

The Russell 2000[®] Index in a rising interest rate environment

Evidence from past cycles

Key points:

- During the last three periods of rising interest rates, the Russell 2000 Index experienced initial declines, but in two of these three instances, it recovered from intra-year lows to finish each subsequent 12-month period in positive territory. There was no clear pattern in sector leadership.
- All three periods of interest rate hikes we examined have occurred at or near an inflection point in market volatility. However, for two of the periods, volatility began to increase after the Fed began raising rates, while in the third, volatility actually declined.
- The onset of higher interest rates in all three of the time periods we evaluated has resulted in lower valuations for small caps – either during the cycle, or soon thereafter.

The potential long-term benefits of including small cap stocks as part of a diversified, global, multi-asset-class portfolio have been well documented by numerous academic researchers and industry practitioners. A wide body of research into what is now commonly called the “small cap risk premium” has shown that small cap stocks have distinct risk/return characteristics that may provide diversification benefits and potentially enhance returns over time.¹

¹ Banz, R., “The Relationship Between Market Value and Return of Common Stocks,” *Journal of Financial Economics*, 1981. Fama, E., and K. French, “The Cross-Section of Expected Stock Returns,” *Journal of Finance*, 1992; Fama, E., and K. French, “Common Risk Factors in the Returns on Stocks and Bonds,” *Journal of Financial Economics*, 1993.

But where do small cap stocks stand in 2015? If the Federal Reserve raises interest rates – as has been widely predicted by the media and contemplated by the Fed – what might that mean for the performance, volatility and valuations of small cap companies?

This Insights will review:

- The performance, valuations and volatility of the Russell 2000 Index during 2013 and 2014.
- How the Russell 2000 Index, its sectors and select companies performed in the year following Fed announcements of higher interest rates in 1994, 1999 and 2004.
- The changes in the volatility of small caps over time, including during periods of rising interest rates.
- The changes in small cap valuations over time, including during periods of rising interest rates.

Setting the stage: Russell 2000 Index performance, valuations and volatility in 2013 and 2014

The Russell 2000 Index delivered a moderate total return, 4.9%, in 2014, below its long-term (1973–2014) average annual return of 13.6%, and underperforming large cap stocks as measured by the Russell 1000® Index, which delivered a total return of 13.2% last year. Small caps had led in 2013, delivering a robust total return of 38.8% vs. 33.1% for large caps in a year in which volatility fell well below long-term averages. The strong returns in 2013 pushed valuations for the Russell 2000 Index meaningfully above long-term averages, raising investor concerns about elevated valuations heading into 2014.

But what a difference a year makes. Small caps underperformed large caps in 2014 as volatility moved steadily higher. At the same time, however, earnings growth was strong, helping bring valuations back down toward long-term averages as prices moved generally sideways throughout the year. Amid accelerating U.S. economic growth, falling unemployment and no signs of inflation, small caps surged higher in the fourth quarter of 2014, reassuming their leadership over large caps. By year-end 2014, valuations were above long-term averages but lower than they had been a year prior.

Concern about rising interest rates

Moderating valuations driven by strong earnings growth appear to indicate a supportive environment for small cap stocks heading into 2015. A major concern, however, is that interest rates are primed to begin moving higher as the U.S. Federal Reserve seems poised to begin normalizing monetary policy. Small cap stocks, as represented by the Russell 2000 Index, represent approximately 10% of the broad U.S. equity market, a meaningful portion of the investment opportunity set.² The performance and characteristics of small cap stocks tend to differ from those of large cap stocks, thereby helping to diversify an equity

² Hirschfeld, L., "30 Years of Index Reconstitution: Critical to the accurate representation of ever-changing markets," Russell Investments, June 2014.

portfolio. Revenues generated by small cap stocks are more closely tied to U.S. consumption, such that small cap stocks may offer investors more focused exposure to the U.S. domestic economy.³

The domestic focus of many U.S. small cap companies underscores the importance U.S. monetary policy can have on the Russell 2000 Index. There is a widespread expectation among financial experts that the Federal Reserve will raise interest rates sometime in 2015.⁴ Federal borrowing rates have been near zero percent since December 2008, when markets were in the deepest throes of the global financial crisis. But it's been almost a decade, since June 2006, when the market last had to factor in a Fed rate hike. While some investors may welcome rising rates as a clear signal that the U.S. economy has fully recovered from the Great Recession, there are also concerns that putting the brakes on too soon, or too aggressively, could cause a slowdown. Below we report on the impact – or lack thereof – that Fed tightening had on the performance, volatility and valuations of U.S. small cap stocks during previous periods of rising interest rates.

