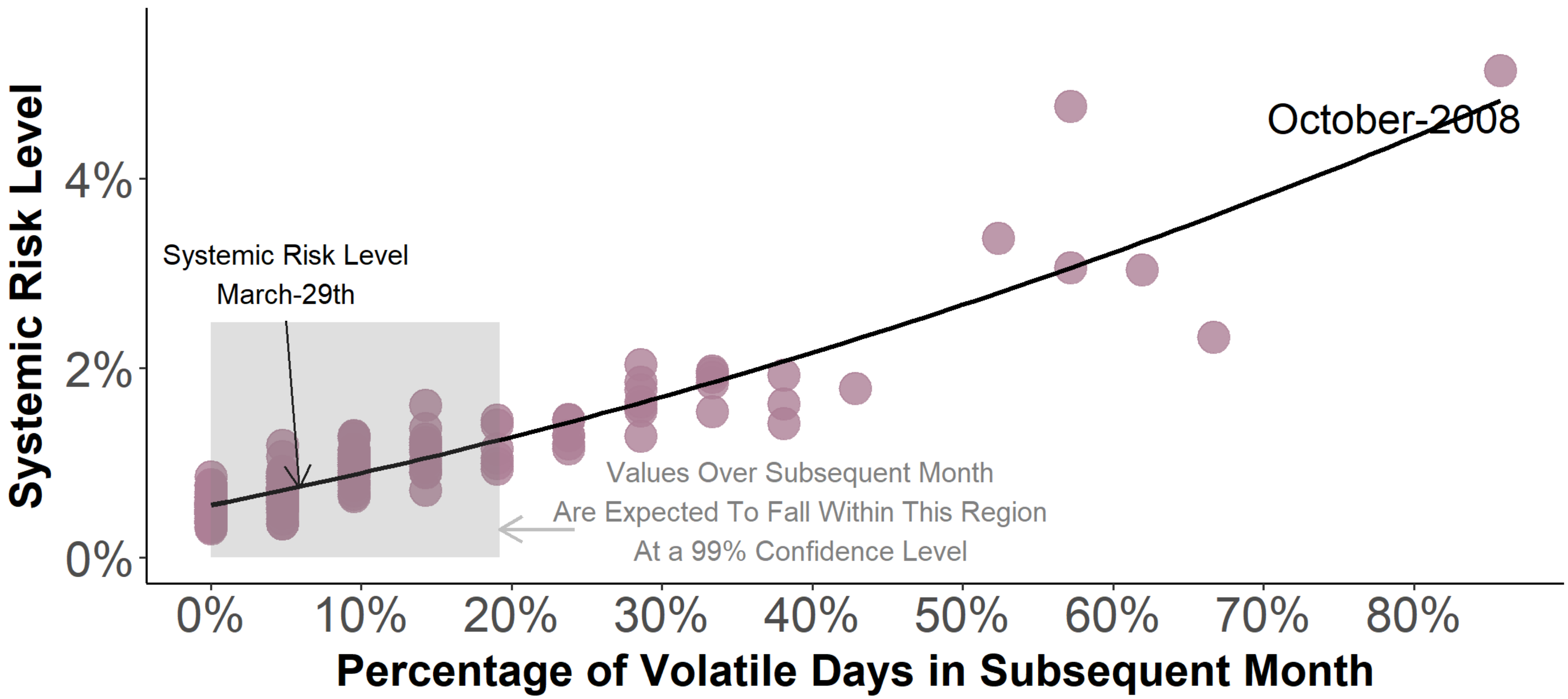
Capital Markets Outlook

Capital Markets Outlook[1]

- Diverging global economic growth, nuanced monetary policies, and ongoing geopolitical turmoil has resulted in increased uncertainty in the global capital markets.
  - Systemic Risk has been elevated since October 2018, but has recently started to decline.
    - In agreement with this measure, the widely cited VIX index is also declining.
    - Risk environments can change quickly, and caution is warranted especially given high U.S. valuations and global political risk.
  - The price of the U.S. stock market relative to ten-year average earnings remains above its historical average (29.9x versus 16.9x).
    - Within U.S. Equity markets, valuations for companies based on both size (small vs. large cap) and value (growth vs. value) remain within a reasonable range.
  - Developed international and emerging market stocks are trading at lower valuations than U.S. stocks.
    - Both of these measures have seen sustained positive trends as economic fundamentals continue to strengthen.
  - At 2.4%, the yield on the ten-year Treasury declined, to the surprise of many investors.
    - The yield curve is essentially flat, indicating that investors may expect short-term rates are more likely to move down than up from here.
  - As of March 31st, spreads for high yield corporate bonds (4%) were below their historical average.
    - Higher equity valuations and tighter credit spreads are potentially inconsistent with a flattening yield curve.

[1] Sources: Bloomberg, U.S. Treasury, and Meketa Investment Group. Data is as of March 31, 2019.

