Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: DECEMBER 31, 2019

Investment Performance Review for

Stanislaus County Employees' Retirement Association

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1ST QUARTER 2020
Investment Landscape

Recent Verus research

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Annual outlooks

CAPITAL MARKET ASSUMPTIONS

Some important developments occurred in the last year. During our 2020 Capital Market Assumptions webinar, we discussed:

- Market movements of 2019 and how these shifts have affected our long-term outlook
- The impact of falling interest rates on fixed income expectations
- Why it is important to differentiate between shorter-term and longer-term forecasting exercises

Topics of interests

WHY BENCHMARKS MATTER

In this Topics of Interest paper, we seek to outline the importance of benchmark selection within the investment process. The white paper addresses the following points:

- Benchmarks which appear similar can behave very differently, even over long periods of time
- Unconsidered benchmark selection can introduce uncompensated tracking error
- Tools available to investors to assist in determining appropriate benchmark indexes

RISK IN MANAGER SELECTION

In our latest Topics of Interest paper, we provide a framework for assessing the candidacy of a manager for portfolio inclusion and consider the implications of one manager versus alternatives. It addresses the following questions:

- Does the manager add a desired exposure?
- Does the manager exhibit skill?
- What does the manager add to the broader portfolio relative to other candidates?

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4th quarter summary

THE ECONOMIC CLIMATE

— Real GDP grew at a 2.1% rate year-over-year in the third quarter (2.1% quarterly annualized rate). Falling imports and weak fixed investment (-0.2% contribution) acted as a drag on growth, while personal consumption continued to as the greatest driver of growth. ***p. 7***

— U.S. and Chinese negotiators signed the "phase one" trade agreement, and Boris Johnson's Conservative Party in the U.K. won a decisive victory. These events appear to have removed some uncertainty from the geopolitical landscape over the short- to intermediate-term. ***p. 15***

PORTFOLIO IMPACTS

— Global equity markets exhibited strong performance through Q4, and U.S. equity performance was in-line (MSCI ACWI +9.0%, S&P 500 +9.1%). Emerging markets were the top performing asset class (+11.8%). ***p. 40***

— U.S. headline inflation increased 2.3% YoY in December, alongside the core inflation growth figure, and up from 1.7% in September. Although this was a notable jump in the inflation rate, investors appear more concerned about global deflationary forces, as indicated by the 10yr U.S. TIPS Breakeven Inflation Rate of 1.73%. Cyclical price pressures remain surprisingly absent from the current environment. ***p. 9***

THE INVESTMENT CLIMATE

— In October, the Federal Open Market Committee cut interest rates by 0.25% to a new range of 1.50 – 1.75%. This marked the third consecutive rate cut by the committee. ***p. 18***

— Global sovereign bond yields picked up modestly in Q4, on higher inflation and growth prospects. The dollar value of negative-yielding outstanding debt fell from nearly $15 trillion to just above $11 trillion. Central bankers appealed for fiscal action, citing the limited capacity of monetary policy to sustain further economic expansion. ***p. 18***

ASSET ALLOCATION ISSUES

— Most risk assets provided sizable gains in Q4. Global equities delivered +9.0%, U.S. high yield increased +2.6%, and Emerging Market Local Debt rose +5.2%. Longer duration fixed income saw losses as interest rates rebounded. ***p. 40***

— The U.S. dollar weakened -0.5% against both developed and emerging currencies in Q4, reversing moves of the prior quarter. Dollar volatility remains low relative to the big swings that occurred throughout 2014-2018. ***p. 35***

— Although risk assets appear to have rocketed higher in 2019, which may create concerns over valuations, it is important to note that much of this performance was due to assets recovering from a sharp fall in late-2018. ***p. 25***

A neutral risk stance may be appropriate in today's environment

What drove the market in Q4?

"U.S. trade deficit falls 7.6% in October to 16-month low on decline in Chinese imports"

U.S. FEDERAL TRADE DEFICIT ($BILLIONS)

Jun	Jul	Aug	Sep	Oct	Nov
53.7	52.7	53.5	51.1	46.9	43.1

Article Source: MarketWatch, December 5th, 2019

"As markets climb higher, are stocks becoming overvalued?"

BLENDED FORWARD 12-MONTH P/E RATIO OF THE S&P 500 INDEX

Jul	Aug	Sep	Oct	Nov	Dec
17.0x	16.6x	16.9x	17.3x	17.8x	18.3x

Article Source: CNBC, December 30th, 2019

"Fed 'prepared to adjust' balance sheet to prevent repo market flare-up"

MONTHLY CHANGE IN THE SIZE OF THE FED BALANCE SHEET ($BILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
-47.7	-19.2	97.8	162.1	33.1	112.7

Article Source: Yahoo Canada Finance, December 11th, 2019

"China's pork price jumps 110 per cent, sending consumer inflation rocketing to eight-year high"

CHINA CPI INFLATION (YoY % CHANGE)

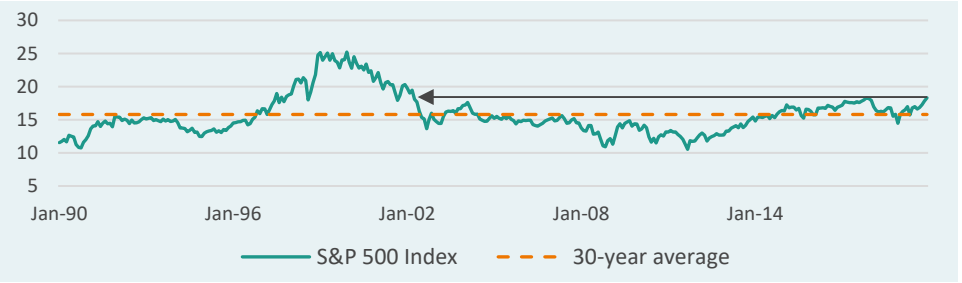
Jul	Aug	Sep	Oct	Nov	Dec
2.8	2.8	3.0	3.8	4.5	4.5

Article Source: South China Morning Post, December 10th, 2019

U.S. MONTHLY TRADE DEFICIT (BILLIONS)

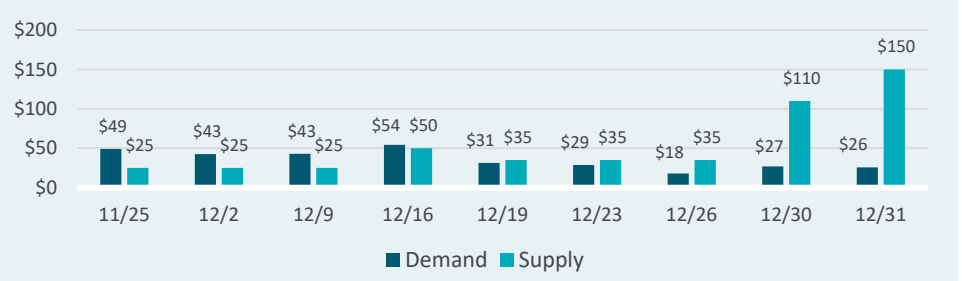
Source: Bloomberg, as of 11/30/19

FORWARD PRICE/EARNINGS RATIO (BLENDED 12-MONTH EARNINGS)



Source: Bloomberg, as of 12/31/19.

YEAR-END LIQUIDITY OFFERED UP BY THE NEW YORK FED (BILLIONS)



Source: New York Fed, as of 12/31/19.

Economic environment

U.S. economics summary

— Real GDP grew at a 2.1% rate year-over-year in the third quarter (2.0% quarterly annualized rate). Falling imports and weak fixed investment (-0.2% contribution) acted as a drag on growth, while personal consumption continued to be the greatest driver of growth.

— U.S. headline inflation came in at 2.3% YoY in December, in line with the core inflation growth figure. Despite more than 10 years of economic expansion, cyclical price pressures seem surprisingly absent from the current environment. Investors appear more concerned about global deflationary forces.

— The U.S. labor market showed further strength in the fourth quarter and unemployment remained at 50-year lows of 3.5%.

— Consumer sentiment indicators remain near all-time-highs and improved slightly over the quarter.

— American households are in a strong financial position, with balance sheets that appear increasingly robust. At the end of Q3, U.S. household debt outstanding was equal to about 74% of GDP, the healthiest level since Q4 2001.

— U.S. and Chinese negotiators signed the "phase one" agreement on trade, and Boris Johnson's Conservative Party won a decisive victory in the U.K. These developments may ease some of the economic uncertainty across the global economy, providing a tailwind to future growth.

— Existing home sales grew +2.7% YoY in November. New home sales, a far smaller portion of the overall market, grew at a stronger rate of +16.9% YoY, as construction activity further accelerated. Rising homebuilder activity in recent years may ease some of the low inventory pressures in the current market environment.

	Most Recent	12 Months Prior
GDP *(YoY)*	2.1% *9/30/19*	3.1% *9/30/18*
Inflation *(CPI YoY, Core)*	2.3% *12/31/19*	2.2% *12/31/18*
Expected Inflation *(5yr-5yr forward)*	1.8% *12/31/19*	1.8% *12/31/18*
Fed Funds Target Range	1.50 – 1.75% *12/31/19*	2.25 – 2.50% *12/31/18*
10 Year Rate	1.9% *12/31/19*	2.7% *12/31/18*
U-3 Unemployment	3.5% *12/31/19*	3.9% *12/31/18*
U-6 Unemployment	6.7% *12/31/19*	7.6% *12/31/18*

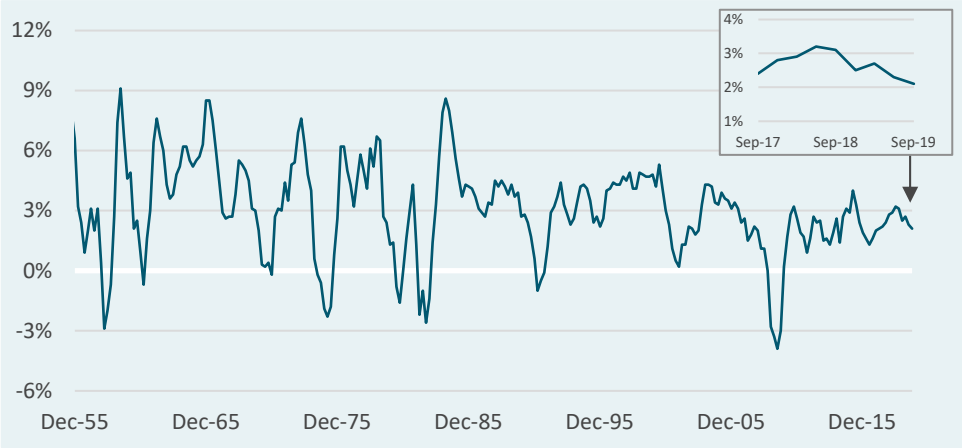
GDP growth

Real GDP grew at a 2.1% rate year-over-year in the third quarter (2.1% quarterly annualized rate). Falling imports detracted -0.3% from the overall GDP print, along with weak fixed investment (-0.2% contribution). Personal consumption, the largest component of gross domestic product, continued to drive the economy forward. The U.S. economy is pacing near the 2.0% rate that economists generally expect for full year 2020.

While trade policies and conflict likely resulted in a mild drag on economic growth in 2019, the U.S. and China have signed the "phase one" trade deal. A partial trade resolution, or at least an indication that negotiations are headed in a more positive direction, could provide a lift to the economy and markets.

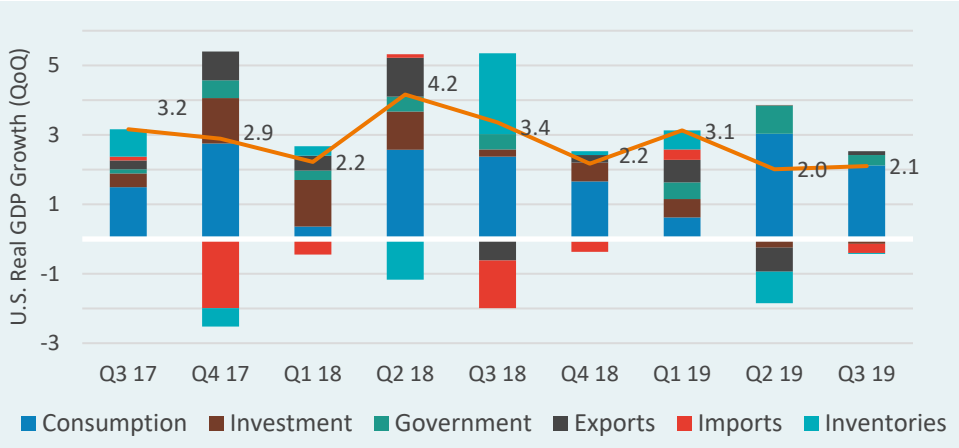
On January 17th, the Federal Reserve Bank of Atlanta GDPNow forecast indicated GDP growth of 1.8% in the fourth quarter. This forecast dipped recently due to weak personal consumption expenditures.

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 9/30/19

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 9/30/19

Inflation

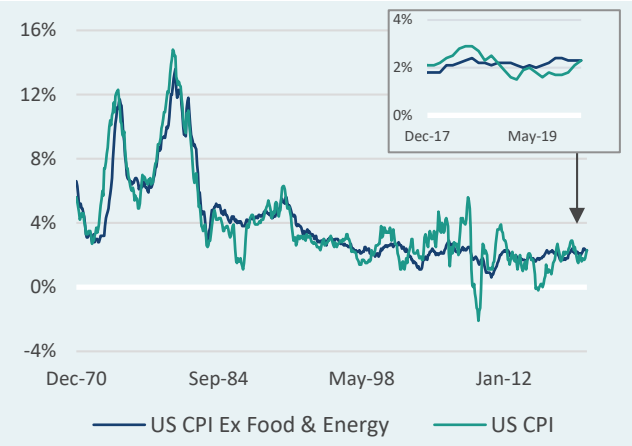
U.S. headline inflation increased 2.3% YoY in December, in line with the core inflation growth figure, and up from 1.7% in September. Although this is a notable jump in the inflation rate, investors appear more concerned about global deflationary forces. Cyclical price pressures remain surprisingly absent from the current environment.

During the quarter, the market's pricing of inflation increased from a low of 1.48% to 1.73%. While the breakeven rate has risen materially from its cycle low of 1.18% achieved in February 2016, it remains depressed by historical standards.

Consumer expectations moved in the opposite direction, falling from 2.7% at the beginning of the year to 2.3% in December.

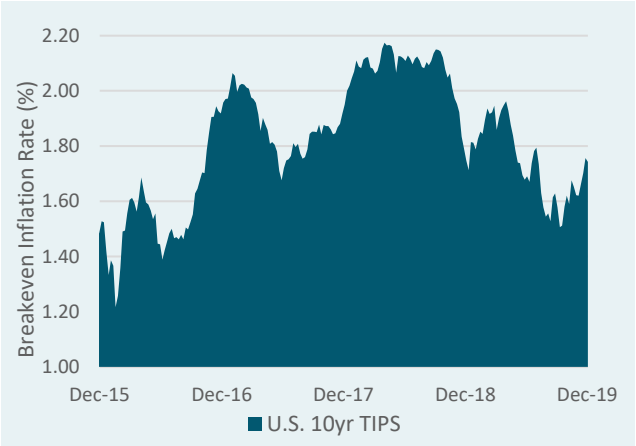
We believe it is likely that inflation will remain subdued. But it is also worth noting that if inflation or inflation fears returned to the markets, this might place central banks in a perilous position. It is doubtful that central banks could hike interest rates for any sustained period of time without risking recession.

U.S. CPI (YOY)



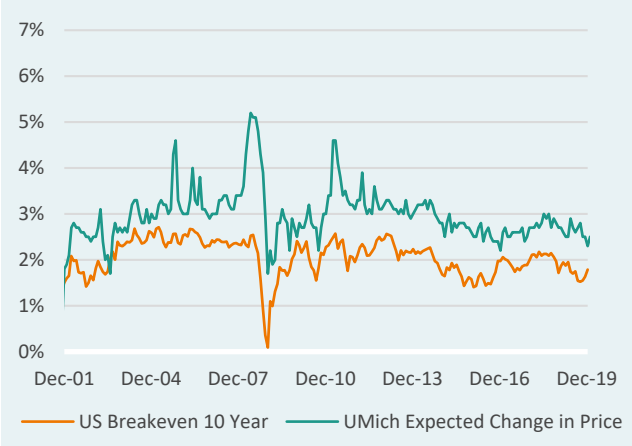
Source: Bloomberg, as of 12/31/19

U.S. BREAKEVEN INFLATION RATE



Source: FRED, as of 12/31/19

INFLATION EXPECTATIONS



Source: Bloomberg, as of 12/31/19

Labor market

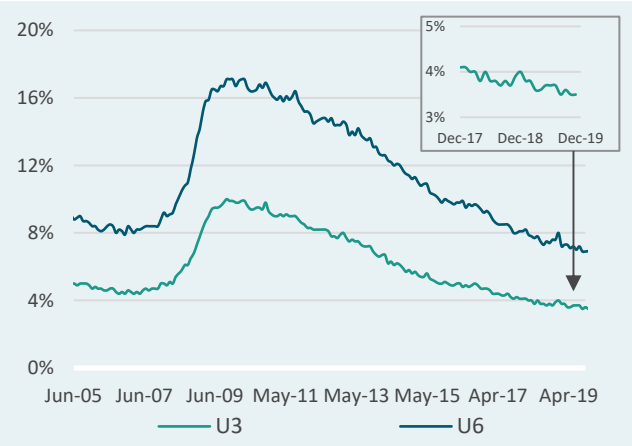
The U.S. labor market continued to show strength in Q4 and unemployment remained at 50-year lows of 3.5%. Year-over-year growth in non-farm payroll additions slowed to its lowest level since September 2017 at 1.4%. Nearly 1.24 jobs are now available per unemployed worker in the labor force, which suggests there is a limited remaining supply of workers to meet business hiring demands.

Average hourly earnings for production and nonsupervisory employees grew 3.0% year-over-year in December, outpacing inflation (2.3%). Sustained real wage growth would support sentiment, which is near cycle highs.

One plausible case for strong consumption to continue hinges on the fact that several key unemployment rates are near historic lows. The unemployment rate for workers who are at least 25 years old and lack high school diplomas (5.3%) is at an at all-time-low level since the data was first recorded in the year 2000. Typically, workers with less education earn less in nominal terms, but have a higher marginal propensity to consume per each dollar earned. These recent increases in employment for those workers who are more likely to spend may lead to outsized positive impacts on economic growth.

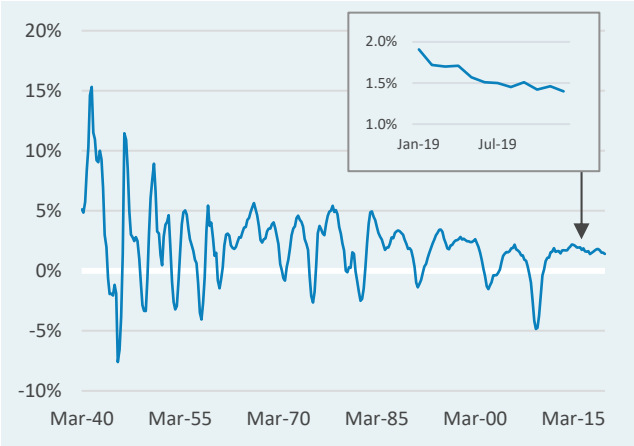
U.S. labor market remains strong, though further upside may be limited

U.S. UNEMPLOYMENT



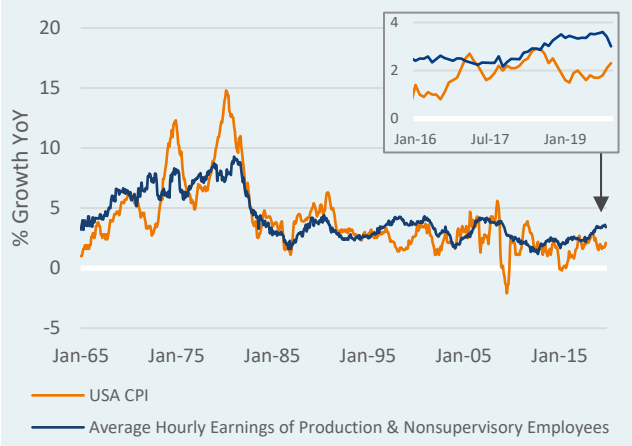
Source: FRED, as of 12/31/19

NON-FARM PAYROLL GROWTH (YOY)



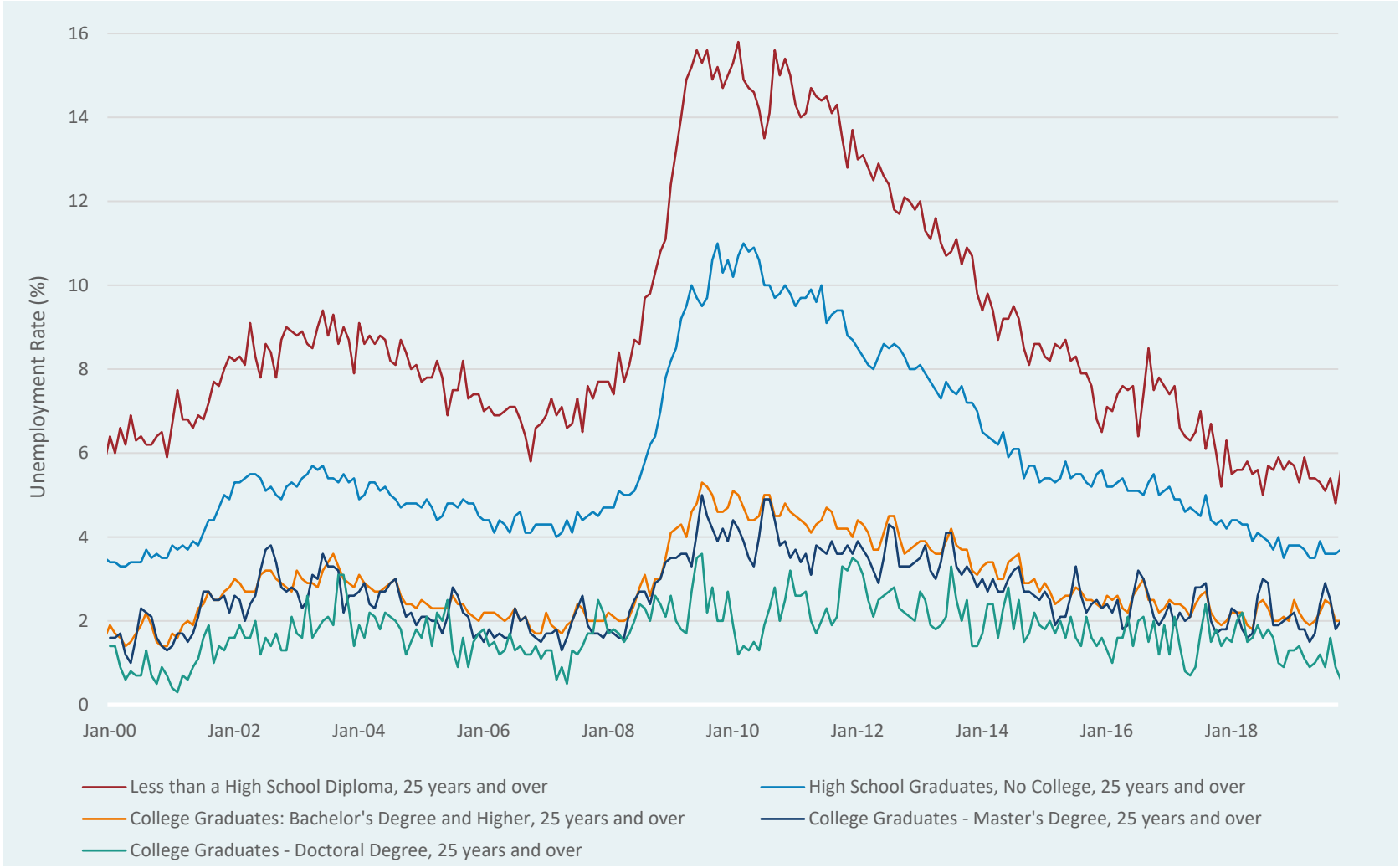
Source: BLS, as 12/31/19

U.S. WAGE GROWTH



Source: FRED, as of 11/30/19

U.S. unemployment



The U.S. job market is very strong, for all levels of education

Source: FRED, as of 11/30/19

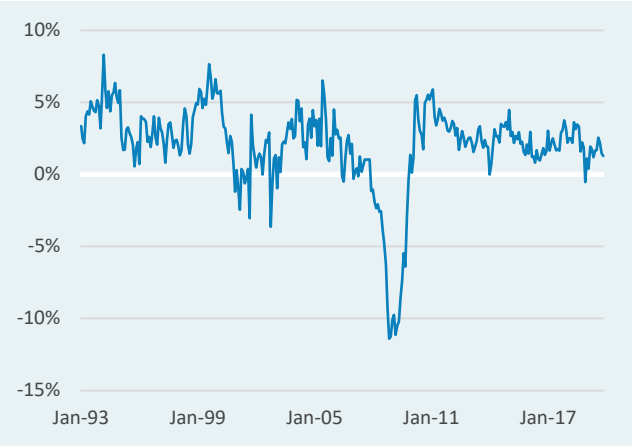
The consumer

The U.S. consumer continued to push the U.S. economy forward, supported by low unemployment, solid wage gains, and high sentiment. American households are in a strong financial position, with balance sheets that appear robust. At the end of Q3, U.S. household debt outstanding was equal to about 74% of GDP, the healthiest level since Q4 2001.

Retail sales growth slid a bit in real terms, but much of this move was due to a pickup in inflation. The price of a barrel of WTI crude oil rose from $53 to $61, helping to propel year-over-year growth in headline inflation from 1.7% to 2.3%. Overall, retail sales growth remains solid, and has been boosted recently by a surge in e-commerce sales. Cyber Monday sales grew nearly 20% this year, hitting a record $9.4 billion U.S. dollars according to data from Adobe Analytics. Shoppers' carts were also about 6% larger at checkout than they were last year, perhaps hinting at a more optimistic consumer outlook.

Credit conditions remain benign. Credit-card borrowing ticked down slightly and was offset by faster growth in auto and student loans. Some might consider credit-card debt "worse debt" and auto and student loan debt "better debt" in that prudent investments in transportation and human capital are likely higher-returning than ultra-short-term consumption.

REAL RETAIL SALES GROWTH (YOY)

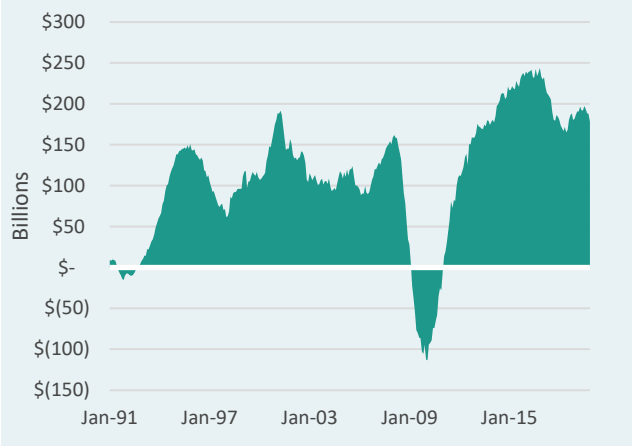


Source: FRED, as of 11/30/19

E-COMMERCE SALES GROWTH (QUARTERLY YOY)

Source: U.S. Census Bureau, Bloomberg, as of 9/30/19

12-MONTH GROWTH IN CONSUMER CREDIT



Source: Federal Reserve, Bloomberg, as of 11/30/19

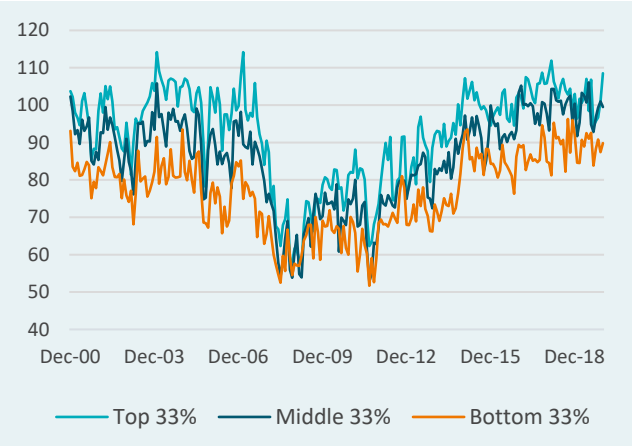
Sentiment

Consumer sentiment indicators remain near all-time-highs and improved slightly as a number of closely-followed geopolitical storylines appeared to move closer to resolution. The U.S. and China "phase one" trade deal, and the victory of Boris Johnson's Conservative Party in the U.K. appears to have at least removed some uncertainty from the geopolitical landscape over the short- to intermediate-term.

Over the quarter, the difference between the sentiment reading for the top third of income earners and the bottom third of income earners moved from the 10th percentile to the 65th percentile of monthly periods since 2001, indicating a widening in the gap between the "haves" and "have-nots".

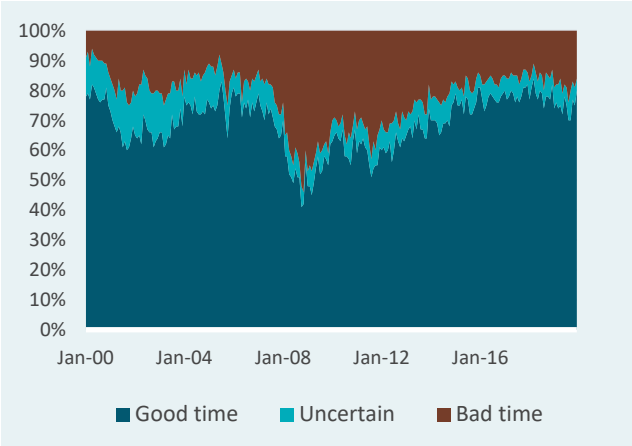
Consumers view the economic conditions for buying big-ticket household items such as furniture, refrigerators and televisions as close to as favorable as they have been over the course of the expansion. This belief appears to be rooted in dual expectations for job security and real wage gains.

CONSUMER SENTIMENT BY INCOME BRACKET



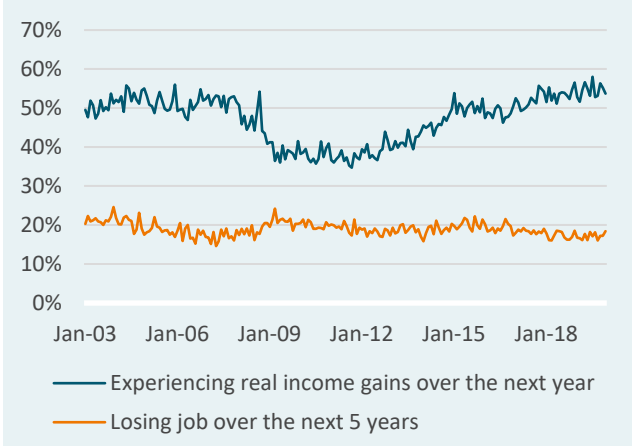
Source: University of Michigan, as of 12/31/19

CONDITIONS FOR BUYING BIG-TICKET ITEMS (%)



Source: University of Michigan, as of 12/31/19

CONSUMER FEAR GAUGE



Source: University of Michigan, as of 12/31/19

Housing

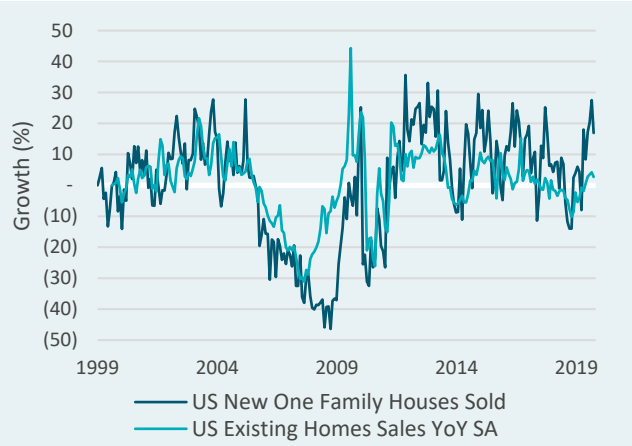
In the first half of 2019 the housing market appeared to be cooling off, coming down from a strong boom throughout the recent economic expansion. The average home sales price is down -8% from the highs of late-2017, although other variables such as the types and location of homes sold can impact these numbers. Homebuilding activity ticked up in the second half of the year as homebuilder sentiment jolted higher in 2019.

Existing home sales grew +2.7% YoY in November. New home sales, a far smaller portion of the overall market, grew at a stronger rate of +16.9% YoY, as construction activity further accelerated. Rising homebuilder activity in recent years may ease some of the low inventory pressures in the current market environment.

The housing boom has contributed to a rebound in the U.S. homeownership rate. A decade-long trend away from buying and towards renting appears to have reversed in mid-2016. Since that time, the rate of homeownership has risen to 64.7% from a low of 63.1%.

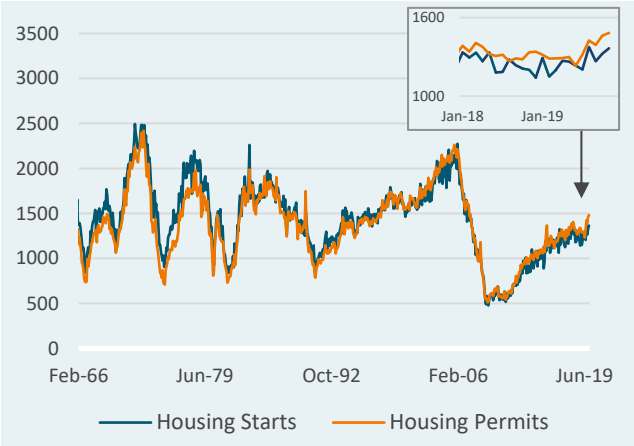
It is always helpful to remember that home price trends can vary meaningfully by location, which means national statistics are sometimes difficult to interpret at a local level.

U.S. HOME SALES (YOY)



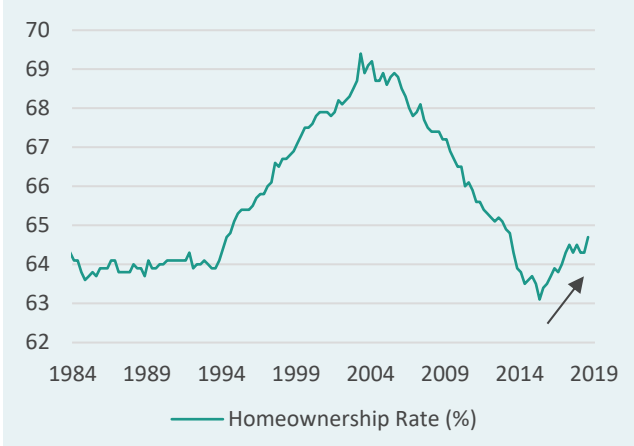
Source: FRED, as of 11/30/19

HOUSING STARTS & PERMITS



Source: Bloomberg, NAHB, as of 11/30/19 (see appendix)

HOMEOWNERSHIP RATE



Source: FRED, as of 9/30/19

International economics summary

— The growth of international developed economies remains in a range of 0.5% to 2.0%, near the 2.1% growth rate of the slowing U.S. economy.

— In January, the IMF forecasted 2.9% global growth in 2019 and an acceleration to 3.3% in 2020. These growth expectations were 0.1% lower than the previous quarter's report, and were mostly a result of downward adjustments to emerging markets expectations.

— Inflation continues to be muted across international developed markets, keeping more options on the table for central banks to step in as needed with accommodative policy.

— The U.K. general election in December resulted in a landslide victory for Boris Johnson. The election, through a consolidation of Tory party power, effectively guarantees that Brexit will ultimately be carried out.

— While the global economy has exhibited mild growth, labor markets continue to tighten across the board. By traditional unemployment measures, job markets are now stronger than pre-2008 levels in most major economies.

— U.S. and Chinese negotiators signed the "phase one" agreement on trade, and the decisive victory of Boris Johnson's Conservative Party in the U.K. appears to have at least removed some uncertainty from the geopolitical landscape over the short- to intermediate-term.

— China has experienced a significant jump in inflation to 4.5% as an outbreak of African swine fever resulted in a doubling of pork prices. This compares to a 5-year average inflation rate of 1.9%. An acceleration of inflation may create issues for Chinese leadership in an already-slowing economy.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.1% *9/30/19*	2.3% *12/31/19*	3.5% *12/31/19*
Eurozone	1.2% 9/30/19	1.3% *12/31/19*	7.5% *11/30/19*
Japan	1.7% *9/30/19*	0.9% *12/31/19*	2.2% *11/30/19*
BRICS Nations	4.9% *9/30/19*	4.4% *12/31/19*	5.1% *9/30/19*
Brazil	1.2% *9/30/19*	4.3% *12/31/19*	11.2% *11/30/19*
Russia	1.7% *9/30/19*	3.1% *12/31/19*	4.6% *11/30/19*
India	4.5% *9/30/19*	7.4% *12/31/19*	8.5% *12/31/17*
China	6.0% *9/30/19*	4.5% *12/31/19*	3.6% *9/30/19*

International economics

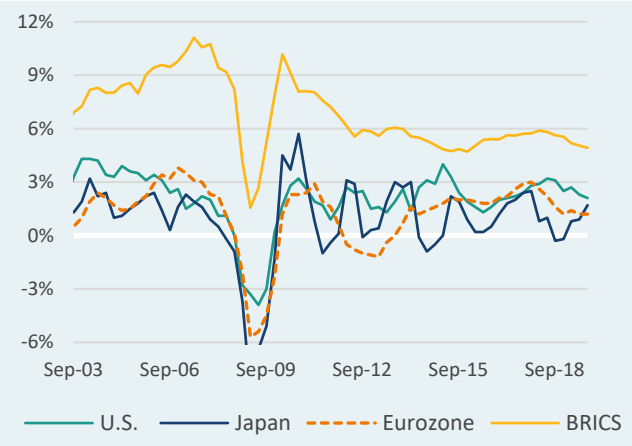
The United States grew at a pace of 2.1% year-over-year in the third quarter, moving more closely in line with other developed nations which have posted growth of 1.0%-2.0%.

While the global economy has exhibited mild growth, labor markets continue to tighten across the board. By traditional unemployment measures, job markets are now stronger than pre-2008 levels in most major economies.

Inflation has remained subdued across international developed markets, and many pundits have viewed the mild inflation data as a cue for central banks to step in and attempt to bolster economic growth through more accommodative policy. Inflation remains muted in emerging economies, and most economies are experiencing CPI below the 5-year average.

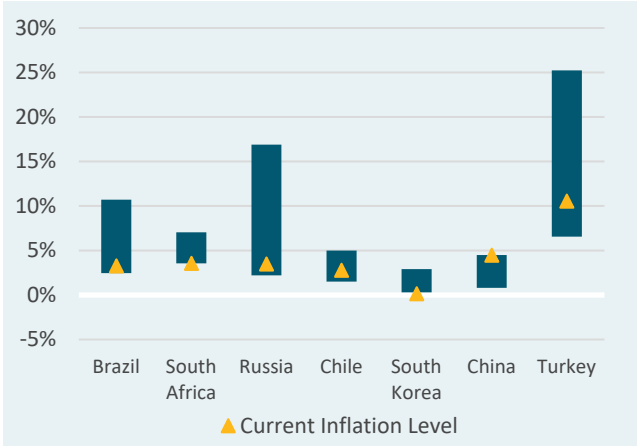
China's inflation rate has become an outlier, jumping to 4.5% as an outbreak of African swine fever resulted in a doubling of pork prices in the country during the year. This compares to a 5-year average inflation rate of 1.9%. Prices of other meats in China have also increased on heightened demand for pork substitutes. An acceleration of inflation may create issues for Chinese leadership in an already-slowing economy.

REAL GDP GROWTH (YOY)



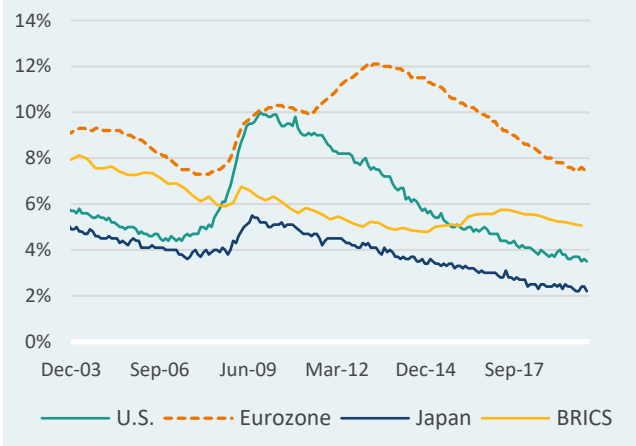
Source: Bloomberg, as of 9/30/19

INFLATION (CPI YOY)



Source: Bloomberg, inflation range of past 5 years, as of 11/30/19

UNEMPLOYMENT RATE



Source: Bloomberg, as of 11/30/19 or most recent release

Fixed income rates & credit

Interest rate environment

— The global sovereign bond rally lost steam in Q4 as inflation and growth prospects mildly reflated. Central bankers at the European Central Bank and the Federal Reserve signaled that policy would likely remain on hold in the absence of significant economic developments.

— Global ten-year sovereign bond yields picked up moderately, most significantly in Europe. Over the quarter, the U.S.-dollar value of global outstanding negative-yielding debt fell from nearly $15 trillion to just above $11 trillion.

— In October, the Federal Open Market Committee cut the range for its benchmark interest rate by 0.25% to a new range of 1.50 to 1.75%.

— Diversity of opinion among FOMC participants about the path of interest rates has faded. Most members now expect rates to remain flat in 2020, and move back toward 2.50% over the longer term.

— The New York Fed conducted a series of term repurchase operations aimed at providing sufficient liquidity for firms to get through the year-end turn when demand for cash typically surges. The Fed balance sheet grew by $300B in Q4, and analysts continue to debate whether the Fed's involvement in repo markets should be considered "technical" or "stimulative" in nature.

— The Governing Council of the ECB decided to leave key interest rates unchanged and confirmed that net asset purchases to the tune of €20 billion per month had begun in November.