Performance of small caps during periods of rising interest rates: The index, sectors, and individual companies

The Russell 2000 Index has performed strongly in recent years; riding a strengthening economy, the index returned 16.4%, 38.8% and 4.9%, respectively, for calendar years 2012, 2013 and 2014. With the potential for a rising interest rate environment in the near term, could the ride be over?

We looked at the performance of the Russell 2000 following the most recent periods of Fed tightening: 1994, 1999 and 2004. In contrast to 1999, the 1994 and 2004 rate hike cycles were the more aggressive, each spanning more than 12 months and with net increases in rates of 3% and 4.75%, respectively. The 1999 cycle was shorter in duration and came with a comparatively mild 1.75% net increase in the federal funds rate.

Beginning with the dates on which rate hikes were announced, we tracked performance across one-week, one-month, six-month and one-year increments – see Table 1. To varying degrees, small caps experienced initial declines in performance in all three periods, having negative returns at both the one-week and the one-month mark. But in two of our three cases, one year later, the Russell 2000 had rebounded from its post-announcement low to post a positive return. Only the 1994 period saw small caps finish with the one-year total return still in negative territory; despite being ahead of its intra-year low at the six month mark.

³ Ciolli, J. & Renick, O. "Small-Cap Stealth Rebound Shows Risk Appetite Still Alive," *Bloomberg Business*, October 2014. Accessed 3/2/2015 at: <http://www.bloomberg.com/news/articles/2014-10-17/small-cap-stealth-rebound-shows-risk-appetite-still-alive>

⁴ Appelbaum, B. "Federal Reserve Won't Raise Interest Rates Before June, at Earliest," *New York Times*, February 2015. Accessed 2/28/2015 at: <http://www.nytimes.com/2015/01/29/business/federal-reserve-rate-decision.html>

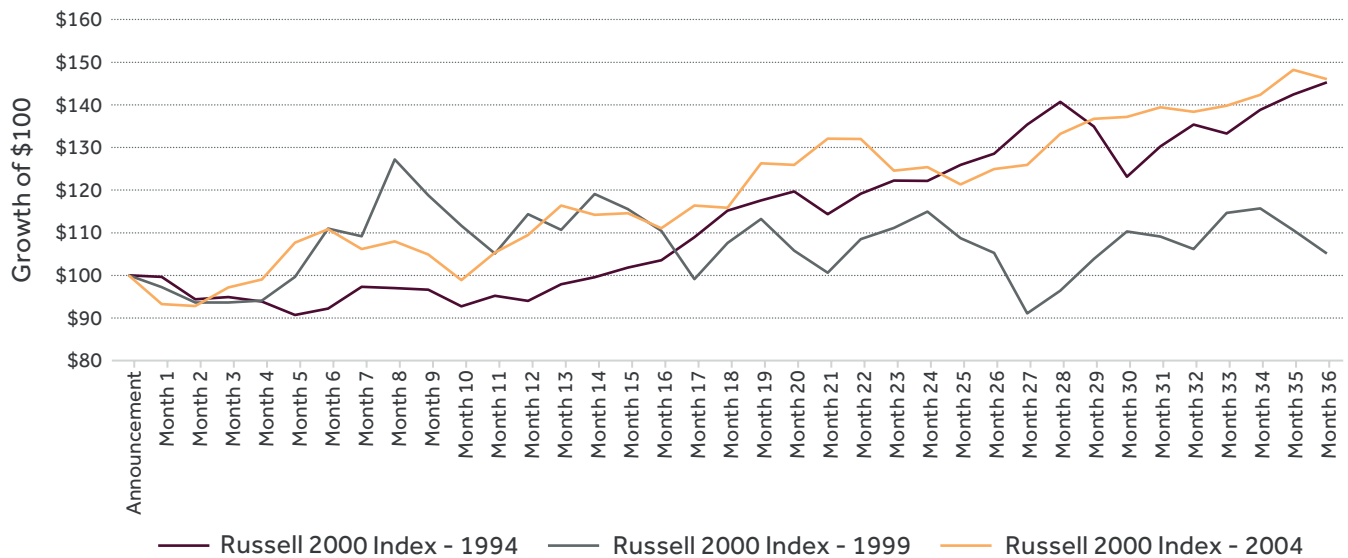
Table 1. Russell 2000 returns following federal funds rate increases. The index had short-term declines, but in two of the three periods longer-term gains after initial rate hikes

Federal reserve activity:			Russell 2000 index return after the beginning of rate increases:			
Date of first federal funds rate increase	End date of the rate increase cycle	Total increase in the fed funds rate (%)	One week (%)	One month (%)	Six months (%)	One year (%)
June 30, 2004	June 29, 2006	4.75	-2.7	-6.2	11.8	10.1
June 30, 1999	May 16, 2000	1.75	-0.2	-1.9	10.1	15.2
Feb. 4, 1994	Feb. 1, 1995	3.00	-1.8	-1	-7.9	-4.8

Source: Russell Indexes, Federal Reserve Bank of New York.