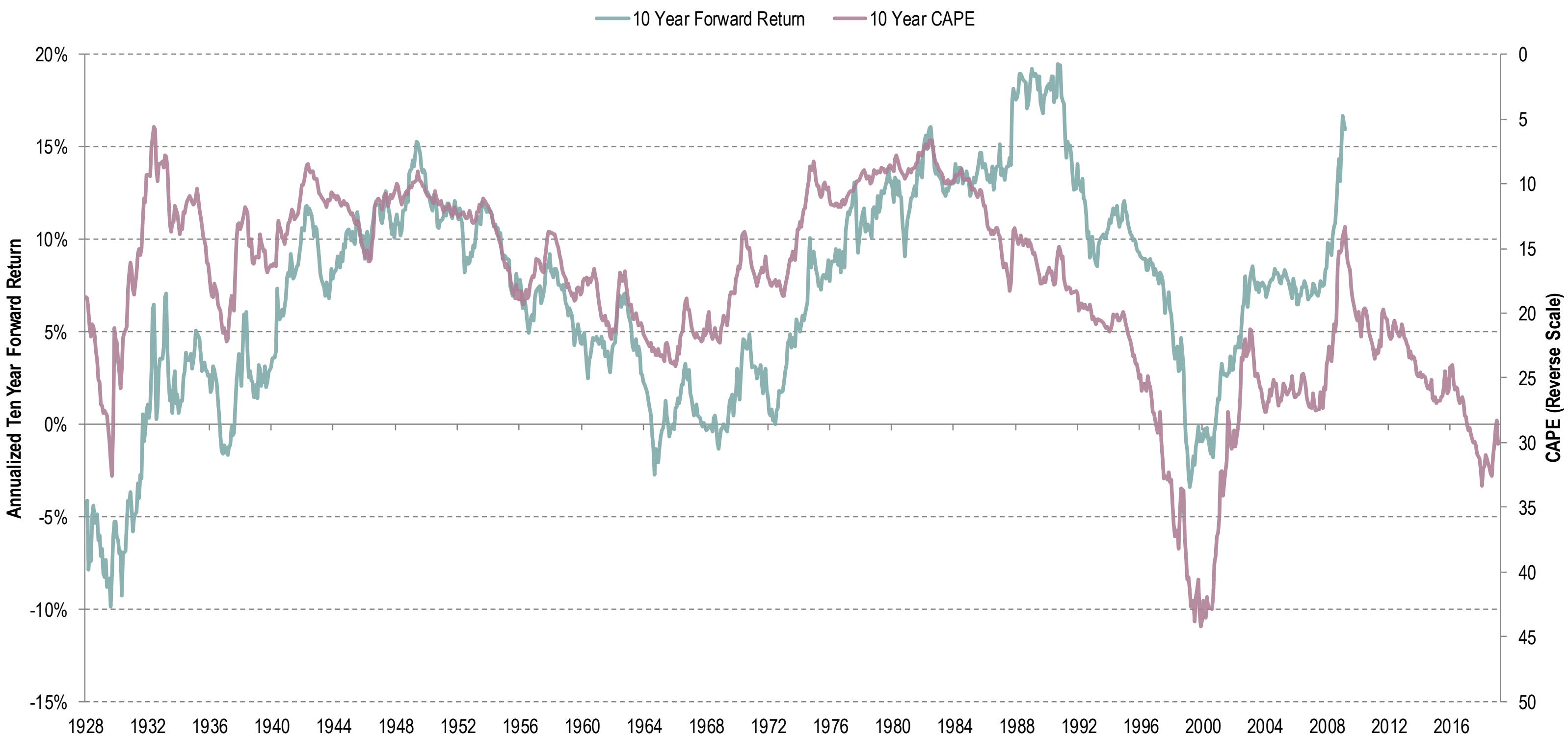
Systemic Risk and Volatile Market Days[1]



- Systemic Risk, which measures risk across markets, is important because the more contagion of risk that exists between assets, the more likely it is that markets will experience volatile periods.
- After a volatile start to the year, our Systemic Risk measure has returned to reasonable levels. While the number of volatile days can differ, our measure indicates that the next month should be in the lowest 19%.

[1] Source: Meketa Investment Group, as of March 29, 2019. Volatile days are defined as the top 10 percent of realized turbulence which is a multivariate distance between asset returns.

The U.S. Cyclically Adjusted P/E[1] and Long-Term Equity Returns



- One of the most powerful predictors of long-term equity returns has been the Cyclically Adjusted Price to Earnings Ratio (CAPE).
- This fundamentally driven measure is highly correlated with future returns, which are shown in the chart above using the CAPE metric on a reverse scale.

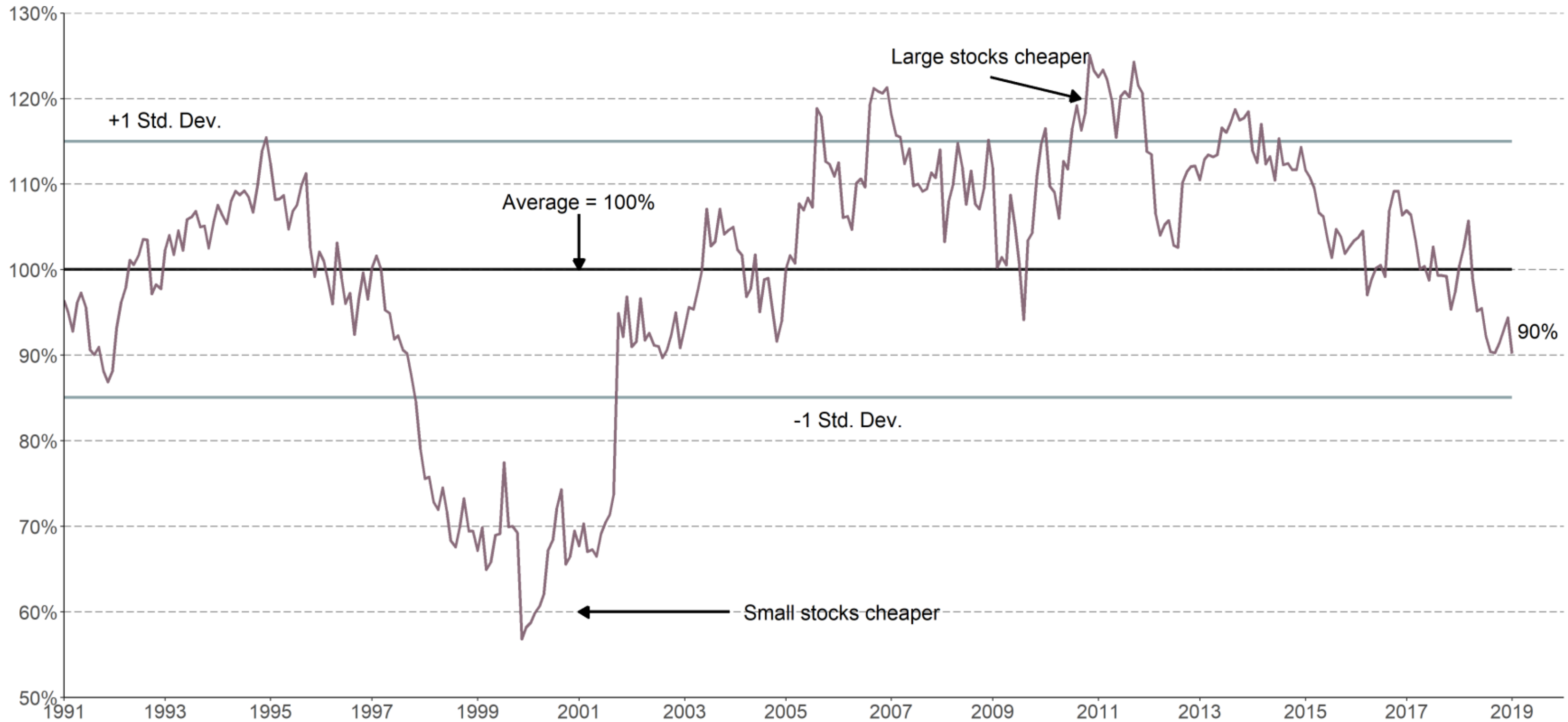
[1] Source: PE data are from Robert Shiller's website from 1927 - 1946; S&P and Bloomberg 1946 – present. S&P 500 equity returns are from Bloomberg for the entire period. Data is from December 31, 1927 to April 1, 2019.

