)	59.2% (74)
<b>Total</b>	<b>42.8% (53)</b>	<b>34.0% (43)</b>	<b>23.2% (25)</b>	<b>100.0% (121)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2019**



**Sector Weights Distribution Holdings as of March 31, 2019**



# GlobeFlex Emerging Small Cap Equity Characteristics Analysis Summary

## Portfolio Characteristics

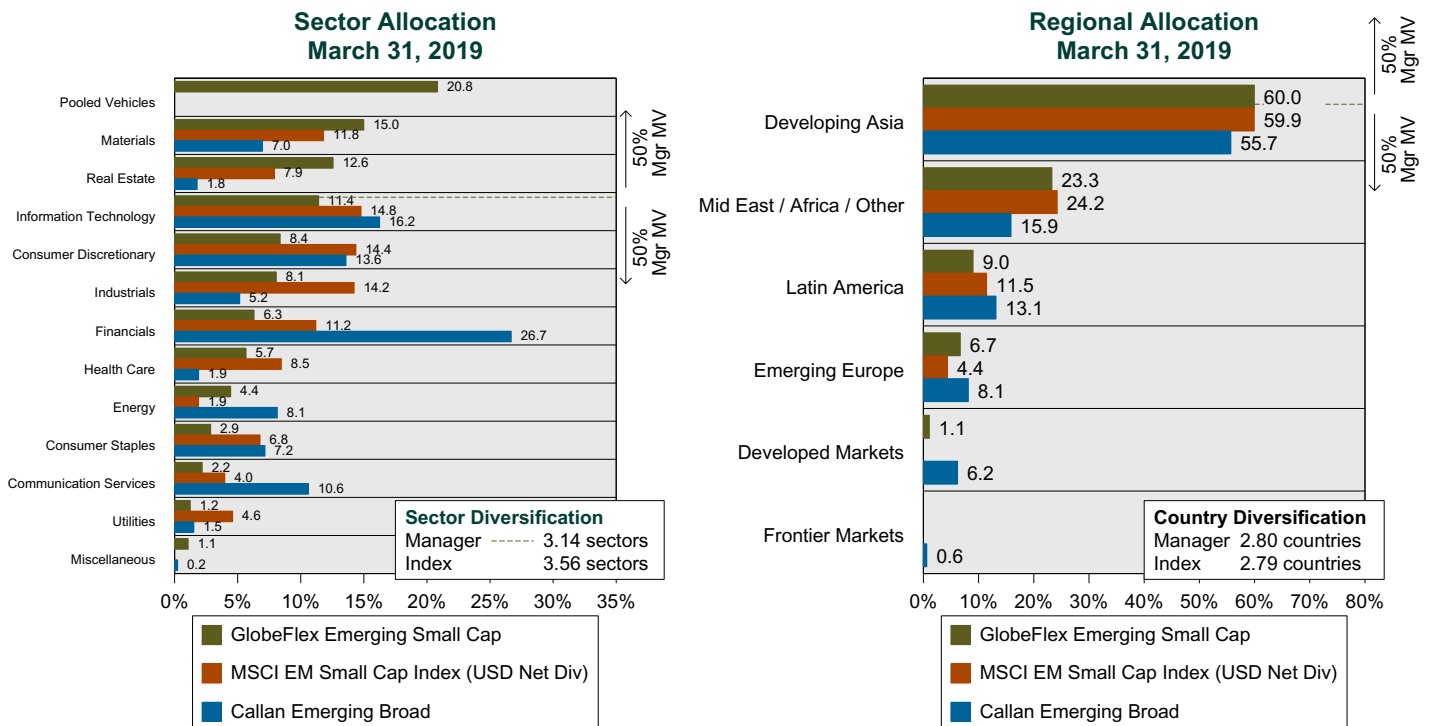
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Portfolio Characteristics Percentile Rankings Rankings Against Callan Emerging Broad as of March 31, 2019



## Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.

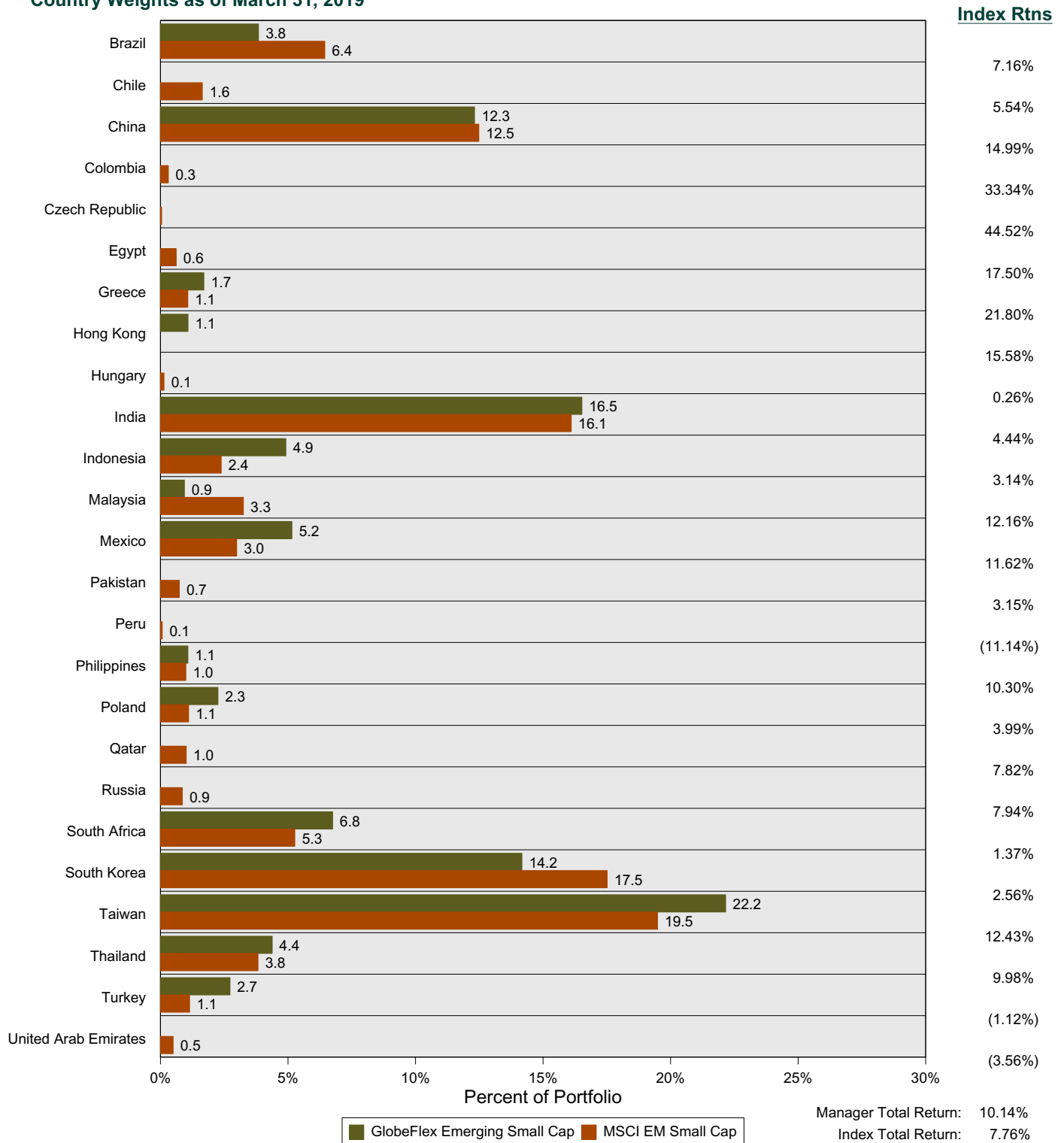


## Country Allocation GlobeFlex Emerging Small Cap VS MSCI EM Small Cap Index (USD Net Div)

### Country Allocation

The chart below contrasts the portfolio's country allocation with that of the index as of March 31, 2019. This chart is useful because large deviations in country allocation relative to the index are often good predictors of tracking error in the subsequent quarter. To the extent that the portfolio allocation is similar to the index, the portfolio should experience more "index-like" performance. In order to illustrate the performance effect on the portfolio and index of these country allocations, the individual index country returns are also shown.

### Country Weights as of March 31, 2019

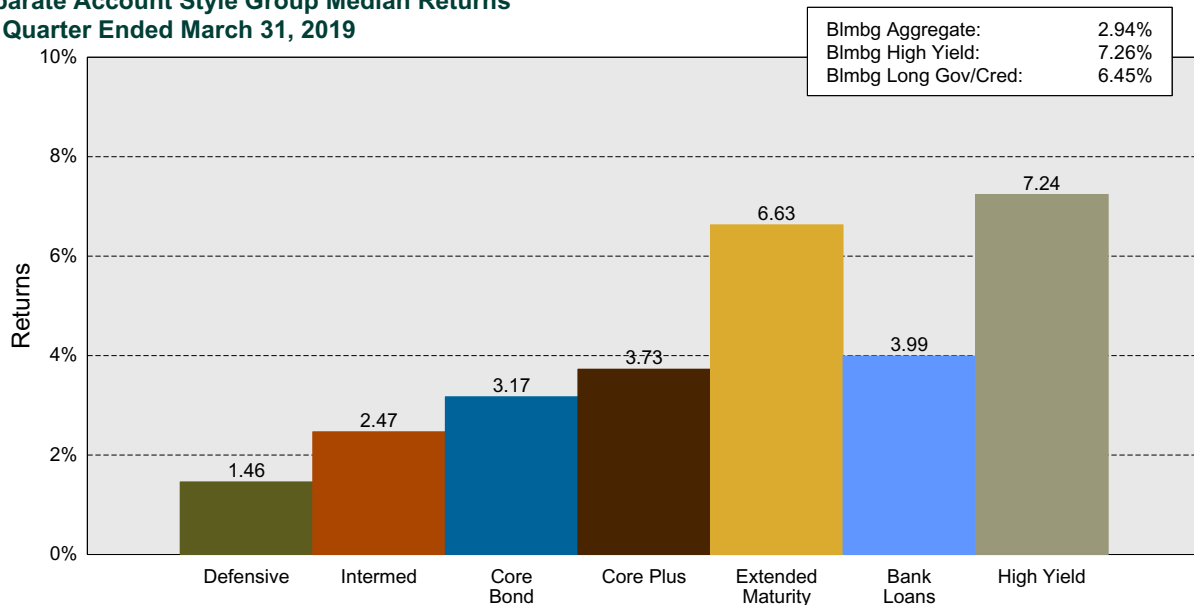




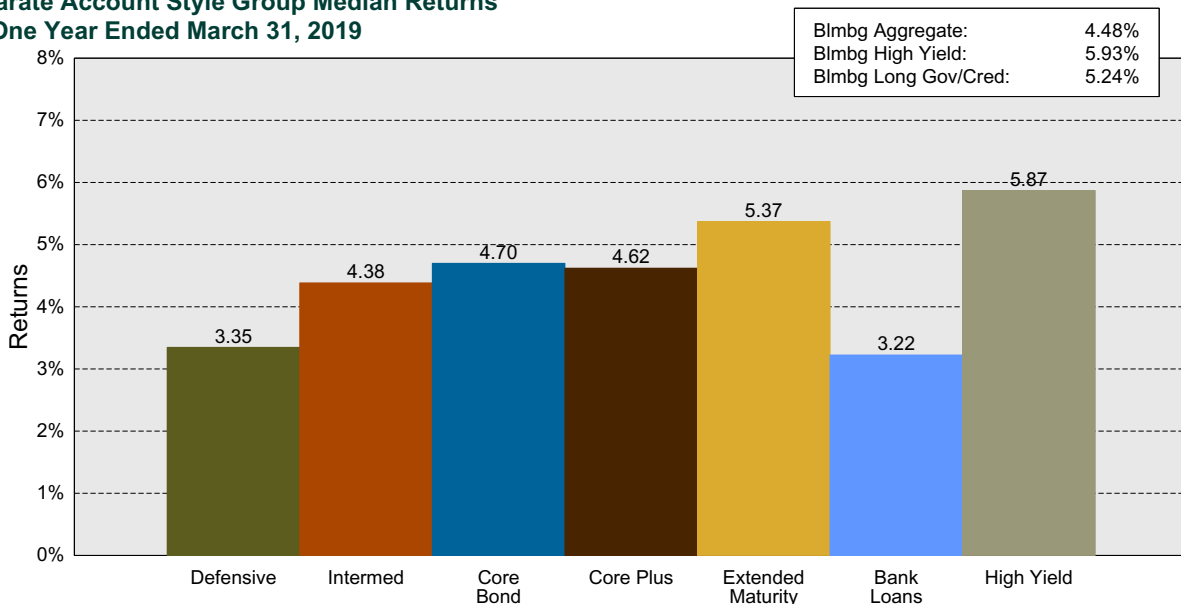
## Domestic Fixed Income Active Management Overview

In the U.S., the Bloomberg Barclays US Aggregate Bond Index rose 2.9% for the quarter, with investment grade corporates (Bloomberg Barclays Corporate: +5.1%) up the most. Yields fell sharply in March as the market digested unexpectedly dovish comments from the Fed. The 10-year U.S. Treasury returned 2.8% and its yield closed the quarter at 2.41%, down nearly 30 bps from year-end and significantly from the multi-year high of 3.24% hit in early November. Portions of the yield curve inverted, but the widely watched spread between the 2- and 10-year Treasury note remained positive at 14 bps. The high yield corporate bond market (Bloomberg Barclays High Yield: +7.3%) soared and the sector's yield-to-worst ended the quarter at 6.4% after surging to nearly 8% in the fourth quarter. Similarly, leveraged loans were up 4.0% after falling 3.5% (S&P LSTA) in the fourth quarter. While the fundamental picture for corporations remains intact, these returns were driven primarily by a strong technical tailwind on the back of a very weak December. Municipal bonds (Bloomberg Barclays Municipal Bond: +2.9%) outperformed U.S. Treasuries and were also helped by a favorable supply/demand backdrop. Municipal mutual funds absorbed roughly \$24 billion in inflow, the best first quarter since data collection began in 1992.

### Separate Account Style Group Median Returns for Quarter Ended March 31, 2019



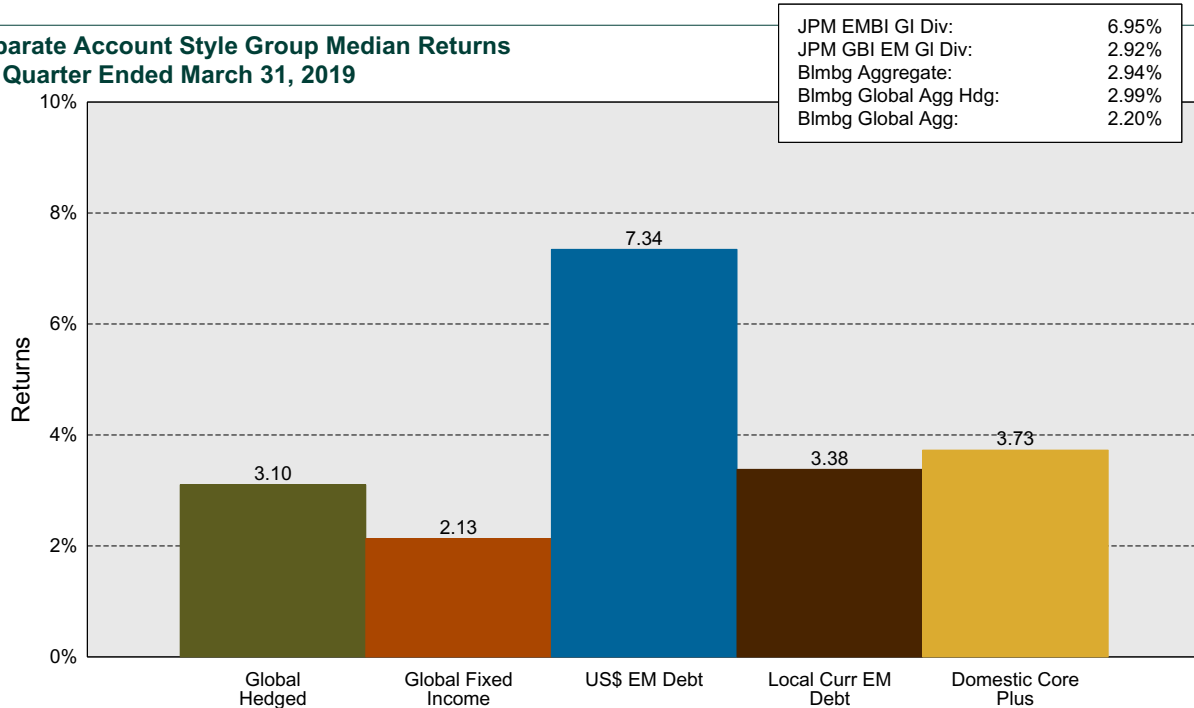
### Separate Account Style Group Median Returns for One Year Ended March 31, 2019



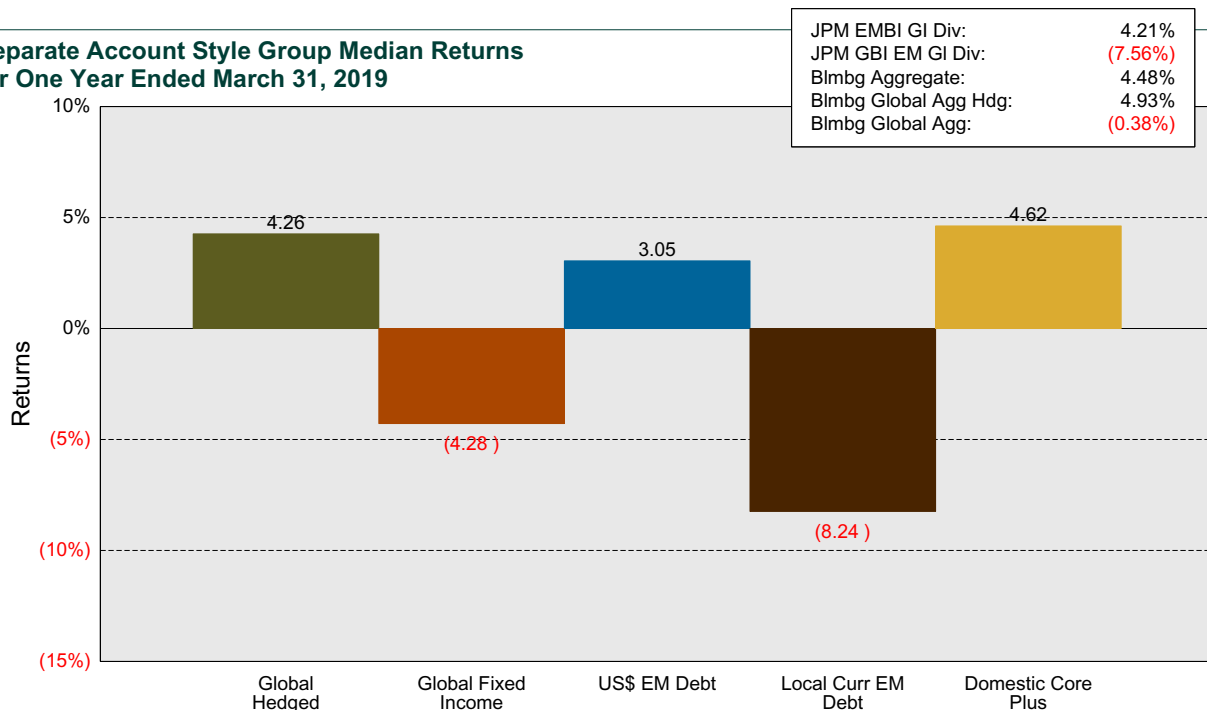
## Global Fixed Income Active Management Overview

Overseas, yields across developed markets fell. The Global Aggregate Index rose 2.2% for the quarter on an unhedged basis. On a hedged basis, the Index gained 3.0%. The dollar appreciated modestly vs. the euro and yen, but lost ground vs. the U.K. pound and Canadian dollar. In Germany, the yield on the 10-year bond turned negative for the first time since late 2016 and closed the quarter at -0.07%. Emerging market debt also benefited from the reversal in risk appetite. The U.S. dollar-denominated JPM EMBI Global Diversified Index gained 7.0% with none of the index's 60+ countries delivering a negative result. Local currency emerging market debt, as measured by the JPM GBI-EM Global Diversified Index, was up a more modest 2.9%, with notable underperformers being Turkey (-10.2%) and Argentina (-10.5%).

### Separate Account Style Group Median Returns for Quarter Ended March 31, 2019



### Separate Account Style Group Median Returns for One Year Ended March 31, 2019



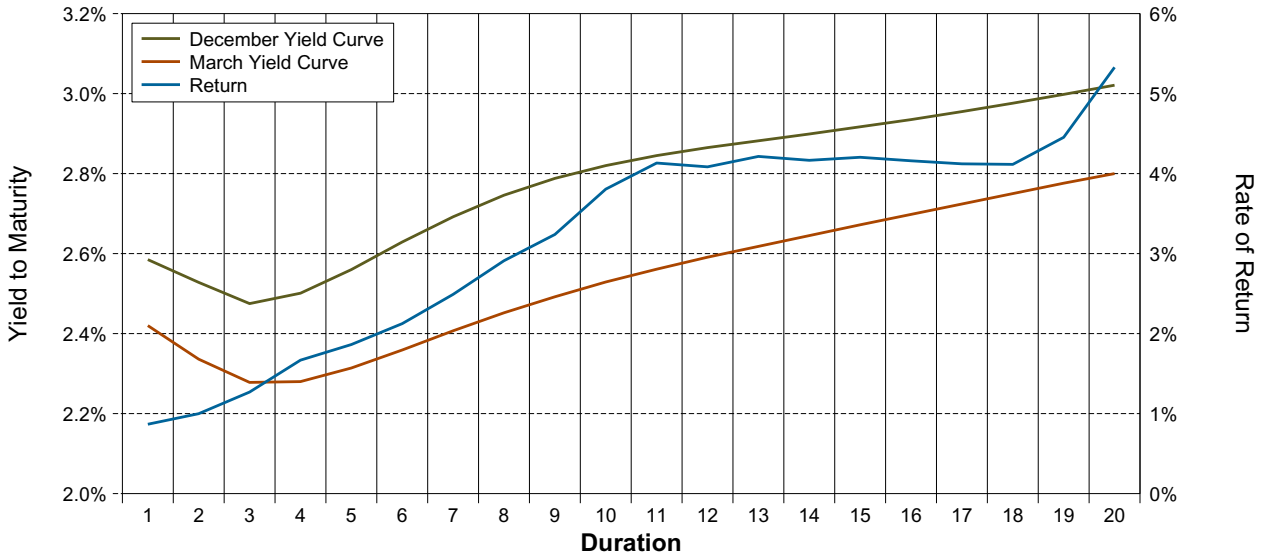


## Bond Market Environment

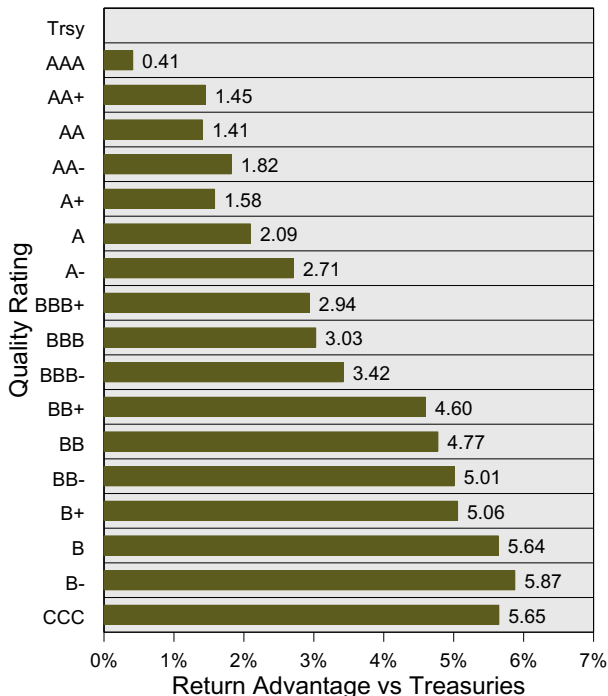
### Factors Influencing Bond Returns

The charts below are designed to give you an overview of the factors that influenced bond market returns for the quarter. The first chart shows the shift in the Treasury yield curve and the resulting returns by duration. The second chart shows the average return premium (relative to Treasuries) for bonds with different quality ratings. The final chart shows the average return premium of the different sectors relative to Treasuries. These sector premiums are calculated after differences in quality and term structure have been accounted for across the sectors. They are typically explained by differences in convexity, sector specific supply and demand considerations, or other factors that influence the perceived risk of the sector.

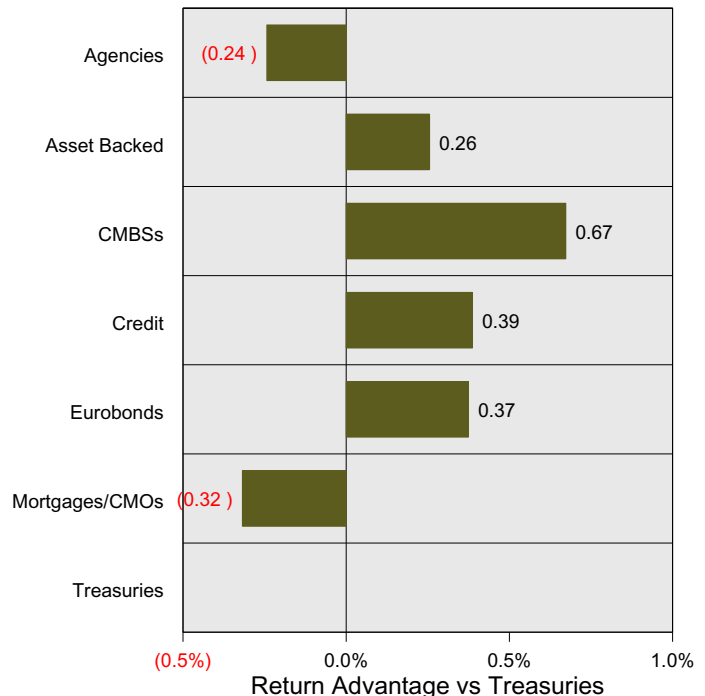
### Yield Curve Change and Rate of Return One Quarter Ended March 31, 2019



### Duration Adjusted Return Premium to Quality One Quarter Ended March 31, 2019



### Quality and Duration Adjusted Return Premium by Sector One Quarter Ended March 31, 2019



# Fixed Income Period Ended March 31, 2019

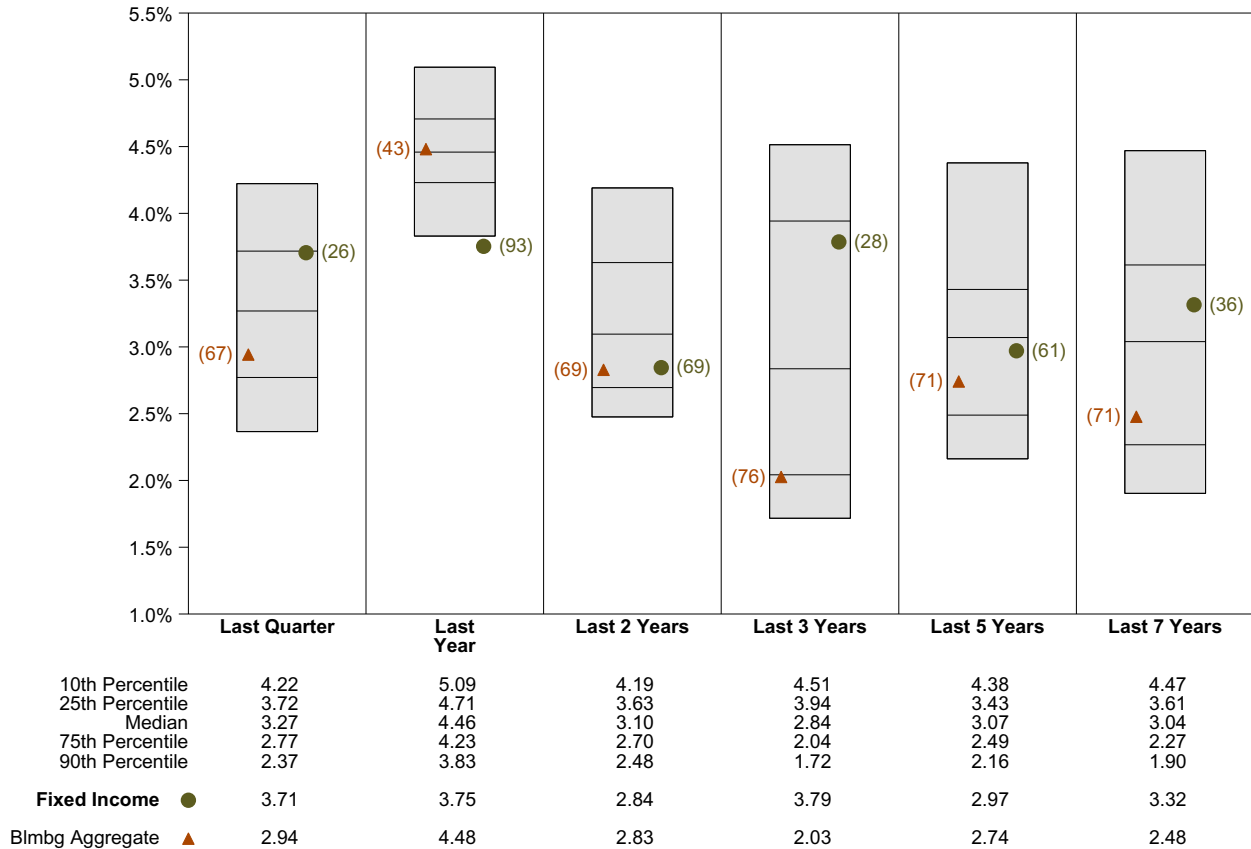
## Quarterly Summary and Highlights

- Fixed Income's portfolio posted a 3.71% return for the quarter placing it in the 26 percentile of the Public Fund - Domestic Fixed group for the quarter and in the 93 percentile for the last year.
- Fixed Income's portfolio outperformed the Blmbg Aggregate by 0.76% for the quarter and underperformed the Blmbg Aggregate for the year by 0.73%.

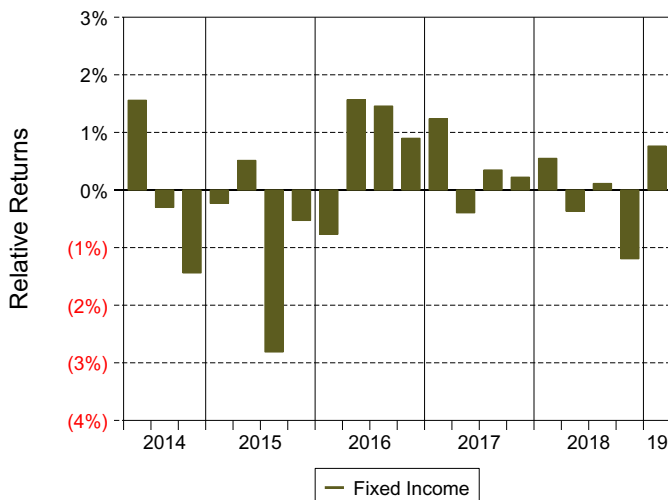
## Quarterly Asset Growth

Beginning Market Value	\$3,995,245,473
Net New Investment	\$-1,742,745
Investment Gains/(Losses)	\$148,010,560
Ending Market Value	\$4,141,513,288

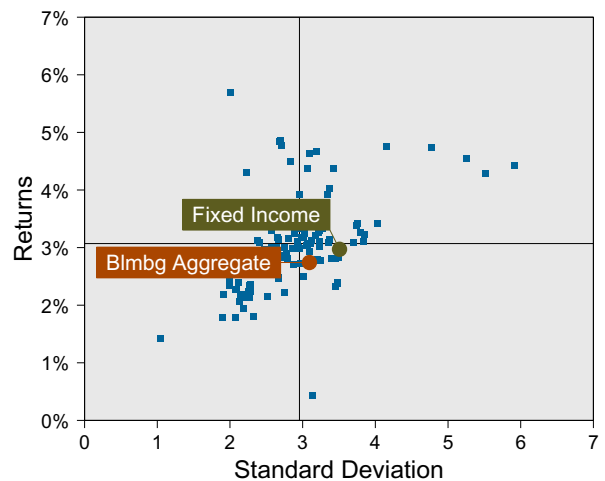
## Performance vs Public Fund - Domestic Fixed (Gross)



## Relative Return vs Blmbg Aggregate



## Public Fund - Domestic Fixed (Gross) Annualized Five Year Risk vs Return

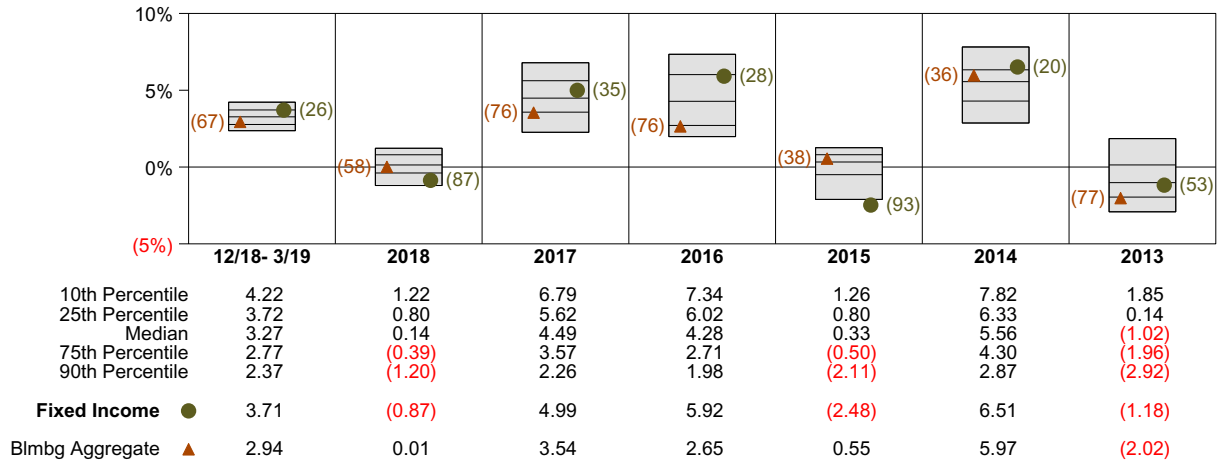


# Fixed Income Return Analysis Summary

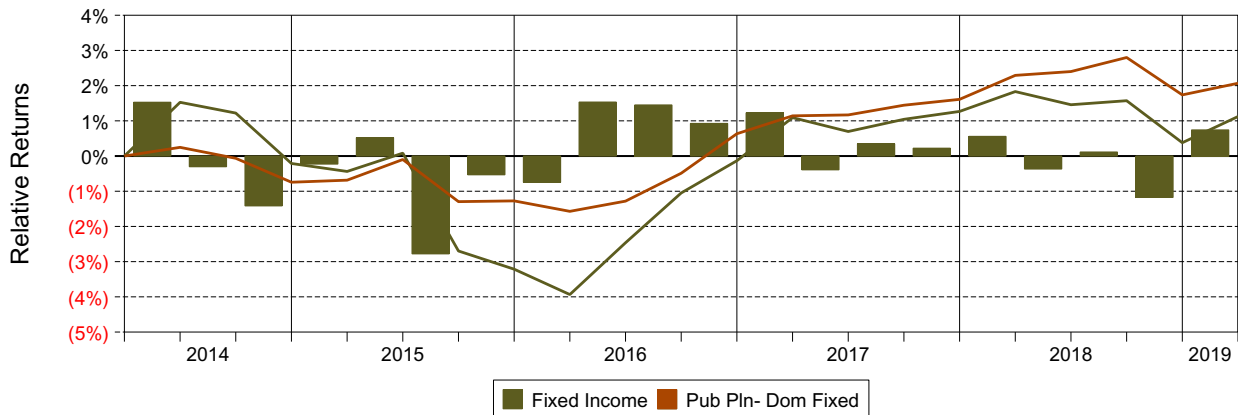
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

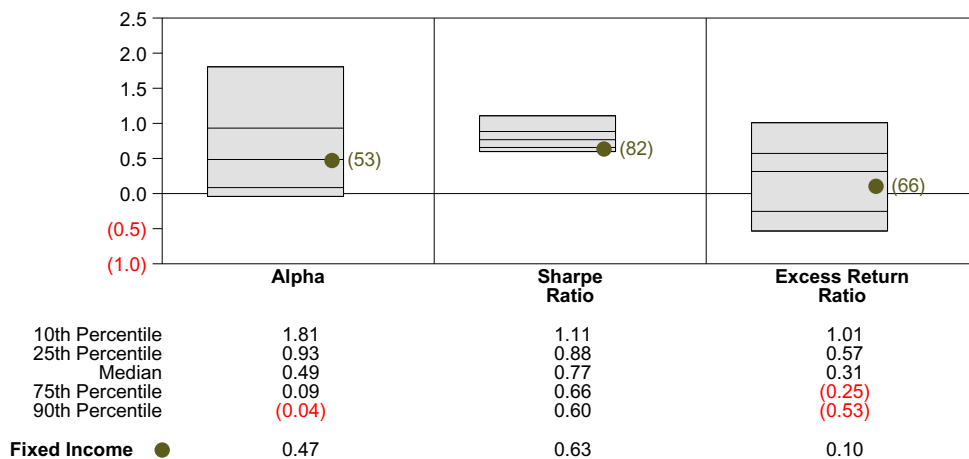
### Performance vs Public Fund - Domestic Fixed (Gross)



### Cumulative and Quarterly Relative Return vs Blmbg Aggregate



### Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Public Fund - Domestic Fixed (Gross) Five Years Ended March 31, 2019

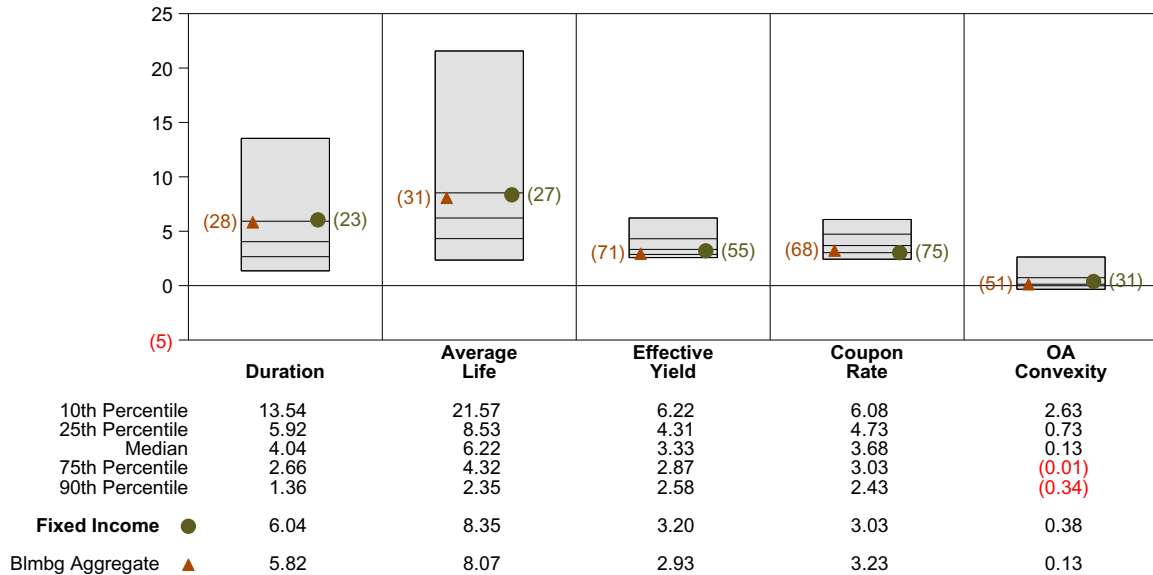


# Fixed Income Bond Characteristics Analysis Summary

## Portfolio Characteristics

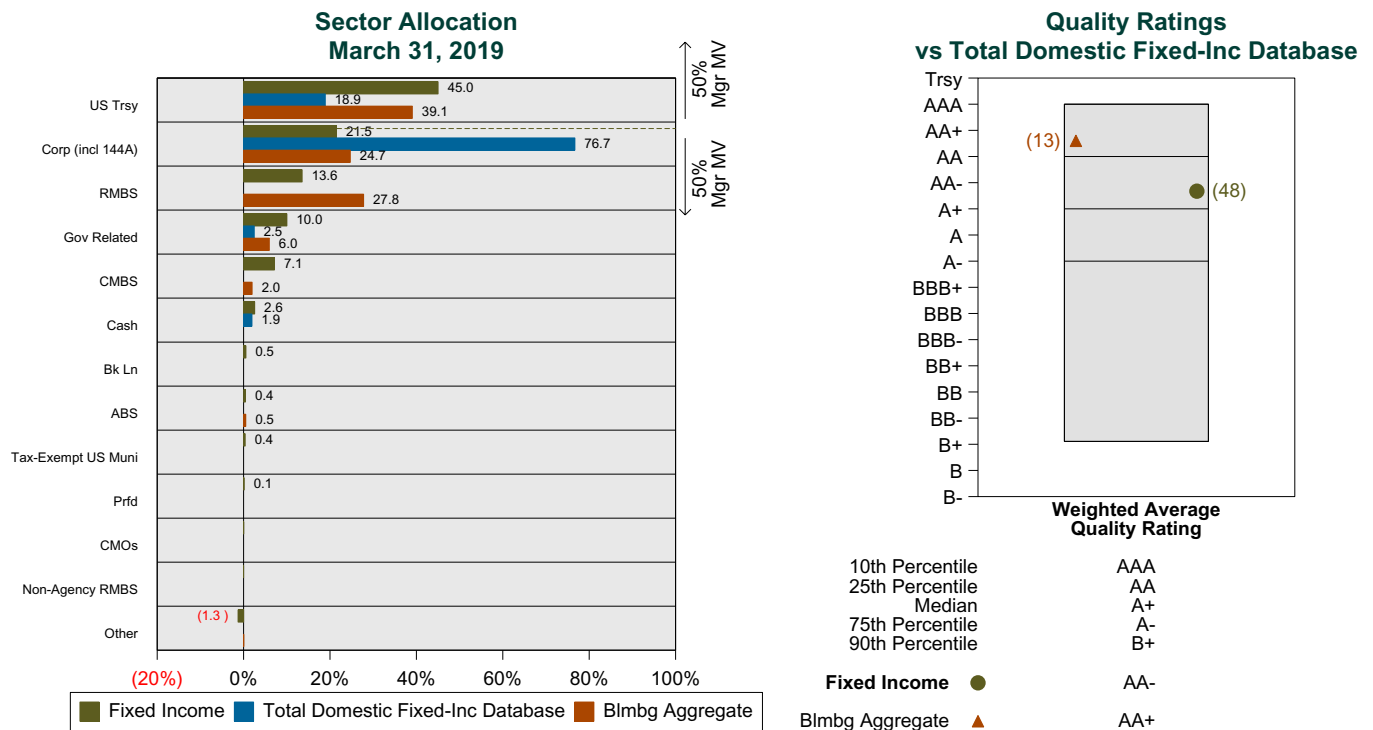
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Total Domestic Fixed-Inc Database as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

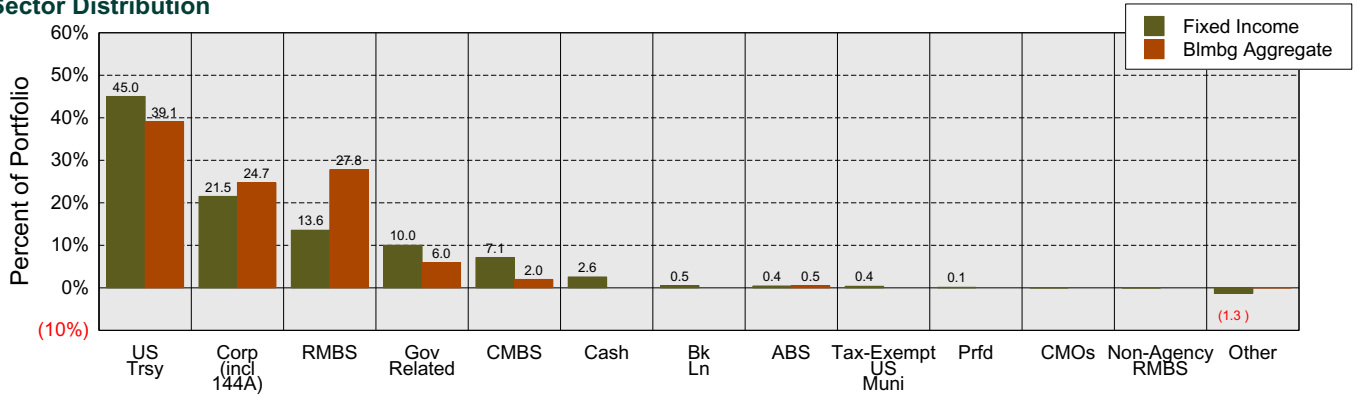


# Fixed Income Portfolio Characteristics Summary As of March 31, 2019

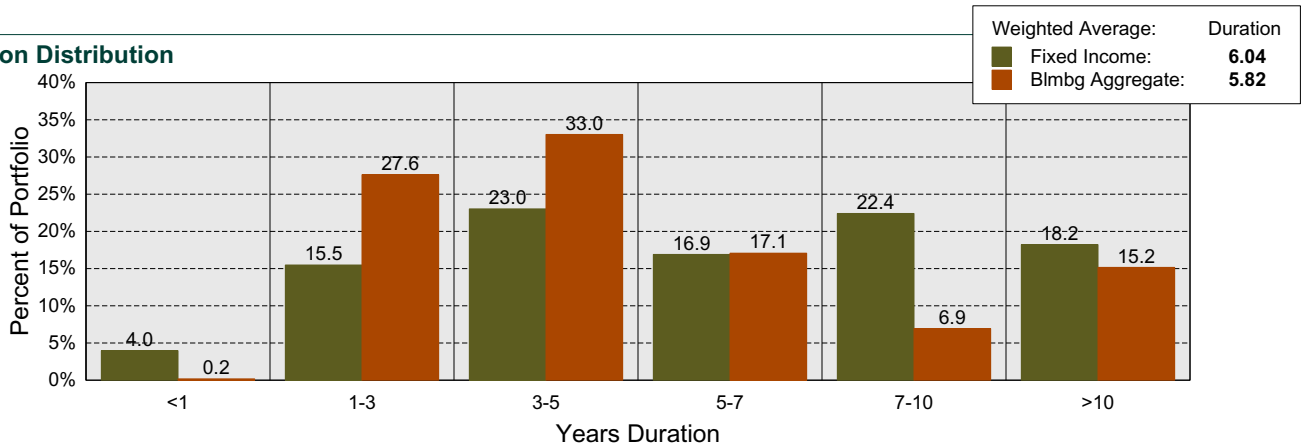
## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

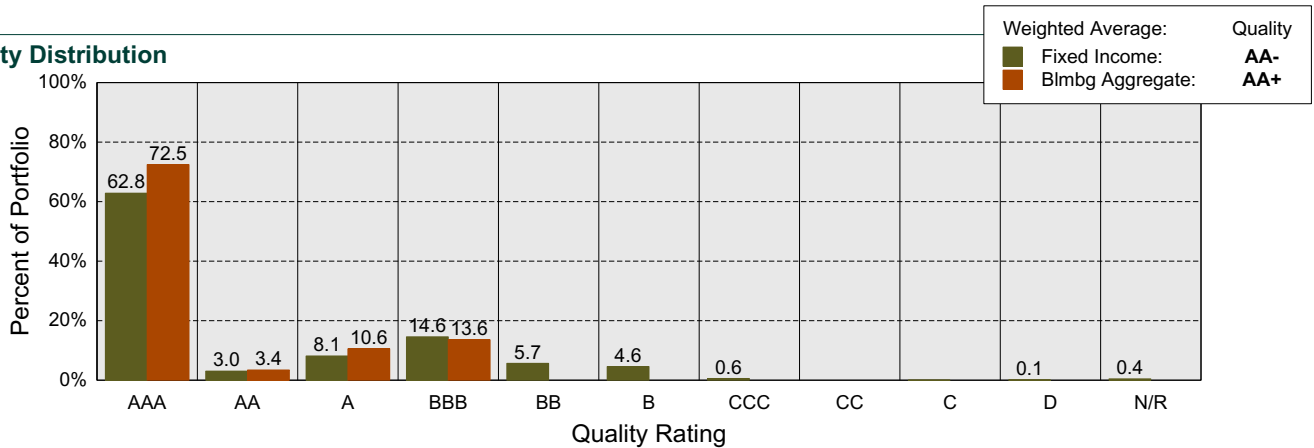
### Sector Distribution



### Duration Distribution



### Quality Distribution





# MCM Bond Index Period Ended March 31, 2019

## Investment Philosophy

Fixed income indexing offers a cost-effective, sensible investment approach to gaining diversified market exposure and receiving competitive relative returns over the long-term. Mellon Capital's Aggregate Bond Index Strategy employs a stratified sampling approach that has consistently added value with very little tracking error versus the Barclays Capital Aggregate Bond Index. We emphasize low turnover (low transaction costs) and strict risk control in the structuring of our portfolios.

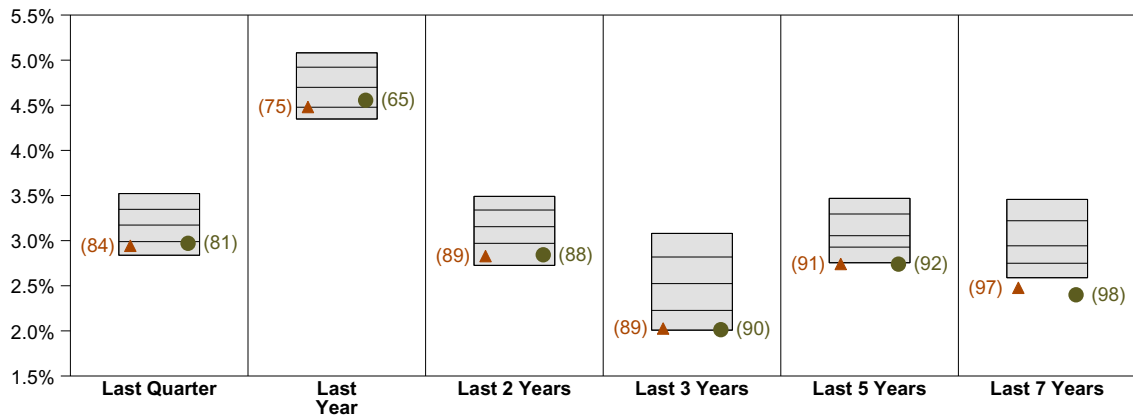
## Quarterly Summary and Highlights

- MCM Bond Index's portfolio posted a 2.97% return for the quarter placing it in the 81 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 65 percentile for the last year.
- MCM Bond Index's portfolio outperformed the Blmbg Aggregate by 0.03% for the quarter and outperformed the Blmbg Aggregate for the year by 0.07%.