Additionally, in Figure 1 we track the cumulative returns of the Russell 2000 for the 36 months following the announcement of a rate hike. This allows us to easily observe how long it took after each announcement for small caps to make up their initial losses. Each of our three series follows a different path back to break-even, but the cumulative returns in the 36 months following the 1994 and 2004 announcements finished up at more than 45%. The post-1999 period did not sustain any positive momentum and ended up with a much more modest 5.1% return.

Figure 1. Russell 2000 cumulative returns for the 36 months post rate hike announcements. The 1994 and 2004 periods were followed by strong growth for small cap, but performance in the post-1999 announcement period was middling.



Source: Russell Indexes. See Table 1 for start dates.

Russell 2000 sector performance during rate hike periods: No clear pattern of winners and losers

Wanting an even more complete picture of how rising interest rates might impact small caps, we also looked at how the sectors that make up the Russell 2000 performed – see Table 2. Using the same most recent three periods of Fed tightening, we find no discernible pattern of over- or underperformance among small cap sectors. This result is perhaps surprising, given that sectors like Utilities and Consumer Staples, which tend to offer higher dividend yields, might have been expected to underperform historically as their yields were revalued in the face of higher rates.⁵ Utilities, however, was the second-best performer among sectors during the most recent round of rate hikes.

Within the Financial Services sector, banks may benefit from higher lending rates, but other types of high-yield companies within this sector such as REITs could face headwinds. REITs have become an important component of the Russell 2000 Financial Services sector and indicative of how the sector performs during the last three sets of interest rate increases. REITs returned 23%, -1.5% and 16.5%, respectively, in the 12 months following our 1994, 1999 and 2004 periods – reflecting the directional performance of the Russell 2000 Financial Services sector over those periods.

Performance of other sectors during this period also exhibited no strong, consistent relationship to rate hikes. Like Utilities, Energy stands out as another area of the Russell 2000 that shrugged off conventional expectations that revaluation of commodities, such as oil, might create a drag on the sector.⁶ Following the 1999 and 2004 rate hikes, Energy was a top performer, but the results may have been supported by expanding global energy consumption, particularly in emerging markets. Technology was still riding the dot-com boom in 1999 when it soared to a sector-best 70.7% one-year return. Contrasting with this result, Technology was the worst-performing sector in the Russell 2000 during 2004, with a -7.0% one-year return. Maintaining well-diversified exposure to small cap sectors during past periods of rising interest rates would have benefited investors as the cycles of leadership varied, often dramatically.

⁵ Light, J., "How to Invest as Interest Rates Rise," *The Wall Street Journal*, 2014. Accessed 2/18/2015 at: <http://www.wsj.com/articles/SB10001424052702303640604579296464068676966>

⁶ Frankel, J., "The Effect of Monetary Policy on Real Commodity Prices," 2006. NBER WP 12713. Accessed 2/12/2015 at: <http://www.nber.org/papers/w12713>

Table 2. Leadership of Russell 2000 sectors (here ranked in descending order of one-year returns) has been mixed during periods of climbing interest rates.