U.S. Equity Cyclically Adjusted P/E[1]

- As of March 31st, the cyclically adjusted P/E ratio for the S&P 500 was 29.9x which is above its average of 16.9x.
- Historically, a P/E ratio at this level has led to below average future returns over a ten year horizon.

[1] Source: Robert Shiller and Yale University. Data is from January 31, 1881 to March 31, 2019.

Small Cap P/E vs. Large Cap P/E[1]



- The P/E ratio of small cap stocks (Russell 2000) relative to large cap stocks (Russell 1000) has been a consistent indicator of the relative valuation between companies based on their size.
- At 90%, this relative valuation metric currently indicates that small size companies are slightly cheaper than larger size companies.

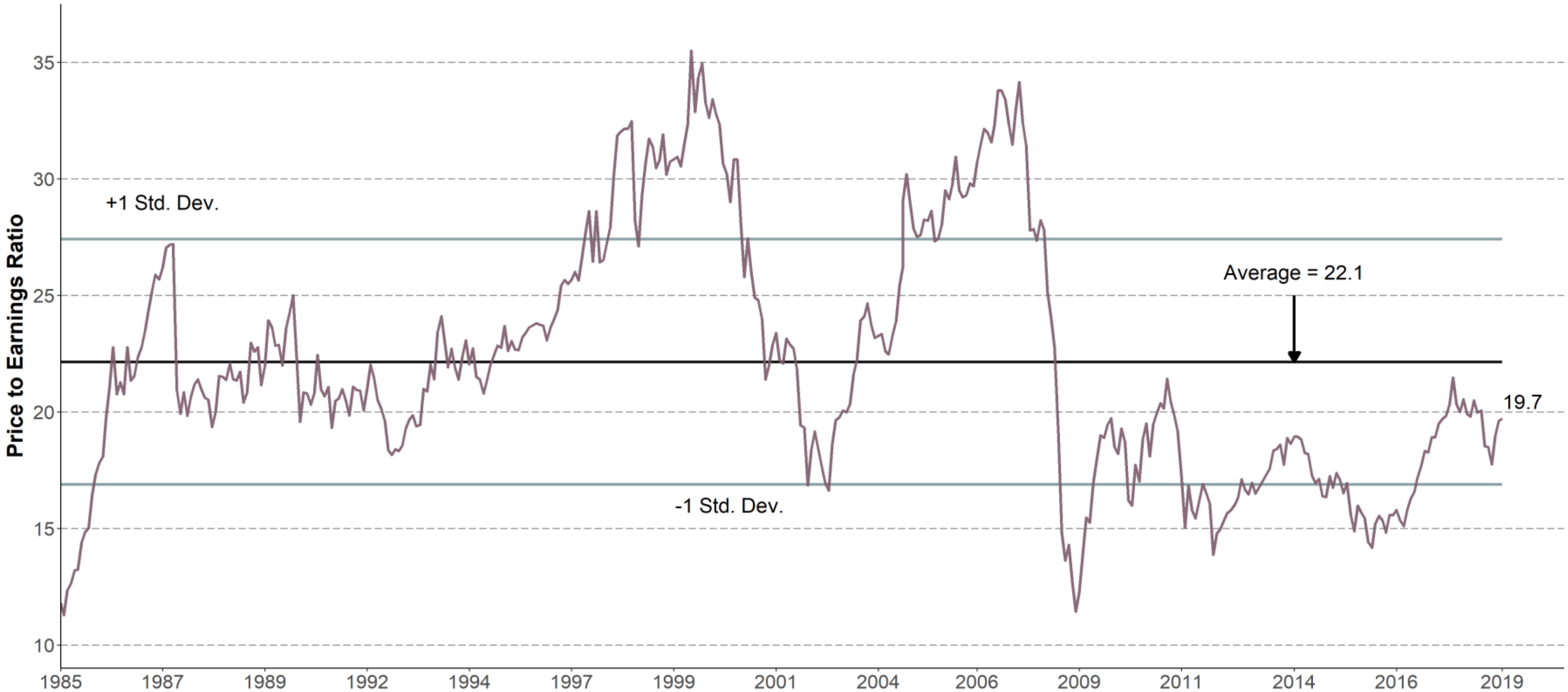
[1] Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings. Data is as of March 29, 2019.

Growth P/E vs. Value P/E[1]

- The P/E ratio of growth stocks (Russell 3000 Growth) relative to value stocks (Russell 3000 Value) was at a level of 155% as of March 29th, which is above its long-term average.
- Of note, the long-term average was sharply influenced by the technology bubble of the late 1990s.

[1] Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings. Data is as of March 29, 2019.

Developed International Equity Cyclically Adjusted P/E[1]



- As of March 31st the price to earnings valuation for the MSCI EAFE (ex-Japan) is slightly below the historical average.
- This ratio has seen a strong positive trend as economic fundamentals have continued to strengthen in the region.

[1] Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of March 31, 2019.