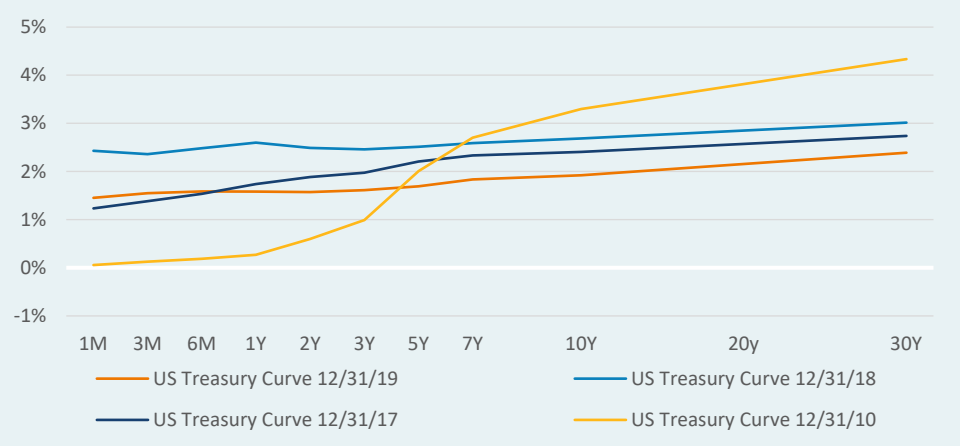
— In Christine Lagarde's first major move as President, she announced the ECB's first Strategic Policy review since 2003, which will begin in January and will address a wide range of topics, including: low inflation, the price-stability goal, climate change, and cryptocurrency.

Area	Short Term (3M)	10-Year
United States	1.54%	1.92%
Germany	(0.78%)	(0.19%)
France	(0.65%)	0.12%
Spain	(0.61%)	0.47%
Italy	(0.34%)	1.41%
Greece	0.26%	1.47%
U.K.	0.69%	0.82%
Japan	(0.10%)	(0.01%)
Australia	0.94%	1.37%
China	2.43%	3.14%
Brazil	4.30%	6.79%
Russia	4.95%	6.36%

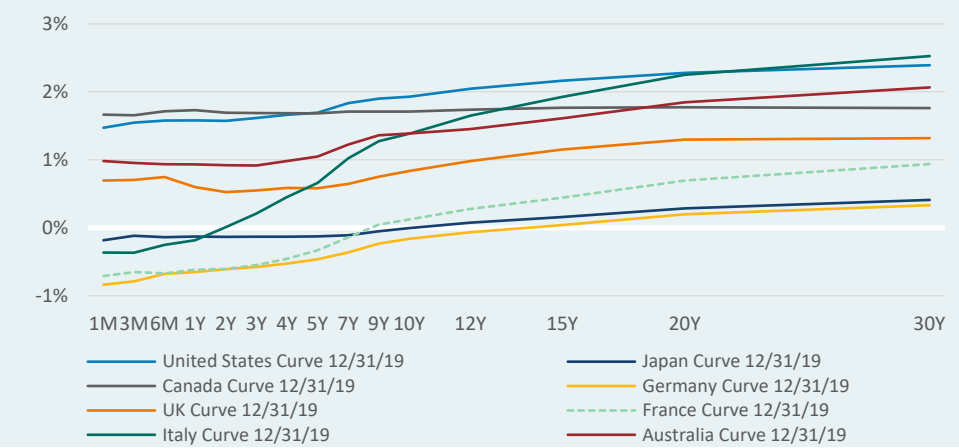
Source: Bloomberg, as of 12/31/19

Yield environment

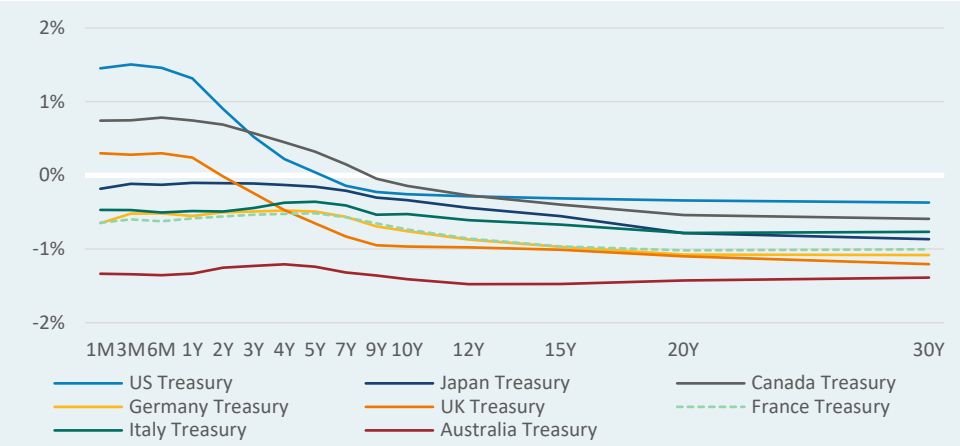
U.S. YIELD CURVE



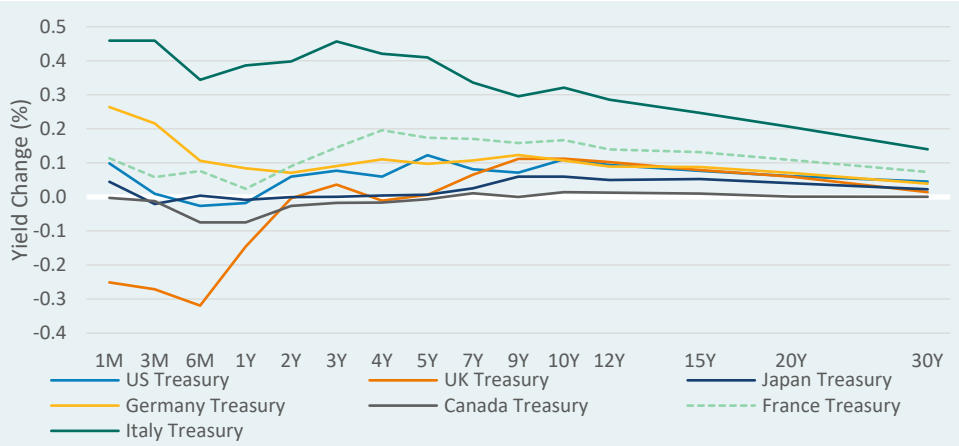
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/19

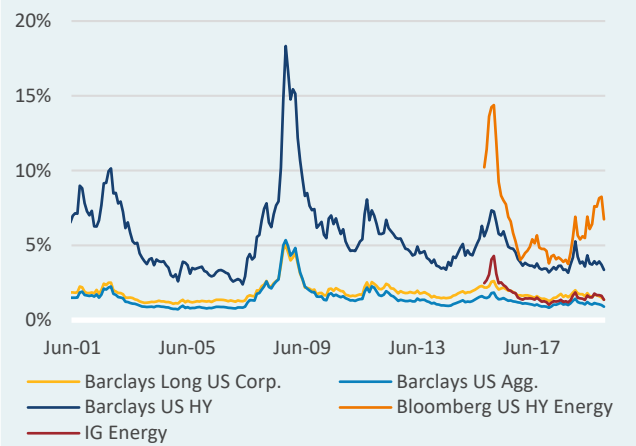
Credit environment

Credit enjoyed a positive 2019 driven by tightening spreads. Both investment grade and below-investment grade assets remained somewhat stable over the period. In high yield, CCCs and energy-related bonds were the best performers during Q4. High yield spreads tightened meaningfully over the year and the quarter (190 bps and 37 bps, respectively). Investment grade bonds also enjoyed positive performance fueled by this year's rate rally, attractive profit margins, and continued demand from investors for higher quality credit.

In the fourth quarter, high yield bonds have returned +3.4%, materially outperforming bank loans (+1.7%) and investment grade credit (+1.1%). In 2019, high yield bonds have returned +14.4%, materially outperforming bank loans (+8.6%) and slightly outperforming investment grade credit (+13.8%). Bank loans have experienced outflows for much of the year driven by lessening demand for the asset class.

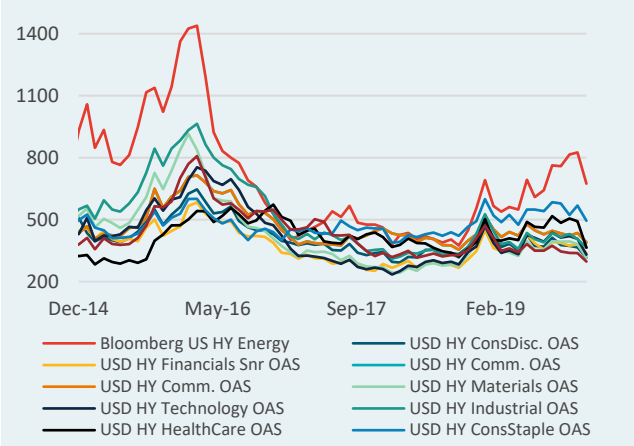
Based on concerns over late-cycle behavior in credit markets, we do not believe investors are being adequately compensated for credit risk. Late-cycle volatility tends to coincide with widening credit spreads and higher propensity for default activity. An underweight to U.S. investment grade, high yield credit, and bank loans may be warranted, with an overweight to emerging market debt which appears to offer more attractive value. This positioning should result in an overall neutral credit risk stance. Within U.S. markets, higher quality and more liquid assets appear most attractive.

SPREADS



Source: Barclays, Bloomberg, as of 12/31/19

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/19

Market	Credit Spread (OAS) 12/31/19	12/31/18
Long U.S. Corp	1.4%	2.0%
U.S. Inv Grade Corp	0.9%	1.5%
U.S. High Yield	3.4%	5.3%
U.S. Bank Loans*	4.4%	5.1%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/19

**Discount margin (4-year life)*

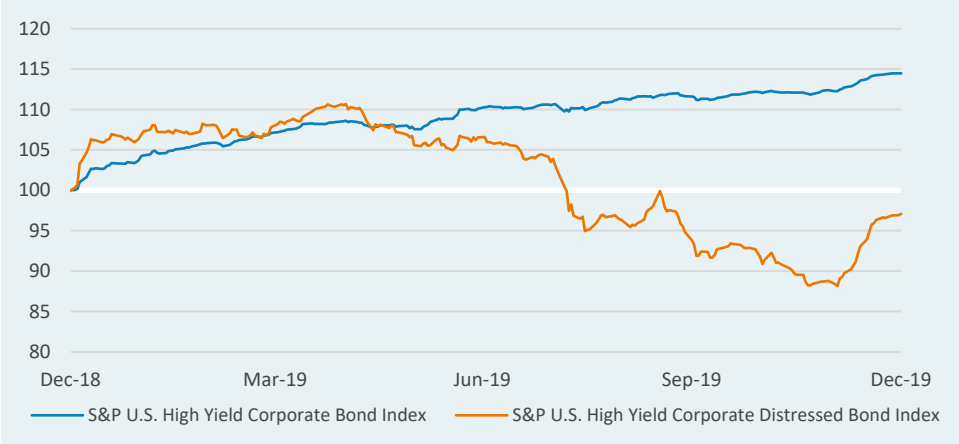
High yield – what's in it?

The high yield market rallied in 2019 to provide double digit positive returns for only the fourth time since the 2008-2009 global financial crisis. However, the market was characterized by significant divergences as investors rotated into upper-tier credits relative to lower-tier credits due to volatility and geopolitical uncertainty picking up during the year. This was evidenced by the ratio of CCC/BB credit spread levels, which climbed to levels last seen two decades ago. Investors generally see CCC credits as a proxy for less liquid and/or more complex situations and risks, especially relative to the BB segment.

The distressed market was negatively impacted by investor distaste for less liquid risk during the year. This was particularly true in the energy sector, and in certain retail and healthcare industries. Selling pressures peaked in November as the riskiest segment of the high yield market suffered losses in excess of those experienced during the 2018 year-end drawdown. Market participants pulled money from the space, which resulted in significant redemptions amongst distressed-focused hedge funds and even closures of hedge funds that had previously successfully navigated the global financial crisis.

CCC/BB SPREAD RATIO

HIGH YIELD VS. HIGH YIELD DISTRESSED (INDEXED 12/31/2018=100)



Source: Standard & Poor's, J.P. Morgan, Wall Street Journal, as of 12/31/19

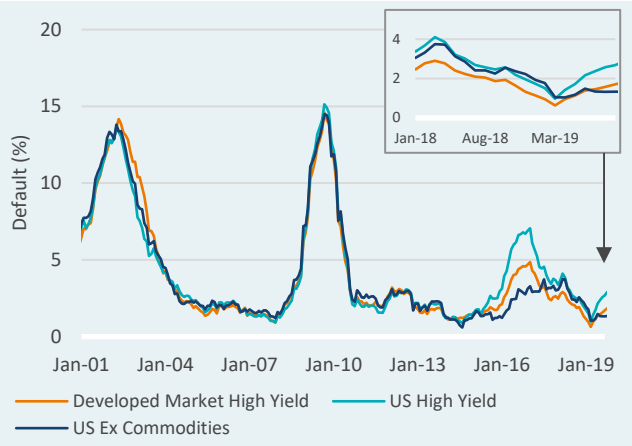
Default & issuance

Default activity for 2019 was slightly higher than 2018 by roughly 0.8%. This was mainly due to elevated defaults in commodity-related industries such as energy and metals/mining. The par-weighted default rate for high yield ended the year at 2.6% and remained below its long-term average range of 3.0-3.5%.

For loans, the par-weighted default rate for 2019 was 1.6% and remained below the long-term average of 3.1%, according to data from J.P. Morgan. Notably, defaults in commodity-related sectors accounted for essentially half of the year's default/distressed activity.

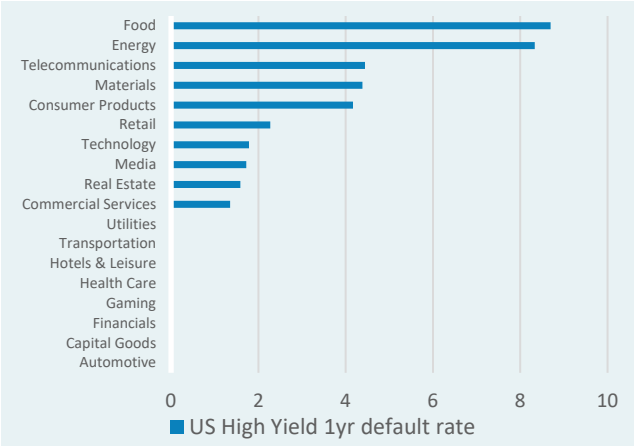
Gross high yield issue activity for 2019 was $287 billion which was up 52% from a year ago. Loan market issuance is significantly behind last year's pace, likely influenced by lower demand for floating rate securities now that the Federal Reserve has paused monetary tightening. Gross loan issuance is essentially down 44% from a year ago although there was an increase in issuance at the end of December.

HY DEFAULT RATE (ROLLING 1-YEAR)



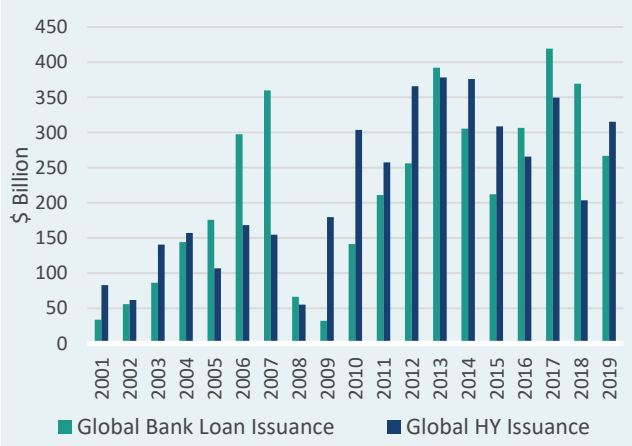
Source: BofA Merrill Lynch, as of 12/31/19

U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 12/31/19 – par weighted

GLOBAL ISSUANCE ($ BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 12/31/19

Equity

Equity environment

— Global equity markets exhibited strong performance through Q4, and U.S. equity performance was in-line (MSCI ACWI +9.0%, S&P 500 +9.1%). Emerging markets were the top performing asset class (+11.8%).

— Global currency volatility has been muted over the last few years, which has made ignoring currency exposure less consequential. Expecting low currency volatility to persist may be an assumption that gets investors into trouble.

— Unhedged U.S. investors in U.K. equities outperformed their hedged peers by 7.8% in Q4, as a stronger pound sterling dominated the U.K. equity return narrative.

— Based on price-to-forward earnings ratios international equity valuations appear elevated, but unlike in the U.S., they do not yet appear stretched.

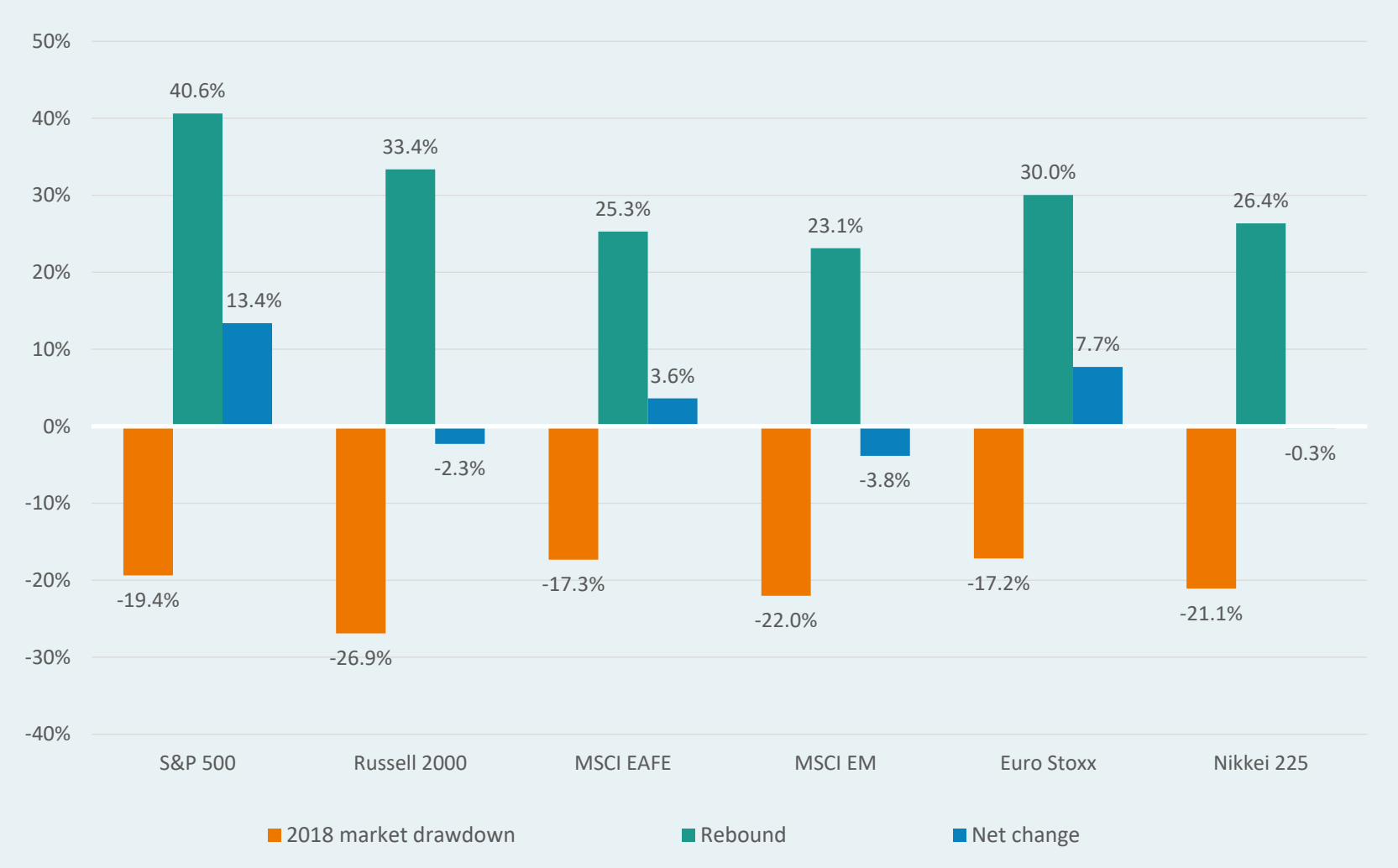
— The outlook for monetary policy remains supportive of global equity price movement in 2020. Of the five major global central banks (Federal Reserve, European Central Bank, Bank of England, Bank of Japan, People's Bank of China), four out of five are providing accommodation through their respective balance sheets. Futures imply better than 50/50 odds that the Bank of England cuts its main rate 0.25% at the end of January and China has continued to cut its benchmark lending rate.

— Inflation remains muted in emerging economies, and most economies are experiencing CPI below the 5-year average. Central bank policy has remained accommodative in many major countries within the universe such as China, South Korea, Brazil, and South Africa. This accommodation could provide a boost for equity market pricing as we move further into 2020.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	9.1%		31.5%	
US Small Cap (Russell 2000)	9.9%		25.5%	
US Large Value (Russell 1000 Value)	7.4%		26.5%	
US Large Growth (Russell 1000 Growth)	10.6%		36.4%	
International Large (MSCI EAFE)	8.2%	5.8%	22.0%	24.6%
Eurozone (Euro Stoxx 50)	8.3%	5.9%	25.9%	32.1%
U.K. (FTSE 100)	10.8%	3.0%	22.1%	19.5%
Japan (NIKKEI 225)	8.2%	9.6%	21.9%	23.5%
Emerging Markets (MSCI Emerging Markets)	11.8%	9.5%	18.4%	17.7%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/19

A different look at 2019 performance



Most of the high returns of 2019 were due to markets recovering from the 2018 drop

Adjusting for this effect shows us that 2019 was a fairly average year

Source: Standard & Poor's, MSCI, Verus, as of 12/31/19 – "Drawdown" defined as the total market fall in 2018, "Rebound" defined as the total % return from the low point of the fall to the end of 2019. "Net Change" defined as the % market return from the 2018 high point to the end of 2019.

Domestic equity

U.S. equities outpaced international in the third quarter (S&P 500 +9.1%, MSCI EAFE +8.2%) as domestic markets continued to lead.

Falling interest rates in 2019 have supported stock prices, as fixed income becomes less attractive on a relative basis, and cheaper borrowing should bolster future corporate earnings. As the dividend yield of U.S. stocks is once again higher than U.S. Treasury yields, investors may feel pressure to maintain greater exposure to equities in order to meet return objectives.

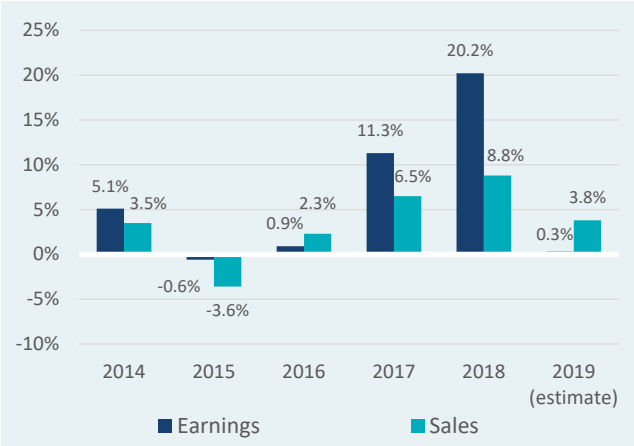
The S&P 500 delivered a 31.5% total return in calendar year 2019, while underlying corporate profits are expected to be flat at +0.3%. This of course means that performance has been driven by higher stock multiples rather than fundamentals. It is worth noting that a significant portion of 2019 performance was a recovery from the late-2018 sell-off of nearly -20%.

U.S. markets may continue to outperform over the shorter-term due to relative economic and market strength, and prices may certainly rise further. But history suggests that a widening gap between U.S. and international stock valuations will constrain U.S. performance over the longer-term.

U.S. EQUITIES

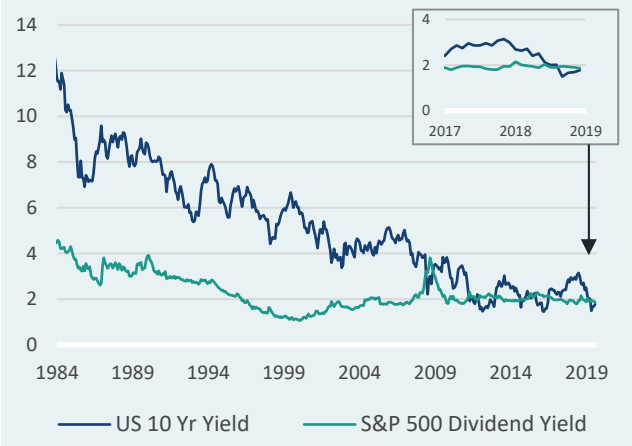
Source: Standard & Poor's, as of 12/31/19

EARNINGS



Source: FactSet, as of 12/20/19

RELATIVE YIELDS



Source: Standard & Poor's, as of 11/30/19

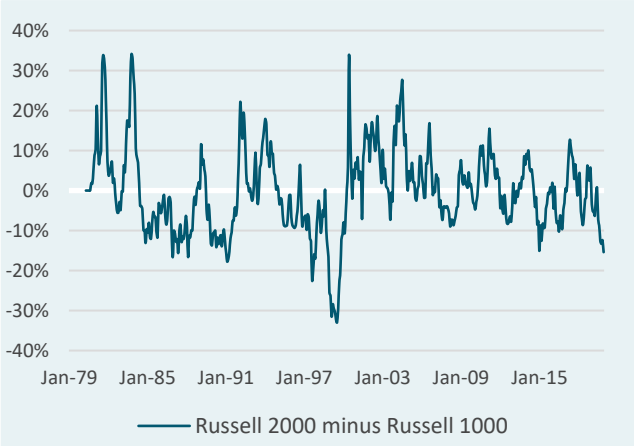
Domestic equity size & style

Value stocks lagged growth stocks during the fourth quarter (Russell 1000 Growth +10.6%, Russell 1000 Value +7.4%) while small cap stocks outperformed large stocks (Russell 2000 +9.9%, Russell 1000 +9.0%). During calendar year 2019, both size and value factors significantly underperformed (Russell 1000 +31.4%, Russell 2000 +25.5%; Russell 3000 Growth +35.8%, Russell 3000 Value +26.2%).

The impact of sector performance on the value premium was significant, once again, in 2019. Information Technology delivered very high returns (+50.3%) – a sector which tends to contains more growth stocks. Energy (+11.8%) and Materials (+24.6%) – industries which traditionally contain more value stocks – lagged the overall index (S&P 500 +31.5%).

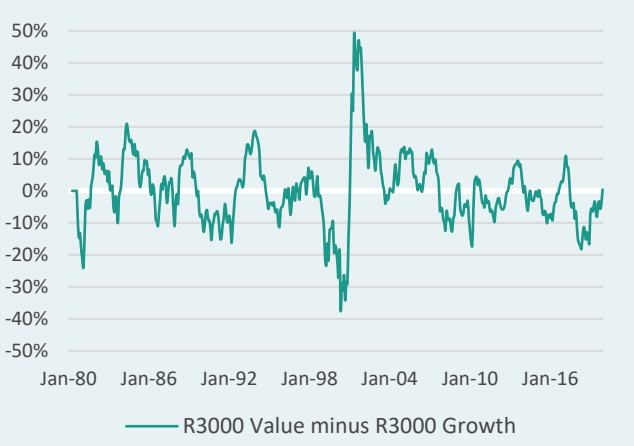
In mid-2016 we argued that there were clear and economic reasons for long-term value factor underperformance, and that a tactical overweight to the value factor did not appear warranted. This view has continued to be correct, as those who bought into value anytime of the past three years would have underperformed. While value continues to be historically cheap, price itself is not a catalyst for outperformance. We remain watchful of value stocks, but do not yet see clear signs of opportunity. As always, attempting to time factors is extremely difficult. We believe this should be done only rarely, if at all, and only when market conditions are particularly compelling.

SMALL CAP VS LARGE CAP (YOY)



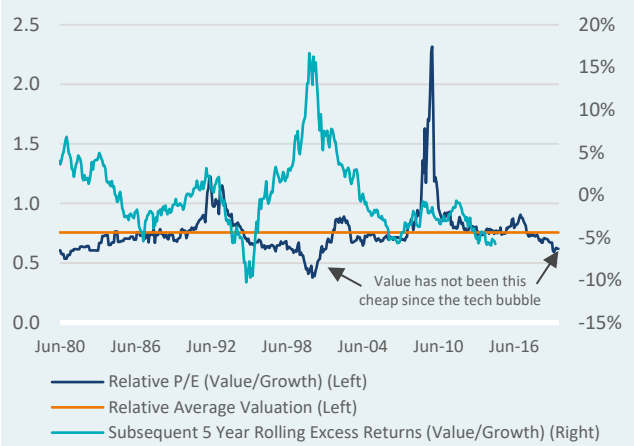
Source: FTSE, as of 12/31/19

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/19

VALUE CONTINUES TO LOOK CHEAP



Source: Russell, Bloomberg, as of 12/31/19

International developed equity

Equities in Europe and Japan posted strong performance for the quarter but failed to keep up with stocks in the U.S. and emerging markets. The U.S. dollar appreciated slightly against the yen, providing headwinds (-1.4%) for unhedged U.S. investors in Japanese stocks. Conversely, a slightly weaker U.S. dollar against the euro put some additional wind in the sails (+2.4%) of U.S. investors in European equities.

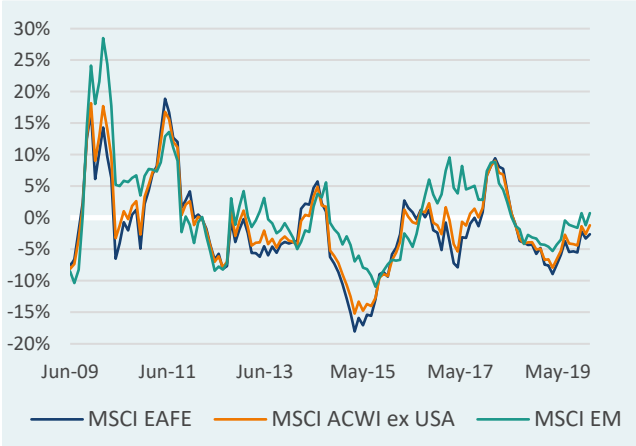
When investing in international equities, the "which currency should my assets be denominated?" question has been nearly equally as important as the "what assets should I hold?" question. Over the last three years however, global currency volatility has been muted, which has made it much easier for investors to avoid thinking about their various currency exposures. Verus' view remains that currency risk is not compensated, and that it tends to result in increased risk without necessarily adding to return.

International equity valuations remain elevated, but unlike in the U.S., they do not yet appear stretched. Forward price-to-earnings ratios for the MSCI U.K. and Italy indices rank in the 59th and 52nd percentiles respectively, relative to the monthly expansion average. Valuations are a bit richer in the rest of the EAFE complex, but they may still have room to run.

INTERNATIONAL DEVELOPED EQUITIES

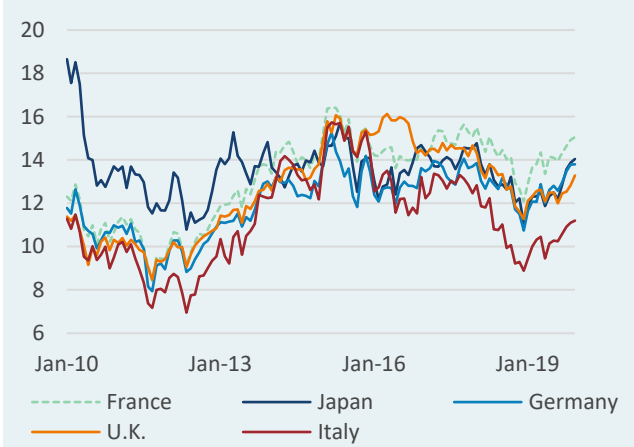
Source: MSCI, as of 12/31/19

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/19

BLENDED FORWARD 12-MONTH P/E RATIOS



Source: MSCI, Bloomberg, as of 12/31/19

Emerging market equity

Emerging market equities (+11.8%) outperformed both U.S. (+9.1%) and international developed equities (+8.2%) over the quarter, but still lagged over the full calendar year. In 2019, emerging market equities delivered a total return of 18.4%, and trailed the total return of international developed equities by 3.6%. Regionally, the Asian segment (+12.5%) of the emerging market complex performed better than the Latin American (+10.5%) segment in both Q4 and in 2019.

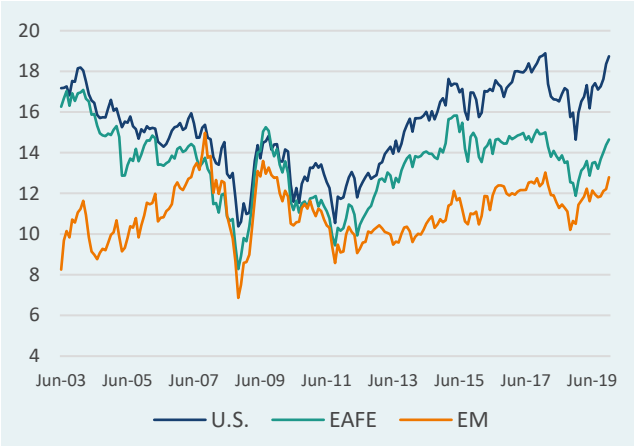
Emerging market equities saw multiple expansion in Q4: the forward P/E of the MSCI EM Index expanded from a level in line with the 5-year average to a bit higher than average levels. We do not yet view pricing in this space as rich and see there being more room for multiple expansion.

Inflation remains muted in emerging economies, and most economies are experiencing CPI below the 5-year average. Central bank policy has remained accommodative in many major countries within the universe such as China, South Korea, Brazil, and South Africa. This accommodation could provide a boost for equity market pricing as we move further into 2020.

EMERGING MARKET EQUITY

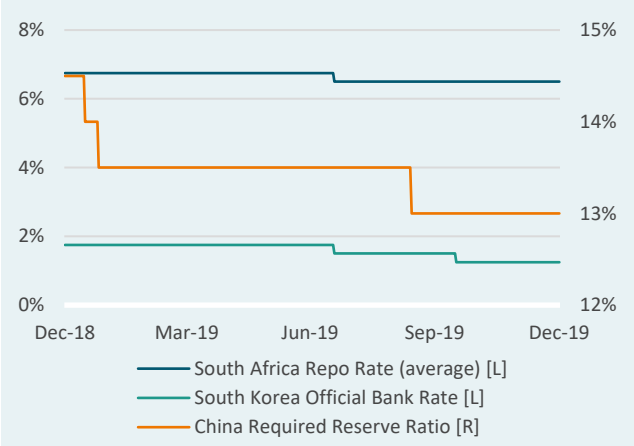
Source: MSCI, as of 12/31/19

FORWARD P/E



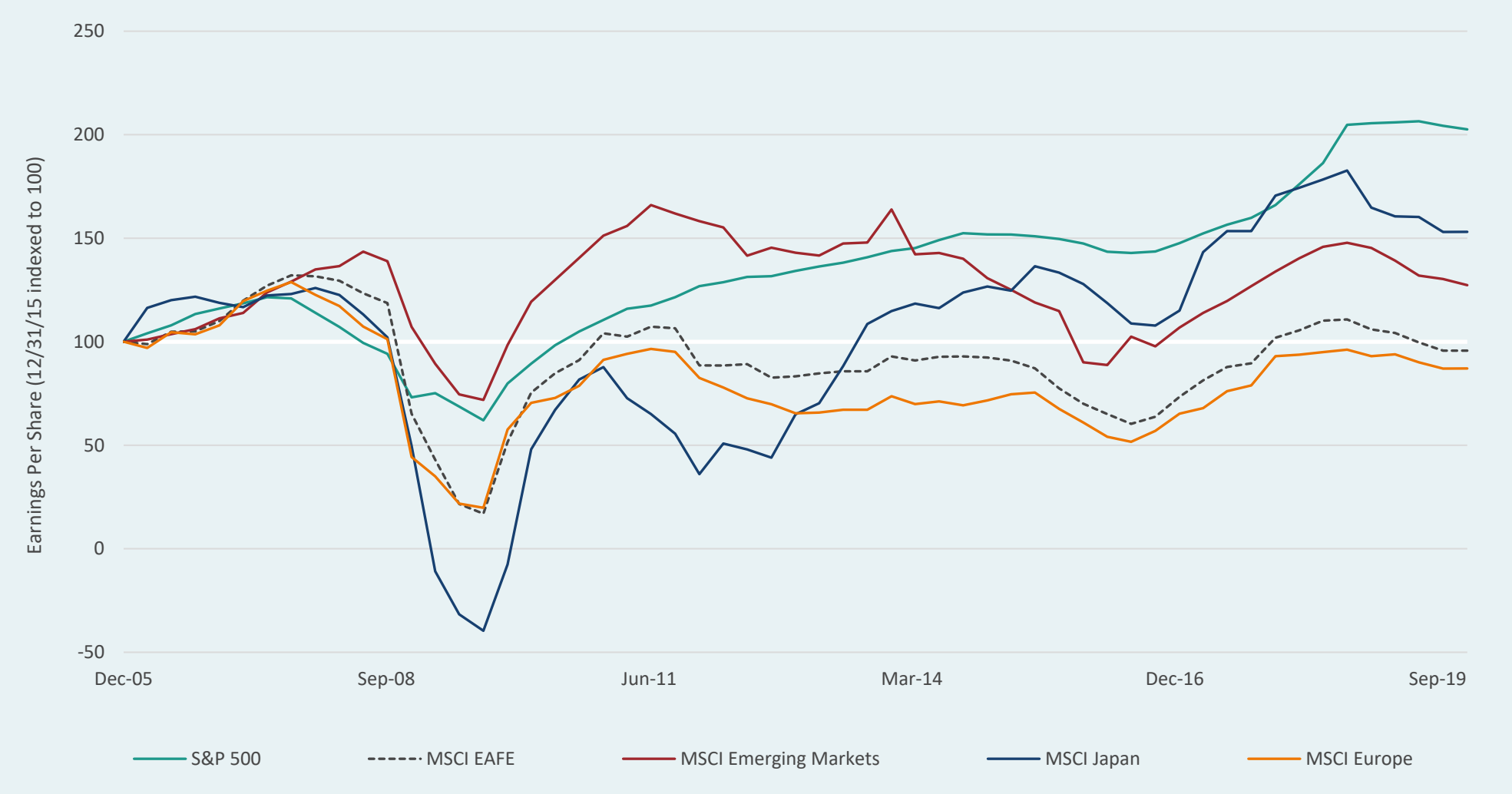
Source: MSCI, as of 12/31/19

CENTRAL BANK ACCOMODATION



Source: MSCI, as of 12/31/19

Equity earnings growth



Source: Bloomberg, as of 12/31/19

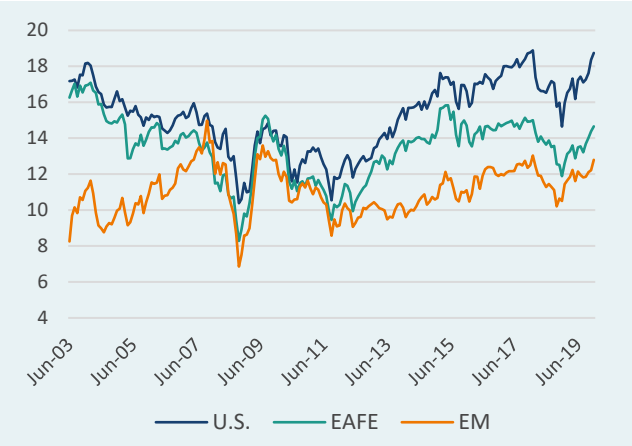
Equity valuations

Equity valuations expanded materially in 2019 as prices recovered from their year-end 2018 fall and then continued climbing through the fourth quarter. U.S. equities are expensive relative to their long-run average and prices may become more difficult to justify in an environment of flat earnings growth. International and emerging equity valuations are near average levels. We remain watchful of earnings trends in 2020, which may have important implications for the future path of equities.

In the United States, stocks within the Information Technology (22.7x) and Communication Services (19.5x) sectors have retained forward P/E ratios elevated well above their respective 5- and 10-year averages. Last year, growing concerns over data privacy, support for anti-trust regulation, and several idiosyncratic scandals weighed on the tech sector. Over the course of this election year, we expect the issue of mega-cap tech regulation to remain beneath the microscope.

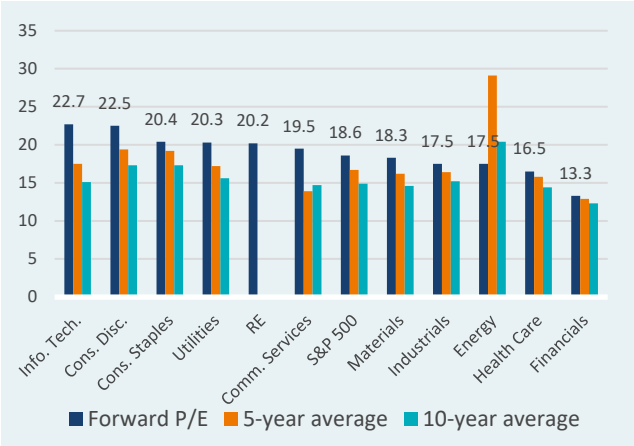
Compared to U.S. and EM equities, international developed equities offer the greatest yield at present, offering a three-month average trailing dividend yield of 3.4%.