Russell 2000 Index sector returns after:					
Date of first federal funds rate increase		One week (%)	One month (%)	Six months (%)	One year (%)
June 30, 2004	Energy	0.4	1.4	20.1	40.8
	Utilities	-1.2	-4.1	12.0	21.5
	Materials & Processing	-2.1	-3.1	20.3	21.4
	Consumer Staples	-1.6	-5.2	6.9	14.3
	Producer Durables	-4.3	-8.9	10.6	14.2
	Financial Services	-1.1	-2.7	16.1	12.2
	Consumer Discretionary	-2.9	-6.7	7.4	8.0
	Health Care	-3.6	-10.4	5.2	1.5
	Technology	-8.5	-14.1	3.7	-7.0
	June 30, 1999	Technology	1.4	-2.5	70.4
Energy		1.6	1.3	-5.3	52.7
Health Care		-1.0	0.4	18.8	35.1
Producer Durables		0.1	-0.5	7.3	17.8
Utilities		0.7	1.5	15.3	4.4
Materials & Processing		-1.3	-6.3	-9.0	-10.8
Financial Services		-0.2	-3.4	-10.2	-11.6
Consumer Staples		0.3	-1.9	-13.7	-12.3
Consumer Discretionary		-1.6	-5.0	-1.6	-17.0
Feb. 4, 1994		Technology	N/A	3.7	-11.2
	Financial Services	N/A	-2.1	0.5	2.6
	Consumer Staples	N/A	1.4	-2.4	1.2
	Health Care	N/A	-2.3	-18.4	-4.4
	Utilities	N/A	-1.9	-12.4	-4.6
	Producer Durables	N/A	0.1	-12.4	-5.5
	Materials & Processing	N/A	-0.3	-9.7	-10.2
	Energy	N/A	-1.2	0.4	-11.7
	Consumer Discretionary	N/A	0.6	-10.7	-12.5

Source: Russell Indexes. As of the 12 months ending relative to the start dates.

Performance of individual companies during rate hike periods

Our final look inside the Russell 2000 focuses on how individual companies have fared during periods of hawkishness at the Fed. Russell reconstitutes the Russell 2000 annually to ensure that it accurately reflects the U.S. small cap market segment. But despite reconstitution and all the changes in the market that have taken place, there are 100 companies that have remained members of

the Russell 2000 since 1994. Most of these companies aren't the big household names such as can be found in the Russell 1000 Index, but a few, like Coca-Cola Bottling (COKE), GenCorp (GY – formerly General Tire and Rubber), WD-40 Co. (WDFC) and Winnebago Industries (WGO) are highly recognizable brands. We took these 100 companies and created a new portfolio, weighted the constituents by float-adjusted market capitalization within the Russell 2000 Index, and used the portfolio to evaluate how the same small cap companies performed during the three most recent rising interest rate environments.

The companies that have stayed uniquely small cap since 1994 performed better than the Russell 2000 in two of our three sample rising interest rate scenarios. These companies avoided the steeper short-term declines experienced by the broader index and finished stronger in the one-year periods following the 1994 and 2004 rate hikes.

The one-year return following the 1999 announcement was hurt by exposures of more than 20% in the Consumer Discretionary and Financial Services sectors, which were two of the worst-performing sectors in the Russell 2000 over that time.

Table 3. Returns of a portfolio of 100 companies that have been in the Russell 2000 continuously since 1994

Returns of russell 2000 index companies in the index since 1994 after:					
Date of first federal funds rate increase	One week (%)	One month (%)	Six months (%)	One year (%)	
June 30, 2004	2.4	6.9	6.4	27.7	
June 30, 1999	1.7	5.2	2.3	-1.9	
Feb. 4, 1994	-0.6	1.5	7.6	14.4	

Source: Russell Investments, FactSet.

Small cap volatility: Past interest rate increases have coincided with inflection points in market volatility