Emerging Market Equity Cyclically Adjusted P/E[1]

- Emerging market equities (MSCI Emerging Markets) are priced below their historical average.
- By this metric, emerging market equities are trading at a much lower valuation than U.S. equities, and at a slightly lower valuation than non-U.S. developed market equities.

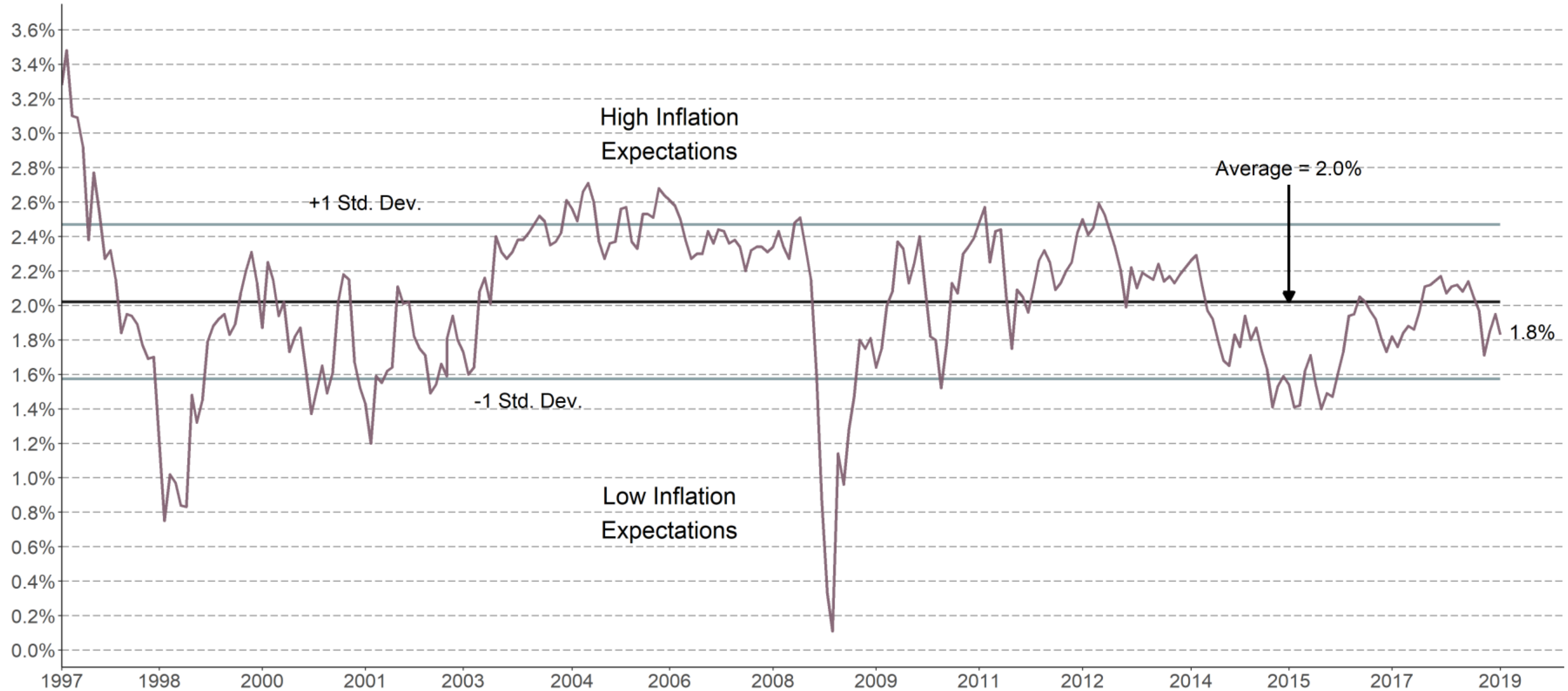
[1] Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of March 31, 2019.

Ten-Year Treasury Yields[1]

- As of April 1st the ten-year treasury yield was 2.4%, which is below the post-WWII average and below the 2.8% level of one year ago.
- The path of central bank interest rates remains at the center of market focus.
  - The Federal Reserve is currently in a holding pattern, with patience being the current focus. While much of the economic data remains strong, recession risk has increased since last year and inflation pressure has eased, implying that further rate rises are not required.

[1] Source: U.S. Treasury. Data is as of April 1, 2019.

