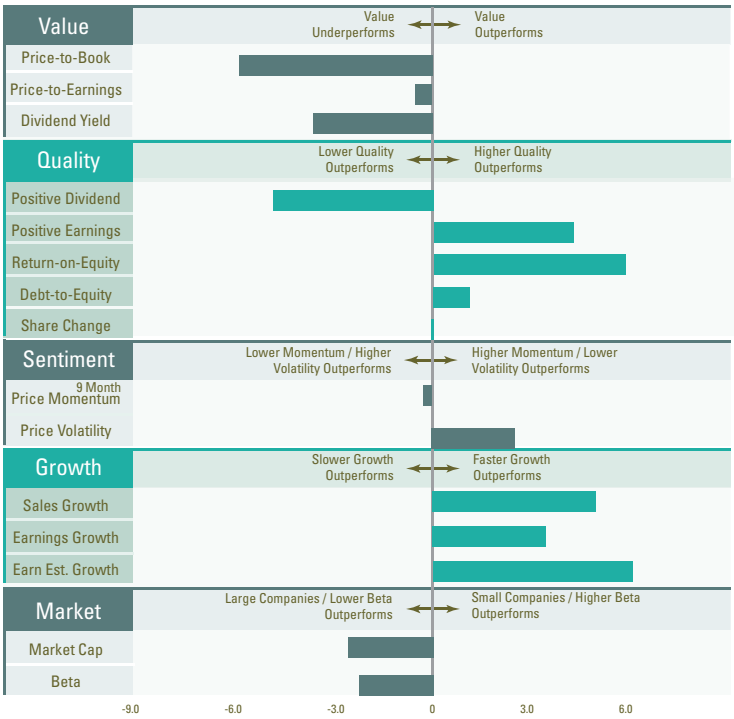
Quantitative Review of U.S. Equities

First Quarter 2017

- Most U.S. equity indices finished the first quarter with positive returns. In a reversal from the last year's fourth quarter, large-cap stocks performed better than small caps, and growth stocks were stronger than value stocks. The Russell 1000 Growth Index gained 8.9% in the first quarter, the Russell Mid Cap Index was up 5.2%, but the Russell 2000 Value Index was slightly down at -0.1%.
- The better performance for the large-cap Russell indices relative to the smaller-cap indices was consistent with the higher returns for large cap stocks within each market segment.
- Value and growth factors generally reversed direction from their 2016 fourth quarter and full-year course. This quarter, growth factors had strong positive returns while value factors were mostly negative, the exact opposite result from 2016. The difference in growth and value factor performance was clearly visible in the superior returns from the Russell growth indices in each market cap segment.
- Several factors produced the opposite return in large-cap stocks compared to their results among smaller caps. High return on equity (ROE), positive earnings, low share change, low price volatility, and low beta generally did well within the large-cap universe, but had negative relative returns among small caps.
- High dividend-paying stocks generally were weaker performers even though the 10-year U.S. Treasury yield fell just 5 basis points in the quarter with limited volatility. The Federal Reserve (Fed) lifted its federal funds target range another 25 basis points in March to the new range of 0.75% to 1.00%.
- The Fed also raised the federal funds rate back in December 2015, the first increase since 2006, followed by two more recent increases. Historically, the Fed's first rate hike was followed by additional increases in what is often seen as the central bank's efforts to rein in economic or market excesses. We look back to see if equity markets eventually experienced any negative impact in the subsequent years as the Fed moved toward higher rates.

Figure 1 Broad Market U.S. Equity Factor Returns
QTD; % Return Difference between Factor's[1] High and Low Quartile; Russell 1000 Index



