Volatility vs. Stock Returns

Annual Change in CBOE SPX Volatility Index (VIX) and S&P 500 Index Total Returns

| Year | VIX High | VIX Low | VIX Average | S&P 500 Total Return |
|------|----------|---------|-------------|-------------------------|
| 2003 | 34.69 | 15.58 | 21.98 | 28.68% |
| 2004 | 21.58 | 11.23 | 15.48 | 10.88% |
| 2005 | 17.74 | 10.23 | 12.81 | 4.91% |
| 2006 | 23.81 | 9.90 | 12.81 | 15.79% |
| 2007 | 31.09 | 9.89 | 17.54 | 5.49% |
| 2008 | 80.86 | 16.30 | 32.69 | -37.00% |
| 2009 | 56.65 | 19.47 | 31.48 | 26.46% |
| 2010 | 45.79 | 15.45 | 22.55 | 15.06% |
| 2011 | 48.00 | 14.62 | 24.20 | 2.11% |
| 2012 | 26.66 | 13.45 | 17.80 | 16.00% |
| 2013 | 20.49 | 11.30 | 14.23 | 32.39% |
| 2014 | 26.25 | 10.32 | 14.18 | 13.69% |
| 2015 | 40.74 | 11.95 | 16.67 | 1.38% |
| 2016 | 28.14 | 11.27 | 15.83 | 11.96% |
| 2017 | 16.04 | 9.14 | 11.09 | 21.83% |
| 2018 | 37.32 | 9.15 | 16.62 | -4.38% |

Source: Bloomberg. Past performance is no guarantee of future results.

View from the Observation Deck

- 1. The Chicago Board Options Exchange (CBOE) SPX Volatility Index (VIX) uses S&P 500 Index options activity to gauge investors' expectations of volatility. It represents a 30-day measure.
- 2. The VIX Index is often referred to as the "fear index" by the financial media. Aside from 2008 (financial crisis), the VIX Index has demonstrated it can fluctuate dramatically on an intra-year basis without negatively impacting the performance of the S&P 500 Index (see 2003, 2009 & 2010 in table).
- 3. From 2003 through 2018, the average reading on the VIX Index was 18.63 (not shown in table), according to data from Bloomberg. Over that same period, the average annual total return for the S&P 500 Index was 8.96%, according to Bloomberg.
- 4. For comparative purposes, from 1926-2018 (93 years), the average annual total return posted by the S&P 500 Index was 9.99%, according to Ibbotson Associates/Morningstar.
- 5. While the average reading for the VIX Index was just 16.62 in 2018, below its 18.63 average from 2003-2018, the S&P 500 Index posted a total return of -4.38%.
- 6. Looking at the high, low and average data points in the table for 2018 would not shed light on the fact that the S&P 500 Index registered two corrections (Q1'18 & Q4'18) involving a price decline of 10.00% to 19.99%.
- 7. Volatility was uncharacteristically low in 2017. It normalized in 2018. While it is a tool that traders may take notice of, it is not something investors should sweat, in our opinion.

This chart is for illustrative purposes only and not indicative of any actual investment. The illustration excludes the effects of taxes and brokerage commissions or other expenses incurred when investing. Investors cannot invest directly in an index. The S&P 500 is a capitalization-weighted index comprised of 500 stocks (currently 505) used to measure large-cap U.S. stock market performance. The VIX Index (The CBOE SPX Volatility Index®) estimates expected volatility by averaging the weighted prices of S&P 500 puts and calls over a wide range of strike prices.

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