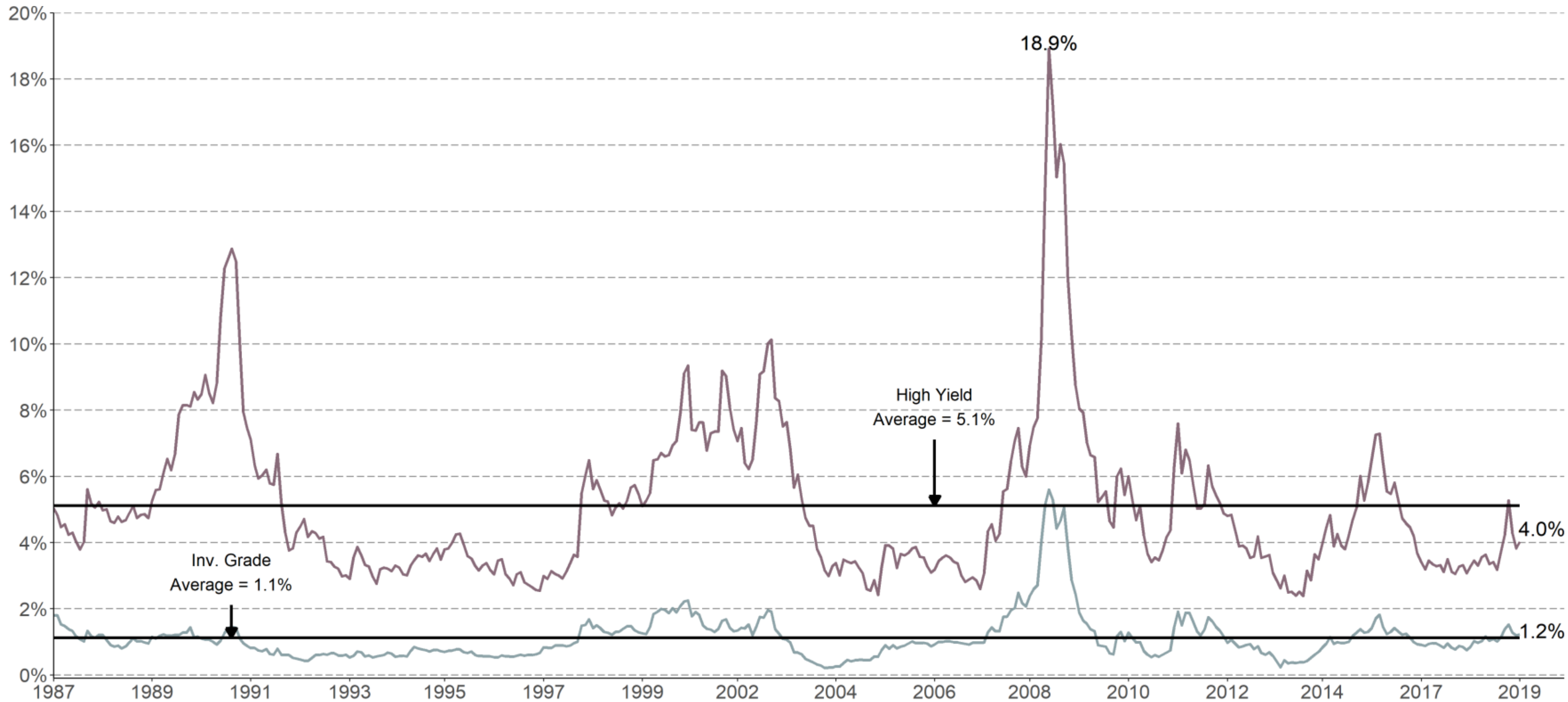
Ten-Year Breakeven Inflation[1]



- Breakeven (or expected) inflation, the difference between the nominal yield on a ten-year Treasury and the real yield on a ten-year TIPS, is slightly below its long-term average.
- The most recent Year over Year (YoY) inflation rate was 1.5%, indicating that the market's expectation is that future inflation will not be far from the current inflation level.

[1] Source: U.S. Treasury and Federal Reserve. Data is as of April 1, 2019 for TIPS and Treasuries. Inflation is measured by the Consumer Price Index (CPI-U NSA) for which the most recent data point is from February 28, 2019.

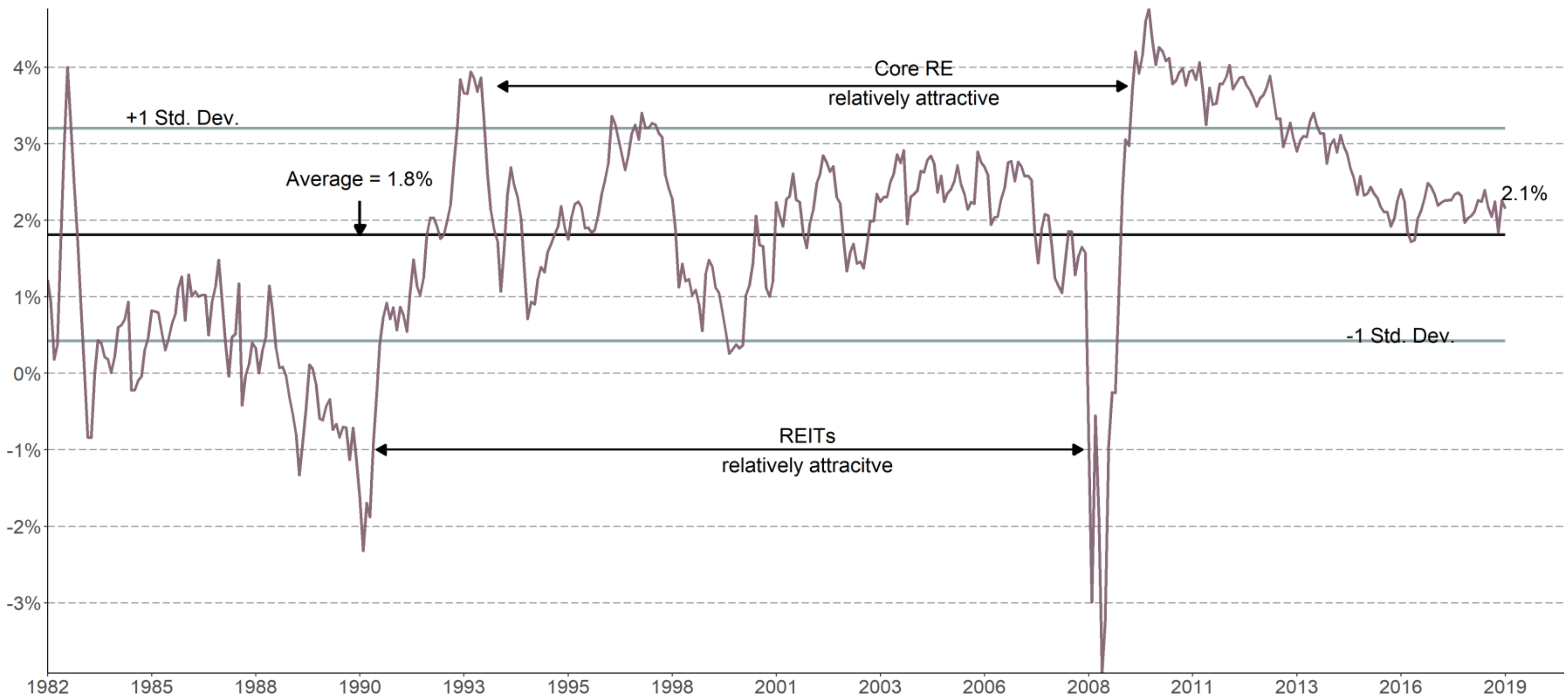
Credit Spreads[1]



- As of March 31st, credit spreads (versus U.S. Treasury bonds) for both high yield (4%) and investment grade corporate bonds (1.2%) were near or below their respective historical averages.
- Recent market jitters have subsided somewhat as can be seen especially in the tighter high yield spread.