As of 3/31/2017; 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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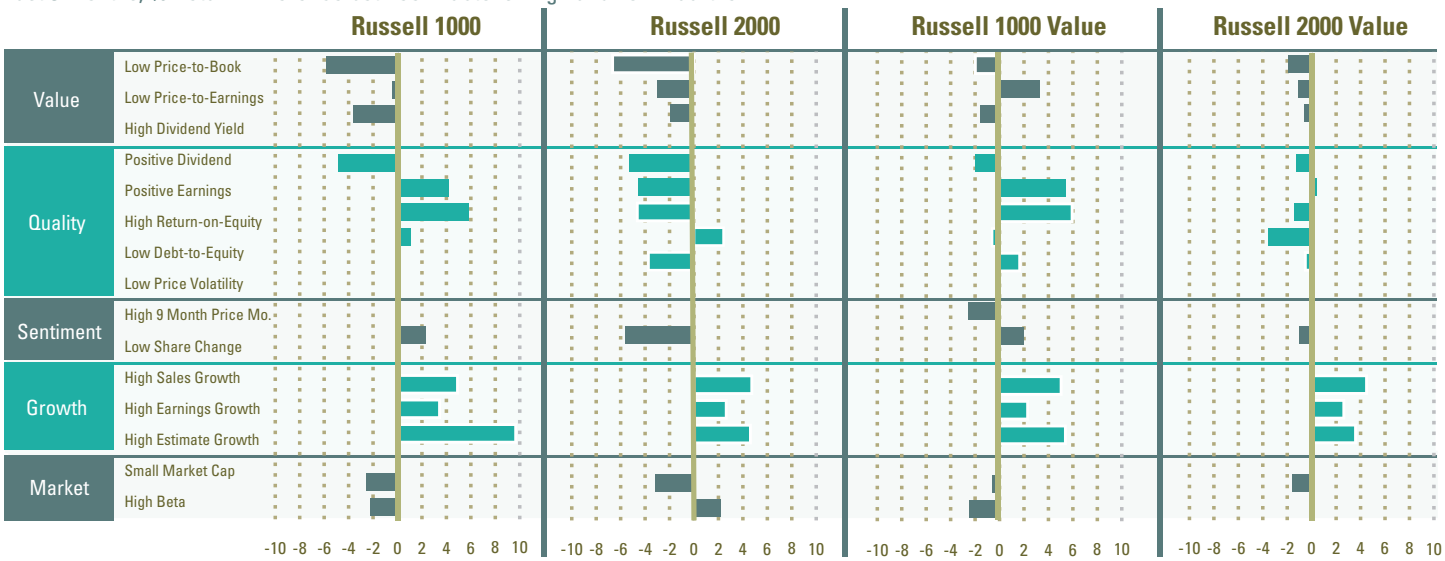
Figure 2 U.S. Equity Factor Returns
Last 3 Months; % Return Difference between Factor's[1] High and Low Quartile



As of 3/31/2017; Source: Brandywine Global, FactSet, FTSE Russell

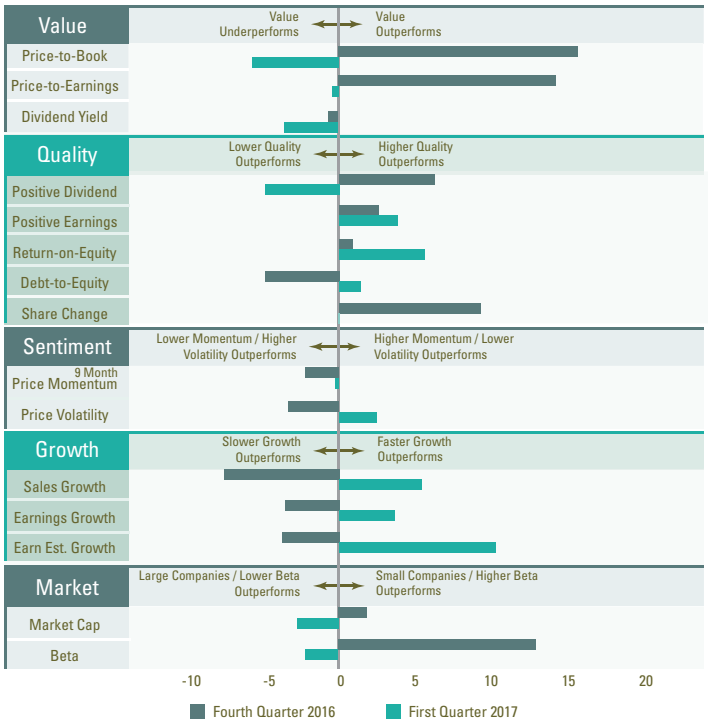
FIRST QUARTER 2017 FACTOR RETURNS

This quarter's U.S. equity market gains continued the market rally that began shortly before the elections in early November. Despite the consistent market trend through the period, returns on many equity factors reversed direction this quarter relative to their performance late last year. Various value, growth, quality, sentiment, and market factors within the Russell 1000 Index experienced this reversal, as seen in **Figure 3**.

