INVESTMENTNEWSLETTER

> After a period of relative calm in the markets, in recent days the increase in volatility in the stock market has resulted in renewed anxiety for many investors.

RECENT MARKET VOLATILITY

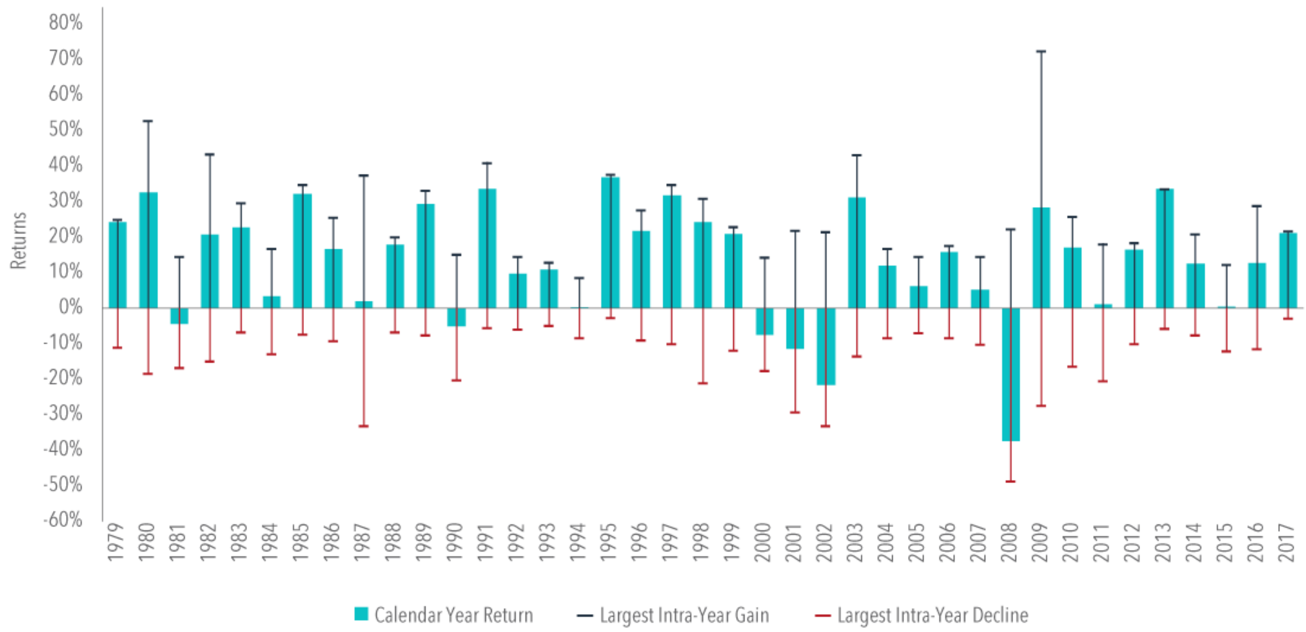
FEBRUARY 2018
Dimensional Fund Advisors

From February 1–5, the US market (as measured by the Russell 3000 Index) fell almost 6%, resulting in many investors wondering what the future holds and if they should make changes to their portfolios.[1] 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

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 32 years out of the 37 examined. 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, 1979–2017



In US dollars. 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, service marks, and copyrights related to the Russell Indexes.