1 Source: Barclays Capital. High Yield is proxied by the Barclays High Yield index and Investment Grade Corporates are proxied by the Barclays U.S. Corporate Investment Grade index. Data is as of March 31, 2019.

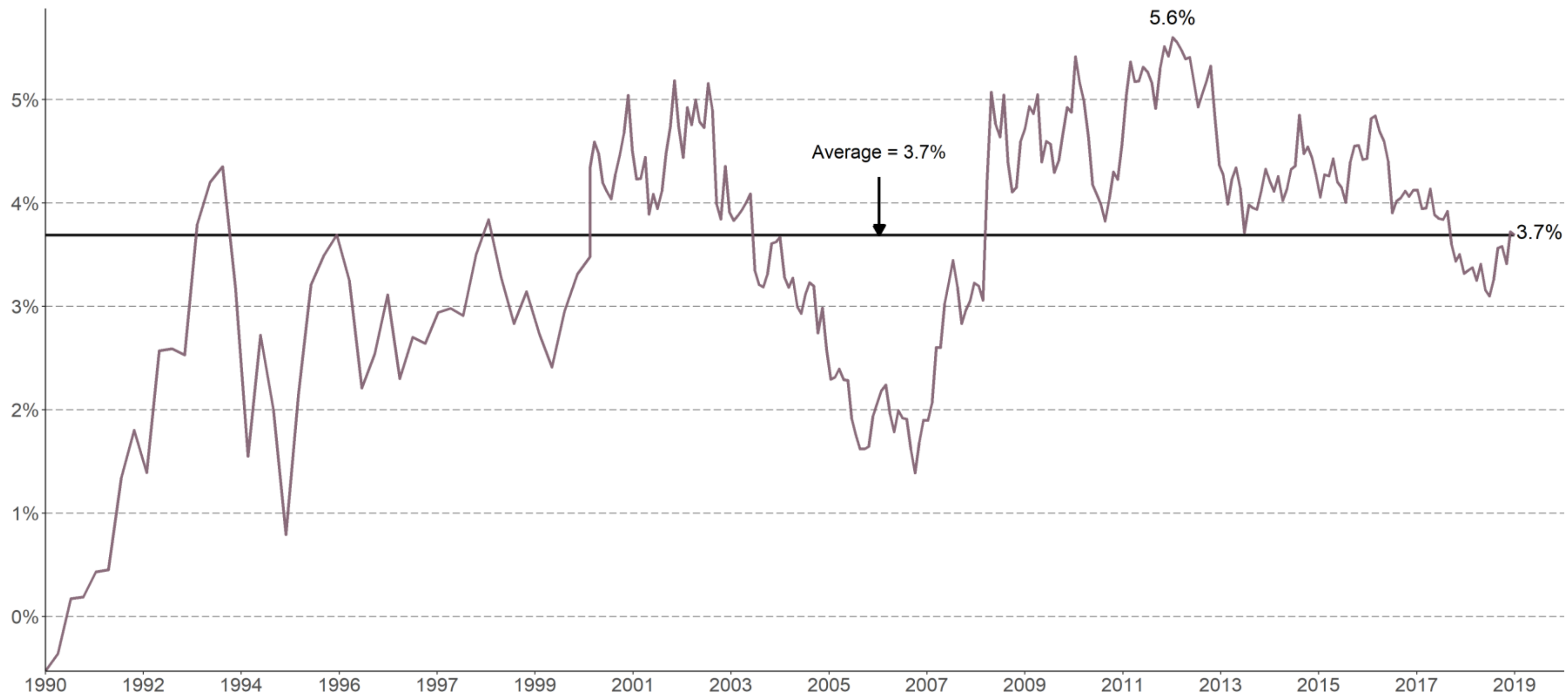
Core Real Estate vs. REITs[1]



- The spread between core real estate cap rates and REIT yields was 2.1%, slightly above the long-term historical average level.
- REITs were yielding 3.8%, well below the 10.1% level of early 2009.

[1] Sources: Bloomberg, Real Capital Analytics, NCREIF, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group and data is as of February 28, 2019. REITs are proxied by the yield for the NAREIT Equity index and data is as of March 29, 2019.