FORWARD P/E RATIOS



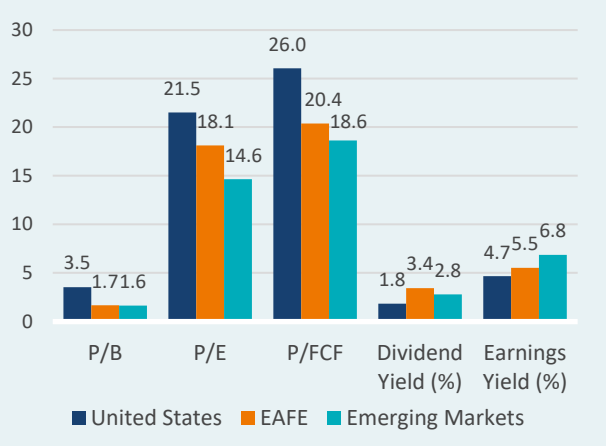
Source: MSCI, 12m forward P/E, as of 12/31/19

S&P 500 INDEX FORWARD SECTOR P/E RATIOS



Source: Standard & Poor's, FactSet, as of 1/17/20

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 12/31/19 - trailing P/E

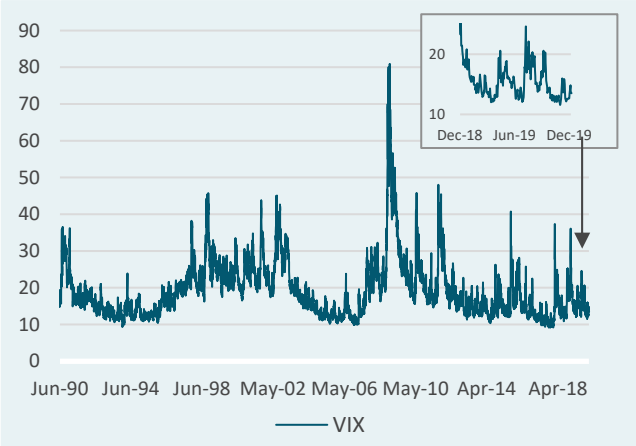
Equity volatility

The implied volatility of large-cap U.S. stocks returned to a subdued level. The CBOE VIX Index, which calculates the market's expectation for volatility implied by S&P 500 Index options, declined from 16.2 to 13.8, a reading which lies in the 15th percentile of weekly readings over the last thirty years. Net non-commercial short VIX positioning reached new all-time-highs in the 4th quarter, meaning that many people are betting on volatility to remain low and push lower. Some investors view this assumption as concerning, and as a signal that the market may be ready for a correction.

U.S. large-cap and emerging market stocks have experienced a higher degree of volatility than international developed stocks over the last several years. Some of the divergence may be attributable to the impacts of the ever-changing U.S.-China trade narrative which has held the full attention of market participants for much of the prior two years.

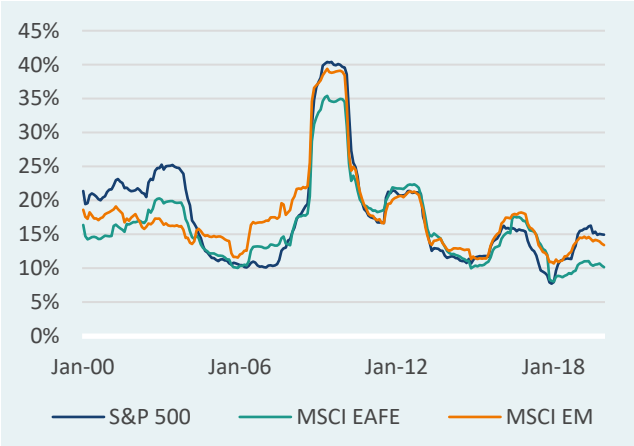
The MSCI EM Index touched new all-time highs in April and did not eclipse that level for another 174 days. In 2019, the S&P 500 and MSCI EAFE indices spent a maximum of 65 and 82 trading days between fresh all-time highs, respectively.

U.S. IMPLIED VOLATILITY (VIX)



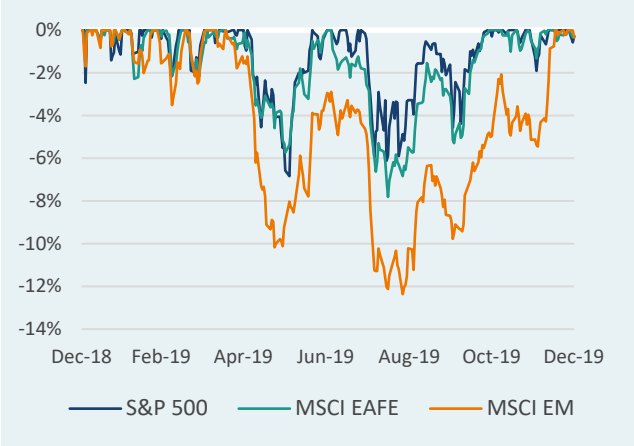
Source: CBOE, as of 12/31/19

ROLLING 1-YEAR REALIZED VOLATILITY



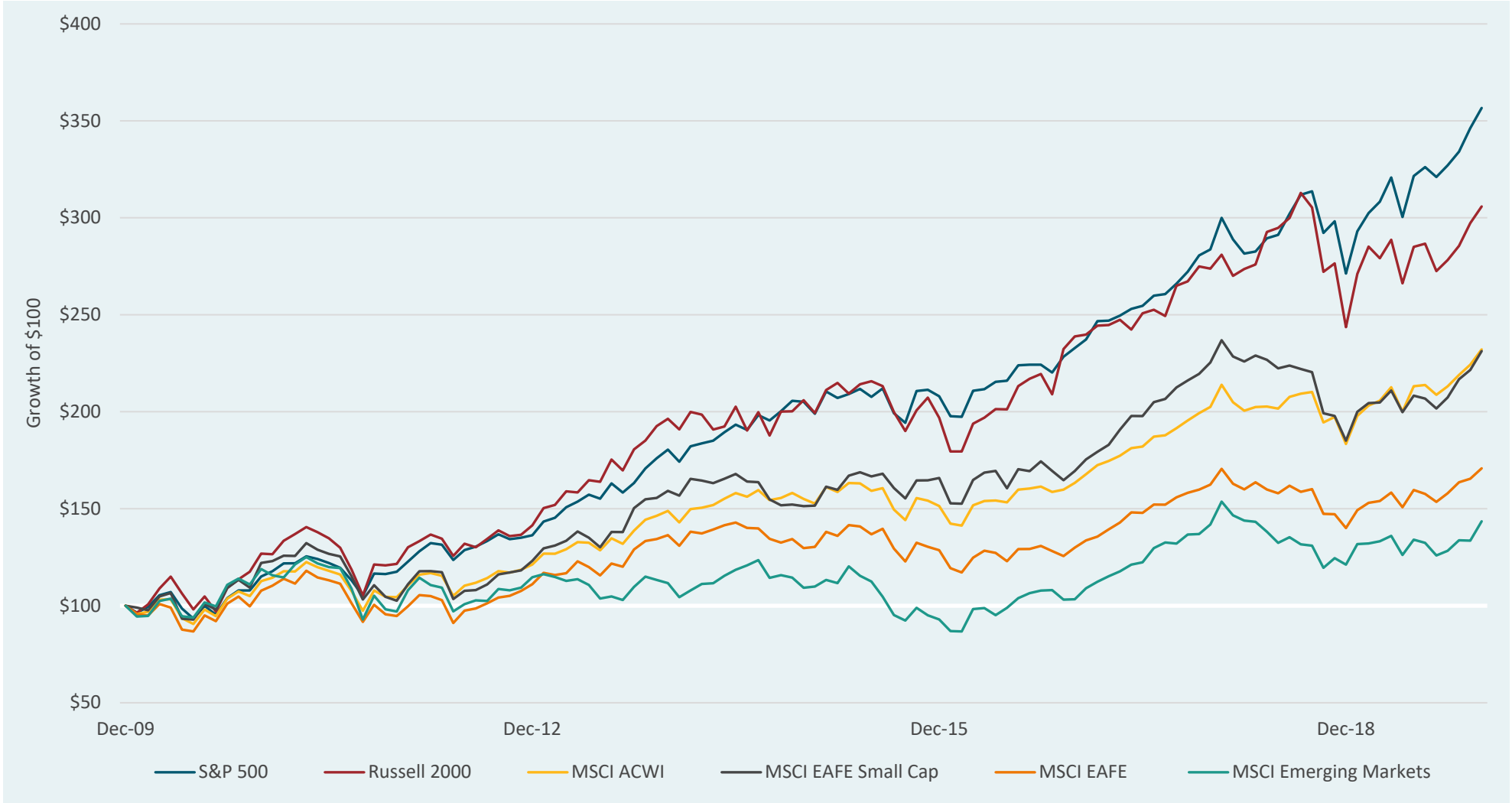
Source: Standard & Poor's, MSCI, Bloomberg, as of 12/31/19

2019 MAX DRAWDOWNS FROM PREVIOUS ALL-TIME-HIGH INDEX LEVELS



Source: Standard & Poor's, MSCI, Bloomberg, as of 12/31/19

Long-term equity performance



Source: Standard & Poor's, Russell, MSCI, Bloomberg, as of 12/31/19

Other assets

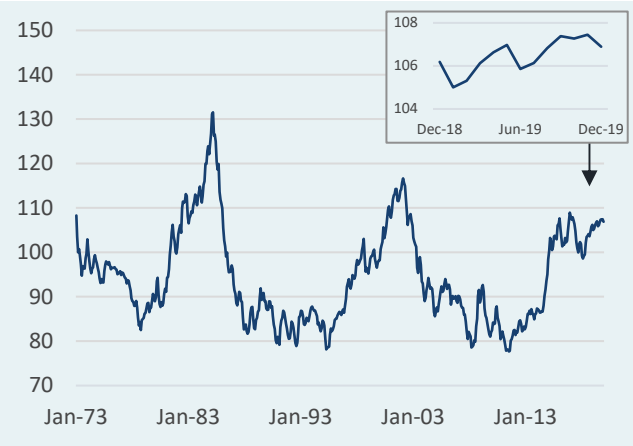
Currency

The U.S. dollar weakened versus both developed and emerging market currency baskets in the 4th quarter, fading some of the strong relative performance it had experienced back in Q3 2019. An index tracking the weighted average of the foreign exchange value of the U.S. dollar against major currencies fell 0.5%.

J.P. Morgan's Emerging Market Currency Index fell -1.4% in 2019. Many analysts have argued that global disinflationary pressures have eased some long-standing concerns over the risk of capital flight within the emerging market complex. So long as inflationary risks are muted, then higher nominal interest rates in the emerging market complex should afford emerging market central bankers' further room to cut rates than their developed market peers. If implemented, the relative accommodation supplied may fuel both growth and currency depreciation.

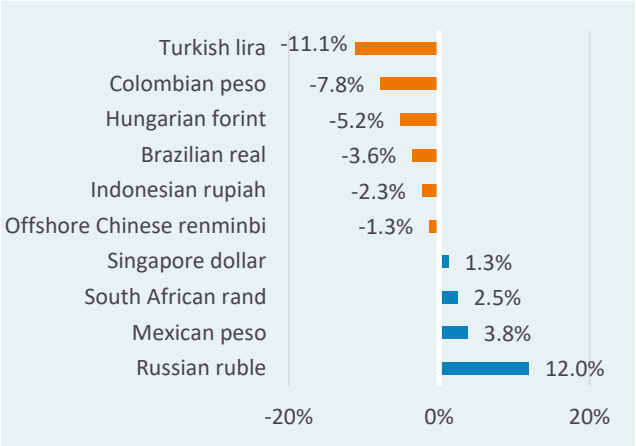
The British pound sterling bounced back sharply in Q4, rising from $1.23 to $1.33. Prime Minister Boris Johnson's Conservative Party secured a firm majority in Parliament, lifting the shroud of "Brexit" from the geopolitical landscape.

U.S. DOLLAR TRADE WEIGHTED INDEX



Source: Federal Reserve, Verus, as of 12/31/19

JP MORGAN EMCI CONSTITUENT 2019 RETURNS



Source: J.P. Morgan, Bloomberg, as of 12/31/19

GBP/USD

Source: Bloomberg, as of 12/31/19

Appendix

Periodic table of returns

BEST ↑ ↓ WORST

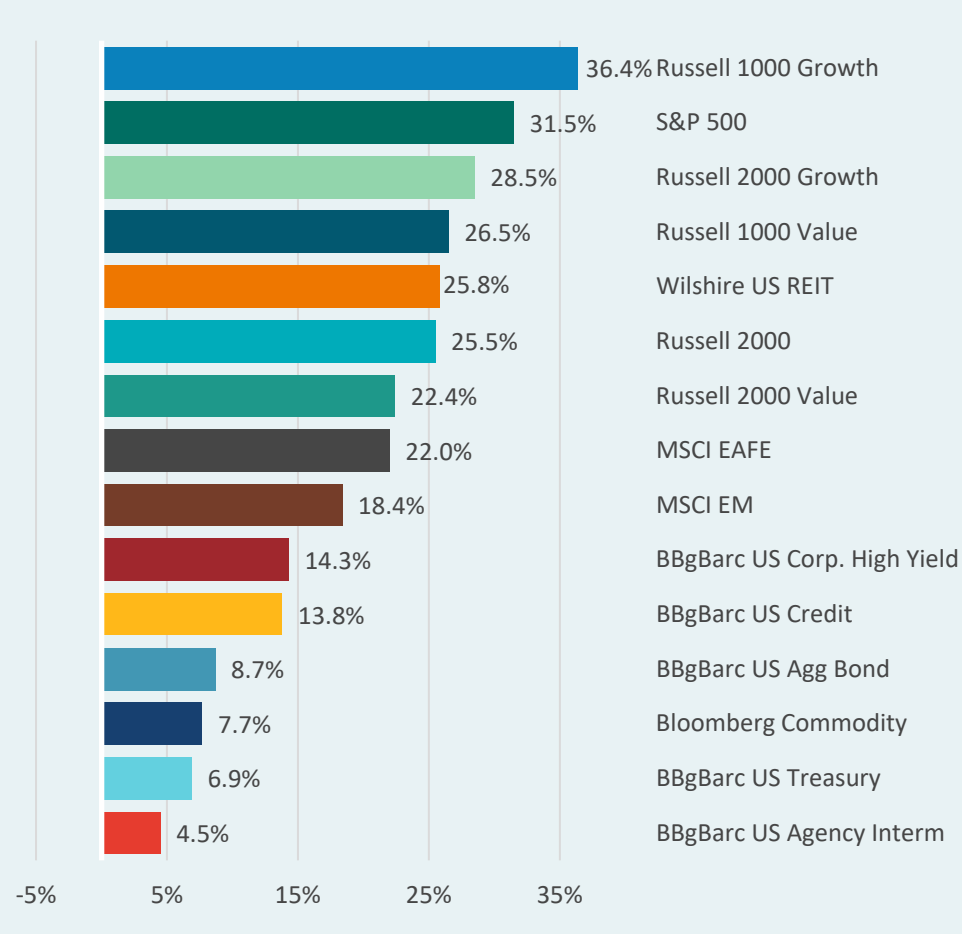
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	14.6	15.2
Large Cap Equity	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	11.5	13.5
Small Cap Growth	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	9.3	13.0
Large Cap Value	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	8.6	11.8
Small Cap Equity	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	8.3	11.8
Small Cap Value	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	8.2	10.6
International Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	7.0	9.8
60/40 Global Portfolio	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	6.1	6.4
Emerging Markets Equity	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	5.7	5.5
US Bonds	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	5.6	3.7
Hedge Funds of Funds	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	3.0	3.7
Commodities	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	2.2	2.8
Real Estate	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	4.8	1.1	0.6
Cash	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.9	-4.7

- Large Cap Equity
- Large Cap Value
- Large Cap Growth
- Small Cap Equity
- Small Cap Value
- Small Cap Growth
- International Equity
- Emerging Markets Equity
- US Bonds
- Cash
- Commodities
- Real Estate
- Hedge Funds of Funds
- 60% MSCI ACWI/40% BBgBarc Global Bond

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/19.

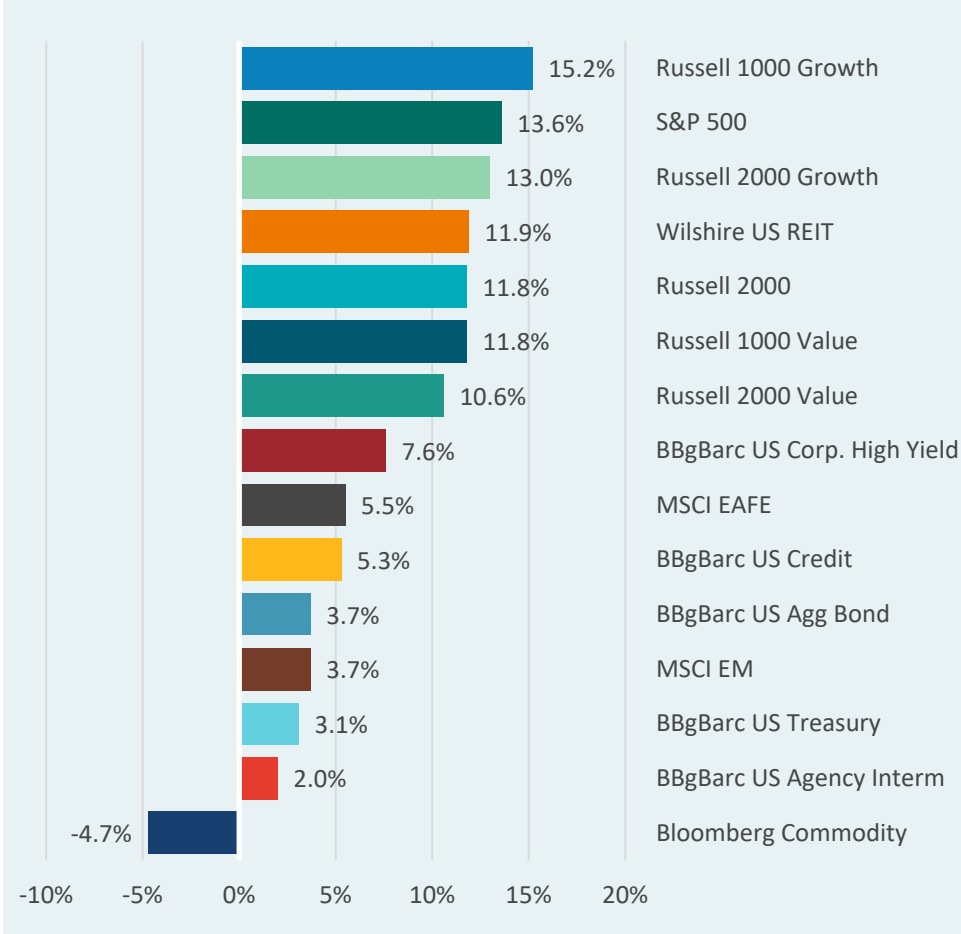
Major asset class returns

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/19

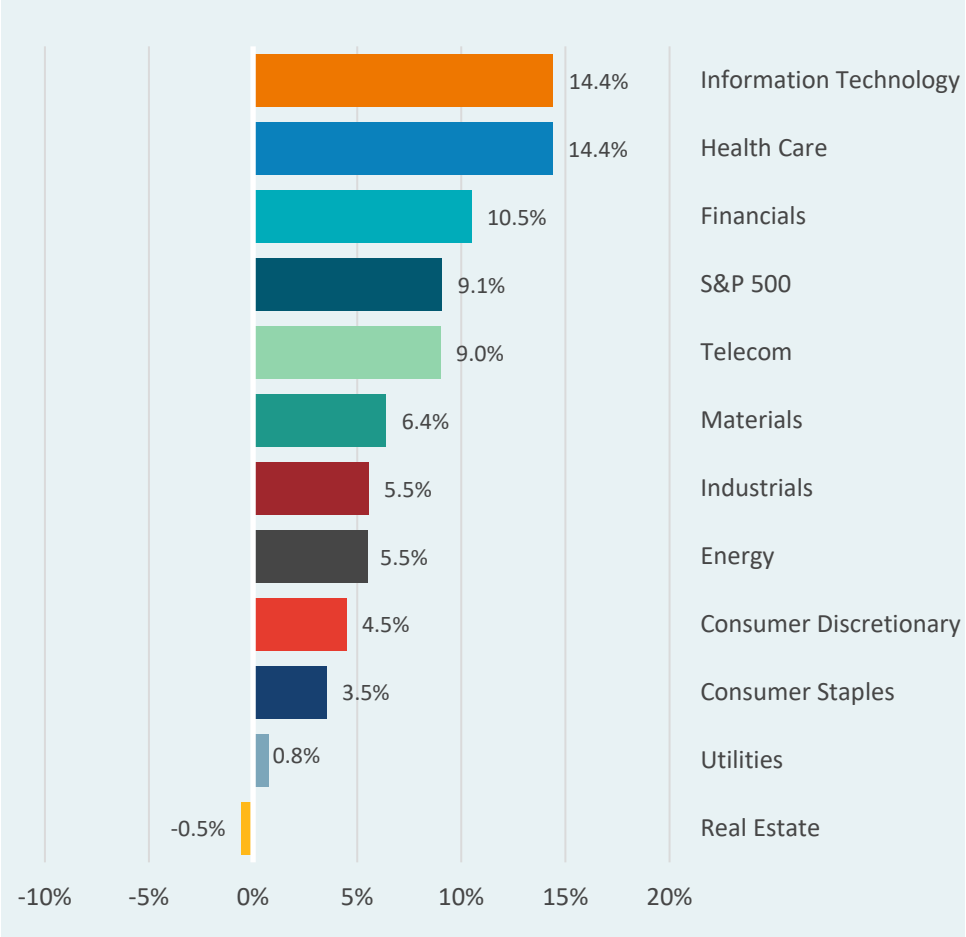
TEN YEARS ENDING DECEMBER



Source: Morningstar, as of 12/31/19

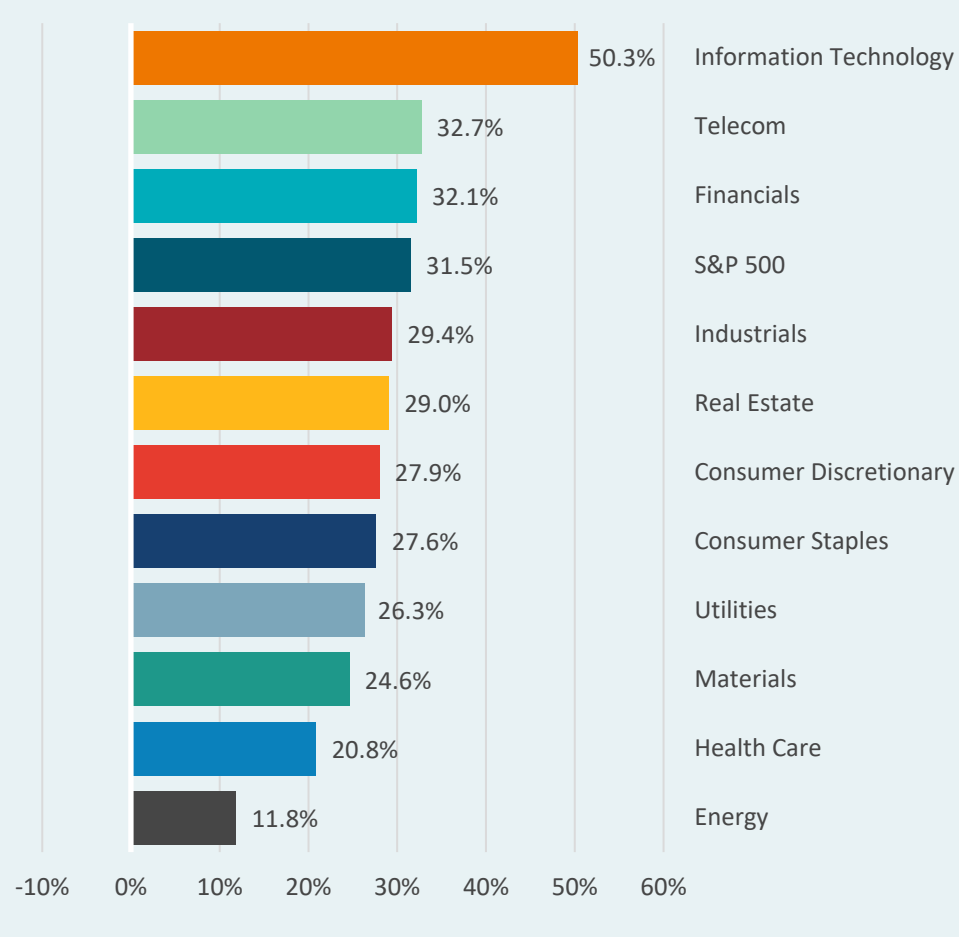
S&P 500 sector returns

Q4 2019



Source: Morningstar, as of 12/31/19

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/19

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	3.0	9.1	31.5	31.5	15.3	11.7	13.6
S&P 500 Equal Weighted	2.8	7.6	29.2	29.2	12.4	9.8	13.5
DJ Industrial Average	1.9	6.7	25.3	25.3	15.7	12.6	13.4
Russell Top 200	3.1	9.8	31.8	31.8	16.2	12.3	13.7
Russell 1000	2.9	9.0	31.4	31.4	15.0	11.5	13.5
Russell 2000	2.9	9.9	25.5	25.5	8.6	8.2	11.8
Russell 3000	2.9	9.1	31.0	31.0	14.6	11.2	13.4
Russell Mid Cap	2.3	7.1	30.5	30.5	12.1	9.3	13.2
Style Index							
Russell 1000 Growth	3.0	10.6	36.4	36.4	20.5	14.6	15.2
Russell 1000 Value	2.8	7.4	26.5	26.5	9.7	8.3	11.8
Russell 2000 Growth	2.3	11.4	28.5	28.5	12.5	9.3	13.0
Russell 2000 Value	3.5	8.5	22.4	22.4	4.8	7.0	10.6

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	3.5	9.0	26.6	26.6	12.4	8.4	8.8
MSCI ACWI ex US	4.3	8.9	21.5	21.5	9.9	5.5	5.0
MSCI EAFE	3.2	8.2	22.0	22.0	9.6	5.7	5.5
MSCI EM	7.5	11.8	18.4	18.4	11.6	5.6	3.7
MSCI EAFE Small Cap	4.4	11.5	25.0	25.0	10.9	8.9	8.7
Style Index							
MSCI EAFE Growth	2.9	8.4	27.9	27.9	12.8	7.7	6.9
MSCI EAFE Value	3.7	7.8	16.1	16.1	6.3	3.5	4.0
Regional Index							
MSCI UK	5.2	10.0	21.0	21.0	8.3	3.3	5.0
MSCI Japan	2.1	7.6	19.6	19.6	8.9	7.7	6.6
MSCI Euro	2.9	7.9	22.9	22.9	9.1	5.1	3.7
MSCI EM Asia	7.1	12.5	19.2	19.2	12.9	6.6	5.8
MSCI EM Latin American	10.3	10.5	17.5	17.5	10.7	4.2	(0.6)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	0.4	0.8	8.4	8.4	3.3	2.6	3.4
BBgBarc US Treasury Bills	0.1	0.5	2.3	2.3	1.7	1.1	0.6
BBgBarc US Agg Bond	(0.1)	0.2	8.7	8.7	4.0	3.0	3.7
Duration							
BBgBarc US Treasury 1-3 Yr	0.2	0.5	3.6	3.6	1.9	1.4	1.2
BBgBarc US Treasury Long	(2.8)	(4.1)	14.8	14.8	6.9	4.1	7.0
BBgBarc US Treasury	(0.6)	(0.8)	6.9	6.9	3.3	2.4	3.1
Issuer							
BBgBarc US MBS	0.3	0.7	6.4	6.4	3.2	2.6	3.2
BBgBarc US Corp. High Yield	2.0	2.6	14.3	14.3	6.4	6.1	7.6
BBgBarc US Agency Interm	0.1	0.3	4.5	4.5	2.4	1.9	2.0
BBgBarc US Credit	0.3	1.1	13.8	13.8	5.8	4.4	5.3

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	5.0	4.4	7.7	7.7	(0.9)	(3.9)	(4.7)
Wilshire US REIT	(0.7)	(1.1)	25.8	25.8	7.6	6.9	11.9
CS Leveraged Loans	1.6	1.7	8.2	8.2	4.5	4.5	5.2
Alerian MLP	8.9	(4.6)	6.7	6.7	(5.0)	(7.0)	4.8
Regional Index							
JPM EMBI Global Div	2.0	1.8	15.0	15.0	6.7	6.2	6.9
JPM GBI-EM Global Div	4.1	5.2	13.5	13.5	7.0	2.8	2.7
Hedge Funds							
HFRI Composite	1.8	3.5	10.4	10.4	4.5	3.5	4.0
HFRI FOF Composite	1.3	2.5	7.8	7.8	3.7	2.2	2.8
Currency (Spot)							
Euro	1.8	3.0	(1.8)	(1.8)	2.1	(1.5)	(2.4)
Pound	2.4	7.5	4.0	4.0	2.3	(3.2)	(2.0)
Yen	0.8	(0.6)	1.0	1.0	2.4	2.0	(1.5)

Source: Morningstar, HFR, as of 12/31/19

Definitions

Bloomberg US Weekly Consumer Comfort Index *- tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. (www.langerresearch.com)*

University of Michigan Consumer Sentiment Index *- A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. (www.Bloomberg.com)*

NFIB Small Business Outlook *- Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (http://www.nfib-sbet.org/about/)*

NAHB Housing Market Index – *the housing market index is a weighted average of separate diffusion induces for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula "(Good-Poor + 100)/2" to the present and future sales series and "(High/Very High-Low/Very Low + 100)/2" to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.*

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Stanislaus County Employees' Retirement Association

Investment Performance Review

Period Ending: December 31, 2019

Verus

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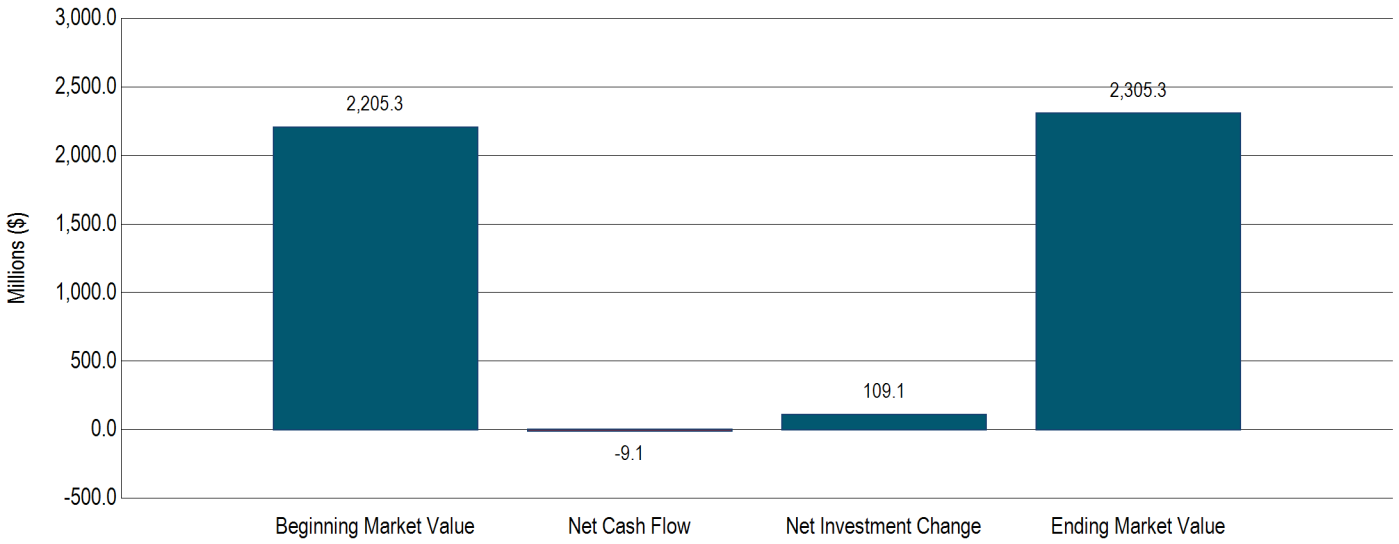
Portfolio Reconciliation

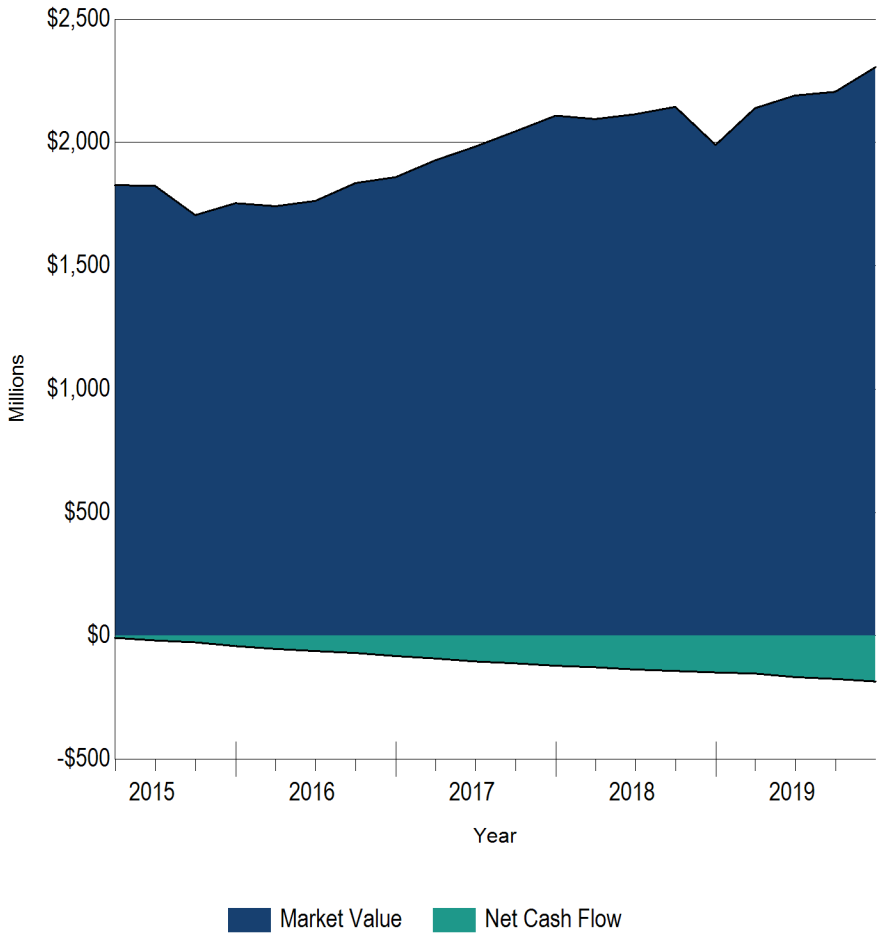
	Last Three Months	Fiscal Year-To-Date	Year-To-Date
Beginning Market Value	$2,205,344,636	$2,190,456,401	$1,989,872,398
Net Cash Flow	-$9,103,724	-$15,545,017	-$32,806,633
Net Investment Change	$109,050,818	$130,380,346	$348,225,965
Ending Market Value	$2,305,291,730	$2,305,291,730	$2,305,291,730

Change in Market Value
Last Three Months

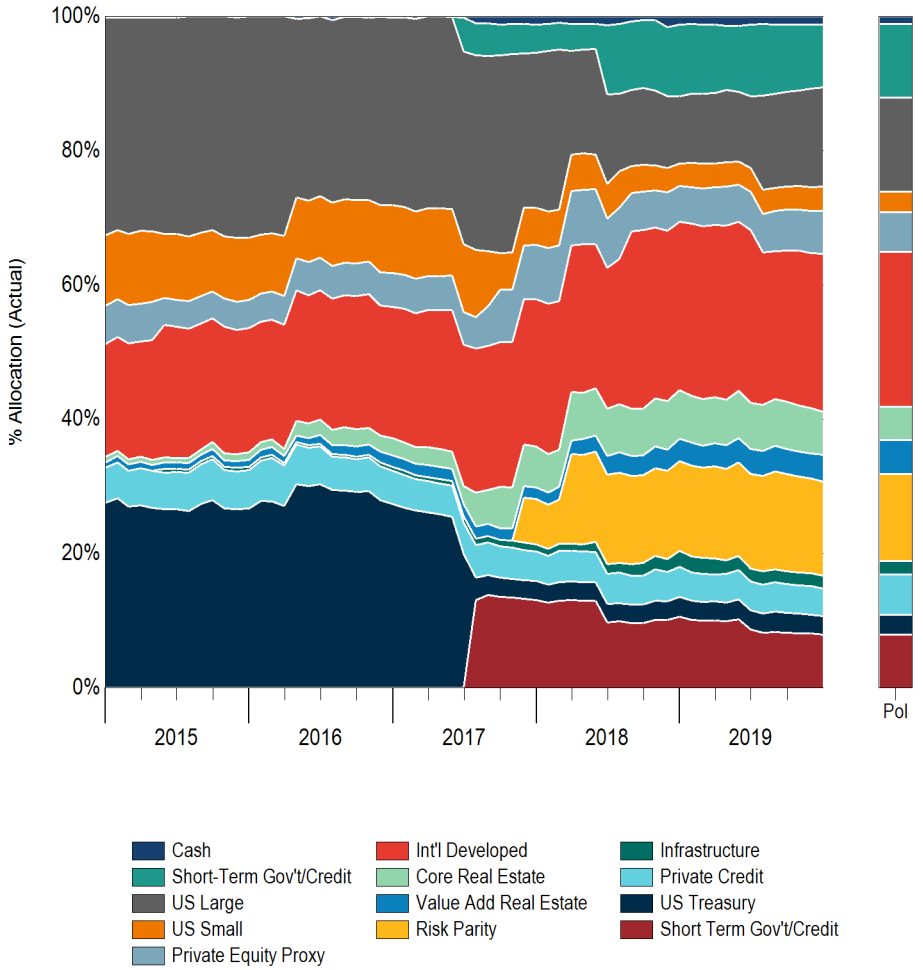


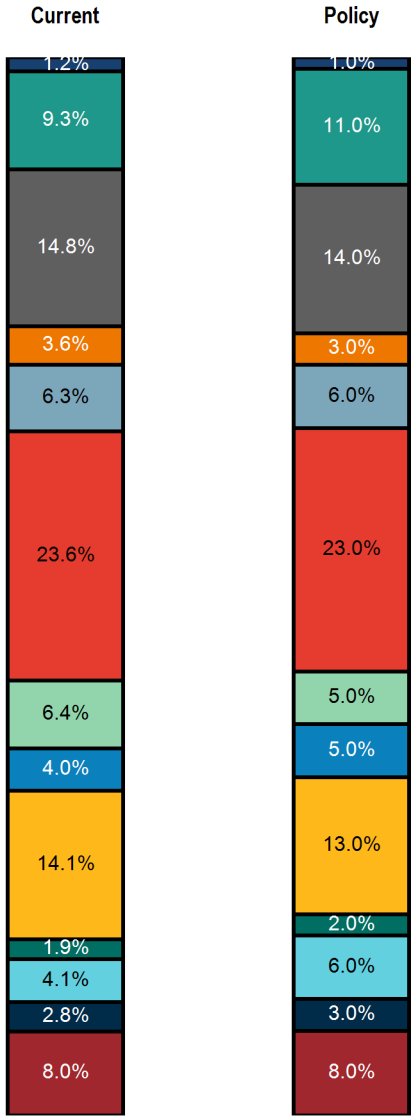
Contributions and withdrawals may include intra-account transfers between managers/funds.

Market Value History
Cumulative Cash Flows



Asset Allocation History



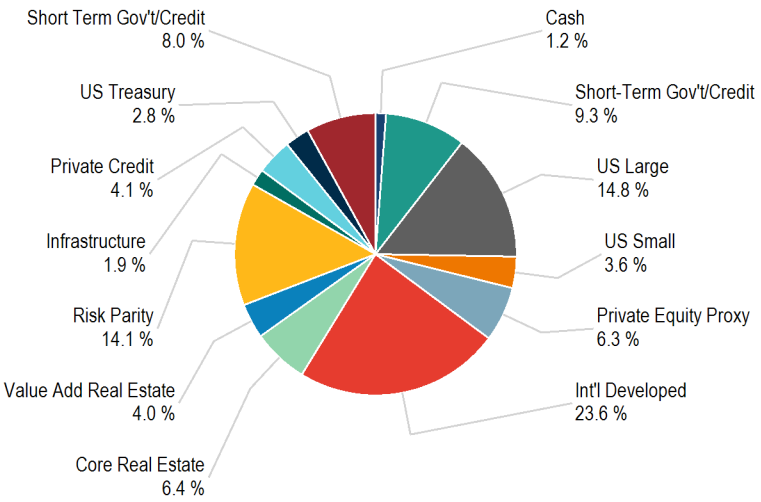


	Current	%	Policy	%
Liquidity Sub-Portfolio	**$242,763,981**	**10.5%**	**$276,635,008**	**12.0%**
Cash	$28,165,783	1.2%	$23,052,917	1.0%
Short-Term Gov't/Credit	$214,598,198	9.3%	$253,582,090	11.0%
Growth Sub-Portfolio	**$1,815,460,069**	**78.8%**	**$1,775,074,632**	**77.0%**
US Large	$341,656,803	14.8%	$322,740,842	14.0%
US Small	$83,482,336	3.6%	$69,158,752	3.0%
Private Equity Proxy	$145,752,551	6.3%	$138,317,504	6.0%
Int'l Developed	$543,519,419	23.6%	$530,217,098	23.0%
Core Real Estate	$147,541,346	6.4%	$115,264,587	5.0%
Value Add Real Estate	$92,031,518	4.0%	$115,264,587	5.0%
Risk Parity	$324,180,593	14.1%	$299,687,925	13.0%
Infrastructure	$43,310,598	1.9%	$46,105,835	2.0%
Private Credit	$93,984,904	4.1%	$138,317,504	6.0%
Risk-Diversifying Sub-Portfolio	**$247,067,681**	**10.7%**	**$253,582,090**	**11.0%**
US Treasury	$63,572,025	2.8%	$69,158,752	3.0%
Short Term Gov't/Credit	$183,495,656	8.0%	$184,423,338	8.0%
Total	**$2,305,291,730**	**100.0%**	**$2,305,291,730**	**100.0%**

Russell 3000 Index serving as proxy for Private Equity while capital is being called. International Equity policy target consists of 21% international developed and 6% emerging markets.