## Quarterly Asset Growth

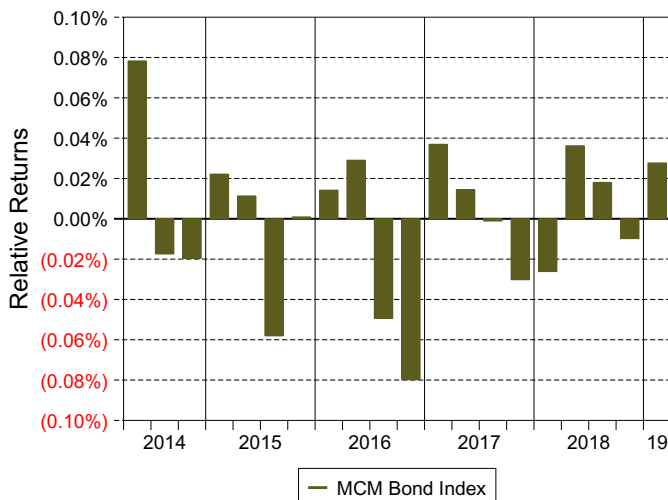
Beginning Market Value	\$1,028,896,613
Net New Investment	\$-63,408
Investment Gains/(Losses)	\$30,562,793
Ending Market Value	\$1,059,395,998

## Performance vs Callan Core Bond Fixed Income (Gross)

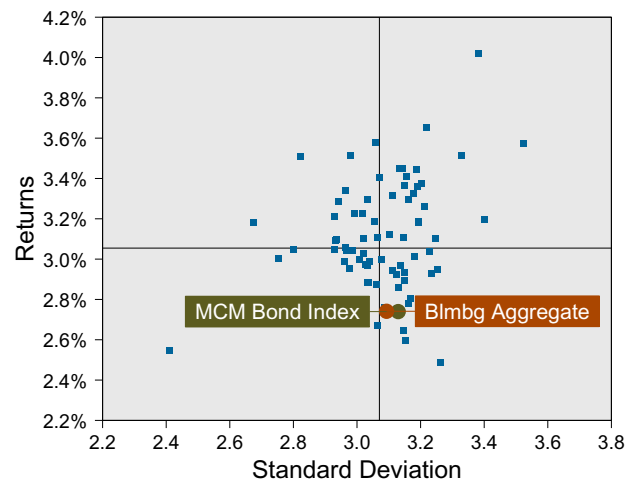


10th Percentile	3.52	5.08	3.49	3.08	3.47	3.46
25th Percentile	3.35	4.92	3.34	2.82	3.30	3.22
Median	3.17	4.70	3.15	2.52	3.05	2.94
75th Percentile	2.99	4.48	2.97	2.23	2.93	2.75
90th Percentile	2.84	4.35	2.73	2.01	2.76	2.59
<b>MCM Bond Index</b> ●	2.97	4.56	2.84	2.01	2.74	2.40
Blmbg Aggregate ▲	2.94	4.48	2.83	2.03	2.74	2.48

## Relative Return vs Blmbg Aggregate



## Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return

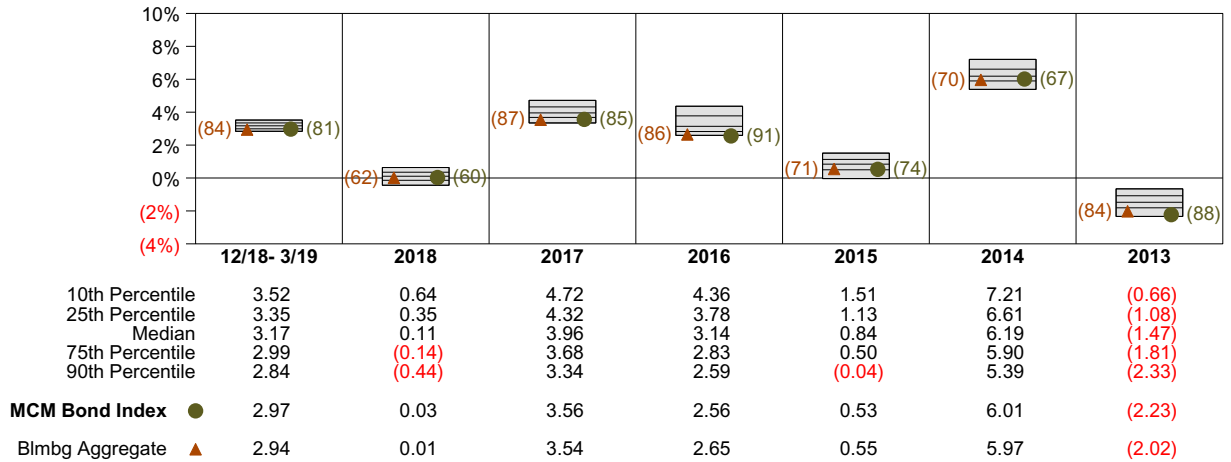


# MCM Bond Index Return Analysis Summary

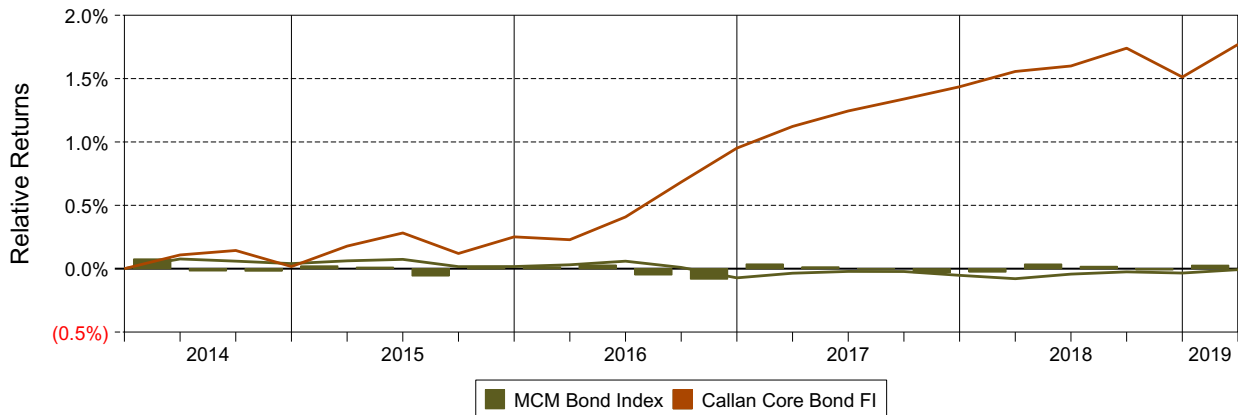
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

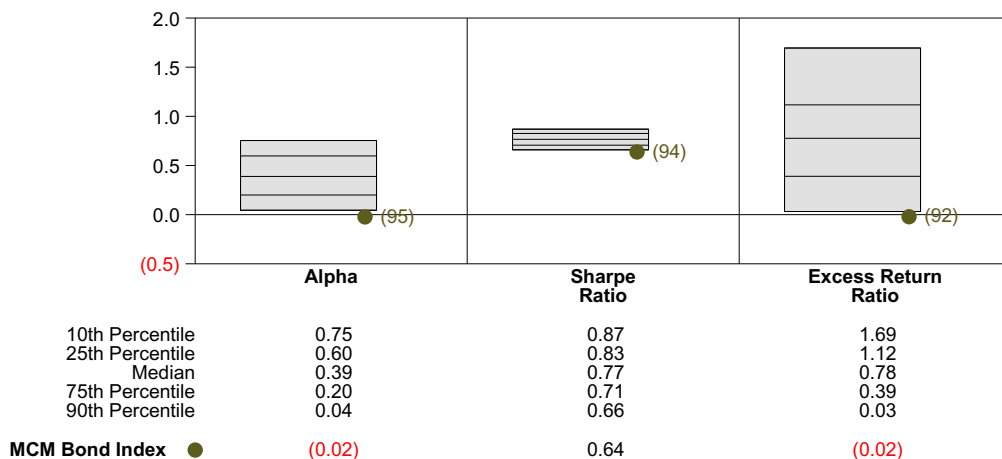
### Performance vs Callan Core Bond Fixed Income (Gross)



### Cumulative and Quarterly Relative Return vs Blmbg Aggregate



### Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2019



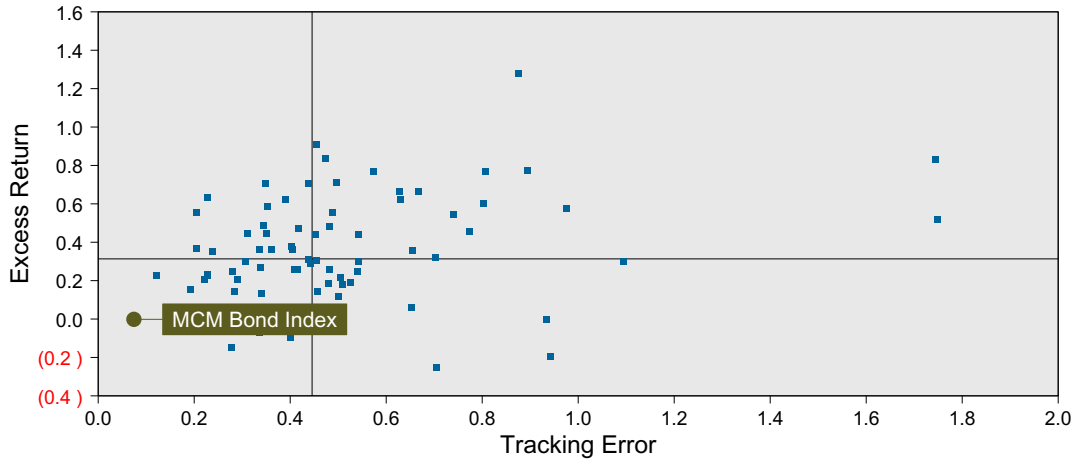


# MCM Bond Index Risk Analysis Summary

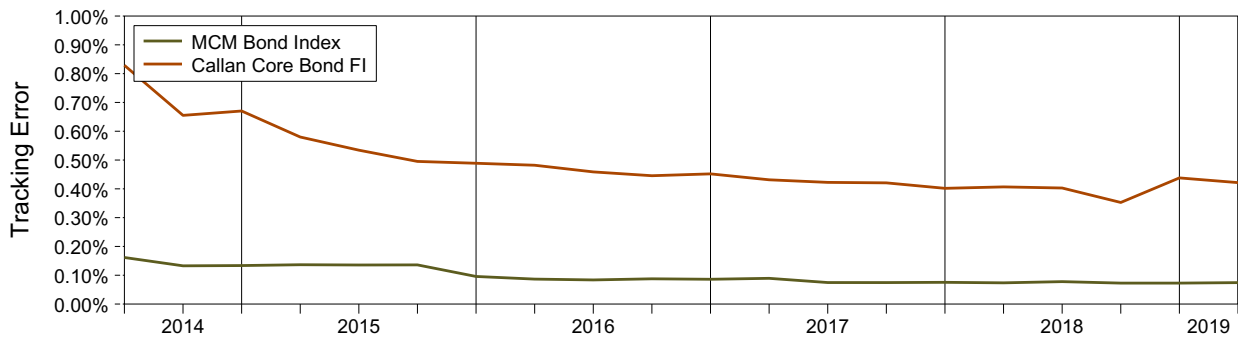
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

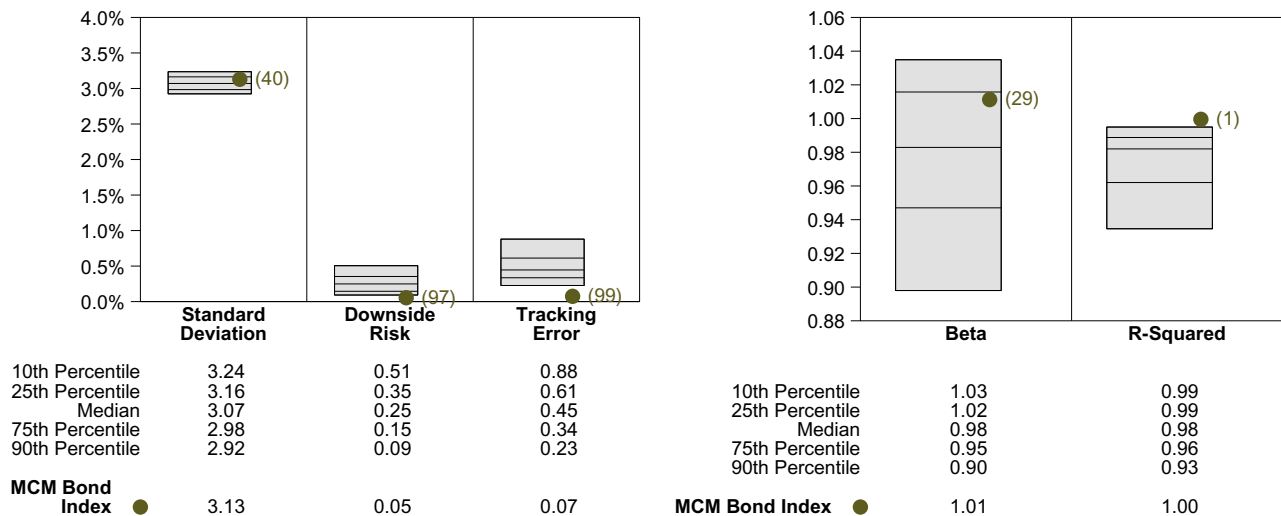
### Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays Aggregate



### Risk Statistics Rankings vs Bloomberg Barclays Aggregate Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2019

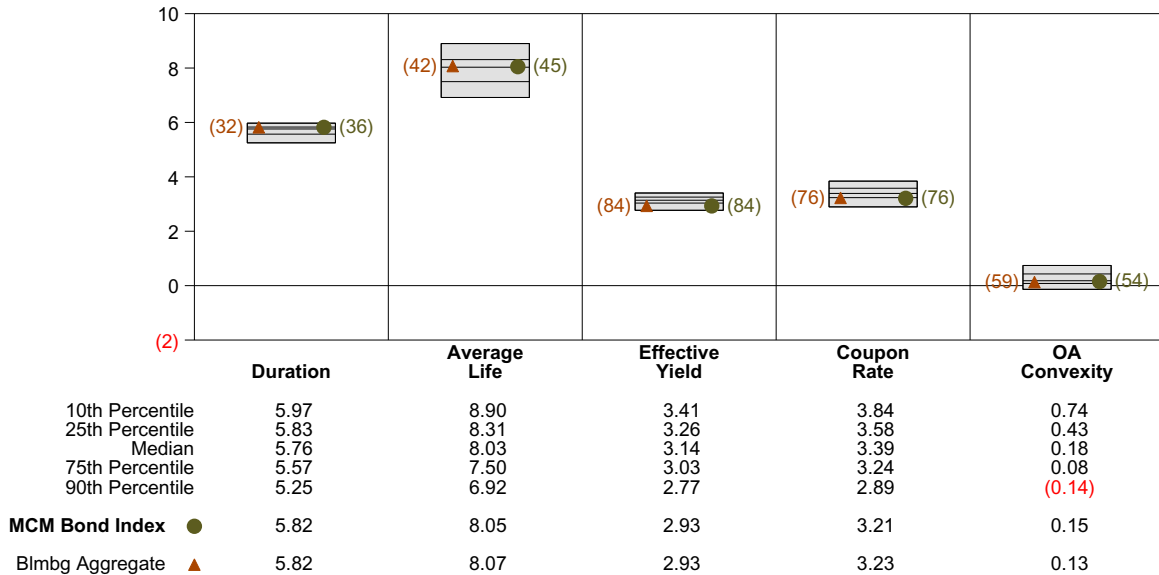


# MCM Bond Index Bond Characteristics Analysis Summary

## Portfolio Characteristics

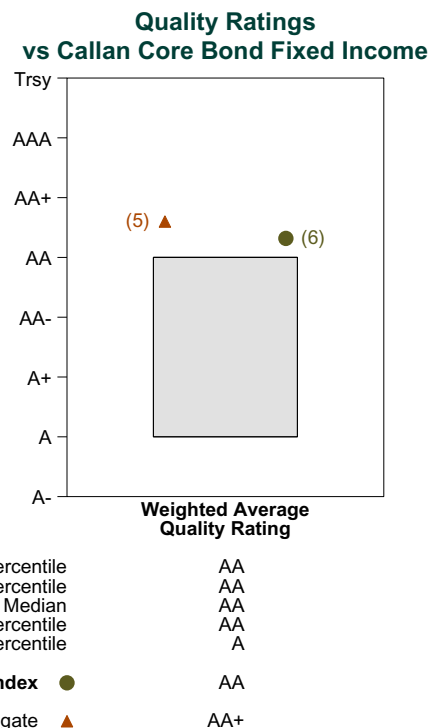
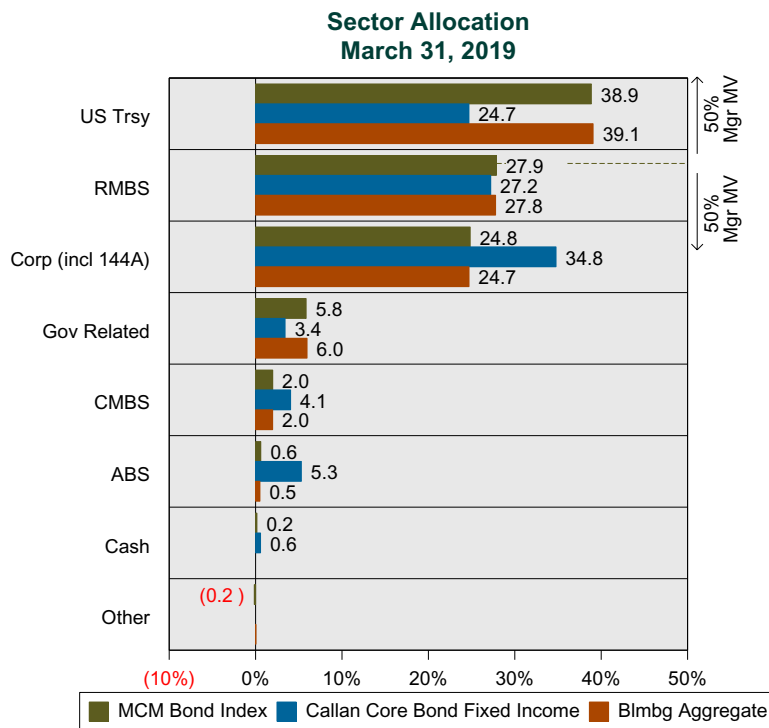
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

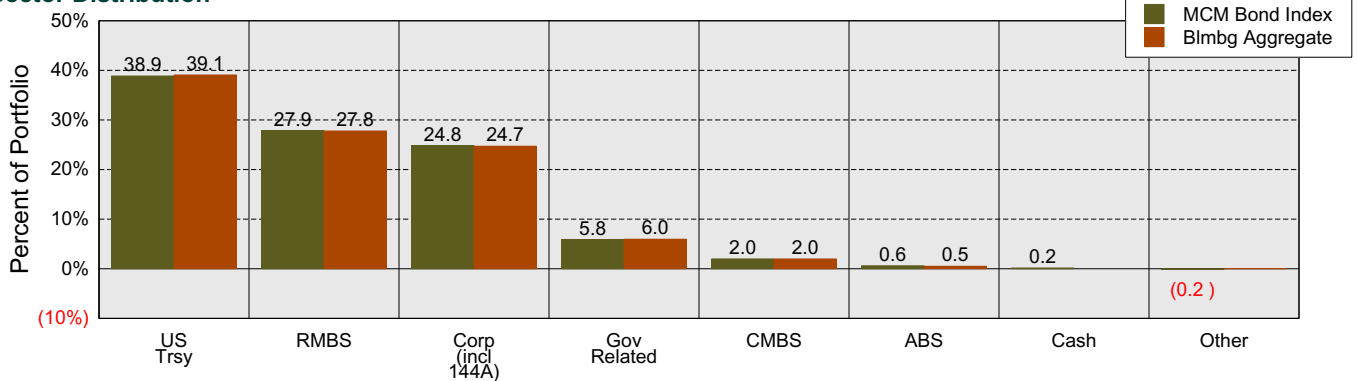


# MCM Bond Index Portfolio Characteristics Summary As of March 31, 2019

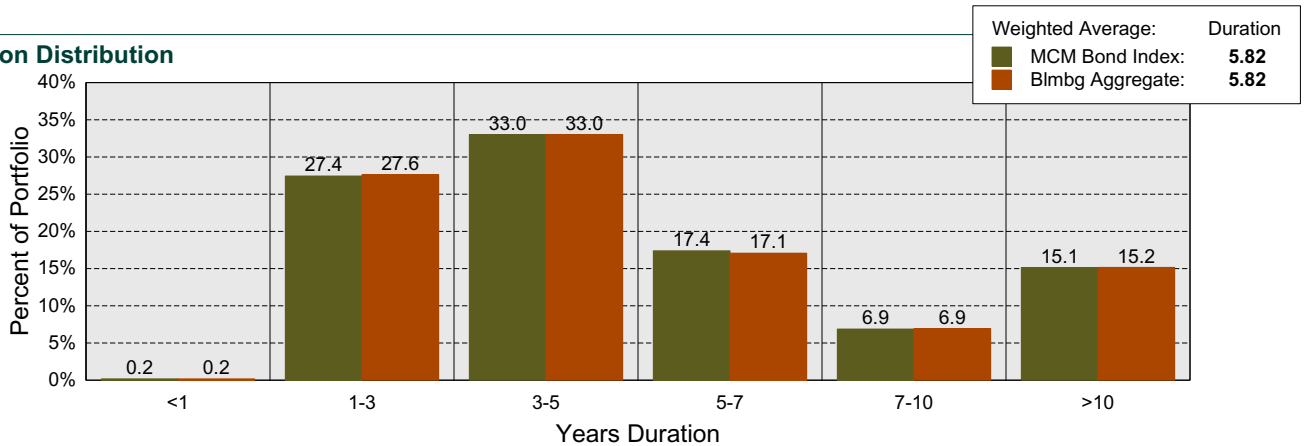
## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

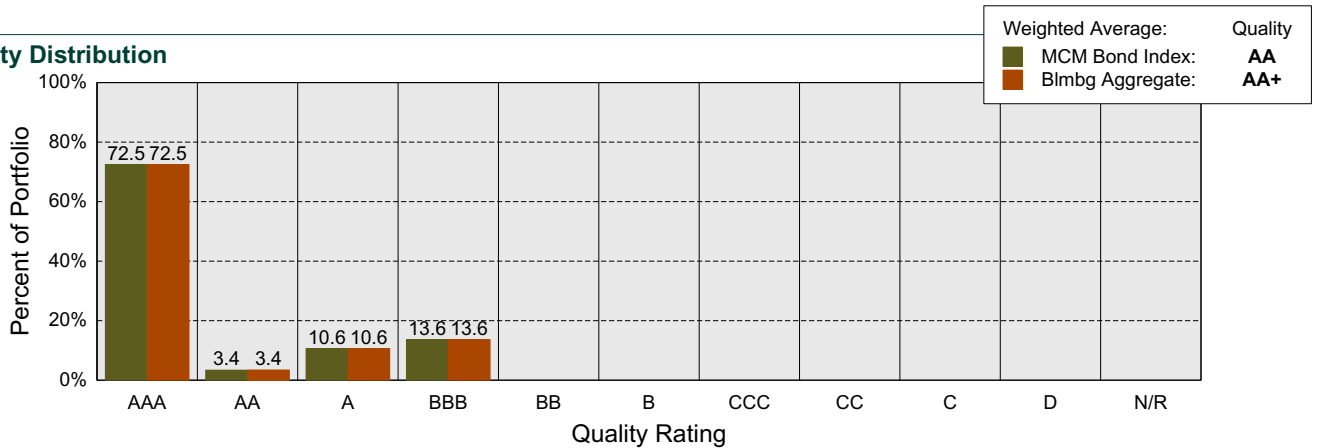
### Sector Distribution



### Duration Distribution



### Quality Distribution



# PIMCO Core Bond Fund Period Ended March 31, 2019

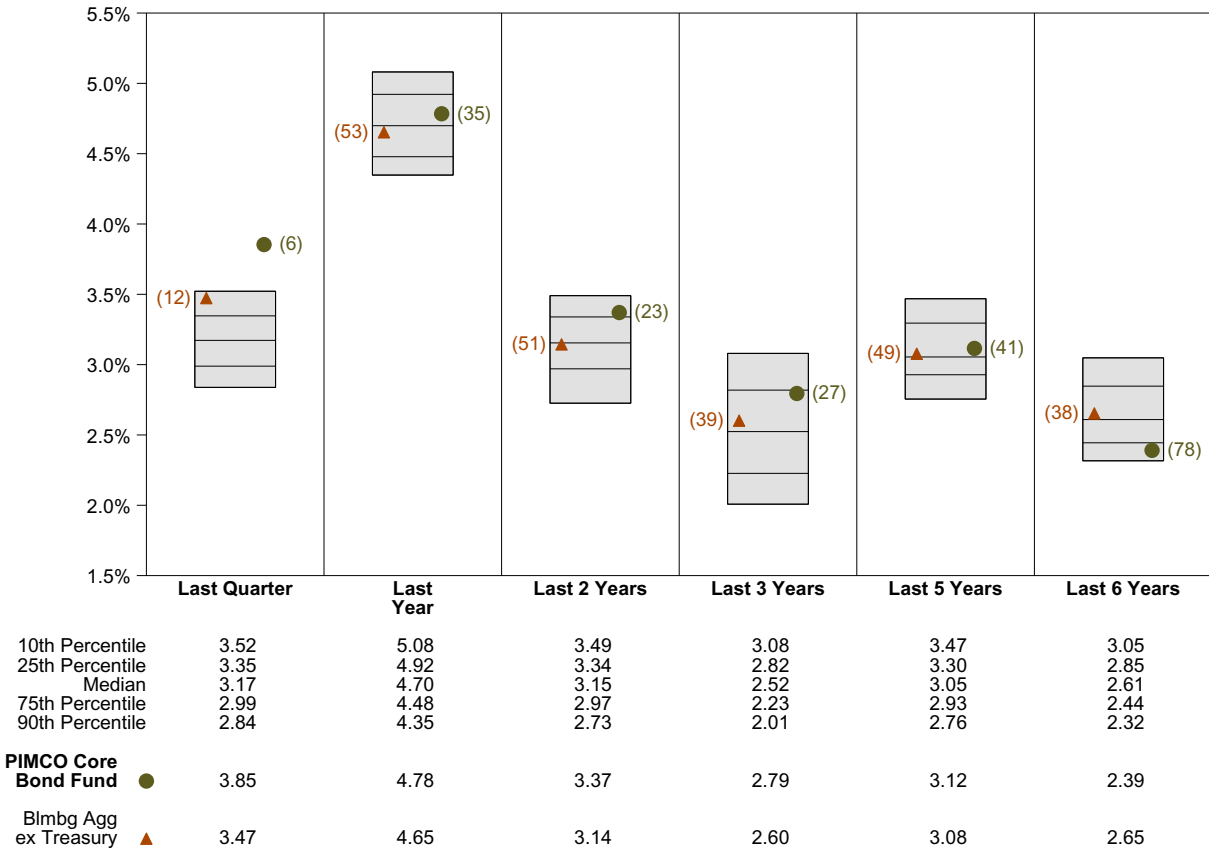
## Quarterly Summary and Highlights

- PIMCO Core Bond Fund's portfolio posted a 3.85% return for the quarter placing it in the 6 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 35 percentile for the last year.
- PIMCO Core Bond Fund's portfolio outperformed the Blmbg Agg ex Treasury by 0.38% for the quarter and outperformed the Blmbg Agg ex Treasury for the year by 0.13%.

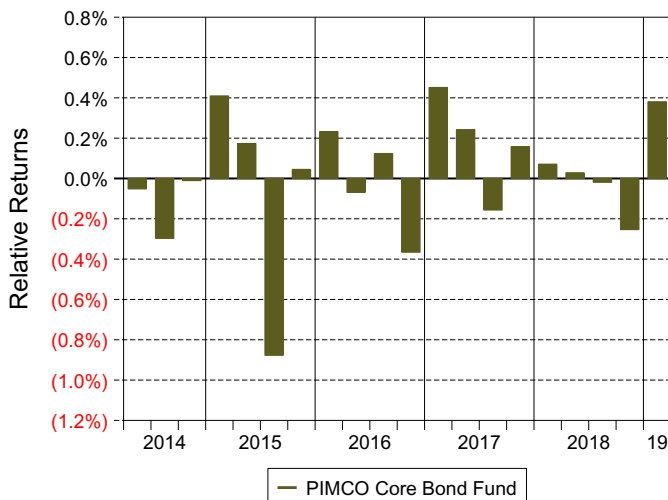
## Quarterly Asset Growth

Beginning Market Value	\$611,045,637
Net New Investment	\$0
Investment Gains/(Losses)	\$23,547,412
Ending Market Value	\$634,593,049

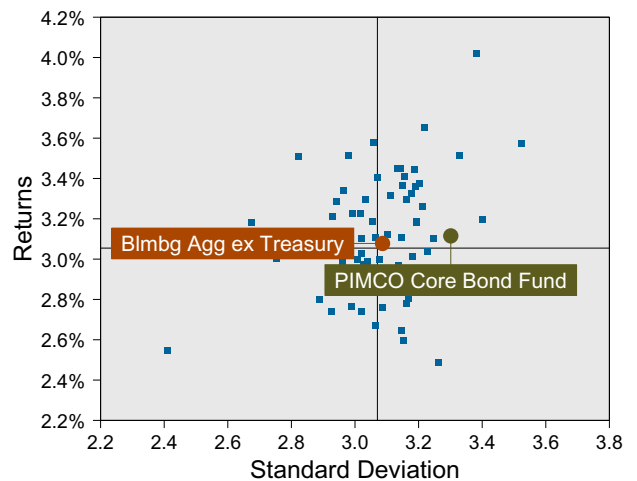
## Performance vs Callan Core Bond Fixed Income (Gross)



## Relative Return vs Blmbg Agg ex Treasury



## Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return

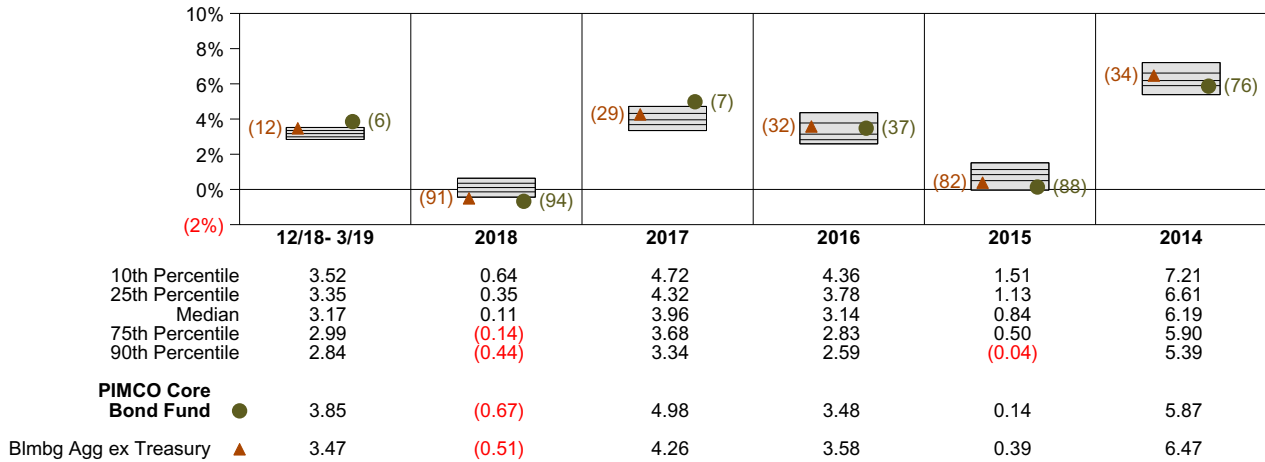


# PIMCO Core Bond Fund Return Analysis Summary

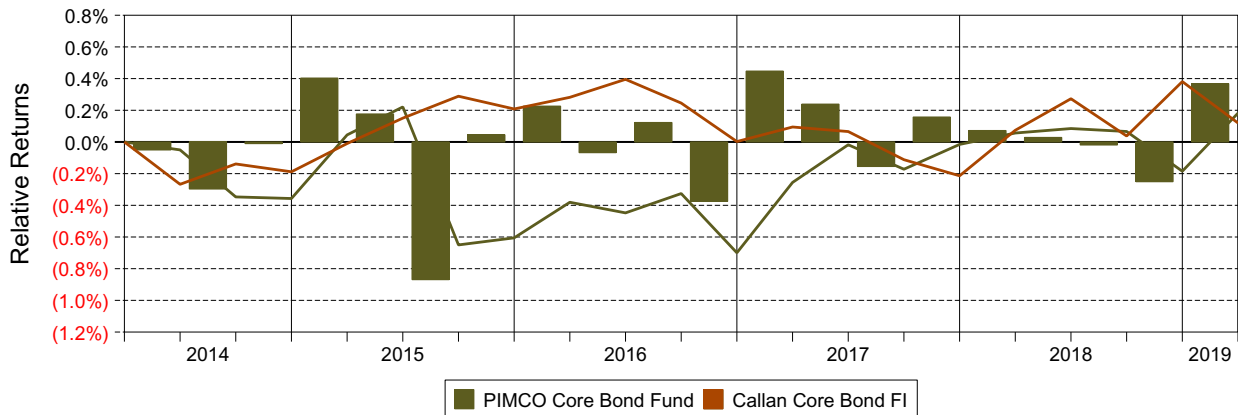
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

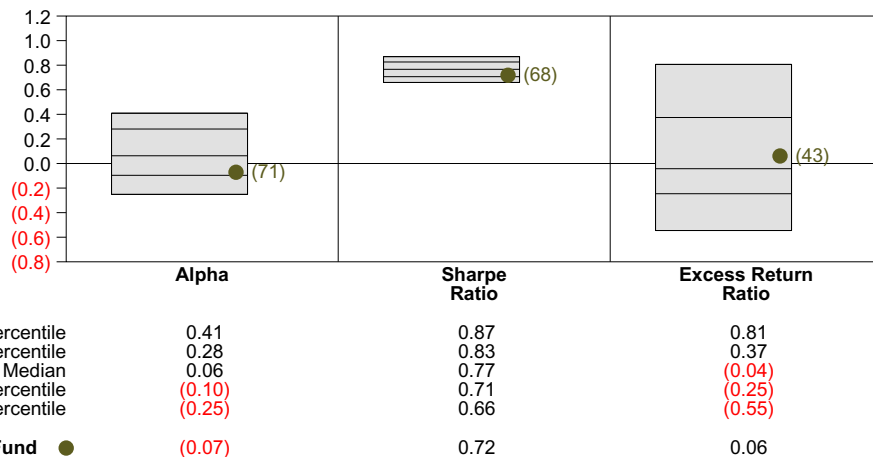
### Performance vs Callan Core Bond Fixed Income (Gross)



### Cumulative and Quarterly Relative Return vs Blmbg Agg ex Treasury



### Risk Adjusted Return Measures vs Blmbg Agg ex Treasury Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2019

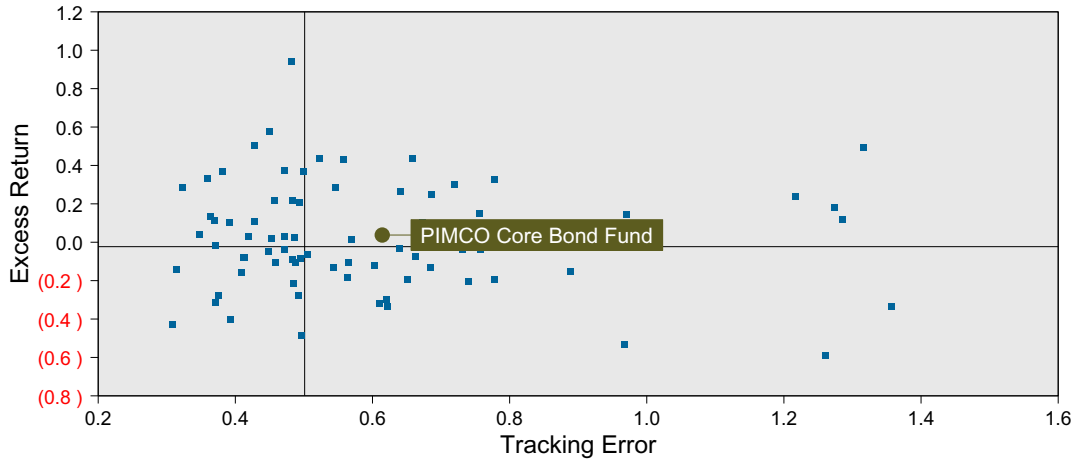


# PIMCO Core Bond Fund Risk Analysis Summary

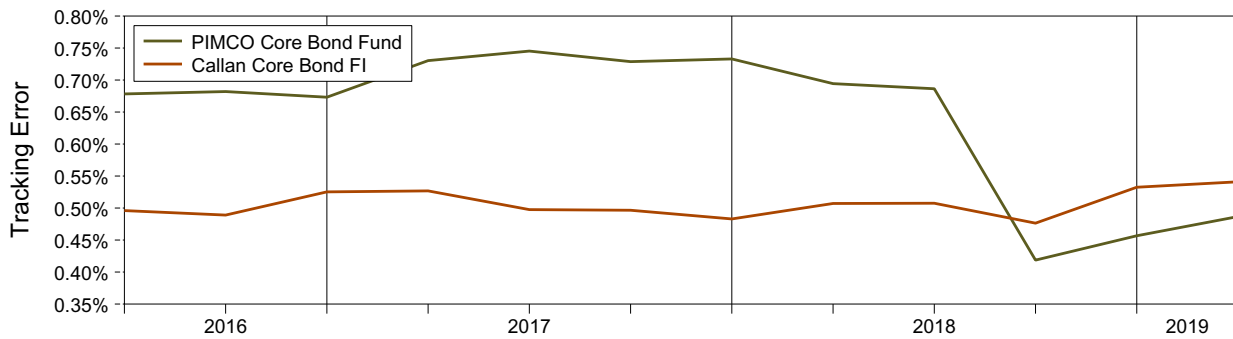
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

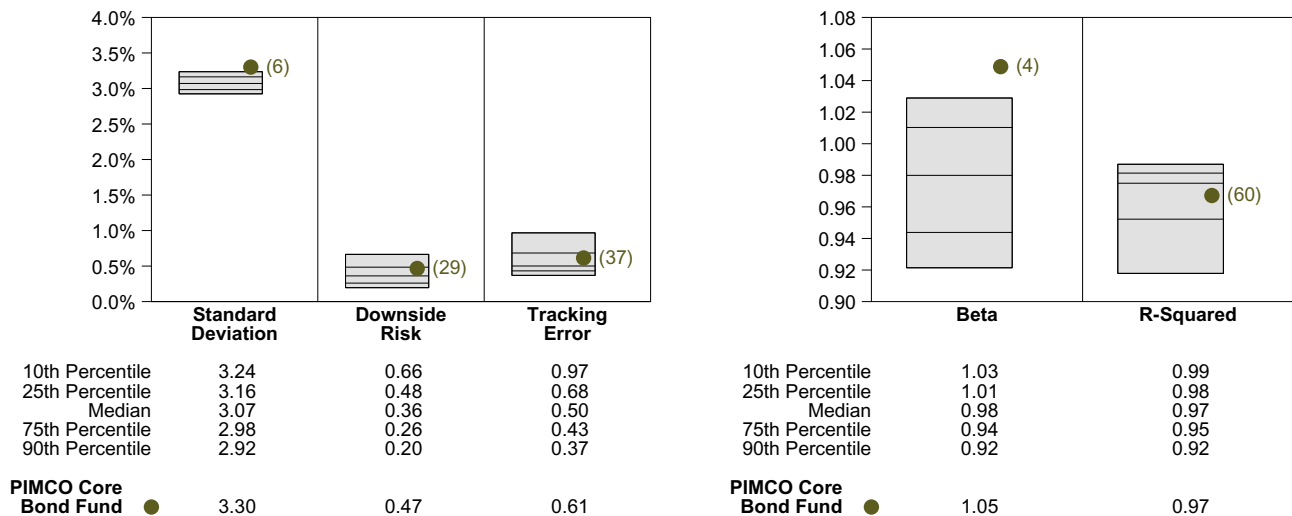
### Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays Aggregate ex Treasury



### Risk Statistics Rankings vs Bloomberg Barclays Aggregate ex Treasury Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2019

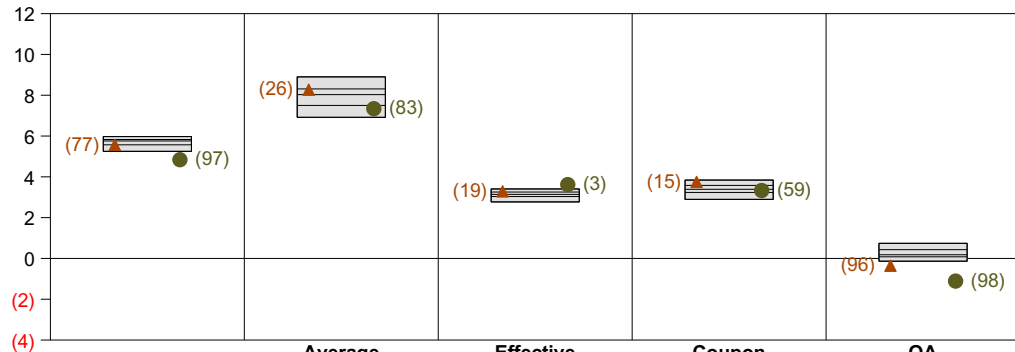


# PIMCO Core Bond Fund Bond Characteristics Analysis Summary

## Portfolio Characteristics

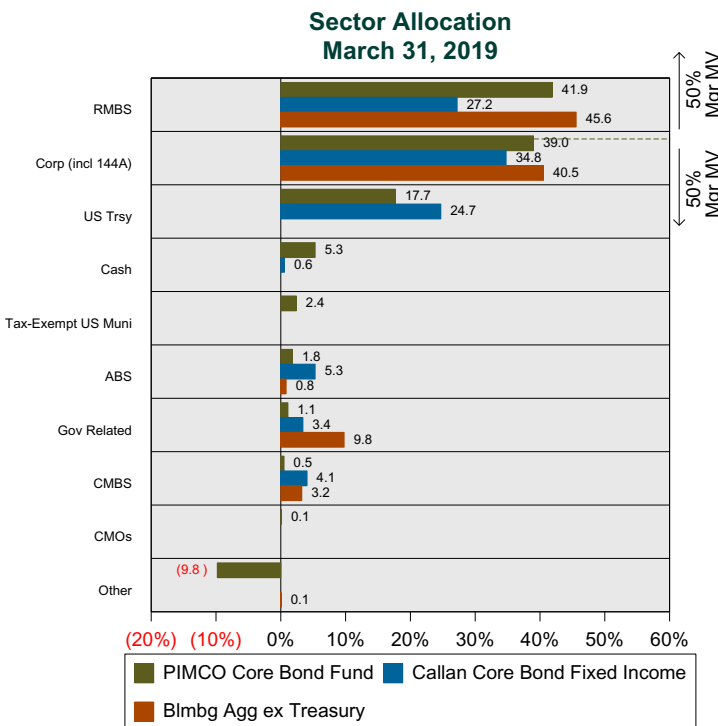
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of March 31, 2019

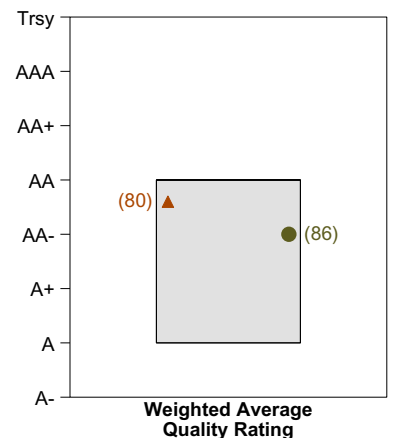


## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



### Quality Ratings vs Callan Core Bond Fixed Income



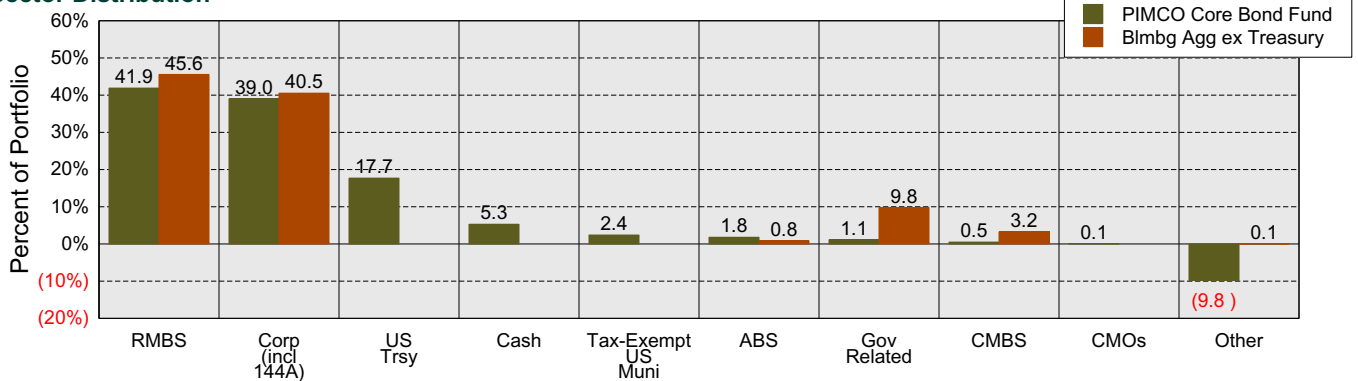
10th Percentile	AA
25th Percentile	AA
Median	AA
75th Percentile	AA
90th Percentile	A
<b>PIMCO Core Bond Fund</b> ●	AA-
Blmbg Agg ex Treasury ▲	AA

# PIMCO Core Bond Fund Portfolio Characteristics Summary As of March 31, 2019

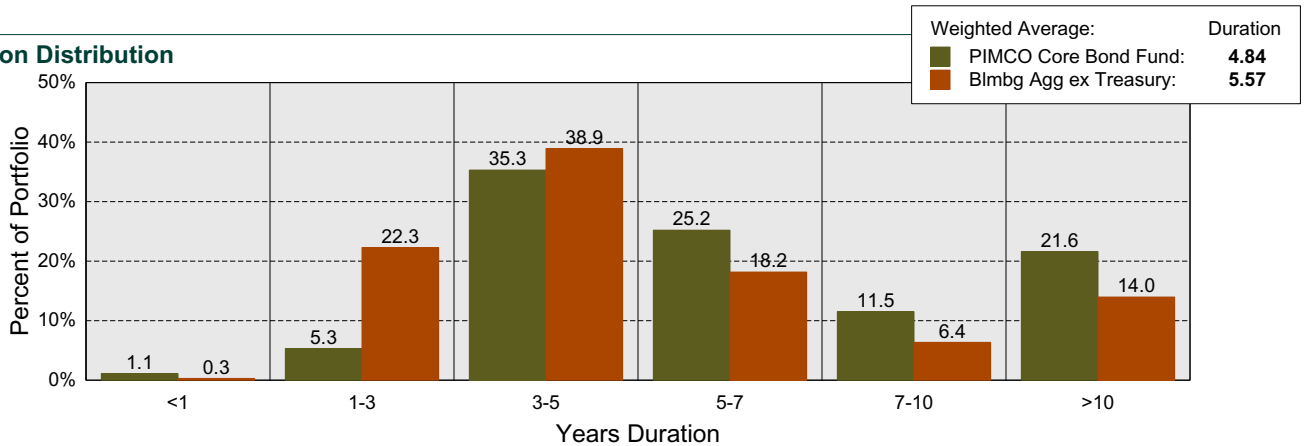
## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

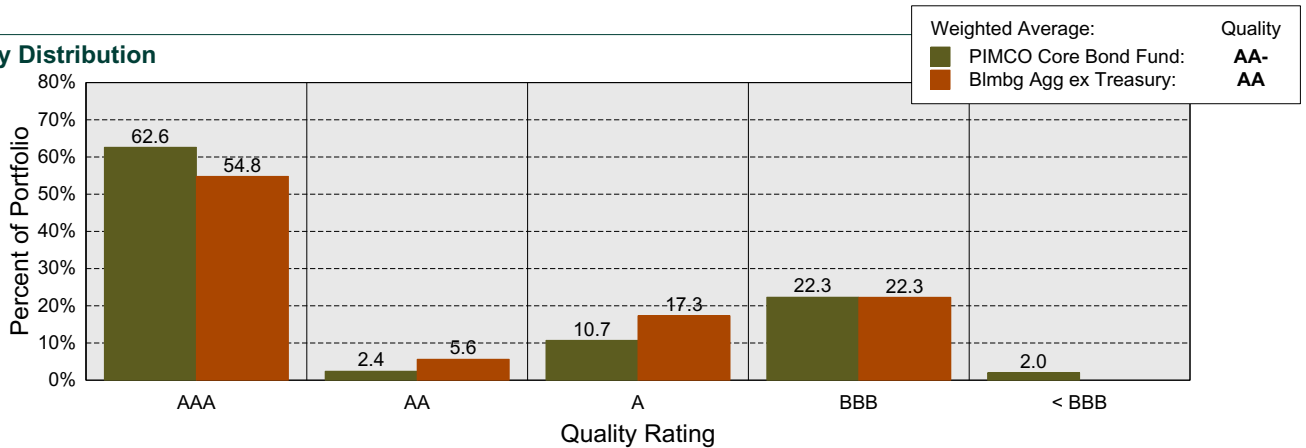
### Sector Distribution



### Duration Distribution



### Quality Distribution





# Taplin, Canida & Habacht Corp FI Period Ended March 31, 2019

## Investment Philosophy

Taplin's philosophy in managing credit accounts is to add value above the benchmark index by following a strict relative value discipline, emphasizing debt securities valued too cheaply relative to the issuers fundamental creditworthiness. Yield curve positioning adds further value by focusing on the most attractive portions of the yield curve. Portfolios are constructed within a narrow duration band relative to their benchmark indices. This approach minimizes market timing and emphasizes attractive sector and issue spread opportunities within the credit universe.