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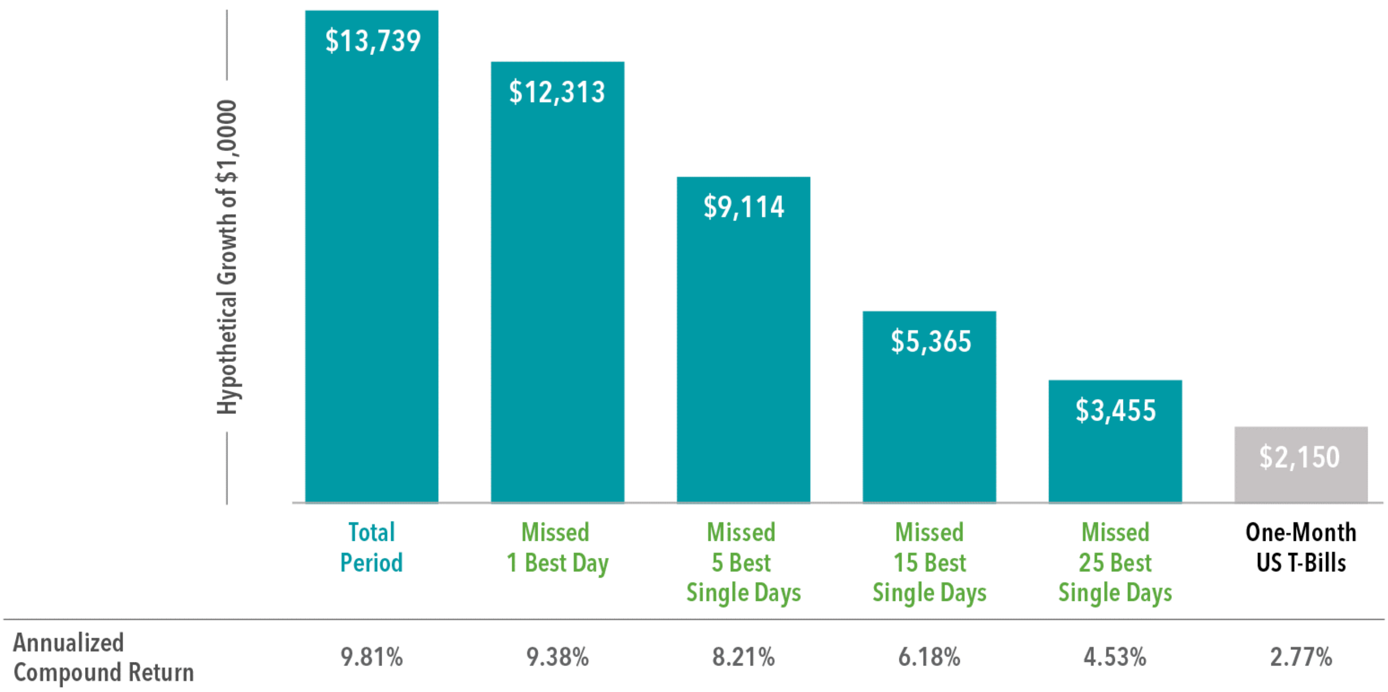
Wealth Management

REACTING IMPACTS PERFORMANCE

If one was to try and 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 likely to remain invested during periods of volatility rather than jump 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 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.

Exhibit 2. Performance of the S&P 500 Index, 1990–2017



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 © 2018 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. Data is calculated off rounded daily index values.

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.

9 QUESTIONS YOU NEED TO ANSWER ABOUT YOUR 401(K)

ALINA LAMY
MORNINGSTAR

Ever feel like there's not enough of your paycheck to go around? This can be true particularly in the early years of your career when you're likely earning less relative to what you'll be making later in your working life. On top of that, you may still be saddled with student debt, or saving for short-term goals like a car or a down payment on a home.

But it may help to think of it in these terms: By setting aside money in your 401(k), you'll get the money back years from now, when you may no longer have the ability to work. And even if you only have mediocre investments to choose from, tax-deferred compounding means you'll be able to take out far more than you put in.

The Department of Labor estimates that approximately 30% of eligible workers do not participate in their employers' 401(k)-type plans at all. It's hard to overstate the risk of not saving enough: The fact is, you can't take out a loan for retirement. And those who just assume they'll work well into their retirement years should know that's not always an option. In such cases, the only option may be a painful lifestyle downgrade.