	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	**4.9**	**5.9**	**17.4**	**9.0**	**6.8**	**8.5**
Policy Index	*5.3*	*5.8*	*16.9*	*8.7*	*6.9*	*8.4*
InvMetrics Public DB Net Rank	*71*	*62*	*75*	*64*	*58*	*30*
Liquidity Sub-Portfolio	**1.0**	**2.5**	**7.7**	**2.9**	**2.2**	**--**
StanCERA Liquidity Blended BM	*0.6*	*1.3*	*3.9*	*2.1*	*1.6*	*--*
Cash	**0.5**	**1.1**	**1.6**	**1.4**	**1.3**	**--**
FTSE T-Bill 1 Month TR	*0.4*	*1.0*	*2.2*	*1.6*	*1.0*	*--*
Short-Term Gov't/Credit	**1.1**	**2.7**	**8.5**	**--**	**--**	**--**
BBgBarc US Govt/Credit 1-3 Yr. TR	*0.6*	*1.3*	*4.0*	*--*	*--*	*--*
eV US Government Fixed Inc Net Rank	*1*	*1*	*1*	*--*	*--*	*--*
Growth Sub-Portfolio	**6.2**	**7.0**	**20.9**	**10.6**	**7.9**	**--**
StanCERA Growth Blended BM	*6.7*	*7.1*	*20.7*	*11.0*	*--*	*--*
US Large	**9.6**	**11.0**	**30.6**	**14.9**	**11.1**	**--**
Russell 1000	*9.0*	*10.6*	*31.4*	*15.0*	*11.5*	*--*
eV US Large Cap Equity Net Rank	*29*	*22*	*39*	*38*	*35*	*--*
US Small	**9.2**	**6.8**	**25.1**	**6.1**	**5.8**	**11.0**
Russell 2000	*9.9*	*7.3*	*25.5*	*8.6*	*8.2*	*11.8*
eV US Small Cap Value Equity Net Rank	*22*	*59*	*35*	*36*	*63*	*50*
Private Equity Proxy	**9.1**	**10.4**	**31.1**	**16.6**	**12.4**	**13.9**
Russell 3000 +3%	*9.8*	*12.3*	*34.0*	*17.6*	*14.3*	*16.4*
eV US Large Cap Equity Net Rank	*36*	*32*	*37*	*28*	*22*	*19*

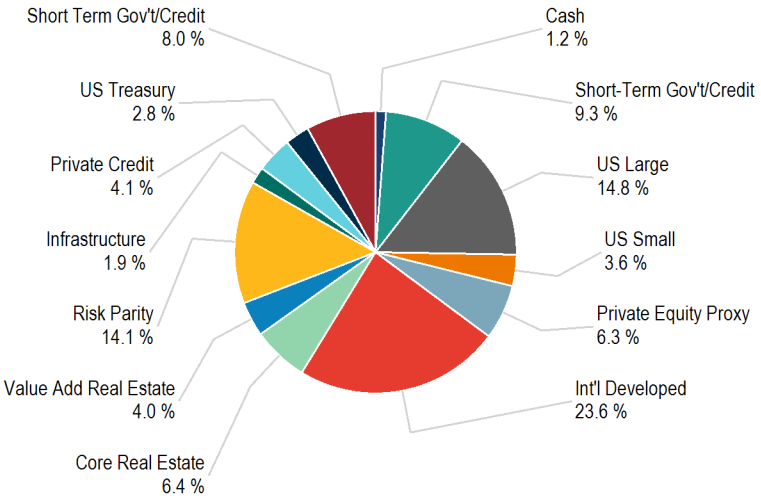
Current Allocation



Policy Index (5/31/2019): 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, and 1% Citi 1 Month T-Bills. StanCERA Liquidity Blended BM (8/31/2019): 92% BBgbarc US Govt/Credit 1-3 Yr. TR and 8% FTSE T-Bill 1 month TR. StanCERA Growth Blended BM (8/31/2019): 18% Russell 1000, 4% Russell 2000, 8% Russell 3000 + 3%, 30% MSCI ACWI ex-US Gross, 6% NCREIF Property, 6% actual private Value Add Real Estate returns, 17% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 3% actual Infrastructure returns, and 8% actual Private Credit returns.

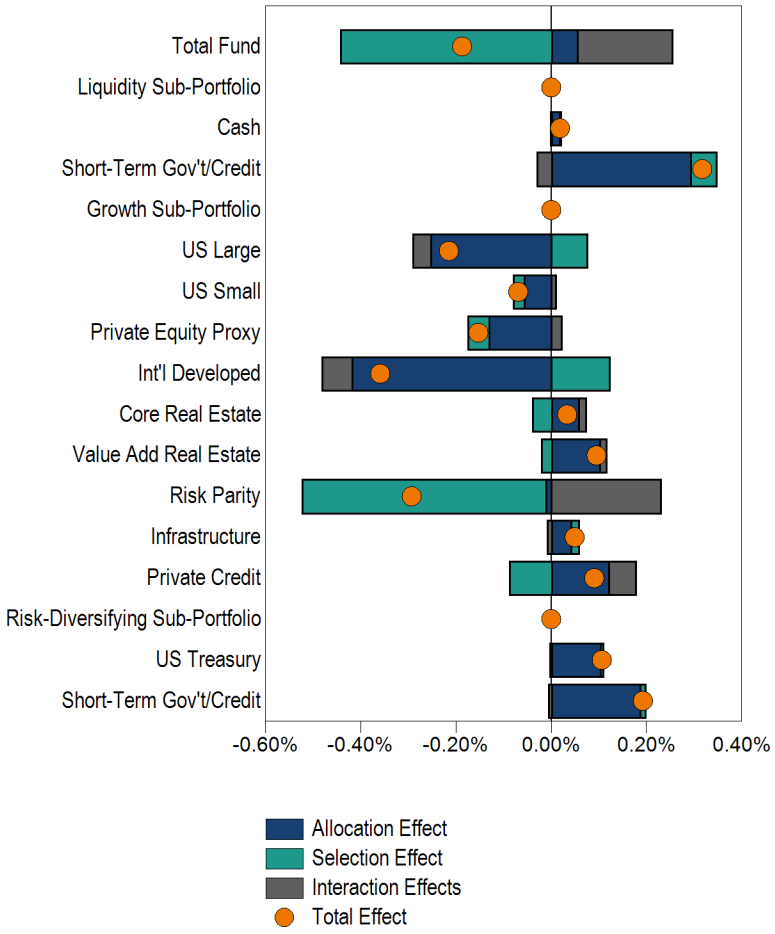
	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Int'l Developed	**9.5**	**7.9**	**21.8**	**9.3**	**5.8**	**5.7**
MSCI ACWI ex USA	*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*
eV ACWI ex-US Large Cap Equity Net Rank	*55*	*49*	*66*	*59*	*51*	*64*
Core Real Estate	**0.8**	**3.6**	**10.0**	**5.5**	**4.2**	**5.5**
NCREIF Property Index	*1.6*	*3.0*	*6.4*	*6.7*	*8.2*	*10.2*
eV US REIT Net Rank	*23*	*99*	*99*	*94*	*99*	*99*
Value Add Real Estate	**1.7**	**5.0**	**9.0**	**10.9**	**12.0**	**--**
NCREIF Property Index +2%	*2.1*	*4.0*	*8.5*	*8.8*	*10.4*	*--*
Risk Parity	**1.6**	**4.7**	**22.0**	**--**	**--**	**--**
60% MSCI ACWI Net/40% BBgBarc Global Aggregate	*5.5*	*5.8*	*18.6*	*--*	*--*	*--*
Infrastructure	**2.0**	**5.3**	**13.1**	**14.0**	**--**	**--**
CPI + 5%	*1.3*	*2.8*	*7.4*	*7.2*	*--*	*--*
eV Infrastructure Net Rank	*99*	*83*	*99*	*12*	*--*	*--*
Private Credit	**0.8**	**1.3**	**4.8**	**2.8**	**3.2**	**--**
S&P/LSTA Leveraged Loan Index+2%	*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	*--*
Risk-Diversifying Sub-Portfolio	**0.2**	**1.7**	**5.9**	**3.6**	**3.2**	**4.3**
StanCERA Risk-Diversifying Blended BM	*0.1*	*1.3*	*5.3*	*2.6*	*2.0*	*2.4*
US Treasury	**-1.1**	**1.8**	**7.6**	**4.4**	**3.7**	**4.6**
BBgBarc US Treasury 7-10 Yr TR	*-1.2*	*1.5*	*8.5*	*3.9*	*2.9*	*4.5*
eV US Government Fixed Inc Net Rank	*99*	*26*	*1*	*1*	*1*	*1*
Short-Term Gov't/Credit	**0.7**	**1.6**	**5.4**	**--**	**--**	**--**
BBgBarc US Govt/Credit 1-3 Yr. TR	*0.6*	*1.3*	*4.0*	*--*	*--*	*--*
eV US Short Duration Fixed Inc Net Rank	*14*	*11*	*11*	*--*	*--*	*--*

Current Allocation



Policy Index (5/31/2019): 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, and 1% Citi 1 Month T-Bills. StanCERA Liquidity Blended BM (8/31/2019): 92% BBgbarc US Govt/Credit 1-3 Yr. TR and 8% FTSE T-Bill 1 month TR. StanCERA Growth Blended BM (8/31/2019): 18% Russell 1000, 4% Russell 2000, 8% Russell 3000 + 3%, 30% MSCI ACWI ex-US Gross, 6% NCREIF Property, 6% actual private Value Add Real Estate returns, 17% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 3% actual Infrastructure returns, and 8% actual Private Credit returns.

Attribution Effects
Last Three Months



Performance Attribution

	Quarter
Wtd. Actual Return	4.93%
Wtd. Index Return *	5.30%
Excess Return	**-0.37%**
Selection Effect	-0.44%
Allocation Effect	0.06%
Interaction Effect	0.20%

*Calculated from benchmark returns and weightings of each component.

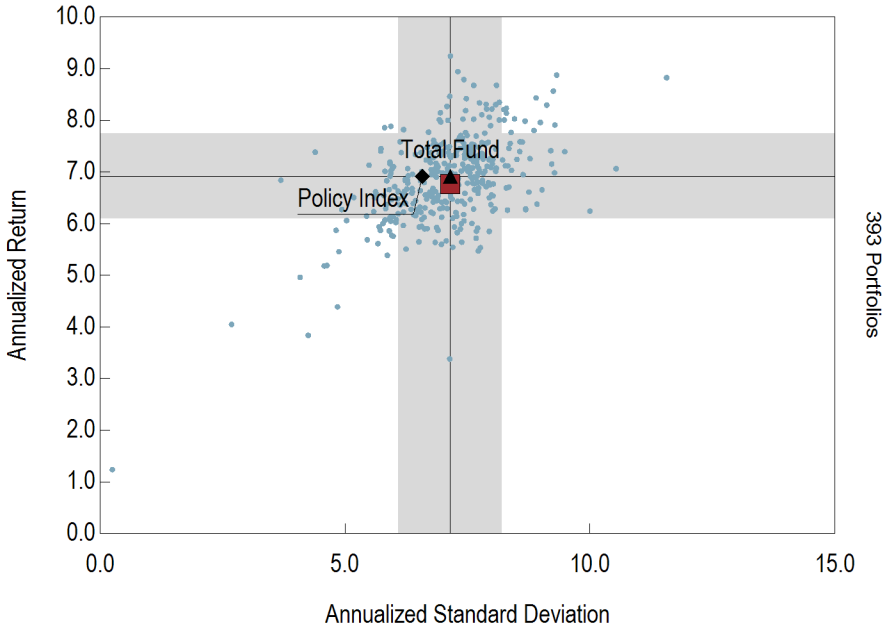
Attribution Summary
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Liquidity Sub-Portfolio	1.0%	0.6%	0.4%	--	--	--	--
Cash	0.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Short-Term Gov't/Credit	1.1%	0.6%	0.5%	0.1%	0.3%	0.0%	0.3%
Growth Sub-Portfolio	6.2%	6.7%	-0.5%	--	--	--	--
US Large	9.6%	9.0%	0.5%	0.1%	-0.3%	0.0%	-0.2%
US Small	9.2%	9.9%	-0.7%	0.0%	-0.1%	0.0%	-0.1%
Private Equity Proxy	9.1%	9.8%	-0.7%	0.0%	-0.1%	0.0%	-0.2%
Int'l Developed	9.5%	8.9%	0.5%	0.1%	-0.4%	-0.1%	-0.4%
Core Real Estate	0.8%	1.6%	-0.7%	0.0%	0.1%	0.0%	0.0%
Value Add Real Estate	1.7%	2.1%	-0.4%	0.0%	0.1%	0.0%	0.1%
Risk Parity	1.6%	5.5%	-3.9%	-0.5%	0.0%	0.2%	-0.3%
Infrastructure	2.0%	1.3%	0.7%	0.0%	0.0%	0.0%	0.0%
Private Credit	0.8%	2.2%	-1.4%	-0.1%	0.1%	0.1%	0.1%
Risk-Diversifying Sub-Portfolio	0.2%	0.1%	0.1%	--	--	--	--
US Treasury	-1.1%	-1.2%	0.1%	0.0%	0.1%	0.0%	0.1%
Short-Term Gov't/Credit	0.7%	0.6%	0.1%	0.0%	0.2%	0.0%	0.2%
Total	**4.9%**	**5.3%**	**-0.4%**	**-0.4%**	**0.1%**	**0.2%**	**-0.2%**

Policy Index (5/31/2019): 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, and 1% Citi 1 Month T-Bills. StanCERA Liquidity Blended BM (8/31/2019): 92% BBgbarc US Govt/Credit 1-3 Yr. TR and 8% FTSE T-Bill 1 month TR. StanCERA Growth Blended BM (8/31/2019): 18% Russell 1000, 4% Russell 2000, 8% Russell 3000 + 3%, 30% MSCI ACWI ex-US Gross, 6% NCREIF Property, 6% actual private Value Add Real Estate returns, 17% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 3% actual Infrastructure returns, and 8% actual Private Credit returns. Private Credit, Infrastructure, and the Greenfield Gap funds' market values as of 9/30/2019, adjusted for any cash flows.

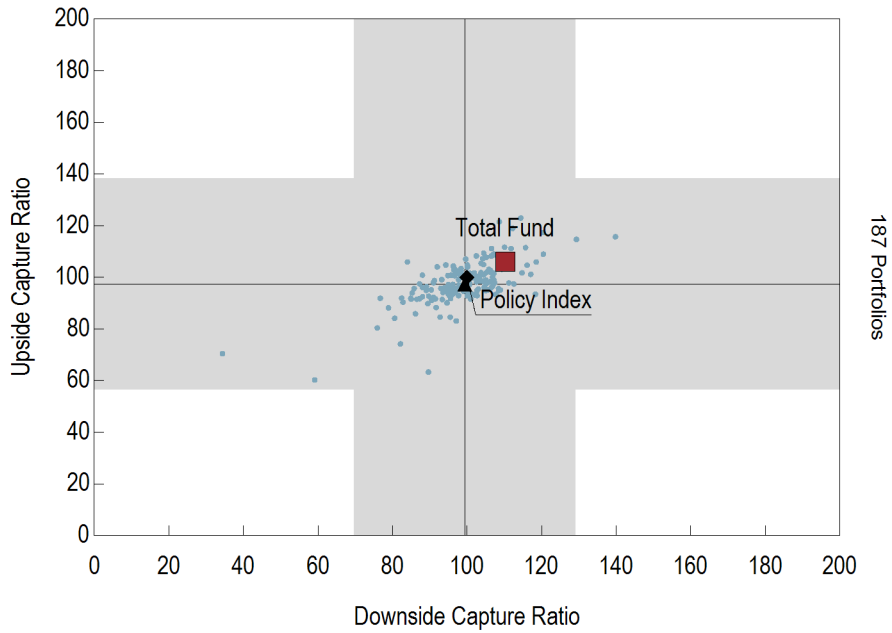
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	6.77%	-0.15%	7.15%	-0.63%	1.07	1.38%	0.97	0.80	-0.11	105.98%	110.20%
Policy Index	6.92%	0.00%	6.57%	0.00%	1.00	0.00%	1.00	0.89	--	100.00%	100.00%

Risk vs. Return



- Total Fund
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net

Up Markets vs. Down Markets



- Total Fund
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Fund	**2,305,291,730**	**100.0**	**4.9**	**5.9**	**17.4**	**9.0**	**6.8**	**8.5**	**17.4**	**-4.4**	**15.3**	**7.8**	**-0.6**	**9.0**	**Dec-94**
Policy Index			*5.3*	*5.8*	*16.9*	*8.7*	*6.9*	*8.4*	*16.9*	*-3.7*	*14.3*	*8.5*	*0.2*	*8.1*	*Dec-94*
InvMetrics Public DB Net Rank			*73*	*64*	*77*	*67*	*61*	*34*	*77*	*51*	*36*	*36*	*55*		
Liquidity Sub-Portfolio	**242,763,981**	**10.5**	**1.0**	**2.5**	**7.7**	**2.9**	**2.2**	**--**	**7.7**	**0.8**	**0.4**	**1.3**	**1.0**	**9.5**	**Apr-11**
StanCERA Liquidity Blended BM			*0.6*	*1.3*	*3.9*	*2.1*	*1.6*	*--*	*3.9*	*1.6*	*0.8*	*1.2*	*0.6*	*1.3*	*Apr-11*
Cash	**28,165,783**	**1.2**	**0.5**	**1.1**	**1.6**	**1.4**	**1.3**	**--**	**1.6**	**1.6**	**0.9**	**1.3**	**1.0**	**8.9**	**Apr-11**
FTSE T-Bill 1 Month TR			*0.4*	*1.0*	*2.2*	*1.6*	*1.0*	*--*	*2.2*	*1.8*	*0.8*	*0.2*	*0.0*	*0.6*	*Apr-11*
Short-Term Gov't/Credit	**214,598,198**	**9.3**	**1.1**	**2.7**	**8.5**	**--**	**--**	**--**	**8.5**	**0.6**	**--**	**--**	**--**	**3.9**	**Jun-17**
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	*--*	*--*	*--*	*4.0*	*1.6*	*--*	*--*	*--*	*2.3*	*Jun-17*
eV US Government Fixed Inc Net Rank			*1*	*1*	*1*	*--*	*--*	*--*	*1*	*87*	*--*	*--*	*--*		
Insight	214,598,198	9.3	1.1	2.7	8.5	--	--	--	8.5	0.6	--	--	--	3.9	Jun-17
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	*--*	*--*	*--*	*4.0*	*1.6*	*--*	*--*	*--*	*2.3*	*Jun-17*
eV US Short Duration Fixed Inc Net Rank			*1*	*1*	*1*	*--*	*--*	*--*	*1*	*96*	*--*	*--*	*--*		
Growth Sub-Portfolio	**1,815,460,069**	**78.8**	**6.2**	**7.0**	**20.9**	**10.6**	**7.9**	**--**	**20.9**	**-6.1**	**19.3**	**8.9**	**-0.8**	**8.0**	**Jul-15**
StanCERA Growth Blended BM			*6.7*	*7.1*	*20.7*	*11.0*	*--*	*--*	*20.7*	*-4.9*	*19.1*	*8.1*	*--*	*8.5*	*Jul-15*
US Large	**341,656,803**	**14.8**	**9.6**	**10.9**	**30.6**	**14.9**	**11.1**	**--**	**30.6**	**-4.0**	**21.1**	**10.8**	**0.5**	**11.5**	**Jul-15**
Russell 1000			*9.0*	*10.6*	*31.4*	*15.0*	*11.5*	*--*	*31.4*	*-4.8*	*21.7*	*12.1*	*0.9*	*12.2*	*Jul-15*
eV US Large Cap Equity Net Rank			*29*	*22*	*39*	*38*	*35*	*--*	*39*	*36*	*50*	*39*	*47*		
BlackRock Russell 1000 Growth	171,322,717	7.4	10.6	12.3	36.4	20.5	14.6	--	36.4	-1.5	30.2	7.2	5.7	17.1	Jun-10
Russell 1000 Growth			*10.6*	*12.3*	*36.4*	*20.5*	*14.6*	*--*	*36.4*	*-1.5*	*30.2*	*7.1*	*5.7*	*17.1*	*Jun-10*
eV US Large Cap Growth Equity Net Rank			*29*	*10*	*28*	*37*	*20*	*--*	*28*	*52*	*39*	*19*	*35*		
BlackRock Russell 1000 Value	84,448,120	3.7	7.4	8.9	26.7	9.8	8.4	11.9	26.7	-8.2	13.8	17.3	-3.6	12.8	Jul-09
Russell 1000 Value			*7.4*	*8.9*	*26.5*	*9.7*	*8.3*	*11.8*	*26.5*	*-8.3*	*13.7*	*17.3*	*-3.8*	*12.7*	*Jul-09*
eV US Large Cap Value Equity Net Rank			*56*	*60*	*47*	*58*	*47*	*36*	*47*	*41*	*83*	*20*	*57*		
Dodge & Cox-Equity	85,885,966	3.7	9.7	10.1	23.9	10.7	9.5	12.6	23.9	-6.5	16.9	21.2	-4.0	12.0	Dec-94
Russell 1000 Value			*7.4*	*8.9*	*26.5*	*9.7*	*8.3*	*11.8*	*26.5*	*-8.3*	*13.7*	*17.3*	*-3.8*	*10.1*	*Dec-94*
eV US Large Cap Value Equity Net Rank			*18*	*36*	*74*	*46*	*25*	*16*	*74*	*27*	*49*	*6*	*59*		

Policy Index (5/31/2019): 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, and 1% Citi 1 Month T-Bills. StanCERA Liquidity Blended BM (8/31/2019): 92% BBgbarc US Govt/Credit 1-3 Yr. TR and 8% FTSE T-Bill 1 month TR. StanCERA Growth Blended BM (8/31/2019): 18% Russell 1000, 4% Russell 2000, 8% Russell 3000 + 3%, 30% MSCI ACWI ex-US Gross, 6% NCREIF Property, 6% actual private Value Add Real Estate returns, 17% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 3% actual Infrastructure returns, and 8% actual Private Credit returns.

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
US Small	**83,482,336**	**3.6**	**9.2**	**6.8**	**25.1**	**6.1**	**5.8**	**11.0**	**25.1**	**-16.7**	**14.8**	**16.2**	**-4.5**	**12.7**	**Dec-08**
Russell 2000			*9.9*	*7.3*	*25.5*	*8.6*	*8.2*	*11.8*	*25.5*	*-11.0*	*14.6*	*21.3*	*-4.4*	*13.1*	*Dec-08*
eV US Small Cap Value Equity Net Rank			*22*	*59*	*35*	*36*	*63*	*50*	*35*	*67*	*16*	*95*	*48*		
Capital Prospects	83,482,336	3.6	9.2	6.8	25.1	6.1	7.0	11.4	25.1	-16.7	14.7	27.1	-7.5	12.9	Dec-08
Russell 2000 Value			*8.5*	*7.9*	*22.4*	*4.8*	*7.0*	*10.6*	*22.4*	*-12.9*	*7.8*	*31.7*	*-7.5*	*11.4*	*Dec-08*
eV US Small Cap Value Equity Net Rank			*22*	*59*	*35*	*36*	*39*	*38*	*35*	*67*	*17*	*39*	*73*		
Private Equity Proxy	**145,752,551**	**6.3**	**9.1**	**10.4**	**31.1**	**16.6**	**12.4**	**13.9**	**31.1**	**-0.2**	**21.2**	**11.7**	**1.4**	**9.6**	**Nov-03**
Russell 3000 +3%			*9.8*	*12.3*	*34.0*	*17.6*	*14.3*	*16.4*	*34.0*	*-2.2*	*24.1*	*15.7*	*3.5*	*12.5*	*Nov-03*
eV US Large Cap Equity Net Rank			*36*	*32*	*37*	*28*	*22*	*19*	*37*	*14*	*50*	*34*	*40*		
Northern Trust Russell 3000	145,752,551	6.3	9.1	10.4	31.1	--	--	--	31.1	--	--	--	--	31.1	Dec-18
Russell 3000			*9.1*	*10.4*	*31.0*	--	--	--	*31.0*	--	--	--	--	*31.0*	*Dec-18*
eV US Large Cap Equity Net Rank			*36*	*32*	*37*	--	--	--	*37*	--	--	--	--		
Int'l Developed	**543,519,419**	**23.6**	**9.5**	**7.9**	**21.8**	**9.3**	**5.8**	**5.7**	**21.8**	**-15.8**	**27.4**	**5.3**	**-3.8**	**6.6**	**Sep-04**
MSCI ACWI ex USA			*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*	*21.5*	*-14.2*	*27.2*	*4.5*	*-5.7*	*6.2*	*Sep-04*
eV ACWI ex-US Large Cap Equity Net Rank			*55*	*49*	*66*	*59*	*51*	*64*	*66*	*58*	*61*	*17*	*68*		
LSV Asset Mgt	274,235,603	11.9	10.3	9.3	20.8	8.6	5.5	5.5	20.8	-16.9	27.5	8.2	-5.4	6.5	Aug-04
MSCI ACWI ex USA			*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*	*21.5*	*-14.2*	*27.2*	*4.5*	*-5.7*	*6.3*	*Aug-04*
eV ACWI ex-US Large Cap Equity Net Rank			*40*	*23*	*75*	*78*	*59*	*65*	*75*	*74*	*61*	*3*	*80*		
Fidelity	269,283,817	11.7	8.7	6.5	22.8	10.0	5.7	5.7	22.8	-14.7	27.0	1.8	-2.3	4.0	Apr-06
MSCI ACWI ex USA			*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*	*21.5*	*-14.2*	*27.2*	*4.5*	*-5.7*	*3.5*	*Apr-06*
eV ACWI ex-US Large Cap Equity Net Rank			*73*	*76*	*56*	*50*	*53*	*64*	*56*	*48*	*66*	*44*	*47*		
Core Real Estate	**147,541,346**	**6.4**	**0.8**	**3.6**	**10.0**	**5.5**	**4.2**	**5.5**	**10.0**	**1.6**	**5.2**	**5.2**	**-0.8**	**2.4**	**Mar-08**
NCREIF Property Index			*1.6*	*3.0*	*6.4*	*6.7*	*8.2*	*10.2*	*6.4*	*6.7*	*7.0*	*8.0*	*13.3*	*6.2*	*Mar-08*
InvMetrics Public DB Real Estate Priv Net Rank			*82*	*8*	*6*	*80*	*99*	*99*	*6*	*99*	*89*	*94*	*98*		
Prime Property Fund	58,942,128	2.6	1.5	3.0	6.2	7.6	--	--	6.2	8.0	8.8	9.2	--	8.3	Sep-15
NCREIF-ODCE			*1.5*	*2.8*	*5.3*	*7.1*	--	--	*5.3*	*8.3*	*7.6*	*8.8*	--	*7.9*	*Sep-15*
InvMetrics Public DB Real Estate Priv Net Rank			*29*	*29*	*31*	*26*	--	--	*31*	*29*	*12*	*9*	--		
BlackRock US Real Estate	30,865,770	1.3	-1.2	5.5	23.1	6.9	6.3	--	23.1	-4.2	3.7	6.6	4.4	8.9	Sep-12
DJ US Select RESI TR USD			*-1.2*	*5.5*	*23.1*	*7.0*	*6.4*	--	*23.1*	*-4.2*	*3.8*	*6.6*	*4.5*	*9.0*	*Sep-12*
PGIM Real Estate US Debt Fund	57,733,448	2.5	1.4	2.9	6.0	--	--	--	6.0	--	--	--	--	5.7	Sep-18
BBgBarc CMBS IG TR USD			*-0.3*	*1.6*	*8.3*	--	--	--	*8.3*	--	--	--	--	*7.1*	*Sep-18*
InvMetrics Public DB Real Estate Priv Net Rank			*46*	*35*	*37*	--	--	--	*37*	--	--	--	--		

Policy Index (5/31/2019): 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, and 1% Citi 1 Month T-Bills. StanCERA Liquidity Blended BM (8/31/2019): 92% BBgbarc US Govt/Credit 1-3 Yr. TR and 8% FTSE T-Bill 1 month TR. StanCERA Growth Blended BM (8/31/2019): 18% Russell 1000, 4% Russell 2000, 8% Russell 3000 + 3%, 30% MSCI ACWI ex-US Gross, 6% NCREIF Property, 6% actual private Value Add Real Estate returns, 17% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 3% actual Infrastructure returns, and 8% actual Private Credit returns.

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Value Add Real Estate	**92,031,518**	**4.0**	**1.7**	**5.0**	**9.0**	**10.9**	**12.0**	**--**	**9.0**	**11.7**	**11.9**	**8.8**	**18.9**	**10.4**	**Jul-14**
NCREIF Property Index +2%			*2.1*	*4.0*	*8.5*	*8.8*	*10.4*	--	*8.5*	*8.8*	*9.1*	*10.1*	*15.6*	*10.9*	*Jul-14*
American Strategic Value Realty	60,616,097	2.6	2.3	4.3	8.5	9.3	11.5	--	8.5	9.2	10.1	11.7	18.3	11.5	Dec-14
NCREIF Property Index			*1.6*	*3.0*	*6.4*	*6.7*	*8.2*	--	*6.4*	*6.7*	*7.0*	*8.0*	*13.3*	*8.2*	*Dec-14*
Greenfield Gap VII	10,182,961	0.4	1.0	10.6	15.4	14.3	13.6	--	15.4	12.9	14.7	6.1	19.4	11.8	Jul-14
NCREIF ODCE + 1%			*1.8*	*3.4*	*6.4*	*8.2*	*10.1*	--	*6.4*	*9.4*	*8.7*	*9.8*	*16.2*	*10.6*	*Jul-14*
Greenfield Gap VIII	21,232,460	0.9	0.3	3.9	6.4	--	--	--	6.4	--	--	--	--	14.5	Apr-18
NCREIF ODCE + 1%			*1.8*	*3.4*	*6.4*	--	--	--	*6.4*	--	--	--	--	*7.6*	*Apr-18*
Risk Parity	**324,180,593**	**14.1**	**1.6**	**4.7**	**22.0**	**--**	**--**	**--**	**22.0**	**-7.0**	**--**	**--**	**--**	**6.9**	**Nov-17**
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			*5.5*	*5.8*	*18.6*	--	--	--	*18.6*	*-6.0*	--	--	--	*5.9*	*Nov-17*
AQR Global Risk Premium - EL	164,315,559	7.1	3.5	5.4	21.9	--	--	--	21.9	--	--	--	--	9.2	Mar-18
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			*5.5*	*5.8*	*18.6*	--	--	--	*18.6*	--	--	--	--	*5.9*	*Mar-18*
PanAgora Risk Parity Multi Asset	159,865,034	6.9	-0.2	4.0	22.1	--	--	--	22.1	-7.6	--	--	--	6.6	Nov-17
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			*5.5*	*5.8*	*18.6*	--	--	--	*18.6*	*-6.0*	--	--	--	*5.9*	*Nov-17*
Infrastructure	**43,310,598**	**1.9**	**2.0**	**5.3**	**13.1**	**14.0**	**--**	**--**	**13.1**	**8.3**	**20.9**	**4.1**	**--**	**7.5**	**May-15**
CPI + 5%			*1.3*	*2.8*	*7.4*	*7.2*	--	--	*7.4*	*7.0*	*7.2*	*7.2*	--	*6.8*	*May-15*
eV Infrastructure Net Rank			*99*	*83*	*99*	*12*	--	--	*99*	*1*	*25*	*99*	--		
MS Infrastructure Partners II	43,310,598	1.9	2.0	5.3	13.1	14.0	--	--	13.1	8.3	20.9	4.1	--	7.5	May-15
CPI + 5%			*1.0*	*2.4*	*7.0*	*7.1*	--	--	*7.0*	*7.0*	*7.2*	*7.2*	--	*6.7*	*May-15*
eV Infrastructure Net Rank			*99*	*83*	*99*	*12*	--	--	*99*	*1*	*25*	*99*	--		
Private Credit	**93,984,904**	**4.1**	**0.8**	**1.3**	**4.8**	**2.8**	**3.2**	**--**	**4.8**	**4.2**	**-0.4**	**1.9**	**5.4**	**4.2**	**May-13**
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	--	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.0*	*May-13*
Medley Capital	10,505,757	0.5	-6.3	-10.9	-14.3	-8.2	-3.3	--	-14.3	-12.7	3.4	3.4	5.4	-0.2	May-13
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	--	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.0*	*May-13*
Owl Rock First Lien Fund	4,088,385	0.2	0.0	--	--	--	--	--	--	--	--	--	--	0.0	Oct-19
S&P/LSTA Leveraged Loan Index+2%			*2.2*	--	--	--	--	--	--	--	--	--	--	*2.2*	*Oct-19*
Raven Capital	14,330,002	0.6	1.1	3.3	8.3	2.3	0.9	--	8.3	5.3	-6.1	-3.6	1.2	-0.7	May-13
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	--	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.0*	*May-13*
Raven Opportunity III	38,869,797	1.7	2.5	3.3	9.9	4.1	--	--	9.9	11.0	-7.4	-4.5	--	1.9	Jul-15
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	--	--	*10.8*	*2.4*	*6.2*	*12.3*	--	*6.5*	*Jul-15*
White Oak Pinnacle	26,190,963	1.1	1.8	3.7	6.9	5.7	6.3	--	6.9	8.4	2.0	5.9	8.6	10.8	Aug-13
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	--	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.1*	*Aug-13*

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Risk-Diversifying Sub-Portfolio	**247,067,681**	**10.7**	**0.2**	**1.7**	**5.9**	**3.6**	**3.2**	**4.3**	**5.9**	**1.1**	**3.8**	**5.2**	**0.2**	**4.9**	**Nov-03**
StanCERA Risk-Diversifying Blended BM			*0.1*	*1.3*	*5.3*	*2.6*	*2.0*	*2.4*	*5.3*	*1.4*	*1.3*	*1.3*	*0.9*	--	*Nov-03*
US Treasury	**63,572,025**	**2.8**	**-1.1**	**1.8**	**7.6**	**4.4**	**3.7**	**4.6**	**7.6**	**0.7**	**5.0**	**5.2**	**0.2**	**5.0**	**Nov-03**
BBgBarc US Treasury 7-10 Yr TR			*-1.2*	*1.5*	*8.5*	*3.9*	*2.9*	*4.5*	*8.5*	*0.9*	*2.6*	*1.1*	*1.6*	*4.7*	*Nov-03*
eV US Government Fixed Inc Net Rank			*99*	*26*	*1*	*1*	*1*	*1*	*1*	*86*	*1*	*1*	*78*		
Northern Trust Intermediate Gov't Bond	46,479,024	2.0	0.0	1.2	5.2	--	--	--	5.2	1.4	--	--	--	2.6	Jul-17
BBgBarc US Govt Int TR			*0.0*	*1.2*	*5.2*	--	--	--	*5.2*	*1.4*	--	--	--	*2.6*	*Jul-17*
eV US Government Fixed Inc Net Rank			*31*	*73*	*79*	--	--	--	*79*	*1*	--	--	--		
Northern Trust Long Term Gov't Bond	17,093,001	0.7	-4.1	3.5	14.7	--	--	--	14.7	-1.7	--	--	--	6.6	Jul-17
BBgBarc US Govt Long TR			*-4.1*	*3.5*	*14.7*	--	--	--	*14.7*	*-1.8*	--	--	--	*6.6*	*Jul-17*
US Long Duration Fixed Income Rank			*89*	*74*	*72*	--	--	--	*72*	*25*	--	--	--		
Short-Term Gov't/Credit	**183,495,656**	**8.0**	**0.7**	**1.6**	**5.4**	**--**	**--**	**--**	**5.4**	**1.2**	**--**	**--**	**--**	**2.1**	**May-17**
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	--	--	--	*4.0*	*1.6*	--	--	--	*2.2*	*May-17*
eV US Short Duration Fixed Inc Net Rank			*14*	*11*	*11*	--	--	--	*11*	*75*	--	--	--		
DFA	183,495,656	8.0	0.7	1.6	5.4	--	--	--	5.4	1.2	--	--	--	2.7	Jul-17
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	--	--	--	*4.0*	*1.6*	--	--	--	*2.3*	*Jul-17*
eV US Short Duration Fixed Inc Net Rank			*14*	*11*	*11*	--	--	--	*11*	*75*	--	--	--		

Policy Index (5/31/2019): 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 1% Citi 1 Month T-Bills. StanCERA Risk-Diversifying Blended BM (8/31/2019): 27% BBgBarc US Treasury 7-10 Yr. TR and 73% BBgBarc US Govt/Credit 1-3 Yr. TR.

Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/2019[3]	Verus Internal Analysis: Total Commitment	Capital Called	% Called	Remaining Commitment	Total Distributions	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	IRR Since Inception[5]	Latest Valuation
Real Estate											
7/31/2014	Greenfield Gap VII	$10,182,961	$15,000,000	$14,335,328	96%	$664,672	$11,617,011	81.0%	*152.1%*	*13.7%*	9/30/2019
	NCREIF-ODCE PME									*9.2%*	9/30/2019
6/30/2018	Greenfield Gap VIII	$21,232,460	$40,000,000	$19,201,369	48%	$20,798,631	$0	*N/A*	*110.6%*	*12.9%*	9/30/2019
	NCREIF-ODCE PME									*6.7%*	9/30/2019
	Total Real Estate	**$31,415,421**	$55,000,000	$33,536,697	61%	$21,463,303	$11,617,011	34.6%	*128.3%*		
	% of Portfolio (Market Value)	***1.4%***									
Direct Lending											
5/31/2013	Medley Capital	$10,505,757	$30,000,000	$29,000,453	97%	$999,547	$24,492,888	84.5%	*120.7%*	*1.3%*	6/30/2019
	S&P/LSTA Leveraged Loan Index PME									*3.4%*	6/30/2019
10/31/2019	Owl Rock First Lien Fund	$4,088,385	$10,000,000	$4,141,193	41%	$5,858,807	$52,808	1.3%	*100.0%*	*N/A*	N/A
5/31/2013	Raven Capital	$14,330,002	$40,000,000	$34,505,763	86%	$5,494,237	$23,560,780	68.3%	*109.8%*	*2.7%*	9/30/2019
	S&P/LSTA Leveraged Loan Index PME									*3.7%*	9/30/2019
7/31/2015	Raven Opportunity III	$38,869,797	$50,000,000	$42,884,101	86%	$7,115,899	$9,149,635	21.3%	*112.0%*	*6.0%*	9/30/2019
	S&P/LSTA Leveraged Loan Index PME									*4.8%*	9/30/2019
8/31/2013	White Oak Pinnacle	$26,190,963	$40,000,000	$40,000,000	100%	$0	$43,582,467	109.0%	*174.4%*	*7.5%*	9/30/2019
	S&P/LSTA Leveraged Loan Index PME									*3.9%*	9/30/2019
	Total Direct Lending	**$93,984,904**	$170,000,000	$150,531,510	89%	$19,468,490	$100,838,579	67.0%	*129.4%*		
	% of Portfolio (Market Value)	***4.1%***									
Infrastructure											
5/31/2015	MS Infrastructure Partners II	$43,310,598	$50,000,000	$50,536,641	101%	-$536,641	$18,608,746	36.8%	*122.5%*	*11.8%*	9/30/2019
	CPI PME									*1.9%*	9/30/2019
	Total Infrastructure	**$43,310,598**	$50,000,000	$50,536,641	101%	-$536,641	$18,608,746	36.8%	*122.5%*		

1 (DPI) is equal to (capital returned / capital called)
2 (TVPI) is equal to (market value + capital returned)/ capital called
3 Last known market value + capital calls - distributions
4 Includes redeemed contributions, which are amounts withheld from distributions and applied to fulfill capital calls
5 Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each funds' IRR figure is provided by its respective manager. Benchmark IRRs are calculated using Long-Nickels ICM Methodology.

3 Years

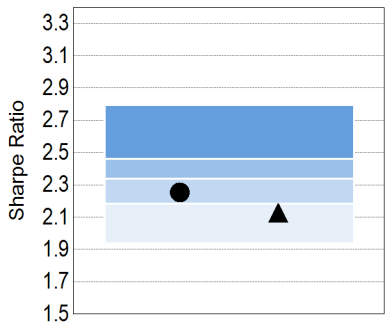
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock Russell 1000 Growth	20.48%	-0.01%	13.25%	0.00%	1.00	0.04%	1.00	1.42	-0.23	99.98%	100.02%
BlackRock Russell 1000 Value	9.80%	0.12%	12.00%	0.14%	1.00	0.05%	1.00	0.68	2.42	100.39%	99.63%
Dodge & Cox-Equity	10.66%	0.98%	12.89%	0.61%	1.04	3.24%	0.94	0.70	0.30	113.74%	108.36%
Capital Prospects	6.09%	1.32%	16.44%	1.24%	1.02	3.15%	0.96	0.27	0.42	100.94%	95.49%
LSV Asset Mgt	8.60%	-1.27%	12.69%	-2.06%	1.08	2.72%	0.96	0.55	-0.47	104.98%	113.05%
Fidelity	9.97%	0.10%	11.15%	0.56%	0.95	2.10%	0.97	0.75	0.05	96.05%	94.94%
Prime Property Fund	7.62%	0.53%	3.13%	0.26%	1.04	0.65%	0.96	1.91	0.81	107.96%	--
American Strategic Value Realty	9.27%	2.57%	3.80%	0.07%	1.37	1.21%	0.97	2.01	2.13	141.81%	--
BlackRock US Real Estate	6.93%	-0.02%	12.05%	-0.01%	1.00	0.05%	1.00	0.44	-0.47	99.68%	99.83%

5 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
BlackRock Russell 1000 Growth	14.64%	0.01%	12.92%	0.02%	1.00	0.04%	1.00	1.05	0.31	100.08%	100.01%
BlackRock Russell 1000 Value	8.38%	0.10%	11.96%	0.11%	1.00	0.06%	1.00	0.61	1.63	100.30%	99.68%
Dodge & Cox-Equity	9.54%	1.25%	13.64%	0.50%	1.09	4.07%	0.92	0.62	0.31	120.00%	107.24%
Capital Prospects	7.02%	0.03%	16.08%	0.05%	1.00	2.89%	0.97	0.37	0.01	95.84%	97.79%
LSV Asset Mgt	5.55%	0.04%	13.77%	-0.38%	1.08	2.86%	0.96	0.33	0.02	113.50%	107.00%
Fidelity	5.74%	0.24%	11.86%	0.61%	0.93	2.19%	0.97	0.40	0.11	90.61%	93.15%
BlackRock US Real Estate	6.34%	-0.05%	13.68%	-0.04%	1.00	0.04%	1.00	0.39	-1.19	99.54%	99.96%

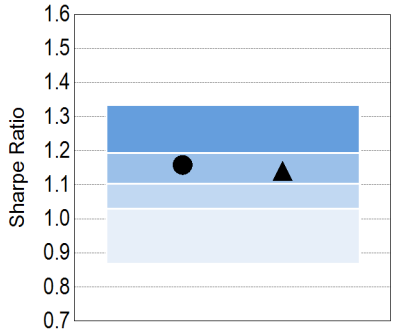
Performance Analysis excludes closed end funds and those funds without 3 years of performance.