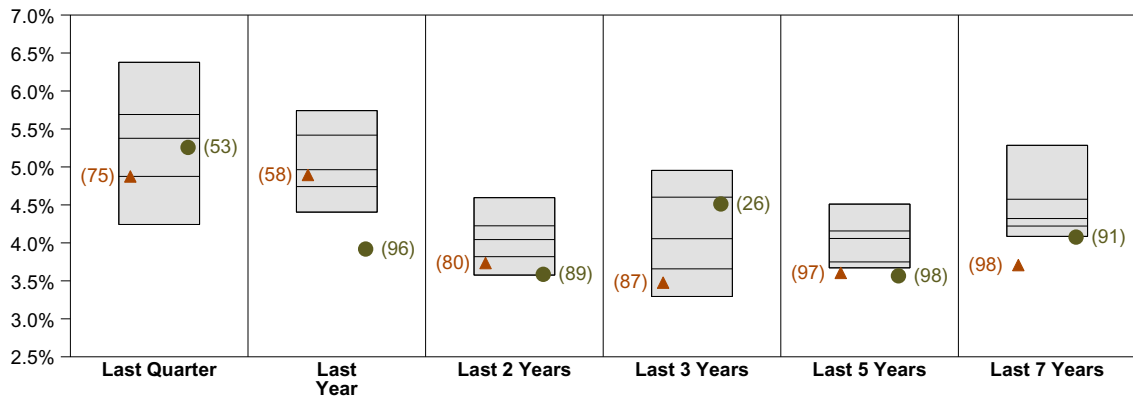
## Quarterly Summary and Highlights

- Taplin, Canida & Habacht Corp FI's portfolio posted a 5.26% return for the quarter placing it in the 53 percentile of the Corporate Bond group for the quarter and in the 96 percentile for the last year.
- Taplin, Canida & Habacht Corp FI's portfolio outperformed the Blmbg Credit by 0.38% for the quarter and underperformed the Blmbg Credit for the year by 0.98%.

## Quarterly Asset Growth

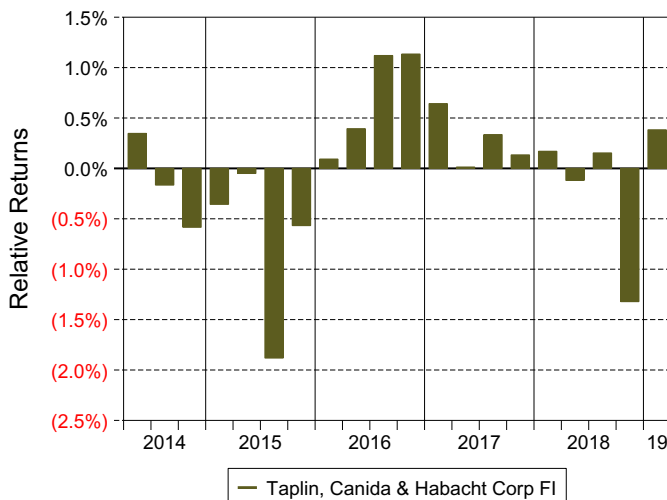
Beginning Market Value	\$178,499,751
Net New Investment	\$0
Investment Gains/(Losses)	\$9,383,643
Ending Market Value	\$187,883,394

## Performance vs Corporate Bond (Gross)

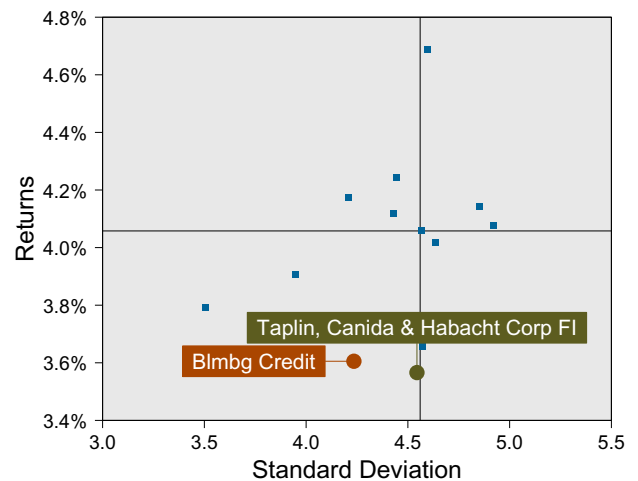


10th Percentile	6.38	5.74	4.60	4.95	4.51	5.28
25th Percentile	5.69	5.42	4.22	4.60	4.16	4.57
Median	5.38	4.96	4.04	4.06	4.06	4.32
75th Percentile	4.88	4.74	3.82	3.66	3.75	4.22
90th Percentile	4.24	4.40	3.58	3.29	3.67	4.09
<b>Taplin, Canida &amp; Habacht Corp FI</b>	● 5.26	3.92	3.59	4.51	3.57	4.08
Blmbg Credit	▲ 4.87	4.89	3.73	3.48	3.61	3.71

## Relative Return vs Blmbg Credit



## Corporate Bond (Gross) Annualized Five Year Risk vs Return

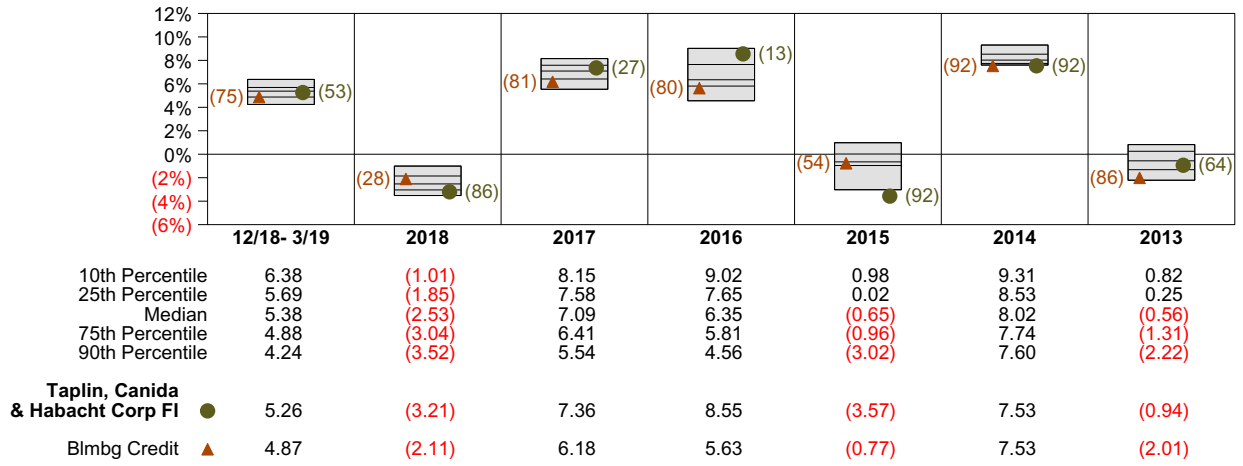


# Taplin, Canida & Habacht Corp FI Return Analysis Summary

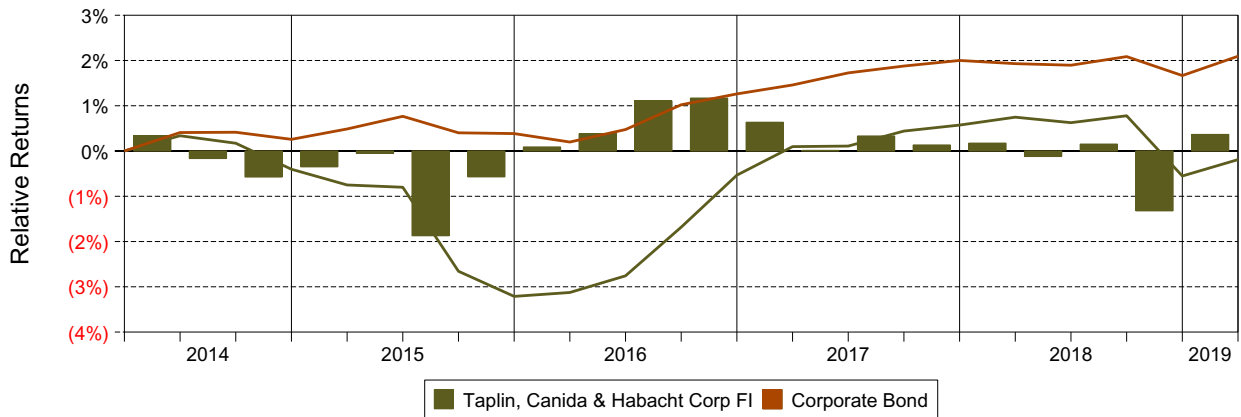
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style FI using various risk-adjusted return measures.

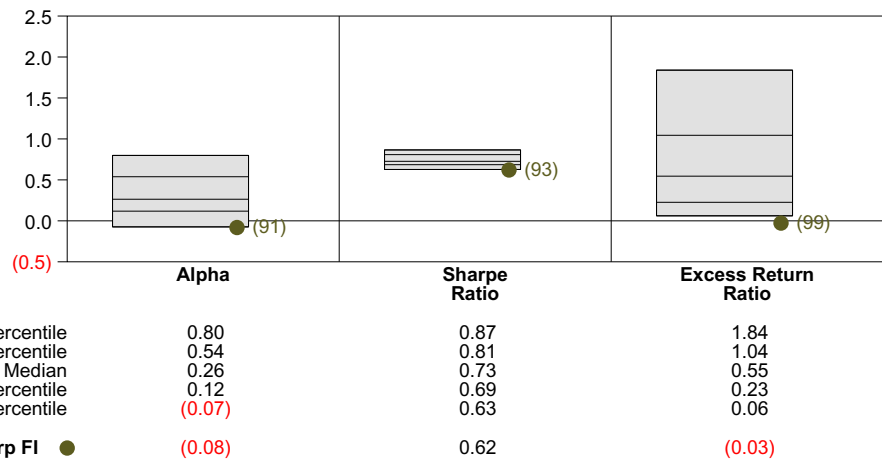
### Performance vs Corporate Bond (Gross)



### Cumulative and Quarterly Relative Return vs Blmbg Credit



### Risk Adjusted Return Measures vs Blmbg Credit Rankings Against Corporate Bond (Gross) Five Years Ended March 31, 2019

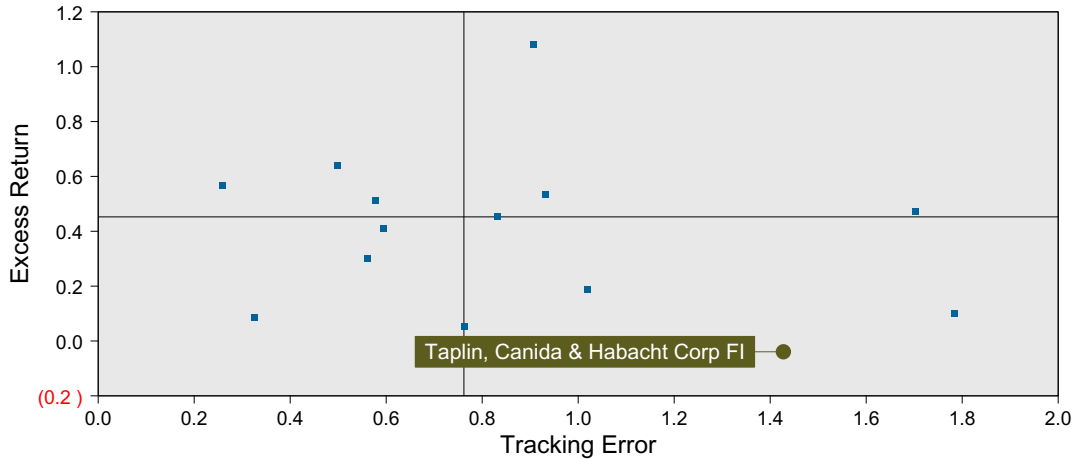


# Taplin, Canida & Habacht Corp FI Risk Analysis Summary

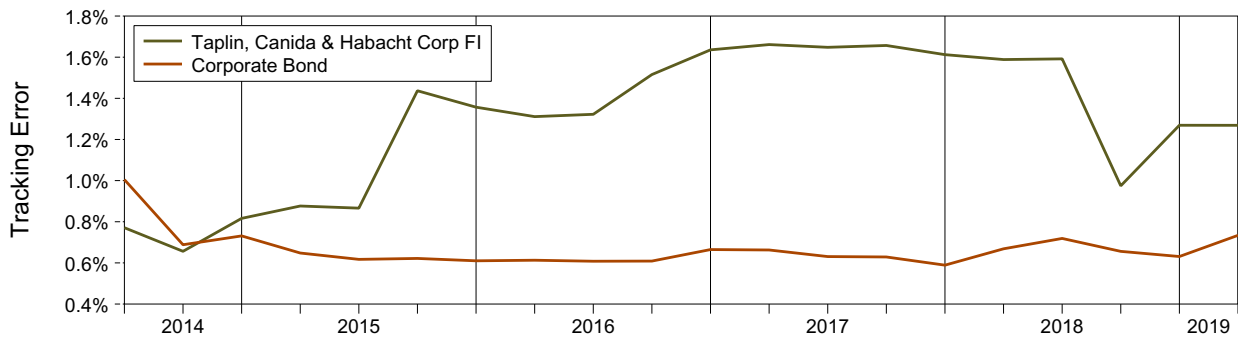
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

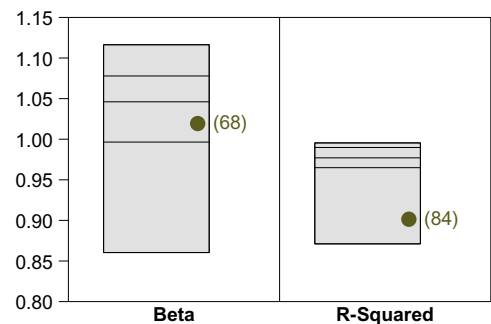
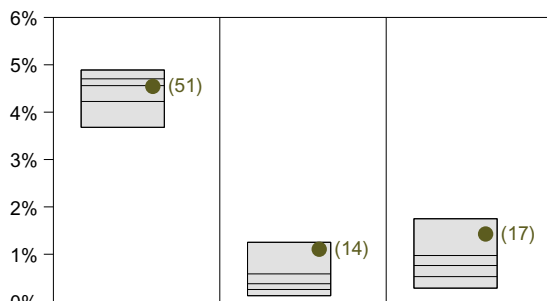
### Risk Analysis vs Corporate Bond (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays Credit



### Risk Statistics Rankings vs Bloomberg Barclays Credit Rankings Against Corporate Bond (Gross) Five Years Ended March 31, 2019



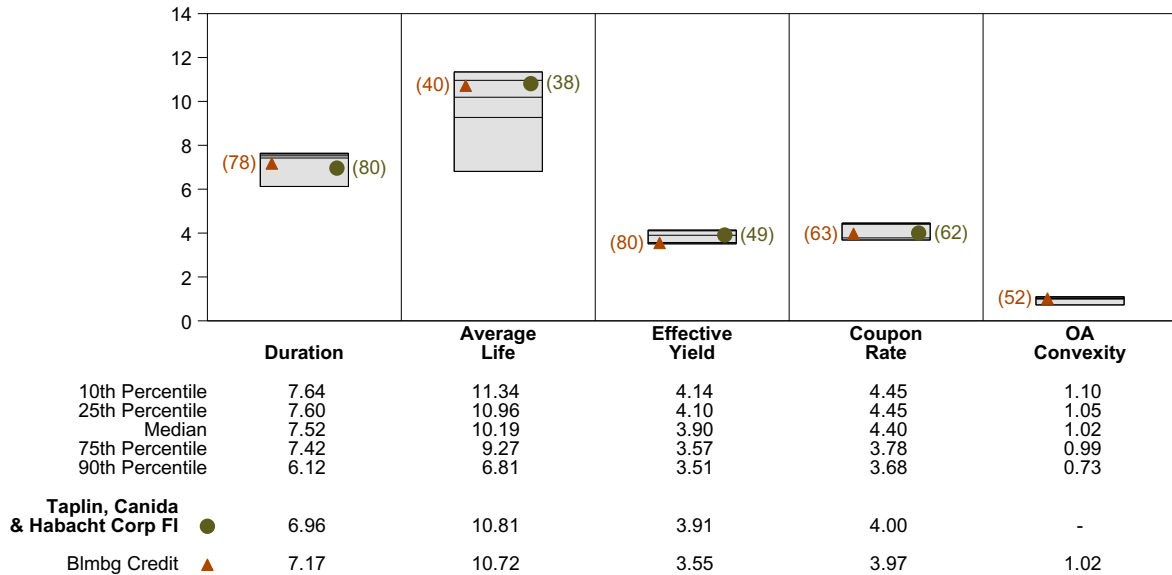
	Standard Deviation	Downside Risk	Tracking Error	Beta	R-Squared
10th Percentile	4.89	1.25	1.75	1.12	1.00
25th Percentile	4.70	0.58	0.97	1.08	0.99
Median	4.56	0.38	0.76	1.05	0.98
75th Percentile	4.23	0.26	0.53	1.00	0.96
90th Percentile	3.68	0.12	0.28	0.86	0.87
<b>Taplin, Canida &amp; Habacht Corp FI</b>	<b>4.54</b>	<b>1.11</b>	<b>1.43</b>	<b>1.02</b>	<b>0.90</b>

# Taplin, Canida & Habacht Corp FI Bond Characteristics Analysis Summary

## Portfolio Characteristics

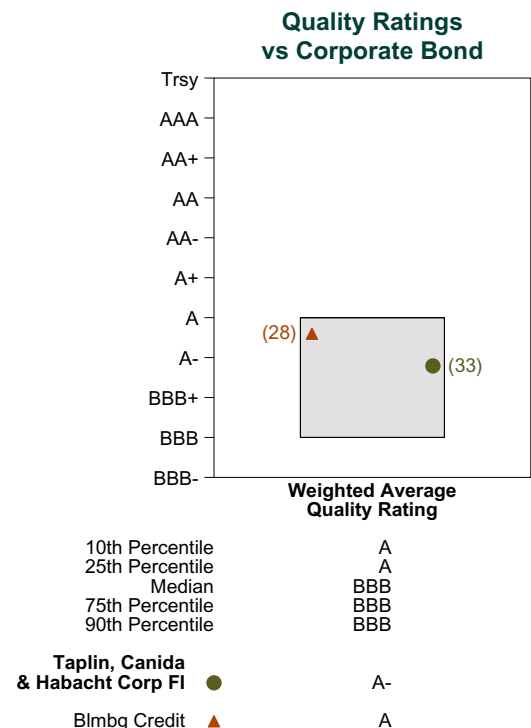
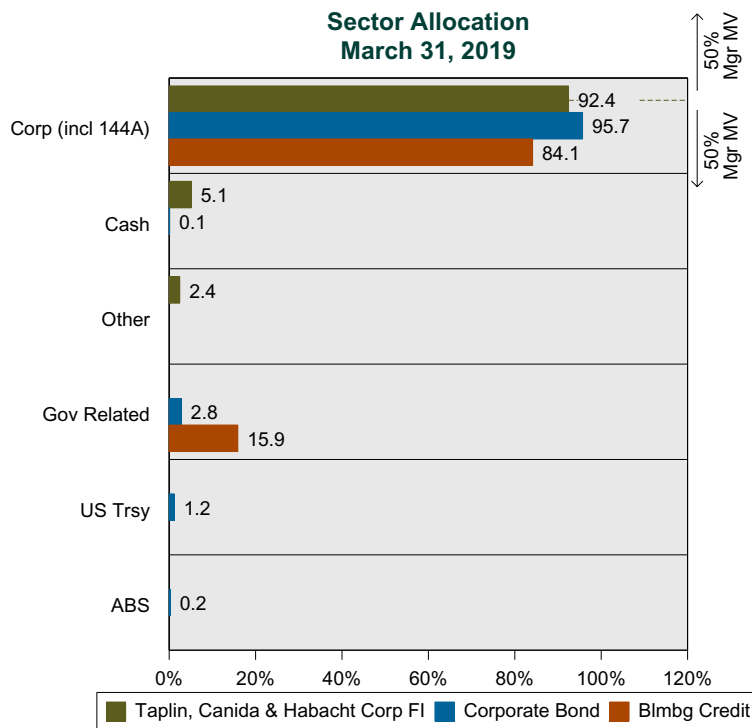
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Corporate Bond as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



# Taplin, Canida & Habacht Corp FI Portfolio Characteristics Summary As of March 31, 2019

## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

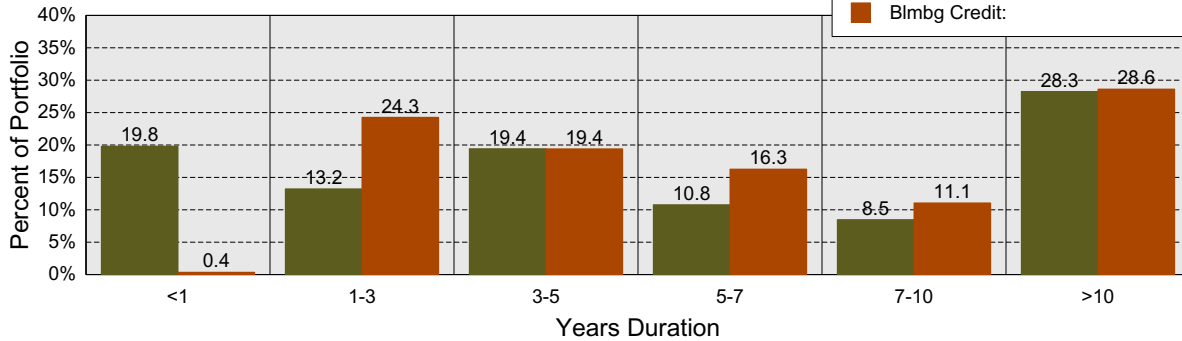
### Sector Allocation



### Taplin, Canida & Habacht Corp FI

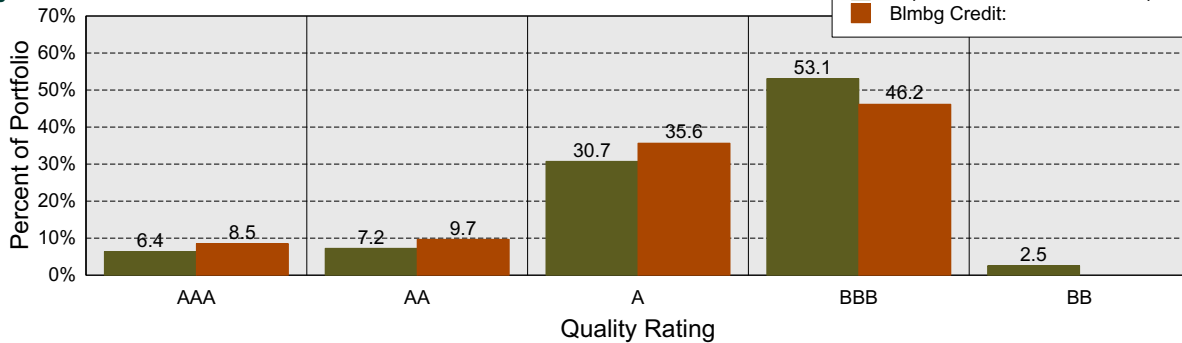
### Blmbg Credit

#### Duration Distribution



Weighted Average:	Duration
Taplin, Canida & Habacht Corp FI:	6.96
Blmbg Credit:	7.17

#### Quality Distribution



Weighted Average:	Quality
Taplin, Canida & Habacht Corp FI:	A-
Blmbg Credit:	A



# Brandywine Global Opp Period Ended March 31, 2019

## Investment Philosophy

Brandywine's Global Opportunistic Fixed Income philosophy is a value-driven, active, strategic approach. This strategy allows for a 0-15% allocation to emerging markets and for a 0-15% allocation to high yield debt. Value is defined as a combination of above-average real interest rates and an under-valued currency. They concentrate investments where existing economic and market conditions can enable that value to be realized in an intermediate time frame. They capture excess returns through strategic investment in countries, sectors, and securities, rather than by maintaining minimum, core commitments.

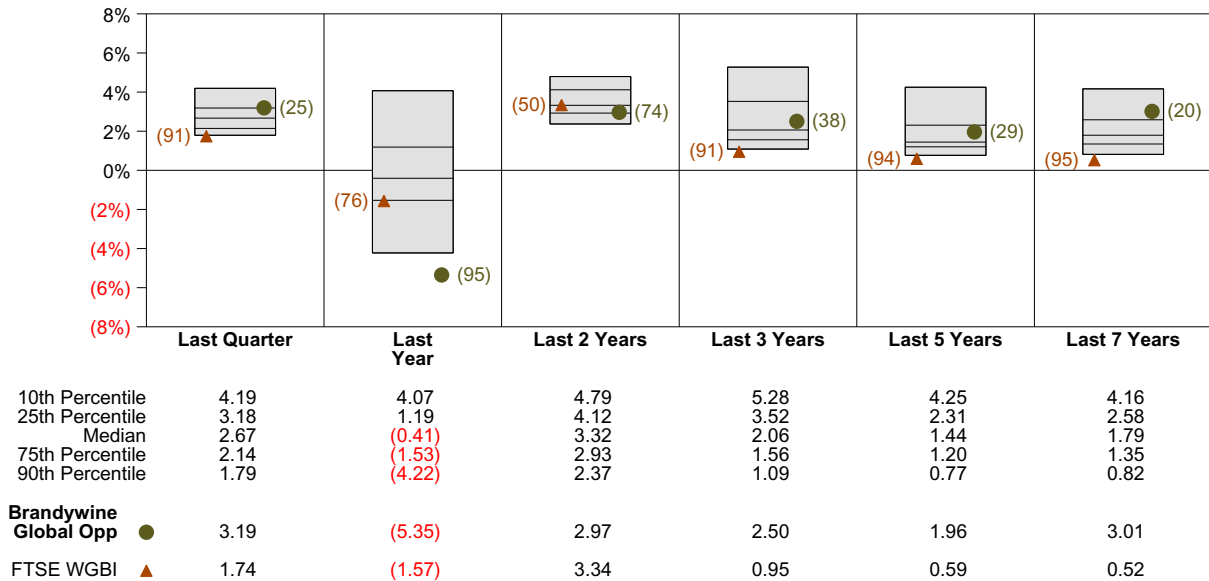
## Quarterly Summary and Highlights

- Brandywine Global Opp's portfolio posted a 3.19% return for the quarter placing it in the 25 percentile of the Callan Global Fixed Income (Unhedged) group for the quarter and in the 95 percentile for the last year.
- Brandywine Global Opp's portfolio outperformed the FTSE WGBI by 1.45% for the quarter and underperformed the FTSE WGBI for the year by 3.78%.

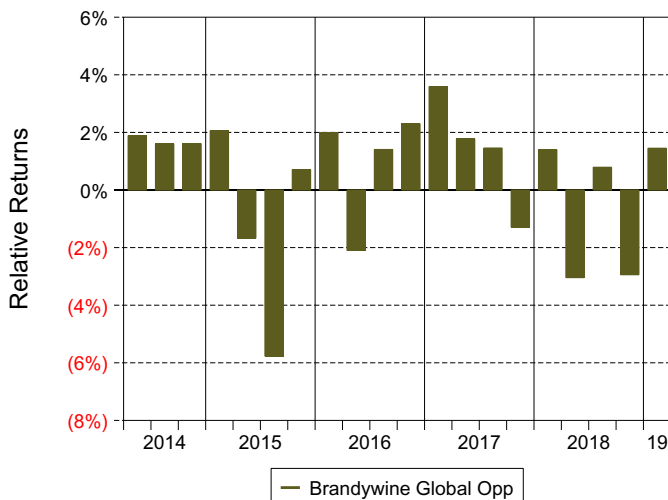
## Quarterly Asset Growth

Beginning Market Value	\$186,661,697
Net New Investment	\$-179,687
Investment Gains/(Losses)	\$5,959,899
Ending Market Value	\$192,441,910

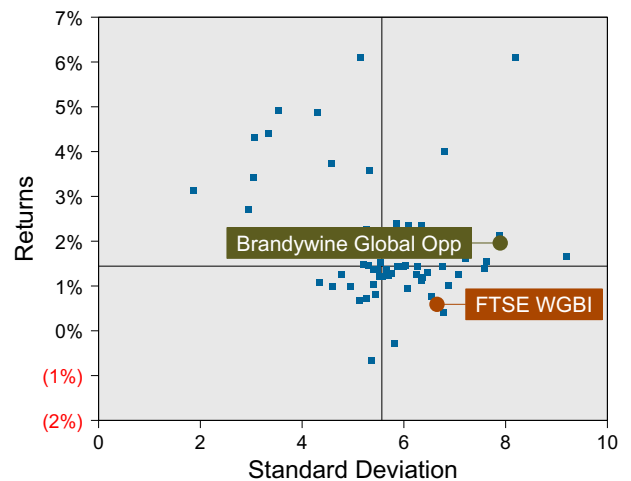
## Performance vs Callan Global Fixed Income (Unhedged) (Gross)



## Relative Return vs FTSE WGBI



## Callan Global Fixed Income (Unhedged) (Gross) Annualized Five Year Risk vs Return

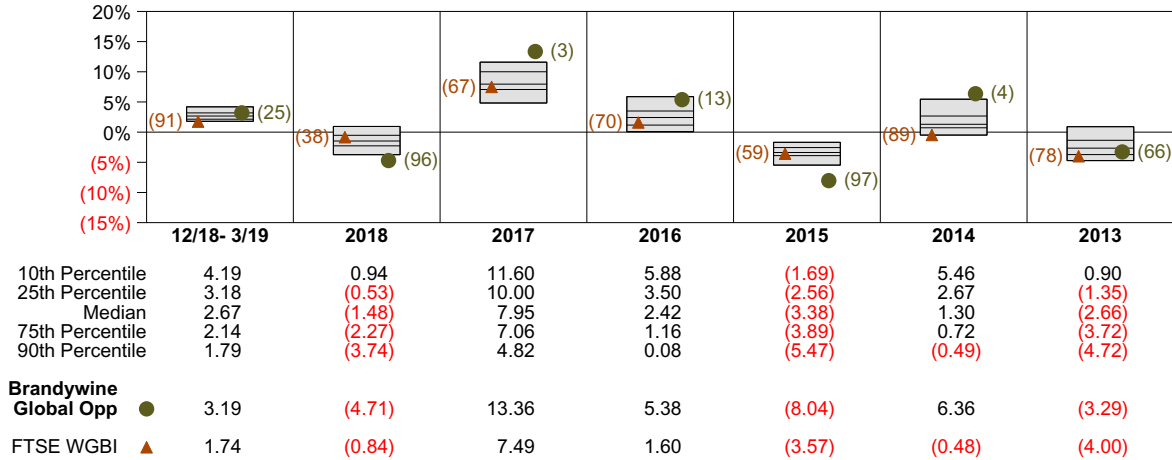


# Brandywine Global Opp Return Analysis Summary

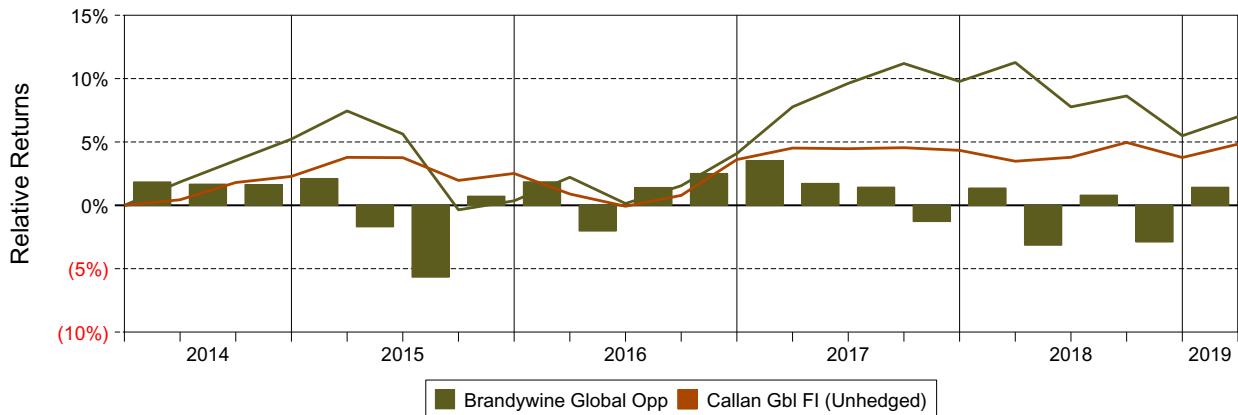
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

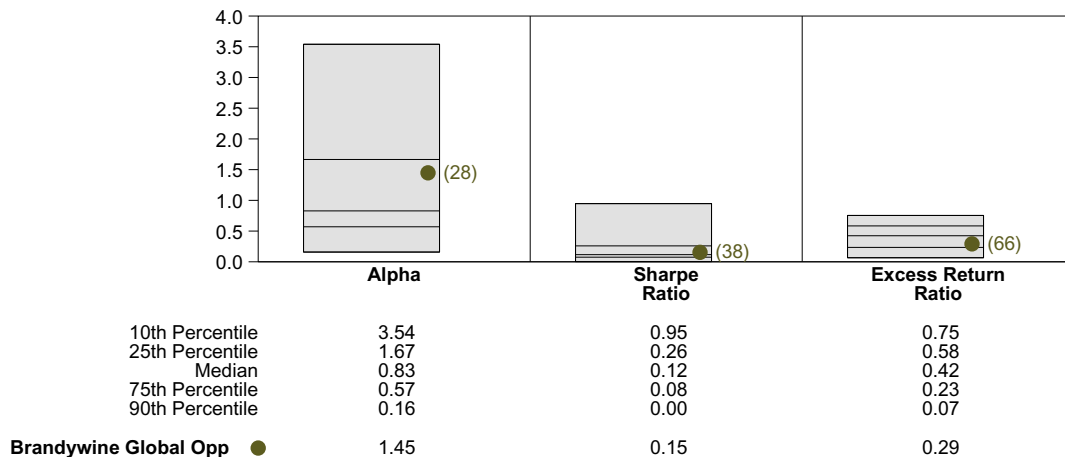
### Performance vs Callan Global Fixed Income (Unhedged) (Gross)



### Cumulative and Quarterly Relative Return vs FTSE WGBI



### Risk Adjusted Return Measures vs FTSE WGBI Rankings Against Callan Global Fixed Income (Unhedged) (Gross) Five Years Ended March 31, 2019



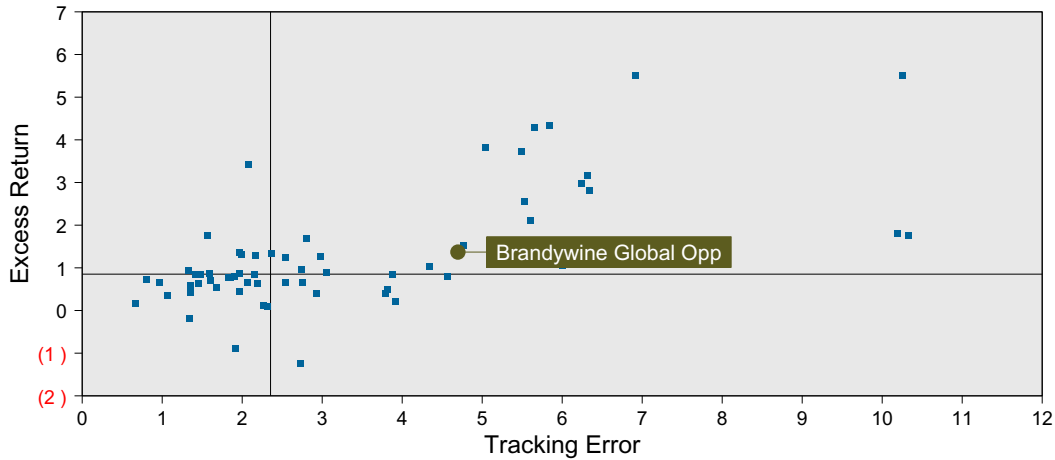


# Brandywine Global Opp Risk Analysis Summary

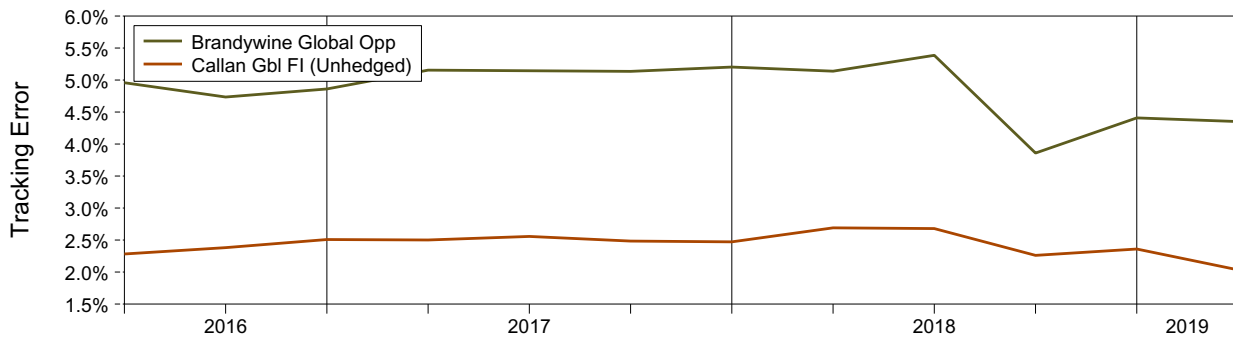
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

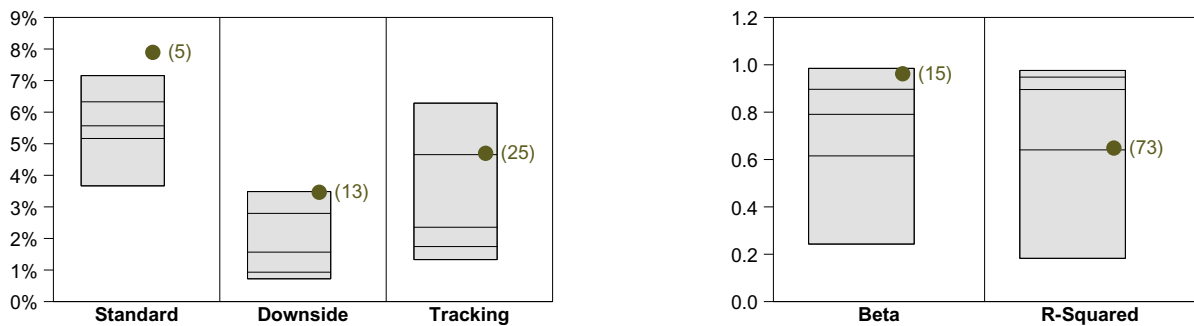
### Risk Analysis vs Callan Global Fixed Income (Unhedged) (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs FTSE World Govt Bond Index (WGBI)



### Risk Statistics Rankings vs FTSE World Govt Bond Index (WGBI) Rankings Against Callan Global Fixed Income (Unhedged) (Gross) Five Years Ended March 31, 2019



10th Percentile  
25th Percentile  
Median  
75th Percentile  
90th Percentile

7.16  
6.33  
5.57  
5.17  
3.67

3.48  
2.79  
1.57  
0.93  
0.72

6.29  
4.65  
2.35  
1.74  
1.33

10th Percentile  
25th Percentile  
Median  
75th Percentile  
90th Percentile

0.98  
0.90  
0.79  
0.62  
0.24

0.98  
0.95  
0.90  
0.64  
0.18

**Brandywine  
Global Opp**

7.89

3.46

4.70

**Brandywine  
Global Opp**

0.96

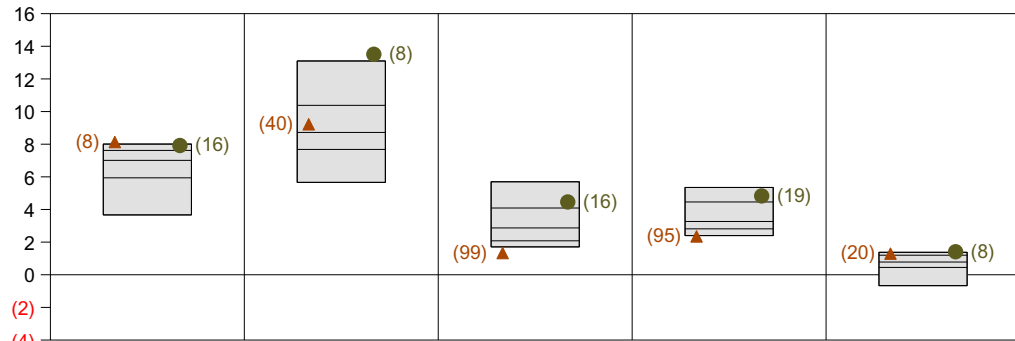
0.65

# Brandywine Global Opp Bond Characteristics Analysis Summary

## Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Global Fixed Income (Unhedged) as of March 31, 2019

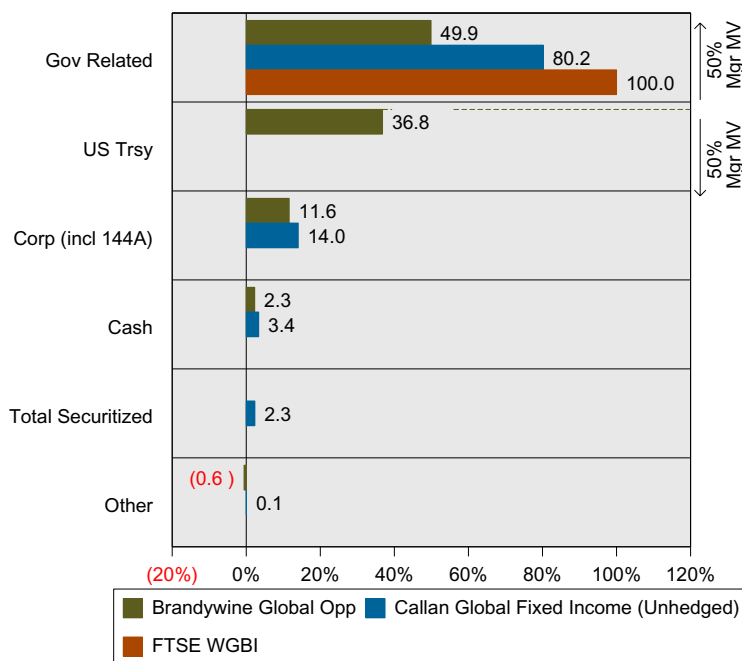


	Duration	Average Life	Effective Yield	Coupon Rate	OA Convexity
10th Percentile	8.01	13.10	5.70	5.35	1.38
25th Percentile	7.62	10.38	4.09	4.46	1.20
Median	7.01	8.72	2.87	3.27	0.78
75th Percentile	5.94	7.68	2.08	2.81	0.45
90th Percentile	3.67	5.66	1.71	2.40	0.67
<b>Brandywine Global Opp</b> ●	7.92	13.51	4.46	4.83	1.41
<b>FTSE WGBI</b> ▲	8.13	9.22	1.33	2.35	1.30

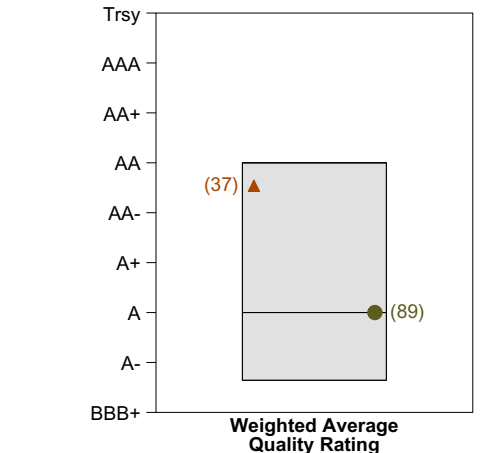
## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

### Sector Allocation March 31, 2019



### Quality Ratings vs Callan Global Fixed Income (Unhedged)



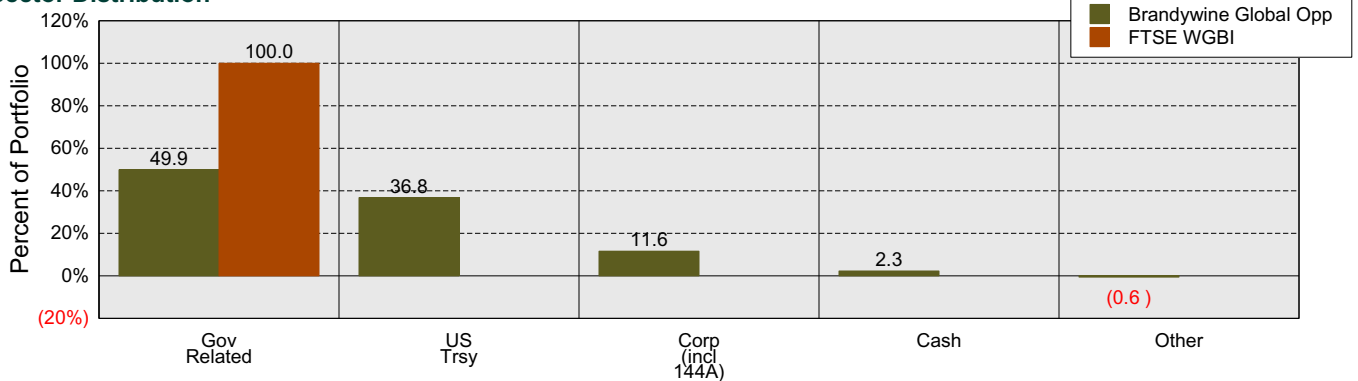
10th Percentile	AA
25th Percentile	AA
Median	A
75th Percentile	A
90th Percentile	A-
<b>Brandywine Global Opp</b> ●	A
<b>FTSE WGBI</b> ▲	AA

# Brandywine Global Opp Portfolio Characteristics Summary As of March 31, 2019

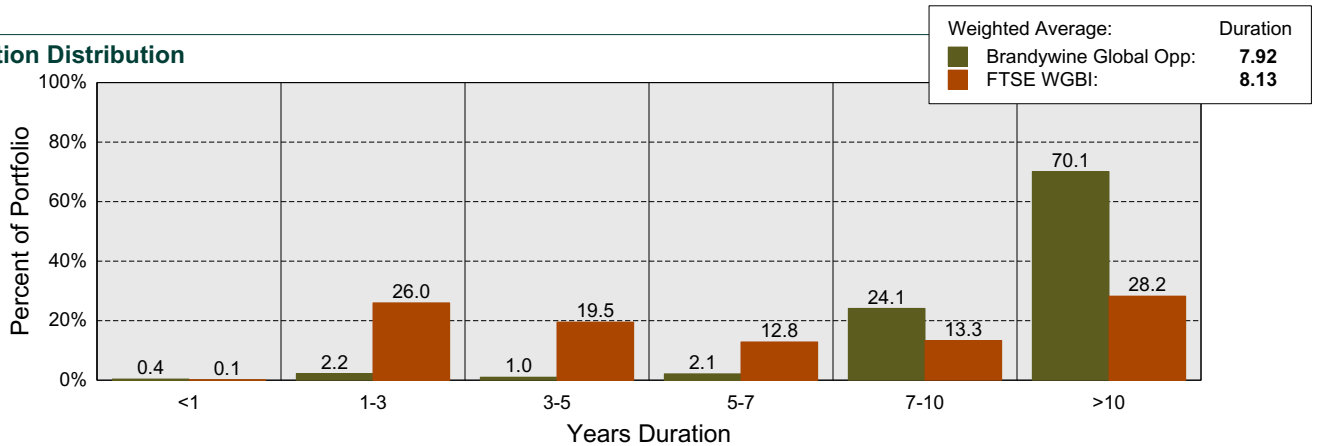
## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

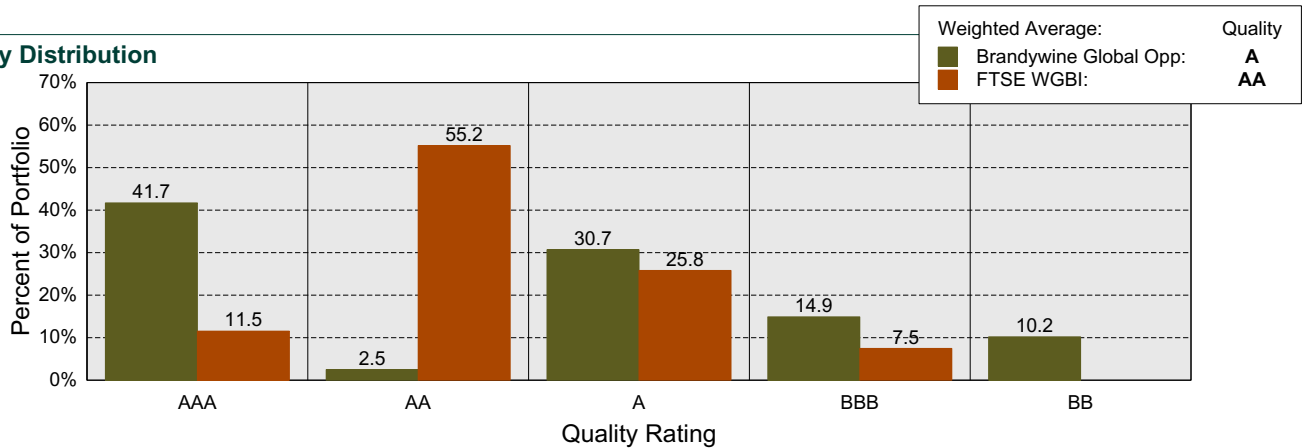
### Sector Distribution



### Duration Distribution



### Quality Distribution



# Pyramis Gbl Adv HY CMBS Period Ended March 31, 2019

## Investment Philosophy

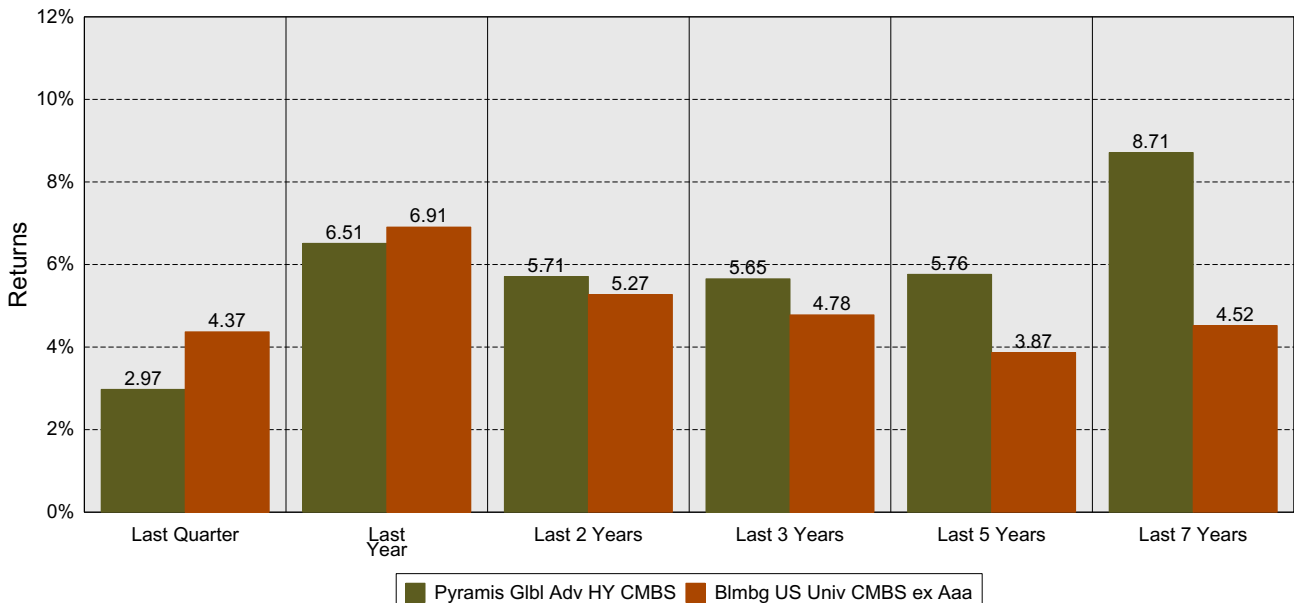
FIAM believes that unsurpassed bottom-up research on more CMBS issues than other investors will yield premiums relative to others.