The maximum amount in pretax dollars that you can contribute to your 401(k) is $18,500 for 2018. (If you're over 50, you can contribute an additional $6,000 in so-called 'catch-up' contributions, so $24,500 total.) Even if you can't afford to save the maximum, make sure you are contributing as much as you can afford to. And periodically revisit both your contribution rate and your portfolio's allocations to make sure your retirement plan is on track. Your (financially secure) future self will thank your younger self for sacrificing a small part of your paycheck.

Whether you're just setting up a 401(k) or taking stock of an existing plan, here is a checklist to ensure you're getting the most out of it.

1. Does your employer's plan have auto-enrollment, and if so, is the contribution rate high enough?

'Auto-enrollment' means the company is withholding some of your pretax salary and investing it in a 401(k) plan for you. Often the assets are invested in a target-date fund, which is a mutual fund or collective investment trust made up of stocks, bonds, and cash equivalents whose asset mix gets more conservative as the target date approaches. (For instance, a target-date fund for an investor retiring in or around 2050 will be more equity-heavy than for someone retiring nearer to 2020.)

Not surprisingly, auto-enrollment helps increase employee participation in 401(k) plans: According to the DOL, studies suggest that automatic enrollment plans could cut the rate of non-401(k)-contribution in half, from 30% to 15%.

A recent Vanguard report agreed that auto-enrollment did effectively increase participation rates, but it also found the contribution rate tends to be lower among employees who are auto-enrolled. The take-away: Make sure you're contributing as much as you can afford to. If your company has auto-enrollment, don't just assume you're saving enough for retirement and call it a day. Check the salary-deferral percentage. Understand that a low contribution rate—3% is common—won't cut it for most people. In fact, though 10% was an oft-cited goal in the past, many financial planners now say 15% is a better target.

2. Can you 'auto-escalate' your contributions?

Along with auto-enrollment, some plans offer 'auto-escalation,' which is an automatic increase in the deferral rate—say, 1 percentage point per year. Check your plan—auto-escalation is not a feature offered with all plans. In either case, it makes sense to revisit your contribution rate annually to make sure it still makes sense given your current circumstances. If you change jobs and your salary increases by 10%, for instance, you might be able to save a bigger percentage of your salary than in years past. And if you're eligible for catchup contributions, know that you can begin making those extra contributions on Jan. 1 of the year in which you turn 50; you don't need to wait until your birthday.

3. Does your company offer a match?

When deciding how much to contribute to a plan, determine whether your company provides a 401(k) match, and aim to contribute at least that much. For example, say your company will match up to 5% of your contribution at a rate of $0.50 for every dollar you contributed. Contributing less than 5% means you're effectively turning down some money that your employer is offering you.

4. Do you know what your funds cost?

401(k) plans can be attractive savings vehicles because they allow your pretax contributions to compound tax-free. But weak fund choices and high fees can make plans less attractive. Pay attention to how much the funds in the plan cost. Fund costs come right off the top of investment returns, so it makes sense to seek out reasonably priced options. (An increasing share of 401(k) plans are offering index mutual funds, which typically feature low costs relative to actively managed funds.)

You can research mutual fund fees on morningstar.com. Simply type the ticker or name of a fund into the Quote search box at the top of the page, and then click the Expense tab on that fund's data report page to see the assessment of the fund's fee level.

If your plan features nothing but high-cost options, contribute enough to earn any employer matching contributions, then invest additional assets in an IRA, where you're free to select low-cost funds. If you've contributed enough to the 401(k) to earn matching contributions and contributed the max to an IRA, you can invest additional assets in the least-bad options inside your 401(k). And be sure to bring the high costs to the attention of your 401(k) administrator.

5. Are you saddled with high administrative costs?

In addition to fund expense ratios, company retirement plans may also charge administrative fees to plan participants. Plans can charge these fees in a number of ways; the employer can pay administrative costs itself, or it can pass them on to plan participants. In the latter case, the administrative costs may be deducted directly from plan assets, or they might be embedded in the underlying fund fees.