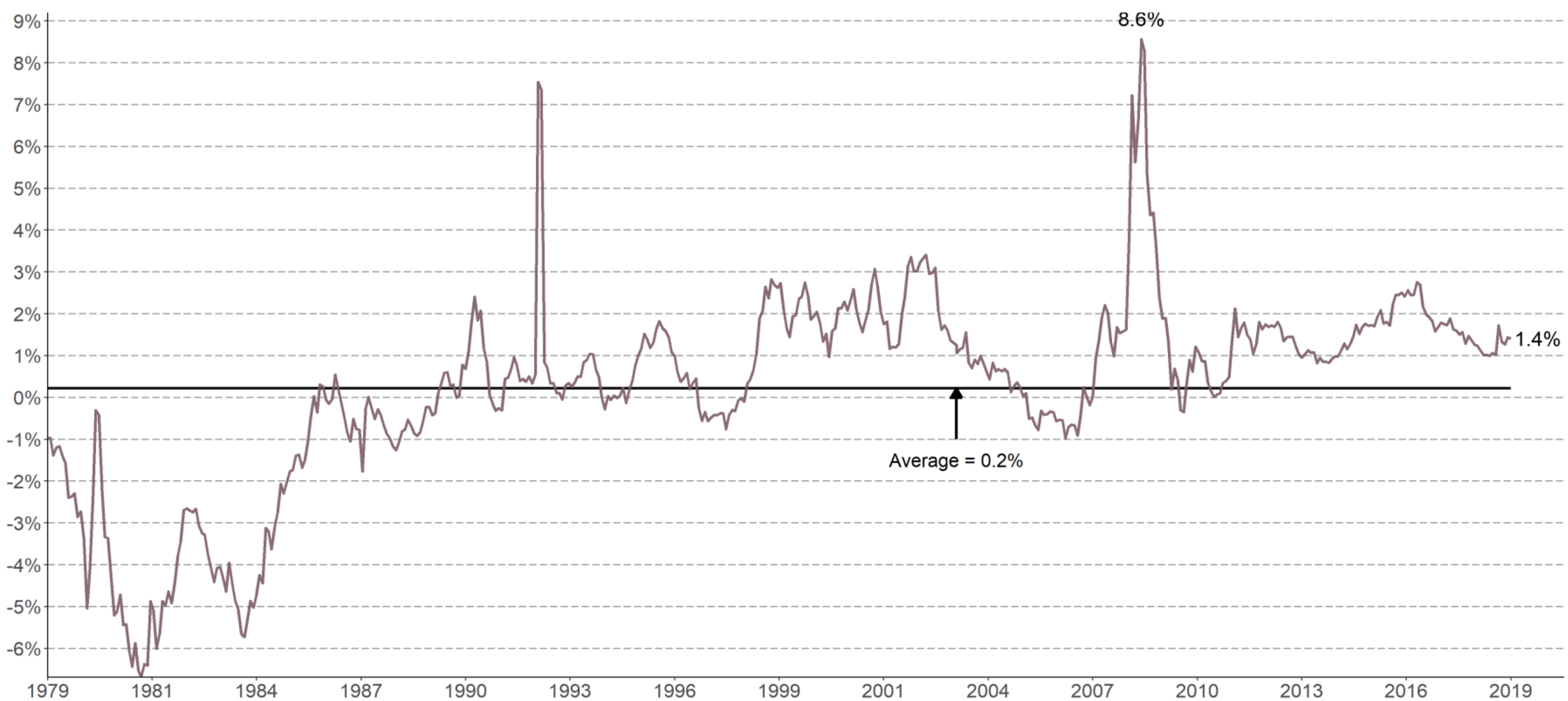
Core Real Estate Spread vs. Ten-Year Treasury[1]



- At 3.7%, the difference between the 6.1% cap rate for core real estate and the 2.4% yield for the ten-year Treasury is in line with its historical average.
- The absolute level of core real estate cap rates is near a historical low.

[1] Source: Real Capital Analytics, U.S. Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group and data is as of March 31, 2019. U.S. Treasury data uses the latest yield data which is as of April 1, 2019.

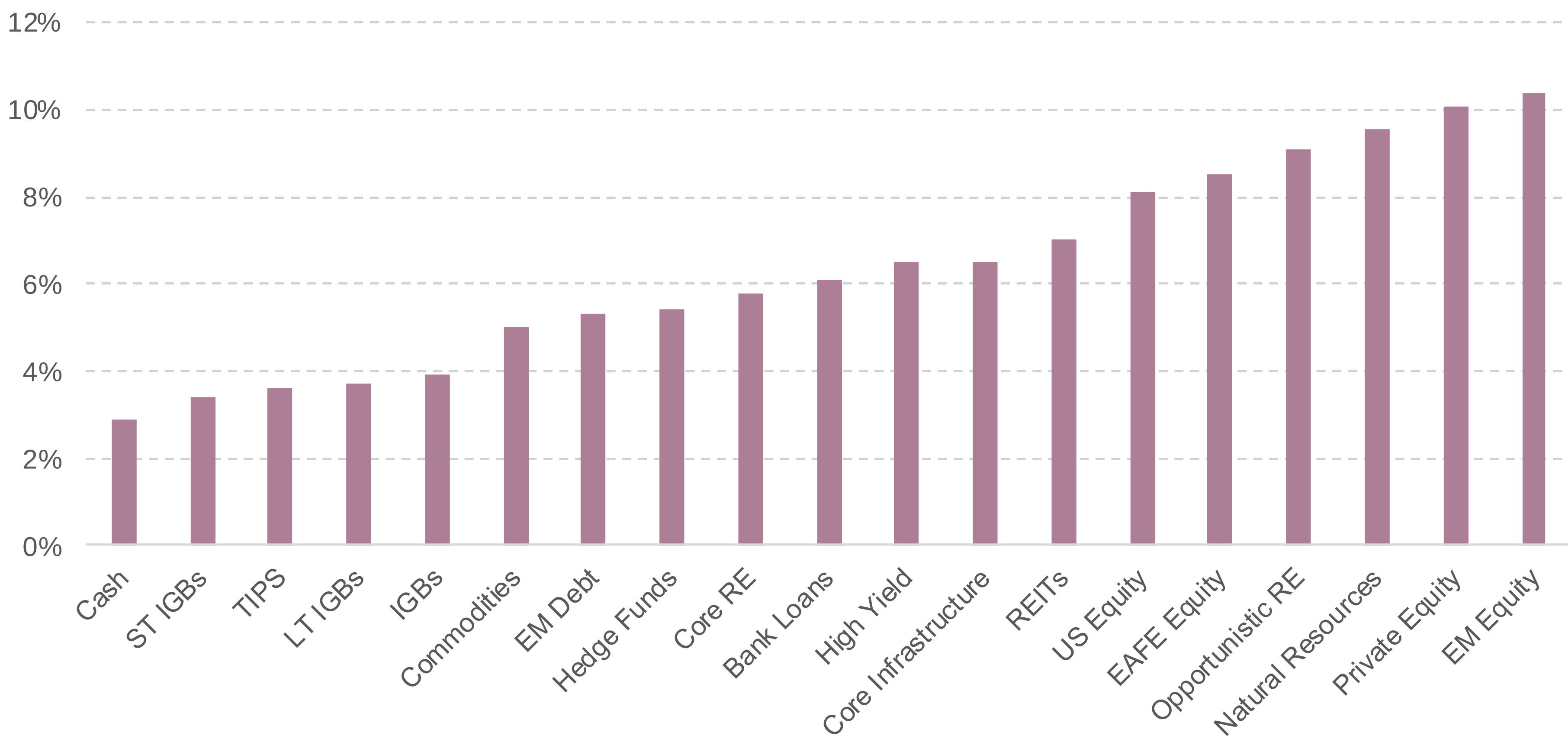
REITs Dividend Yield Spread vs. Ten-Year Treasury[1]



- As of March 29th, REIT yield spreads were 1.4%. This spread represents a change of 0.1% from the previous year.
- As with core real estate, the absolute level of REIT dividend yields is near a historical low.