## Quarterly Summary and Highlights

- Pyramis Gbl Adv HY CMBS's portfolio posted a 2.97% return for the quarter placing it in the 99 percentile of the Callan Global Fixed High Yield group for the quarter and in the 17 percentile for the last year.
- Pyramis Gbl Adv HY CMBS's portfolio underperformed the Blmbg US Univ CMBS ex Aaa by 1.39% for the quarter and underperformed the Blmbg US Univ CMBS ex Aaa for the year by 0.39%.

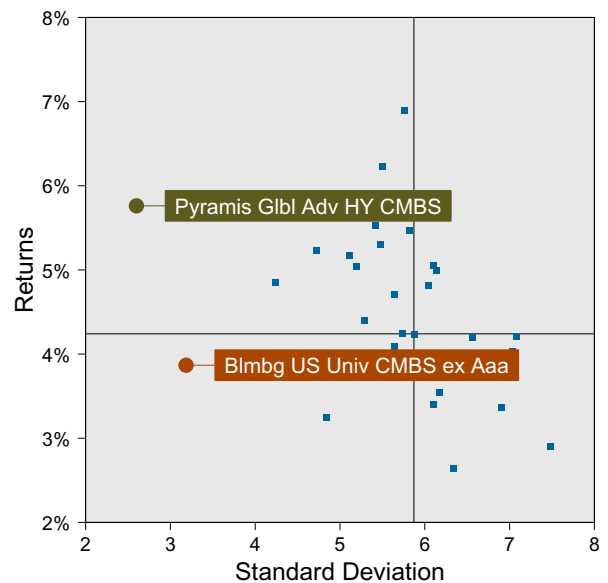
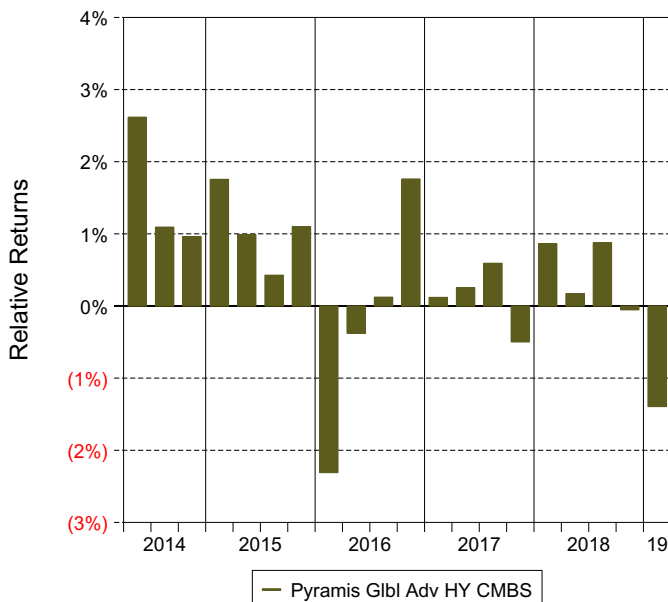
## Quarterly Asset Growth

Beginning Market Value	\$315,316,932
Net New Investment	\$-983,163
Investment Gains/(Losses)	\$9,367,557
Ending Market Value	\$323,701,326



Relative Returns vs Blmbg US Univ CMBS ex Aaa

Callan Global Fixed High Yield (Gross) Annualized Five Year Risk vs Return

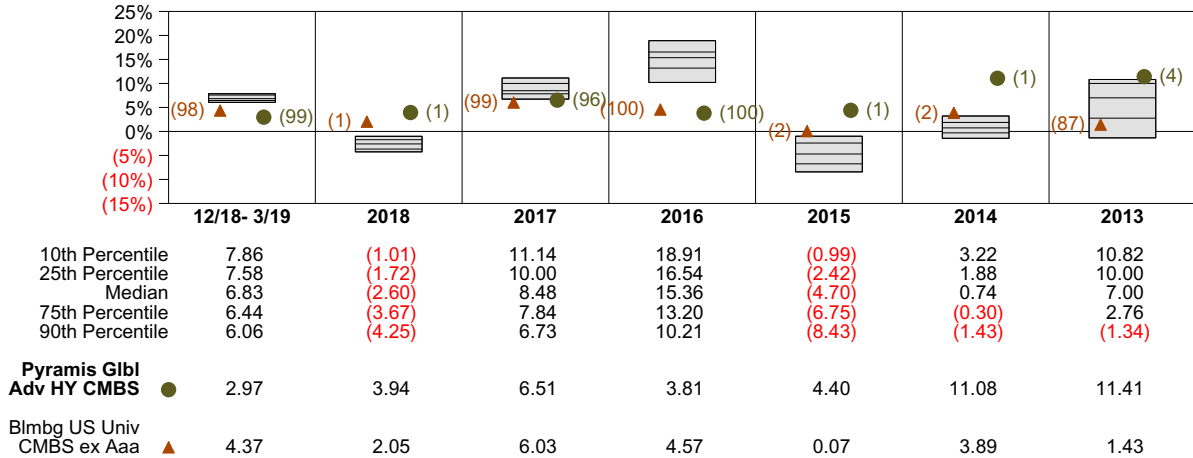


# Pyramis Gbl Adv HY CMBS Return Analysis Summary

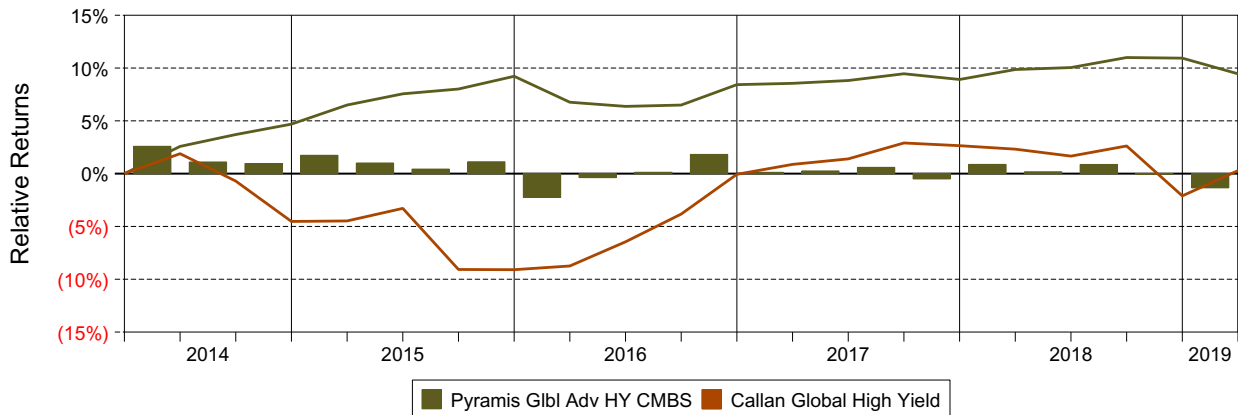
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

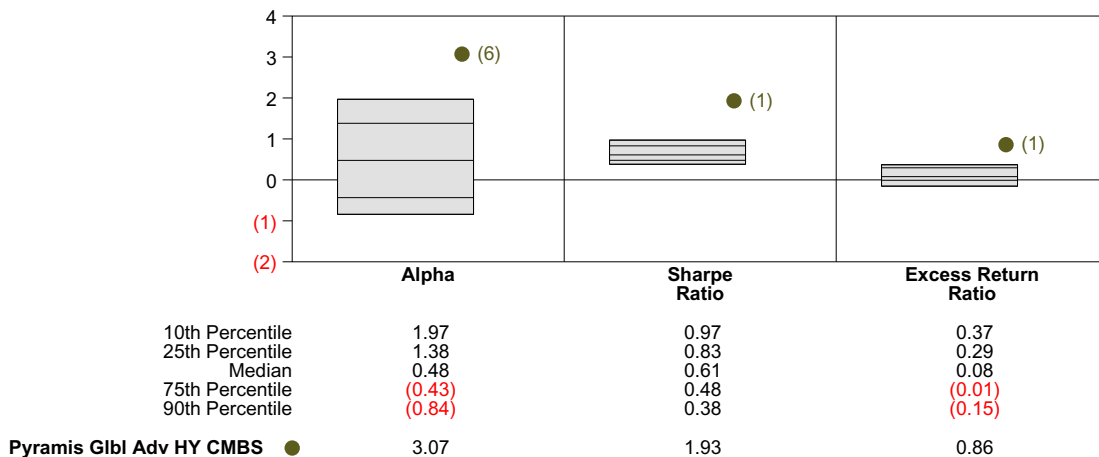
### Performance vs Callan Global Fixed High Yield (Gross)



### Cumulative and Quarterly Relative Return vs Bimbg US Univ CMBS ex Aaa



### Risk Adjusted Return Measures vs Bimbg US Univ CMBS ex Aaa Rankings Against Callan Global Fixed High Yield (Gross) Five Years Ended March 31, 2019

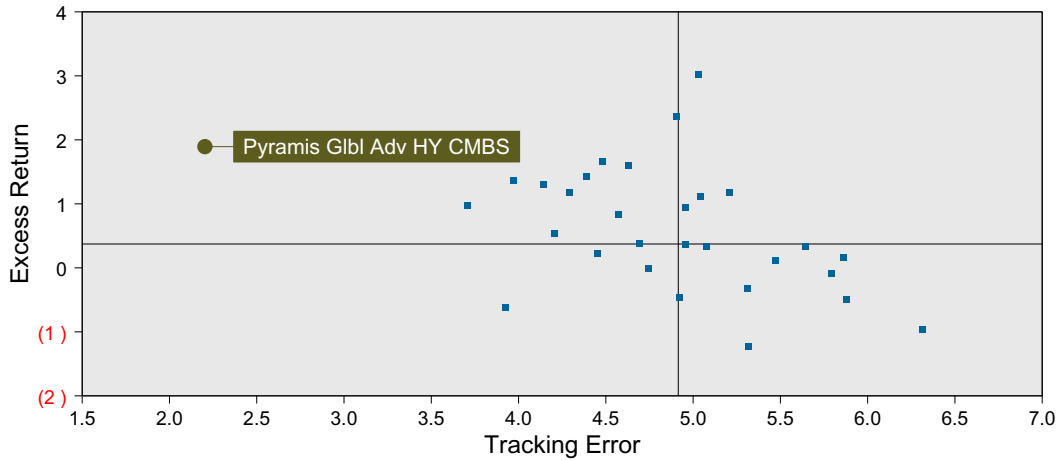


# Pyramis Gbl Adv HY CMBS Risk Analysis Summary

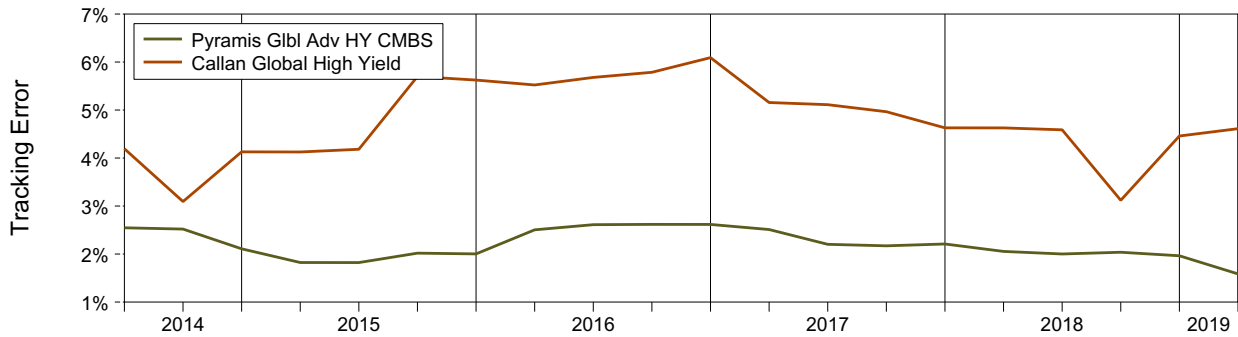
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

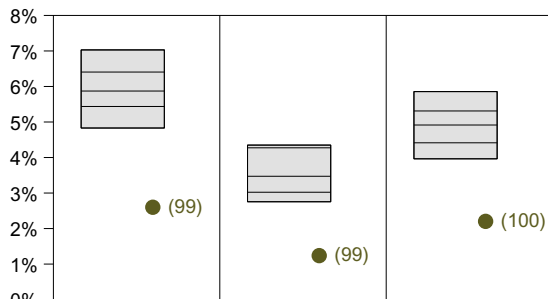
### Risk Analysis vs Callan Global Fixed High Yield (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays US Univ CMBS ex Aaa

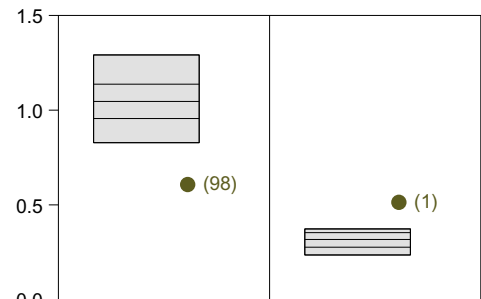


### Risk Statistics Rankings vs Bloomberg Barclays US Univ CMBS ex Aaa Rankings Against Callan Global Fixed High Yield (Gross) Five Years Ended March 31, 2019



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	7.03	4.35	5.86
25th Percentile	6.41	4.27	5.31
Median	5.87	3.47	4.92
75th Percentile	5.44	3.02	4.41
90th Percentile	4.83	2.75	3.96

**Pyramis Gbl Adv HY CMBS** ● 2.60 1.24 2.20



	Beta	R-Squared
10th Percentile	1.29	0.37
25th Percentile	1.14	0.35
Median	1.05	0.32
75th Percentile	0.96	0.28
90th Percentile	0.83	0.24

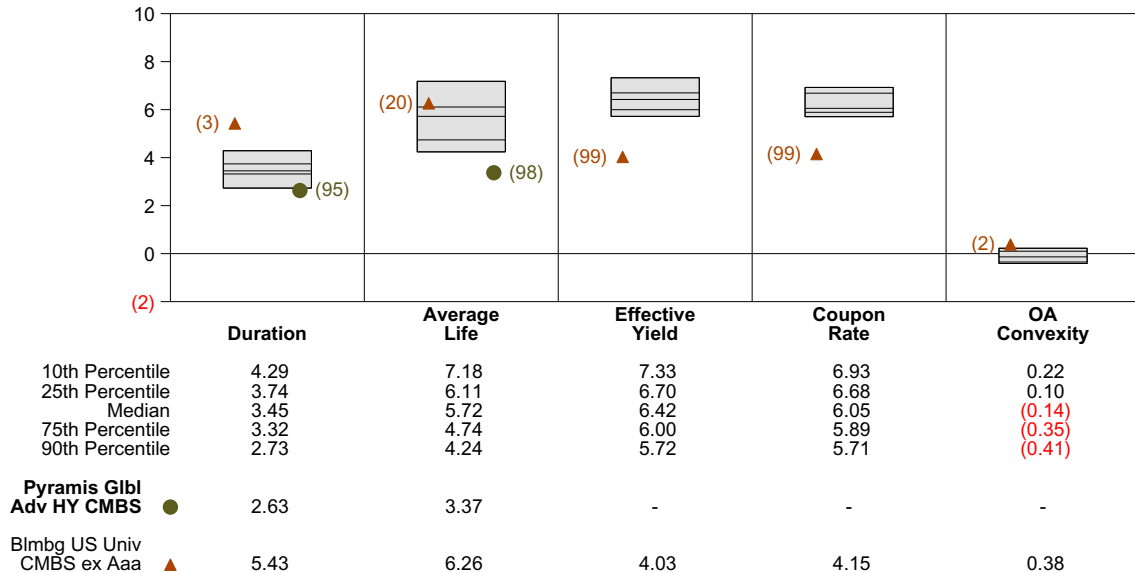
**Pyramis Gbl Adv HY CMBS** ● 0.61 0.51

# Pyramis Gbl Adv HY CMBS Bond Characteristics Analysis Summary

## Portfolio Characteristics

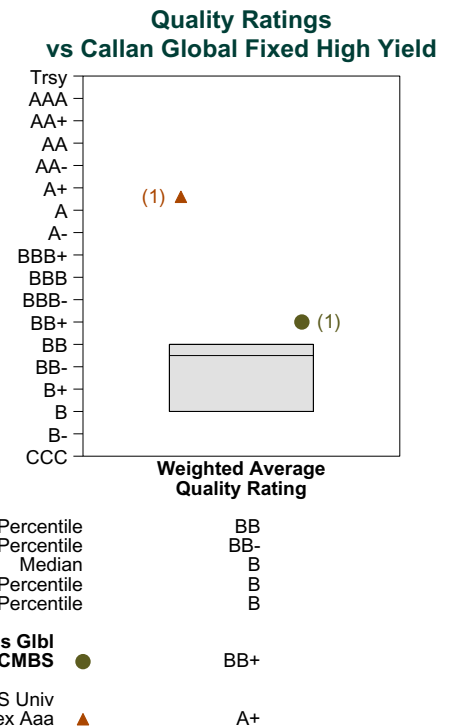
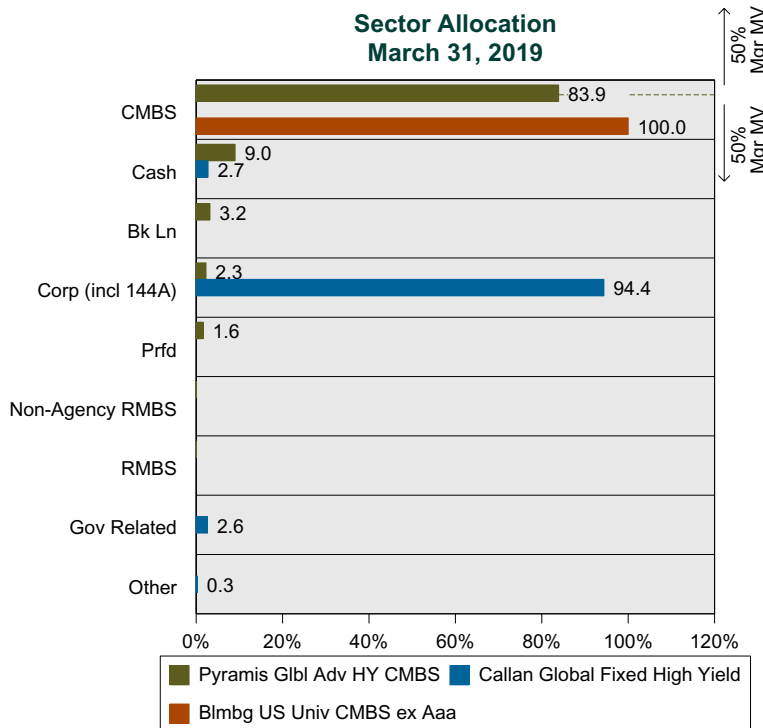
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Global Fixed High Yield as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

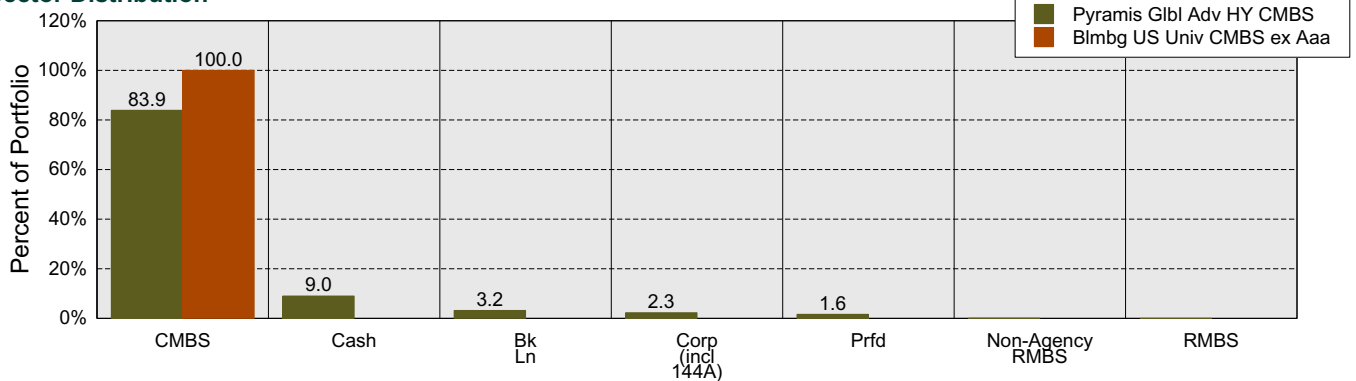


# Pyramis Gbl Adv HY CMBS Portfolio Characteristics Summary As of March 31, 2019

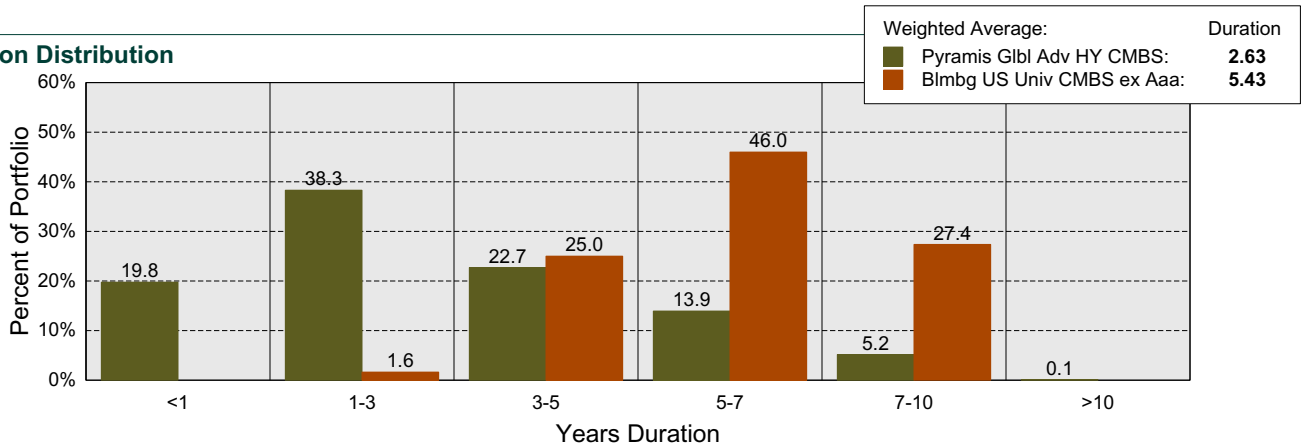
## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

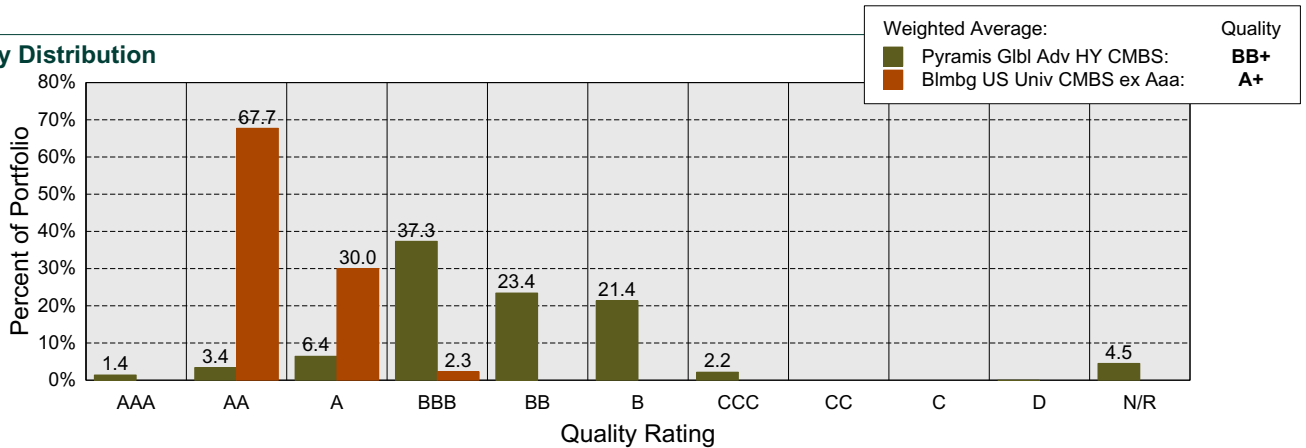
### Sector Distribution



### Duration Distribution



### Quality Distribution





# Stone Harbor EMD Period Ended March 31, 2019

## Investment Philosophy

Stone Harbor believes that a disciplined credit and relative value approach will best capture what the investment team views as a secular trend towards the expansion and development of the emerging debt markets. The team also believes that investing in a diversified portfolio of improving emerging markets debt instruments will result in strong, long-term performance. Also, they believe the key to successfully generating excess returns is through a process of rigorous credit analysis. The team's active style of investment management is characterized by fundamental credit analysis.

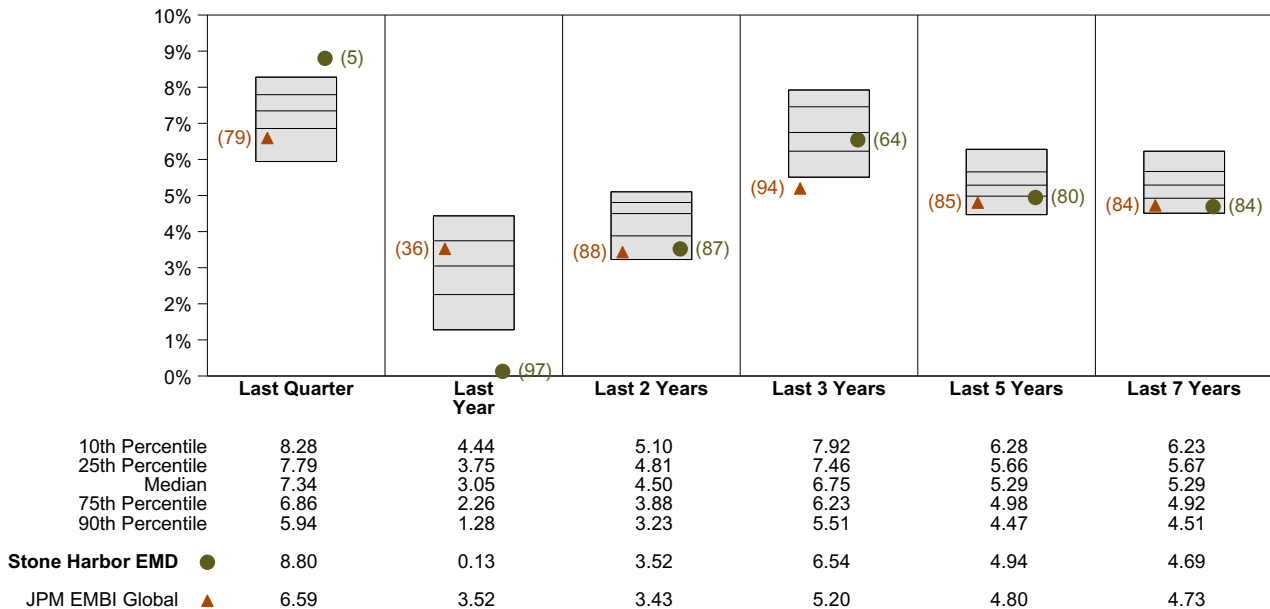
## Quarterly Summary and Highlights

- Stone Harbor EMD's portfolio posted a 8.80% return for the quarter placing it in the 5 percentile of the Callan Emerging Debt USD group for the quarter and in the 97 percentile for the last year.
- Stone Harbor EMD's portfolio outperformed the JPM EMBI Global by 2.21% for the quarter and underperformed the JPM EMBI Global for the year by 3.40%.

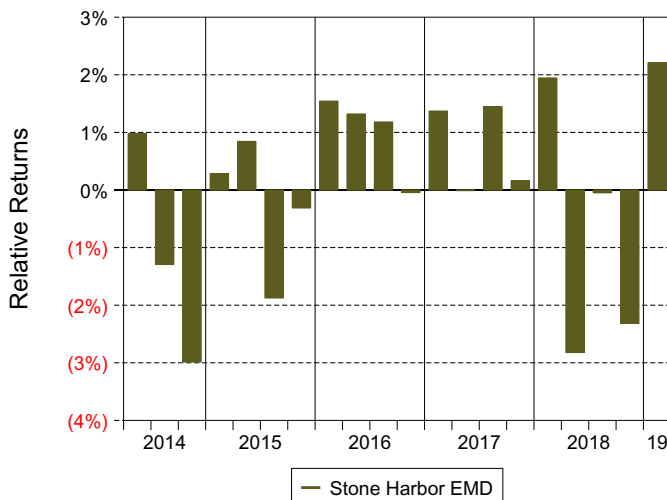
## Quarterly Asset Growth

Beginning Market Value	\$160,639,646
Net New Investment	\$-11,920,022
Investment Gains/(Losses)	\$13,849,581
Ending Market Value	\$162,569,205

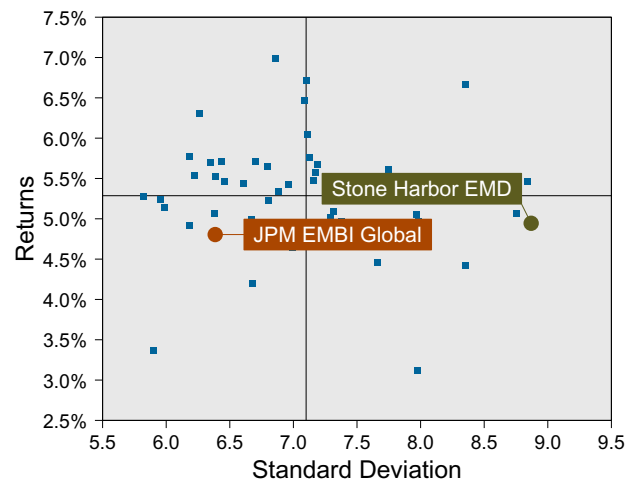
## Performance vs Callan Emerging Debt USD (Gross)



## Relative Return vs JPM EMBI Global



## Callan Emerging Debt USD (Gross) Annualized Five Year Risk vs Return

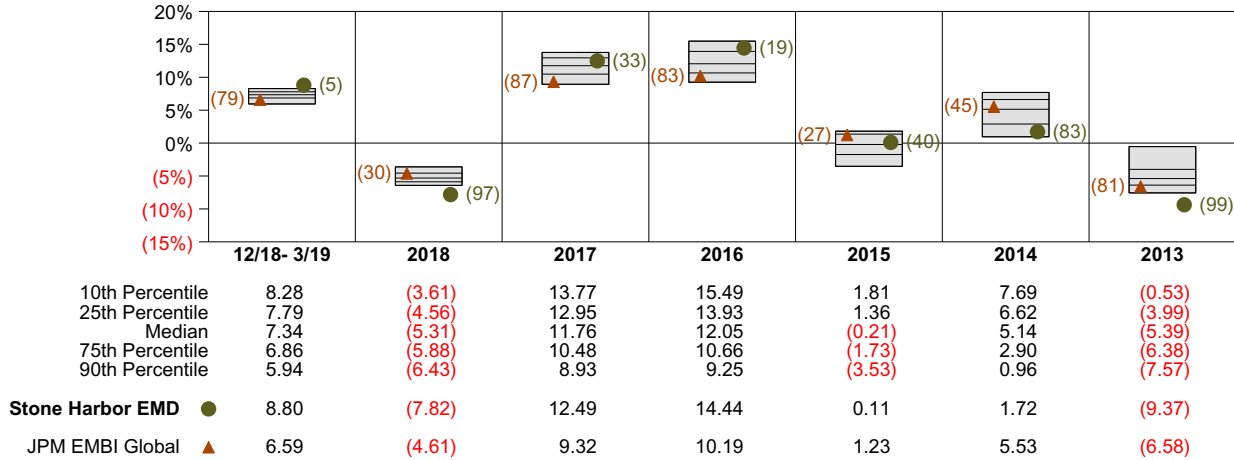


# Stone Harbor EMD Return Analysis Summary

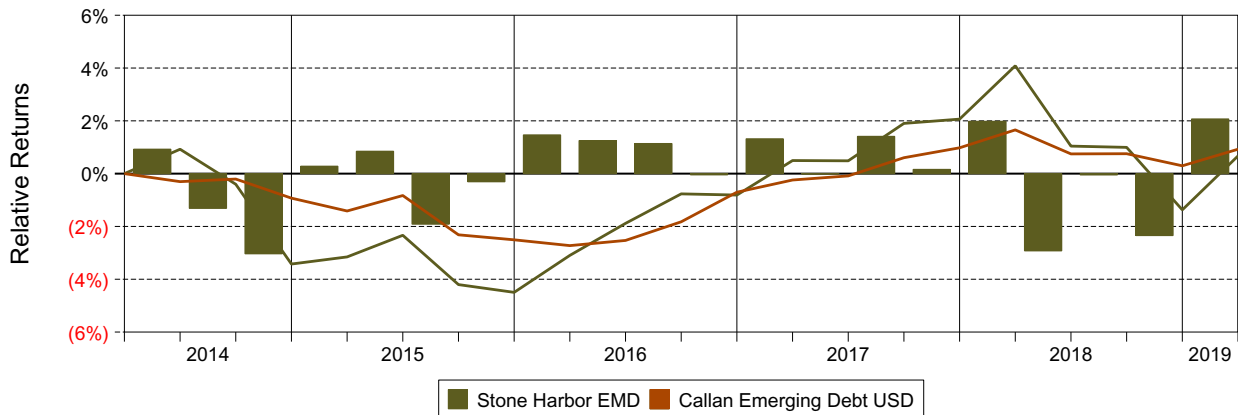
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

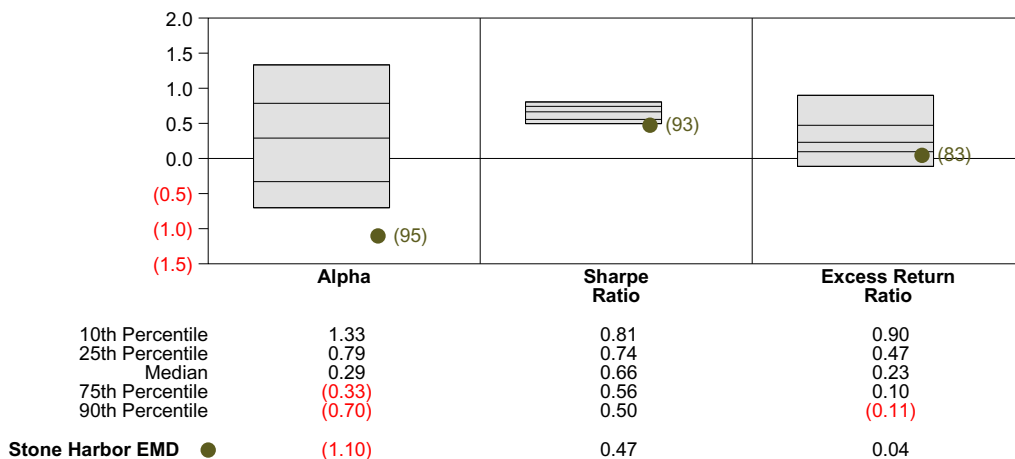
### Performance vs Callan Emerging Debt USD (Gross)



### Cumulative and Quarterly Relative Return vs JPM EMBI Global



### Risk Adjusted Return Measures vs JPM EMBI Global Rankings Against Callan Emerging Debt USD (Gross) Five Years Ended March 31, 2019

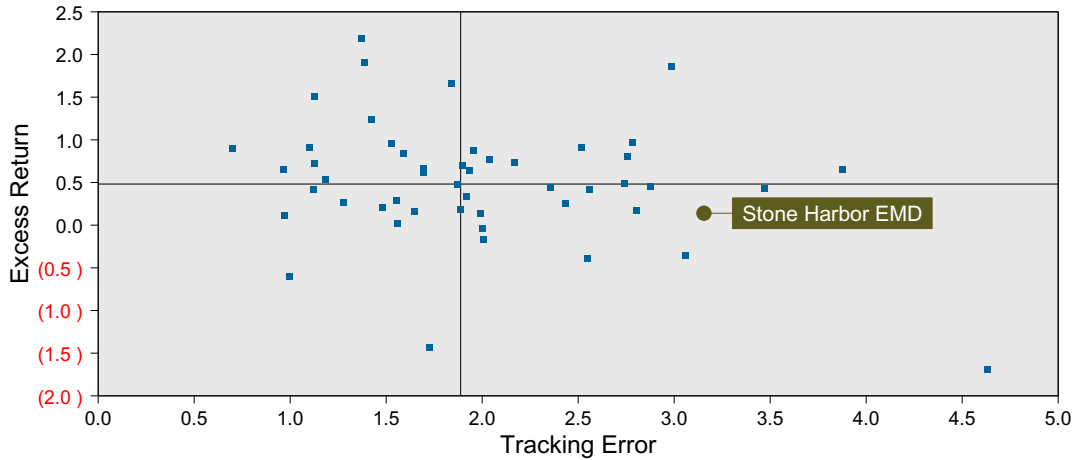


# Stone Harbor EMD Risk Analysis Summary

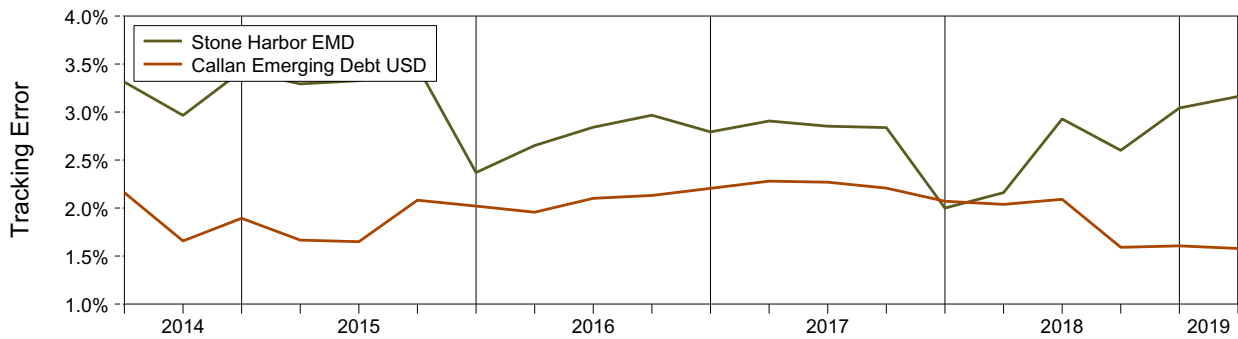
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

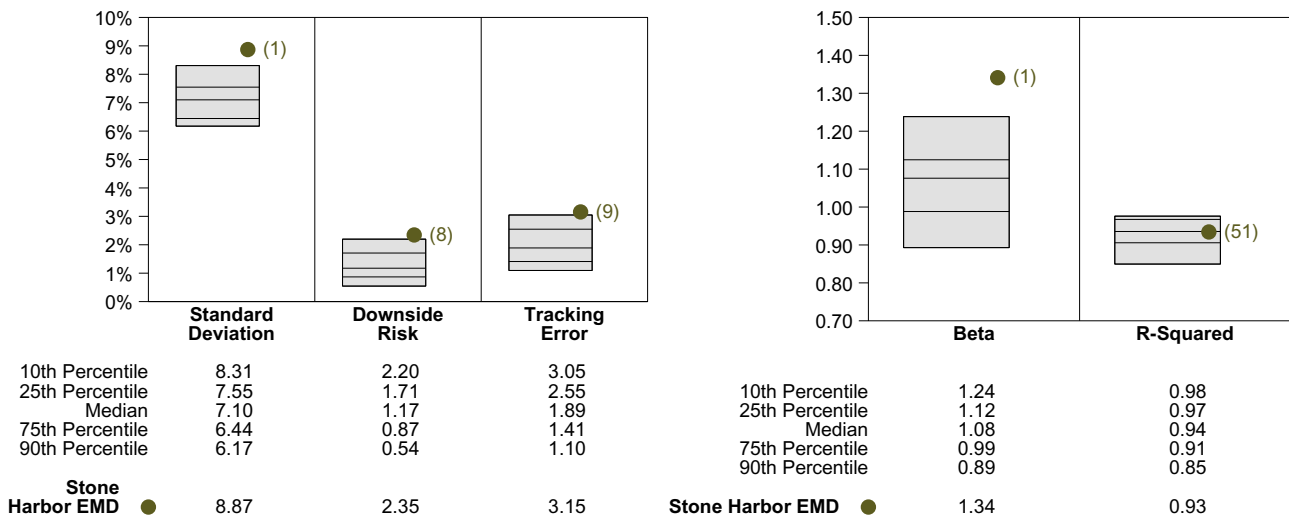
### Risk Analysis vs Callan Emerging Debt USD (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs JPM Emerging Markets Bond Idx Global



### Risk Statistics Rankings vs JPM Emerging Markets Bond Idx Global Rankings Against Callan Emerging Debt USD (Gross) Five Years Ended March 31, 2019

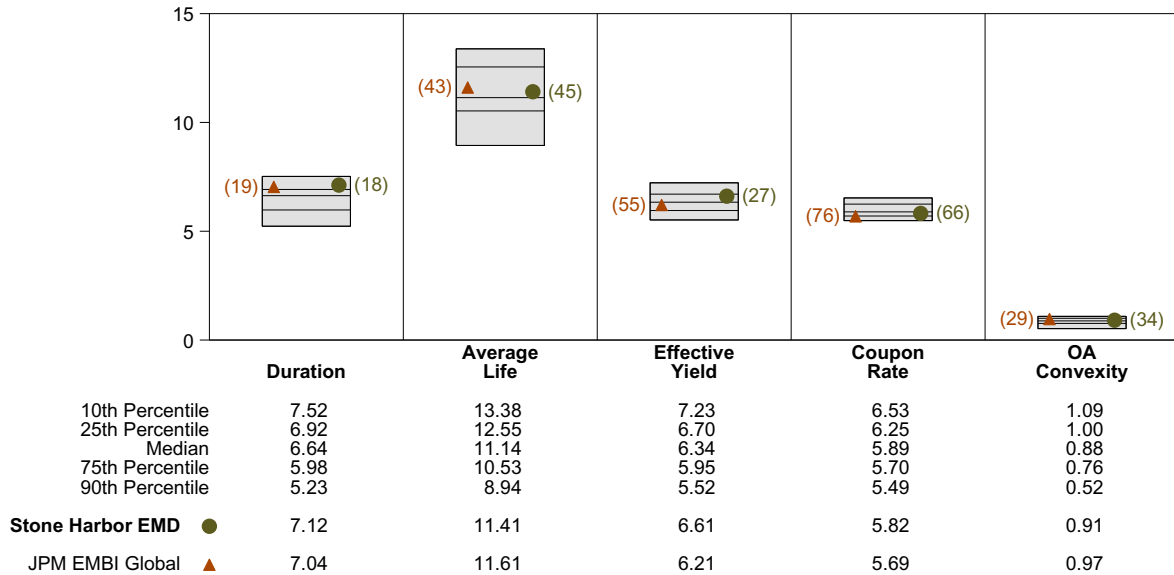


# Stone Harbor EMD Bond Characteristics Analysis Summary

## Portfolio Characteristics

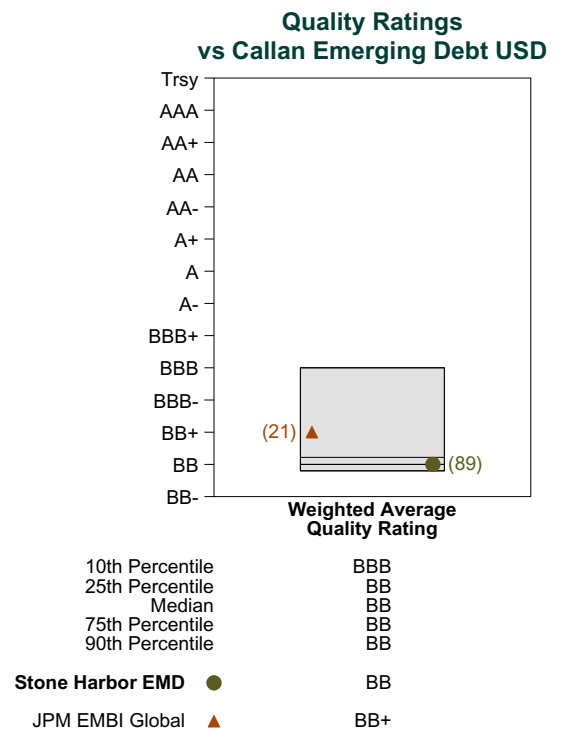
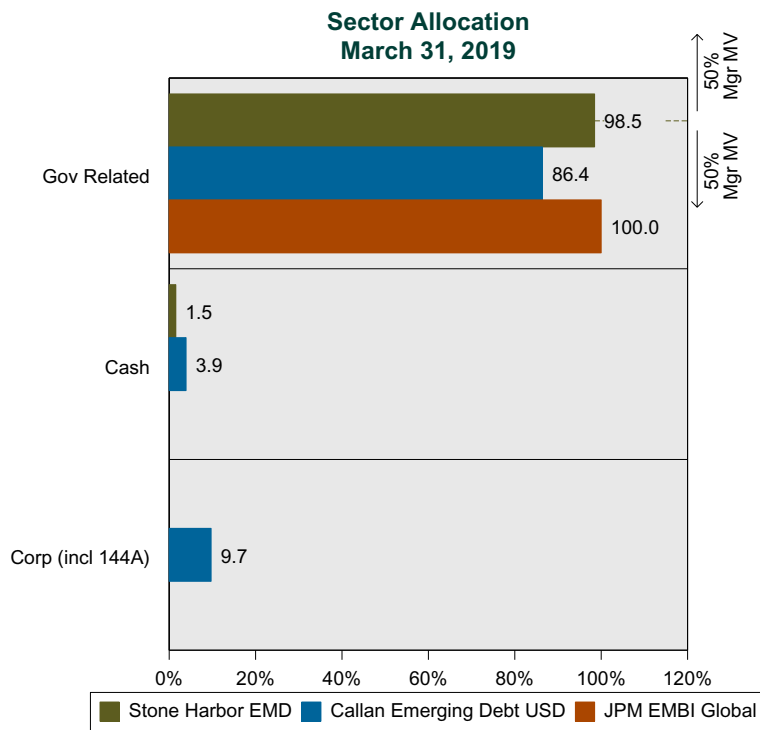
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Emerging Debt USD as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

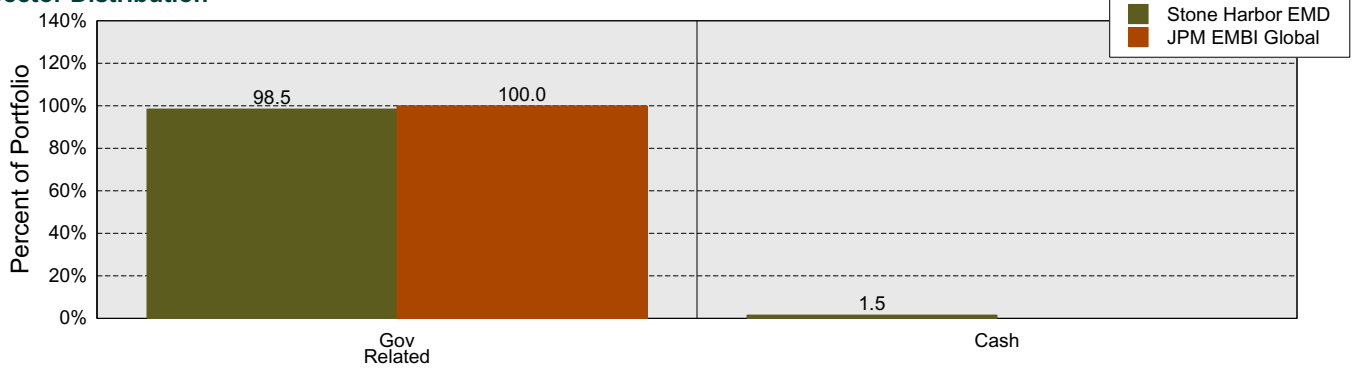


# Stone Harbor EMD Portfolio Characteristics Summary As of March 31, 2019

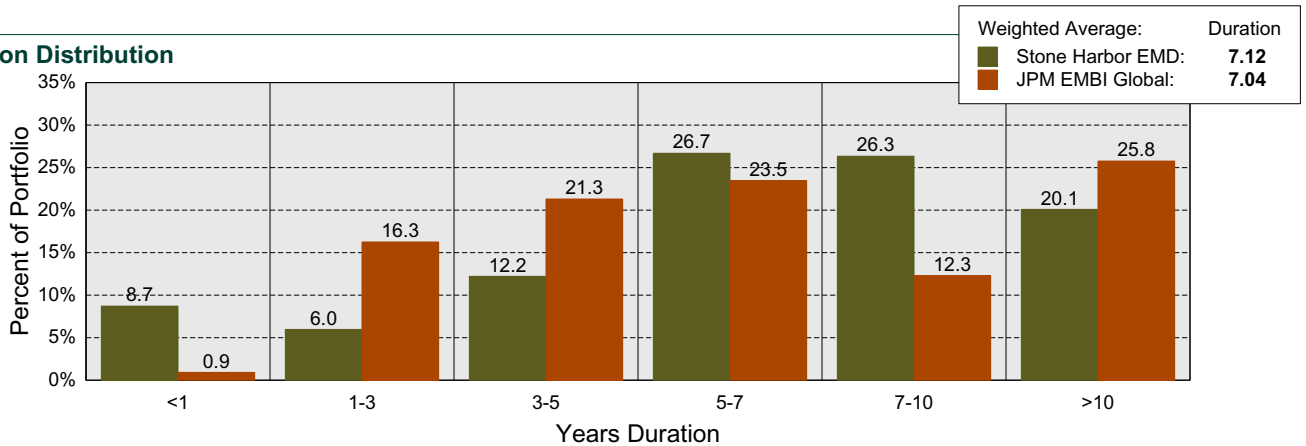
## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

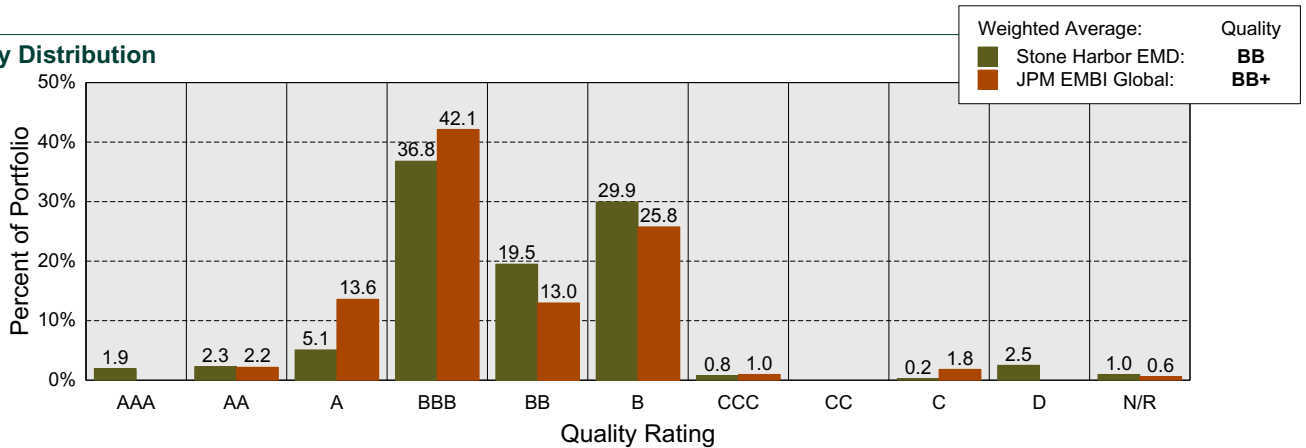
### Sector Distribution



### Duration Distribution



### Quality Distribution



# Stone Harbor Gbl HY Period Ended March 31, 2019

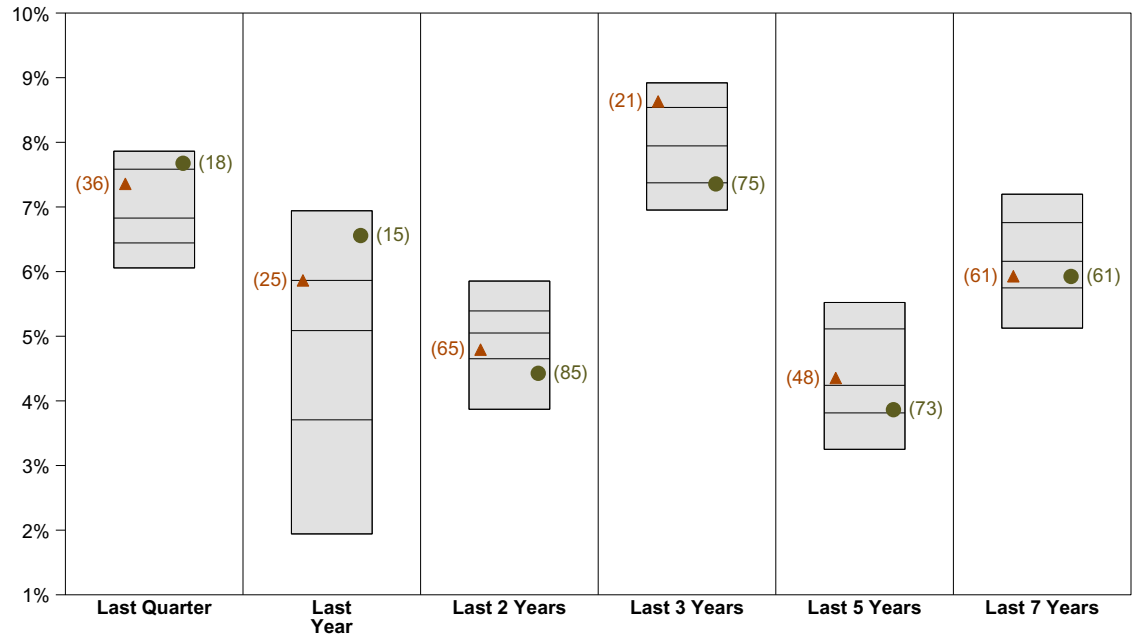
## Quarterly Summary and Highlights

- Stone Harbor Gbl HY's portfolio posted a 7.68% return for the quarter placing it in the 18 percentile of the Callan Global Fixed High Yield group for the quarter and in the 15 percentile for the last year.
- Stone Harbor Gbl HY's portfolio outperformed the FTSE US High Yield by 0.32% for the quarter and outperformed the FTSE US High Yield for the year by 0.69%.