Because there are so many ways fees can be charged, there's no single location you can go to track down this information. In your plan's annual report (Form 5500) you may see administrative expenses expressed as a dollar amount; you can then divide that dollar amount by the total assets in the plan to arrive at a percentage. Administrative-expense percentages will tend to vary based on employer size; therefore, it can be difficult to determine what a 'high-cost' plan is. In general, though, if your plan's administrative costs edge above 0.5%—and certainly if they're more than 1%—that may be a red flag that you have a high-cost plan.

6. Has anything changed in your plan lately?

Every so often, retirement plans will get new options added to the fund lineup, or they might remove funds. It's worthwhile to see if anything has been recently added that might be a better fit for your portfolio. If a fund you own is swapped out with a new one, you should be informed of the change by your plan provider. Make sure you're comfortable with the new fund's costs and investment objective.

7. Have your allocations gotten out of whack?

The good thing about a diversified portfolio is that the asset classes don't always move in tandem; if one thing is in the dumps, maybe another is doing well. While tinkering too much with portfolio allocations will probably lead to unnecessary trading, it might make sense to check your allocations once or twice a year. It could be just as simple as trimming a bit from the winners column and investing those assets in an underperforming asset class. The good thing about rebalancing within a 401(k) is that you don't have to pay any taxes to rebalance. (And investors who invest in a target-date fund exclusively will not need to rebalance at all.)

8. Are you making the right contribution type?

Some 401(k) plans offer only traditional contributions—that is, you put in pretax dollars and enjoy tax-deferred compounding, then pay ordinary income tax when you pull the money out in retirement. Increasingly, however, plans are offering participants the chance to make Roth 401(k) contributions: Aftertax dollars go in, but the money grows tax-free, and qualified withdrawals in retirement are also tax-free.

In addition to the baseline contribution limits that apply to either Roth or traditional 401(k) contributions—$18,500 for investors under age 50 and $24,500 for those 50-plus—your plan may also offer what are called aftertax 401(k) contributions. Aftertax contributions can get you to a maximum of $55,000 for all 401(k) contributions in 2018.

The key virtue of making this type of contribution is that heavy savers will be able to roll over that money to a Roth IRA when they leave their employers. Bear in mind, however, that President Obama's budget proposal for fiscal-year 2017, if enacted, would make aftertax 401(k) contributions much less attractive.

9. Are your beneficiary designations up to date?

Finally, review your beneficiary designations. Ideally you would want to do this on a regular schedule, maybe annually. At the very least, make sure you revisit your named beneficiaries after major life events, such as a marriage, a divorce, the birth of a child, or the death of a loved one. Also make sure your beneficiary information carries over if your employer changes plan administrators.

RELYING ON MARKET PRICES

FEBRUARY 2018
Dimensional Fund Advisors

To pique the interest of investors, the financial media often features stories about the hidden dangers in the market—and index funds have been a recurring topic lately. According to some stories, the rising popularity of indexing has distorted prices because fewer shares are traded by investors who search for new information and act on it.

Since the index fund was created in the 1970s, pundits have questioned whether too much passive investing would impede price discovery. Richard Posner, a leading figure in the field of law and economics and the most cited legal scholar of the 20th century,[1] contemplated this question in 1977:

"No one knows just how much stock picking is necessary in order to assure an efficient market, but comparisons with other markets suggest that the required amount is small. In markets for consumer durables, homes and other products, unlike the securities markets, the amount of search is highly variable across consumers, many of whom do little or none; trading may not be frequent; products may not be homogenous (no two homes are as alike as all the shares of the same common stock); bids and offers may not be centrally pooled so as to maximize the information available to buyers and sellers. Yet these markets are reasonably efficient, albeit less so than the securities markets."[2]

