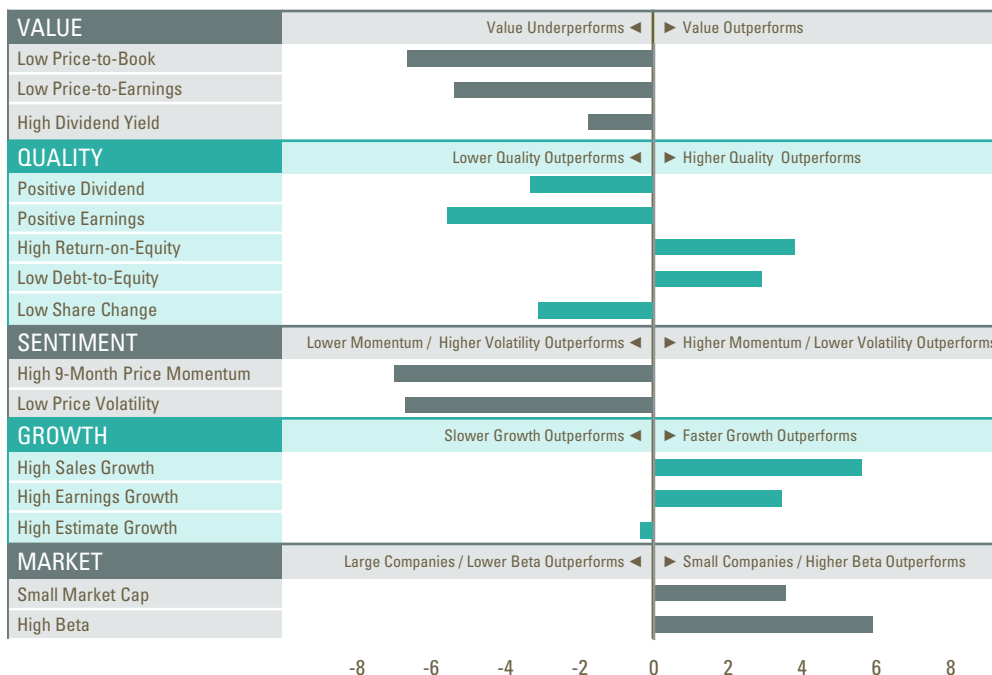


# Quantitative Review of U.S. Equities

First Quarter 2019

- After a sharp market correction in the fourth quarter of 2018, the U.S. equity market rebounded starting in late December, and the various domestic Russell indices gained from 10% to 20% in the first quarter of 2019.
- Growth factors, which underperformed in the fourth quarter, rebounded along with the market. Value factors lagged in the prior quarter and for 2018 overall and continued to underperform in 2019. Value was less negative or even positive among smaller-cap and value stocks.
- With the quarter's strong market rally, quality factors and low stock price volatility were generally weaker performers. This defensiveness was a positive late in 2018.
- Stocks with higher price momentum also performed relatively poorly across the Russell U.S. indices.
- Consistent with typical historical patterns, smaller-cap and higher-beta stocks led the market higher in the recent rally after falling the most in the fourth quarter's market decline.
- The interest-rate spread between long-term and short instruments has been narrowing for several years and finally inverted in late March with the 3-Month Treasury bill offering a higher yield than the 10-Year Treasury bond. We analyze the historical impact of an inverted yield curve on the economy and the equity market.

**Figure 1 Broad Market U.S. Equity Factor Returns**  
 QTD; % Return Difference between Factor's<sup>1</sup> High and Low Quartile; Russell 1000 Index; As of 3/31/2019



Source: Brandywine Global, FactSet, FTSE Russell

## A NOTE FROM BRANDYWINE GLOBAL'S DIVERSIFIED EQUITY TEAM

This paper is the quarterly report by Brandywine Global's Diversified Equity team on quantitative factors impacting the U.S. equity markets. In each publication, we will provide a standardized report on factor behavior for the quarterly and year-to-date periods. In addition, we will provide brief comments highlighting important and interesting trends in factor behavior and discuss recent work we are engaged in to better understand these trends. Understanding market performance through the unique lens of factor returns often brings early illumination to equity opportunities as well as areas of risk concentration. We use a longer-term perspective on the behavior of various factor returns to develop Diversified Equity strategies at Brandywine Global.