Sharpe Ratio 1 Year



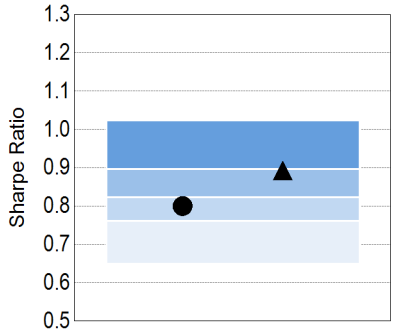
● Total Fund	
Value	2.3
Rank	65
▲ Policy Index	
Value	2.1
Rank	83
Universe	
5th %tile	2.8
25th %tile	2.5
Median	2.3
75th %tile	2.2
95th %tile	1.9

Sharpe Ratio 3 Year



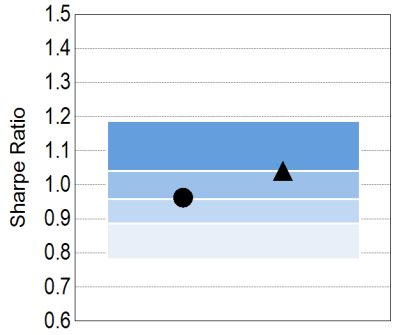
● Total Fund	
Value	1.2
Rank	33
▲ Policy Index	
Value	1.1
Rank	38
Universe	
5th %tile	1.3
25th %tile	1.2
Median	1.1
75th %tile	1.0
95th %tile	0.9

Sharpe Ratio 5 Year



● Total Fund	
Value	0.8
Rank	60
▲ Policy Index	
Value	0.9
Rank	28
Universe	
5th %tile	1.0
25th %tile	0.9
Median	0.8
75th %tile	0.8
95th %tile	0.7

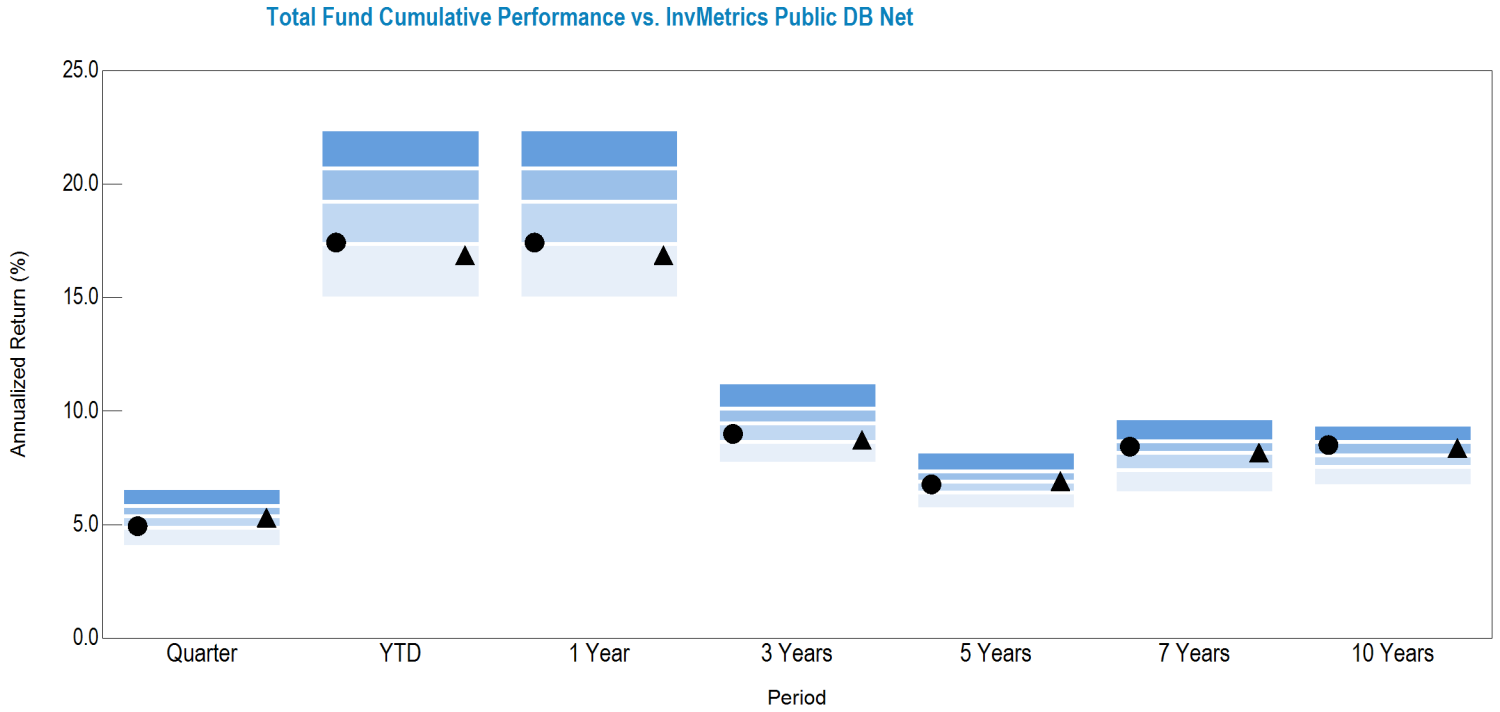
Sharpe Ratio 10 Year



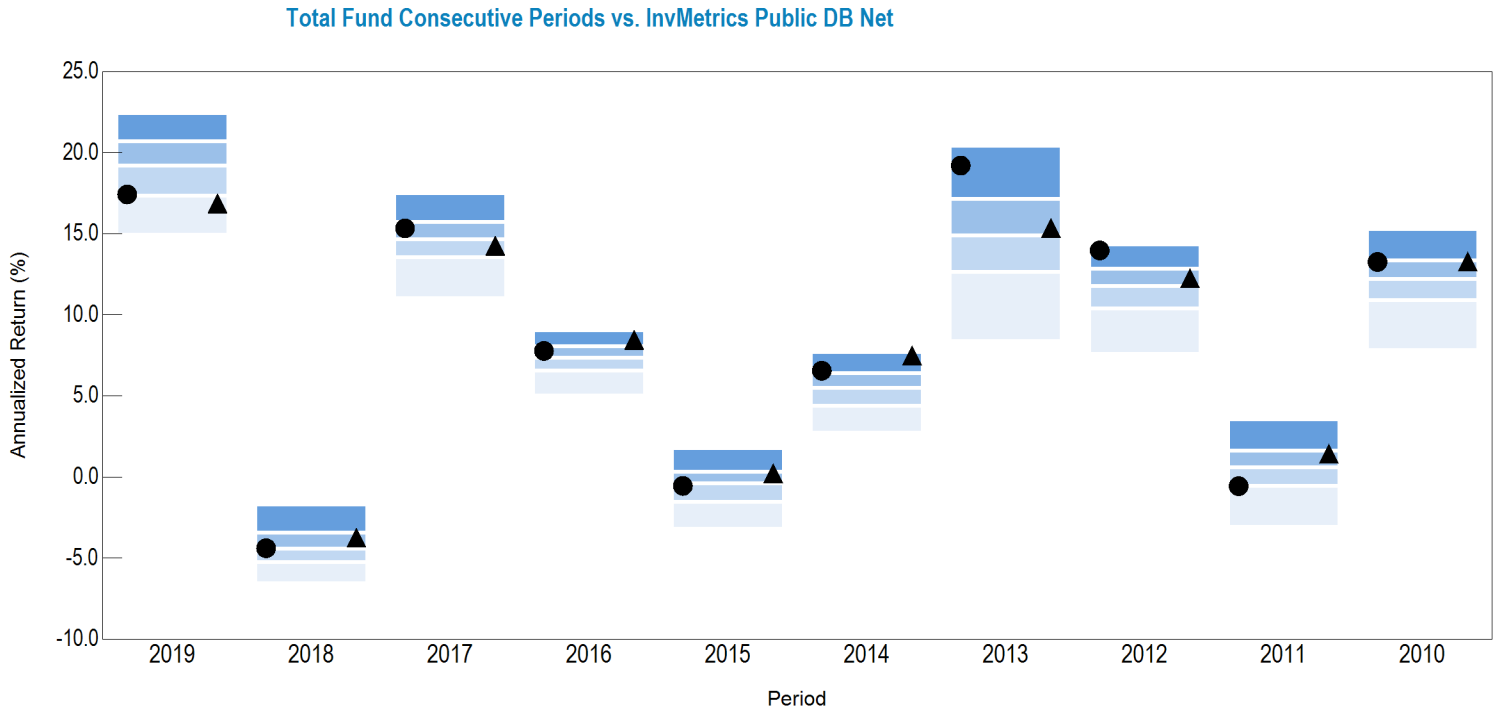
● Total Fund	
Value	1.0
Rank	50
▲ Policy Index	
Value	1.0
Rank	26
Universe	
5th %tile	1.2
25th %tile	1.0
Median	1.0
75th %tile	0.9
95th %tile	0.8

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Cash Account	Cash and Equivalents	0.10% of Assets	$28,165,724	$28,166	0.10%
Insight	Domestic Fixed Income	0.12% of Assets	$214,598,198	$257,518	0.12%
BlackRock Russell 1000 Growth	Domestic Equity	0.02% of Assets	$171,322,717	$34,265	0.02%
BlackRock Russell 1000 Value	Domestic Equity	0.02% of Assets	$84,448,120	$16,890	0.02%
Dodge & Cox-Equity	Domestic Equity	0.40% of First 10.0 Mil, 0.20% of Next 90.0 Mil, 0.15% Thereafter	$85,885,966	$191,772	0.22%
Capital Prospects	Domestic Equity	0.75% of Assets	$83,482,336	$626,117	0.75%
Northern Trust Russell 3000	Domestic Equity	0.02% of Assets	$145,752,551	$29,151	0.02%
LSV Asset Mgt	International Equity	0.75% of First 25.0 Mil, 0.65% of Next 25.0 Mil, 0.55% of Next 50.0 Mil, 0.45% Thereafter	$274,235,603	$1,409,060	0.51%
Fidelity	International Equity	0.25% of Assets	$269,283,817	$673,210	0.25%
Prime Property Fund	Real Estate	0.84% of Assets	$58,942,128	$495,114	0.84%
BlackRock US Real Estate	Real Estate	0.09% of First 100.0 Mil, 0.07% Thereafter	$30,865,770	$27,779	0.09%
American Strategic Value Realty	Real Estate	1.25% of First 10.0 Mil, 1.20% of Next 15.0 Mil, 1.10% of Next 25.0 Mil, 1.00% Thereafter	$60,616,097	$686,161	1.13%
AQR Global Risk Premium - EL	Alternatives	0.38% of Assets	$164,315,559	$624,399	0.38%
PanAgora Risk Parity Multi Asset	Alternatives	0.35% of Assets	$159,865,034	$559,528	0.35%
Owl Rock First Lien Fund	Alternatives	0.70% of Assets	$4,088,385	$28,619	0.70%
Northern Trust Intermediate Gov't Bond	Domestic Fixed Income	0.05% of First 25.0 Mil, 0.04% Thereafter	$46,479,024	$21,092	0.05%
Northern Trust Long Term Gov't Bond	Domestic Fixed Income	0.05% of First 25.0 Mil, 0.04% Thereafter	$17,093,001	$8,547	0.05%
DFA	Domestic Fixed Income	0.20% of First 25.0 Mil, 0.10% Thereafter	$183,495,656	$208,496	0.11%
Total			**$1,999,453,349**	**$5,299,763**	**0.30%**

Closed end funds excluded from fee analysis. Fidelity has performance based fees which are not included in the analysis above; fee shown is the annual base fee only. Northern Trust aggregates StanCERA's Northen Trust Bond Funds.



	Return (Rank)													
5th Percentile	6.6		22.4		22.4		11.3		8.2		9.7		9.4	
25th Percentile	5.8		20.7		20.7		10.1		7.4		8.7		8.6	
Median	5.4		19.2		19.2		9.5		6.9		8.2		8.0	
75th Percentile	4.9		17.4		17.4		8.7		6.4		7.4		7.5	
95th Percentile	4.0		15.0		15.0		7.7		5.7		6.4		6.7	
# of Portfolios	445		442		442		427		393		373		323	
● Total Fund	4.9	(71)	17.4	(75)	17.4	(75)	9.0	(64)	6.8	(58)	8.4	(37)	8.5	(30)
▲ Policy Index	5.3	(51)	16.9	(81)	16.9	(81)	8.7	(72)	6.9	(50)	8.2	(51)	8.4	(34)



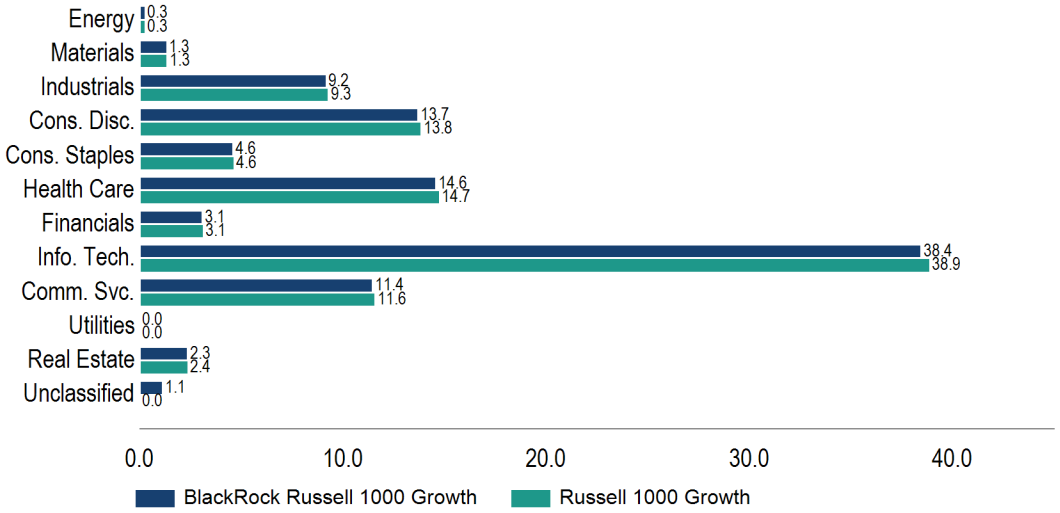
	Return (Rank)																			
5th Percentile	22.4		-1.7		17.5		9.0		1.7		7.7		20.4		14.3		3.6		15.3	
25th Percentile	20.7		-3.4		15.8		8.1		0.4		6.4		17.2		12.9		1.6		13.4	
Median	19.2		-4.4		14.7		7.4		-0.4		5.5		14.9		11.8		0.6		12.2	
75th Percentile	17.4		-5.2		13.6		6.6		-1.5		4.4		12.7		10.4		-0.5		10.9	
95th Percentile	15.0		-6.5		11.1		5.0		-3.2		2.7		8.4		7.6		-3.1		7.9	
# of Portfolios	442		496		269		269		262		210		191		159		137		131	
● Total Fund	17.4	(75)	-4.4	(51)	15.3	(36)	7.8	(36)	-0.6	(55)	6.5	(22)	19.2	(12)	14.0	(9)	-0.6	(77)	13.3	(27)
▲ Policy Index	16.9	(81)	-3.7	(34)	14.3	(60)	8.5	(18)	0.2	(29)	7.5	(8)	15.4	(45)	12.3	(41)	1.4	(30)	13.3	(27)

Domestic Equity Managers

Characteristics

	Portfolio	Russell 1000 Growth
Number of Holdings	530	530
Weighted Avg. Market Cap. ($B)	359.70	362.87
Median Market Cap. ($B)	13.11	13.03
Price To Earnings	29.74	29.74
Price To Book	8.82	8.79
Price To Sales	3.14	3.14
Return on Equity (%)	34.61	34.60
Yield (%)	1.17	1.17
Beta	1.00	1.00

Sector Allocation (%) vs Russell 1000 Growth



Largest Holdings

	End Weight	Return
APPLE	8.45	31.50
MICROSOFT	7.72	13.82
AMAZON.COM	4.95	6.45
FACEBOOK CLASS A	3.17	15.26
ALPHABET A	2.60	9.68
ALPHABET 'C'	2.59	9.68
VISA 'A'	2.08	9.42
UNITEDHEALTH GROUP	1.80	35.80
MASTERCARD	1.71	10.09
MERCK & COMPANY	1.42	8.78

Bottom Contributors

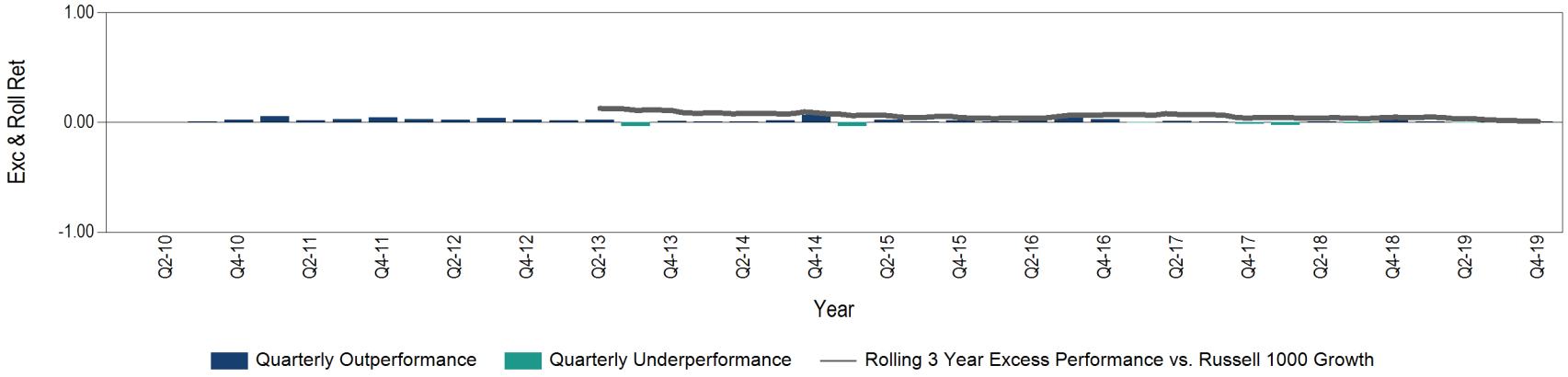
	Avg Wgt	Return	Contribution
BOEING	0.48	-13.89	-0.07
HOME DEPOT	0.34	-5.28	-0.02
TWITTER	0.07	-22.21	-0.02
INTERNATIONAL BUS.MCHS.	0.18	-6.74	-0.01
CISCO SYSTEMS	0.50	-2.21	-0.01
NORTHROP GRUMMAN	0.14	-7.88	-0.01
ORACLE	0.29	-3.30	-0.01
SAGE THERAPEUTICS	0.02	-48.54	-0.01
PUBLIC STORAGE	0.06	-12.32	-0.01
YUM! BRANDS	0.07	-10.82	-0.01

Top Contributors

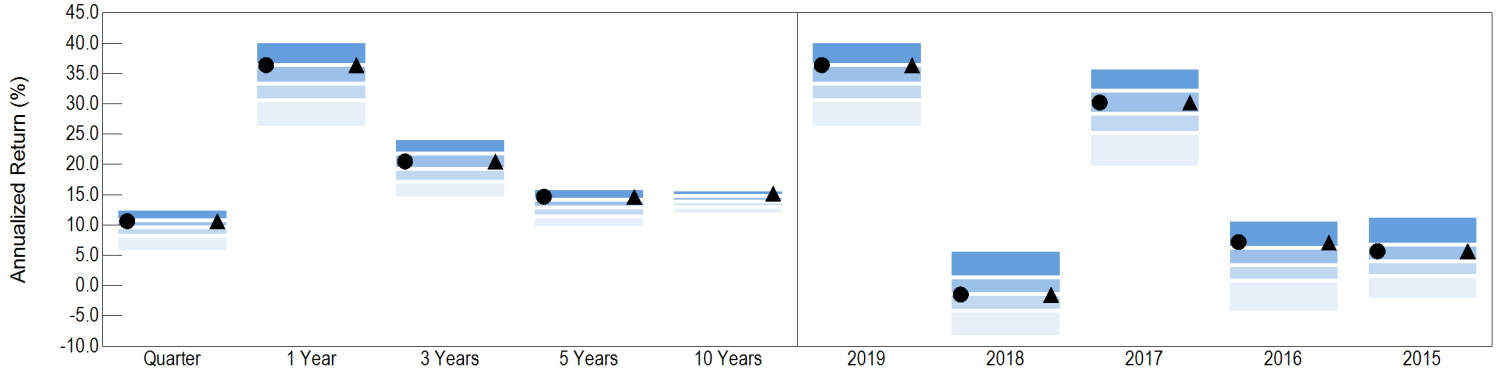
	Avg Wgt	Return	Contribution
APPLE	2.39	31.50	0.75
MICROSOFT	2.48	13.82	0.34
UNITEDHEALTH GROUP	0.49	35.80	0.17
FACEBOOK CLASS A	1.01	15.26	0.15
AMAZON.COM	1.70	6.45	0.11
ALPHABET 'C'	0.88	9.68	0.08
NVIDIA	0.24	35.27	0.08
ALPHABET A	0.86	9.68	0.08
VISA 'A'	0.71	9.42	0.07
AMGEN	0.25	25.40	0.06

Unclassified sector allocation includes cash allocations.

Rolling Annualized Excess Performance

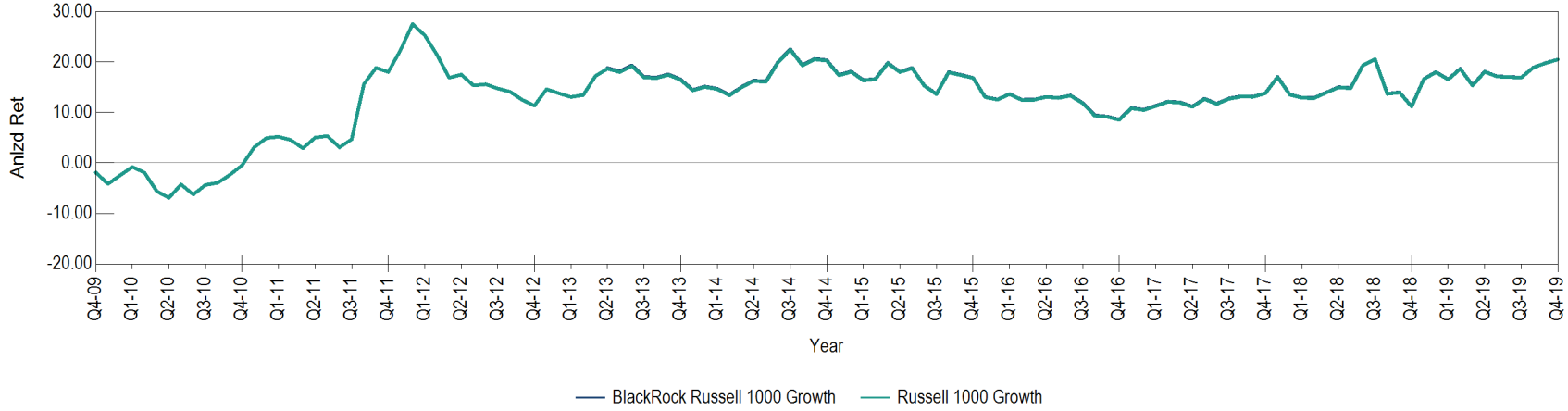


BlackRock Russell 1000 Growth vs. eV US Large Cap Growth Equity Net Universe

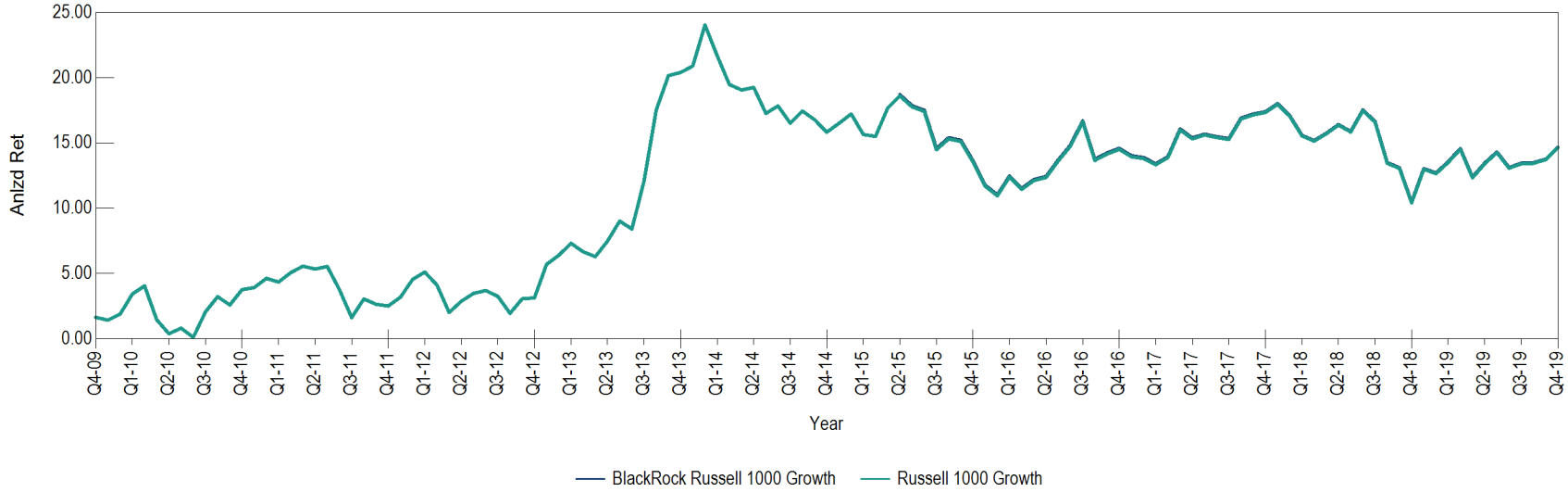


Return (Rank)	Quarter		1 Year		3 Years		5 Years		10 Years		2019		2018		2017		2016		2015	
5th Percentile	12.6		40.3		24.3		16.0		15.8		40.3		5.8		36.0		10.8		11.4	
25th Percentile	10.8		36.5		21.8		14.2		14.9		36.5		1.4		32.2		6.3		6.8	
Median	9.6		33.4		19.3		13.0		13.9		33.4		-1.3		28.5		3.4		4.1	
75th Percentile	8.3		30.6		17.2		11.5		13.0		30.6		-4.1		25.2		0.8		1.6	
95th Percentile	5.6		26.1		14.4		9.6		11.8		26.1		-8.4		19.5		-4.5		-2.3	
# of Portfolios	186		186		180		170		144		186		179		182		182		175	
● BlackRock Russell 1000 Growth	10.6	(29)	36.4	(27)	20.5	(37)	14.7	(19)	--	(--)	36.4	(27)	-1.5	(52)	30.2	(38)	7.2	(19)	5.7	(35)
▲ Russell 1000 Growth	10.6	(29)	36.4	(27)	20.5	(37)	14.6	(20)	15.2	(17)	36.4	(27)	-1.5	(52)	30.2	(38)	7.1	(20)	5.7	(35)

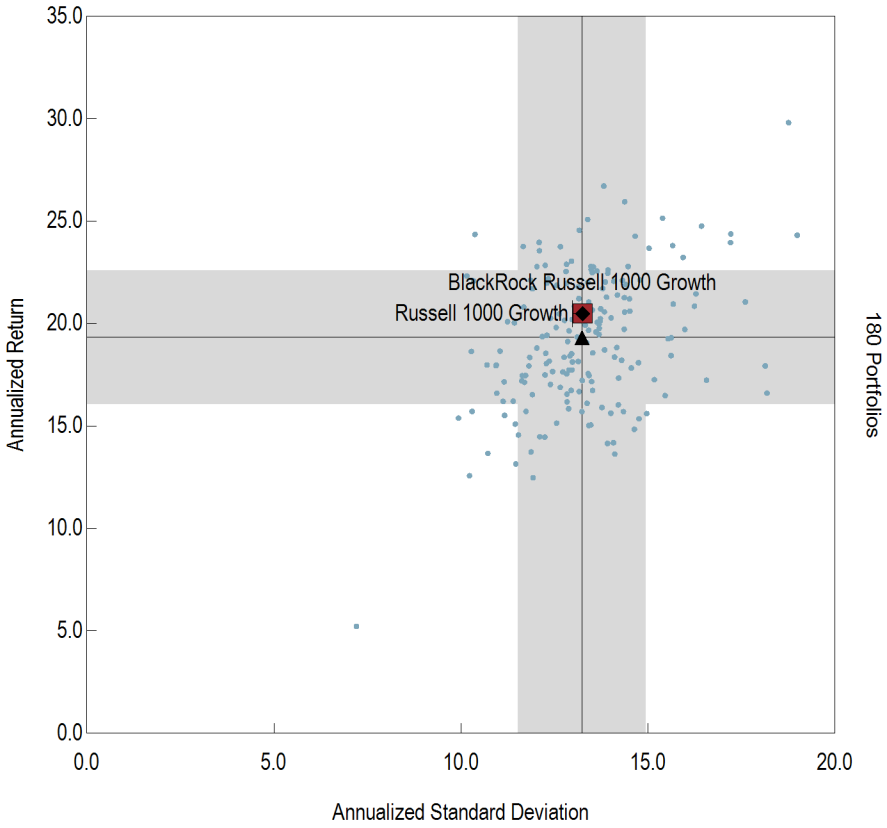
Rolling 3 Year Annualized Return (%)



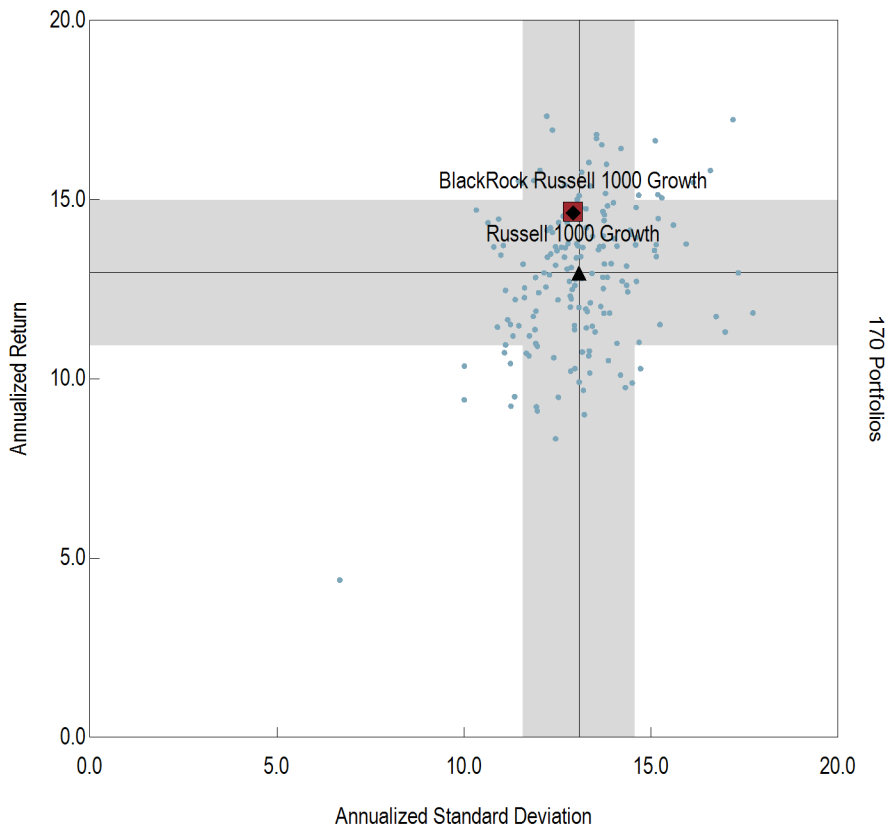
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
BlackRock Russell 1000 Growth	20.50%	13.25%	1.42
Russell 1000 Growth	20.49%	13.26%	1.42
eV US Large Cap Growth Equity Net Median	19.33%	13.24%	1.34

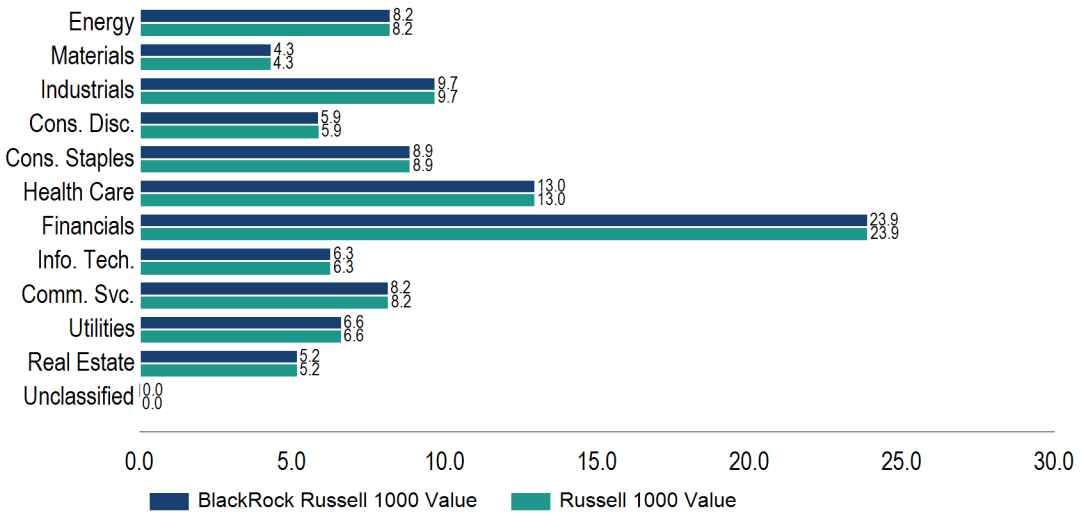
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
BlackRock Russell 1000 Growth	14.7%	12.9%	1.1
Russell 1000 Growth	14.6%	12.9%	1.1
eV US Large Cap Growth Equity Net Median	13.0%	13.1%	0.9

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	763	764
Weighted Avg. Market Cap. ($B)	123.40	123.34
Median Market Cap. ($B)	9.65	9.64
Price To Earnings	18.48	18.48
Price To Book	2.32	2.32
Price To Sales	1.51	1.51
Return on Equity (%)	13.96	13.97
Yield (%)	2.49	2.49
Beta	1.00	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest Holdings

	End Weight	Return
BERKSHIRE HATHAWAY 'B'	3.08	8.88
JP MORGAN CHASE & CO.	3.02	19.40
JOHNSON & JOHNSON	2.29	13.53
EXXON MOBIL	2.05	0.04
PROCTER & GAMBLE	2.02	1.06
BANK OF AMERICA	1.99	21.40
AT&T	1.98	4.70
INTEL	1.81	16.78
VERIZON COMMUNICATIONS	1.77	2.78
WALT DISNEY	1.75	11.65

Bottom Contributors

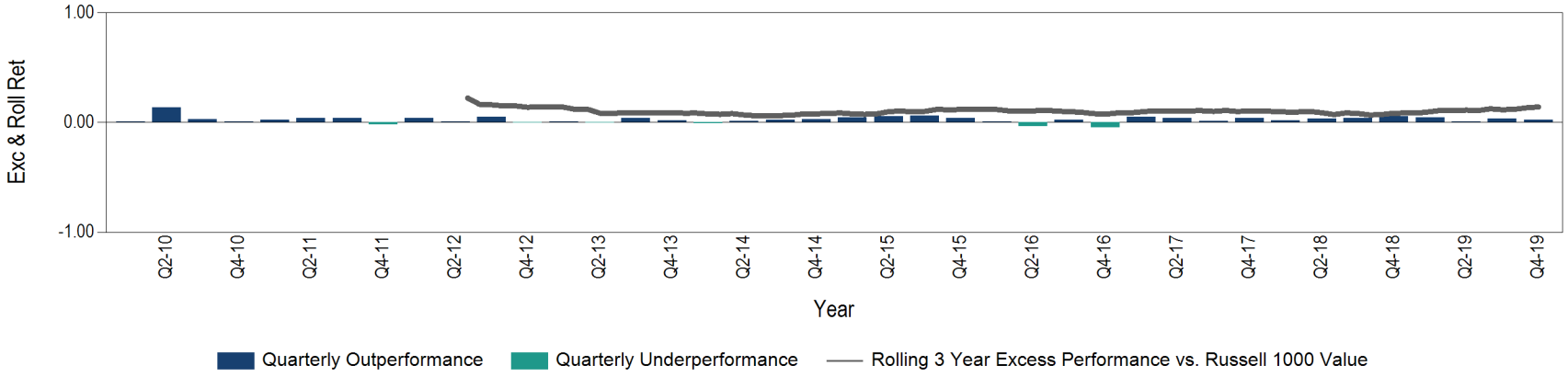
	Avg Wgt	Return	Contribution
MCDONALDS	0.34	-7.37	-0.03
HOME DEPOT	0.27	-5.28	-0.01
VENTAS	0.07	-19.85	-0.01
DUPONT DE NEMOURS	0.13	-9.56	-0.01
COLGATE-PALM.	0.15	-5.75	-0.01
AMERICAN INTL.GP.	0.12	-7.26	-0.01
INTERNATIONAL BUS.MCHS.	0.13	-6.74	-0.01
WELLTOWER	0.09	-8.83	-0.01
DUKE ENERGY	0.17	-3.83	-0.01
CONSTELLATION BRANDS 'A'	0.08	-8.10	-0.01

Top Contributors

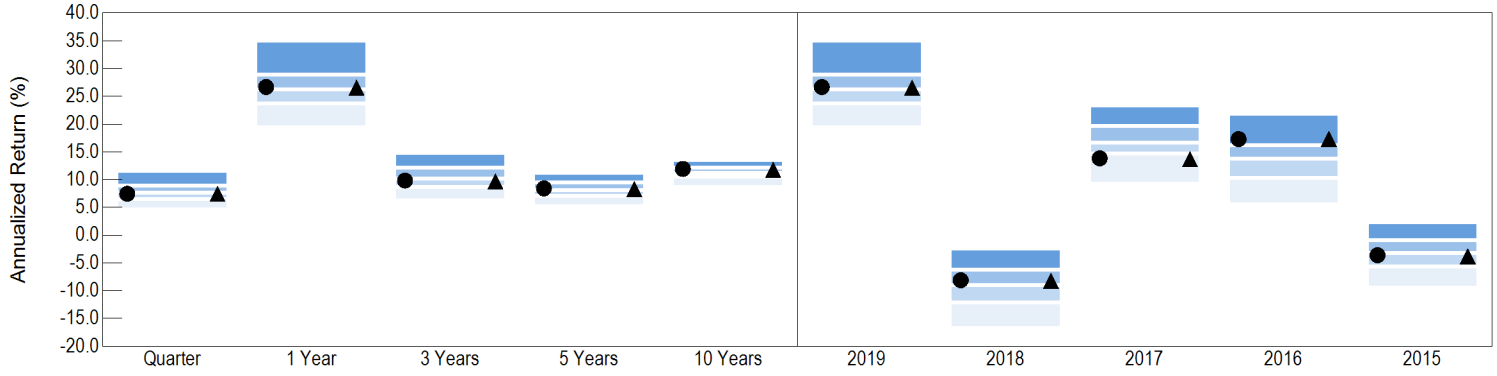
	Avg Wgt	Return	Contribution
JP MORGAN CHASE & CO.	0.92	19.40	0.18
BANK OF AMERICA	0.60	21.40	0.13
JOHNSON & JOHNSON	0.72	13.53	0.10
INTEL	0.56	16.78	0.09
BERKSHIRE HATHAWAY 'B'	1.00	8.88	0.09
WALT DISNEY	0.56	11.65	0.07
CITIGROUP	0.38	16.45	0.06
PFIZER	0.49	10.11	0.05
GENERAL ELECTRIC	0.19	24.95	0.05
PHILIP MORRIS INTL.	0.29	13.59	0.04

Unclassified sector allocation includes cash allocations.