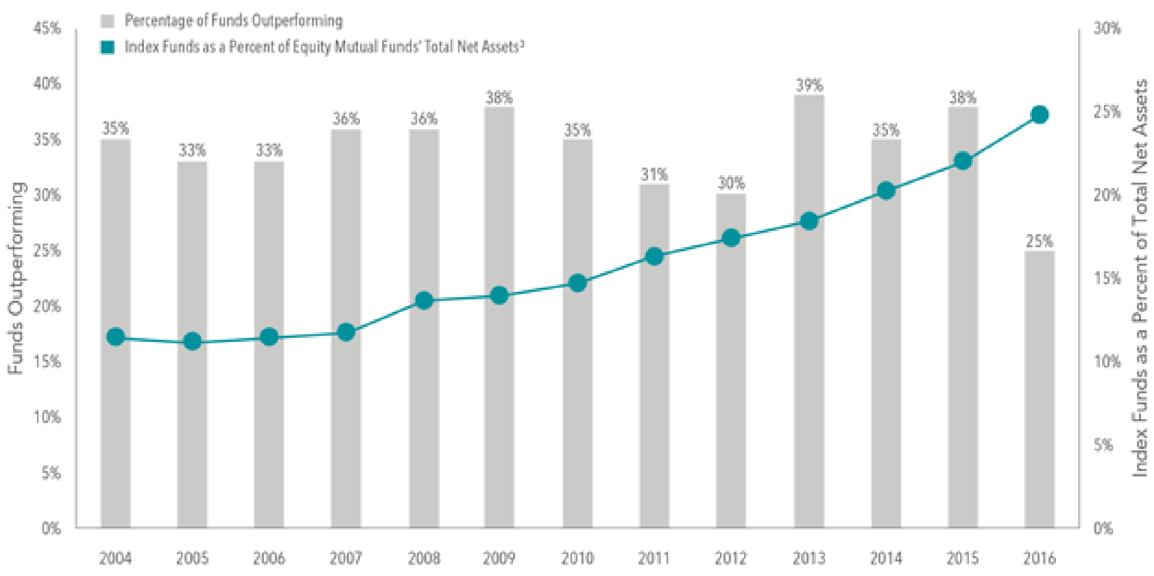
Although Posner does not posit how much active management is necessary to make prices fair, the amount is likely far less than what we currently observe in markets. For example, imagine you are having a garage sale after cleaning out the attic of a deceased relative. Among the many artifacts is an original Van Gogh painting. Since you are unaware of its origin and real value, you set the price at $10. An art connoisseur attending the sale would surely pay $10—albeit quietly—and profit from the information asymmetry between buyer and seller.

However, if another art connoisseur shows up at the sale before the deal is done, the price is unlikely to remain at $10. A bidding war between just two informed buyers may drive the price to a fair market value.

If you prefer theory over anecdote, consider the paradox identified by Sanford Grossman and Nobel laureate Joseph Stiglitz. They propose that the equilibrium outcome is when the marginal cost of searching for mispriced securities equals the marginal profit associated with exploiting pricing errors. However, if assets invested in index funds increase to the point where mispricing becomes easy to identify and profit from, active investors would reenter the market until the marginal benefit of active investing once again does not exceed the marginal cost.

This theory suggests that the performance of active fund managers offers one barometer for how well markets are pricing securities. If there is insufficient price discovery due to the increase in passive management, one possible outcome is that many active mutual fund managers would outperform

Exhibit 1: Active Manager Performance and Index Fund Share of Total Equity Fund Assets



Equity mutual fund outperformance percentages are shown for the rolling three-year periods ending December 31 of each year, 2004 through 2016. Each sample includes equity funds available at the beginning of the three-year period. Outperforming funds are those that survived and outperformed their respective Morningstar category benchmark over the period.

Sources: US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. Past performance is no guarantee of future results. For more methodology details, see Appendix and the Mutual Fund Landscape Brochure or contact your investment advisor for more information.

benchmarks due to plentiful mispricing opportunities.