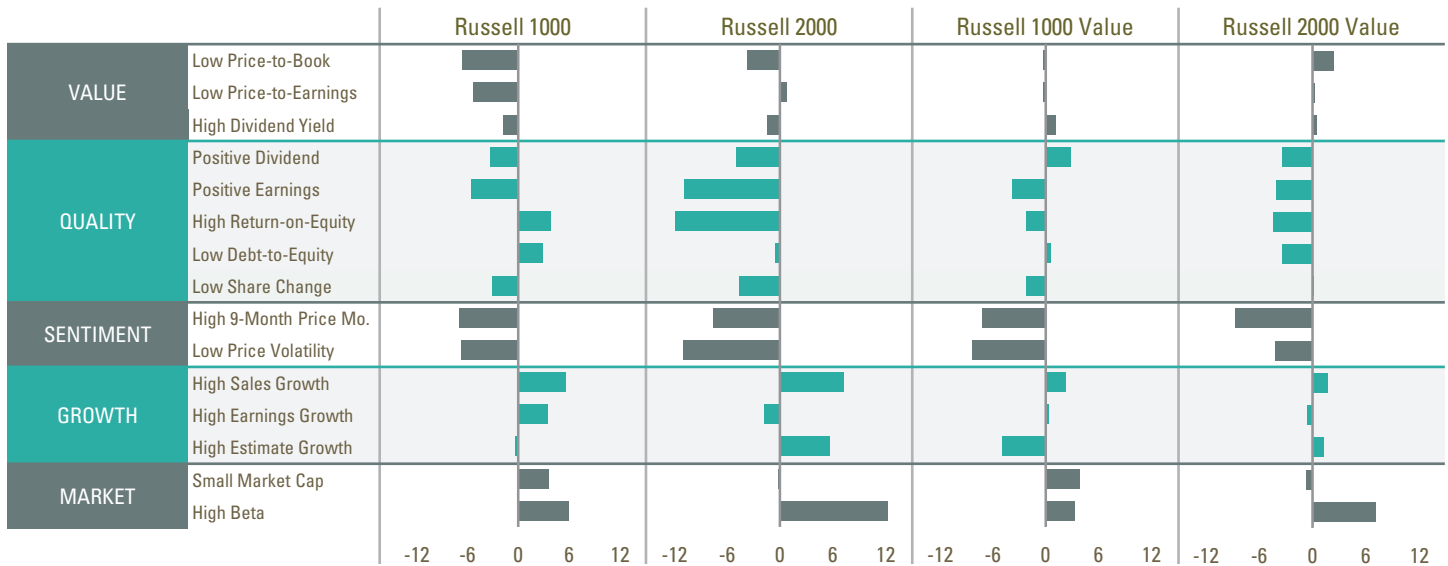


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**Figure 2 U.S. Equity Factor Returns**

QTD; % Return Difference between Factor's<sup>1</sup> High and Low Quartile; As of 3/31/2019



Source: Brandywine Global, FactSet, FTSE Russell

**FIRST QUARTER 2019 FACTOR RETURNS**

The market's decline in the fourth quarter of 2018 resulted from the confluence of several concerns, including the sustainability of a robust U.S. economy, Federal Reserve (Fed) policy tightening, slowing global growth, continued trade tensions, and U.S. budget impasse. While many of these issues remain as an overhang on the market, the building consensus in late December that the Fed would slow or pause its rate hikes for the near future sparked a positive response from the stock market. The S&P 500 Index gained over 17% from December 24, 2018, through the end of the first quarter. Perhaps surprisingly, much of these gains occurred before the federal government shutdown ended in late January.

A rallying equity market usually signals greater optimism regarding economic growth, which would then be expected to push interest rates higher. Short-term rates indeed did rise in the first quarter despite the Fed's indication of no additional near-term rate hikes. However, longer-term rates, as represented by the U.S. Treasury 10-Year note, defied this reasoning, falling to 2.41% on March 31 from 2.69% at the end of 2018. As a result, the yield curve briefly inverted in late March, an event that is perceived as one of the most ominous signals for economic growth and the stock market since inversions have often preceded recessions. The equity market weathered this storm in the short run, falling sharply on March 22, the first day of the inversion, and then rallying to new 2019 highs in early April. We discuss the inverted yield curve and its impact on the economy and the equity market later in this commentary.