[1] Source: NAREIT, U.S. Treasury. REITs are proxied by the yield for the NAREIT Equity index. Data is as of March 29, 2019.

Long-Term Outlook[1]



- Based on Meketa Investment Group's long-term expectations, only a handful of asset classes are priced to produce returns above 7% per year. All of these asset classes incorporate a high degree of volatility.

[1] Twenty-year expected returns based upon Meketa Investment Group's 2019 Annual Asset Study.

Total Return Comparison of Barclays U.S. Aggregate Minus Barclays U.S. TIPS[1]

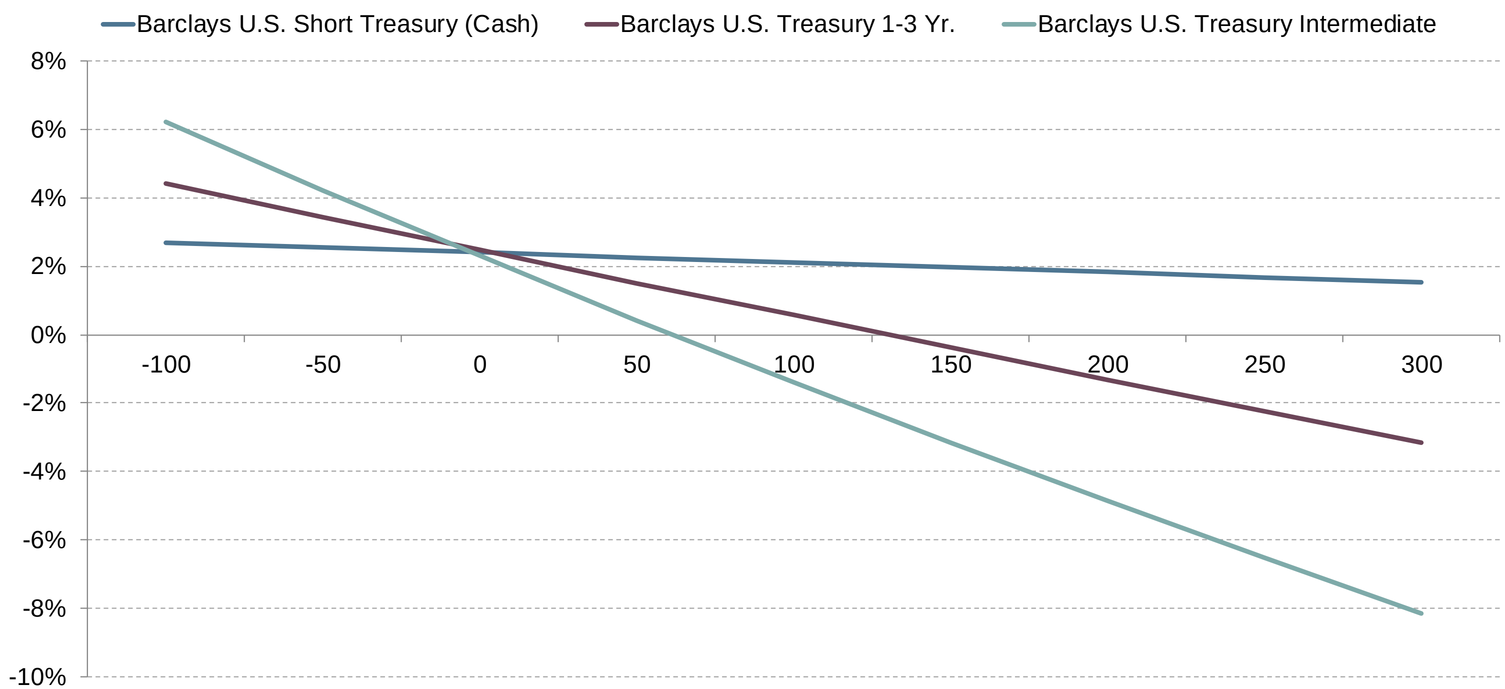
Inflation Rate Scenarios	Changes In Rates (bps)				
	-100	-50	0	50	100
4.0%	1.01%	-1.33%	-3.68%	-6.05%	-8.43%
3.0%	2.01%	-0.33%	-2.68%	-5.05%	-7.43%
2.0%	3.01%	0.67%	-1.68%	-4.05%	-6.43%
1.0%	4.01%	1.67%	-0.68%	-3.05%	-5.43%
0.0%	5.01%	2.67%	0.32%	-2.05%	-4.43%

Total Return Scenario: 100 bps Rate Increase and 2% Inflation

Total Return Over Longer Holding Periods	1 Year	3 Year	5 Year	7 Year	10 Year
Barclays U.S. Aggregate	-2.82%	1.57%	2.48%	2.86%	3.16%
Barclays U.S. Treasury U.S. TIPS	3.60%	4.41%	4.57%	4.64%	4.69%

[1] Data is as of April 8, 2019 via Barclays, Bloomberg, and Meketa Investment Group. Scenario assumes that the rate increase happens over one year.

Total Return Given Changes in Interest Rates (bps)[1]



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays U.S. Short Treasury (Cash)	2.7%	2.6%	2.4%	2.3%	2.1%	2.0%	1.9%	1.7%	1.6%	0.28	2.41%
Barclays U.S. Treasury 1-3 Yr.	4.5%	3.5%	2.5%	1.6%	0.6%	-0.3%	-1.3%	-2.2%	-3.1%	1.94	2.52%
Barclays U.S. Treasury Intermediate	6.3%	4.3%	2.4%	0.5%	-1.4%	-3.1%	-4.9%	-6.5%	-8.1%	3.82	2.36%
Barclays U.S. Treasury Long	22.4%	12.1%	2.9%	-5.4%	-12.7%	-19.0%	-24.3%	-28.6%	-31.8%	17.56	2.85%

[1] Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Data is as of April 8, 2019 via Barclays, Bloomberg, and Meketa Investment Group.

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