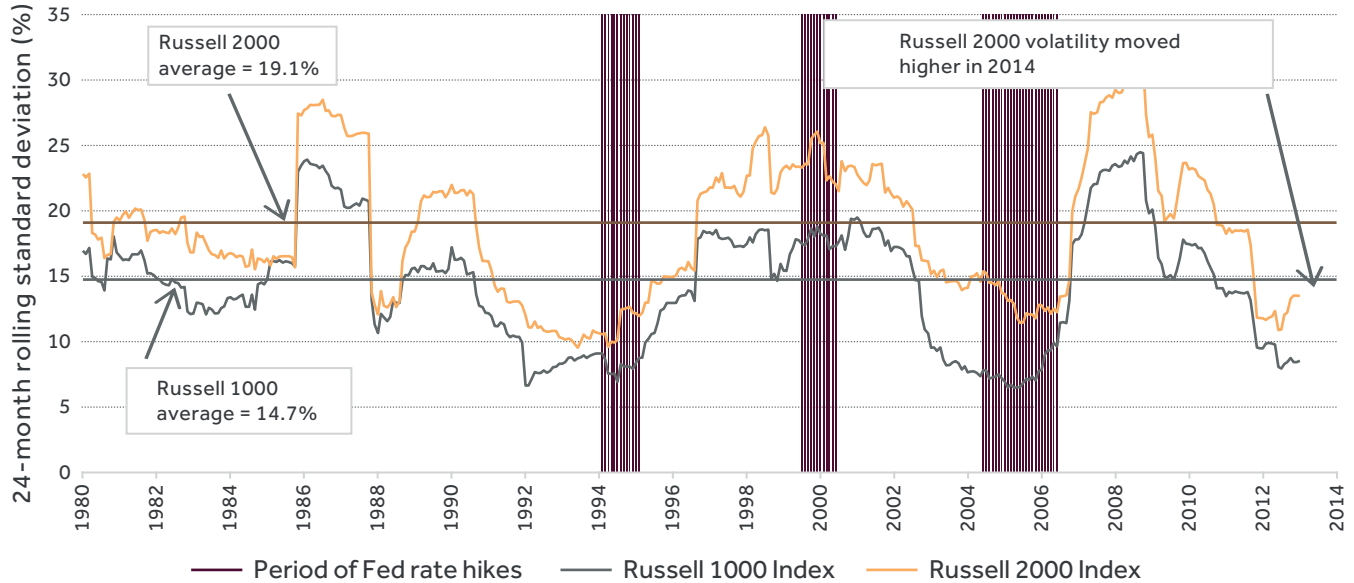
While the market leadership of small cap vs. large cap stocks has historically been cyclical, small cap stocks have been more volatile than large caps generally, particularly during times of market stress, such as the 1987 market crash and the economic contractions in 1990–1991, 2000–2001 and 2007–2009. Volatility typically declined rapidly when market stress dissipated, however, and small cap and large cap volatility has converged at times, as in 1986 and 1989.

Average rolling 24-month volatility over the period 1979 through 2014 has been approximately 19.1% for the Russell 2000 vs. 14.7% for the Russell 1000. After spiking to all time highs during the financial crisis of 2008–2009, volatility declined meaningfully, but remained above long-term averages, for most of the period 2010–2012. During 2014, volatility rose moderately after having declined to below long-term averages in 2013.

All three periods of interest rate hikes – noted by the vertical bars in the chart – have occurred at or near an inflection point in market volatility. We note, however, that for two of our periods (1994 and 2004), volatility began an uptick when the

Fed began raising rates, while in the third period (1999), volatility declined. As with sector performance, our findings indicate no consistent directional impact of Fed tightening on the volatility of the small cap segment of the U.S. market.

Figure 2. Rolling 24-month standard deviation of the Russell 1000 and Russell 2000 Indexes. Volatility moved higher in 2014, but remained meaningfully below long-term averages⁷



Source: Russell Investments, as of December 31, 2014. Standard deviation is calculated over rolling 24-month periods using monthly data. "Average" is the annualized 24-month standard deviation over the period 1979–2014. Index performance is for illustrative purposes only. One cannot invest directly in an index. Past performance is not a guarantee of future results.

Small cap valuations: Higher interests rates have meant lower valuations

Valuation is a widely used assessment of how "expensive" or "cheap" a stock, or in our case the U.S. small cap asset class, might be considered, relative to others. A historically high valuation, as measured by the price to earnings (P/E) ratio, might indicate that there is less room for the prices of a stock or asset class to grow relative to the earnings. As illustrated in Figure 3, small cap and large cap valuations moved steadily higher during the 1980s and most of the 1990s, in relative synchronicity, based on P/E ratios using analysts' one-year forecast earnings.⁸ Over that time, the forecast P/E ratio rose from high single digits to approximately 20 for both the Russell 1000 and the Russell 2000. In 1998, however, valuations decoupled, and there has been a gap for most of the period since.

As of the end of 2014, due to strong price gains during the year, both large cap and small cap valuations had risen meaningfully, with a difference of 3.3 points between the two; but both remained below the peaks reached in the late 1990s and early 2000s. The onset of higher interest rates in all three of the time periods we evaluated has resulted in lower valuations for small caps – either during a