## Quarterly Asset Growth

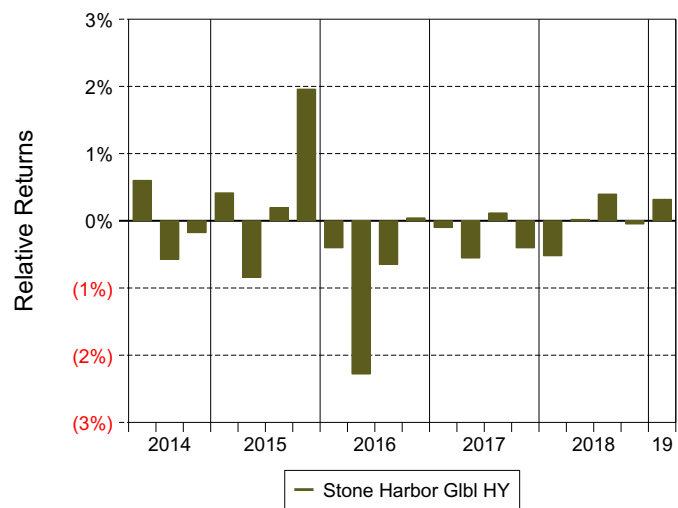
Beginning Market Value	\$159,287,466
Net New Investment	\$11,590,620
Investment Gains/(Losses)	\$12,544,436
Ending Market Value	\$183,422,522

## Performance vs Callan Global Fixed High Yield (Gross)

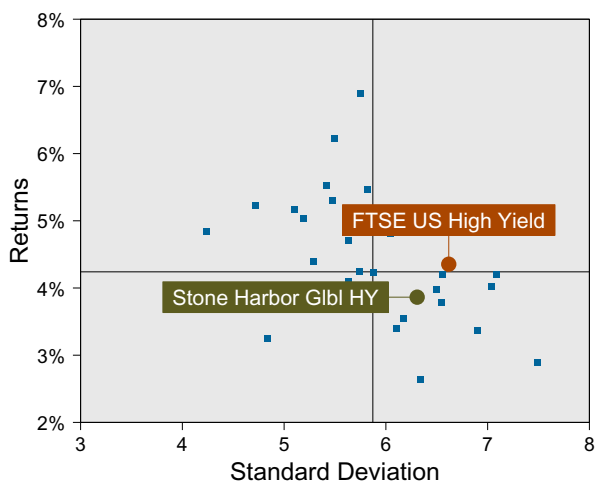


10th Percentile	7.86	6.94	5.85	8.92	5.52	7.20
25th Percentile	7.58	5.86	5.39	8.54	5.11	6.76
Median	6.83	5.09	5.05	7.94	4.24	6.16
75th Percentile	6.44	3.71	4.65	7.37	3.81	5.75
90th Percentile	6.06	1.94	3.87	6.95	3.25	5.13
<b>Stone Harbor Gbl HY</b> ●	7.68	6.56	4.43	7.36	3.86	5.92
FTSE US High Yield ▲	7.36	5.86	4.79	8.63	4.35	5.93

## Relative Return vs FTSE US High Yield



## Callan Global Fixed High Yield (Gross) Annualized Five Year Risk vs Return

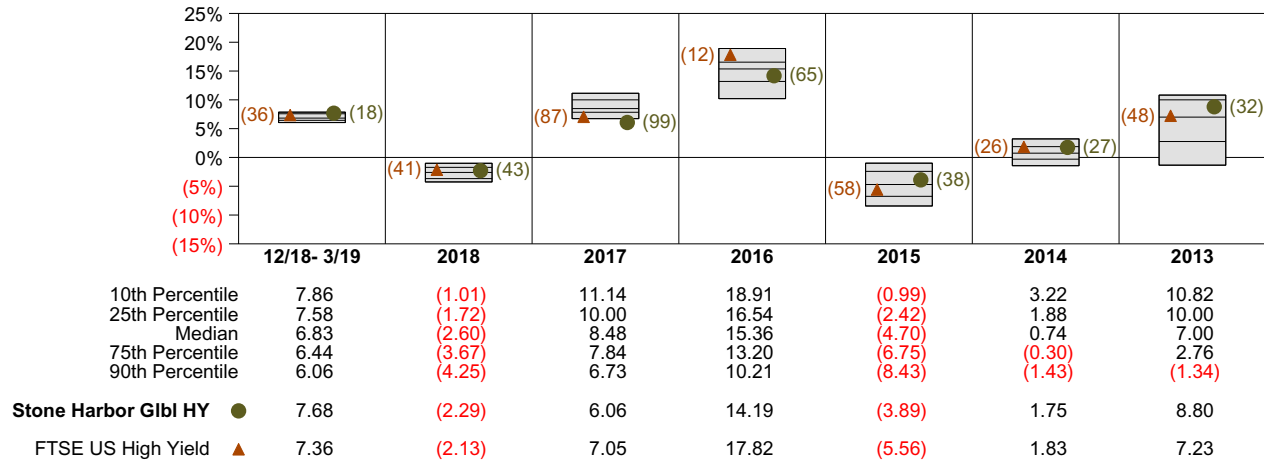


# Stone Harbor Gbl HY Return Analysis Summary

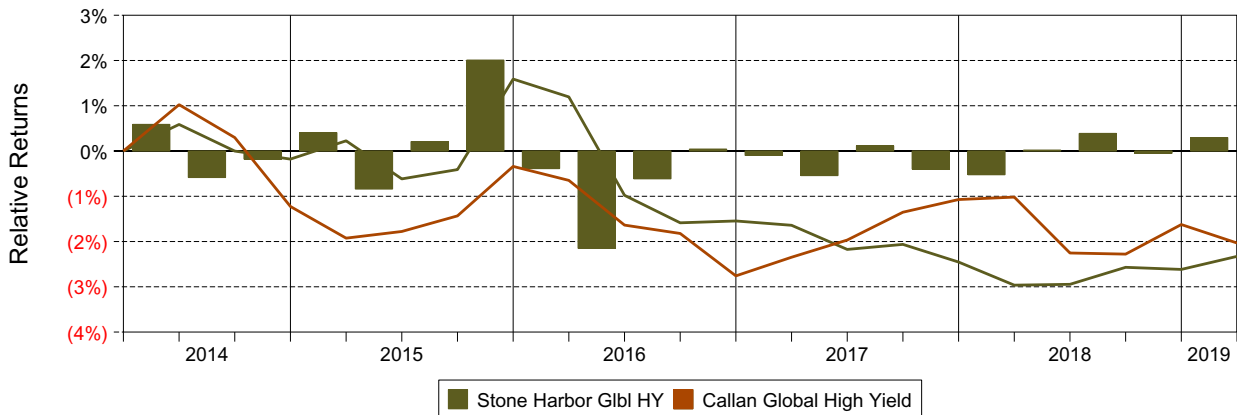
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

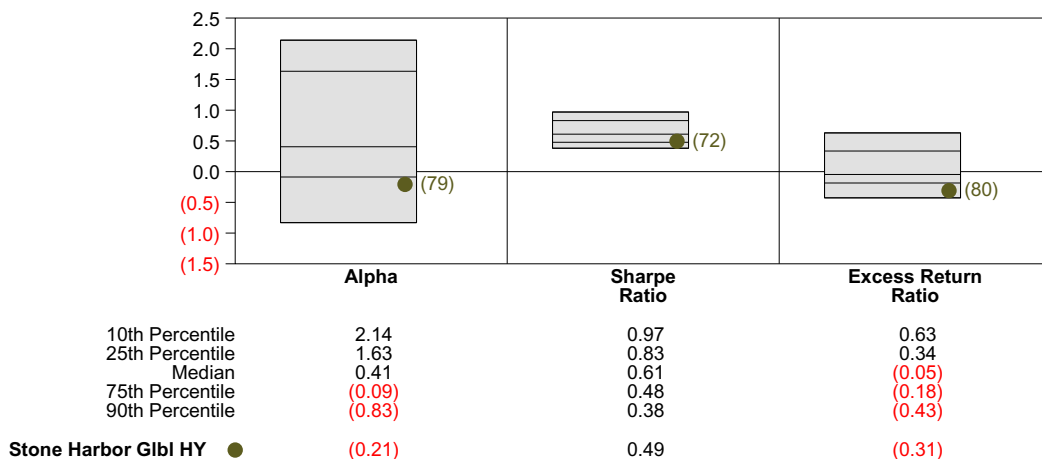
### Performance vs Callan Global Fixed High Yield (Gross)



### Cumulative and Quarterly Relative Return vs FTSE US High Yield



### Risk Adjusted Return Measures vs FTSE US High Yield Rankings Against Callan Global Fixed High Yield (Gross) Five Years Ended March 31, 2019

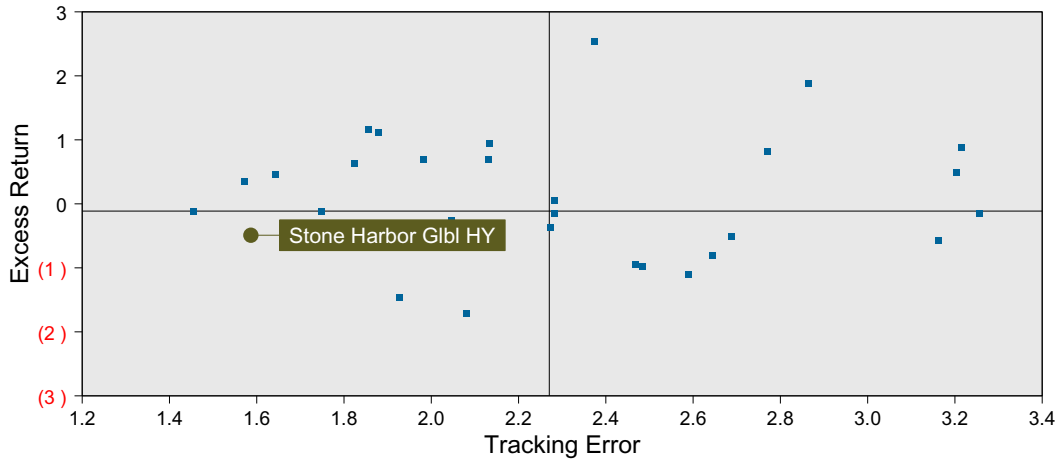


# Stone Harbor Gbl HY Risk Analysis Summary

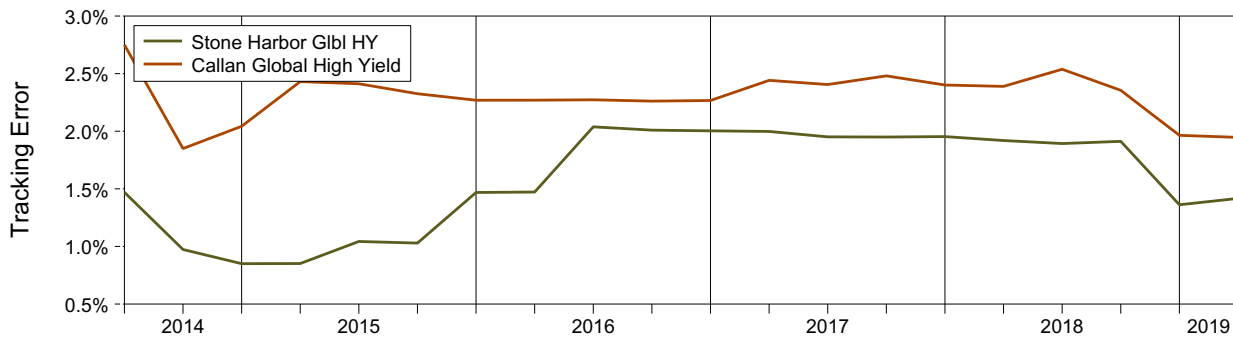
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

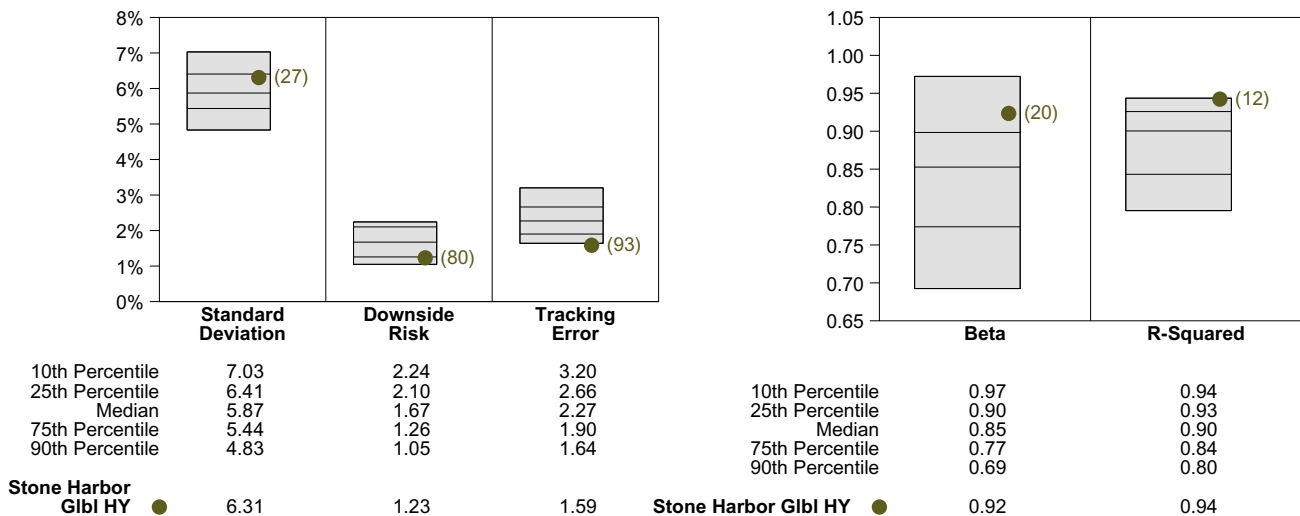
### Risk Analysis vs Callan Global Fixed High Yield (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs FTSE US High Yield Market



### Risk Statistics Rankings vs FTSE US High Yield Market Rankings Against Callan Global Fixed High Yield (Gross) Five Years Ended March 31, 2019



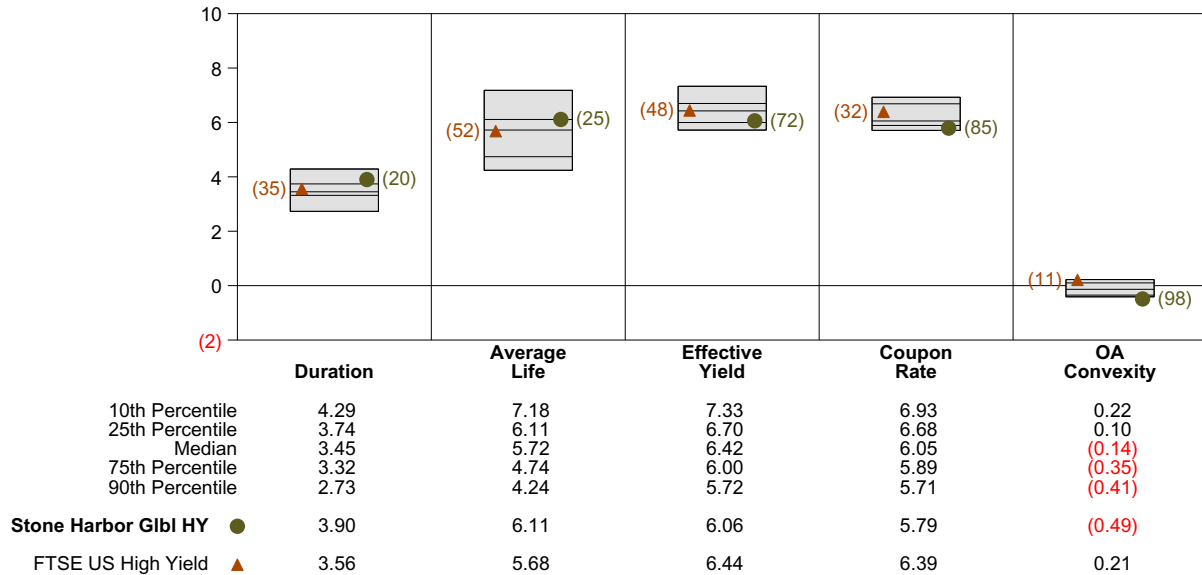


# Stone Harbor Gbl HY Bond Characteristics Analysis Summary

## Portfolio Characteristics

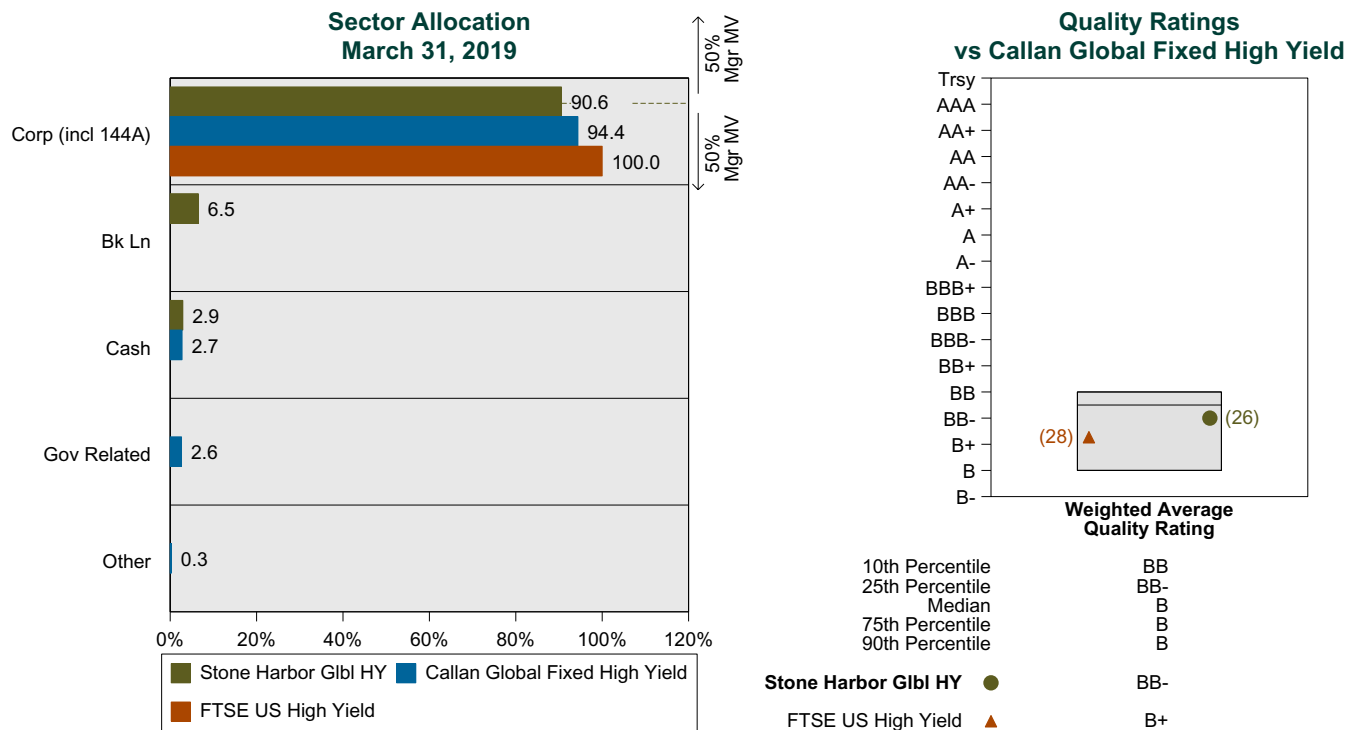
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Global Fixed High Yield as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



# Stone Harbor Gbl HY Portfolio Characteristics Summary As of March 31, 2019

## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

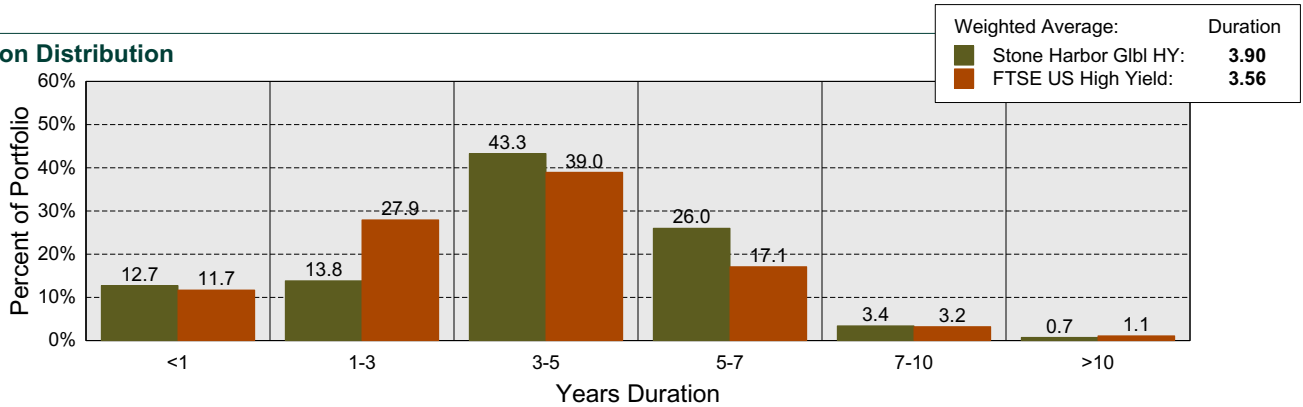
### Sector Allocation



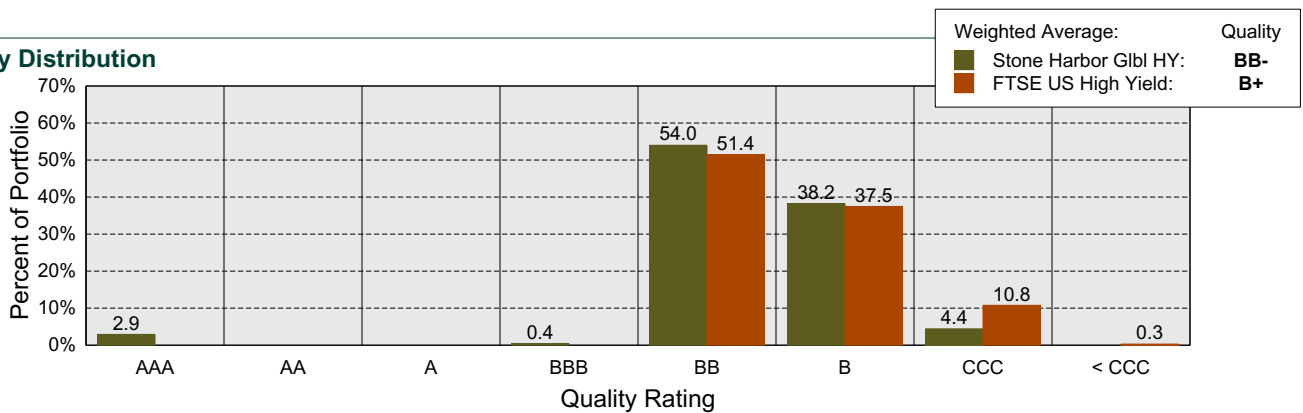
### Stone Harbor Gbl HY

### FTSE US High Yield

#### Duration Distribution



#### Quality Distribution





# Brown Brothers TIPS Period Ended March 31, 2019

## Investment Philosophy

The BBH U.S. TIPS strategy seeks to capture a range of fundamentally-based and technically-based opportunities in the inflation-indexed securities market.

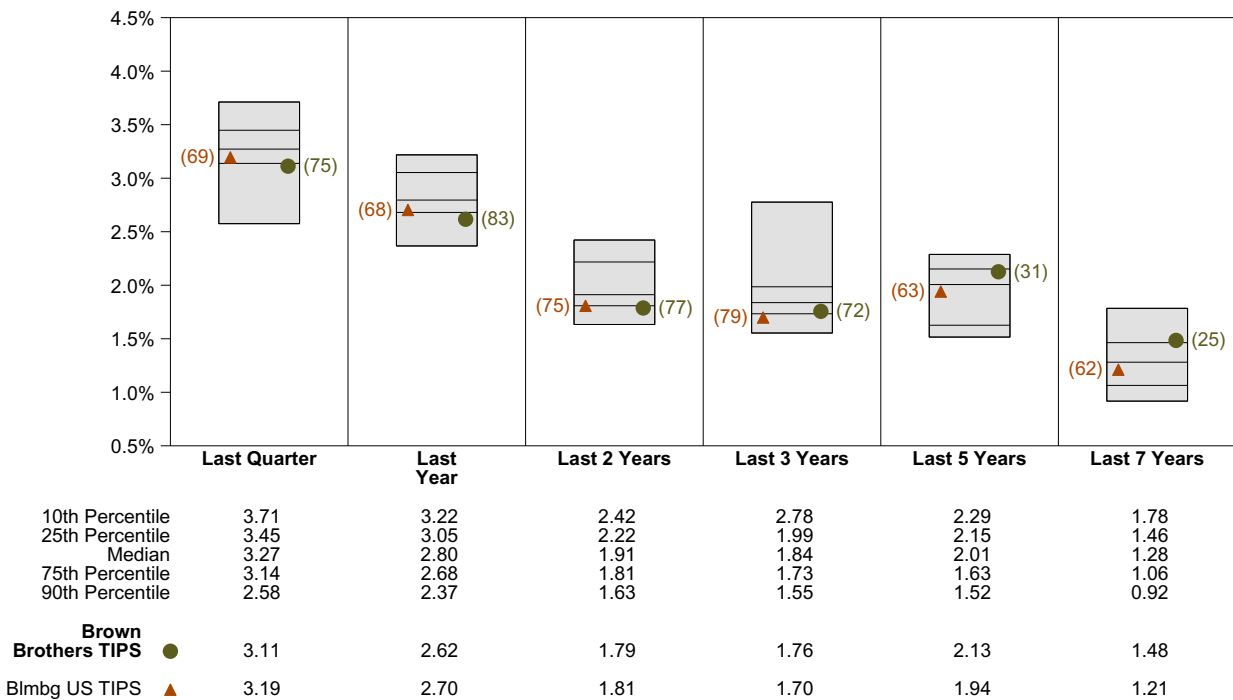
## Quarterly Summary and Highlights

- Brown Brothers TIPS's portfolio posted a 3.11% return for the quarter placing it in the 75 percentile of the Callan Inflation Linked Bonds group for the quarter and in the 83 percentile for the last year.
- Brown Brothers TIPS's portfolio underperformed the Blmbg US TIPS by 0.08% for the quarter and underperformed the Blmbg US TIPS for the year by 0.09%.

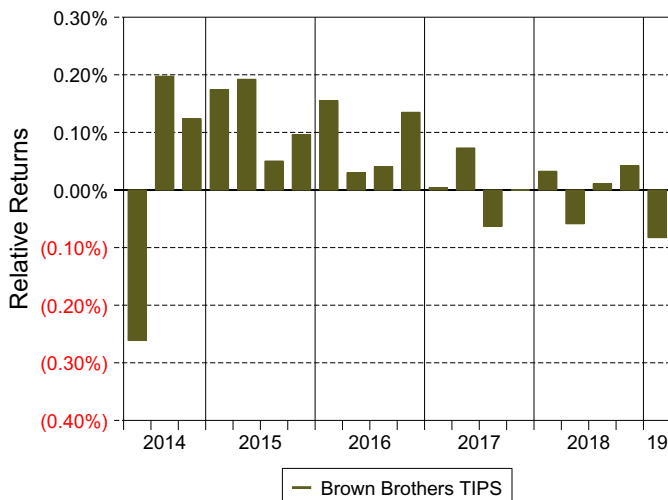
## Quarterly Asset Growth

Beginning Market Value	\$213,673,312
Net New Investment	\$-65,654
Investment Gains/(Losses)	\$6,649,154
Ending Market Value	\$220,256,812

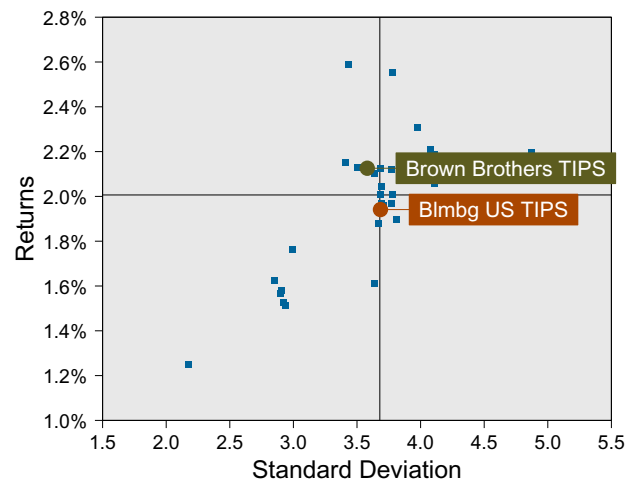
## Performance vs Callan Inflation Linked Bonds (Gross)



## Relative Return vs Blmbg US TIPS



## Callan Inflation Linked Bonds (Gross) Annualized Five Year Risk vs Return

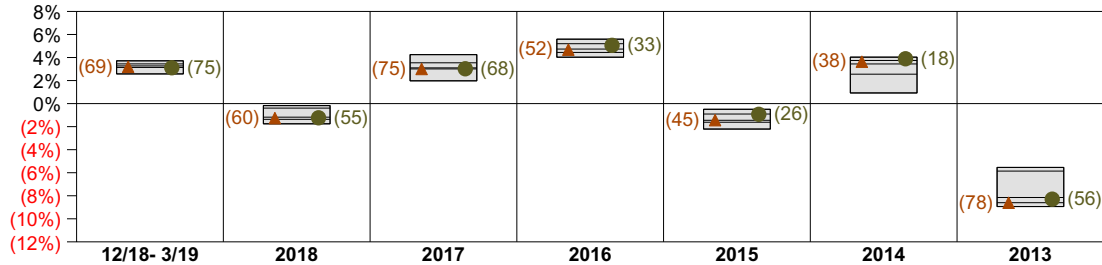


# Brown Brothers TIPS Return Analysis Summary

## Return Analysis

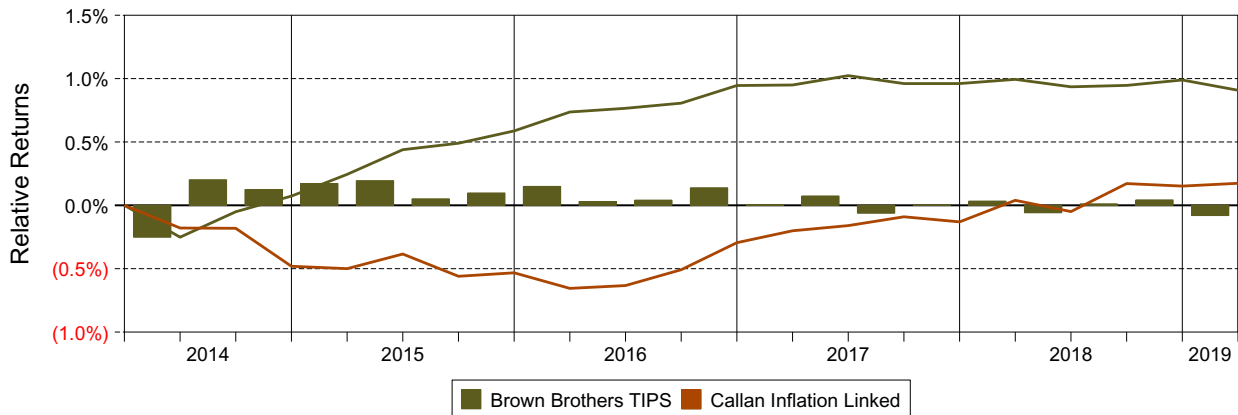
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

### Performance vs Callan Inflation Linked Bonds (Gross)

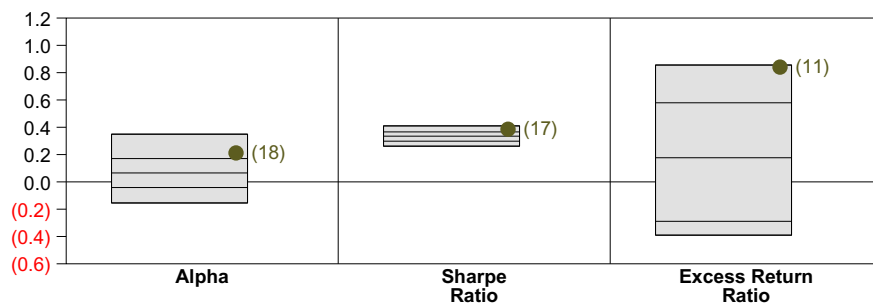


10th Percentile	3.71	(0.17)	4.25	5.59	(0.49)	4.03	(5.54)
25th Percentile	3.45	(0.39)	3.54	5.20	(0.91)	3.74	(5.86)
Median	3.27	(1.18)	3.10	4.73	(1.45)	3.44	(8.15)
75th Percentile	3.14	(1.37)	3.01	4.44	(1.62)	2.55	(8.60)
90th Percentile	2.58	(1.76)	1.98	4.03	(2.21)	0.92	(8.94)
<b>Brown Brothers TIPS</b>	● 3.11	(1.23)	3.02	5.06	(0.93)	3.89	(8.30)
<b>Blmbg US TIPS</b>	▲ 3.19	(1.26)	3.01	4.68	(1.44)	3.64	(8.61)

### Cumulative and Quarterly Relative Return vs Blmbg US TIPS



### Risk Adjusted Return Measures vs Blmbg US TIPS Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019



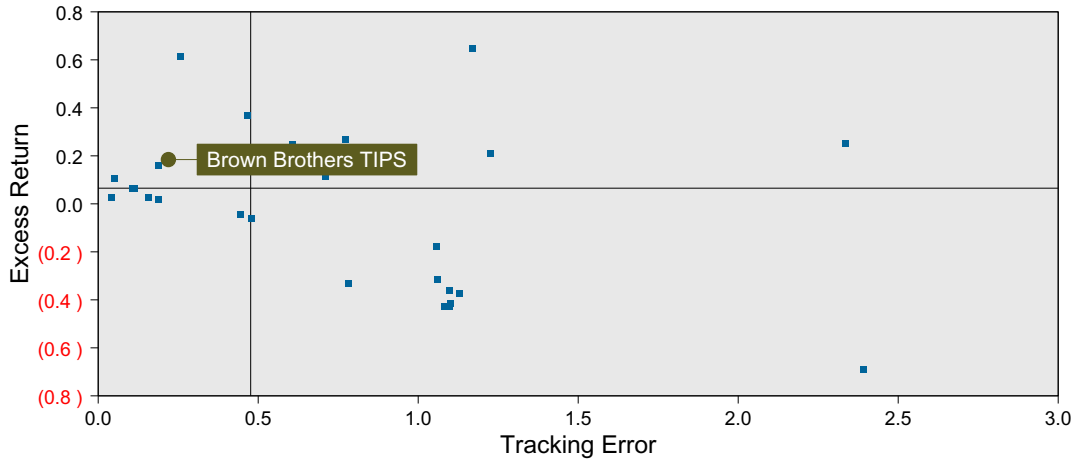
10th Percentile	0.35	0.41	0.86
25th Percentile	0.17	0.37	0.58
Median	0.07	0.33	0.18
75th Percentile	(0.04)	0.30	(0.29)
90th Percentile	(0.15)	0.26	(0.39)
<b>Brown Brothers TIPS</b>	● 0.21	0.39	0.84

# Brown Brothers TIPS Risk Analysis Summary

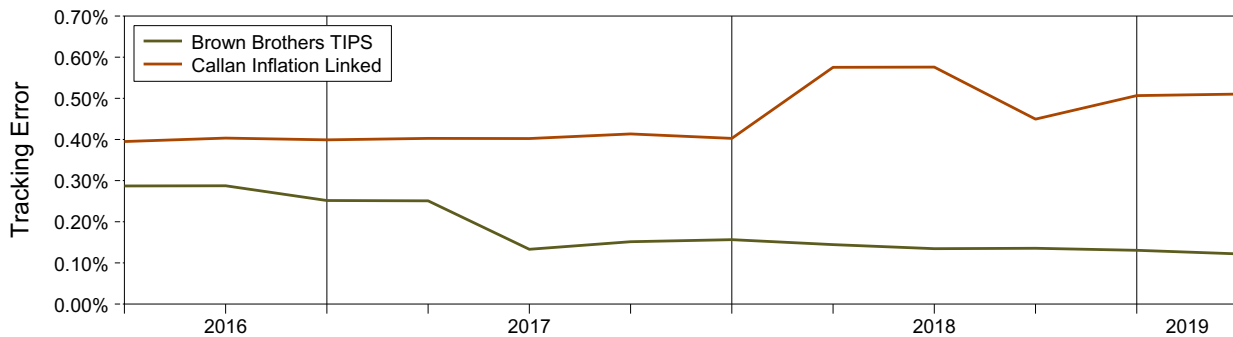
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

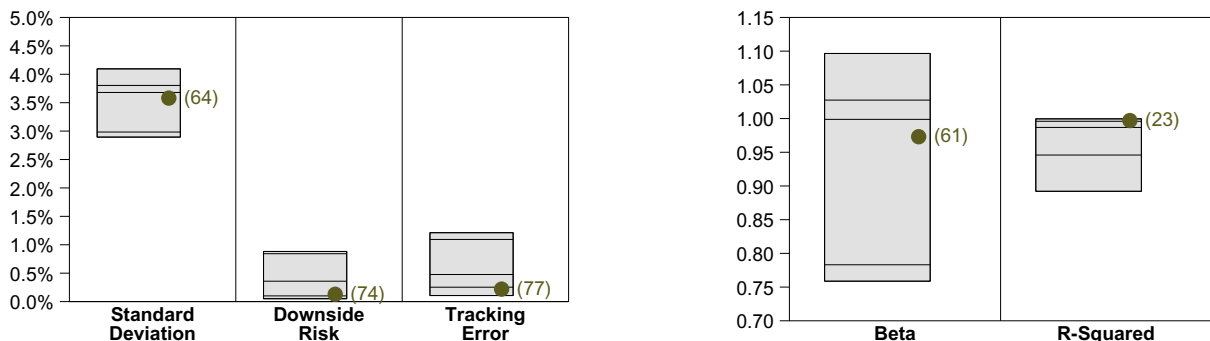
### Risk Analysis vs Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays US TIPS



### Risk Statistics Rankings vs Bloomberg Barclays US TIPS Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	4.10	0.88	1.21
25th Percentile	3.80	0.84	1.09
Median	3.68	0.36	0.48
75th Percentile	2.98	0.10	0.25
90th Percentile	2.89	0.05	0.11

	Beta	R-Squared
10th Percentile	1.10	1.00
25th Percentile	1.03	1.00
Median	1.00	0.99
75th Percentile	0.78	0.95
90th Percentile	0.76	0.89

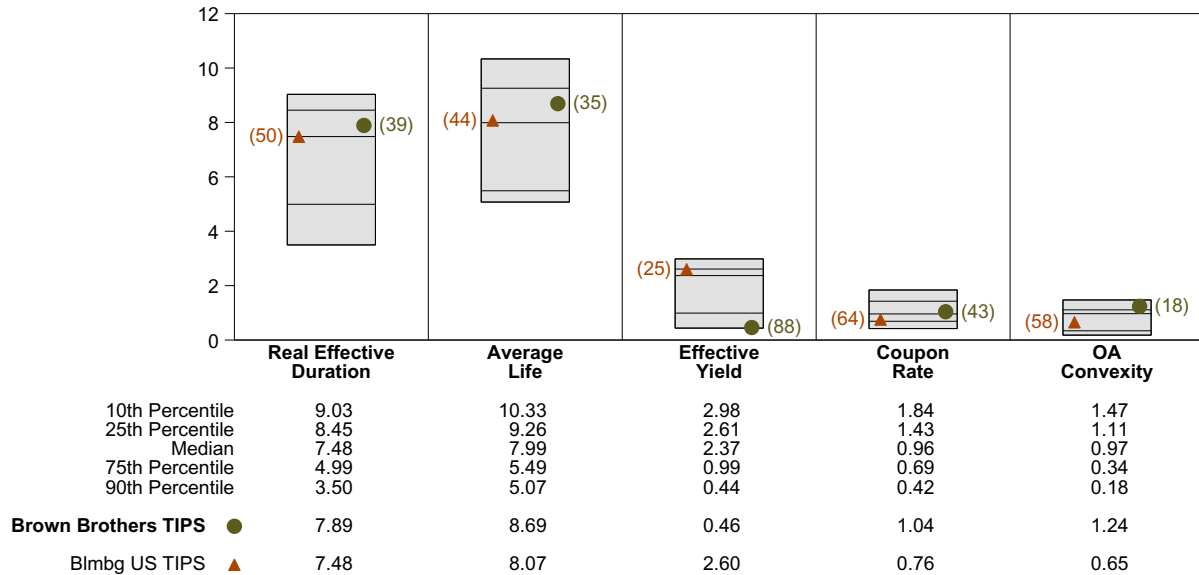
**Brown Brothers TIPS** ● 3.58      0.13      0.22      **Brown Brothers TIPS** ● 0.97      1.00

# Brown Brothers TIPS Bond Characteristics Analysis Summary

## Portfolio Characteristics

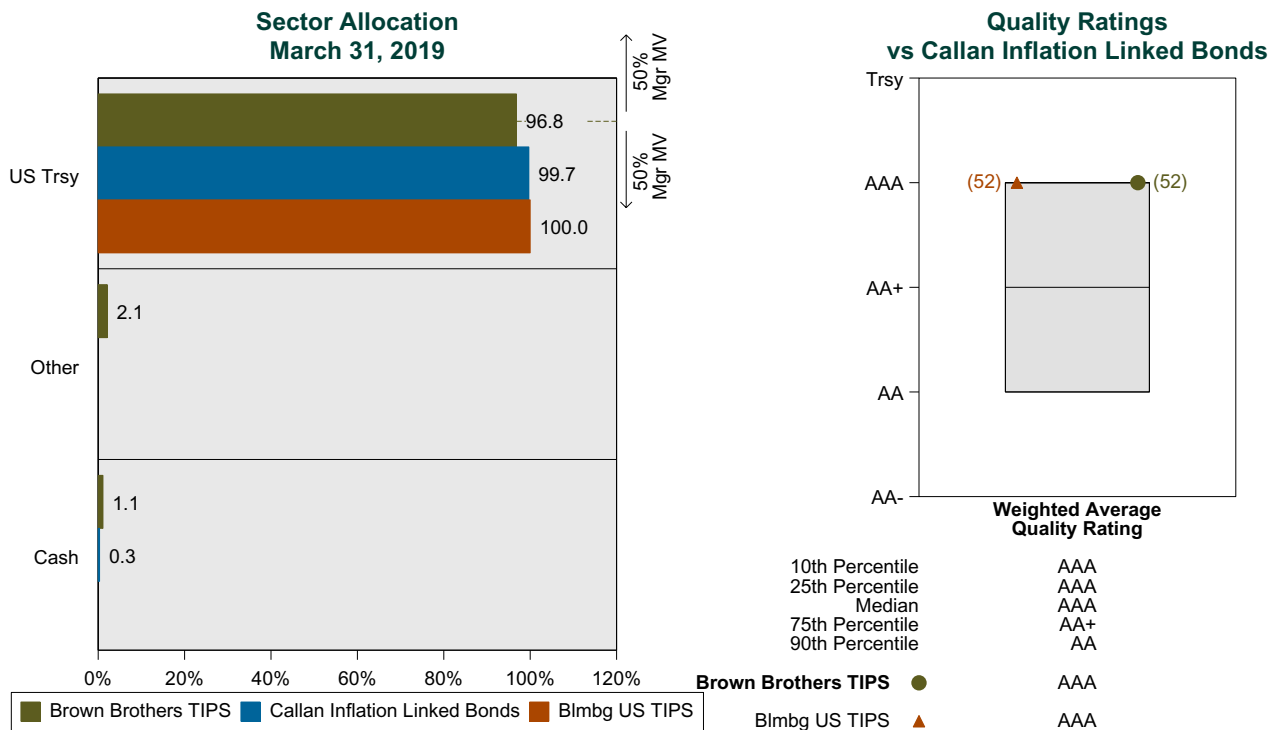
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



# Brown Brothers TIPS Portfolio Characteristics Summary As of March 31, 2019

## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

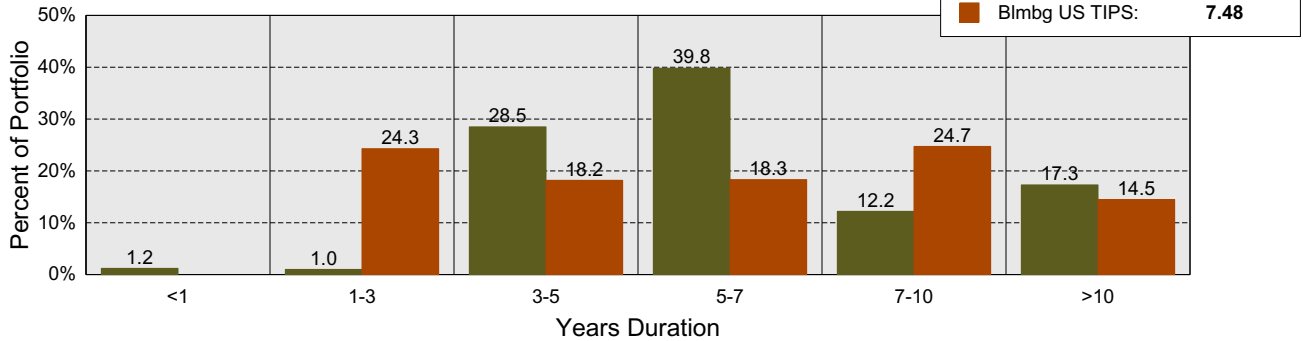
### Sector Allocation



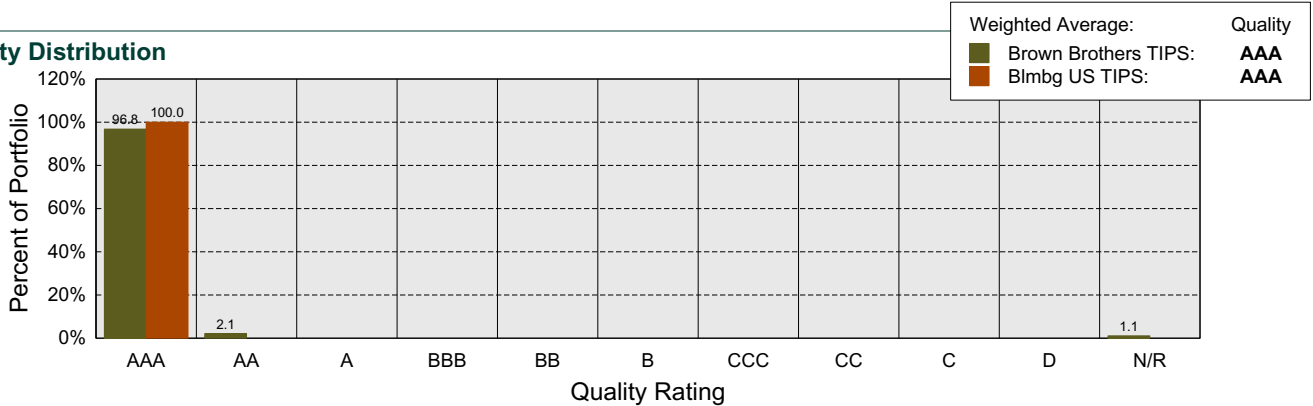
### Brown Brothers TIPS

### Blmbg US TIPS

#### Duration Distribution



#### Quality Distribution





# New Century Global TIPS Period Ended March 31, 2019

## Investment Philosophy

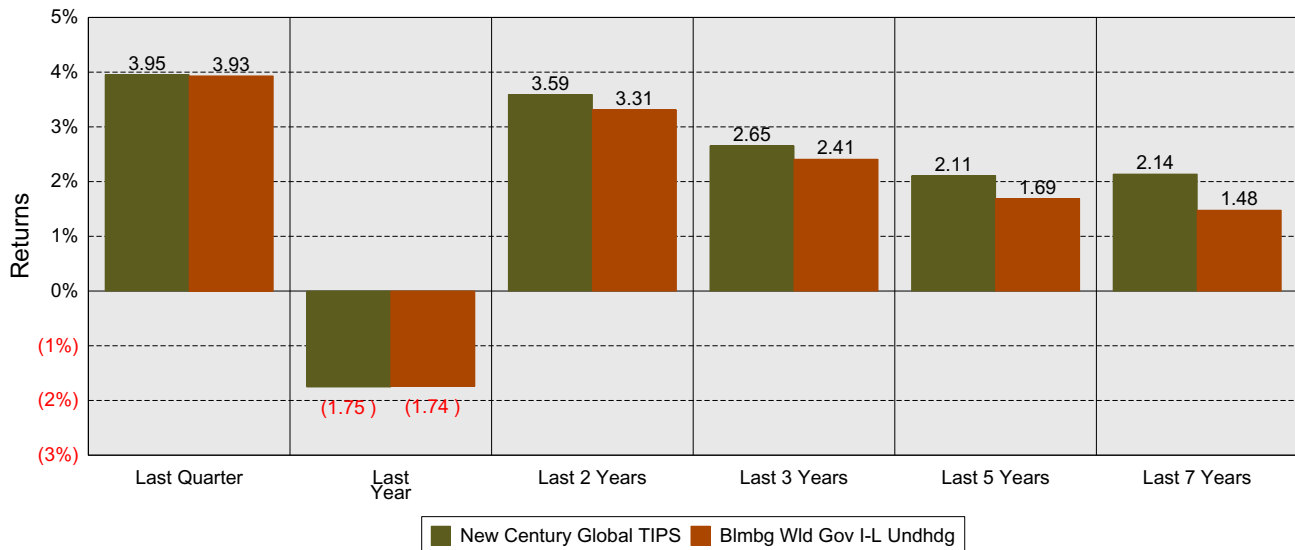
New Century Advisors believes there are five main sources of excess return that an active manager can capture in the Global Inflation Linked Bond Product: duration management, county selection, currency management, yield curve positioning, and nominal/linker relative value. New Century Advisors approach to adding value in each case is the same, a three pronged approach combining fundamental analysis, technical analysis and human judgment.