So, what does the research tell us? The line in Exhibit 1 shows the percentage of passively invested equity mutual fund assets in the US. The bars depict the percentage of active managers that survived and beat an index benchmark over rolling three-year periods from 2004–2016. Although indexed assets have increased steadily in recent years, this growth apparently has not provided more mispricing opportunities for active managers to harvest the supposed low-hanging fruit, as shown by their consistently low levels of outperformance as a group.

It's also unclear whether higher asset flows to index funds would cause distortions in prices because passive investment strategies function as price takers. Exhibit 2 shows that, although the S&P 500 Index returned 21.83% in 2017, Amazon rose 55.96% while General Electric returned –42.92% for the year. Yet both stocks have a similar market capitalization and would have similar weights in traditional market cap-weighted indices. If the flow of assets into index funds were driving prices, you might expect the constituents of the index to have returns similar to each other and the overall return of the index. Yet, the individual constituents of the index had radically divergent returns, ranging from +133.70% to –84.00%.

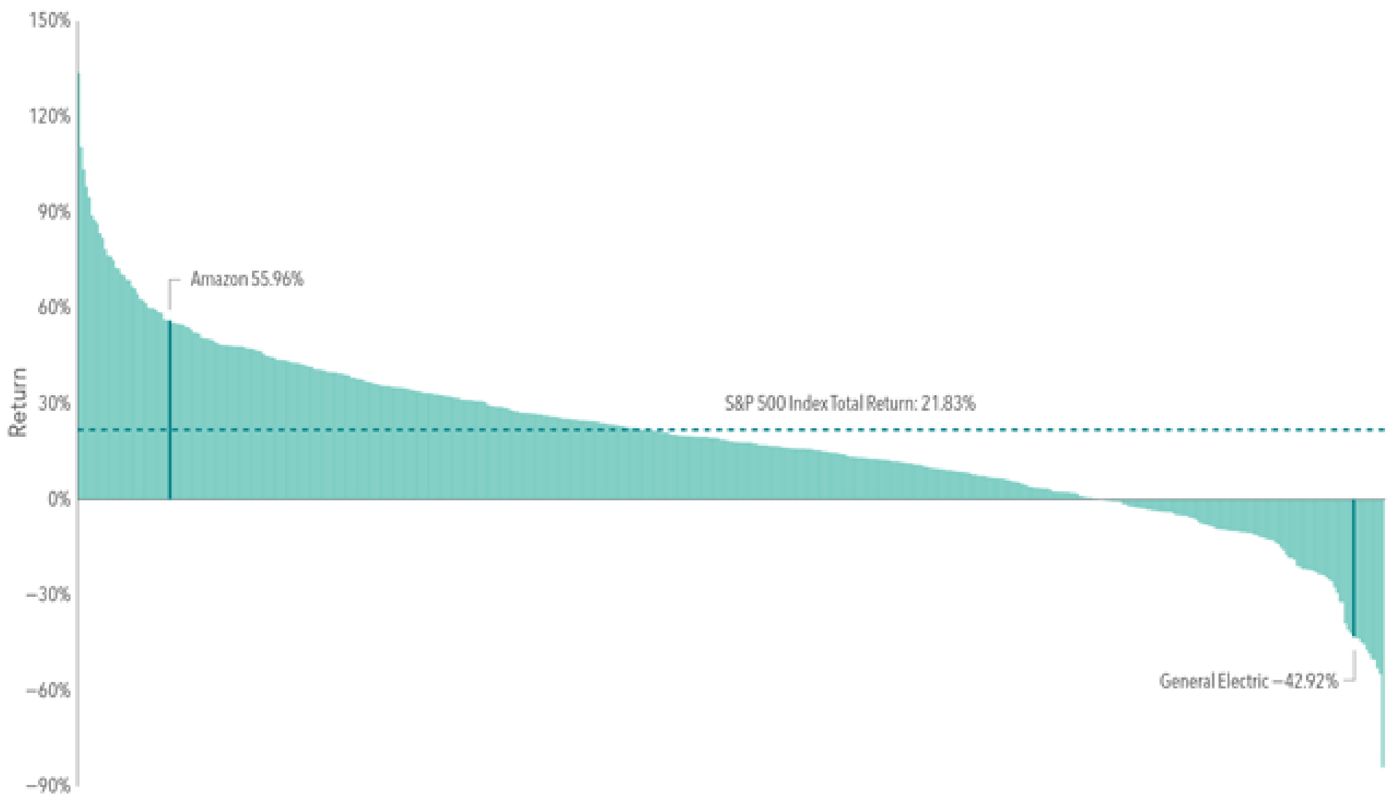
Investors who actively trade based on new information, expectations, tastes, preferences, and other considerations are still setting prices. The competition and voluntary exchange among those market participants are the mechanisms that make those prices fair.