While the market's sustained rise appears to show an optimistic economic outlook, based at least in part on potential tax and regulatory reforms under the new administration, the expected beneficiaries seemed to have changed. Within value, low price-to-earnings (P/E) and low price-to-book (P/B) stocks both performed significantly better than high P/E and P/B stocks in late 2016. This quarter, however, both value groups, and particularly low P/B, lagged other stocks. Only high dividend yield stocks performed in the same direction, lagging in both of the last two quarters. Growth stocks, as identified by high sales growth, high earnings growth, and high estimated earnings growth, experienced the opposite change—while each of these factors performed poorly last year, this quarter they produced strong positive returns.

In last year's late rally, small caps performed much better than large-cap stocks, but this quarter they trailed the bigger companies. The dollar rose against a basket of other currencies in the second half of 2016, a move that tends to hurt larger companies more than smaller-cap stocks, given large caps' greater non-U.S. exposure. The dollar peaked just about the turn of the year and fell in the first quarter, corresponding to the reversal in the small-cap/large-cap performance relationship. The better recent returns from large-cap stocks may also reflect reduced short-term concerns about the Trump administration's plans to quickly raise tariffs or trade barriers, as other policy priorities have received greater focus so far.

Figure 3 Factor Return Reversal
Q4 2016 versus Q1 2017; % Return Difference between Factor's[1] High and Low Quartile; Russell 1000 Index



As of 3/31/2017; Source: Brandywine Global, FactSet, FTSE Russell

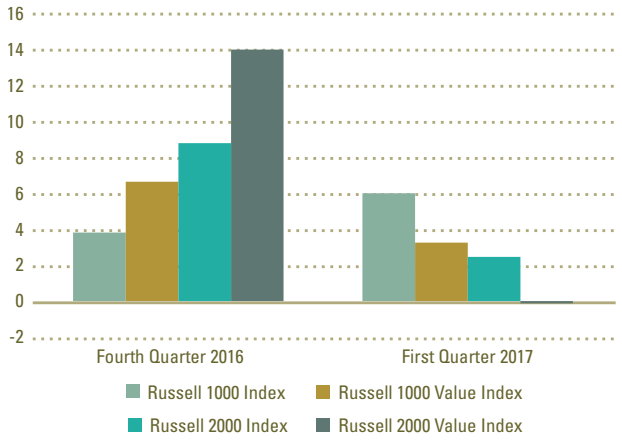
The impact of these value, growth, and size factor return differences can clearly be seen in the change in returns among the Russell U.S. equity indices between the last two quarters (see **Figure 4**).

Figure 5 provides greater detail on the impact of the various factor returns on the Russell index returns this quarter.

Comparing fourth quarter performance for various industry sectors to this quarter's returns reveals a similar pattern of reversals. Within the Russell 1000 Index, a number of sectors switched from being outperformers in the fourth quarter 2016 to laggards this year, including energy, financials, industrials, and telecom. On the flip side, consumer discretionary, consumer staples, health care, and technology went from trailing the market last year to providing above-market returns this year. Some of these switches were dramatic, with financials outperforming the Russell 1000 Index by 16.5% in the fourth quarter, but trailing the benchmark by 3.3% in the first quarter. Healthcare lagged the index by 8.0% in 2016's final quarter but is ahead by 2.6% this year. In total, 9 of 11 sectors within the Russell 1000 Index experienced a performance reversal between the two quarters (see **Figure 6**). This effect occurred in the other Russell indices, though with less frequency in the value benchmarks.

Variables related to quality, stock price volatility, and market sensitivity performed quite differently within large- and small-cap stocks this quarter. Higher quality and more stable stocks generally did well within large-cap U.S. equities but were poor performers among smaller stocks. The quality factors based on higher return-on-equity stocks, stocks with positive earnings, and stocks with low share change all fit this pattern. The better returns associated with quality variables within large caps is consistent with the stronger returns from low P/E stocks within that sector, since low P/E stocks tend to be higher-quality stocks. The low P/B factor, on the other hand, was more uniformly a poor performer for both small- and large-cap stocks. Measures indicating greater stock price stability, such as low price volatility and low beta also performed well within large caps while trailing within small caps. These results are somewhat surprising given that large-cap stocks performed better than small caps this quarter. Typically, higher quality, lower volatility, and lower-beta stocks generally outperform in weak markets, yet these variables posted their best results this quarter in large cap stocks, the segment that had the strongest returns.