## Quarterly Summary and Highlights

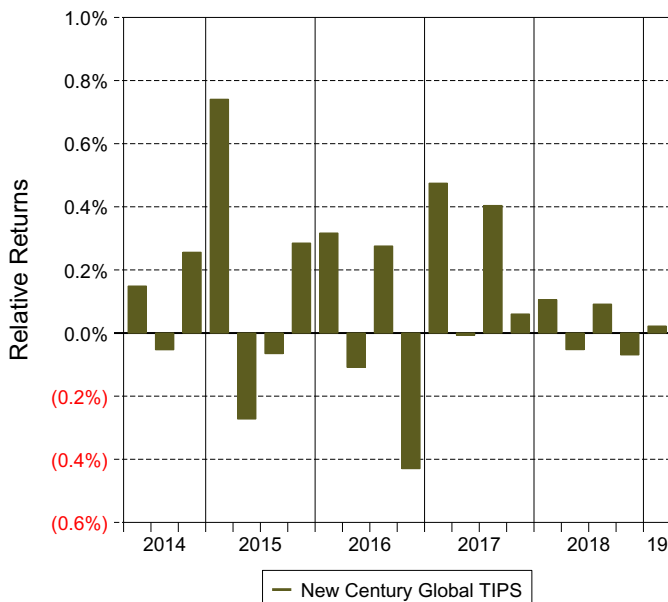
- New Century Global TIPS's portfolio posted a 3.95% return for the quarter placing it in the 1 percentile of the Callan Inflation Linked Bonds group for the quarter and in the 100 percentile for the last year.
- New Century Global TIPS's portfolio outperformed the Blmbg Wld Gov I-L Undhdg by 0.02% for the quarter and underperformed the Blmbg Wld Gov I-L Undhdg for the year by 0.01%.

## Quarterly Asset Growth

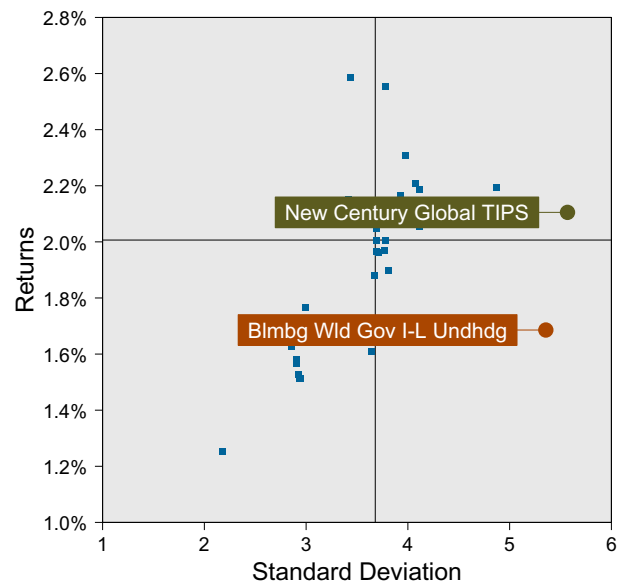
Beginning Market Value	\$110,956,406
Net New Investment	\$0
Investment Gains/(Losses)	\$4,385,174
Ending Market Value	\$115,341,580



Relative Return vs Blmbg Wld Gov I-L Undhdg



Callan Inflation Linked Bonds (Gross) Annualized Five Year Risk vs Return

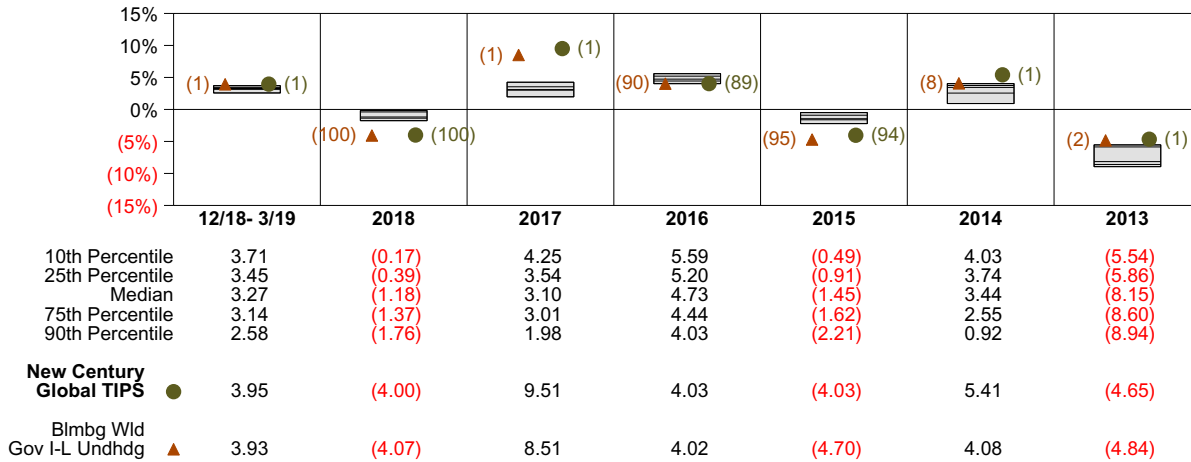


# New Century Global TIPS Return Analysis Summary

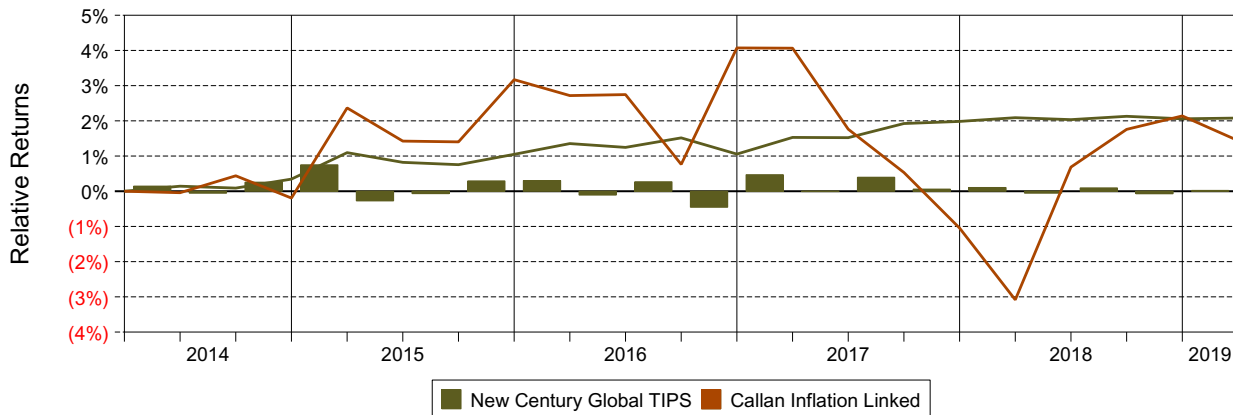
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

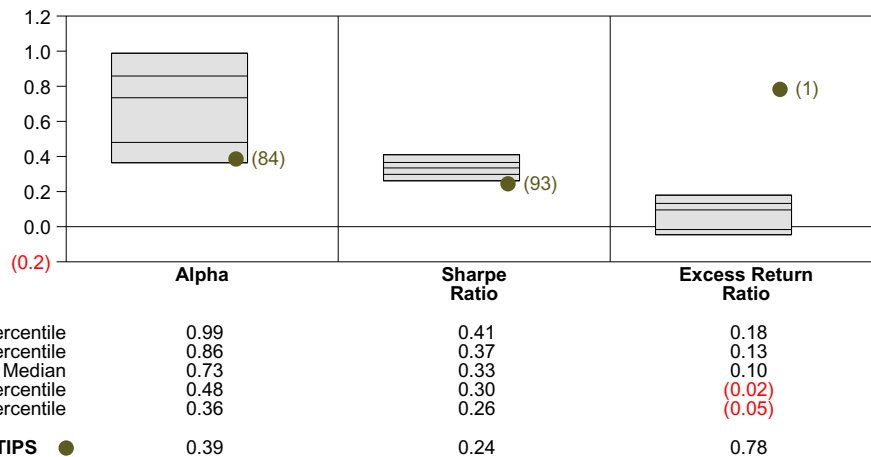
### Performance vs Callan Inflation Linked Bonds (Gross)



### Cumulative and Quarterly Relative Return vs Bimbg Wld Gov I-L Undhdg



### Risk Adjusted Return Measures vs Bimbg Wld Gov I-L Undhdg Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019

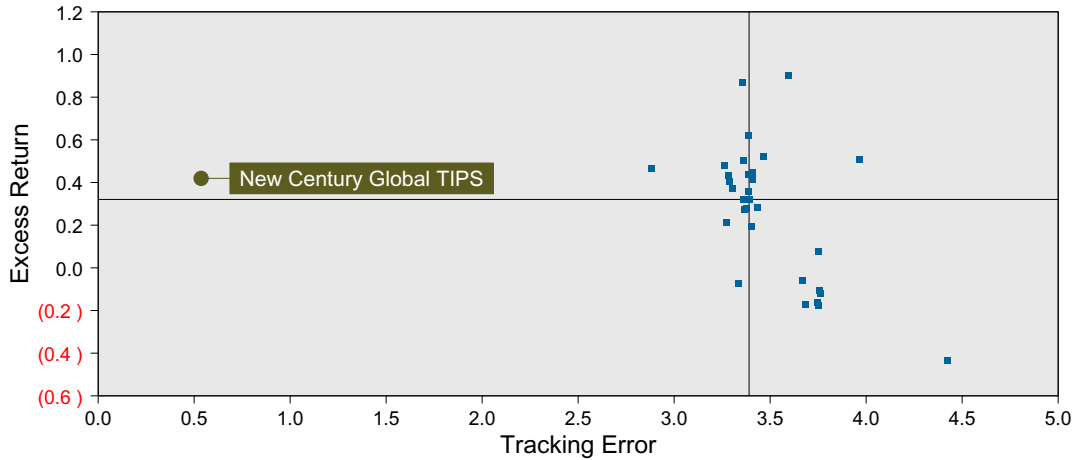


# New Century Global TIPS Risk Analysis Summary

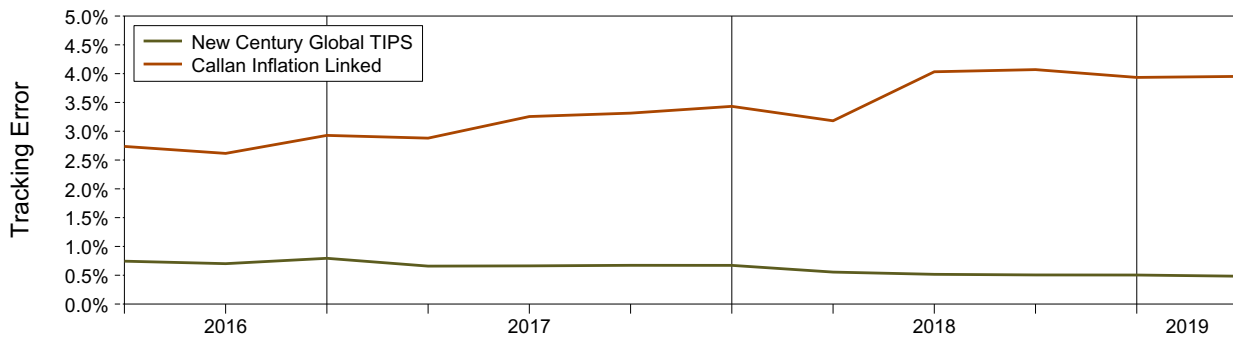
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

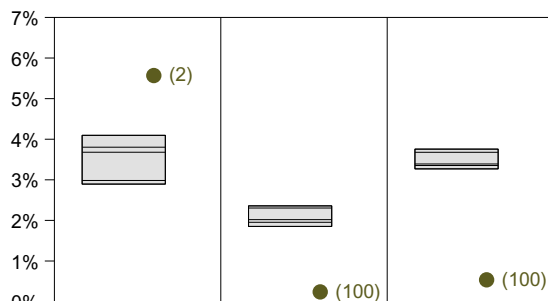
### Risk Analysis vs Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays Wid Gov Inf Lnk Unhdg

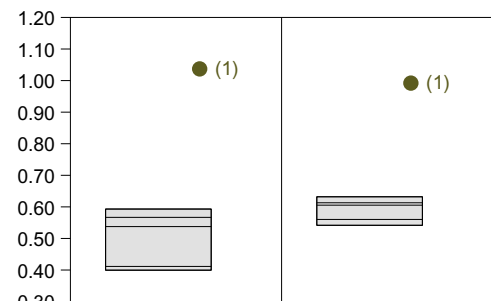


### Risk Statistics Rankings vs Bloomberg Barclays Wid Gov Inf Lnk Unhdg Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	4.10	2.36	3.76
25th Percentile	3.80	2.30	3.68
Median	3.68	2.02	3.39
75th Percentile	2.98	1.95	3.35
90th Percentile	2.89	1.85	3.27

**New Century Global TIPS** ● 5.57      0.24      0.54



	Beta	R-Squared
10th Percentile	0.59	0.63
25th Percentile	0.57	0.61
Median	0.54	0.61
75th Percentile	0.41	0.56
90th Percentile	0.40	0.54

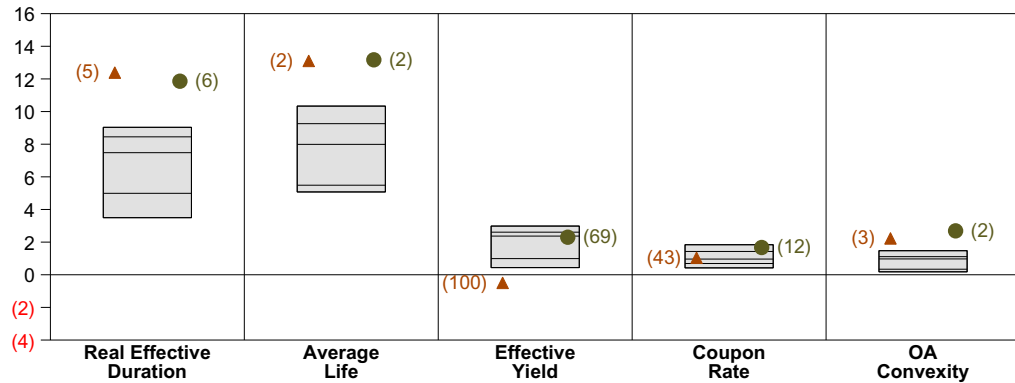
**New Century Global TIPS** ● 1.04      0.99

# New Century Global TIPS Bond Characteristics Analysis Summary

## Portfolio Characteristics

This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

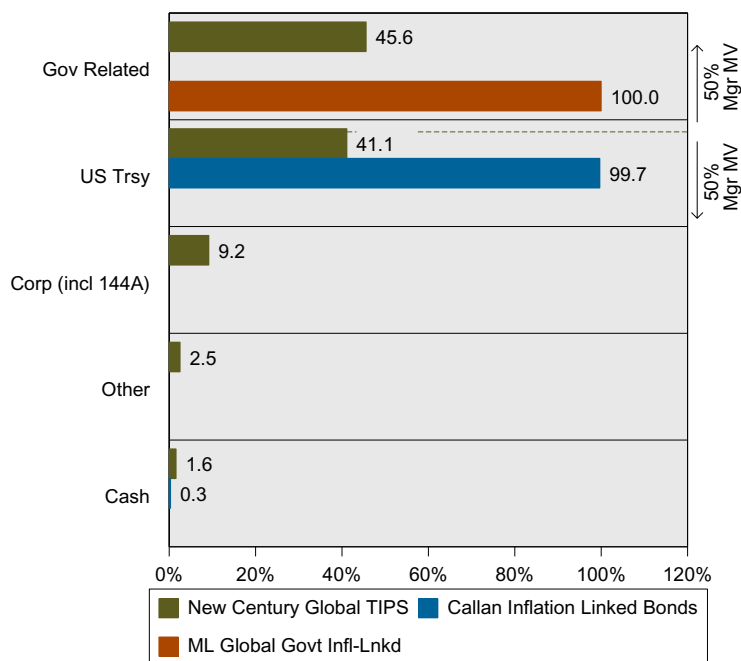
## Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of March 31, 2019



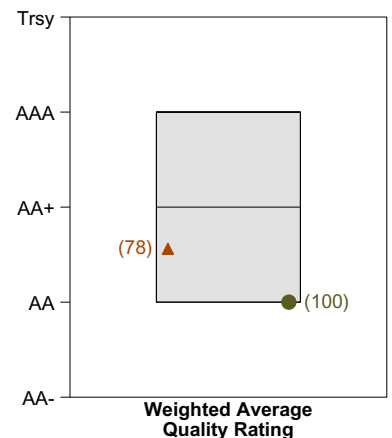
## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

### Sector Allocation March 31, 2019



### Quality Ratings vs Callan Inflation Linked Bonds



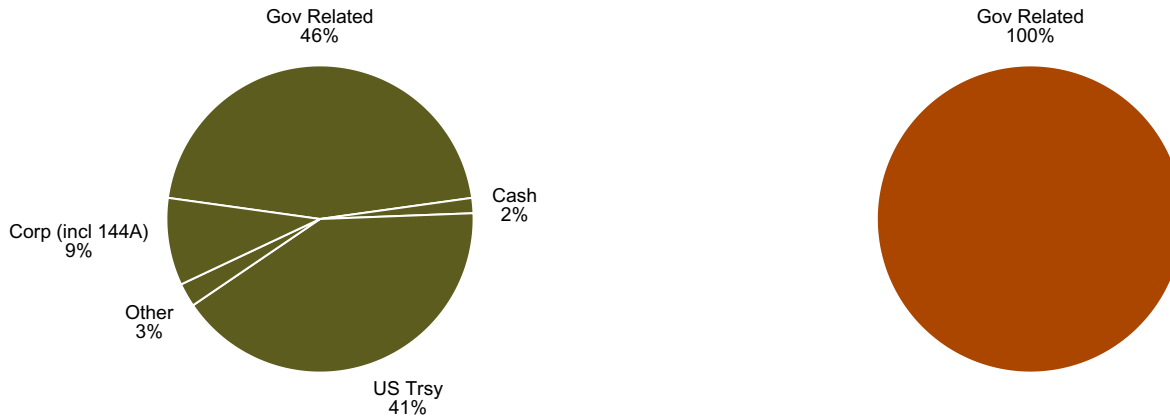
10th Percentile	AAA
25th Percentile	AAA
Median	AAA
75th Percentile	AA+
90th Percentile	AA
<b>New Century Global TIPS</b>	AA
<b>ML Global Govt Infl-Lnknd</b>	AA+

# New Century Global TIPS Portfolio Characteristics Summary As of March 31, 2019

## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

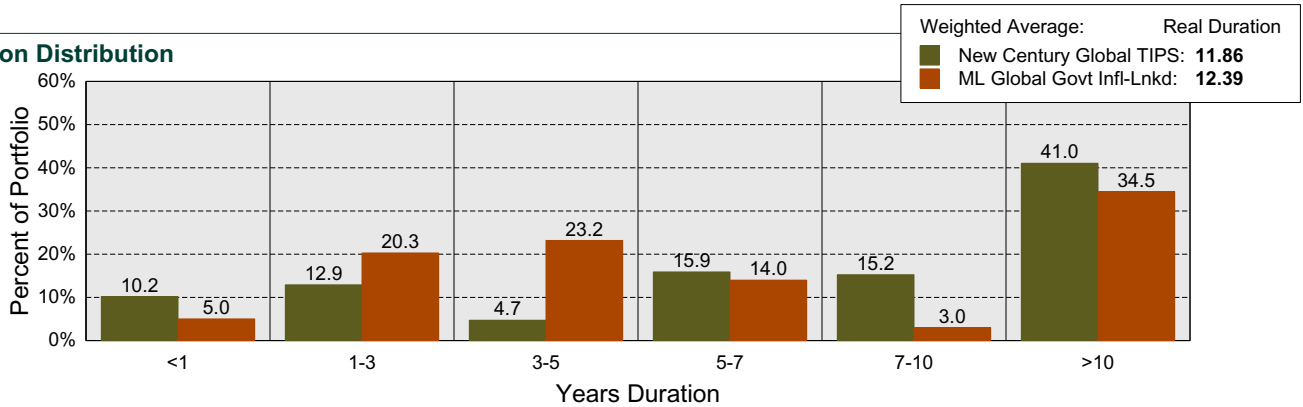
### Sector Allocation



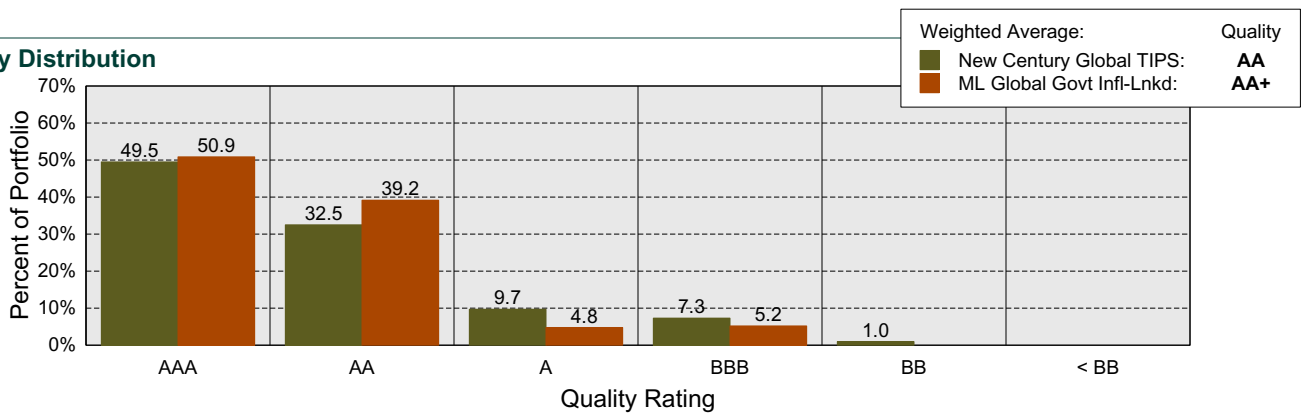
### New Century Global TIPS

### ML Global Govt Infi-Lnkd

#### Duration Distribution



#### Quality Distribution



# NISA Inv Adv TIPS Period Ended March 31, 2019

## Investment Philosophy

NISA believes that markets offer opportunities to capitalize on moderate inefficiencies for predictable gains. The team applies a fundamental approach and strategy to all fixed income portfolios, regardless of benchmark. Central to their investment philosophy is the following: practice active trading, hold high average credit quality, maintain tight duration collars, and avoid large exposure to any one entity.

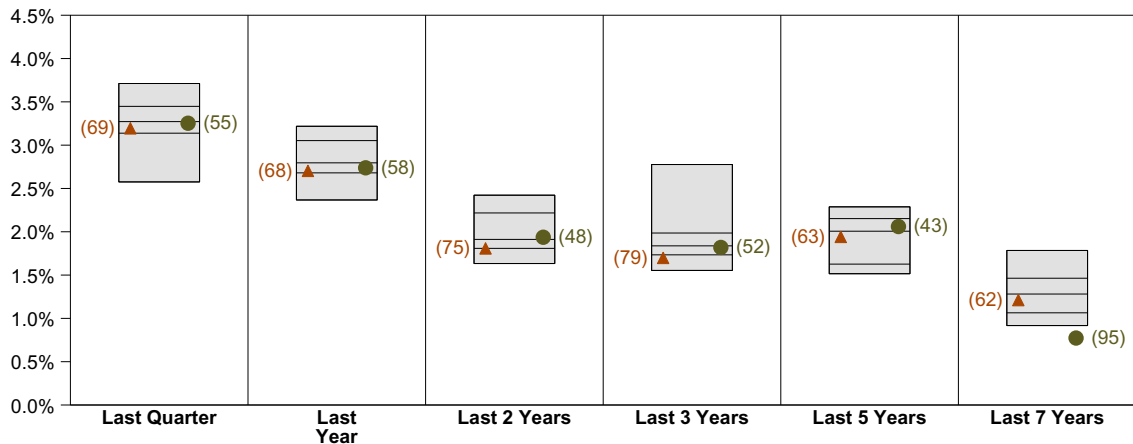
## Quarterly Summary and Highlights

- NISA Inv Adv TIPS's portfolio posted a 3.25% return for the quarter placing it in the 55 percentile of the Callan Inflation Linked Bonds group for the quarter and in the 58 percentile for the last year.
- NISA Inv Adv TIPS's portfolio outperformed the Blmbg US TIPS by 0.06% for the quarter and outperformed the Blmbg US TIPS for the year by 0.03%.

## Quarterly Asset Growth

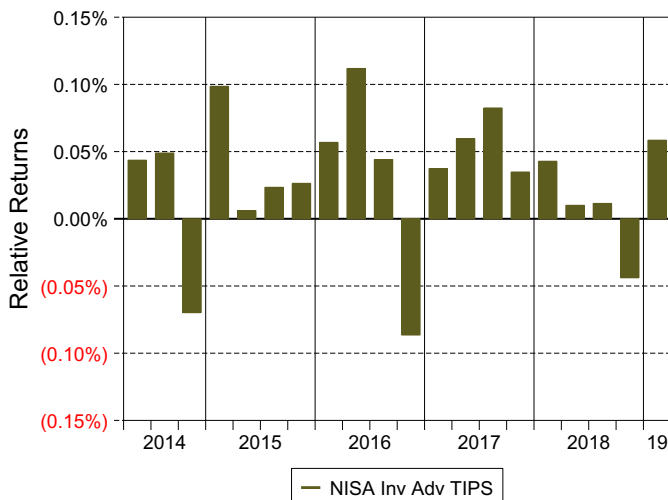
Beginning Market Value	\$481,117,975
Net New Investment	\$-121,432
Investment Gains/(Losses)	\$15,649,810
Ending Market Value	\$496,646,353

## Performance vs Callan Inflation Linked Bonds (Gross)

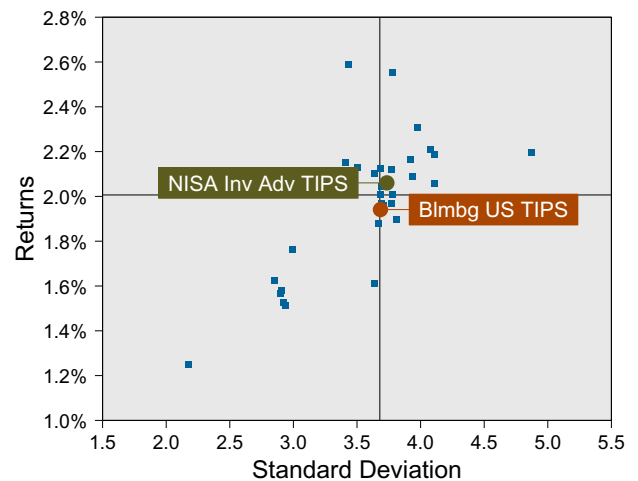


10th Percentile	3.71	3.22	2.42	2.78	2.29	1.78
25th Percentile	3.45	3.05	2.22	1.99	2.15	1.46
Median	3.27	2.80	1.91	1.84	2.01	1.28
75th Percentile	3.14	2.68	1.81	1.73	1.63	1.06
90th Percentile	2.58	2.37	1.63	1.55	1.52	0.92
<b>NISA Inv Adv TIPS</b>	<b>3.25</b>	<b>2.74</b>	<b>1.94</b>	<b>1.82</b>	<b>2.06</b>	<b>0.77</b>
<b>Blmbg US TIPS</b>	<b>3.19</b>	<b>2.70</b>	<b>1.81</b>	<b>1.70</b>	<b>1.94</b>	<b>1.21</b>

## Relative Return vs Blmbg US TIPS



## Callan Inflation Linked Bonds (Gross) Annualized Five Year Risk vs Return

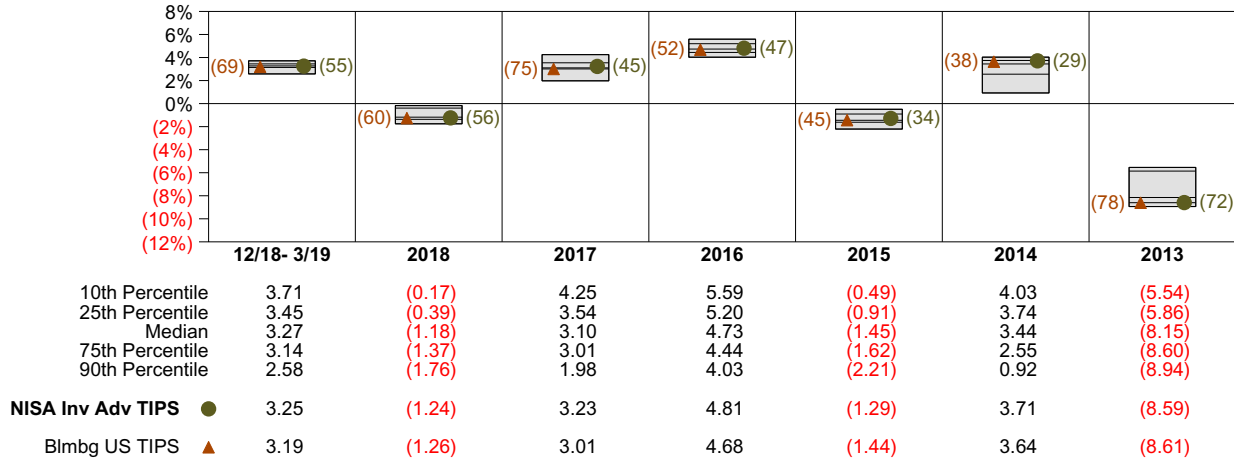


# NISA Inv Adv TIPS Return Analysis Summary

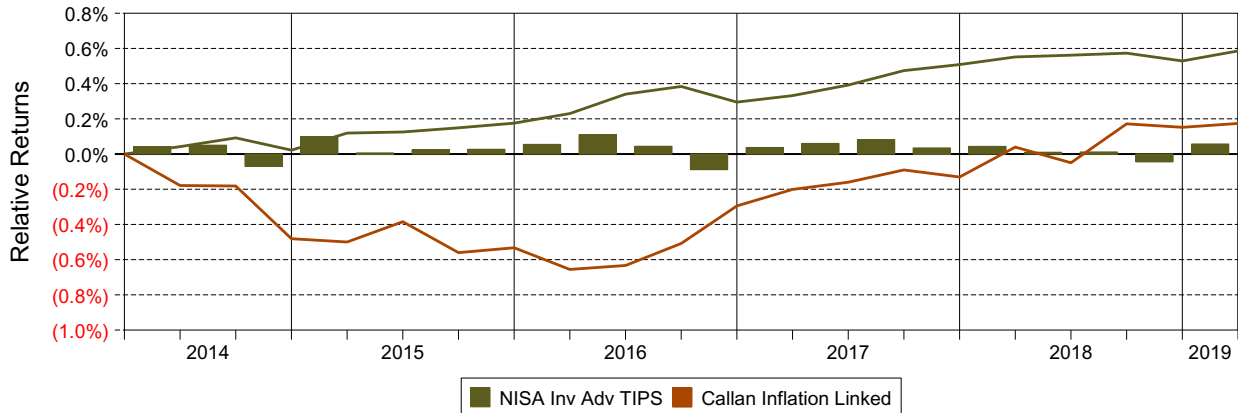
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

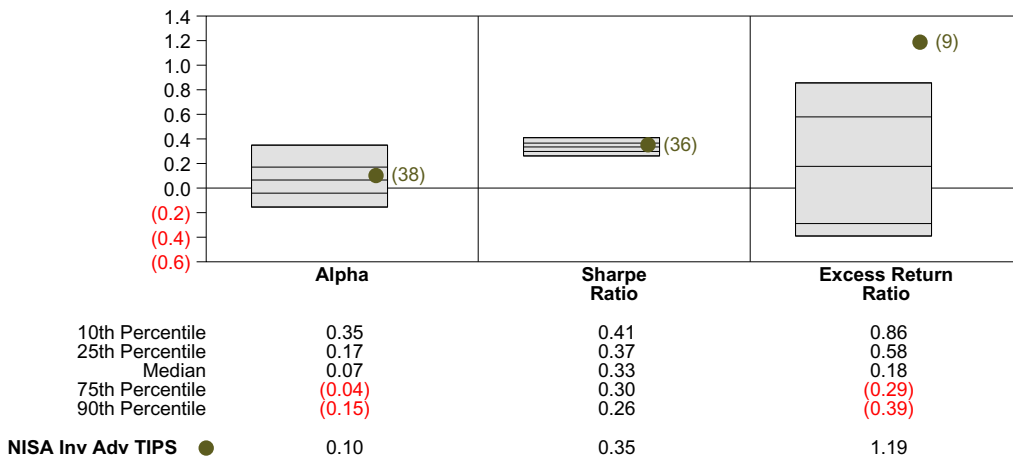
### Performance vs Callan Inflation Linked Bonds (Gross)



### Cumulative and Quarterly Relative Return vs Blmbg US TIPS



### Risk Adjusted Return Measures vs Blmbg US TIPS Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019

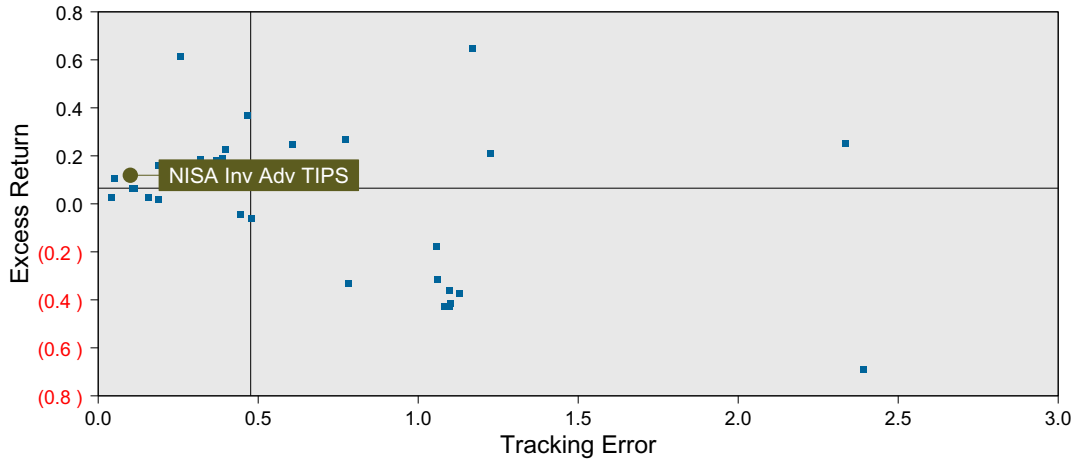


# NISA Inv Adv TIPS Risk Analysis Summary

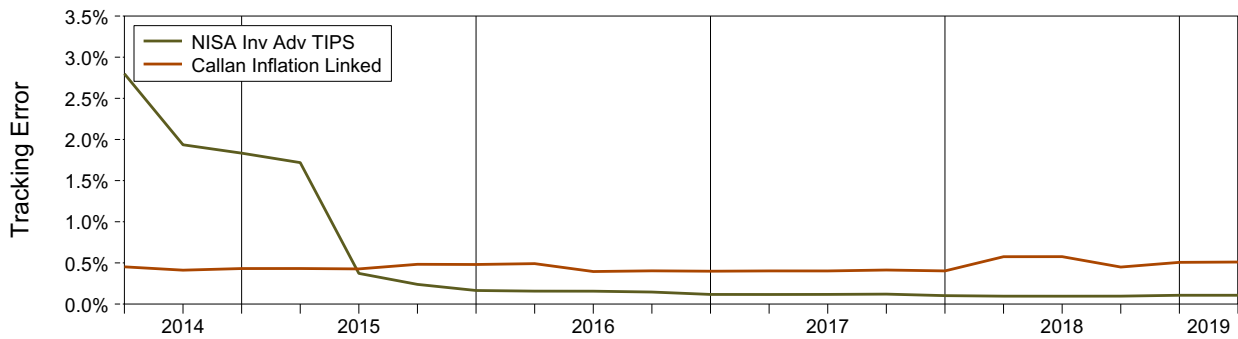
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

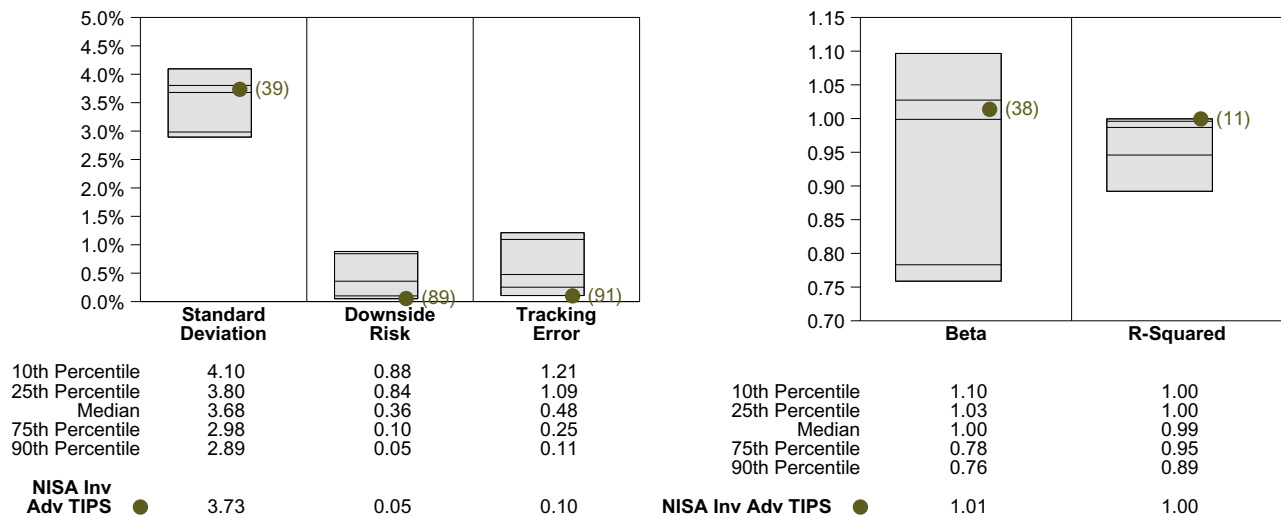
### Risk Analysis vs Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays US TIPS



### Risk Statistics Rankings vs Bloomberg Barclays US TIPS Rankings Against Callan Inflation Linked Bonds (Gross) Five Years Ended March 31, 2019



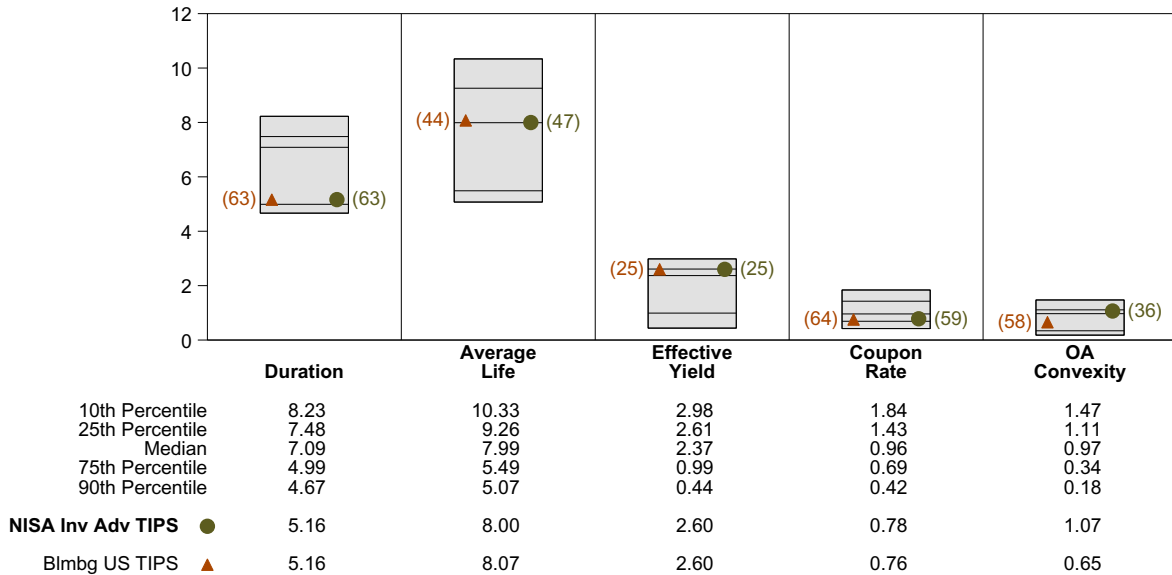


# NISA Inv Adv TIPS Bond Characteristics Analysis Summary

## Portfolio Characteristics

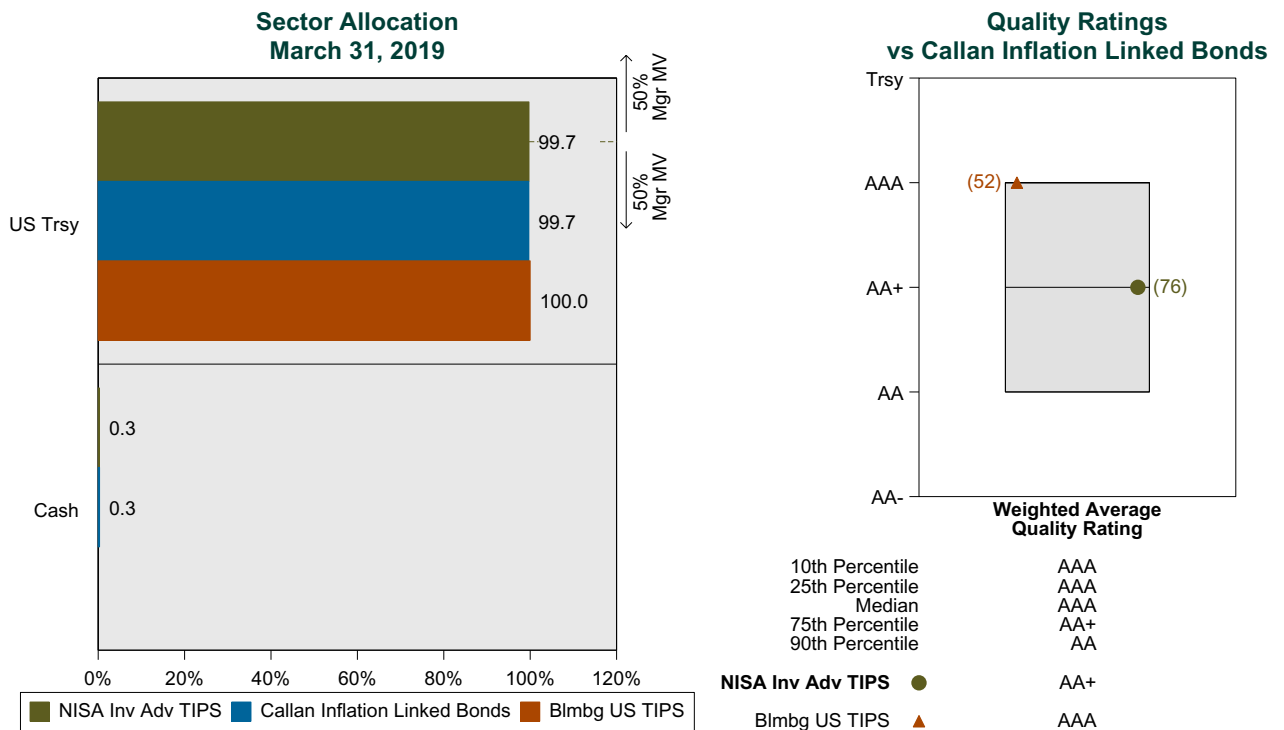
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

## Fixed Income Portfolio Characteristics Rankings Against Callan Inflation Linked Bonds as of March 31, 2019



## Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.



**NISA Inv Adv TIPS  
Portfolio Characteristics Summary  
As of March 31, 2019**

**Portfolio Structure Comparison**

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

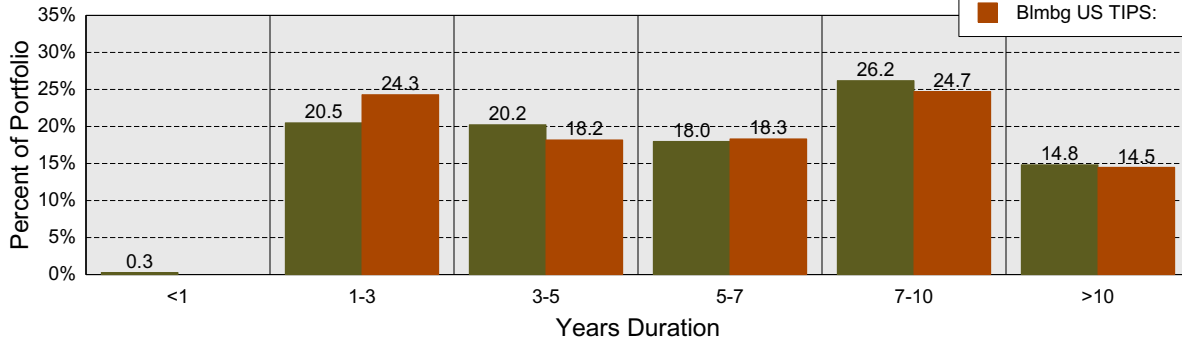
**Sector Allocation**



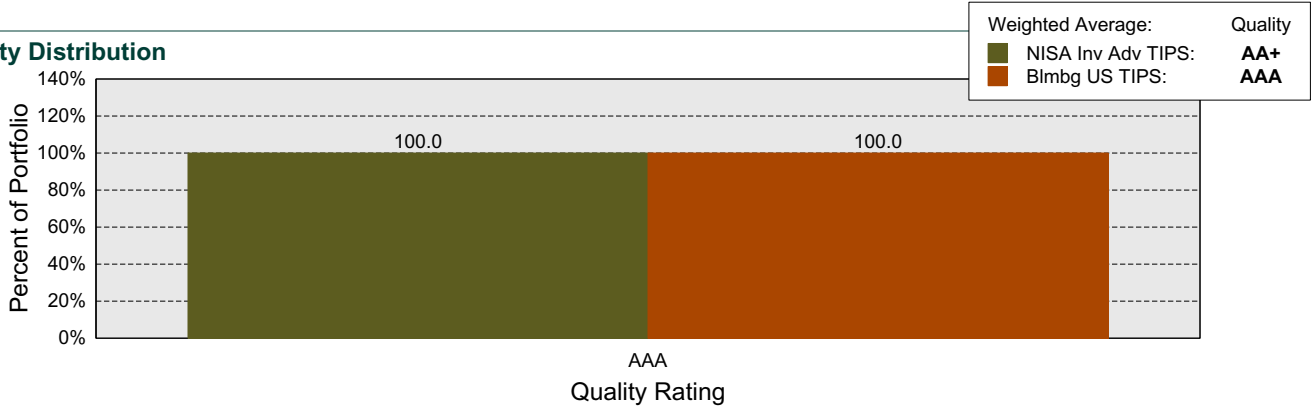
**NISA Inv Adv TIPS**

**Blmbg US TIPS**

**Duration Distribution**



**Quality Distribution**



# PIMCO US Treasuries

## Period Ended March 31, 2019

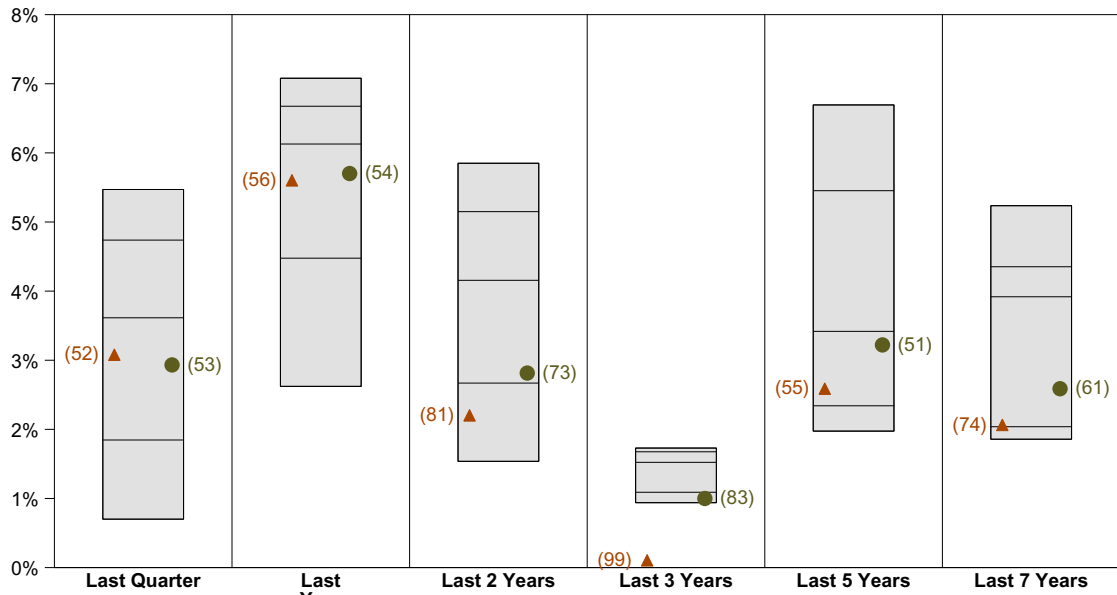
### Quarterly Summary and Highlights

- PIMCO US Treasuries's portfolio posted a 2.93% return for the quarter placing it in the 53 percentile of the Callan US Treas Bond Funds group for the quarter and in the 54 percentile for the last year.
- PIMCO US Treasuries's portfolio underperformed the Blmbg US Treas Bell 10Y by 0.15% for the quarter and outperformed the Blmbg US Treas Bell 10Y for the year by 0.10%.