Growth factors and growth indices benefited from the market rally (see **Figure 3**) after suffering significant losses in the fourth quarter. In the first quarter, high sales growth performed very well, although high earnings and estimate growth had more mixed results. The high-growth FAANG stocks (Facebook, Amazon, Apple, Netflix, and Alphabet) had outsized returns through the first three quarters of 2018 but then fell hard in the fourth quarter. They rebounded this quarter to outperform the broad market but not as dramatically as they had in early 2018 (see **Figure 4**). Technology stocks, which generally have stronger growth characteristics, were the best Russell 1000 Index performers in the quarter, with strong returns in semiconductors, software, and hardware.

**Figure 3**

As of 3/31/2019

	First Quarter 2019		
	Total	Growth	Value
Russell 1000 Index	14.0%	16.1%	11.9%
Russell Midcap Index	16.5%	19.6%	14.4%
Russell 2000 Index	14.6%	17.1%	11.9%
Russell Microcap Index	13.1%	16.0%	10.4%

Source: FTSE Russell

**Figure 4 Total Return Comparison of FAANG Stocks for 2018 and 1Q 2019**

	12/31/2017 to 9/30/2018	9/30/2018 to 12/31/2018	12/31/2018 to 3/31/2019
Amazon	71.27%	-25.21%	18.56%
Alphabet	14.05%	-13.23%	13.30%
Facebook	-6.80%	-20.29%	27.16%
Netflix	94.90%	-28.46%	33.21%
Apple	33.40%	-30.12%	20.42%

Source: FTSE Russell

Value factors performed poorly throughout 2018 and in the first quarter of 2019. Within the Russell 1000 Index, the low price-to-earnings (P/E) and low price-to-book (P/B) factors were down over 5% this quarter. These factors did perform somewhat better within the smaller-cap and value indices. Financials were among the sectors with the smallest gains in the quarter, driven in large part by the narrowing spreads between long-term and short-term fixed income rates. This sector has only a 4.4% weight in the Russell 1000 Growth Index compared to a 22.5% weight in the 1000 Value Index as these stocks currently have both lower valuations and lower growth rates. Financials represent only 5.0% of the weight among companies with top-quartile sales growth within the Russell 1000 Index.

High dividend yield also performed poorly within the broad market, although the factor was somewhat positive within the value indices. Falling rates should generally favor the higher dividend stocks, and this tenet held true for real estate investment trusts (REITs) this quarter. However, other higher-yielding sectors, such as consumer staples and utilities, lagged as perhaps their defensive nature in such an upbeat equity market outweighed the positive response to lower rates.

As often happens with an abrupt turnaround in stock market performance, those stocks that fell the hardest in last year's market decline have now rebounded the strongest in tandem with the market's recovery. For instance, technology and energy companies performed very poorly last quarter and became the low momentum group but had among the best returns this quarter, driving up the group's return. On the other hand, stocks that were defensive in late 2018, such as consumer staples, healthcare, and utilities, became the highest momentum stocks by declining the least in the down market. These stocks were also defensive in the first quarter, meaning they underperformed in the market rally and pulled down the high-momentum factor return.

The defensiveness that impacted the momentum factor also was important for the quality factors. Higher-quality stocks tend to have lower betas, moving less than the broad market on both the upside and downside. Therefore, stocks with low share change, positive earnings, positive dividends, higher return on equity (ROE), or low price volatility generally underperformed by trailing in this up market. These stocks of course had done well by dropping the least in the late 2018 market decline.

On the opposite side, smaller-cap stocks and higher-beta stocks tend to move more powerfully than the market, which was a significant benefit in the first quarter. These factors were among the best performing this quarter after falling the most the previous quarter.

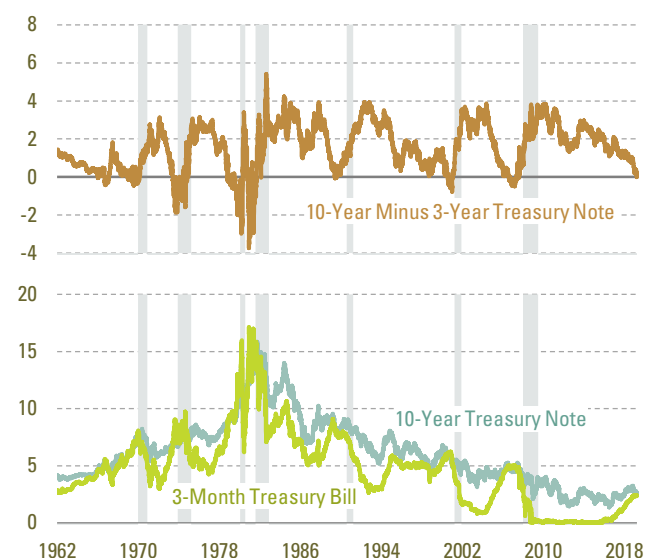
## INVERTED YIELD CURVES AND THE IMPACT ON ECONOMIC AND STOCK MARKET PERFORMANCE