Rolling Annualized Excess Performance

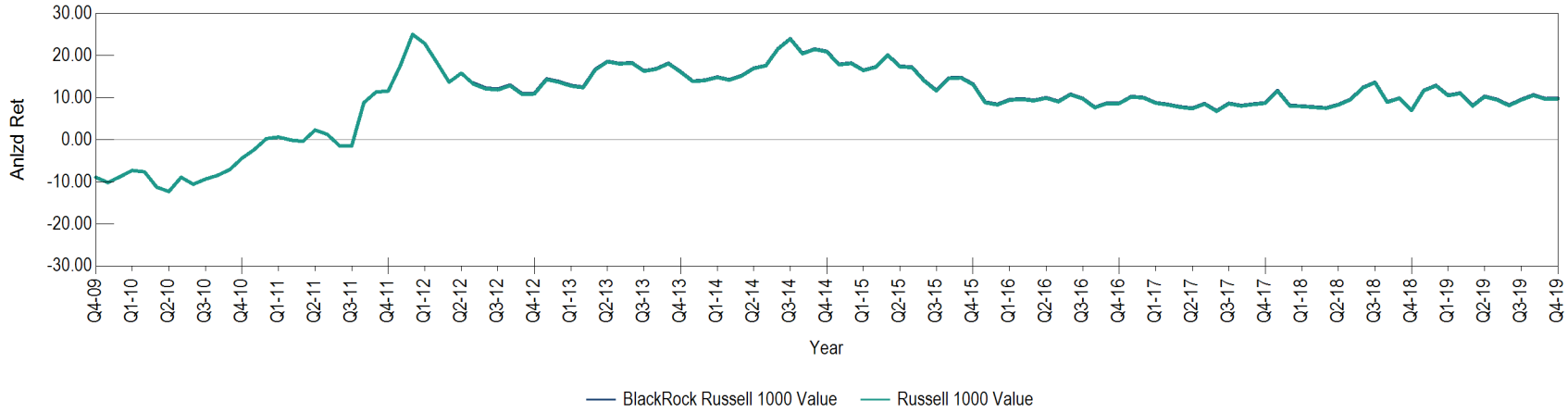


BlackRock Russell 1000 Value vs. eV US Large Cap Value Equity Net Universe

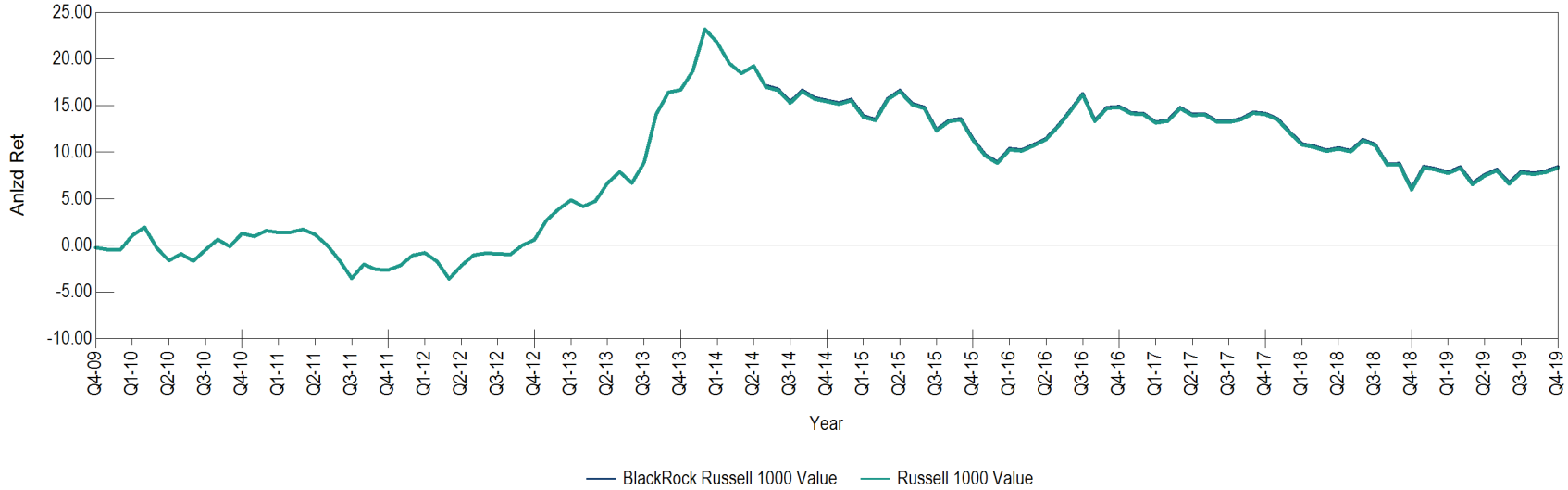


Return (Rank)	Quarter		1 Year		3 Years		5 Years		10 Years		2019		2018		2017		2016		2015	
5th Percentile	11.5		34.9		14.7		11.1		13.4		34.9		-2.5		23.3		21.8		2.2	
25th Percentile	9.0		28.9		12.2		9.5		12.2		28.9		-6.1		19.7		16.3		-0.8	
Median	7.7		26.3		10.3		8.2		11.3		26.3		-9.0		16.7		13.8		-3.1	
75th Percentile	6.6		23.8		8.7		7.1		10.5		23.8		-12.0		14.8		10.4		-5.7	
95th Percentile	4.7		19.5		6.3		5.3		8.7		19.5		-16.7		9.4		5.6		-9.4	
# of Portfolios	249		249		245		233		186		249		239		231		225		195	
● BlackRock Russell 1000 Value	7.4	(56)	26.7	(47)	9.8	(57)	8.4	(46)	11.9	(36)	26.7	(47)	-8.1	(40)	13.8	(83)	17.3	(20)	-3.6	(57)
▲ Russell 1000 Value	7.4	(57)	26.5	(49)	9.7	(62)	8.3	(50)	11.8	(38)	26.5	(49)	-8.3	(43)	13.7	(86)	17.3	(19)	-3.8	(59)

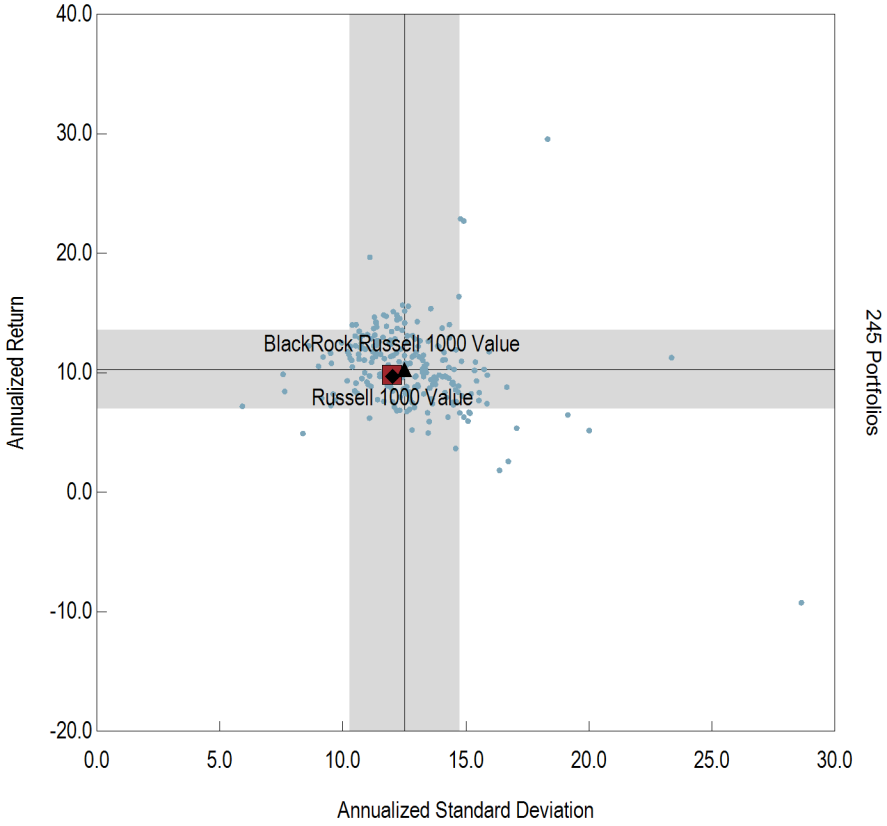
Rolling 3 Year Annualized Return (%)



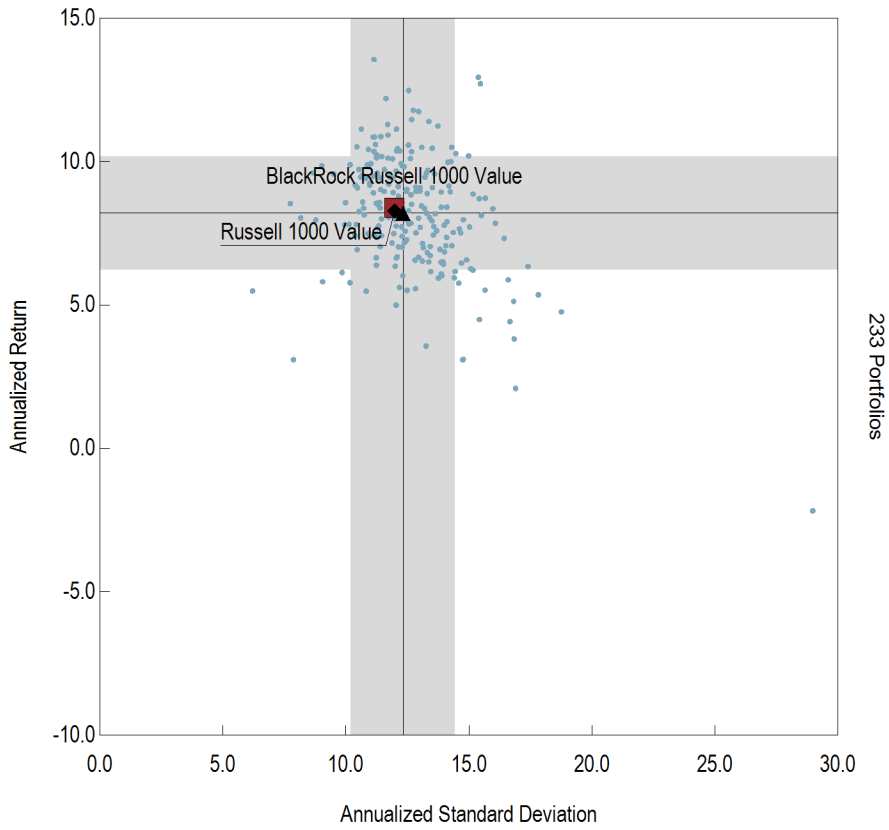
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
BlackRock Russell 1000 Value	9.82%	12.00%	0.68
Russell 1000 Value	9.68%	12.02%	0.67
eV US Large Cap Value Equity Net Median	10.28%	12.50%	0.71

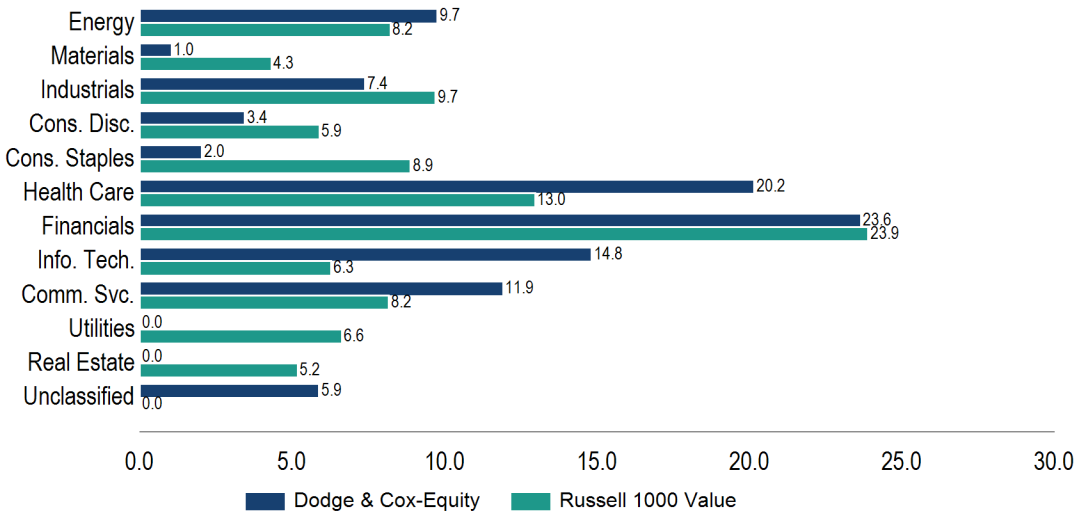
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
BlackRock Russell 1000 Value	8.4%	12.0%	0.6
Russell 1000 Value	8.3%	12.0%	0.6
eV US Large Cap Value Equity Net Median	8.2%	12.3%	0.6

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	67	764
Weighted Avg. Market Cap. ($B)	112.70	123.34
Median Market Cap. ($B)	31.73	9.64
Price To Earnings	16.83	18.48
Price To Book	2.27	2.32
Price To Sales	1.42	1.51
Return on Equity (%)	14.44	13.97
Yield (%)	2.31	2.49
Beta	1.02	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest Holdings

	End Weight	Return
WELLS FARGO & CO	3.63	7.67
CHARLES SCHWAB	3.46	14.14
CAPITAL ONE FINL.	3.33	13.58
ALPHABET 'C'	3.19	9.68
BANK OF AMERICA	3.18	21.40
CHARTER COMMS.CL.A	3.12	17.70
FEDEX	3.09	4.31
BRISTOL MYERS SQUIBB	2.99	27.63
COMCAST A	2.95	0.23
OCCIDENTAL PTL.	2.79	-5.37

Bottom Contributors

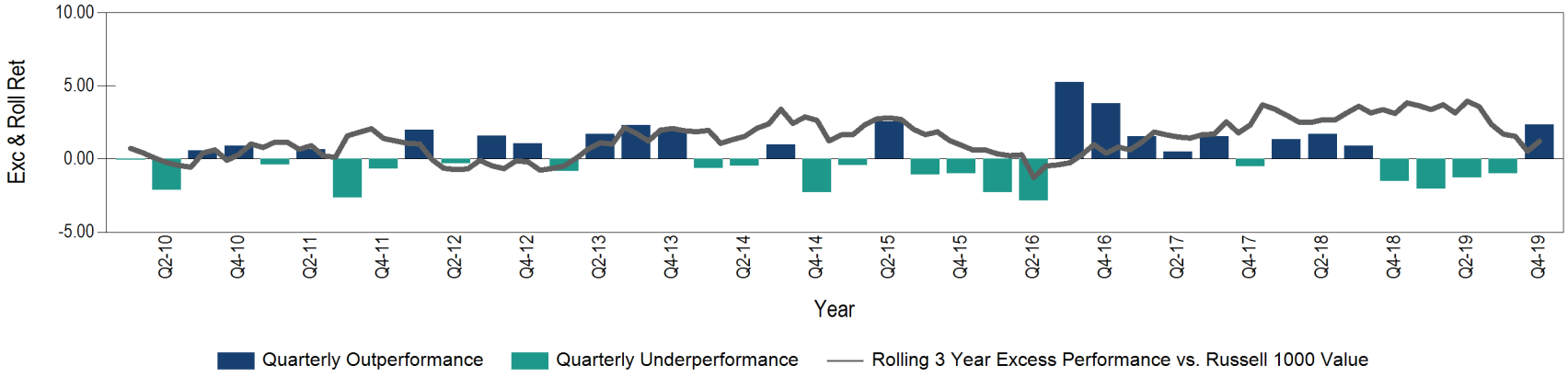
	Avg Wgt	Return	Contribution
JOHNSON CONTROLS INTL.	2.53	-6.65	-0.17
OCCIDENTAL PTL.	2.90	-5.37	-0.16
QURATE RETAIL SERIES A	0.49	-18.27	-0.09
SPRINT	0.48	-15.56	-0.07
MOLSON COORS BEVERAGE COMPANY B	0.76	-5.20	-0.04
CISCO SYSTEMS	0.86	-2.21	-0.02
BRIGHTHOUSE FINANCIAL	0.37	-3.06	-0.01
DELL TECHNOLOGIES C	0.98	-0.91	-0.01
MICRO FOCUS INTL.SPN.ADR 1:1	0.43	-0.85	0.00
ZAYO GROUP HOLDINGS	0.03	2.21	0.00

Top Contributors

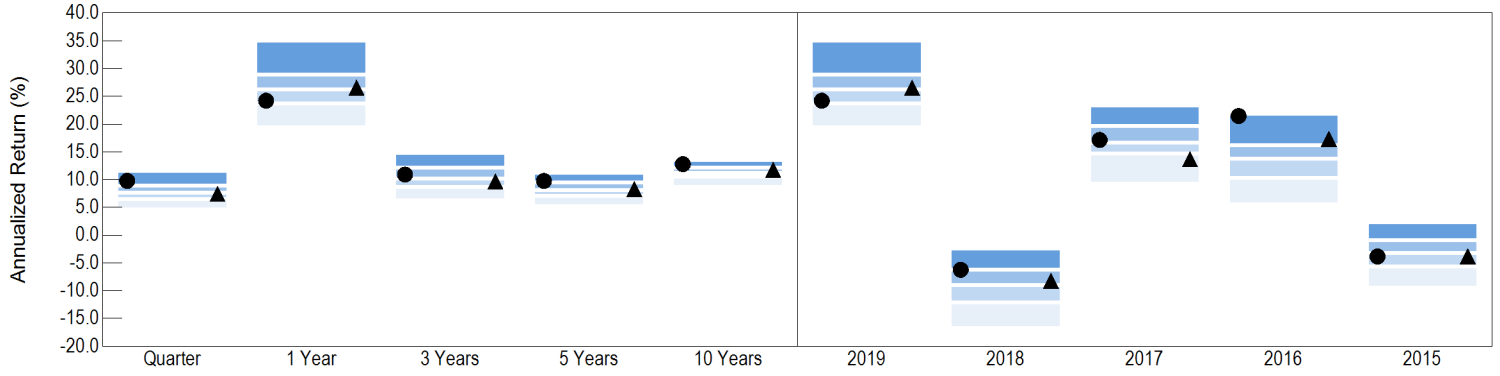
	Avg Wgt	Return	Contribution
CIGNA	2.47	34.72	0.86
BRISTOL MYERS SQUIBB	2.56	27.63	0.71
BANK OF AMERICA	3.01	21.40	0.64
CHARTER COMMS.CL.A	3.20	17.70	0.57
UNITEDHEALTH GROUP	1.52	35.80	0.55
CHARLES SCHWAB	3.41	14.14	0.48
CAPITAL ONE FINL.	3.29	13.58	0.45
JP MORGAN CHASE & CO.	2.12	19.40	0.41
ALPHABET 'C'	3.21	9.68	0.31
WELLS FARGO & CO	3.70	7.67	0.28

Unclassified sector allocation includes cash allocations.

Rolling Annualized Excess Performance

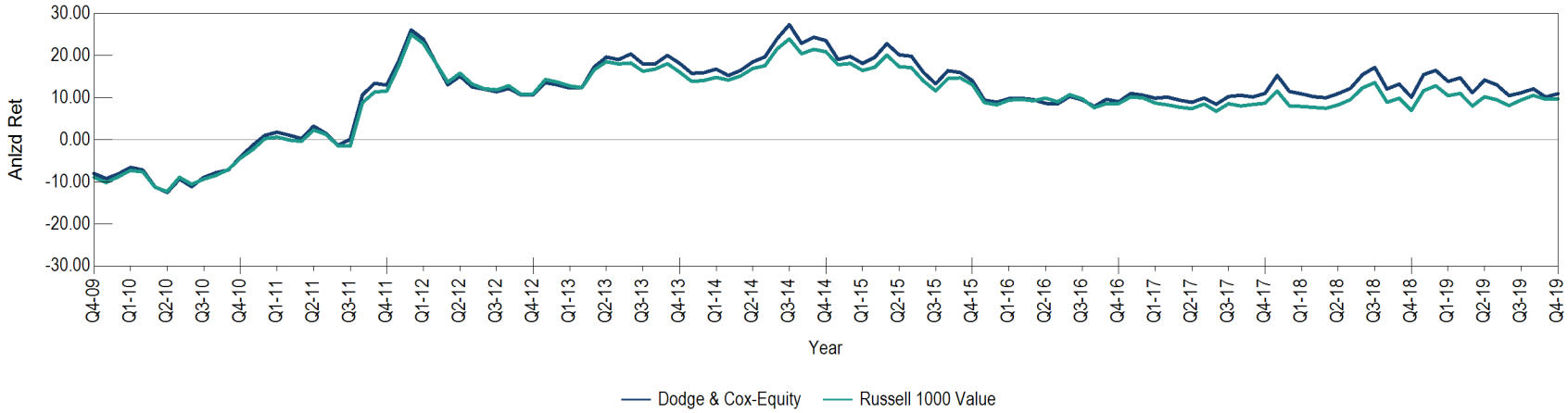


Dodge & Cox-Equity vs. eV US Large Cap Value Equity Net Universe

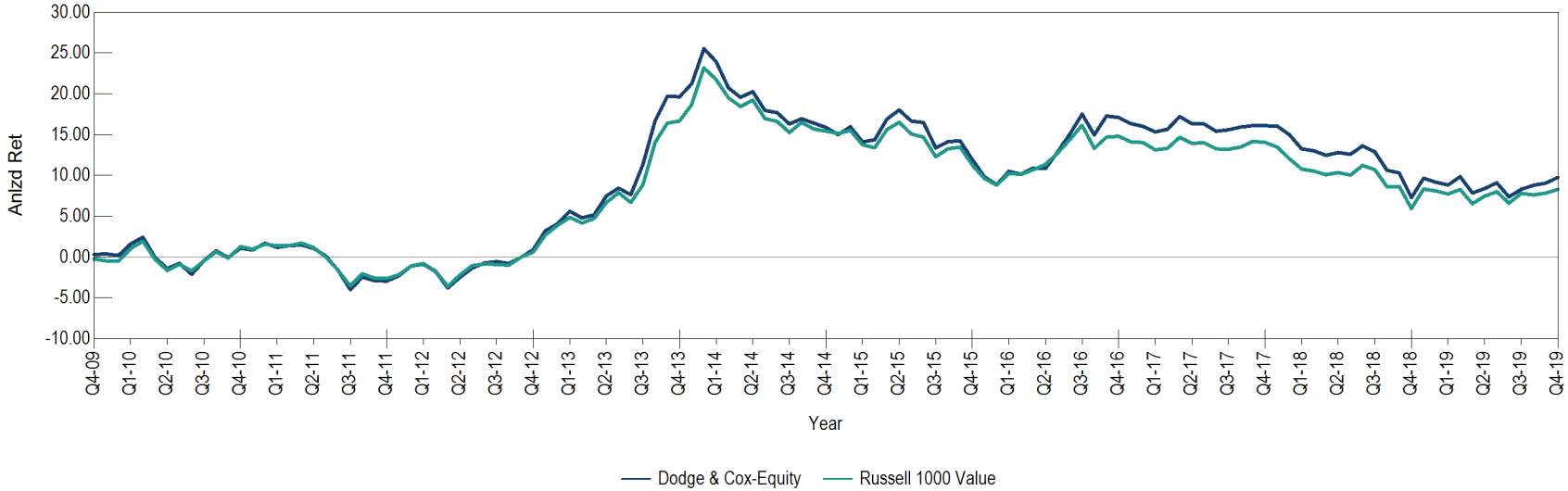


	Return (Rank)																	
5th Percentile	11.5		34.9		14.7		11.1		13.4		34.9		-2.5		23.3		21.8		2.2	
25th Percentile	9.0		28.9		12.2		9.5		12.2		28.9		-6.1		19.7		16.3		-0.8	
Median	7.7		26.3		10.3		8.2		11.3		26.3		-9.0		16.7		13.8		-3.1	
75th Percentile	6.6		23.8		8.7		7.1		10.5		23.8		-12.0		14.8		10.4		-5.7	
95th Percentile	4.7		19.5		6.3		5.3		8.7		19.5		-16.7		9.4		5.6		-9.4	
# of Portfolios	249		249		245		233		186		249		239		231		225		195	
● Dodge & Cox-Equity	9.8	(18)	24.2	(72)	10.9	(41)	9.7	(21)	12.8	(12)	24.2	(72)	-6.3	(26)	17.1	(45)	21.4	(6)	-3.9	(59)
▲ Russell 1000 Value	7.4	(57)	26.5	(49)	9.7	(62)	8.3	(50)	11.8	(38)	26.5	(49)	-8.3	(43)	13.7	(86)	17.3	(19)	-3.8	(59)

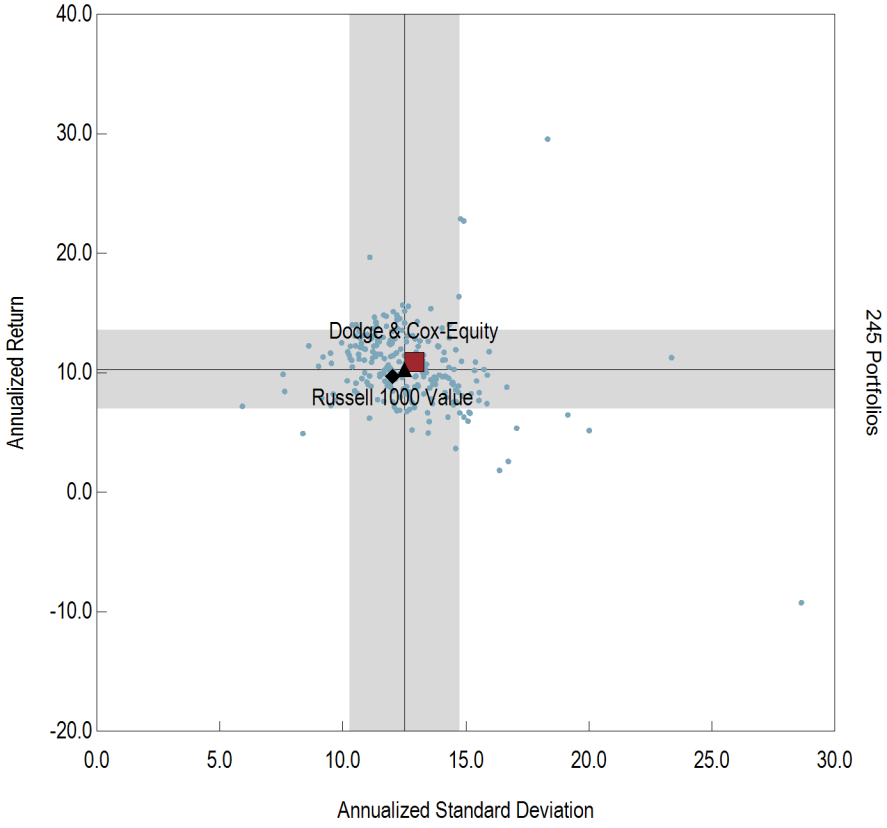
Rolling 3 Year Annualized Return (%)



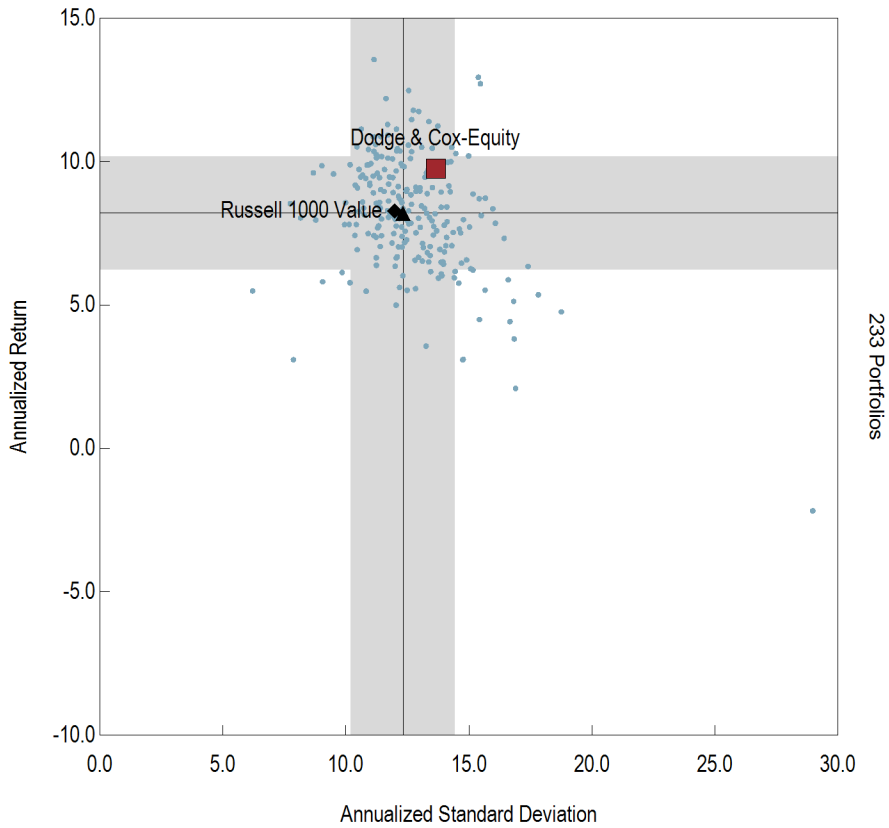
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Dodge & Cox-Equity	10.90%	12.89%	0.72
Russell 1000 Value	9.68%	12.02%	0.67
eV US Large Cap Value Equity Net Median	10.28%	12.50%	0.71

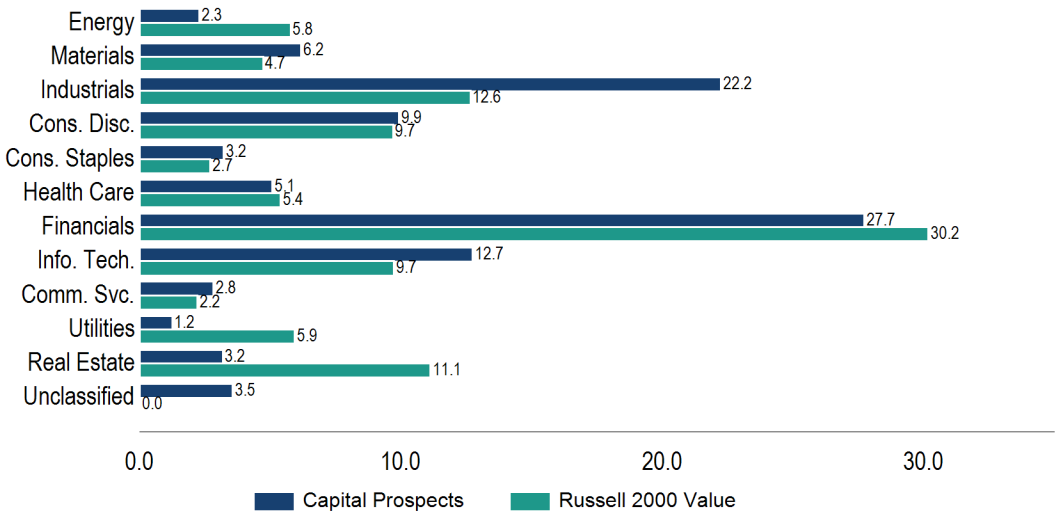
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Dodge & Cox-Equity	9.7%	13.6%	0.6
Russell 1000 Value	8.3%	12.0%	0.6
eV US Large Cap Value Equity Net Median	8.2%	12.3%	0.6

Characteristics

	Portfolio	Russell 2000 Value
Number of Holdings	285	1,402
Weighted Avg. Market Cap. ($B)	2.51	2.17
Median Market Cap. ($B)	1.52	0.70
Price To Earnings	18.83	16.29
Price To Book	1.98	1.71
Price To Sales	1.01	0.92
Return on Equity (%)	9.45	5.31
Yield (%)	1.71	2.13
Beta	1.09	1.00

Sector Allocation (%) vs Russell 2000 Value



Largest Holdings

	End Weight	Return
AIR LEASE	1.31	13.99
CROWN HDG.	1.26	9.81
OFG BANCORP	1.24	8.13
CINEMARK HOLDINGS	1.17	-11.52
LITTELFUSE	1.11	8.18
HOSTESS BRANDS CL.A	1.00	3.97
ARCONIC	0.98	18.43
DARLING INGREDIENTS	0.96	46.79
VERSO 'A'	0.93	45.64
HILLENBRAND	0.92	8.56

Bottom Contributors

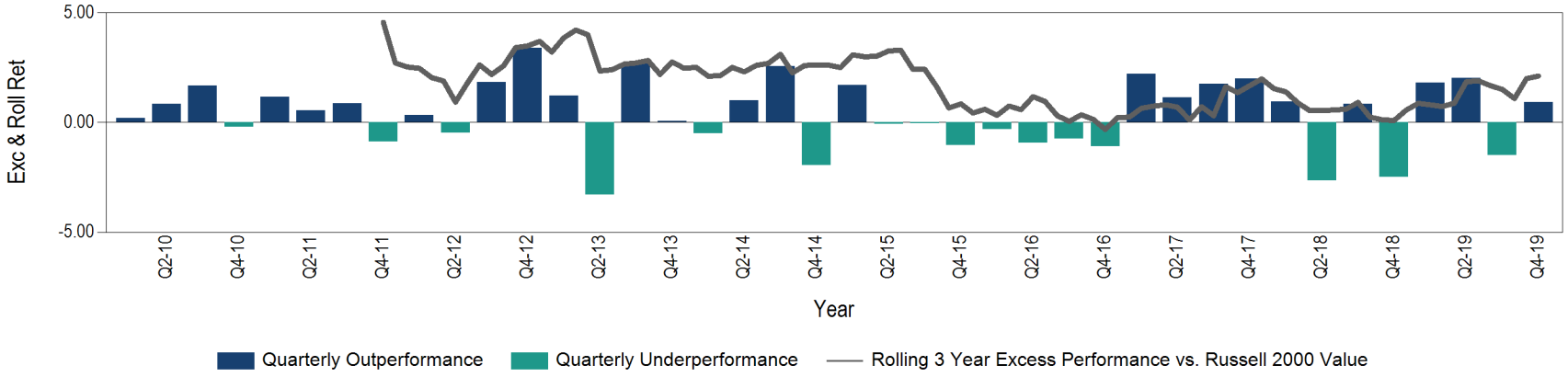
	Avg Wgt	Return	Contribution
MODINE MANUFACTURING	0.69	-32.28	-0.22
FREIGHTCAR AMERICA	0.21	-57.32	-0.12
CINEMARK HOLDINGS	0.74	-11.52	-0.09
MISTRAS GROUP	0.63	-12.99	-0.08
SPIRIT AEROSYSTEMS CL.A	0.63	-11.25	-0.07
MICHAELS COMPANIES	0.36	-17.36	-0.06
TREEHOUSE FOODS	0.48	-12.53	-0.06
HEXCEL	0.54	-10.54	-0.06
DEL TACO RESTAURANTS	0.20	-22.69	-0.04
LIFETIME BRANDS	0.21	-21.05	-0.04

Top Contributors

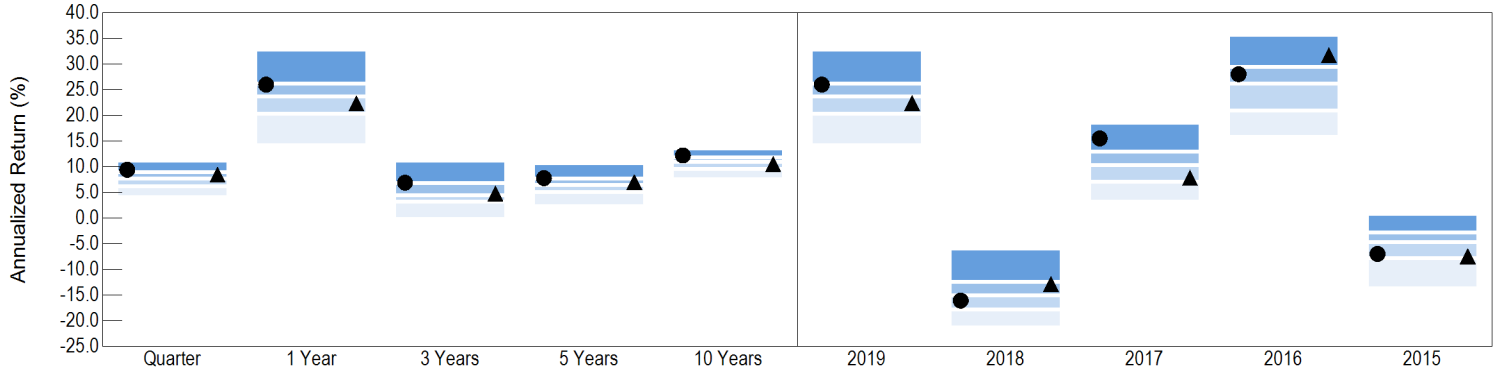
	Avg Wgt	Return	Contribution
ULTRA CLEAN HOLDINGS	0.65	60.37	0.39
VERSO 'A'	0.83	45.64	0.38
ARCONIC	1.71	18.43	0.31
COHU	0.40	69.70	0.28
DARLING INGREDIENTS	0.58	46.79	0.27
PENN NAT.GAMING	0.53	37.24	0.20
BOTTOMLINE TECHS.	0.54	36.21	0.19
AMERICAN EQ.INV.LF.HLDG.	0.73	24.94	0.18
AIR LEASE	1.29	13.99	0.18
DOUGLAS DYNAMICS	0.73	24.02	0.18

Unclassified sector allocation includes cash allocations.

Rolling Annualized Excess Performance

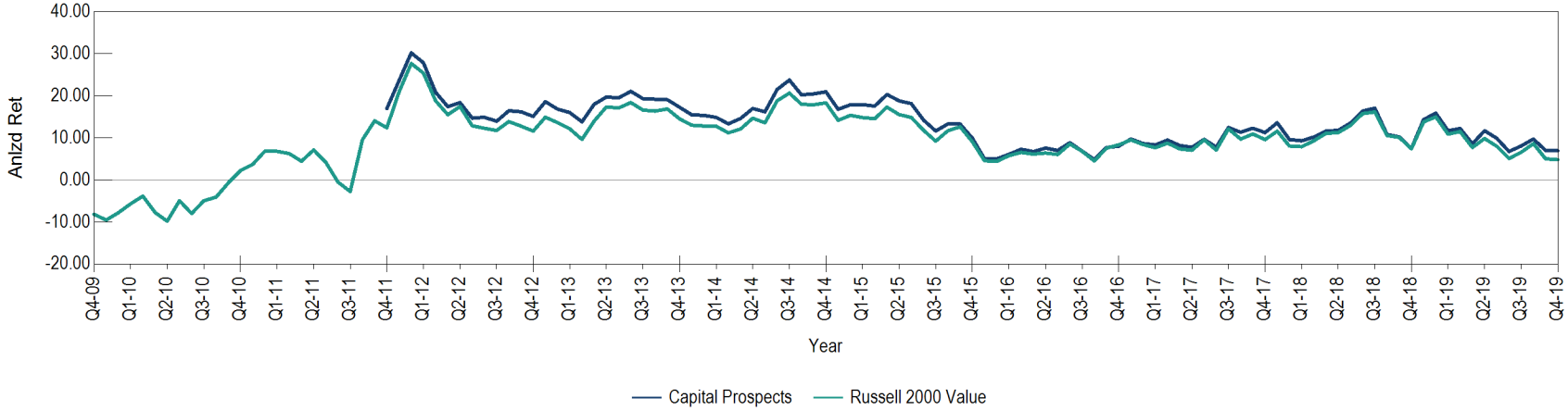


Capital Prospects vs. eV US Small Cap Value Equity Net Universe

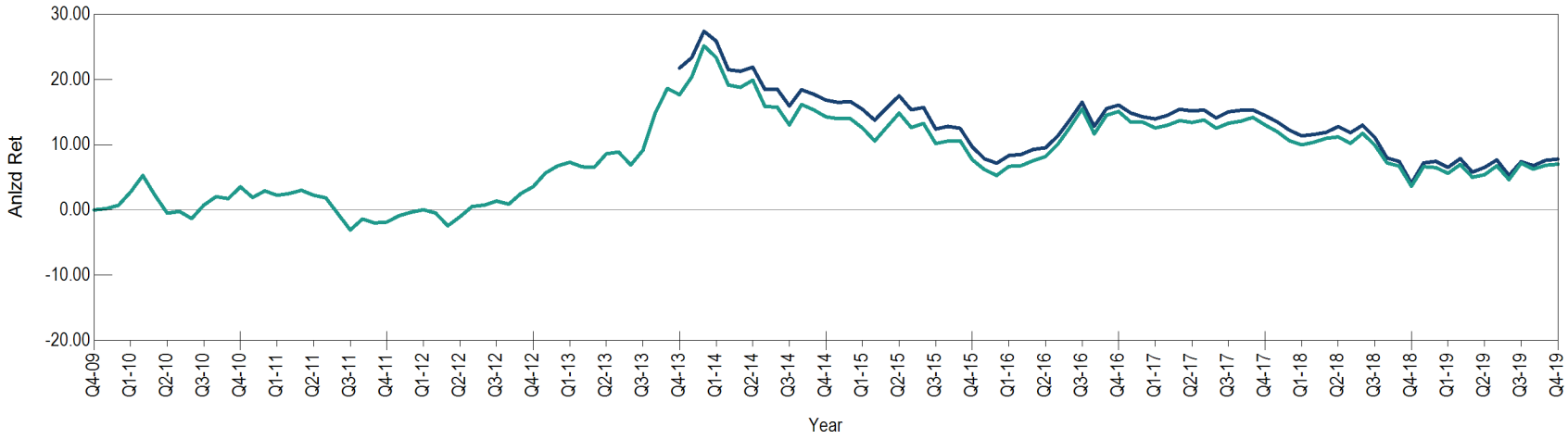


Return (Rank)	Quarter		1 Year		3 Years		5 Years		10 Years		2019		2018		2017		2016		2015	
5th Percentile	11.2		32.8		11.1		10.7		13.5		32.8		-6.0		18.6		35.7		0.8	
25th Percentile	9.0		26.3		6.9		7.8		11.9		26.3		-12.4		13.1		29.5		-2.7	
Median	7.8		23.8		4.5		6.5		11.0		23.8		-15.0		10.3		26.2		-4.6	
75th Percentile	6.3		20.4		3.2		5.1		9.7		20.4		-17.8		7.2		21.1		-7.8	
95th Percentile	4.1		14.2		-0.1		2.3		7.6		14.2		-21.3		3.3		15.9		-13.7	
# of Portfolios	176		176		172		160		137		176		168		170		151		137	
● Capital Prospects	9.4	(17)	26.0	(28)	6.9	(26)	7.8	(26)	12.2	(19)	26.0	(28)	-16.1	(60)	15.5	(13)	28.1	(32)	-7.0	(71)
▲ Russell 2000 Value	8.5	(32)	22.4	(60)	4.8	(46)	7.0	(39)	10.6	(61)	22.4	(60)	-12.9	(31)	7.8	(70)	31.7	(15)	-7.5	(73)