Figure 4 Comparison of Index Quarterly Returns Shows Reversal
Q4 2016 versus Q1 2017; As of 3/31/2017



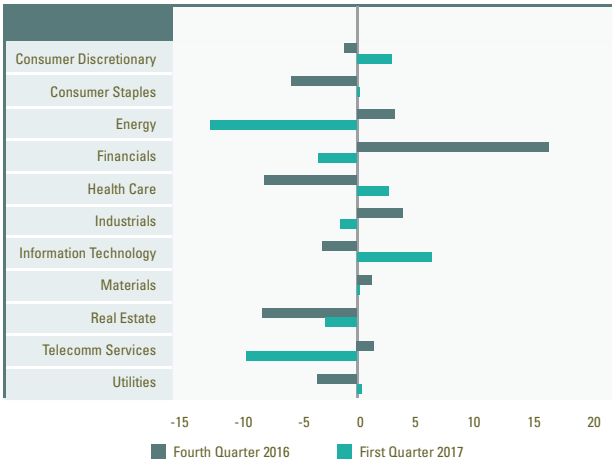
Source: FTSE Russell

Figure 5 Equity Performance by Market Cap and Classification
As of 3/31/2017

	First Quarter		
	OVERALL	GROWTH	VALUE
Russell 1000 Index	6.0%	8.9%	3.3%
Russell Midcap Index	5.2%	6.9%	3.8%
Russell 2000 Index	2.5%	5.4%	-0.1%
Russell Microcap Index	0.4%	2.6%	-1.0%

Source: FTSE Russell

Figure 6 Sector Return Comparison of the Russell 1000 Index
Q4 2016 versus Q1 2017; As of 3/31/2017

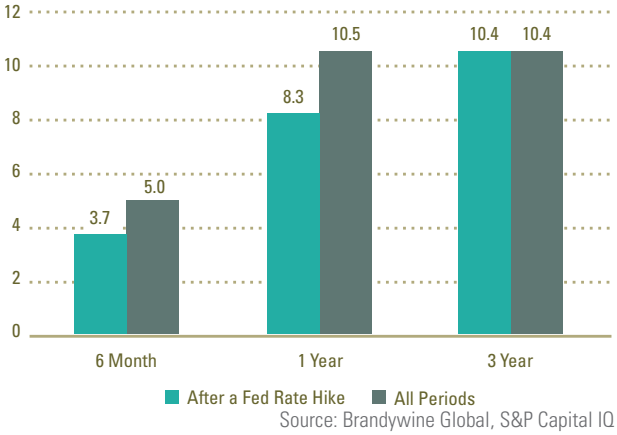


Source: Brandywine Global, FactSet, FTSE Russell

LONG-TERM IMPACT OF FED RATE HIKES

The Fed initially raised the federal funds rate in late 2015, after seven years of near-zero rates, and subsequently raised the level twice in the last four months. These increases represent the first sustained upward move in the rate since 2004-2006. A common view is that the Fed often initiates its rate hikes to curb excesses in the economy, such as accelerating inflation, or in the securities markets. Hence, investors worry that the rate increases will eventually restrict economic growth and lead to lower or negative returns from equities. When the Fed began its latest cycle of tightening in 2015, we presented our research on the immediate impact on U.S. stock market returns when the Fed first initiated rate increases in the past. That research found that the returns in the six-month, one-year, and three-year periods following the first rate hike were somewhat lower in the short term than typical equity returns, but still solidly positive and not significantly different in the longer term (see **Figure 7**).

Figure 7 S&P 500 Returns in the Period After a Fed Rate Increase 1960-2014



Source: Brandywine Global, S&P Capital IQ

Here we look at the individual years following the beginning of a period of rate increases, to see if at some point the rates do eventually have a meaningful negative impact on stock returns. We find that for the six years out from the first increase, the average S&P 500 Index return is somewhat higher in years two and three after the rate hike cycle begins, and then lower in years four through six. However, these returns are not significantly different from the long-term average for the index (see **Figure 8**).

Figure Figure 8 S&P 500 Returns Each Year After the Fed Began Raising Rates 1960-2014

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	ALL YEARS 1960-2014
Average Annual Return	8.0%	12.9%	12.8%	8.4%	8.5%	9.2%	10.0%
Standard Deviation of Annual Returns	14.3%	14.3%	19.2%	18.5%	15.3%	16.1%	16.9%

Source: Brandywine Global, S&P Capital IQ

The variability in those returns does increase in the third and fourth years while remaining below the long-term average in all the other years. The greater volatility observed two to three years out from the new monetary policy direction seems consistent with the intuition that a few years and several rate hikes may be necessary to impact markets. However, this evidence also suggests that the market volatility is as likely to be to the upside as to the downside.

[1]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 *(PE 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)*.