With a strengthening economy over the last two years, longer-term interest rates, represented by the U.S. 10-Year Treasury note, in late 2018 reached their highest levels since 2011. Shorter rates also rose as the Fed executed nine rate hikes from 2015 through late 2018, moving the federal funds target rate to 2.5% from near zero. However, concerns that the economy had peaked sent both the stock market and longer-term rates sharply lower in the fourth quarter of 2018. Even as the stock market rebounded in 2019, long-term rates continued to fall. Finally in late March, the yield on the 10-Year Treasury fell below the 3-Month Treasury bill (T-bill) yield, if only briefly. Based on secondary market pricing, which is often derived from Treasuries with less than 3-months maturity, the yield curve only inverted intraday. However, the long- and short-term closing rates were equal on both March 26 and 27. Using a constant-maturity estimate of the 3-month T-bill, the yield curve was inverted for five days from March 22 to March 28, with a peak spread of 5 basis points (bps). In the week following the inversion, the yield on the 10-Year rose faster than the short-term rate. Longer-term yields are once again above the T-bill yield by a slim 5 bps to 10 bps.

**Figure 5** shows the history since 1962 for the yields on the 10-Year note and the 3-Month T-bill as well as the spread between the two and the recessionary periods determined by the National Bureau of Economic Research (NBER).

Over this time, inverted yield curve phases have averaged over 11 months,

**Figure 5 10-Year and 3-Month Treasury Yields and Spread Comparison % | As of 4/2/2019**



Gray areas indicate U.S. recession

Source: National Bureau of Economic Research (NBER), FRED Graph Observations, Economic Research Division, Federal Reserve Bank of St. Louis

measured from the first day of the crossover until the last day before long-term rates were consistently (for six months) above short rates. While longer-term rates could again dip back below the T-Bill yield, for now this latest inversion has been a very brief anomaly. This recent period is unusual in several other aspects as well. Typically, the crossover occurs when both long and short rates are rising, but the short rates are accelerating faster to catch and surpass longer yields. In this case, short-term rates were rising, but long-term rates were falling, dropping over 20 bps during the prior six months. Only the shorter-than-average inverted curves of 1989 and 2000, which lasted two and five months, respectively, were preceded by a similar drop in the 10-Year yield. Also, the T-Bill yield was only around 2.4% in late March, much lower than the historical average of 6.6% when the curve inverted previously. Finally, the real 3-month yield, defined as the T-Bill rate minus the inflation rate, this time also was much lower at 50 bps compared to the historical average of 183 bps. These final two observations suggest that this inverted curve might not have as significant an economic impact as occurred in the past.

An inverted yield curve is seen as a foreboding indicator because historically, since 1962, once yields invert, an economic recession has followed within 18 months in 7 out of 8 occurrences. Only in 1966 did an inverted yield curve not signal a recession. On average, the economic downturn began about 11 months after rates first reversed, with a range of 6 to 15 months.

An inverted yield curve also has been a negative signal for stock market returns.