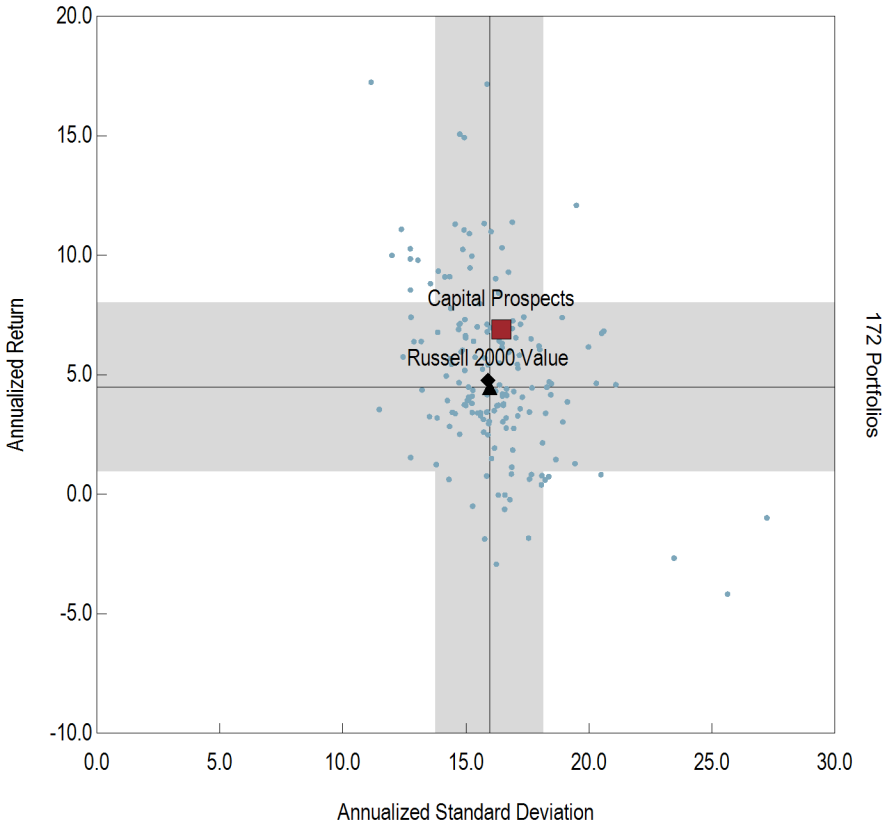
Rolling 3 Year Annualized Return (%)



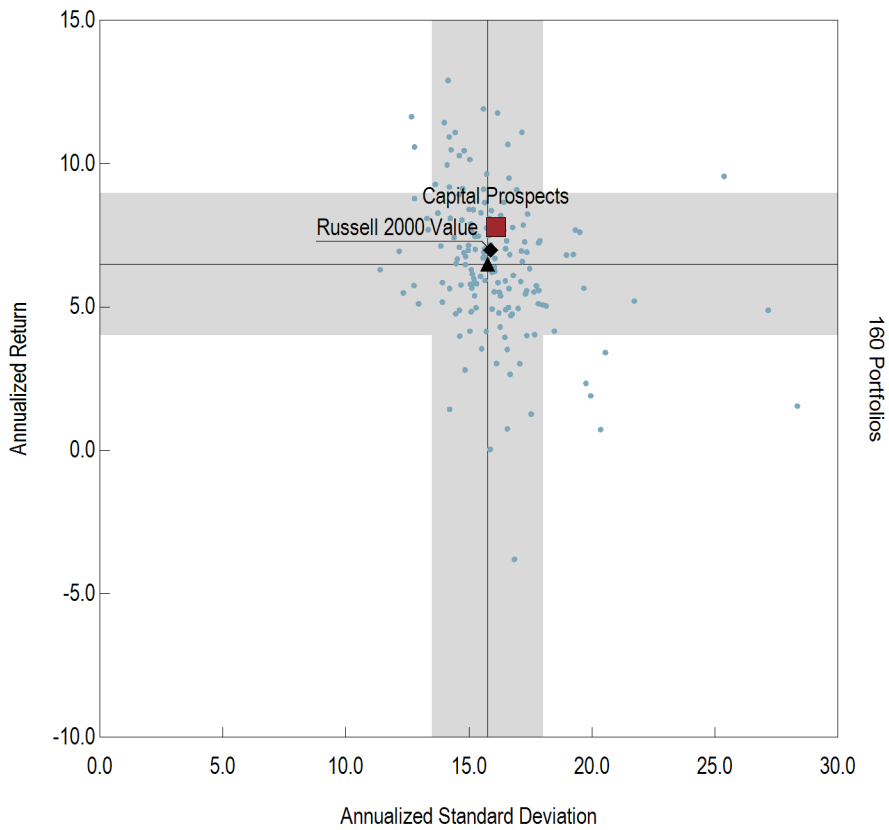
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Capital Prospects	6.89%	16.45%	0.32
Russell 2000 Value	4.77%	15.90%	0.20
eV US Small Cap Value Equity Net Median	4.49%	15.97%	0.17

5 Years

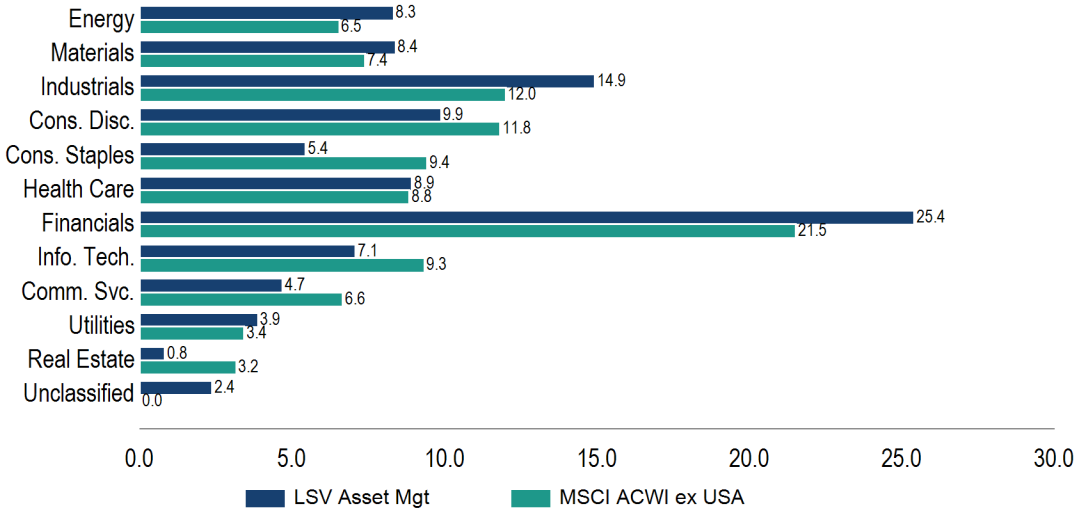
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Capital Prospects	7.8%	16.1%	0.4
Russell 2000 Value	7.0%	15.9%	0.4
eV US Small Cap Value Equity Net Median	6.5%	15.8%	0.3

International Equity Managers

Characteristics

	Portfolio	MSCI ACWI ex USA
Number of Holdings	278	2,379
Weighted Avg. Market Cap. ($B)	39.22	74.06
Median Market Cap. ($B)	6.58	8.17
Price To Earnings	10.79	16.25
Price To Book	1.66	2.41
Price To Sales	0.61	1.18
Return on Equity (%)	13.17	15.06
Yield (%)	4.25	3.05
Beta	1.05	1.00

Sector Allocation (%) vs MSCI ACWI ex USA



Largest Holdings

	End Weight	Return
ROCHE HOLDING	2.54	11.32
SAMSUNG ELECTRONICS	1.82	17.67
SANOFI	1.66	8.48
GLAXOSMITHKLINE	1.47	10.85
TOTAL	1.40	5.79
ENEL	1.39	6.42
KDDI	1.34	14.51
KONINKLIJKE AHOLD DELHAIZE	1.25	0.00
ROYAL DUTCH SHELL B	1.24	2.09
NIPPON TELG. & TEL.	1.16	6.35

Bottom Contributors

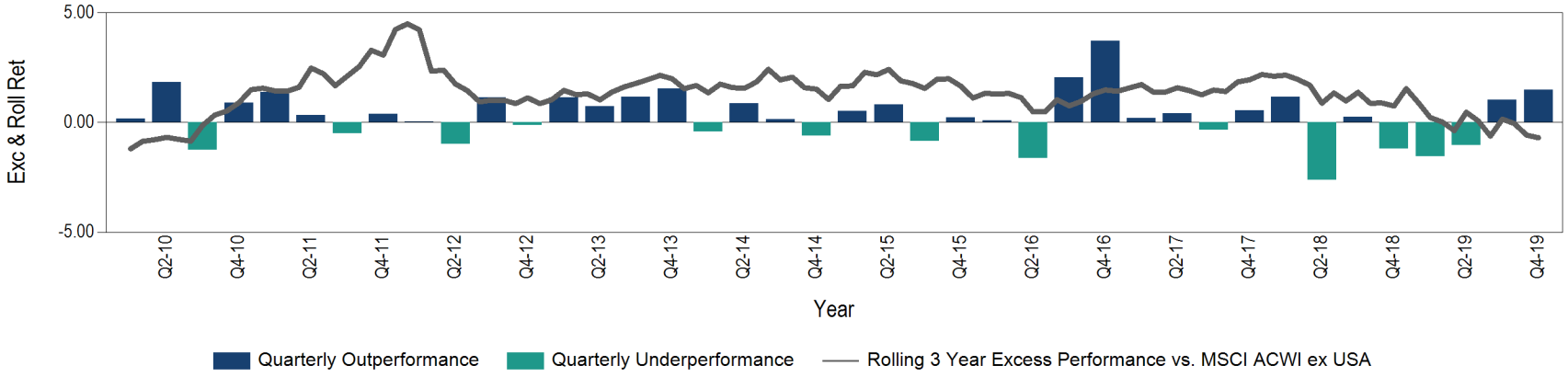
	Avg Wgt	Return	Contribution
JBS ON	0.42	-18.53	-0.08
RHEINMETALL	0.61	-9.86	-0.06
CHINA TELECOM 'H'	0.62	-9.53	-0.06
KT & G	0.54	-8.04	-0.04
RENAULT	0.19	-17.53	-0.03
BANK OF QLND.	0.11	-21.14	-0.02
COVESTRO (XET)	0.39	-5.99	-0.02
DAISHIN SECURITIES	0.35	-6.01	-0.02
METCASH	0.25	-8.43	-0.02
SUMITOMO	0.45	-4.32	-0.02

Top Contributors

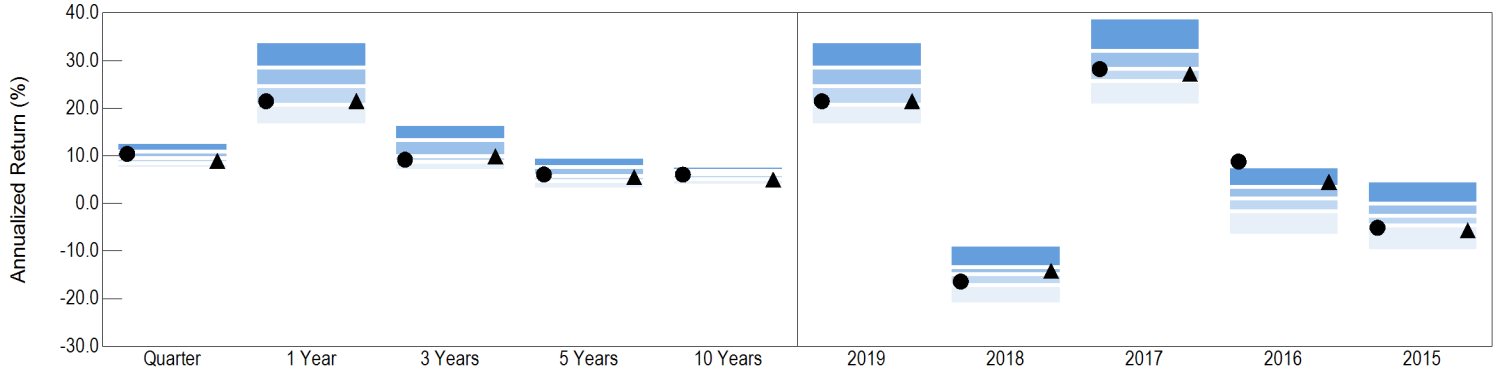
	Avg Wgt	Return	Contribution
CIA PARANAENSE DE ENERGIA COPEL PN	0.69	49.48	0.34
SAMSUNG ELECTRONICS	1.70	17.67	0.30
ROCHE HOLDING	2.49	11.32	0.28
LUKOIL OAO SPN.ADR 1:1	0.86	23.03	0.20
KDDI	1.33	14.51	0.19
VOLVO B	0.94	19.20	0.18
BARRATT DEVELOPMENTS	0.55	31.63	0.17
GLAXOSMITHKLINE	1.48	10.85	0.16
SINOTRUK (HONG KONG)	0.36	43.90	0.16
MMC NORILSK NICKEL (LON) SPN.ADR 10:1	0.52	29.96	0.16

Unclassified sector allocation includes cash allocations.

Rolling Annualized Excess Performance

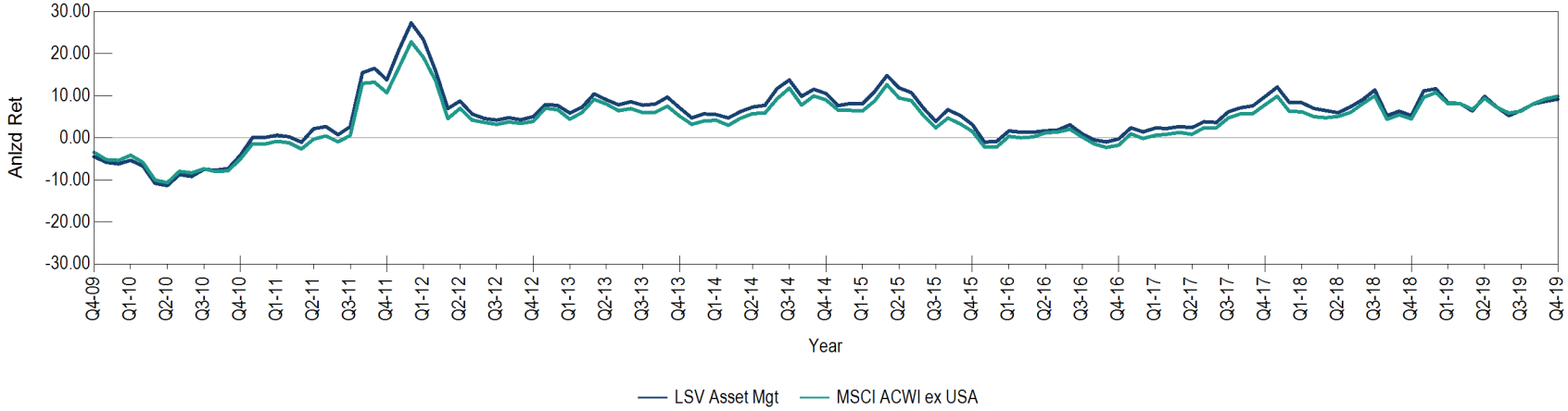


LSV Asset Mgt vs. eV ACWI ex-US Large Cap Equity Net Universe

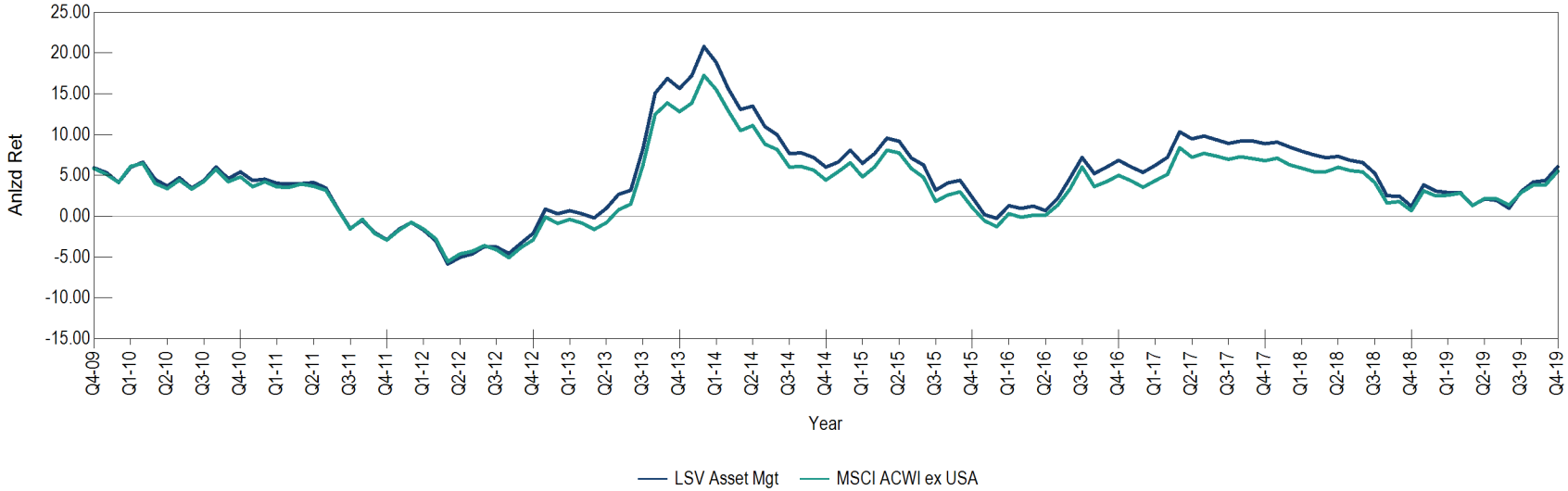


Return (Rank)	Quarter		1 Year		3 Years		5 Years		10 Years		2019		2018		2017		2016		2015	
5th Percentile	12.8		33.9		16.6		9.8		7.8		33.9		-8.7		39.0		7.7		4.7	
25th Percentile	11.0		28.6		13.3		7.7		6.8		28.6		-13.4		32.1		3.5		0.0	
Median	9.6		24.7		10.0		5.8		6.2		24.7		-14.8		28.3		1.1		-2.6	
75th Percentile	8.6		20.7		8.8		4.7		5.1		20.7		-17.1		25.7		-1.6		-4.6	
95th Percentile	7.2		16.5		6.9		3.0		3.8		16.5		-21.1		20.7		-6.7		-10.0	
# of Portfolios	82		82		79		69		48		82		79		71		71		60	
● LSV Asset Mgt	10.4	(37)	21.5	(67)	9.2	(65)	6.1	(46)	6.0	(54)	21.5	(67)	-16.4	(69)	28.2	(54)	8.8	(3)	-5.1	(78)
▲ MSCI ACWI ex USA	8.9	(69)	21.5	(67)	9.9	(51)	5.5	(60)	5.0	(79)	21.5	(67)	-14.2	(41)	27.2	(64)	4.5	(20)	-5.7	(81)

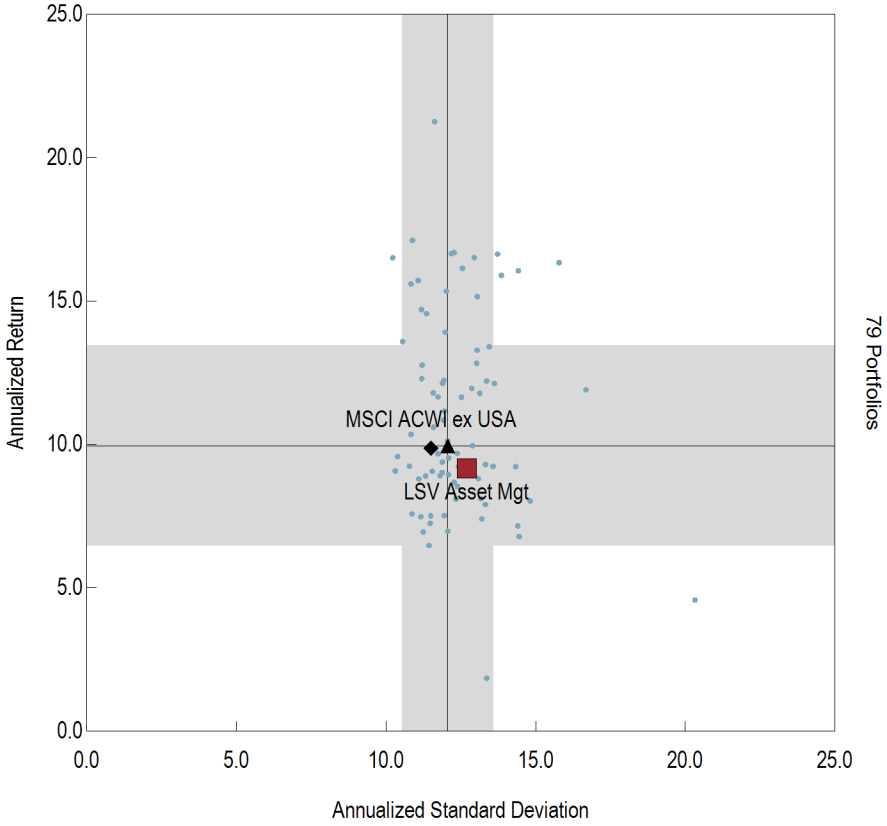
Rolling 3 Year Annualized Return (%)



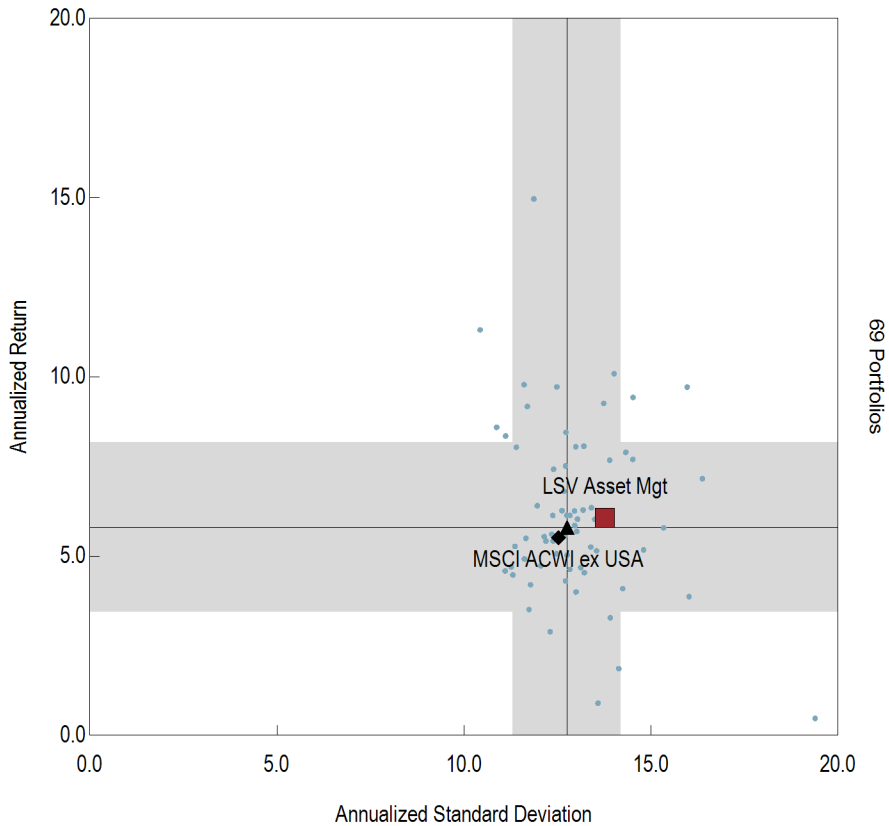
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
LSV Asset Mgt	9.17%	12.69%	0.59
MSCI ACWI ex USA	9.87%	11.51%	0.71
eV ACWI ex-US Large Cap Equity Net Median	9.96%	12.06%	0.71

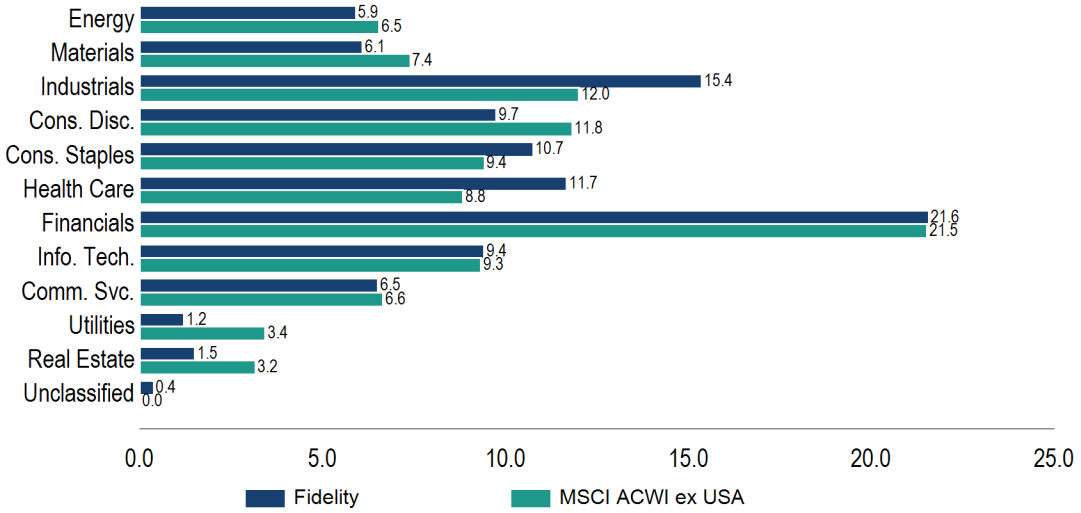
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
LSV Asset Mgt	6.1%	13.8%	0.4
MSCI ACWI ex USA	5.5%	12.5%	0.4
eV ACWI ex-US Large Cap Equity Net Median	5.8%	12.8%	0.4

Characteristics

	Portfolio	MSCI ACWI ex USA
Number of Holdings	222	2,379
Weighted Avg. Market Cap. ($B)	69.41	74.06
Median Market Cap. ($B)	15.09	8.17
Price To Earnings	19.69	16.25
Price To Book	2.70	2.41
Price To Sales	1.30	1.18
Return on Equity (%)	16.33	15.06
Yield (%)	2.56	3.05
Beta	1.03	1.00

Sector Allocation (%) vs MSCI ACWI ex USA



Largest Holdings

	End Weight	Return
AIA GROUP	2.28	11.14
NESTLE 'R'	2.00	-0.36
ROCHE HOLDING	1.90	11.32
SAP	1.86	14.60
TENCENT HOLDINGS	1.80	14.44
ROYAL DUTCH SHELL A	1.52	1.74
TECHTRONIC INDS.	1.43	17.21
TAIWAN SEMICON.MNFG.	1.40	26.88
SANOFI	1.37	8.48
AXA	1.11	10.35

Bottom Contributors

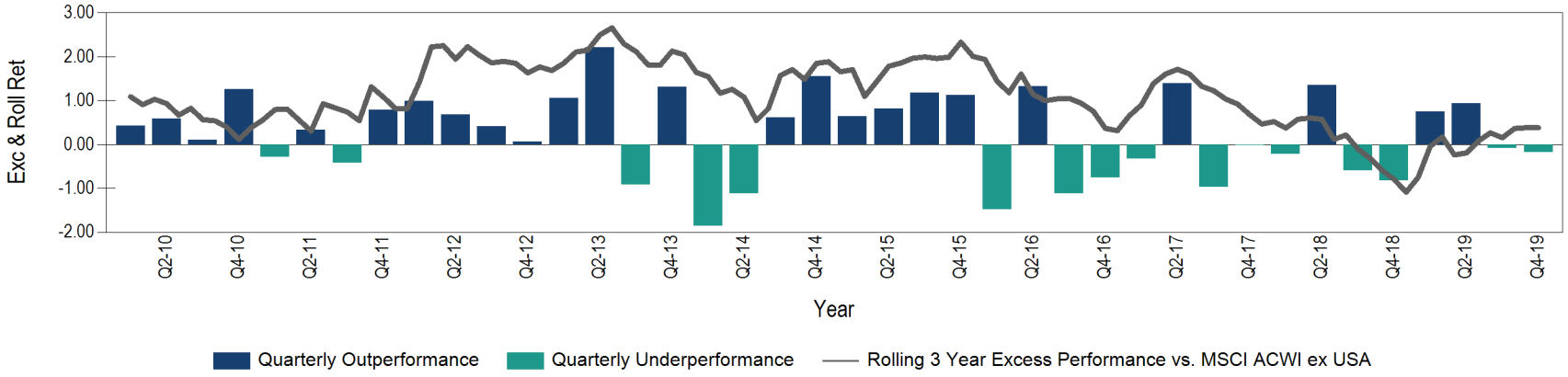
	Avg Wgt	Return	Contribution
TREASURY WINE ESTATES	1.13	-8.85	-0.10
SUBARU	0.58	-11.23	-0.06
SHISEIDO	0.50	-9.97	-0.05
ASAHI GROUP HOLDINGS	0.66	-6.49	-0.04
ACE HARDWARE INDONESIA	0.26	-13.64	-0.04
UNILEVER	0.60	-3.61	-0.02
TORONTO-DOMINION BANK	0.76	-2.76	-0.02
ZENSAR TECHNOLOGIES	0.10	-20.95	-0.02
DELFI	0.14	-14.29	-0.02
S H KELKAR & CO	0.08	-20.56	-0.02

Top Contributors

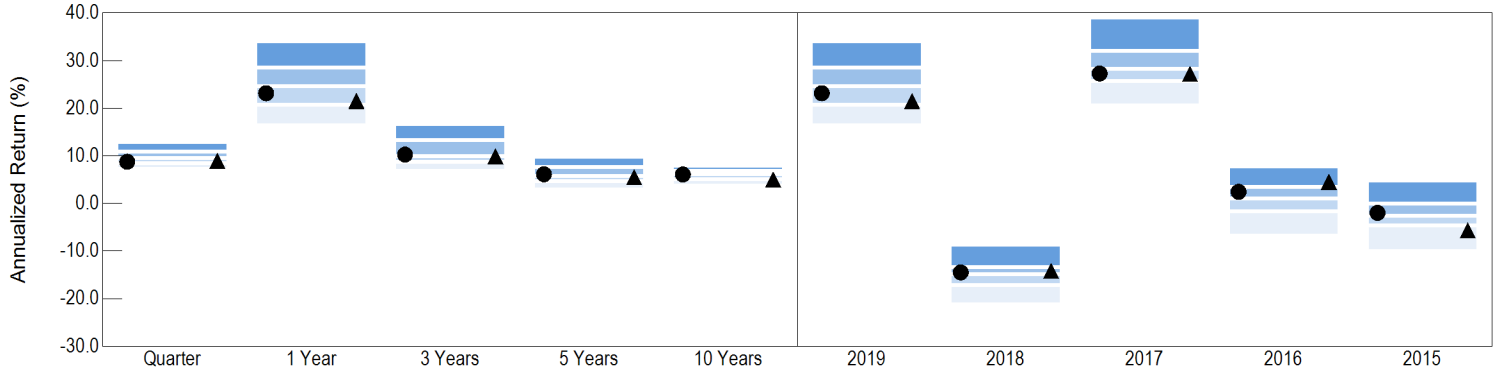
	Avg Wgt	Return	Contribution
SAP	1.86	14.60	0.27
TECHTRONIC INDS.	1.34	17.21	0.23
MINEBEA MITSUMI	0.67	32.35	0.22
AIA GROUP	1.94	11.14	0.22
ROCHE HOLDING	1.80	11.32	0.20
SIEMENS	0.81	22.20	0.18
ASML HOLDING	0.86	19.99	0.17
PRUDENTIAL	0.71	23.67	0.17
TAIWAN SEMICON.MNFG.	0.57	26.88	0.15
BNP PARIBAS	0.70	21.77	0.15

Unclassified sector allocation includes cash allocations.

Rolling Annualized Excess Performance

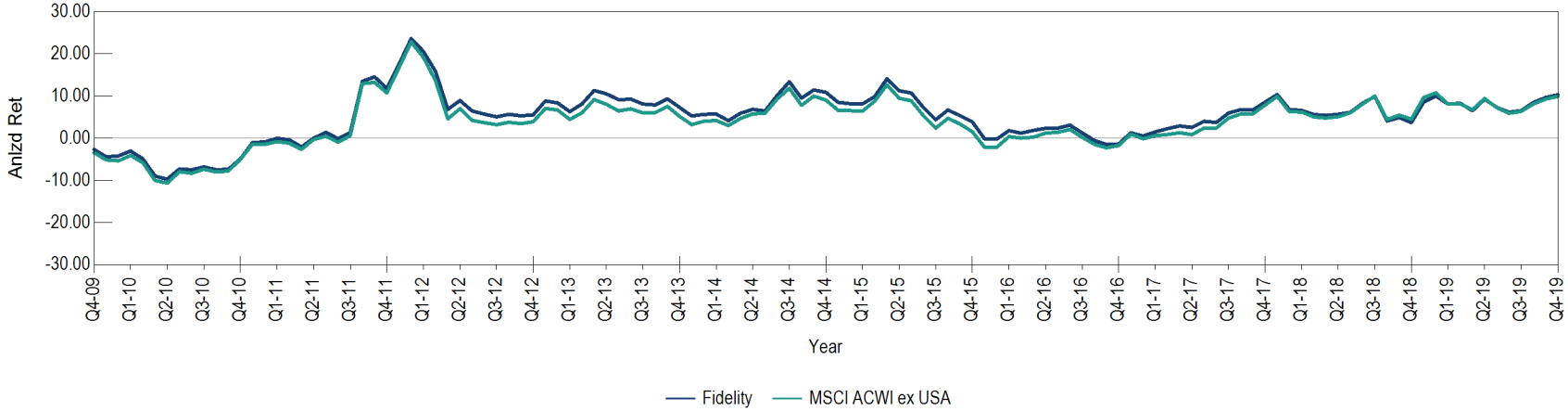


Fidelity vs. eV ACWI ex-US Large Cap Equity Net Universe

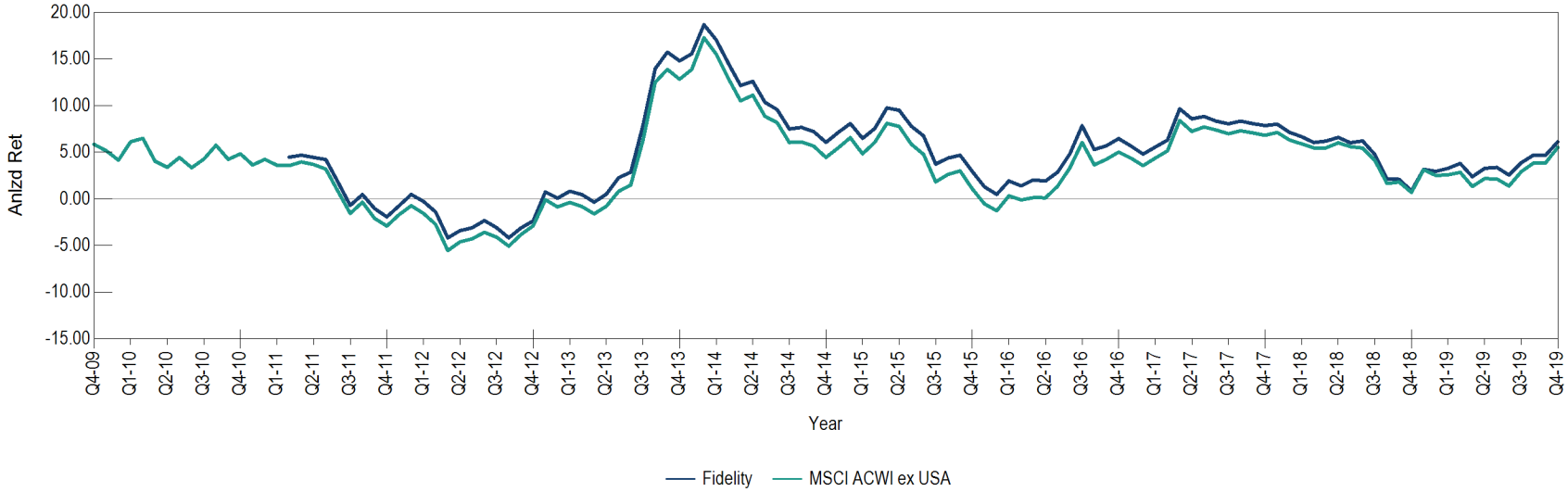


	Return (Rank)																	
5th Percentile	12.8		33.9		16.6		9.8		7.8		33.9		-8.7		39.0		7.7		4.7	
25th Percentile	11.0		28.6		13.3		7.7		6.8		28.6		-13.4		32.1		3.5		0.0	
Median	9.6		24.7		10.0		5.8		6.2		24.7		-14.8		28.3		1.1		-2.6	
75th Percentile	8.6		20.7		8.8		4.7		5.1		20.7		-17.1		25.7		-1.6		-4.6	
95th Percentile	7.2		16.5		6.9		3.0		3.8		16.5		-21.1		20.7		-6.7		-10.0	
# of Portfolios	82		82		79		69		48		82		79		71		71		60	
● Fidelity	8.7	(72)	23.1	(55)	10.2	(49)	6.1	(45)	6.1	(54)	23.1	(55)	-14.5	(47)	27.3	(64)	2.4	(36)	-2.0	(47)
▲ MSCI ACWI ex USA	8.9	(69)	21.5	(67)	9.9	(51)	5.5	(60)	5.0	(79)	21.5	(67)	-14.2	(41)	27.2	(64)	4.5	(20)	-5.7	(81)

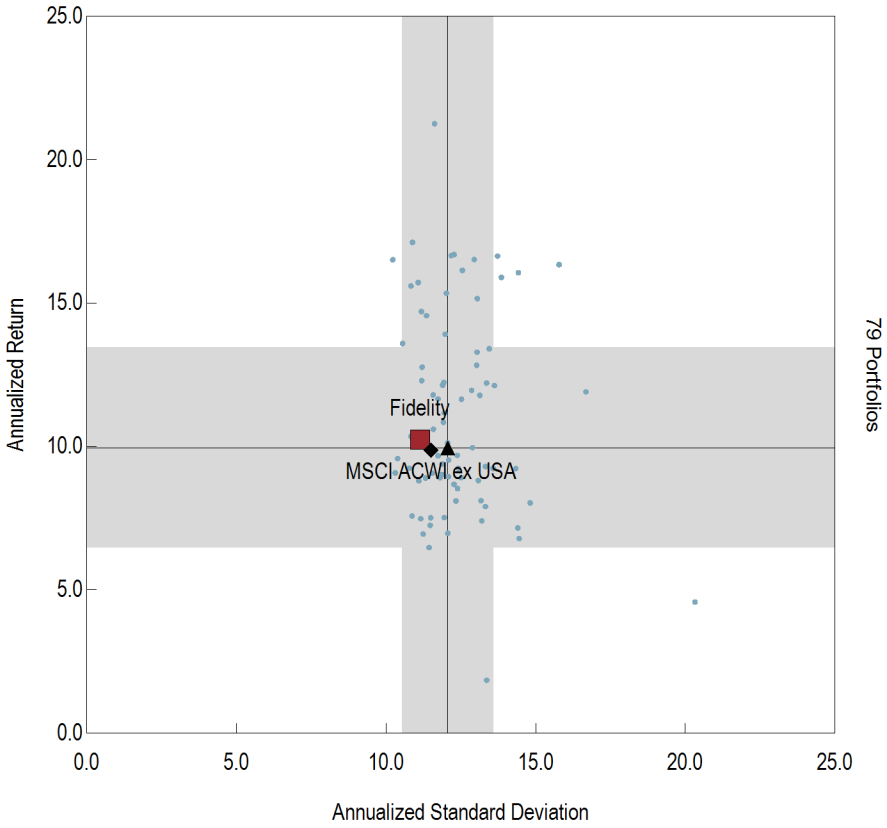
Rolling 3 Year Annualized Return (%)



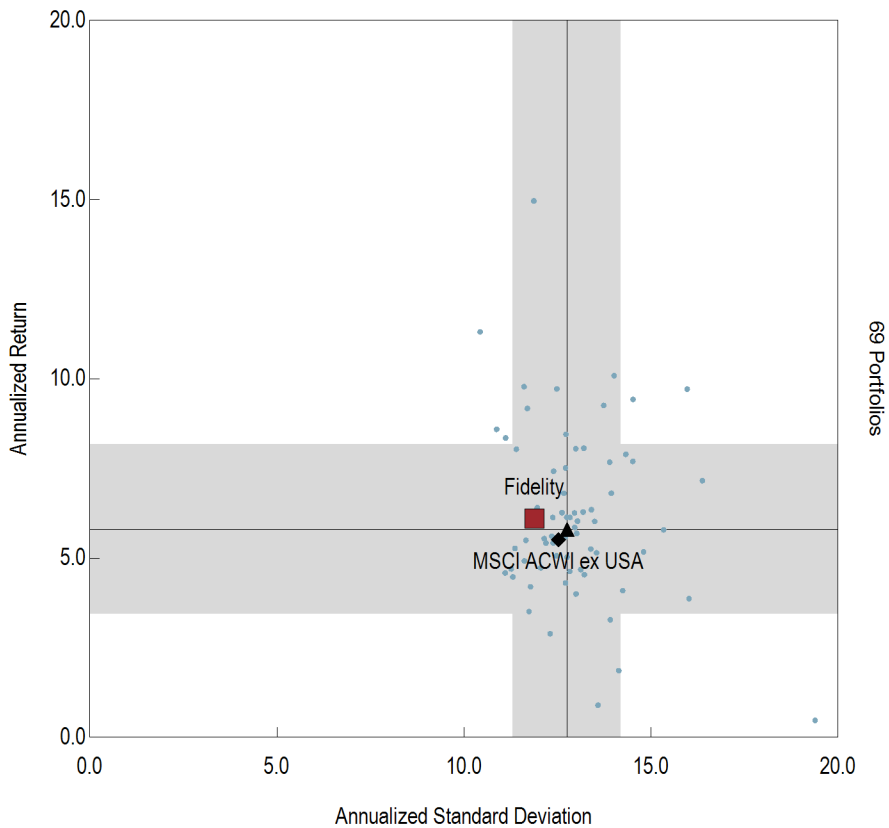
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

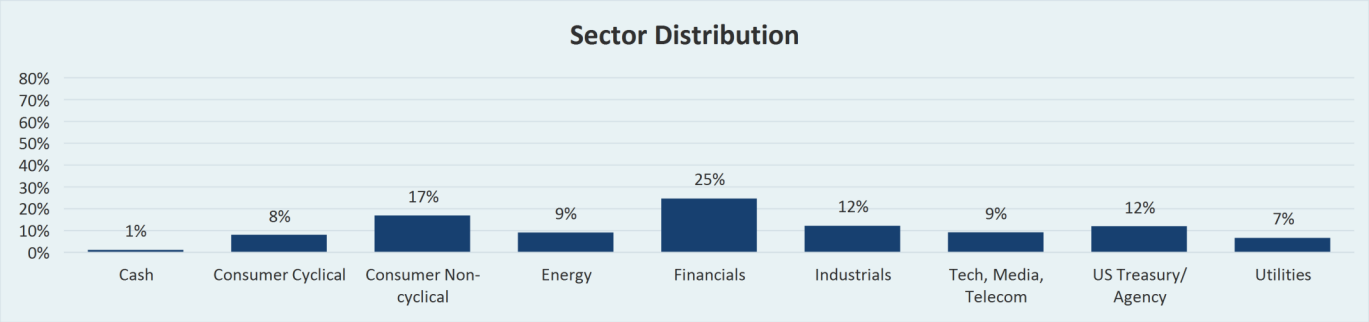
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Fidelity	10.25%	11.13%	0.77
MSCI ACWI ex USA	9.87%	11.51%	0.71
eV ACWI ex-US Large Cap Equity Net Median	9.96%	12.06%	0.71