### Quarterly Asset Growth

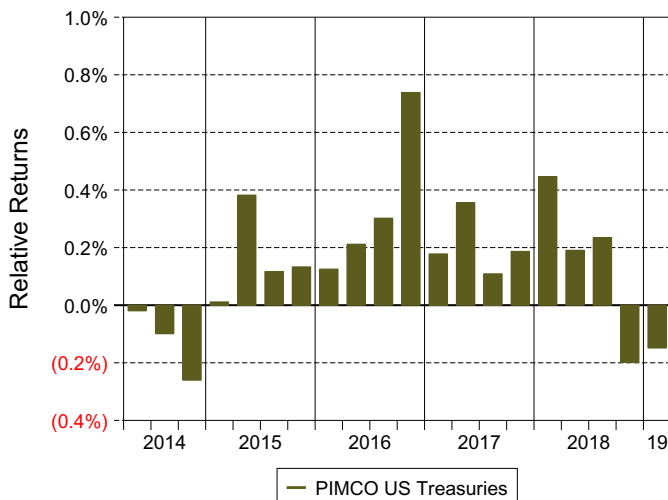
Beginning Market Value	\$548,757,727
Net New Investment	\$0
Investment Gains/(Losses)	\$16,090,126
Ending Market Value	\$564,847,853

### Performance vs Callan US Treas Bond Funds (Gross)

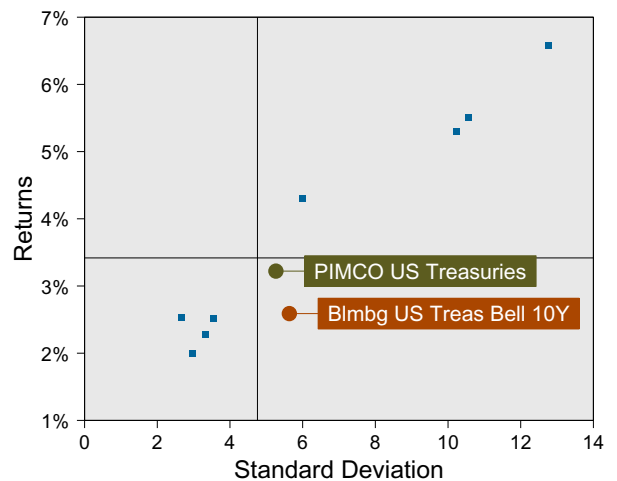


10th Percentile	5.47	7.08	5.85	1.73	6.69	5.24	
25th Percentile	4.74	6.67	5.15	1.68	5.45	4.35	
Median	3.61	6.13	4.16	1.52	3.42	3.92	
75th Percentile	1.85	4.48	2.67	1.09	2.34	2.04	
90th Percentile	0.70	2.62	1.54	0.94	1.97	1.86	
<b>PIMCO US Treasuries</b>	●	2.93	5.70	2.81	1.00	3.22	2.59
<b>Blmbg US Treas Bell 10Y</b>	▲	3.08	5.60	2.20	0.11	2.59	2.06

### Relative Return vs Blmbg US Treas Bell 10Y



### Callan US Treas Bond Funds (Gross) Annualized Five Year Risk vs Return

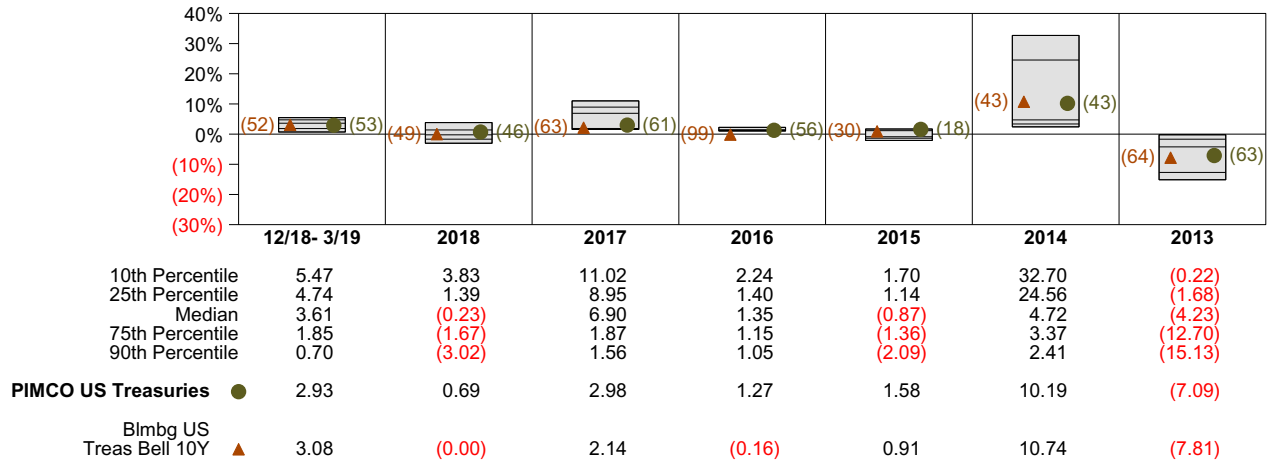


# PIMCO US Treasuries Return Analysis Summary

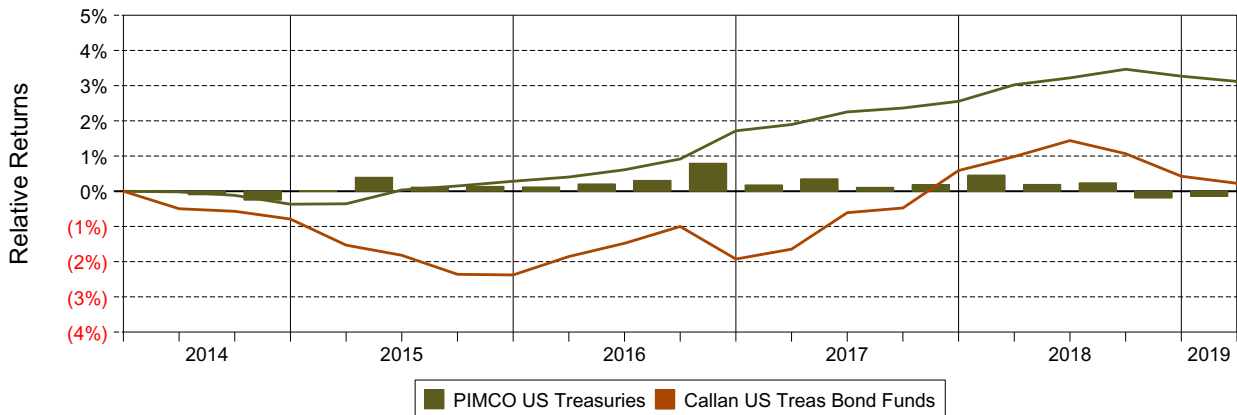
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

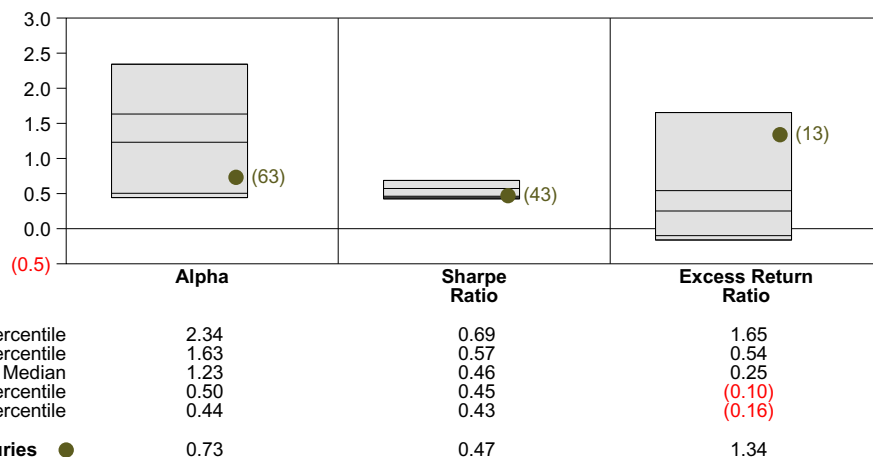
### Performance vs Callan US Treas Bond Funds (Gross)



### Cumulative and Quarterly Relative Return vs Bimbg US Treas Bell 10Y



### Risk Adjusted Return Measures vs Bimbg US Treas Bell 10Y Rankings Against Callan US Treas Bond Funds (Gross) Five Years Ended March 31, 2019

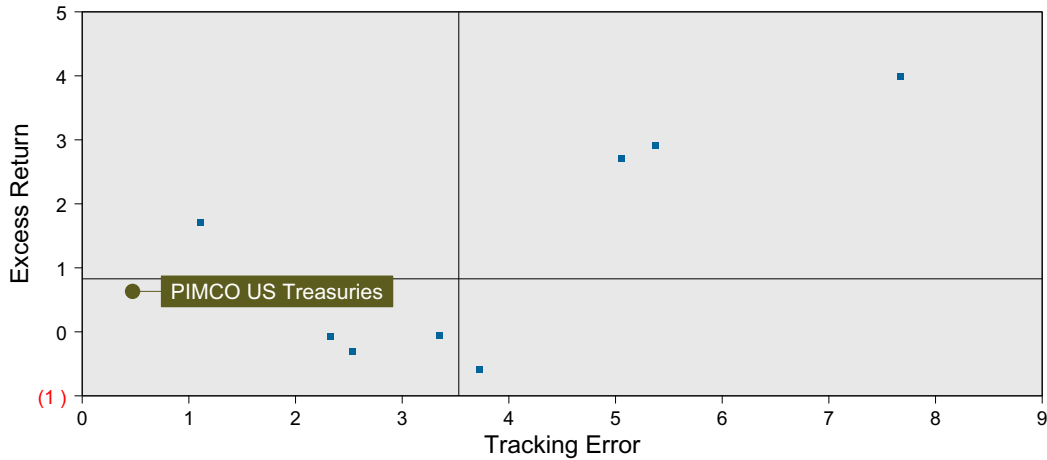


# PIMCO US Treasuries Risk Analysis Summary

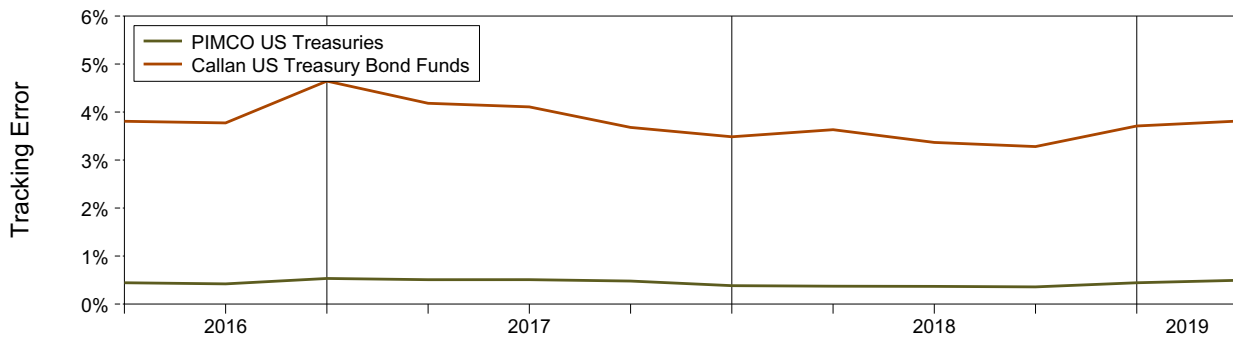
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

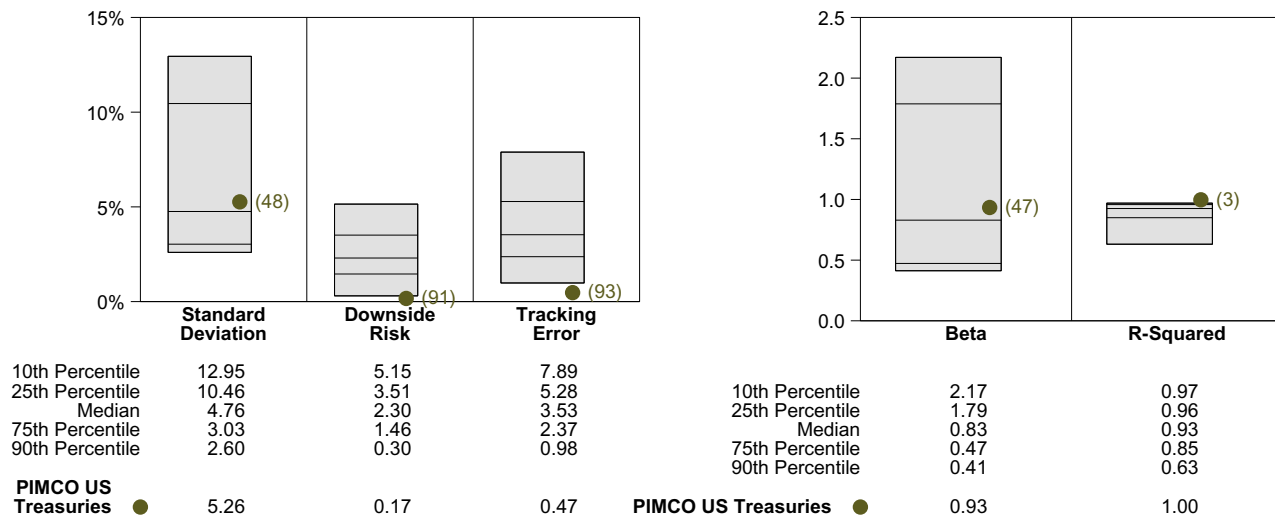
### Risk Analysis vs Callan US Treasury Bond Funds (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs Bloomberg Barclays US Treas Bellwthr 10Y



### Risk Statistics Rankings vs Bloomberg Barclays US Treas Bellwthr 10Y Rankings Against Callan US Treasury Bond Funds (Gross) Five Years Ended March 31, 2019



# PIMCO US Treasuries Portfolio Characteristics Summary As of March 31, 2019

## Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

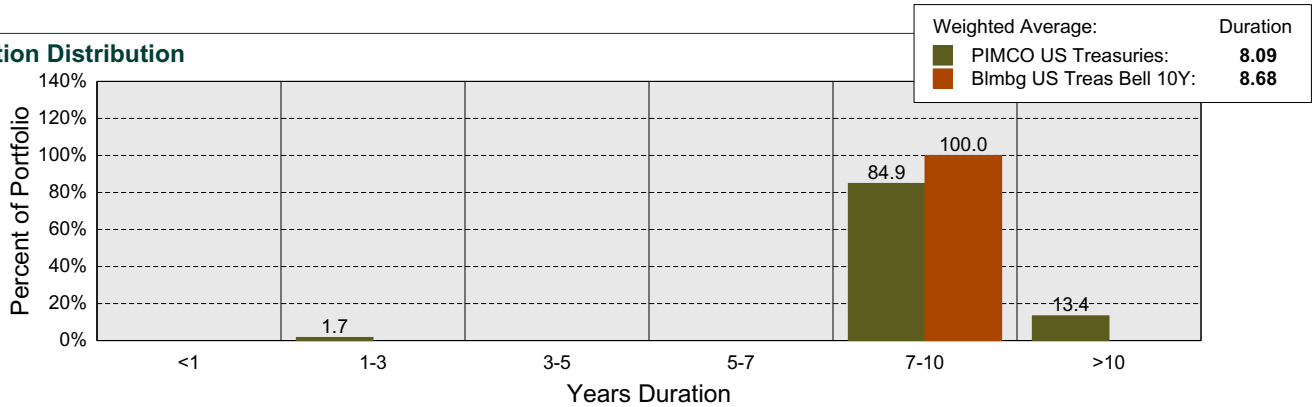
### Sector Allocation



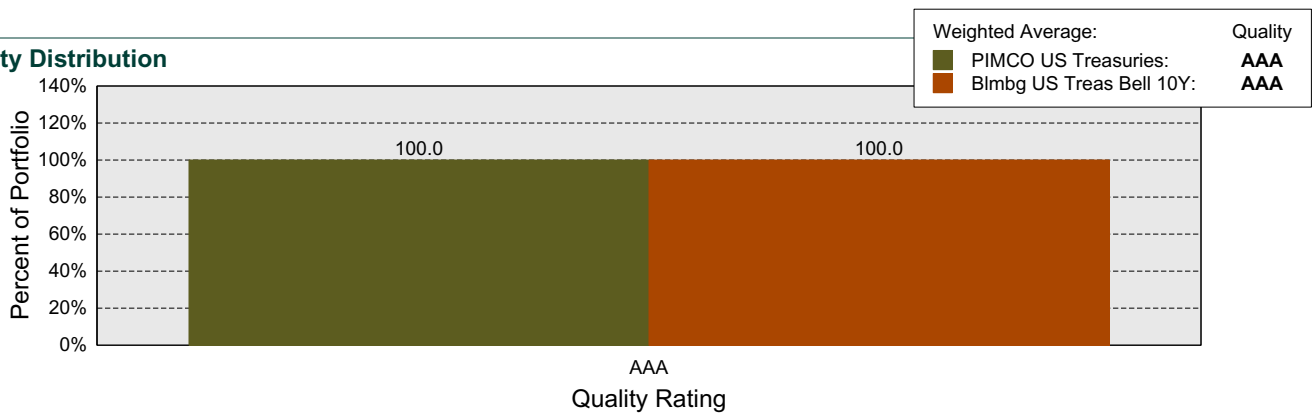
### PIMCO US Treasuries

### Blmbg US Treas Bell 10Y

#### Duration Distribution



#### Quality Distribution





# Multi-Strategy Period Ended March 31, 2019

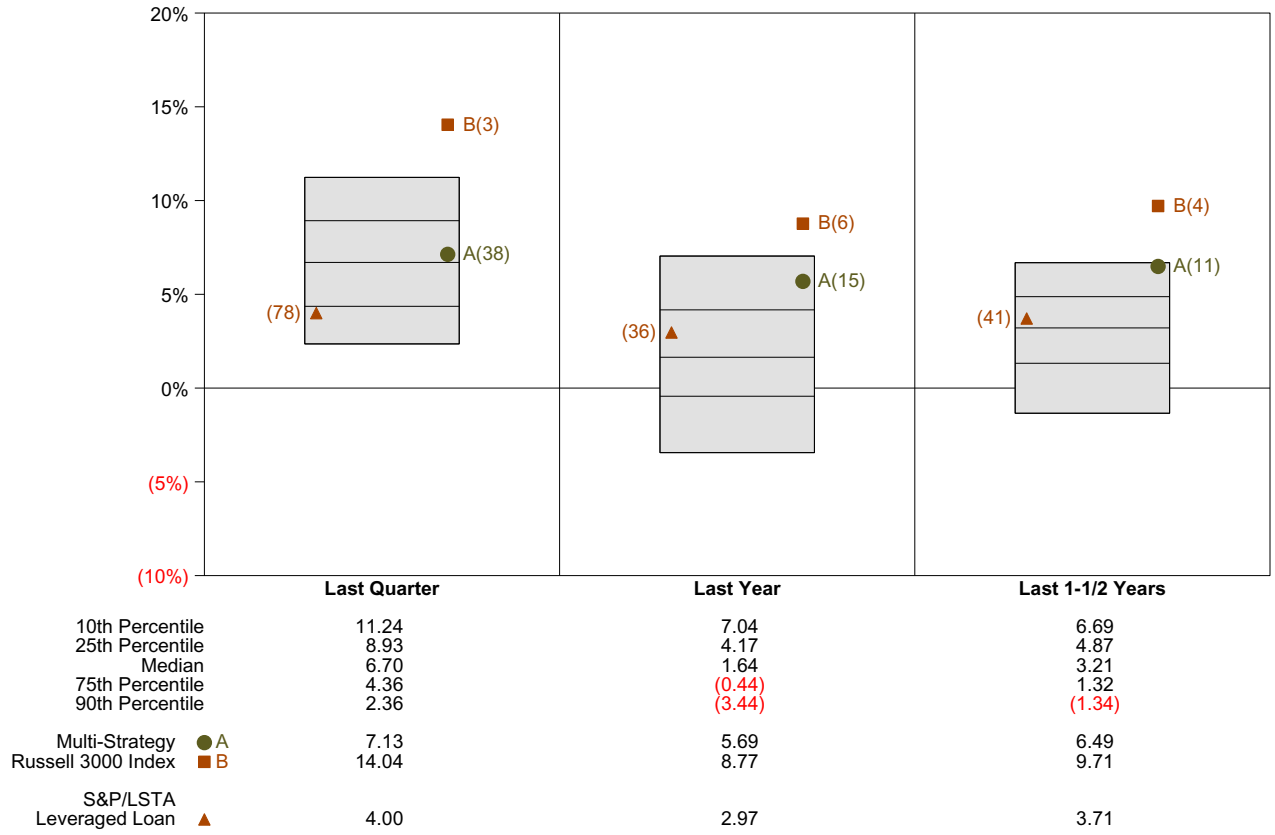
## Quarterly Summary and Highlights

- Multi-Strategy's portfolio posted a 7.13% return for the quarter placing it in the 38 percentile of the Callan Multi-Asset Database group for the quarter and in the 15 percentile for the last year.
- Multi-Strategy's portfolio outperformed the S&P/LSTA Leveraged Loan by 3.13% for the quarter and outperformed the S&P/LSTA Leveraged Loan for the year by 2.72%.

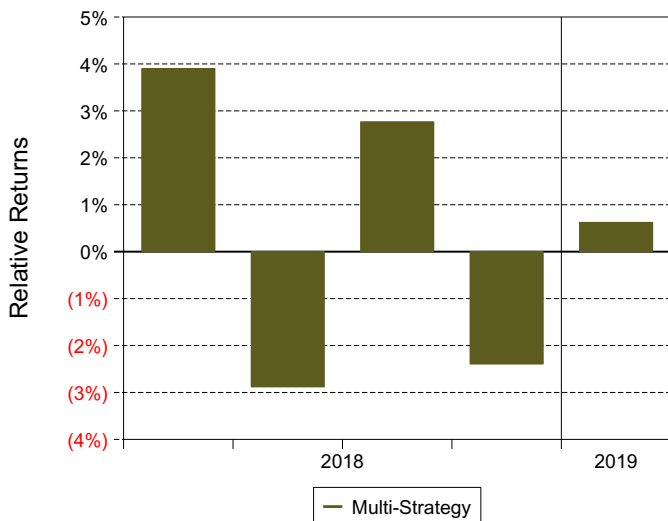
## Quarterly Asset Growth

Beginning Market Value	\$2,361,803,116
Net New Investment	\$30,169,379
Investment Gains/(Losses)	\$169,084,695
Ending Market Value	\$2,561,057,189

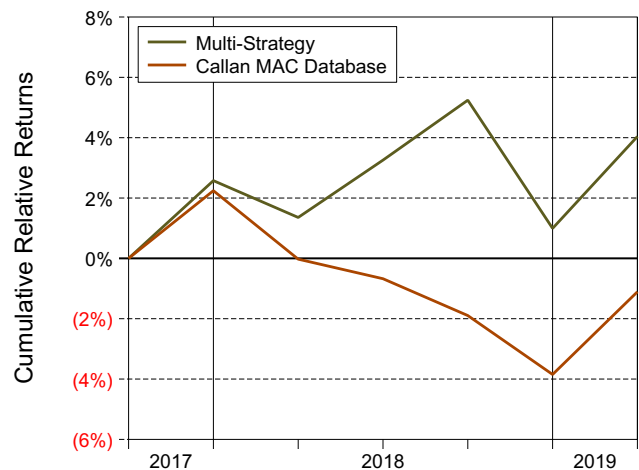
## Performance vs Callan Multi-Asset Database (Gross)



## Relative Return vs S&P/LSTA Leveraged Loan



## Cumulative Returns vs S&P/LSTA Leveraged Loan







# Blackstone Keystone Period Ended March 31, 2019

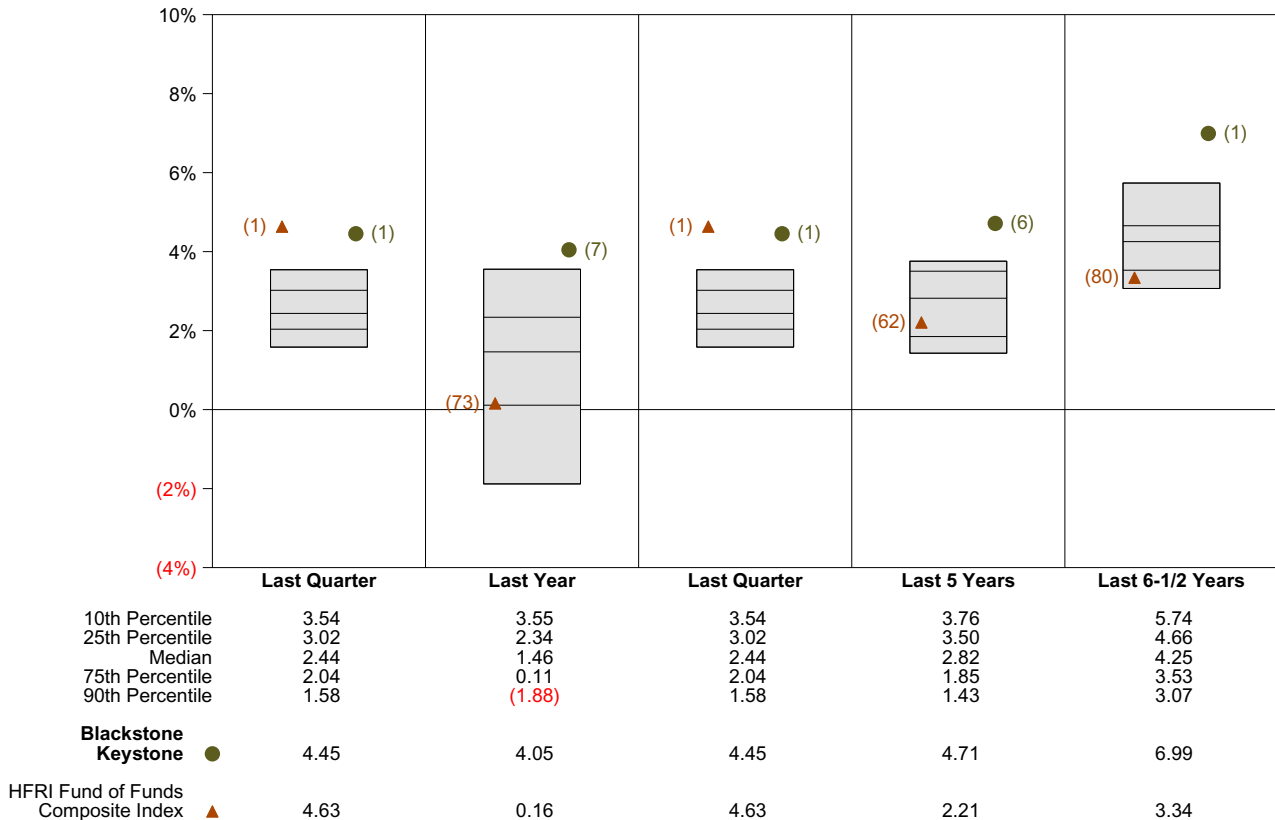
## Quarterly Summary and Highlights

- Blackstone Keystone's portfolio posted a 4.45% return for the quarter placing it in the 1 percentile of the Callan Absolute Rtn Hedge Fund of Funds group for the quarter and in the 7 percentile for the last year.
- Blackstone Keystone's portfolio underperformed the HFRI Fund of Funds Composite Index by 0.18% for the quarter and outperformed the HFRI Fund of Funds Composite Index for the year by 3.89%.

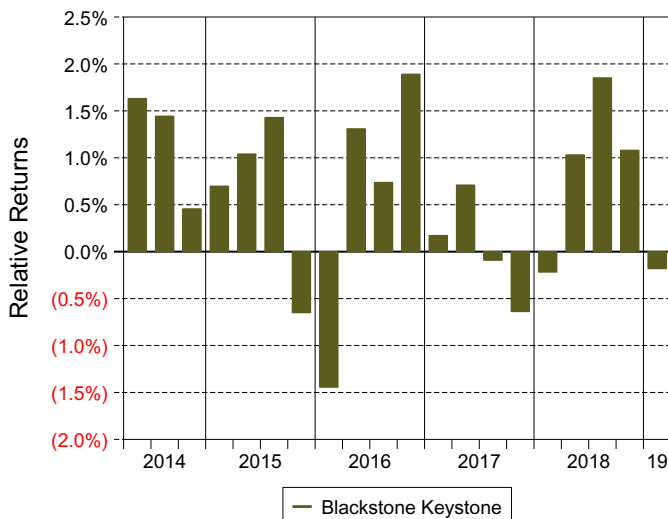
## Quarterly Asset Growth

Beginning Market Value	\$872,594,157
Net New Investment	\$-1,694
Investment Gains/(Losses)	\$38,855,274
Ending Market Value	\$911,447,736

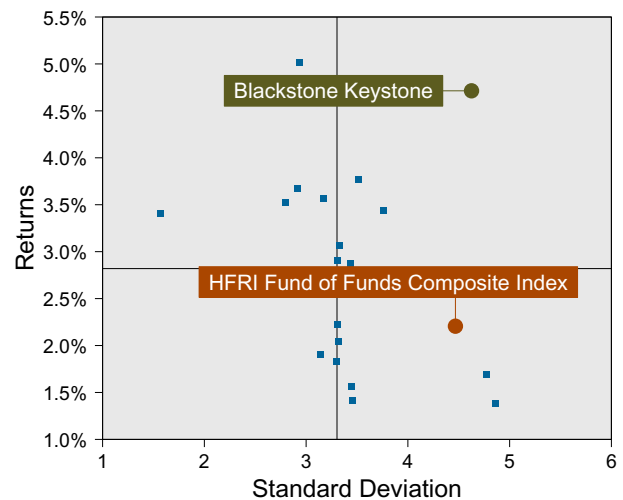
## Performance vs Callan Absolute Rtn Hedge Fund of Funds (Net)



## Relative Returns vs HFRI Fund of Funds Composite Index



## Callan Absolute Rtn Hedge Fund of Funds (Net) Annualized Five Year Risk vs Return

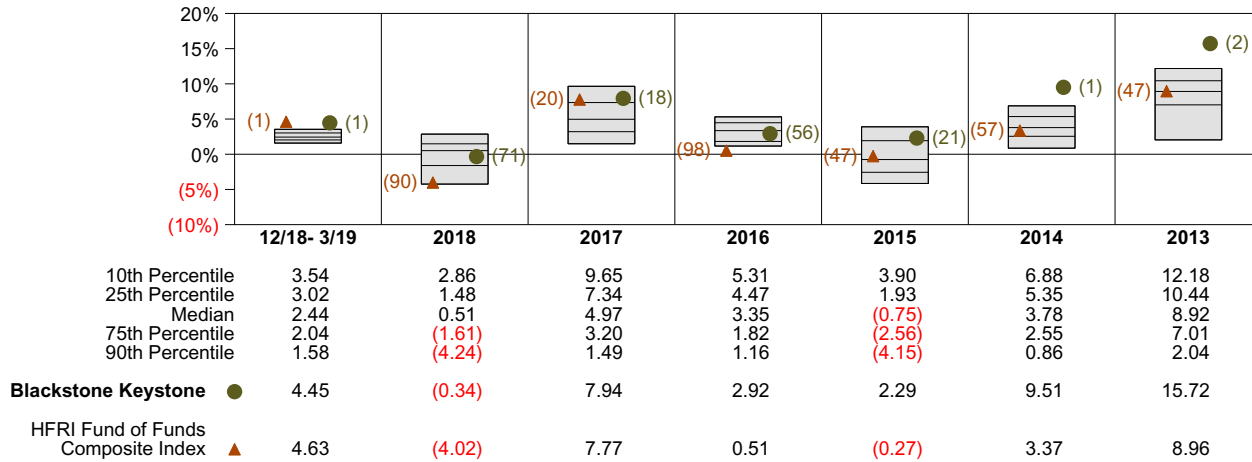


# Blackstone Keystone Return Analysis Summary

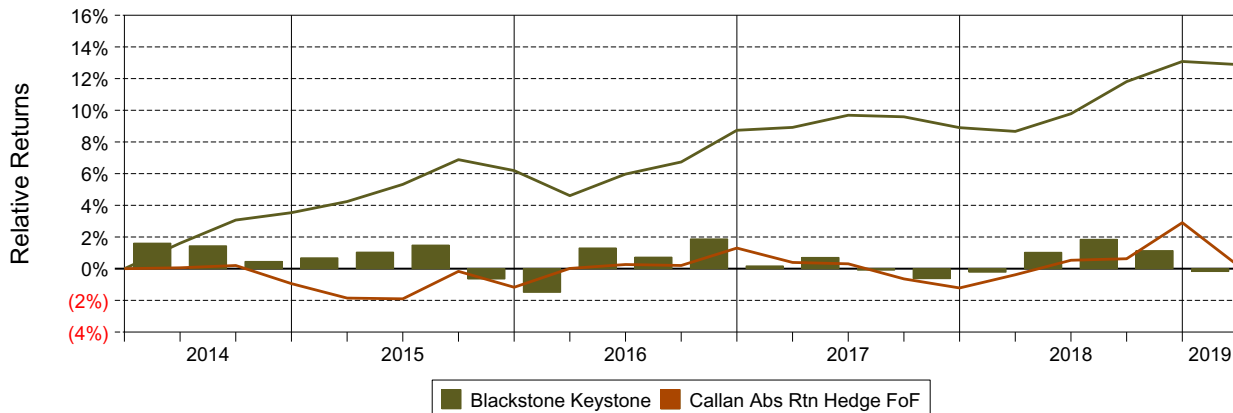
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

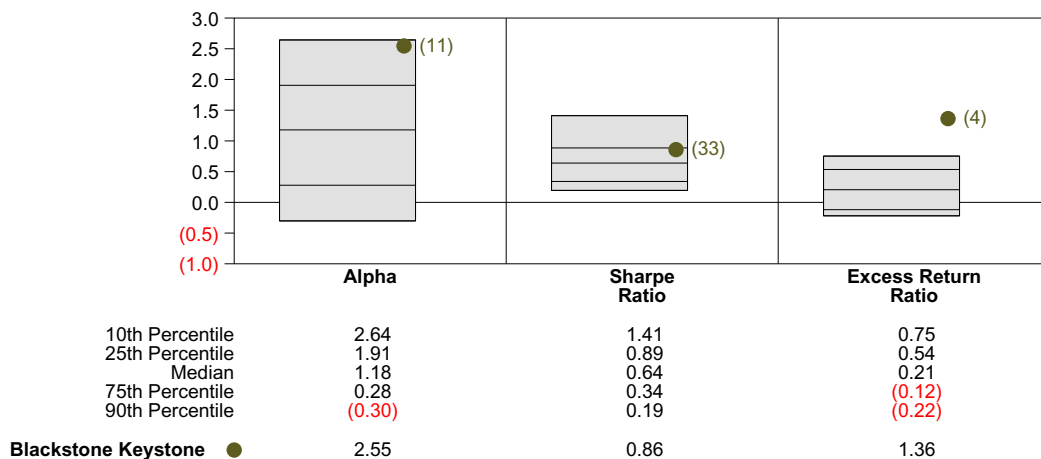
### Performance vs Callan Absolute Rtn Hedge Fund of Funds (Net)



### Cumulative and Quarterly Relative Return vs HFRI Fund of Funds Composite Index



### Risk Adjusted Return Measures vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended March 31, 2019

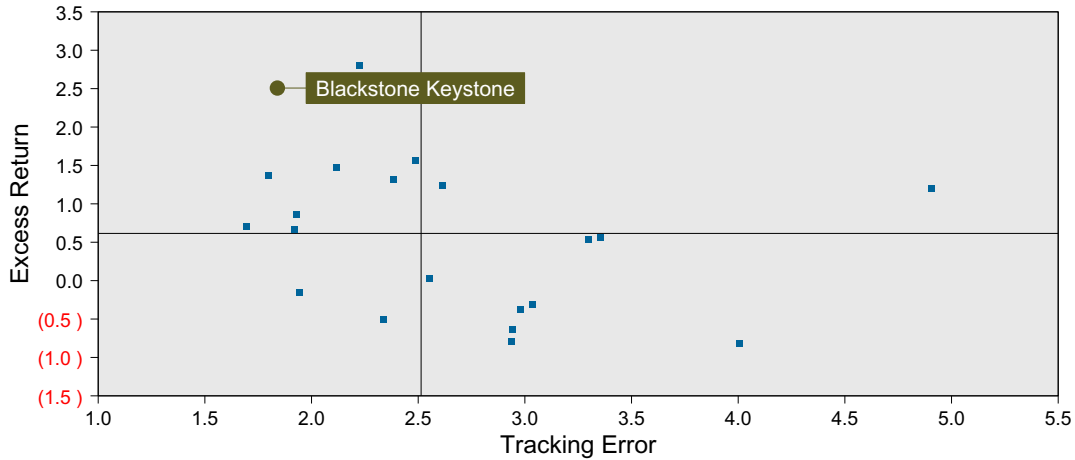


# Blackstone Keystone Risk Analysis Summary

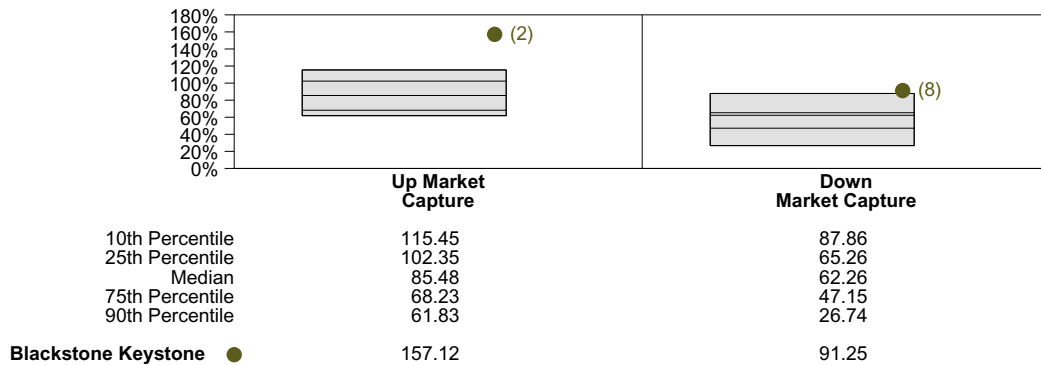
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

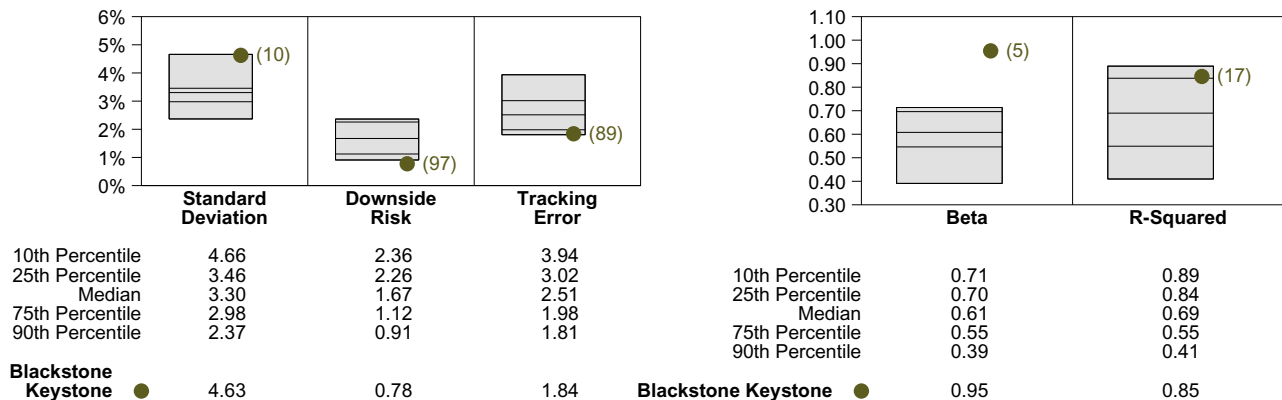
### Risk Analysis vs Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended March 31, 2019



### Market Capture vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended March 31, 2019



### Risk Statistics Rankings vs HFRI Fund of Funds Composite Index Rankings Against Callan Absolute Rtn Hedge Fund of Funds (Net) Five Years Ended March 31, 2019



# Eaton Vance GMARA Period Ended March 31, 2019

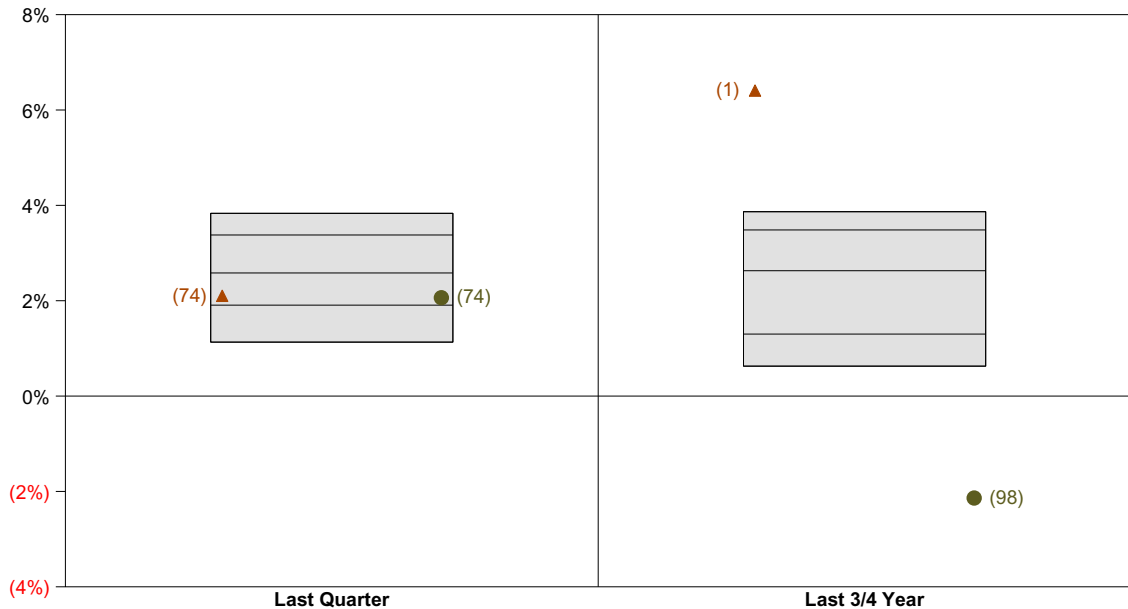
## Quarterly Summary and Highlights

- Eaton Vance GMARA's portfolio posted a 2.06% return for the quarter placing it in the 74 percentile of the Callan Unconstrained Fixed Income group for the quarter and in the 98 percentile for the last three-quarter year.
- Eaton Vance GMARA's portfolio underperformed the 3 month LIBOR + 6% by 0.04% for the quarter and underperformed the 3 month LIBOR + 6% for the three-quarter year by 8.55%.

## Quarterly Asset Growth

Beginning Market Value	\$189,326,400
Net New Investment	\$0
Investment Gains/(Losses)	\$3,905,000
Ending Market Value	\$193,231,400

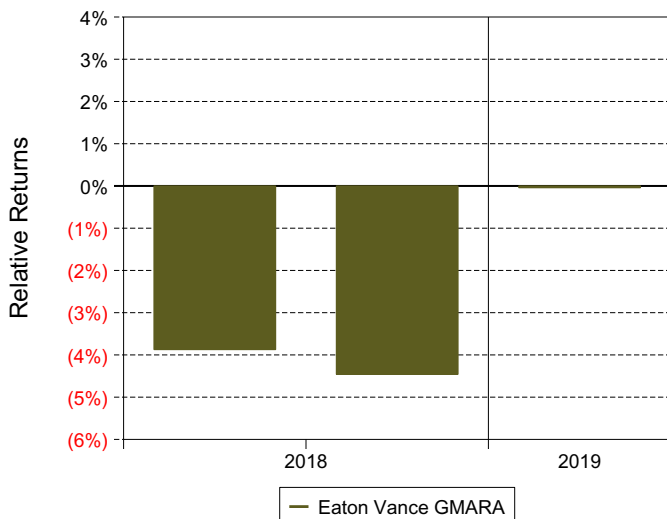
## Performance vs Callan Unconstrained Fixed Income (Gross)



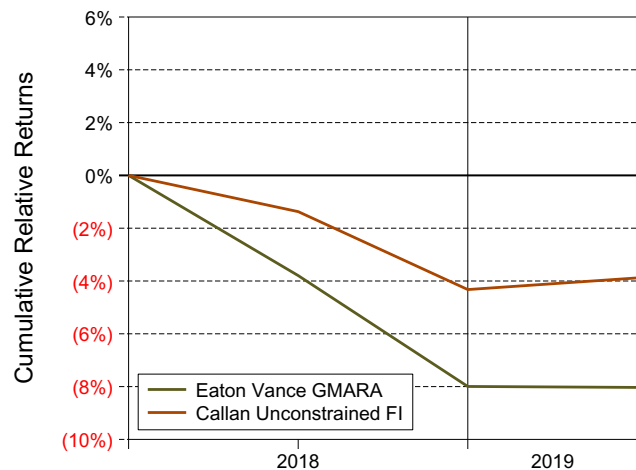
	Last Quarter	Last 3/4 Year
10th Percentile	3.83	3.87
25th Percentile	3.38	3.48
Median	2.58	2.63
75th Percentile	1.91	1.30
90th Percentile	1.13	0.63

<b>Eaton Vance GMARA</b> ●	2.06	(2.14)
3 month LIBOR + 6% ▲	2.10	6.41

## Relative Return vs 3 month LIBOR + 6%



## Cumulative Returns vs 3 month LIBOR + 6%



# MCM Russell 3000 Index Period Ended March 31, 2019

## Investment Philosophy

The Broad Market Stock Index Fund Stock Index Fund attempts to replicate the performance and portfolio characteristics of the Russell 3000 Index.

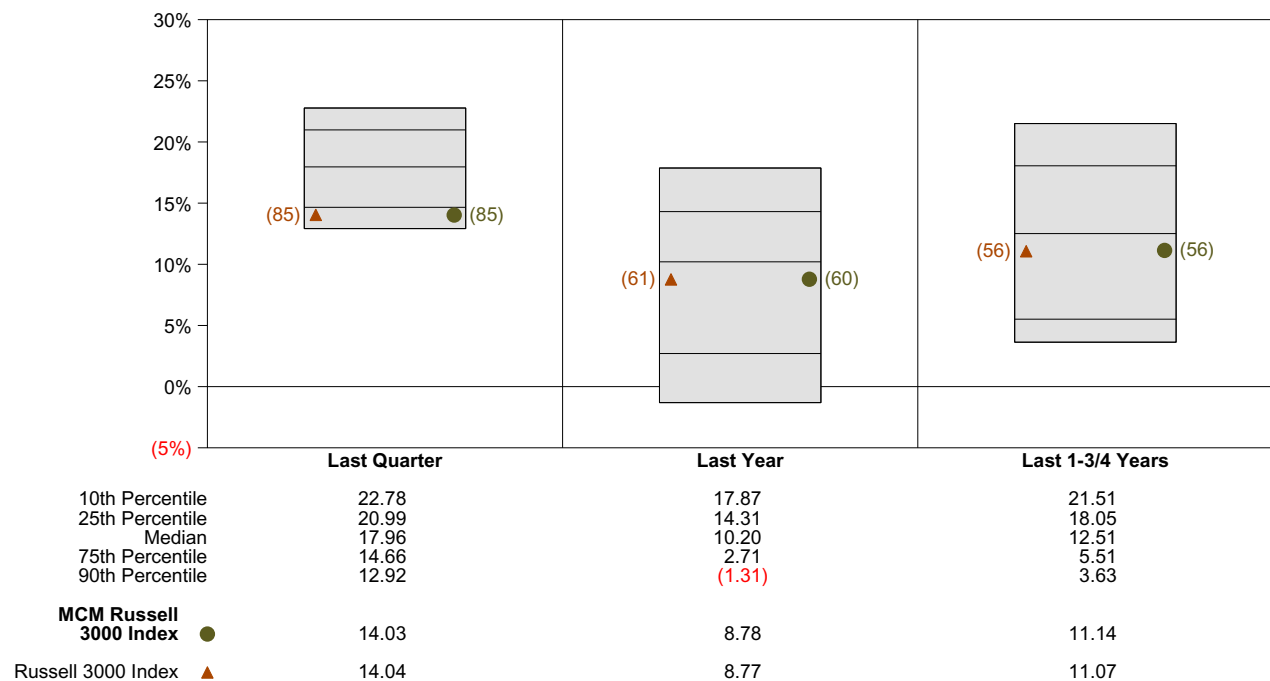
## Quarterly Summary and Highlights

- MCM Russell 3000 Index's portfolio posted a 14.03% return for the quarter placing it in the 85 percentile of the Callan Multi-Cap Broad Equity group for the quarter and in the 60 percentile for the last year.
- MCM Russell 3000 Index's portfolio underperformed the Russell 3000 Index by 0.02% for the quarter and outperformed the Russell 3000 Index for the year by 0.01%.

