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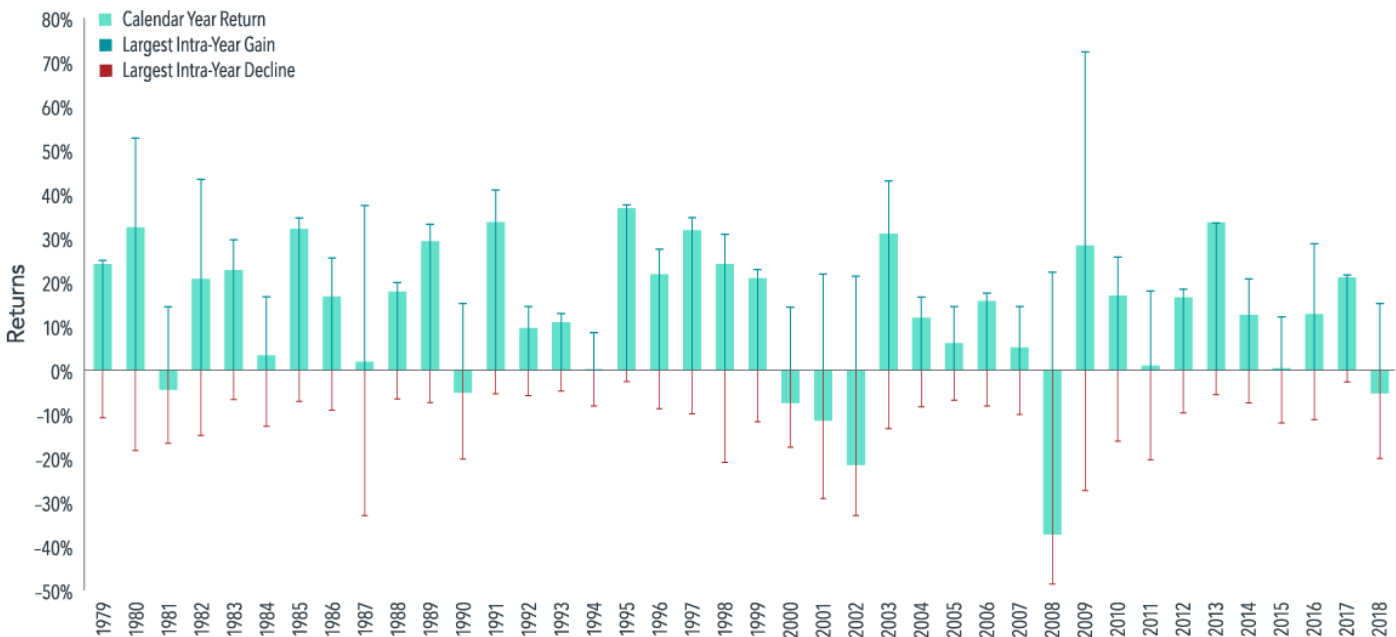
THE SCIENCE BEHIND THE NUMBERS: HOW TO DEAL WITH MARKET VOLATILITY

Volatility in the stock market results in anxiety for many investors. While it may be difficult to remain calm during a substantial market decline, it is important to remember that volatility is a normal part of investing. Additionally, for long-term investors, reacting emotionally to volatile markets may be more detrimental to portfolio performance than the drawdown itself.

INTRA-YEAR DECLINES

To showcase this important idea, Exhibit 1 shows calendar year returns for the US stock market since 1979, as well as the largest intra-year declines that occurred during a given year. During this period, the average intra-year decline was about 14%. About half of the years observed had declines of more than 10%, and around a third had declines of more than 15%. Despite substantial intra-year drops, calendar year returns were positive in 33 years out of the 40 examined (82.5%). This goes to show just how common market declines are and how difficult it is to say whether a large intra-year decline will result in negative returns over the entire year.

Exhibit 1: US Market Intra-year Gains and Declines vs. Calendar Year Returns (1979-2018)



In US dollars. Data is calculated off rounded daily returns. US Market is measured by the Russell 3000 Index. Largest Intra-Year Gain refers to the largest market increase from trough to peak during the year. Largest Intra-Year Decline refers to the largest market decrease from peak to trough during the year. Frank Russell Company is the source and owner of the trademarks, services marks, and copyrights related to Russell indexes. Source #1.



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REACTING AFFECTS PERFORMANCE

If one were to try to time the market in order to avoid the potential losses associated with periods of increased volatility, would this help or hinder long-term performance? If current market prices aggregate the information and expectations of market participants, stock mispricing cannot be systematically exploited through market timing. In other words, it is unlikely that investors can successfully time the market, and if they do manage it, it may be a result of luck rather than skill. Further complicating the prospect of market timing being additive to portfolio performance is the fact that a substantial proportion of the total return of stocks over long periods comes from just a handful of days. Since investors are unlikely to be able to identify in advance which days will have strong returns and which will not, the prudent course is to remain invested during periods of volatility rather than jumping in and out of stocks. Otherwise, an investor runs the risk of being on the sidelines on days when returns happen to be strongly positive.

Exhibit 2 (see next page) helps illustrate this point. It shows the annualized compound return of the S&P 500 Index going back to 1990 and illustrates the impact of missing out on just a few days of strong returns. The bars represent the hypothetical growth of \$1,000 over the period and show what happened if you missed the best single day during the period and what happened if you missed a handful of the best single days. The data shows that being on the sidelines for only a few of the best single days in the market would have resulted in substantially lower returns than the total period had to offer.





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Exhibit 2: Performance of the S&P 500 (1990-2018)



In US dollars. For illustrative purposes. The missed best day(s) examples assume that the hypothetical portfolio fully divested its holdings at the end of the day before the missed best day(s), held cash for the missed best day(s), and reinvested the entire portfolio in the S&P 500 at the end of the missed best day(s). Annualized returns for the missed best day(s) were calculated by substituting actual returns for the missed best day(s) with zero. S&P data © 2019 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. One-Month US T-Bills is the IA SBBI US 30 Day TBILL TR USD, provided by Ibbotson Associates via Morningstar Direct. Source #1.

CONCLUSION

While market volatility can be nerve-racking for investors, reacting emotionally and changing long-term investment strategies in response to short-term declines could prove more harmful than helpful. By adhering to a well thought out investment plan, ideally agreed upon in advance of periods of volatility, investors may be better able to remain calm during periods of short-term uncertainty.



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Sources:

- 1) Dimensional - Returns Web Canada. (2019). Retrieved from Dimensional Returns Web Canada (<https://www.mydimensional.com/recent-market-volatility>)

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