F5 FINANCIAL

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Relying on Market Prices

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

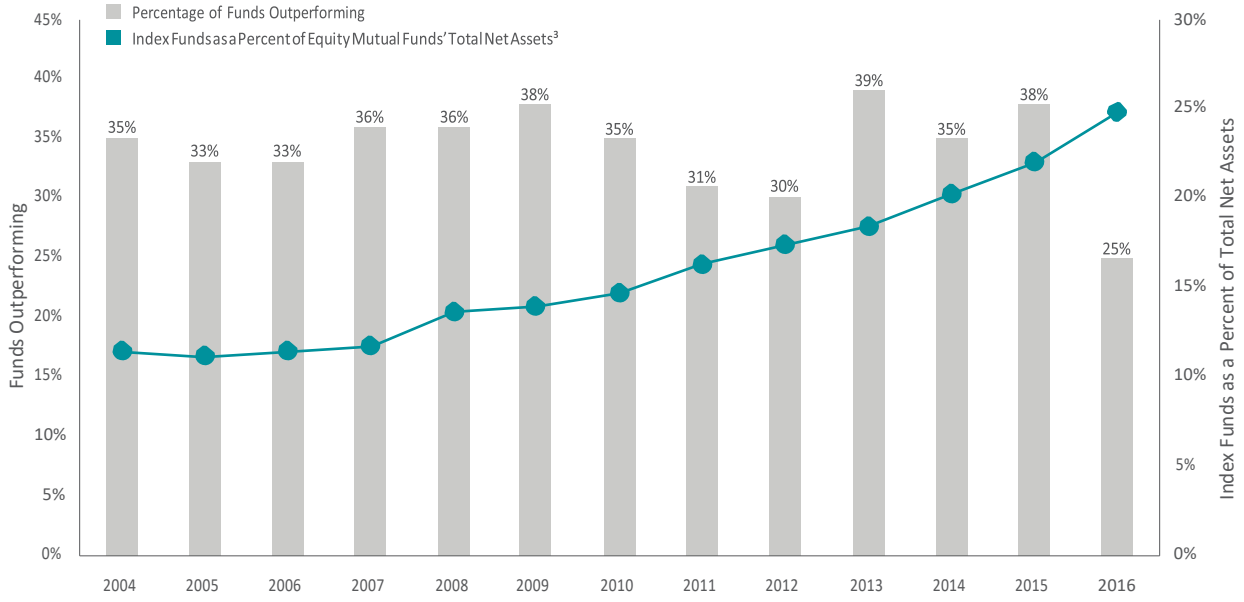
1. Fred R. Shapiro, "The Most-Cited Legal Scholars." *Journal of Legal Studies*. (2000) 29 (1): 409–26.
2. John H. Langbein and Richard A. Posner, "Market Funds and Trust Investment Law II," *American Bar Foundation Research Journal* 1 (1977).

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 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.

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



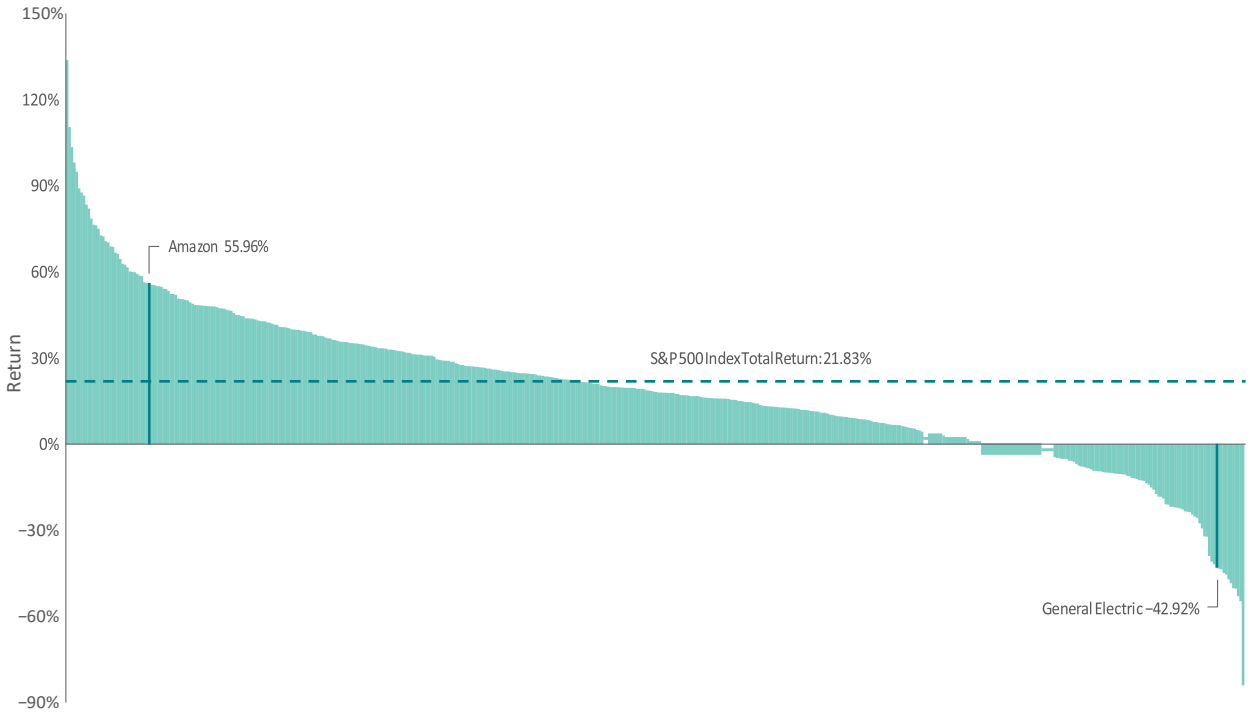
Equity mutual fund outperformance percentages are shown for the rolling three-year periods ending December 31 of each year, 2004 through 2016. Each sample includes equity funds available at the beginning of the three-year period. Outperforming funds are those that survived and outperformed their respective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

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.

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%.

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.

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.

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.

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.

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