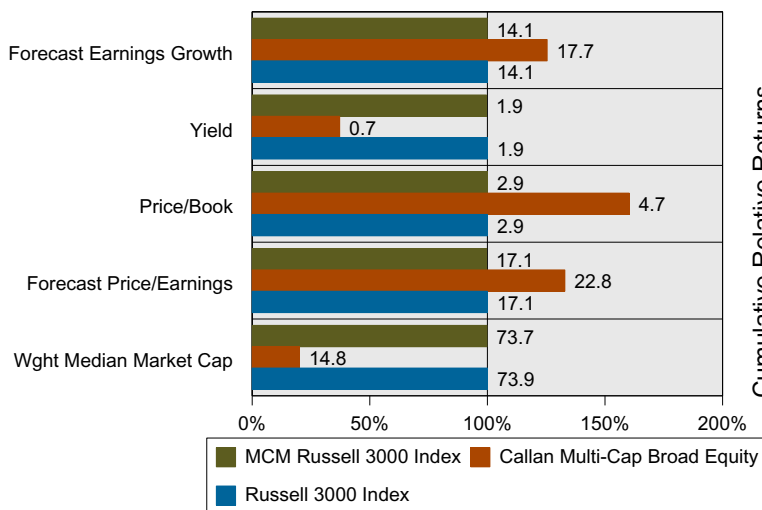
## Quarterly Asset Growth

Beginning Market Value	\$876,830,872
Net New Investment	\$-50,521
Investment Gains/(Losses)	\$122,982,450
Ending Market Value	\$999,762,800

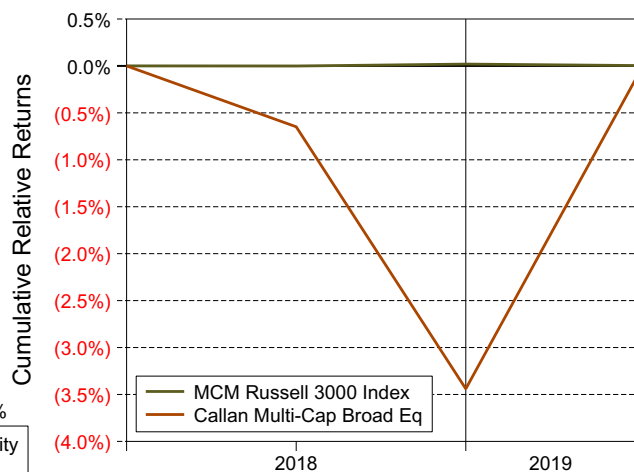
## Performance vs Callan Multi-Cap Broad Equity (Gross)



## Portfolio Characteristics as a Percentage of the Russell 3000 Index



## Cumulative Returns vs Russell 3000 Index



# Private Credit Period Ended March 31, 2019

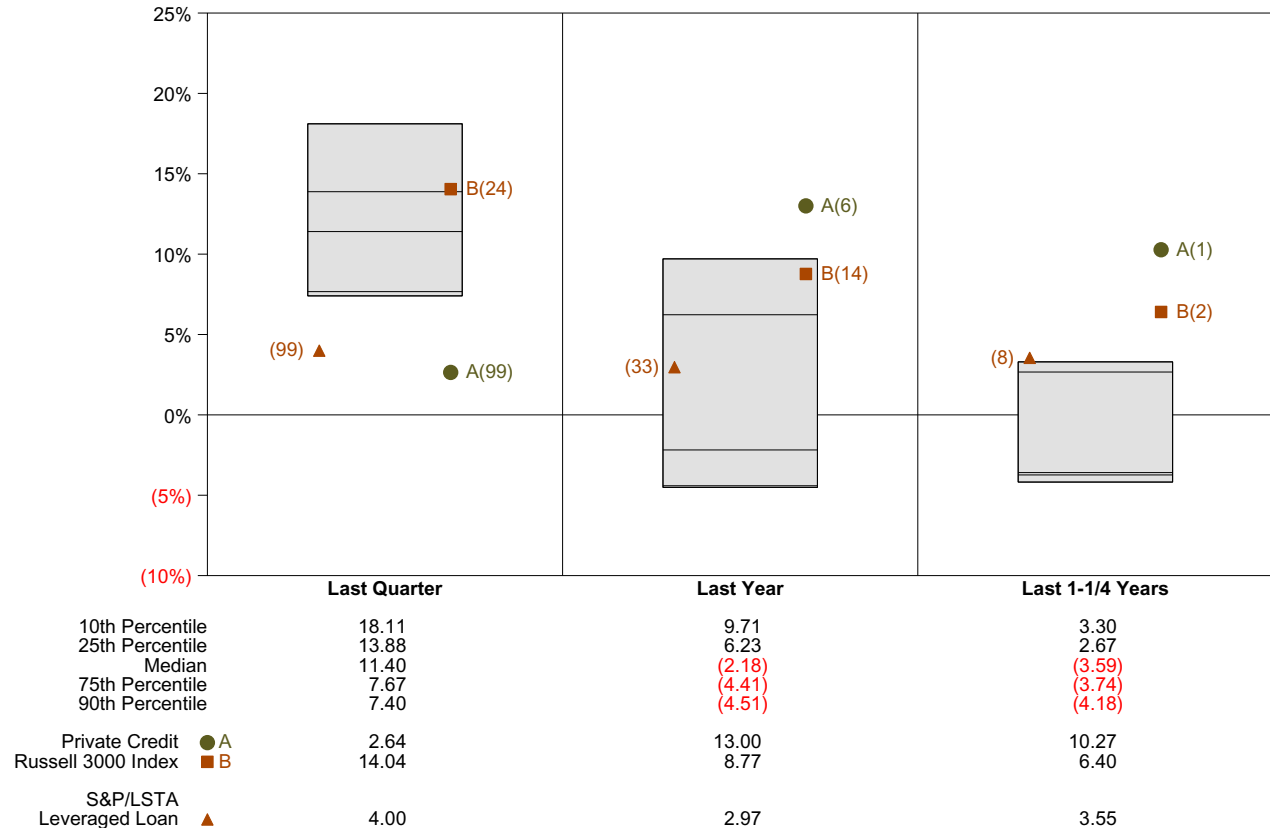
## Quarterly Summary and Highlights

- Private Credit's portfolio posted a 2.64% return for the quarter placing it in the 99 percentile of the Callan Alternative Investments DB group for the quarter and in the 6 percentile for the last year.
- Private Credit's portfolio underperformed the S&P/LSTA Leveraged Loan by 1.36% for the quarter and outperformed the S&P/LSTA Leveraged Loan for the year by 10.04%.

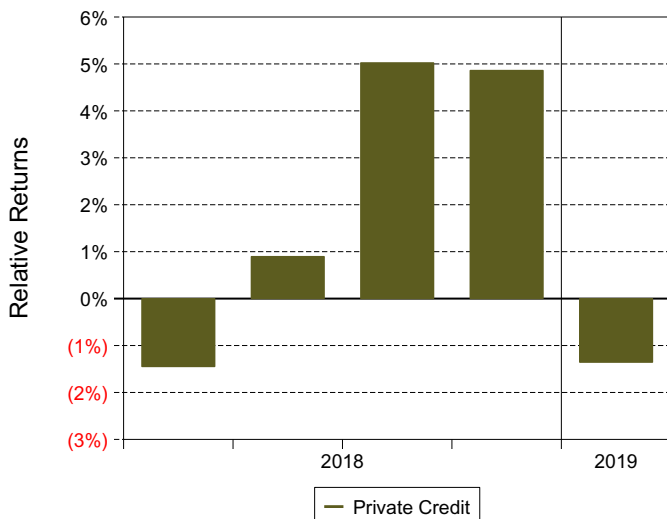
## Quarterly Asset Growth

Beginning Market Value	\$90,904,976
Net New Investment	\$30,221,595
Investment Gains/(Losses)	\$3,207,271
Ending Market Value	\$124,333,842

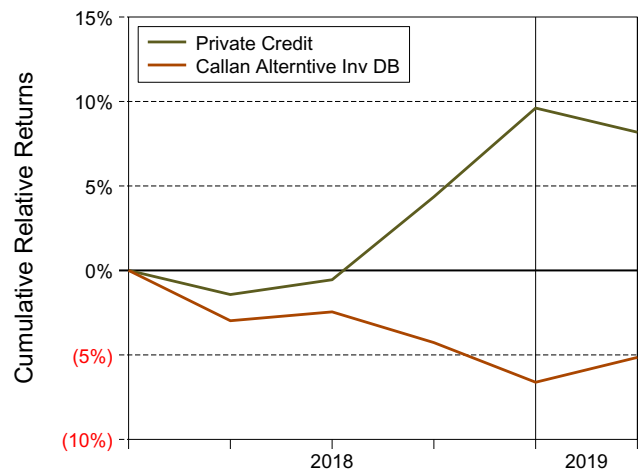
## Performance vs Callan Alternative Investments DB (Net)



## Relative Return vs S&P/LSTA Leveraged Loan



## Cumulative Returns vs S&P/LSTA Leveraged Loan



# SEI Structured Credit: HY Bank Loans Period Ended March 31, 2019

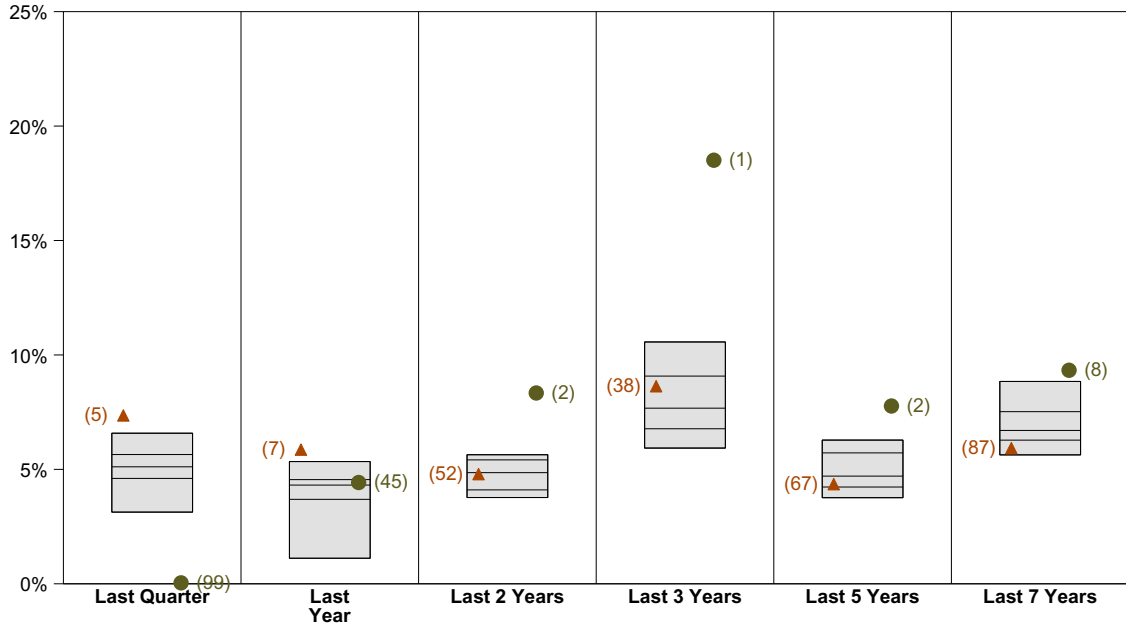
## Quarterly Summary and Highlights

- SEI Structured Credit: HY Bank Loans's portfolio posted a 0.04% return for the quarter placing it in the 99 percentile of the Callan Multi-Sector Credit group for the quarter and in the 45 percentile for the last year.
- SEI Structured Credit: HY Bank Loans's portfolio underperformed the FTSE US High Yield by 7.32% for the quarter and underperformed the FTSE US High Yield for the year by 1.44%.

## Quarterly Asset Growth

Beginning Market Value	\$332,146,711
Net New Investment	\$0
Investment Gains/(Losses)	\$134,700
Ending Market Value	\$332,281,410

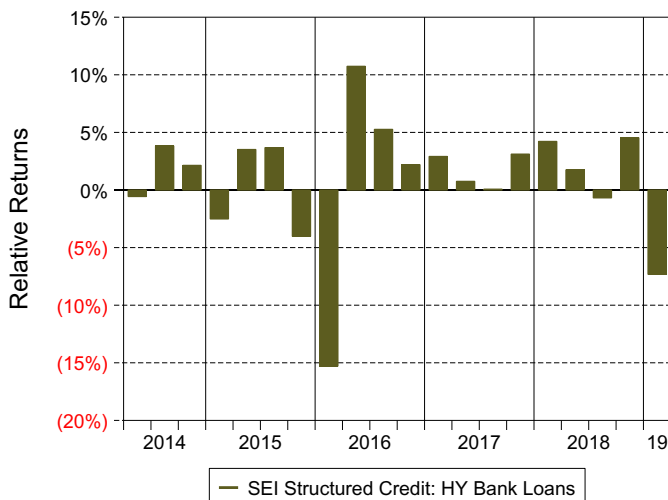
## Performance vs Callan Multi-Sector Credit (Gross)



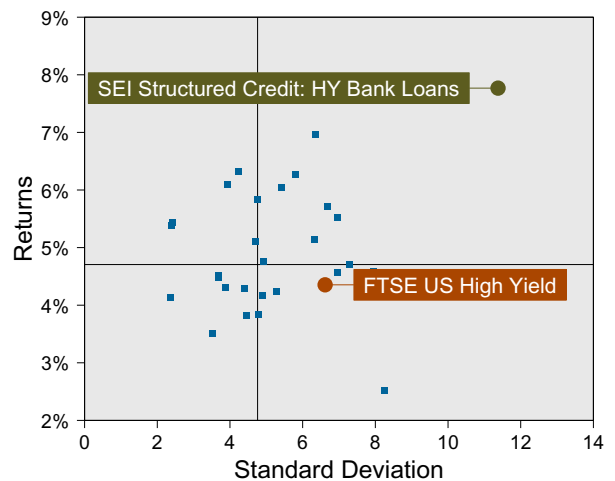
10th Percentile	6.58	5.34	5.64	10.57	6.28	8.84
25th Percentile	5.65	4.55	5.41	9.08	5.72	7.52
Median	5.11	4.31	4.86	7.67	4.71	6.70
75th Percentile	4.60	3.69	4.10	6.77	4.23	6.28
90th Percentile	3.13	1.12	3.77	5.93	3.76	5.63

<b>SEI Structured Credit: HY Bank Loans</b> ●	0.04	4.42	8.34	18.51	7.77	9.33
FTSE US High Yield ▲	7.36	5.86	4.79	8.63	4.35	5.93

## Relative Return vs FTSE US High Yield



## Callan Multi-Sector Credit (Gross) Annualized Five Year Risk vs Return



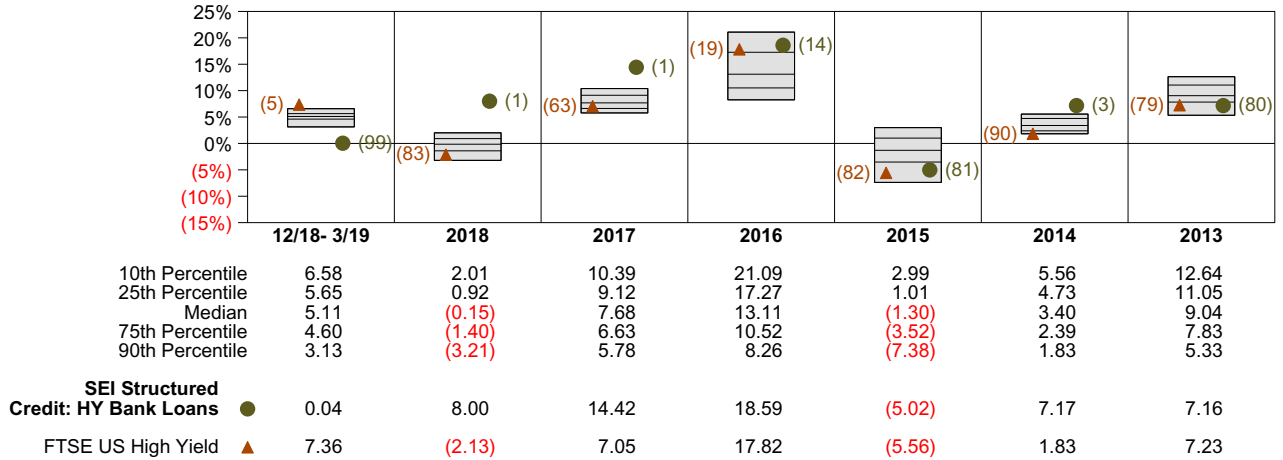


# SEI Structured Credit: HY Bank Loans Return Analysis Summary

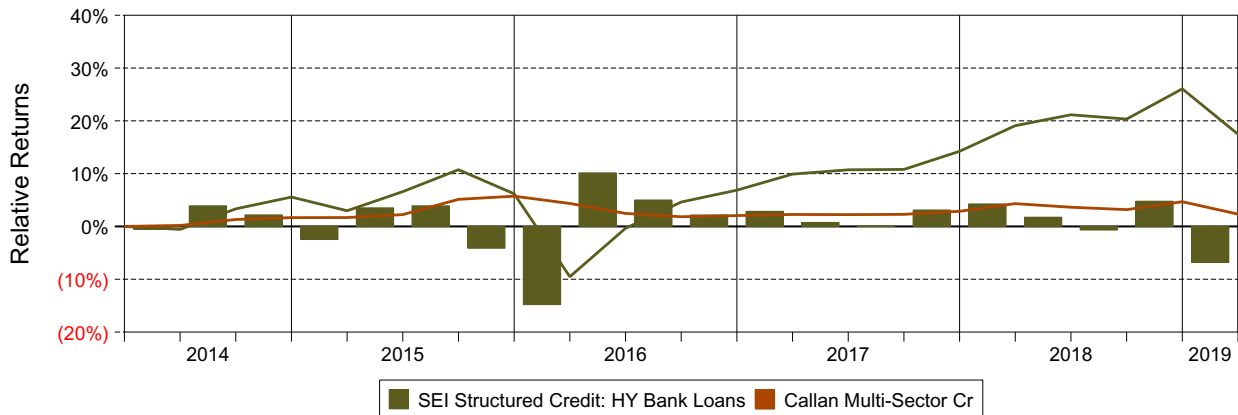
## Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

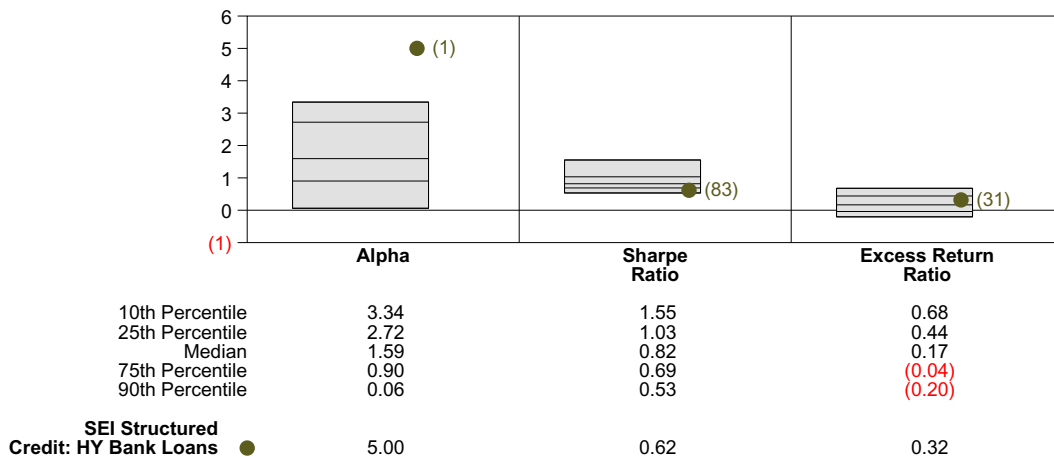
### Performance vs Callan Multi-Sector Credit (Gross)



### Cumulative and Quarterly Relative Return vs FTSE US High Yield



### Risk Adjusted Return Measures vs FTSE US High Yield Rankings Against Callan Multi-Sector Credit (Gross) Five Years Ended March 31, 2019

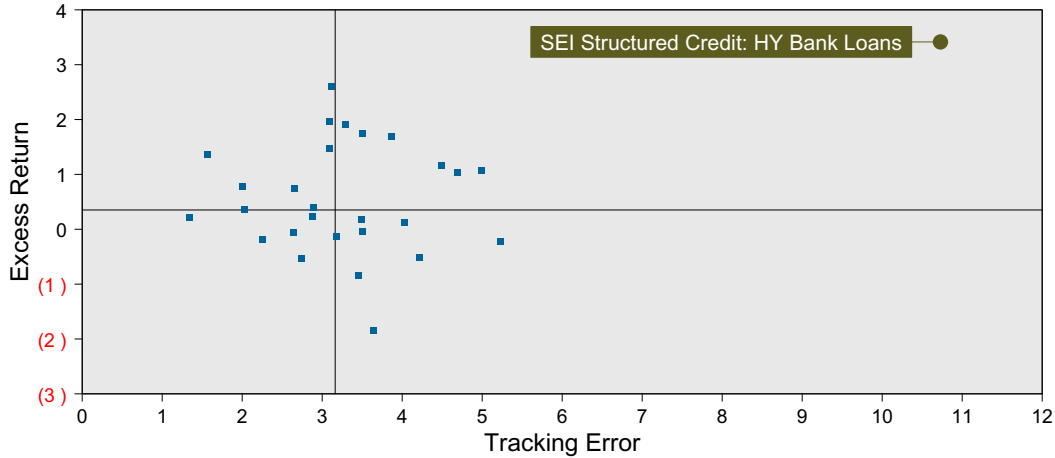


# SEI Structured Credit: HY Bank Loans Risk Analysis Summary

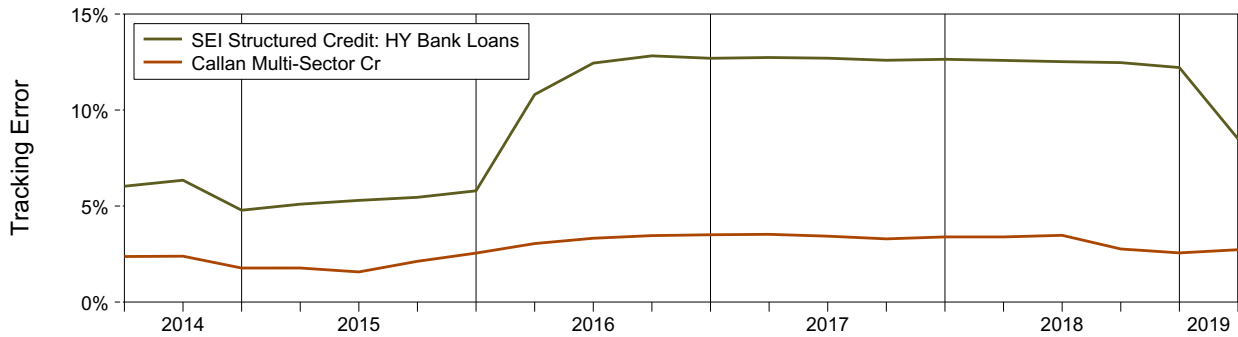
## Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

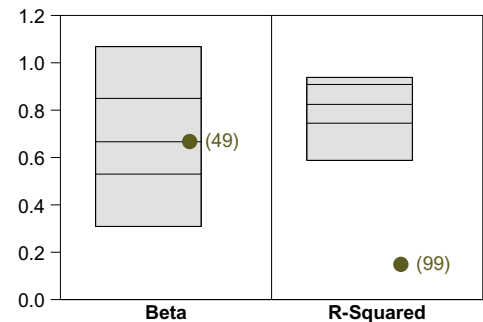
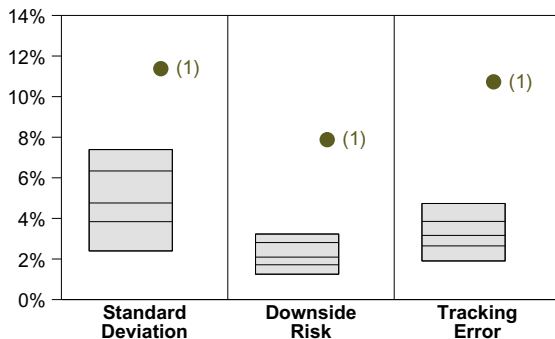
### Risk Analysis vs Callan Multi-Sector Credit (Gross) Five Years Ended March 31, 2019



### Rolling 12 Quarter Tracking Error vs FTSE US High Yield Market



### Risk Statistics Rankings vs FTSE US High Yield Market Rankings Against Callan Multi-Sector Credit (Gross) Five Years Ended March 31, 2019



10th Percentile  
25th Percentile  
Median  
75th Percentile  
90th Percentile

7.39  
6.34  
4.76  
3.84  
2.40

3.23  
2.81  
2.09  
1.72  
1.25

4.73  
3.85  
3.16  
2.65  
1.90

10th Percentile  
25th Percentile  
Median  
75th Percentile  
90th Percentile

1.07  
0.85  
0.67  
0.53  
0.31

0.94  
0.91  
0.82  
0.74  
0.59

SEI Structured Credit: HY Bank Loans ● 11.38

7.88

10.73

SEI Structured Credit: HY Bank Loans ● 0.67

0.67

0.15

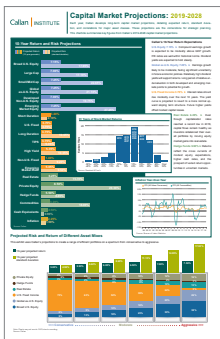


## Research and Educational Programs

The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit [www.callan.com/library](http://www.callan.com/library) to see all of our publications, and [www.callan.com/blog](http://www.callan.com/blog) to view our blog “Perspectives.” For more information contact Corry Walsh at 312.346.3536 / [institute@callan.com](mailto:institute@callan.com).

### New Research from Callan’s Experts

**[Callan’s 2019-2028 Capital Market Projections](#)** | Callan develops long-term capital market projections at the start of each year, detailing our expectations for return, volatility, and correlation for broad



asset classes. For 2019-2028, we made gradual, evolutionary changes to our expectations from our projections last year. We increased our fixed income assumptions to reflect higher starting yields compared to one year ago, including a higher return for cash, but we held constant our equity return premium over cash. As a result, we have narrowed the equity risk premium over bonds.

**[Two Questions to Help DC Plans Save on Litigation Costs](#)** |

Executives can monitor whether in-house fiduciaries for their defined contribution plans are on track or need assistance by asking these questions: 1) Are plan administration costs too high? 2) Are participants getting the best “bang for their buck” from investment fees?

**[The Good, the Bad, and the Ugly: Which Will Your DC Plan Be in 2019?](#)** |

In this paper, we outline best practices for defined contribution (DC) plan sponsors that aspire to be the Good gunslinger, and flag traps that could ensnare them in Bad or even Ugly territory.

**[2019 DC Trends Survey](#)** | Callan’s 12th Annual DC Trends Survey highlights plan sponsors’ key themes from 2018 and expectations for 2019.



**[2019 National Workshop Summary: DC Plans](#)** | This workshop by Callan’s Ben Taylor, Jana Steele, and Gordon Weightman, “The New Face of DC Plans,” provided what plan sponsors and investment managers need to know to stay current on new developments and how they might benefit plans.

**[2019 National Workshop Summary: Private Equity](#)** | In their workshop, “Private Equity: Primary Investment Opportunities and Considerations,” Callan’s Pete Keliuotis, Jay Nayak, and Weston Lewis demonstrated how a thoughtful approach to program design, strategy allocation, and capital commitment pacing can lead to long-term success in private equity investing.

**[2019 National Workshop Summary: Strategic Allocations](#)** | In this workshop, Callan’s Ann O’Bradovich, Ho Hwang, and Gary Chang discussed the trend over the past several decades in which U.S. institutional investors have shifted their public equity portfolios to increase allocations to non-U.S. stocks.

**[The Callan Periodic Table Collection: Year-End 2018](#)** | The Periodic Table Collection offers versions focused on equity, fixed income, fund sponsors, and alternatives. Other tables compare the performance of key indices to zero and to inflation.

### Quarterly Periodicals

**[Private Equity Trends](#)** | A newsletter on private equity activity, covering both the fundraising cycle and performance over time.

**[Market Pulse Flipbook](#)** | A market reference guide covering trends in the U.S. economy, developments for fund sponsors, and the latest data for U.S. and non-U.S. equities and fixed income, alternatives, and defined contribution plans.

**[Active vs. Passive Charts](#)** | This series of charts compares active managers alongside relevant benchmarks over the long term.

**[Capital Market Review](#)** | Provides analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

## Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: [www.callan.com/library/](http://www.callan.com/library/)

Please mark your calendar and look forward to upcoming invitations.

### June Regional Workshops:

June 4, 2019 – Atlanta

June 5, 2019 – San Francisco

### October Regional Workshops:

October 22, 2019 – Denver

October 24, 2019 – Chicago

Invitations have been sent for June and registration is available on our website at [www.callan.com/events-reg-workshop-june/](http://www.callan.com/events-reg-workshop-june/)

Please also keep your eye out for upcoming Webinars in 2019! We will be sending invitations for these and also will have registration links on our website at [www.callan.com/events](http://www.callan.com/events).

For more information about events, please contact Barb Gerraty: 415.274.3093 / [gerraty@callan.com](mailto:gerraty@callan.com)

## The Center for Investment Training Educational Sessions

The Center for Investment Training, better known as the “Callan College,” provides a foundation of knowledge for industry professionals who are involved in the investment decision-making process. It was founded in 1994 to provide clients and non-clients alike with basic- to intermediate-level instruction. Our next sessions are:

### Introduction to Investments

San Francisco, July 16-17, 2019

Chicago, October 22-23, 2019

This program familiarizes fund sponsor trustees, staff, and asset management advisers with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals who have less than two years of experience with asset-management oversight and/or support responsibilities. Tuition for the Introductory “Callan College” session is \$2,350 per person. Tuition includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

### “Callan College” on Alternative Investing

Chicago, October 2019—Date TBD

Learn more at [www.callan.com/events/callan-college-intro](http://www.callan.com/events/callan-college-intro) or contact Kathleen Cunnie: 415.274.3029 / [cunnie@callan.com](mailto:cunnie@callan.com)

## Education: By the Numbers

**525** Attendees (on average) of the Institute's annual National Conference

**50+** Unique pieces of research the Institute generates each year

**3,700** Total attendees of the “Callan College” since 1994

**1980** Year the Callan Institute was founded



“Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialogue to raise the bar across the industry.”

Greg Allen, CEO and Chief Research Officer





## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2019							
	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Net Performance</b>							
<b>Total Fund</b>	<b>\$28,828</b>	<b>100.00%</b>	<b>8.21%</b>	<b>3.36%</b>	<b>7.90%</b>	<b>5.64%</b>	<b>9.72%</b> <sup>(1/82)</sup>
Total Fund Custom Benchmark(1)	-	-	6.77%	4.13%	8.29%	6.08%	-
Public Market Equiv Benchmark(2)	-	-	4.42%	2.46%	8.42%	6.33%	-
<b>Global Public Equity</b>	<b>\$15,686</b>	<b>54.41%</b>	<b>12.89%</b>	<b>2.27%</b>	<b>10.75%</b>	<b>6.52%</b>	<b>6.66%</b> <sup>(1/02)</sup>
MSCI ACWI IMI	-	-	12.29%	1.89%	10.58%	6.33%	6.97% <sup>(1/02)</sup>
<b>Fixed Income</b>	<b>\$4,142</b>	<b>14.37%</b>	<b>3.66%</b>	<b>3.61%</b>	<b>3.57%</b>	<b>2.72%</b>	<b>8.42%</b> <sup>(1/81)</sup>
Bloomberg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%	7.63% <sup>(1/81)</sup>
<b>Multi-Strategy</b>	<b>\$2,561</b>	<b>8.88%</b>	<b>7.12%</b>	<b>5.55%</b>	-	-	<b>6.35%</b> <sup>(10/17)</sup>
S&P/LSTA Leveraged Loan	-	-	4.00%	2.97%	5.67%	3.62%	3.71% <sup>(10/17)</sup>
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%	9.71% <sup>(10/17)</sup>
<b>Real Estate</b>	<b>\$1,779</b>	<b>6.17%</b>	<b>4.32%</b>	<b>(0.71%)</b>	<b>1.87%</b>	<b>4.92%</b>	<b>8.38%</b> <sup>(3/84)</sup>
Real Estate Custom Benchmark	-	-	0.67%	6.05%	6.65%	8.90%	-
CPI +3% (Qtr lag)	-	-	0.27%	4.91%	5.03%	4.52%	5.63% <sup>(3/84)</sup>
<b>Private Equity</b>	<b>\$3,871</b>	<b>13.43%</b>	<b>0.62%</b>	<b>9.11%</b>	<b>10.01%</b>	<b>8.92%</b>	<b>10.88%</b> <sup>(1/86)</sup>
Burgiss Private Equity Custom Index	-	-	(0.73%)	10.15%	12.61%	11.44%	16.98% <sup>(6/86)</sup>
Russell 3000 +3% (Qtr lag)	-	-	(12.95%)	(1.76%)	12.25%	11.16%	13.72% <sup>(6/86)</sup>
<b>Cash</b>	<b>\$744</b>	<b>2.58%</b>	<b>0.42%</b>	<b>2.13%</b>	<b>1.50%</b>	<b>1.14%</b>	<b>3.56%</b> <sup>(1/88)</sup>
3-month Treasury Bill	-	-	0.60%	2.12%	1.19%	0.74%	3.20% <sup>(1/88)</sup>

(1) Total Fund Custom Benchmark returns provided by RVK. Benchmark consists of: 16% SERS Private Equity Composite, 48% MSCI ACW IM Index, 12% Real Estate Custom Benchmark, 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index

(2) Public Market Equivalent Benchmark returns provided by RVK. Benchmark consists of: 16% Russell 3000+3% (Qtr Lag), 48% MSCI ACW IM Index, 12% CPI+3% (Qtr Lag), 10% S&P/LSTA Leveraged Loan Index, 11% Bloomberg US Agg Bond Index, 3% ICE BofAML 3 Mo US T-Bill Index



## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended March 31, 2019

	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Net Performance- Equity</b>							
<b>Global Public Equity</b>	<b>\$15,686</b>	<b>100.00%</b>	<b>12.89%</b>	<b>2.27%</b>	<b>10.75%</b>	<b>6.52%</b>	<b>6.66%</b> (1/02)
MSCI ACWI IMI	-	-	12.29%	1.89%	10.58%	6.33%	6.97% (1/02)
<b>Global Mandates</b>	<b>\$1,000</b>	<b>6.37%</b>	<b>15.48%</b>	<b>12.34%</b>	<b>14.97%</b>	<b>10.72%</b>	<b>8.43%</b> (11/06)
Walter Scott & Prtnrs Gbl Gr Eq	1,000	6.37%	15.48%	12.34%	14.97%	10.72%	9.02% (10/06)
MSCI World	-	-	12.48%	4.01%	10.68%	6.78%	5.63% (10/06)
<b>U.S. Equity</b>	<b>\$7,489</b>	<b>47.75%</b>	<b>14.75%</b>	<b>7.20%</b>	<b>12.13%</b>	<b>9.19%</b>	<b>10.58%</b> (1/81)
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%	10.97% (1/81)
<b>U.S. Mid/Large Cap Equity</b>	<b>\$5,921</b>	<b>37.75%</b>	<b>14.38%</b>	<b>8.05%</b>	<b>12.85%</b>	<b>9.99%</b>	<b>9.41%</b> (1/94)
MCM Russell 1000 Index	5,476	34.91%	13.98%	9.46%	13.59%	10.67%	14.19% (1/12)
Russell 1000 Index	-	-	14.00%	9.30%	13.52%	10.63%	14.22% (1/12)
Iridian Asset Mgmt MCV	445	2.83%	19.56%	(7.67%)	5.28%	4.25%	12.70% (3/95)
Russell MidCap Index	-	-	16.54%	6.47%	11.82%	8.81%	11.07% (3/95)
Russell MidCap Value Idx	-	-	14.37%	2.89%	9.50%	7.22%	11.15% (3/95)
<b>U.S. Small Cap Equity</b>	<b>\$1,568</b>	<b>10.00%</b>	<b>16.19%</b>	<b>4.34%</b>	<b>9.12%</b>	<b>5.16%</b>	<b>9.15%</b> (1/94)
S&P 600 Small Cap Index	-	-	11.61%	1.57%	12.55%	8.45%	10.46% (1/94)
MCM Russell 2000 Core Index	318	2.03%	14.58%	2.04%	-	-	8.17% (12/16)
Russell 2000 Index	-	-	14.58%	2.05%	12.92%	7.05%	8.19% (12/16)
MCM Russell 2000 Val Index	568	3.62%	11.88%	0.10%	-	-	3.90% (12/16)
Russell 2000 Value Index	-	-	11.93%	0.17%	10.86%	5.59%	3.97% (12/16)
Emerald Adv Div Sm Cap Grth	682	4.35%	20.84%	9.34%	-	-	14.54% (12/16)
Russell 2000 Growth Index	-	-	17.14%	3.85%	14.87%	8.41%	12.47% (12/16)
<b>Non-U.S. Equity</b>	<b>\$7,195</b>	<b>45.87%</b>	<b>10.68%</b>	<b>(4.19%)</b>	<b>8.63%</b>	<b>2.92%</b>	<b>6.16%</b> (11/95)
MSCI ACWI ex US IMI	-	-	10.31%	(4.96%)	7.94%	2.67%	5.18% (11/95)
<b>Non-U.S. Developed Markets Equity</b>	<b>\$5,445</b>	<b>34.71%</b>	<b>10.69%</b>	<b>(3.56%)</b>	<b>8.24%</b>	<b>2.86%</b>	<b>5.99%</b> (1/02)
<b>Non-U.S. Dev Mid/Large Cap Equity</b>	<b>\$4,714</b>	<b>30.05%</b>	<b>10.49%</b>	<b>(2.69%)</b>	<b>9.19%</b>	<b>3.39%</b>	<b>5.48%</b> (1/02)
BlackRock MSCI World Ex US Index	4,703	29.98%	10.52%	(2.66%)	-	-	2.90% (6/17)
MSCI World ex US	-	-	10.45%	(3.14%)	7.29%	2.20%	2.46% (6/17)
<b>Non-U.S. Dev Small Cap Equity</b>	<b>\$732</b>	<b>4.66%</b>	<b>11.96%</b>	<b>(9.50%)</b>	<b>6.28%</b>	<b>1.79%</b>	<b>6.73%</b> (10/93)
FIS Group Non-U.S. Small Cap	190	1.21%	8.73%	-	-	-	(5.21%) (9/18)
MSCI ACWI ex US Small Cap	-	-	10.26%	(9.48%)	7.01%	3.26%	(6.81%) (9/18)
Harris Assoc Int'l SCV	542	3.46%	13.14%	(10.21%)	6.00%	1.63%	10.43% (7/03)
MSCI World ex US Sm Cap	-	-	10.93%	(8.66%)	7.28%	3.69%	9.19% (7/03)
<b>Emerging Mkts Equity</b>	<b>\$1,750</b>	<b>11.16%</b>	<b>10.67%</b>	<b>(7.90%)</b>	<b>11.76%</b>	<b>4.13%</b>	<b>7.31%</b> (1/02)
BlackRock Emg Mkts Index	685	4.37%	9.83%	(7.52%)	-	-	4.75% (7/17)
Leading Edge Emg Mkts Fund	216	1.38%	11.43%	-	-	-	9.95% (10/18)
Macquarie Emg Mkts Equity	324	2.07%	9.38%	(6.72%)	12.30%	4.16%	4.02% (5/13)
Martin Currie Emg Mkts Equity	432	2.76%	12.02%	(8.94%)	14.37%	5.65%	4.50% (1/14)
MSCI EM	-	-	9.93%	(7.40%)	10.68%	3.68%	3.42% (1/14)
GlobeFlex Emerging Small Cap	92	0.59%	10.14%	(10.12%)	8.94%	2.76%	4.09% (8/13)
MSCI EM Small Cap	-	-	7.76%	(12.42%)	5.95%	1.77%	2.93% (8/13)
Northern Trust Equity Transition	1	0.01%	(1.60%)	(16.23%)	(8.20%)	(5.00%)	(3.61%) (1/12)

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended March 31, 2019

	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Net Performance - Fixed Income</b>							
<b>Fixed Income</b>	<b>\$4,142</b>	<b>100.00%</b>	<b>3.66%</b>	<b>3.61%</b>	<b>3.57%</b>	<b>2.72%</b>	<b>8.42%</b> (1/81)
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%	7.63% (1/81)
<b>Core Fixed Income</b>	<b>\$1,882</b>	<b>45.44%</b>	<b>3.49%</b>	<b>4.49%</b>	<b>2.53%</b>	<b>2.92%</b>	<b>4.73%</b> (1/02)
MCM Bond Index	1,059	25.58%	2.96%	4.53%	1.99%	2.71%	7.12% (4/84)
Blmbg Aggregate	-	-	2.94%	4.48%	2.03%	2.74%	7.05% (4/84)
PIMCO Core Bond Fund	635	15.32%	3.85%	4.66%	2.75%	3.09%	2.32% (1/13)
Blmbg Agg ex Treasury	-	-	3.47%	4.65%	2.60%	3.08%	2.53% (1/13)
Taplin, Canida & Habacht Corp FI	188	4.54%	5.26%	3.74%	4.25%	3.31%	5.69% (12/00)
Blmbg Credit	-	-	4.87%	4.89%	3.48%	3.61%	5.65% (12/00)
<b>Core-Plus Fixed Income</b>	<b>\$863</b>	<b>20.83%</b>	<b>4.89%</b>	<b>1.86%</b>	<b>7.05%</b>	<b>2.90%</b>	<b>4.22%</b> (10/12)
Brandywine Global Opp	192	4.65%	3.10%	(6.07%)	2.11%	1.55%	3.64% (2/11)
FTSE WGBI	-	-	1.74%	(1.57%)	0.95%	0.59%	1.15% (2/11)
Pyramis Gbl Adv HY CMBS	324	7.82%	2.66%	5.69%	4.93%	5.06%	8.61% (4/97)
Blmbg US Univ CMBS ex Aaa	-	-	4.37%	6.91%	4.78%	3.87%	-
Stone Harbor Gbl HY	183	4.43%	7.58%	6.02%	6.92%	3.42%	7.54% (7/00)
FTSE US High Yield	-	-	7.36%	5.86%	8.63%	4.35%	7.15% (7/00)
Stone Harbor EMD	163	3.93%	8.69%	(0.38%)	6.12%	4.49%	7.48% (4/05)
JPM EMBI Global	-	-	6.59%	3.52%	5.20%	4.80%	7.16% (4/05)
<b>Global TIPS</b>	<b>\$832</b>	<b>20.10%</b>	<b>3.29%</b>	<b>1.95%</b>	<b>1.80%</b>	<b>1.95%</b>	<b>3.11%</b> (2/03)
Brown Brothers TIPS	220	5.32%	3.11%	2.62%	1.76%	2.13%	1.27% (2/12)
NISA Inv Adv TIPS	497	11.99%	3.23%	2.66%	1.73%	1.96%	2.94% (4/07)
Blmbg US TIPS	-	-	3.19%	2.70%	1.70%	1.94%	3.83% (4/07)
New Century Global TIPS	115	2.79%	3.95%	(1.93%)	2.42%	1.85%	1.82% (2/12)
Blmbg Wld Gov I-L Undhdg	-	-	3.93%	(1.74%)	2.41%	1.69%	1.44% (2/12)
<b>Nominal U.S. Treasuries</b>	<b>\$565</b>	<b>13.64%</b>	<b>2.93%</b>	<b>5.63%</b>	<b>0.57%</b>	<b>2.87%</b>	<b>2.12%</b> (9/11)
PIMCO US Treasuries	565	13.64%	2.93%	5.63%	0.92%	3.12%	2.33% (9/11)
Blmbg US Treas Bell 10Y	-	-	3.08%	5.60%	0.11%	2.59%	2.13% (9/11)

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## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended March 31, 2019

	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Net Performance - Multi-Strategy</b>							
<b>Multi-Strategy</b>	<b>\$2,561</b>	<b>100.00%</b>	<b>7.12%</b>	<b>5.55%</b>	-	-	<b>6.35%</b> (10/17)
S&P/LSTA Leveraged Loan	-	-	4.00%	2.97%	5.67%	3.62%	3.71% (10/17)
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%	9.71% (10/17)
<b>Credit Focused Strategies</b>	<b>\$911</b>	<b>35.59%</b>	<b>4.45%</b>	<b>4.05%</b>	-	-	<b>3.69%</b> (10/17)
Blackstone Keystone(1)	911	35.59%	4.45%	4.05%	6.61%	4.71%	7.48% (7/12)
HFRI Fund of Funds Compos	-	-	4.63%	0.16%	3.94%	2.21%	3.58% (7/12)
<b>Opp. Equity &amp; Fixed Income</b>	<b>\$1,525</b>	<b>59.56%</b>	<b>9.08%</b>	<b>6.32%</b>	-	-	<b>8.26%</b> (10/17)
SEI Str. Credit: HY Bank Loans(2)	332	12.97%	0.04%	3.54%	17.49%	6.82%	12.60% (5/08)
FTSE US High Yield	-	-	7.36%	5.86%	8.63%	4.35%	7.28% (5/08)
Eaton Vance GMARA	193	7.54%	2.06%	-	-	-	(3.38%) (5/18)
3 month LIBOR + 6%	-	-	2.10%	8.56%	7.62%	7.10%	7.84% (5/18)
MCM Russell 3000 Index(3)	1,000	39.04%	14.02%	8.75%	-	-	9.95% (5/17)
Russell 3000 Index	-	-	14.04%	8.77%	13.48%	10.36%	11.17% (5/17)
<b>Private Credit(4)</b>	<b>\$124</b>	<b>4.85%</b>	<b>2.64%</b>	<b>13.00%</b>	-	-	<b>8.34%</b> (12/17)

(1) Blackstone Keystone since inception returns are included in the Legacy Hedge Fund composite through 9/30/2017.

(2) SEI HY Bank Loans since inception returns are included in the Fixed Income composite through 9/30/2017.

(3) Russell 3000 Index since inception returns are included in the Global Public Equity composite through 9/30/2017.

(4) Private Debt performance has a 1 Qtr lag.

## Investment Manager Returns

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### Returns for Periods Ended March 31, 2019

	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Net Performance - Real Estate</b>							
<b>Real Estate</b>	<b>\$1,779</b>	<b>100.00%</b>	<b>4.32%</b>	<b>(0.71%)</b>	<b>1.87%</b>	<b>4.92%</b>	<b>8.38%</b> (3/84)
Real Estate Custom Benchmark	-	-	0.67%	6.05%	6.65%	8.90%	-
CPI +3% (Qtr lag)	-	-	0.27%	4.91%	5.03%	4.52%	5.63% (3/84)
<b>Core/Core Plus Real Estate Funds</b>	<b>\$524</b>	<b>29.45%</b>	<b>1.05%</b>	<b>7.92%</b>	<b>7.40%</b>	<b>9.22%</b>	<b>7.08%</b> (4/86)
NCREIF ODCE Index (Qtr lag)	-	-	1.39%	7.30%	7.53%	9.60%	6.03% (4/86)
<b>Value Add/Opp. Real Estate</b>	<b>\$989</b>	<b>55.60%</b>	<b>3.50%</b>	<b>(5.31%)</b>	<b>0.10%</b>	<b>3.94%</b>	<b>6.63%</b> (3/84)
Real Estate Separate Accounts	598	33.61%	4.80%	(10.82%)	(3.18%)	1.77%	4.96% (6/88)
Non-Core Closed End Funds	391	21.99%	1.34%	7.27%	7.49%	8.69%	7.89% (3/84)
NCREIF ODCE Index (Qtr lag)	-	-	1.39%	7.30%	7.53%	9.60%	6.29% (3/84)
<b>Natural Resources/Infrastructure</b>	<b>\$6</b>	<b>0.31%</b>	<b>(1.37%)</b>	<b>(7.69%)</b>	<b>(4.57%)</b>	<b>(1.97%)</b>	<b>4.12%</b> (3/93)
CPI +3% (Qtr lag)	-	-	0.27%	4.91%	5.03%	4.52%	5.21% (3/93)
<b>REITS</b>	<b>\$260</b>	<b>14.63%</b>	<b>16.40%</b>	<b>9.09%</b>	<b>5.21%</b>	<b>6.56%</b>	<b>9.92%</b> (4/96)
FTSE NAREIT US Index (Qtr lag)	-	-	(6.00%)	(3.87%)	2.42%	7.62%	10.02% (4/96)

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### Returns for Periods Ended March 31, 2019

	Market Value \$(mm)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Net Performance - Private Equity</b>							
<b>Private Equity</b>	<b>\$3,871</b>	<b>100.00%</b>	<b>0.62%</b>	<b>9.11%</b>	<b>10.01%</b>	<b>8.92%</b>	<b>10.88%</b> (1/86)
Burgiss Private Equity Index (Qtr Lag)	-	-	(0.73%)	10.15%	12.61%	11.44%	16.98% (6/86)
Russell 3000 + 3% (Qtr Lag)	-	-	(12.95%)	(1.76%)	12.25%	11.16%	13.72% (6/86)
<b>Buyouts</b>	<b>\$1,784</b>	<b>46.08%</b>	<b>(0.62%)</b>	<b>8.54%</b>	<b>12.22%</b>	<b>10.97%</b>	<b>13.13%</b> (4/86)
Burgiss Buyout Index (Qtr Lag)	-	-	(1.71%)	7.49%	13.84%	11.44%	19.73% (4/86)
<b>Special Situations</b>	<b>\$561</b>	<b>14.49%</b>	<b>5.30%</b>	<b>11.88%</b>	<b>10.72%</b>	<b>7.12%</b>	<b>12.31%</b> (1/95)
Burgiss Special Sits Index (Qtr Lag)	-	-	(1.28%)	3.63%	8.00%	6.69%	10.57% (1/95)
<b>Venture Capital</b>	<b>\$593</b>	<b>15.32%</b>	<b>4.73%</b>	<b>23.49%</b>	<b>9.05%</b>	<b>7.82%</b>	<b>6.67%</b> (1/86)
Burgiss Venture Capital Index (Qtr Lag)	-	-	0.36%	18.51%	10.96%	14.18%	13.47% (1/86)
<b>Keystone Legacy (Qtr Lag) (1)</b>	<b>\$933</b>	<b>24.12%</b>	<b>(2.10%)</b>	-	-	-	<b>(5.53%)</b> (10/18)

(1) As of 7/31/2018, Keystone Legacy SPV consists of 163 non-core funds, prior performance in previous sub-asset classes