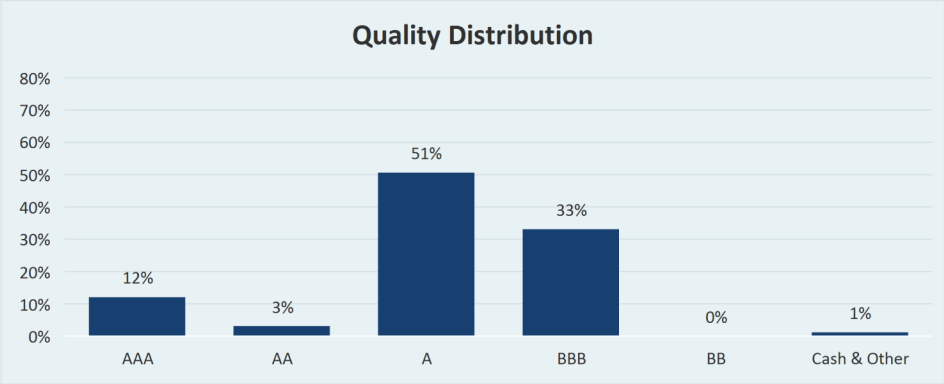
5 Years

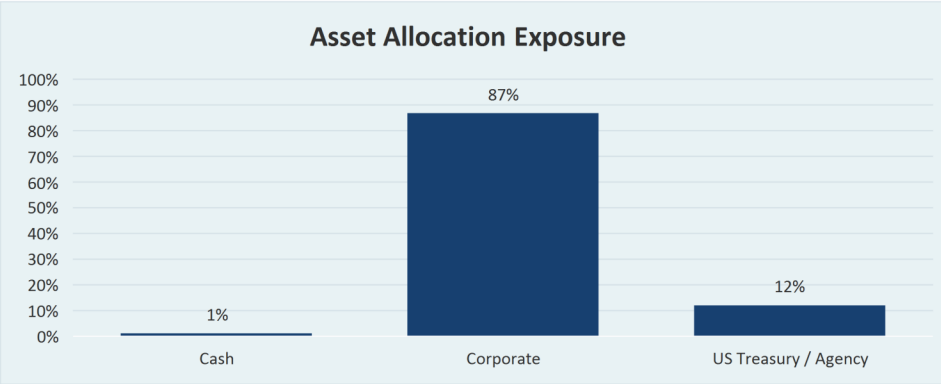
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Fidelity	6.1%	11.9%	0.4
MSCI ACWI ex USA	5.5%	12.5%	0.4
eV ACWI ex-US Large Cap Equity Net Median	5.8%	12.8%	0.4

Domestic Fixed Income Managers

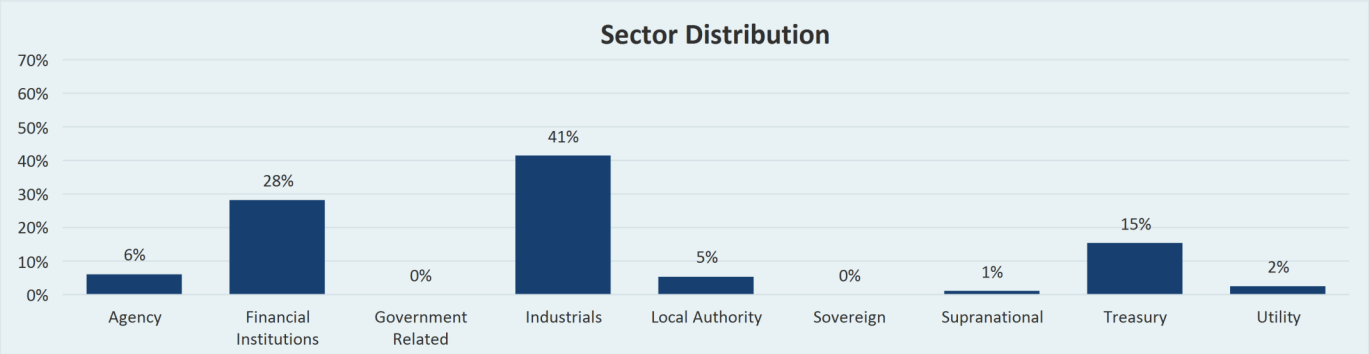
Summary	Portfolio
Average Quality	A
Effective duration (years)	4.08
Average Coupon	3.59%
Yield to Worst	2.40%

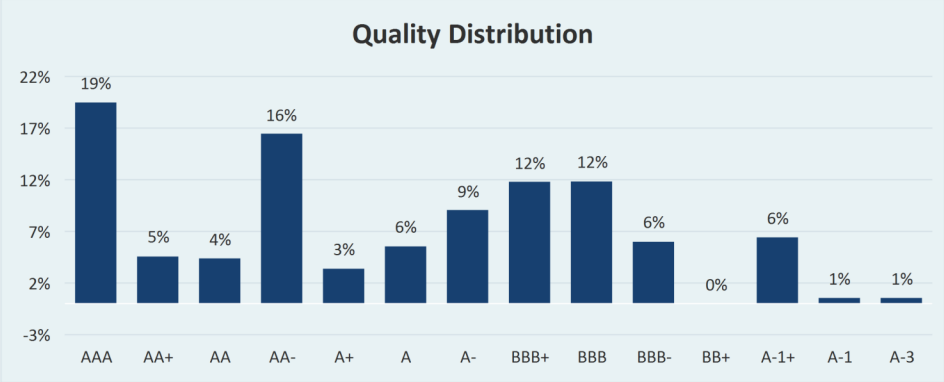


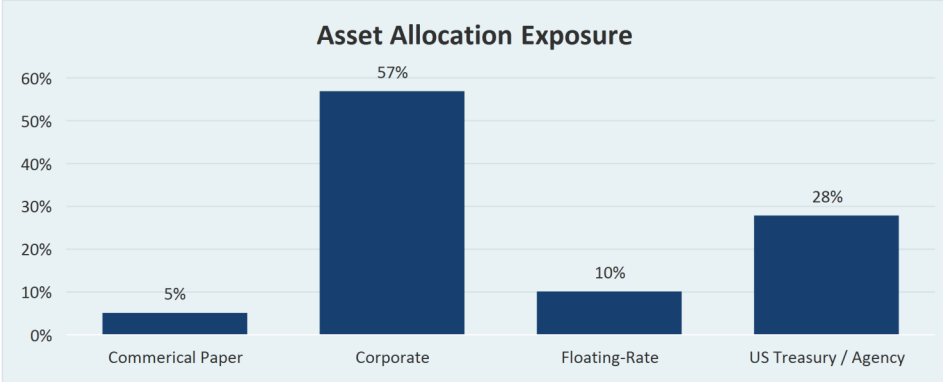




Summary	Portfolio
Average Quality	A+
Effective duration (years)	1.06
Average Coupon	2.58%
Yield to Worst	2.05%







Performance Return Calculations

Performance is calculated using Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up

Manager	Fund Incepted	Data Source	Manager	Fund Incepted	Data Source
Northern Trust Russell 3000	12/31/2018	Northern Trust	American Strategic Value Realty	12/31/2014	American Realty
BlackRock Russell 1000 Growth	6/30/2010	BlackRock	BlackRock US Real Estate	9/30/2012	BlackRock
BlackRock Russell 1000 Value	7/31/2009	BlackRock	Greenfield Gap	7/31/2014	Greenfield
Dodge & Cox - Equity	12/31/1994	Northern Trust	Medley Capital	5/31/2013	Medley Capital
Capital Prospects	12/31/2008	Northern Trust	Raven Capital	5/31/2013	Raven Capital
LSV Asset Mgt	8/31/2004	Northern Trust	Raven Opportunity III	7/31/2015	Raven Capital
Fidelity	4/30/2006	Northern Trust	White Oak Pinnacle	8/31/2013	White Oak
Insight	6/29/2017	Northern Trust	PanAgora Risk Parity Multi Asset	11/30/2017	PanAgora
DFA	7/31/2017	Northern Trust	AQR Global Risk Premium - EL	3/5/2018	AQR
Northern Trust Intermediate Gov't Bond	7/31/2017	Northern Trust	MS Infrastructure	5/31/2015	Morgan Stanley
Northern Trust Long Term Gov't Bond	7/31/2017	Northern Trust	PGIM Real Estate US Debt Fund	9/28/2018	Prudential
Prime Property Fund	9/30/2015	Prime Property	Owl Rock First Lien Fund	10/31/2019	Owl Rock

Policy & Custom Index Composition

Policy Index (5/31/2019):	14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 1% Citi 1 Month T-Bills.
US Equity Blended:	60% Russell 1000, 15% Russell 2000, 25% Russell 3000 + 3%.
Prior Policy Index:	10% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 27% MSCI ACWI ex-USA, 20% BBgBarc US Gov't/Credit 1-3 Yr, 3% BBgBarc US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 1% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% BBgBarc Global Aggregate, 1% Citi 1 Month T-Bills.
StanCERA Liquidity Blended BM (8/31/2019):	92% BBgBarc US Govt/Credit 1-3 Yr. TR and 8% FTSE T-Bill 1 Month TR.
StanCERA Growth Blended BM (8/31/2019):	18% Russell 1000, 4% Russell 2000, 8% Russell 3000 + 3%, 30% MSCI ACWI ex-US Gross, 6% NCREIF Property, 6% actual private Value Add Real Estate returns, 17% 60% MSCI ACWI/40% BBgBarc Global Aggregate, 3% actual Infrastructure returns, and 8% actual Private Credit returns.
StanCERA Risk-Diversifying Blended BM (8/31/2019):	27% BBgBarc US Treasury 7-10 Yr. TR and 73% BBgBarc US Govt/Credit 1-3 Yr. TR.

Other Disclosures

Fiscal Year End: 6/30

Cash Account includes cash held at Northern Trust for all closed end funds and cash held by BlackRock.

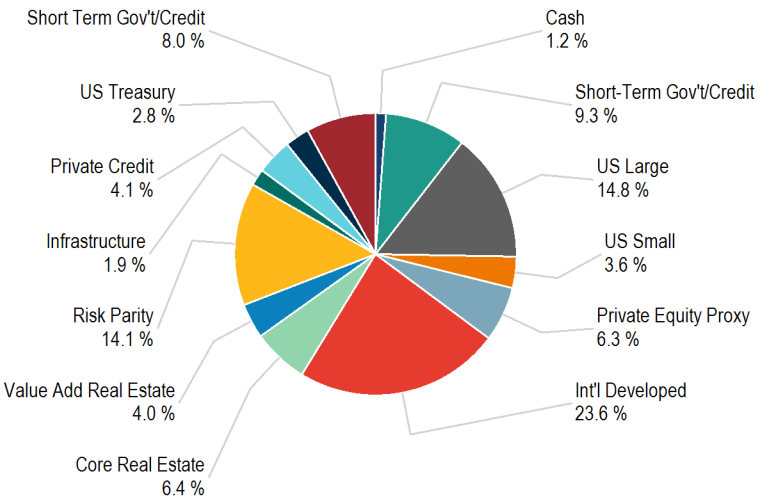
Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

All data prior to 6/30/2015 provided by the previous consultant.

Appendix

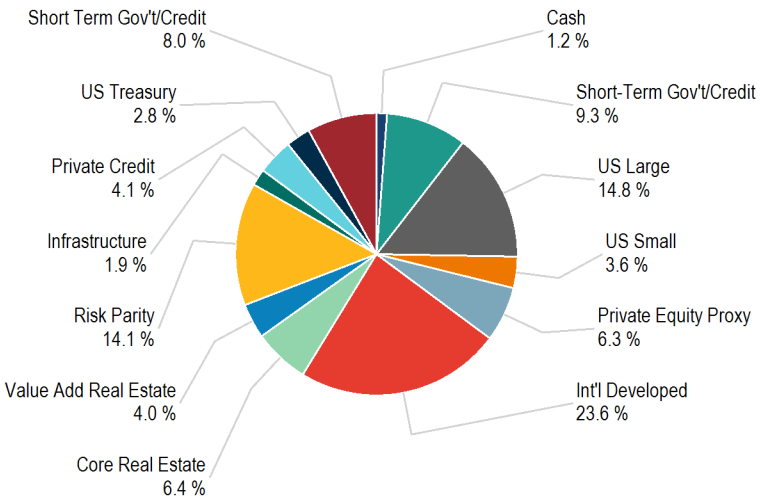
	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	**5.0**	**6.1**	**17.8**	**9.3**	**7.1**	**8.9**
Policy Index	*5.3*	*5.8*	*16.9*	*8.7*	*6.9*	*8.4*
Liquidity Sub-Portfolio	**1.0**	**2.6**	**7.9**	**3.0**	**2.3**	**--**
StanCERA Liquidity Blended BM	*0.6*	*1.3*	*3.9*	*2.1*	*1.6*	*--*
Cash	**0.5**	**1.1**	**1.7**	**1.5**	**1.4**	**--**
FTSE T-Bill 1 Month TR	*0.4*	*1.0*	*2.2*	*1.6*	*1.0*	*--*
Short-Term Gov't/Credit	**1.1**	**2.7**	**8.7**	**--**	**--**	**--**
BBgBarc US Govt/Credit 1-3 Yr. TR	*0.6*	*1.3*	*4.0*	*--*	*--*	*--*
Growth Sub-Portfolio	**6.3**	**7.2**	**21.4**	**11.0**	**8.3**	**--**
StanCERA Growth Blended BM	*6.7*	*7.1*	*20.7*	*11.0*	*--*	*--*
US Large	**9.6**	**11.0**	**30.7**	**15.1**	**11.2**	**--**
Russell 1000	*9.0*	*10.6*	*31.4*	*15.0*	*11.5*	*--*
US Small	**9.4**	**7.2**	**26.0**	**6.9**	**6.6**	**11.9**
Russell 2000	*9.9*	*7.3*	*25.5*	*8.6*	*8.2*	*11.8*
Private Equity Proxy	**9.1**	**10.4**	**31.1**	**16.6**	**12.4**	**13.9**
Russell 3000 +3%	*9.8*	*12.3*	*34.0*	*17.6*	*14.3*	*16.4*
Int'l Developed	**9.6**	**8.1**	**22.3**	**9.8**	**6.2**	**6.1**
MSCI ACWI ex USA	*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*

Current Allocation



	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Core Real Estate	**0.9**	**3.9**	**10.7**	**5.9**	**4.6**	**6.2**
NCREIF Property Index	*1.6*	*3.0*	*6.4*	*6.7*	*8.2*	*10.2*
Value Add Real Estate	**1.9**	**5.5**	**10.1**	**12.1**	**13.6**	**--**
NCREIF Property Index +2%	*2.1*	*4.0*	*8.5*	*8.8*	*10.4*	*--*
Risk Parity	**1.7**	**4.9**	**22.4**	**--**	**--**	**--**
60% MSCI ACWI Net/40% BBgBarc Global Aggregate	*5.5*	*5.8*	*18.6*	*--*	*--*	*--*
Infrastructure	**2.0**	**5.3**	**13.1**	**14.0**	**--**	**--**
CPI + 5%	*1.3*	*2.8*	*7.4*	*7.2*	*--*	*--*
Private Credit	**0.9**	**1.4**	**5.3**	**3.5**	**4.2**	**--**
S&P/LSTA Leveraged Loan Index+2%	*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	*--*
Risk-Diversifying Sub-Portfolio	**0.3**	**1.7**	**6.0**	**3.7**	**3.4**	**4.5**
StanCERA Risk-Diversifying Blended BM	*0.1*	*1.3*	*5.3*	*2.6*	*2.0*	*2.4*
US Treasury	**-1.1**	**1.8**	**7.7**	**4.4**	**3.8**	**4.7**
BBgBarc US Treasury 7-10 Yr TR	*-1.2*	*1.5*	*8.5*	*3.9*	*2.9*	*4.5*
Short-Term Gov't/Credit	**0.7**	**1.7**	**5.5**	**--**	**--**	**--**
BBgBarc US Govt/Credit 1-3 Yr. TR	*0.6*	*1.3*	*4.0*	*--*	*--*	*--*

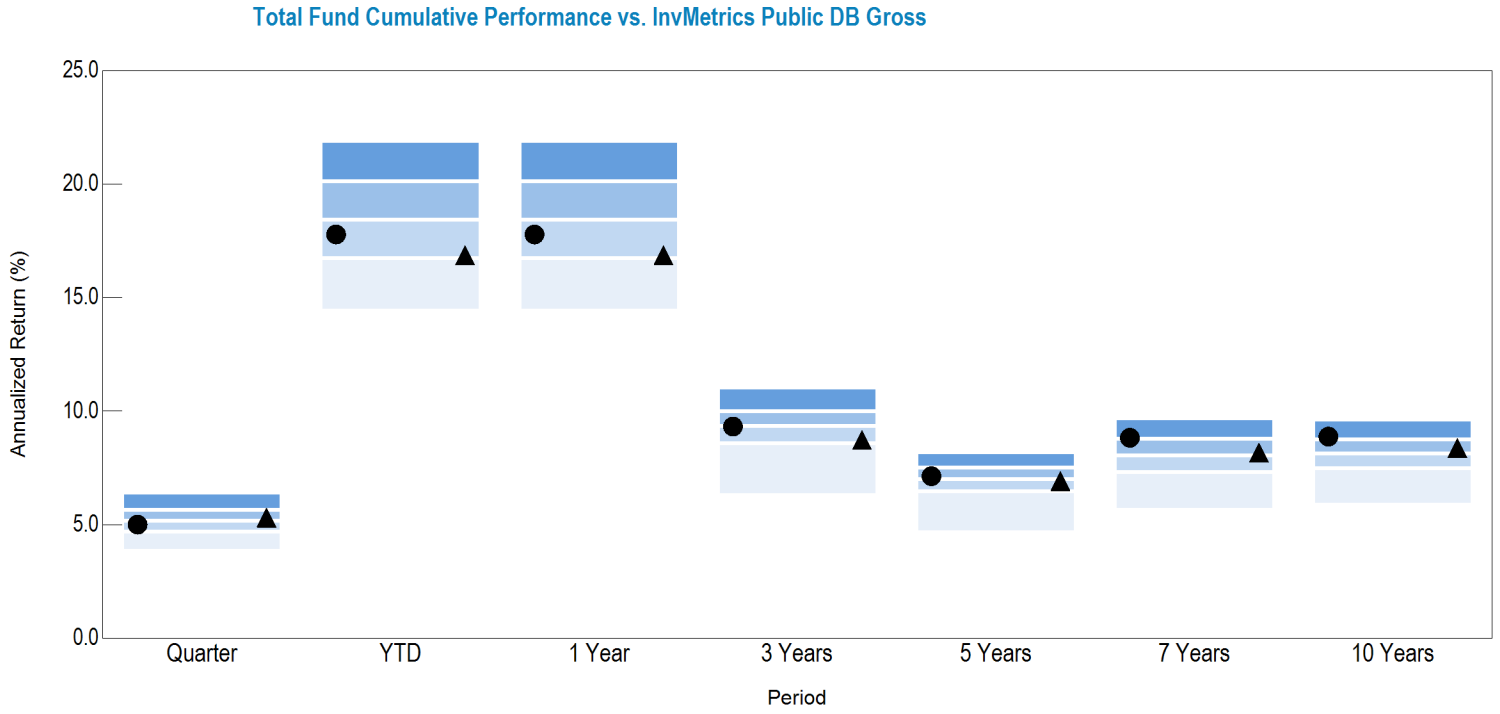
Current Allocation



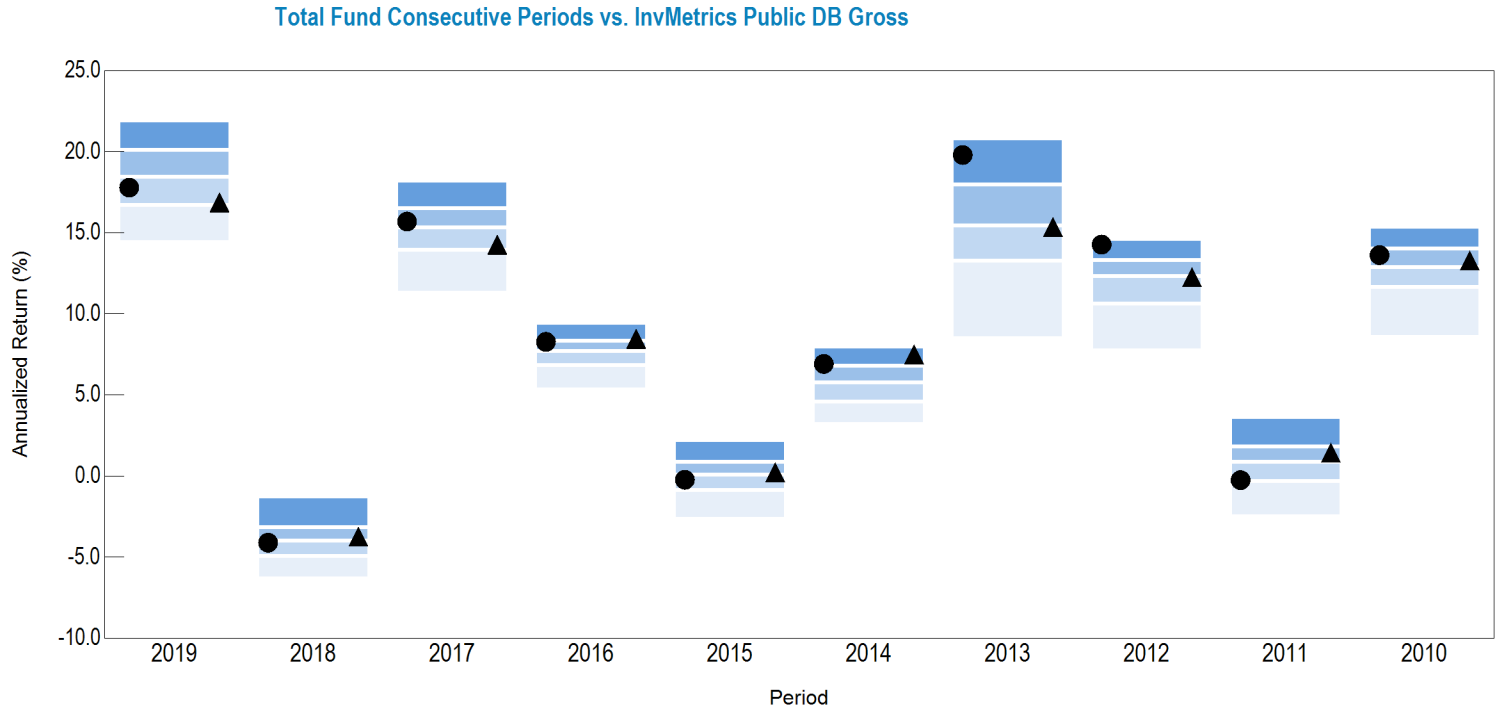
	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Fund	**2,305,291,730**	**100.0**	**5.0**	**6.1**	**17.8**	**9.3**	**7.1**	**8.9**	**17.8**	**-4.1**	**15.7**	**8.3**	**-0.2**	**9.3**	**Dec-94**
Policy Index			*5.3*	*5.8*	*16.9*	*8.7*	*6.9*	*8.4*	*16.9*	*-3.7*	*14.3*	*8.5*	*0.2*	*8.1*	*Dec-94*
Liquidity Sub-Portfolio	**242,763,981**	**10.5**	**1.0**	**2.6**	**7.9**	**3.0**	**2.3**	**--**	**7.9**	**0.9**	**0.5**	**1.5**	**1.0**	**9.6**	**Apr-11**
StanCERA Liquidity Blended BM			*0.6*	*1.3*	*3.9*	*2.1*	*1.6*	*--*	*3.9*	*1.6*	*0.8*	*1.2*	*0.6*	*1.3*	*Apr-11*
Cash	**28,165,783**	**1.2**	**0.5**	**1.1**	**1.7**	**1.5**	**1.4**	**--**	**1.7**	**1.7**	**1.1**	**1.5**	**1.0**	**9.0**	**Apr-11**
FTSE T-Bill 1 Month TR			*0.4*	*1.0*	*2.2*	*1.6*	*1.0*	*--*	*2.2*	*1.8*	*0.8*	*0.2*	*0.0*	*0.6*	*Apr-11*
Short-Term Gov't/Credit	**214,598,198**	**9.3**	**1.1**	**2.7**	**8.7**	**--**	**--**	**--**	**8.7**	**0.7**	**--**	**--**	**--**	**4.0**	**Jun-17**
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	*--*	*--*	*--*	*4.0*	*1.6*	*--*	*--*	*--*	*2.3*	*Jun-17*
Insight	214,598,198	9.3	1.1	2.7	8.7	--	--	--	8.7	0.7	--	--	--	4.0	Jun-17
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	*--*	*--*	*--*	*4.0*	*1.6*	*--*	*--*	*--*	*2.3*	*Jun-17*
Growth Sub-Portfolio	**1,815,460,069**	**78.8**	**6.3**	**7.2**	**21.4**	**11.0**	**8.3**	**--**	**21.4**	**-5.8**	**19.7**	**9.5**	**-0.4**	**8.5**	**Jul-15**
StanCERA Growth Blended BM			*6.7*	*7.1*	*20.7*	*11.0*	*--*	*--*	*20.7*	*-4.9*	*19.1*	*8.1*	*--*	*8.5*	*Jul-15*
US Large	**341,656,803**	**14.8**	**9.6**	**11.0**	**30.7**	**15.1**	**11.2**	**--**	**30.7**	**-3.9**	**21.3**	**11.0**	**0.7**	**11.7**	**Jul-15**
Russell 1000			*9.0*	*10.6*	*31.4*	*15.0*	*11.5*	*--*	*31.4*	*-4.8*	*21.7*	*12.1*	*0.9*	*12.2*	*Jul-15*
BlackRock Russell 1000 Growth	171,322,717	7.4	10.6	12.3	36.4	20.5	14.7	--	36.4	-1.5	30.2	7.2	5.7	17.1	Jun-10
Russell 1000 Growth			*10.6*	*12.3*	*36.4*	*20.5*	*14.6*	*--*	*36.4*	*-1.5*	*30.2*	*7.1*	*5.7*	*17.1*	*Jun-10*
BlackRock Russell 1000 Value	84,448,120	3.7	7.4	8.9	26.7	9.8	8.4	11.9	26.7	-8.1	13.8	17.3	-3.6	12.8	Jul-09
Russell 1000 Value			*7.4*	*8.9*	*26.5*	*9.7*	*8.3*	*11.8*	*26.5*	*-8.3*	*13.7*	*17.3*	*-3.8*	*12.7*	*Jul-09*
Dodge & Cox-Equity	85,885,966	3.7	9.8	10.2	24.2	10.9	9.7	12.8	24.2	-6.3	17.1	21.4	-3.9	12.2	Dec-94
Russell 1000 Value			*7.4*	*8.9*	*26.5*	*9.7*	*8.3*	*11.8*	*26.5*	*-8.3*	*13.7*	*17.3*	*-3.8*	*10.1*	*Dec-94*
US Small	**83,482,336**	**3.6**	**9.4**	**7.2**	**26.0**	**6.9**	**6.6**	**11.9**	**26.0**	**-16.1**	**15.7**	**17.1**	**-3.9**	**13.5**	**Dec-08**
Russell 2000			*9.9*	*7.3*	*25.5*	*8.6*	*8.2*	*11.8*	*25.5*	*-11.0*	*14.6*	*21.3*	*-4.4*	*13.1*	*Dec-08*
Capital Prospects	83,482,336	3.6	9.4	7.2	26.0	6.9	7.8	12.2	26.0	-16.1	15.5	28.1	-7.0	13.7	Dec-08
Russell 2000 Value			*8.5*	*7.9*	*22.4*	*4.8*	*7.0*	*10.6*	*22.4*	*-12.9*	*7.8*	*31.7*	*-7.5*	*11.4*	*Dec-08*
Private Equity Proxy	**145,752,551**	**6.3**	**9.1**	**10.4**	**31.1**	**16.6**	**12.4**	**13.9**	**31.1**	**-0.2**	**21.2**	**11.8**	**1.4**	**9.7**	**Nov-03**
Russell 3000 +3%			*9.8*	*12.3*	*34.0*	*17.6*	*14.3*	*16.4*	*34.0*	*-2.2*	*24.1*	*15.7*	*3.5*	*12.5*	*Nov-03*
Northern Trust Russell 3000	145,752,551	6.3	9.1	10.4	31.1	--	--	--	31.1	--	--	--	--	31.1	Dec-18
Russell 3000			*9.1*	*10.4*	*31.0*	*--*	*--*	*--*	*31.0*	*--*	*--*	*--*	*--*	*31.0*	*Dec-18*

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Int'l Developed	**543,519,419**	**23.6**	**9.6**	**8.1**	**22.3**	**9.8**	**6.2**	**6.1**	**22.3**	**-15.5**	**27.9**	**6.0**	**-3.4**	**7.1**	**Sep-04**
MSCI ACWI ex USA			*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*	*21.5*	*-14.2*	*27.2*	*4.5*	*-5.7*	*6.2*	*Sep-04*
LSV Asset Mgt	274,235,603	11.9	10.4	9.6	21.5	9.2	6.1	6.0	21.5	-16.4	28.2	8.8	-5.1	7.0	Aug-04
MSCI ACWI ex USA			*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*	*21.5*	*-14.2*	*27.2*	*4.5*	*-5.7*	*6.3*	*Aug-04*
Fidelity	269,283,817	11.7	8.7	6.7	23.1	10.2	6.1	6.1	23.1	-14.5	27.3	2.4	-2.0	4.5	Apr-06
MSCI ACWI ex USA			*8.9*	*7.0*	*21.5*	*9.9*	*5.5*	*5.0*	*21.5*	*-14.2*	*27.2*	*4.5*	*-5.7*	*3.5*	*Apr-06*
Core Real Estate	**147,541,346**	**6.4**	**0.9**	**3.9**	**10.7**	**5.9**	**4.6**	**6.2**	**10.7**	**1.9**	**5.5**	**5.8**	**-0.5**	**3.1**	**Mar-08**
NCREIF Property Index			*1.6*	*3.0*	*6.4*	*6.7*	*8.2*	*10.2*	*6.4*	*6.7*	*7.0*	*8.0*	*13.3*	*6.2*	*Mar-08*
Prime Property Fund	58,942,128	2.6	1.8	3.5	7.4	8.8	--	--	7.4	9.1	9.9	10.4	--	9.5	Sep-15
NCREIF-ODCE			*1.5*	*2.8*	*5.3*	*7.1*	--	--	*5.3*	*8.3*	*7.6*	*8.8*	--	*7.9*	*Sep-15*
BlackRock US Real Estate	30,865,770	1.3	-1.2	5.5	23.1	7.0	6.4	--	23.1	-4.1	3.8	6.6	4.4	9.0	Sep-12
DJ US Select RESI TR USD			*-1.2*	*5.5*	*23.1*	*7.0*	*6.4*	--	*23.1*	*-4.2*	*3.8*	*6.6*	*4.5*	*9.0*	*Sep-12*
PGIM Real Estate US Debt Fund	57,733,448	2.5	1.4	3.0	6.4	--	--	--	6.4	--	--	--	--	6.1	Sep-18
BBgBarc CMBS IG TR USD			*-0.3*	*1.6*	*8.3*	--	--	--	*8.3*	--	--	--	--	*7.1*	*Sep-18*
Value Add Real Estate	**92,031,518**	**4.0**	**1.9**	**5.5**	**10.1**	**12.1**	**13.6**	**--**	**10.1**	**12.9**	**13.5**	**10.3**	**21.7**	**12.6**	**Jul-14**
NCREIF Property Index +2%			*2.1*	*4.0*	*8.5*	*8.8*	*10.4*	--	*8.5*	*8.8*	*9.1*	*10.1*	*15.6*	*10.9*	*Jul-14*
American Strategic Value Realty	60,616,097	2.6	2.6	4.8	9.6	10.4	13.1	--	9.6	10.2	11.5	13.1	21.4	13.1	Dec-14
NCREIF Property Index			*1.6*	*3.0*	*6.4*	*6.7*	*8.2*	--	*6.4*	*6.7*	*7.0*	*8.0*	*13.3*	*8.2*	*Dec-14*
Greenfield Gap VII	10,182,961	0.4	1.0	11.2	16.8	16.0	15.4	--	16.8	14.6	16.5	7.7	22.0	14.6	Jul-14
NCREIF ODCE + 1%			*1.8*	*3.4*	*6.4*	*8.2*	*10.1*	--	*6.4*	*9.4*	*8.7*	*9.8*	*16.2*	*10.6*	*Jul-14*
Greenfield Gap VIII	21,232,460	0.9	0.3	4.3	7.6	--	--	--	7.6	--	--	--	--	15.7	Apr-18
NCREIF ODCE + 1%			*1.8*	*3.4*	*6.4*	--	--	--	*6.4*	--	--	--	--	*7.6*	*Apr-18*
Risk Parity	**324,180,593**	**14.1**	**1.7**	**4.9**	**22.4**	**--**	**--**	**--**	**22.4**	**-6.6**	**--**	**--**	**--**	**7.3**	**Nov-17**
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			*5.5*	*5.8*	*18.6*	--	--	--	*18.6*	*-6.0*	--	--	--	*5.9*	*Nov-17*
AQR Global Risk Premium - EL	164,315,559	7.1	3.6	5.6	22.3	--	--	--	22.3	--	--	--	--	9.6	Mar-18
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			*5.5*	*5.8*	*18.6*	--	--	--	*18.6*	--	--	--	--	*5.9*	*Mar-18*
PanAgora Risk Parity Multi Asset	159,865,034	6.9	-0.1	4.1	22.6	--	--	--	22.6	-7.3	--	--	--	6.9	Nov-17
60% MSCI ACWI Net/40% BBgBarc Global Aggregate			*5.5*	*5.8*	*18.6*	--	--	--	*18.6*	*-6.0*	--	--	--	*5.9*	*Nov-17*

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Infrastructure	**43,310,598**	**1.9**	**2.0**	**5.3**	**13.1**	**14.0**	**--**	**--**	**13.1**	**8.3**	**20.9**	**12.8**	**--**	**10.4**	**May-15**
CPI + 5%			*1.3*	*2.8*	*7.4*	*7.2*	*--*	*--*	*7.4*	*7.0*	*7.2*	*7.2*	*--*	*6.8*	*May-15*
MS Infrastructure Partners II	43,310,598	1.9	2.0	5.3	13.1	14.0	--	--	13.1	8.3	20.9	12.8	--	10.3	May-15
CPI + 5%			*1.0*	*2.4*	*7.0*	*7.1*	*--*	*--*	*7.0*	*7.0*	*7.2*	*7.2*	*--*	*6.7*	*May-15*
Private Credit	**93,984,904**	**4.1**	**0.9**	**1.4**	**5.3**	**3.5**	**4.2**	**--**	**5.3**	**4.9**	**0.4**	**3.9**	**6.6**	**7.1**	**May-13**
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	*--*	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.0*	*May-13*
Medley Capital	10,505,757	0.5	-6.1	-10.5	-13.4	-7.3	-2.4	--	-13.4	-11.9	4.5	4.4	6.5	1.6	May-13
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	*--*	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.0*	*May-13*
Owl Rock First Lien Fund	4,088,385	0.2	0.0	--	--	--	--	--	--	--	--	--	--	0.0	Oct-19
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*2.2*	*Oct-19*
Raven Capital	14,330,002	0.6	1.1	3.3	8.3	2.3	1.5	--	8.3	5.3	-6.1	-2.1	2.7	2.4	May-13
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	*--*	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.0*	*May-13*
Raven Opportunity III	38,869,797	1.7	2.5	3.3	9.9	4.1	--	--	9.9	11.0	-7.4	5.6	--	5.9	Jul-15
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*--*	*--*	*10.8*	*2.4*	*6.2*	*12.3*	*--*	*6.5*	*Jul-15*
White Oak Pinnacle	26,190,963	1.1	1.8	4.1	8.1	7.2	7.5	--	8.1	10.0	3.6	6.8	9.3	14.1	Aug-13
S&P/LSTA Leveraged Loan Index+2%			*2.2*	*3.8*	*10.8*	*6.4*	*6.5*	*--*	*10.8*	*2.4*	*6.2*	*12.3*	*1.3*	*6.1*	*Aug-13*
Risk-Diversifying Sub-Portfolio	**247,067,681**	**10.7**	**0.3**	**1.7**	**6.0**	**3.7**	**3.4**	**4.5**	**6.0**	**1.2**	**4.0**	**5.4**	**0.3**	**5.0**	**Nov-03**
StanCERA Risk-Diversifying Blended BM			*0.1*	*1.3*	*5.3*	*2.6*	*2.0*	*2.4*	*5.3*	*1.4*	*1.3*	*1.3*	*0.9*	*--*	*Nov-03*
US Treasury	**63,572,025**	**2.8**	**-1.1**	**1.8**	**7.7**	**4.4**	**3.8**	**4.7**	**7.7**	**0.7**	**5.1**	**5.4**	**0.3**	**5.1**	**Nov-03**
BBgBarc US Treasury 7-10 Yr TR			*-1.2*	*1.5*	*8.5*	*3.9*	*2.9*	*4.5*	*8.5*	*0.9*	*2.6*	*1.1*	*1.6*	*4.7*	*Nov-03*
Northern Trust Intermediate Gov't Bond	46,479,024	2.0	0.0	1.2	5.3	--	--	--	5.3	1.5	--	--	--	2.6	Jul-17
BBgBarc US Govt Int TR			*0.0*	*1.2*	*5.2*	*--*	*--*	*--*	*5.2*	*1.4*	*--*	*--*	*--*	*2.6*	*Jul-17*
Northern Trust Long Term Gov't Bond	17,093,001	0.7	-4.0	3.5	14.8	--	--	--	14.8	-1.7	--	--	--	6.7	Jul-17
BBgBarc US Govt Long TR			*-4.1*	*3.5*	*14.7*	*--*	*--*	*--*	*14.7*	*-1.8*	*--*	*--*	*--*	*6.6*	*Jul-17*
Short-Term Gov't/Credit	**183,495,656**	**8.0**	**0.7**	**1.7**	**5.5**	**--**	**--**	**--**	**5.5**	**1.3**	**--**	**--**	**--**	**2.2**	**May-17**
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	*--*	*--*	*--*	*4.0*	*1.6*	*--*	*--*	*--*	*2.2*	*May-17*
DFA	183,495,656	8.0	0.7	1.7	5.5	--	--	--	5.5	1.3	--	--	--	2.8	Jul-17
BBgBarc US Govt/Credit 1-3 Yr. TR			*0.6*	*1.3*	*4.0*	*--*	*--*	*--*	*4.0*	*1.6*	*--*	*--*	*--*	*2.3*	*Jul-17*



	Return (Rank)													
5th Percentile	6.4		21.9		21.9		11.0		8.2		9.7		9.6	
25th Percentile	5.7		20.1		20.1		10.0		7.5		8.8		8.8	
Median	5.2		18.5		18.5		9.4		7.0		8.1		8.1	
75th Percentile	4.7		16.8		16.8		8.6		6.5		7.3		7.5	
95th Percentile	3.9		14.4		14.4		6.3		4.7		5.7		5.9	
# of Portfolios	293		289		289		281		268		254		228	
● Total Fund	5.0	(62)	17.8	(61)	17.8	(61)	9.3	(53)	7.1	(44)	8.8	(25)	8.9	(19)
▲ Policy Index	5.3	(42)	16.9	(73)	16.9	(73)	8.7	(72)	6.9	(58)	8.2	(47)	8.4	(40)



	Return (Rank)																			
5th Percentile	21.9		-1.3		18.2		9.4		2.2		8.0		20.8		14.6		3.6		15.4	
25th Percentile	20.1		-3.1		16.5		8.4		0.9		6.8		18.0		13.4		1.9		14.0	
Median	18.5		-4.0		15.3		7.7		0.1		5.8		15.5		12.4		0.9		12.9	
75th Percentile	16.8		-4.9		14.0		6.9		-0.9		4.6		13.3		10.7		-0.3		11.7	
95th Percentile	14.4		-6.3		11.3		5.3		-2.6		3.2		8.5		7.8		-2.5		8.6	
# of Portfolios	289		319		304		305		316		248		231		236		206		188	
● Total Fund	17.8	(61)	-4.1	(53)	15.7	(43)	8.3	(29)	-0.2	(60)	6.9	(23)	19.8	(12)	14.3	(10)	-0.3	(75)	13.6	(35)
▲ Policy Index	16.9	(73)	-3.7	(43)	14.3	(71)	8.5	(23)	0.2	(46)	7.5	(12)	15.4	(52)	12.3	(53)	1.4	(35)	13.3	(42)

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.
Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

Glossary

Long-Nickels ICM: IRR-based methodology developed by Austin Long and Craig Nickels that makes meaningful comparisons between private capital investments and indexes like the S&P 500 Total Return; known as Index Comparison Method (ICM), or Public Market Equivalent (PME). The methodology assumes buying and selling the index according to the timing and size of the cash flows between the investor and the private investment.

The direct opportunity cost comparison of how net funds invested in the private investment would have performed had they been invested in the stated index over the life of the particular investment. In calculation of the IRRICM, the private capital valuation is ignored and substituted instead with a ValuationICM. ValuationICM is essentially a sum of private capital contributions and distributions grown to the analysis date using the respective index values; contributions are treated as purchases into the index and are used to increase the ValuationICM, while distributions are treated as sales and are applied to reduce ValuationICM; the IRRICM then becomes a standard IRR calculation, using the original private capital transactions and ValuationICM substituted for the original private capital valuation.

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