The index boogeyman may not be real, but he's been part of folklore for a long time—and sounding the alarm on index funds during a sustained period of rising stock prices is hardly a new phenomenon. The view that index funds distort prices was promoted decades ago following a market surge in the '90s.

Princeton University's Burton Malkiel addressed the issue in 2001 and concluded that, "Overall, the evidence is that indexing has not inflated the prices of the stocks in the S&P 500 … The rise in stock prices during the 1990s—particularly the stocks within the S&P 500 index—therefore cannot be explained by an 'indexing craze.'" [4]

In that regard, the more things change, the more they stay the same.

Exhibit 2: Range of S&P 500 Index Constituent Returns in 2017



Returns in USD. Includes 2017 total returns for constituent securities in the S&P 500 Index as of Dec. 31, 2016. Excludes securities that delisted or were acquired during the year. Source: S&P data ©2018 S&P Dow Jones Indices LLC, a division of S&P Global. For illustrative purposes only. Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio.

Source: Dimensional Fund Advisors LP.

APPENDIX
US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago.

Equity fund sample includes the Morningstar historical categories: Diversified Emerging Markets, Europe Stock, Foreign Large Blend, Foreign Large Growth, Foreign Large Value, Foreign Small/Mid Blend, Foreign Small/Mid Growth, Foreign Small/Mid Value, Japan Stock, Large Blend, Large Growth, Large Value, Mid-Cap Blend, Mid-Cap Value, Miscellaneous Region, Pacific/Asia ex Japan Stock, Small Blend, Small Growth, Small Value, and World Stock. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classifications" at morningstardirect.morningstar.com/clientcomm/Morningstar_Categories_US_April_2016.pdf.

Index funds and fund-of-funds are excluded from the sample. The return for funds with multiple share classes is taken as the asset-weighted average of the individual share class observations. Fund share classes are aggregated at the strategy level using Morningstar Fund ID and CRSP portfolio number.

Mutual fund investment values will fluctuate, and shares, when redeemed, may be worth more or less than original cost. Diversification neither assures a profit nor guarantees against a loss in a declining market. There is no guarantee investment strategies will be successful. Past performance is no guarantee of future results.

1. Fred R. Shapiro, "The Most-Cited Legal Scholars." Journal of Legal Studies. (2000) 29 (1): 409–26.

2. John H. Langbein and Richard A. Posner, "Market Funds and Trust Investment Law II," American Bar Foundation Research Journal 1 (1977).

3. Index Funds as a Percent of Equity Mutual Funds' Total Net Assets as sourced from the 2017 ICI Fact Book: ici.org/pdf/2017_factbook.pdf.

4. Burton Malkiel & Aleksander Radisich, "The Growth of Index Funds and the Pricing of Equity Securities," The Journal of Portfolio Management Winter 2001 pp. 9-21.

CONTACT US 419 482 4500 | Marketing@obsmail.com | www.obsfs.com