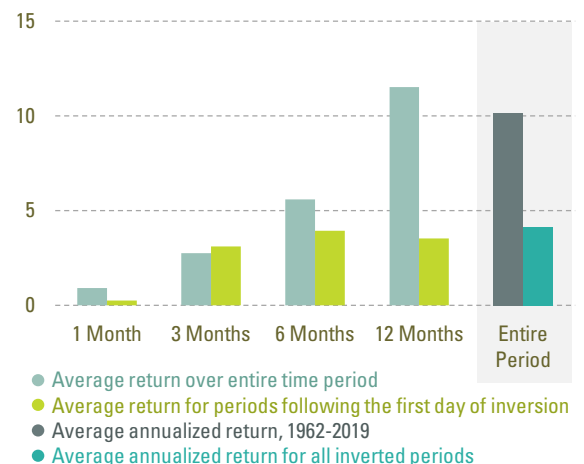
**Figure 6** shows average returns for the U.S. stock market for various time periods after the first day the yield curve inverted. Also shown are the average U.S. market returns over the entire 1962 through 2019 period. For the one year after the curve inverts and for the entire period in which short-term rates exceed longer-term rates, the U.S. market on average significantly underperforms the average returns for all periods. This result is quite consistent with the fact that recessions often follow within a year after the yield curve inverts. Of course, wide variation exists for specific years within these averages. For instance, the stock market rose 6.5% during the two-month period of inverted rates in 1989 and fell 35% during the 1973-1974 period. These numbers also may understate the market damage from an inverted curve because in a least one case, the 2007-2009 global financial crisis, the yield curve reverted back to a normal stance in mid-2007 just before the market peaked and then declined 50% over the next year and a half.

Finally, we take a retrospective look at how the equity market behaved after the first day the yield curve returned to its normal, upwardly sloped posture and remained in that state for at least six months. While an investor at that time would not have known these conditions were going to be met, the analysis does give us a sense if the market anticipated a return to a normal yield curve environment.

**Figure 7** shows that the average market returns in these “recovery” periods were similar to the returns overall from 1962-2019 and not, as might be expected, above average as the market began to recognize the inverted period had ended. Again, the averages contain a great deal of variation with the market gaining 25% in the 12 months after the yield curve normalized in 1974 versus dropping 11% after long-term rates rose back above short-term rates in 2007.

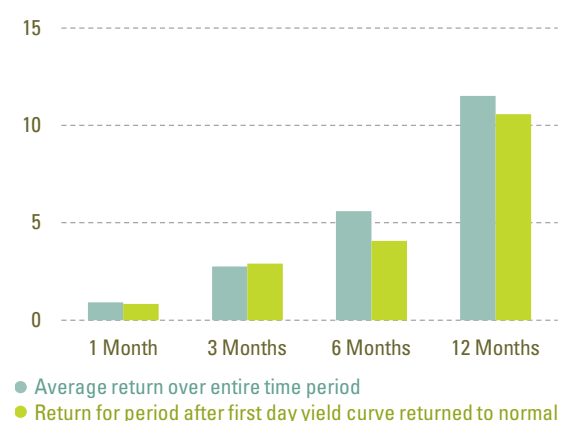
The circumstances surrounding this recent yield curve inversion are somewhat unique. As often has happened in these situations, the Fed was raising short-term rates. However, unlike in the past, the Fed was not seeking to wring out inflation, slow an overheated economy, or cut off other excesses but was merely moving rates back to “normal” levels after an extended period of near-zero rates. A few other distinctions are important to note about the current episode versus previous incidents. First, this inverted yield curve was not a result of any Fed desire to rein

**Figure 6 U.S. Market Returns: 1962-2019**  
 Entire Period vs. Periods Following Inversion



Source: Kenneth R. French Data Library

**Figure 7 U.S. Market Returns: 1962-2019**  
 Average Return for Periods After First Day Yield Curve Returned to Normal



Source: Kenneth R. French Data Library

in the economy. Second, the inversion was extremely short and shallow, at least so far. Third, the T-Bill yield is historically low for an inverted curve in both absolute and real terms. Lastly, the 10-Year/2-Year relationship did not invert. For these reasons, perhaps the overall impact on economic growth and stock market returns will be less pronounced.

<sup>1</sup> Factor returns represent return differences between top quartile (75%) and low quartile (25%) equities by each characteristic. **Market:** Market Capitalization and Market Beta (*Market Sensitivity Coefficient*); **Value:** Price-to-Earnings (*P/E based on trailing 12-month operating earnings*), Price-to-Book, Dividend Yield (*Among dividend-paying stocks*); **Quality:** Positive Earnings (*Positive earnings stocks - Stocks with no earnings*), Positive Dividend (*Dividend-paying stocks - Stocks with no dividend*), Share Change (*12-month change in shares outstanding*), Return-on-Equity, Debt-to-Equity; **Sentiment:** Price Momentum (*9-month price change*), Price Volatility; and **Growth:** Earnings Growth (*1-year earnings growth*), Sales Growth (*1-year sales growth*).

<sup>2</sup> Russell 1000 Growth Index ex Top 10 Contributors calculated by Brandywine Global

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