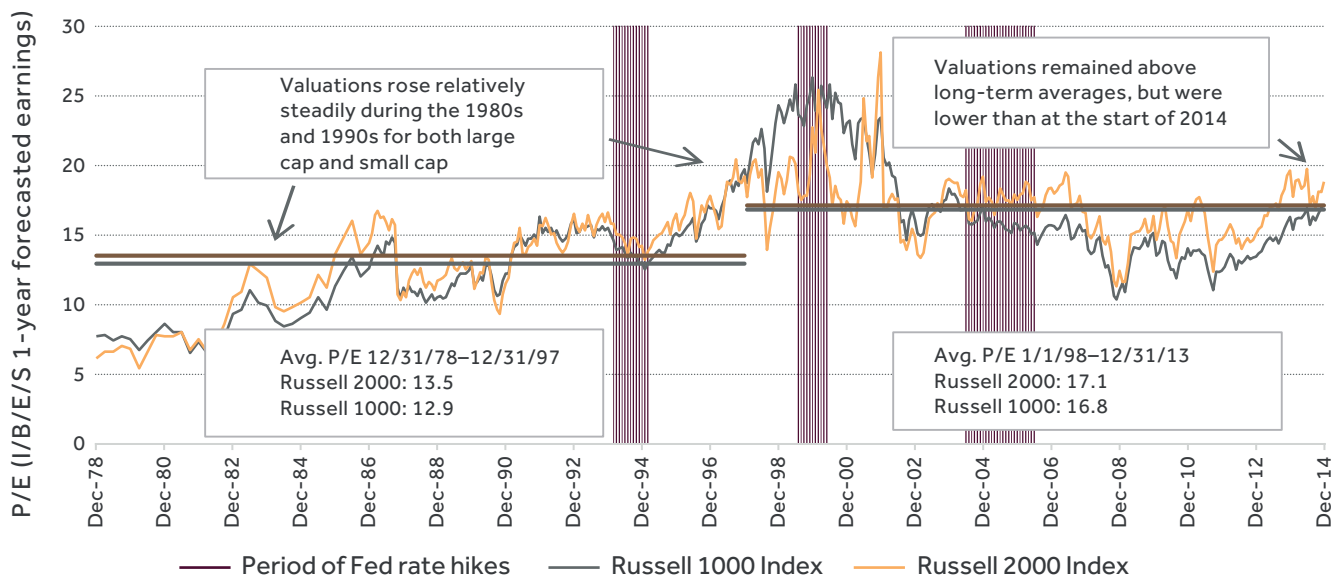
⁷ The 24-month rolling standard deviation series have been centered on their midpoints across the time series to better align the timing of interest rate hikes with their impact to volatility.

⁸ Forecast earnings are based on IBES analyst estimates.

cycle, or closely following its end. After the 1994 cycle, the Internet revolution eventually led to a resetting of the average valuation for small caps, from 13.5 to 17.1. However, since the 1999 cycle and the steep price declines that followed, valuations have bounced around without directional persistence. It remains to be seen whether new breakthroughs in the economy will allow for a sustained expansion of small cap prices and earnings, or if the current up-and-down trend will continue.

Some analysts have maintained a generally positive 2015 outlook for U.S. small caps, despite the likelihood of Fed rate tightening, because valuations were not “extended.”⁹ Additionally, Russell Indexes’ own Russell 2000 Cross-Sectional Volatility (“Cross Vol”) measure, which gauges to what level stock returns are differentiated, has moved off of the historical 2014 lows. Higher Cross Vol indicates that more opportunities may be emerging in 2015 for active managers to add value to portfolios through individual security selection in the small cap space, notwithstanding the higher valuations for the asset class as a whole.

Figure 3. Price to forecast earnings ratios of the Russell 1000 and Russell 2000 Indexes. Since the most recent period of tightening, small cap valuations have moved up and down without directional persistence.



Source: Russell Investments, as of December 31, 2014. Averages are calculated as geometric averages. Index performance is for illustrative purposes only. One cannot invest directly in an index. Past performance is not a guarantee of future results.

⁹ See, for example, Platt, E., “US small-cap stocks return to favour,” *Financial Times*, 2015. Accessed 2/20/2015 at: <http://www.ft.com/intl/cms/s/0/861f6a40-b7d0-11e4-981d-00144feab7de.html#axzz3SKUPK63F>

Conclusion

If history provides a reference, the impending actions of the Federal Reserve will have an impact on U.S. small caps. Over the last three periods of rising interest rates, small cap returns wobbled early on, only to recover from intra-year losses by the end of the following 12 months – finishing with positive returns 12 months after 1999 and 2004 Fed announcements. Russell 2000 Index sectors reacted differently in each of the rate hike cycles we evaluated, with seemingly no clear winners and losers. While still near historic lows, Russell 2000 Index volatility and small cap stock cross-sectional volatility have ticked up recently, and action by the Fed may push these indicators closer to their long-term averages. Valuations are, however, above their long-term averages, and the ability for prices to move higher may hinge on the U.S. economy's ability to absorb a series of rate hikes by the Fed and still keep its positive momentum.

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