Integrity in Investing
Fairness in Market Pricing

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PROFESSIONAL FINANCIAL
Integrative Wealth Management

"Almost all of us should act as if prices are right."
– **Kenneth French**, colleague of Eugene Fama, Nobel Laureate

This is part of a series exploring integrity in planning financial strategy

Key takeaways:

- Media myths imply that "dangers" lurk in financial markets due to greater use of index funds
- Evidence does not show active managers as a group have exploited any supposed mispricing
- Data for a range of returns of US stocks for 2016 does not suggest any impact from indexing

To capture readers' short attention spans, the financial media regularly features stories about various "hidden dangers" for investors from the market–the unknown risks people don't know about. Lately index funds have become a recurring featured topic. According to some media stories, the rising popularity of indexing has "distorted" prices because they trade relatively fewer shares compared to professional investors who continuously and diligently search for information to discover "mispriced stocks," and then actively trade.

Ever since Vanguard created the first retail index fund way back in 1976, pundits have speculated whether too great a market positioning to passive investing (that is, following rigidly a commercial index like the Standard & Poors 500 index) would eventually impede the "efficient" price discovery of stocks.

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 way in back 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 wisely makes no attempt to suggest how much trading activity may be needed to make prices "fair," the amount of trading activity necessary is likely far less than what we currently exists in the markets today (about 82.7 million trades globally were completed *daily* in 2016).

Market Pricing in Practice and Theory

For example, imagine you are having a garage sale (more likely, Ebay!) after cleaning out the attic of a deceased relative. Among the many artifacts is an original Van Gogh painting. However you are unaware of its true value, so 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 a knowledgeable buyer and an unknowing seller.

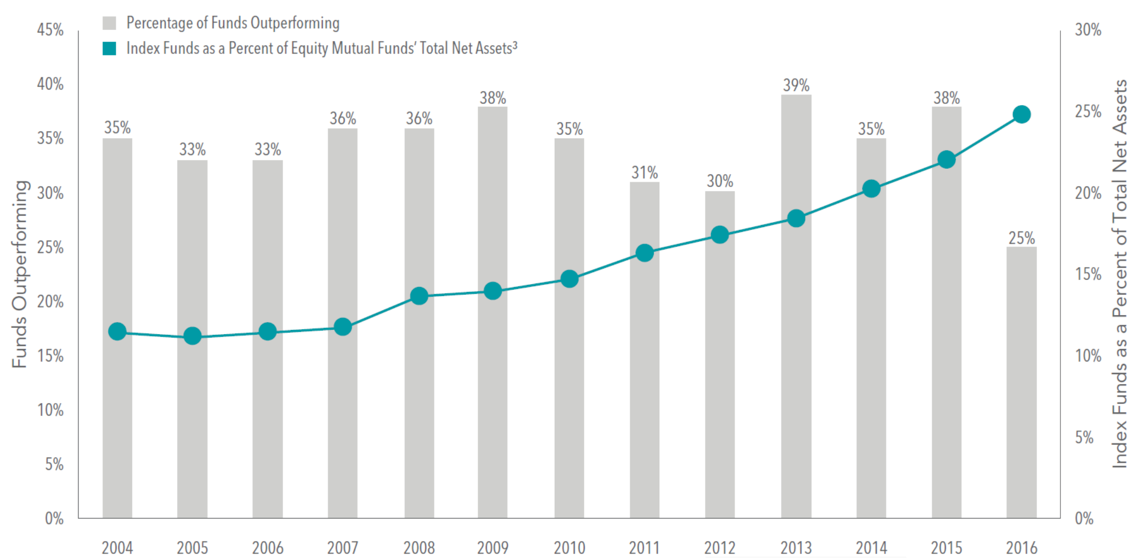
However, suppose another art connoisseur shows up at the sale before the deal is done. Suddenly, the price is unlikely to remain at $10. A bidding war between just two informed buyers may quickly drive the price near to a fair market value.

Thinking in terms of economic theory, 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*. So, assume a largely non-volatile market where most stocks are held by various forms of mutual and ETF index funds. If the proportion of securities invested in index funds increases to the point where mispricing makes identifying and profiting from mispricing easy, active managers would quickly reenter the market, bidding up prices of specific securities until the marginal benefit of actively investing in those stocks once again no longer exceeds the marginal cost of trading—the "break even" point.[3]

The Grossman-Stiglitz paradox suggests that measuring performance of actively trading fund managers relative to that of an equivalent allocation of index funds is a possible indicator for how "efficiently" markets are pricing stocks trading on information. Should "excessive" levels of passive management create opportunities due to insufficient price discovery, then theoretically as a result, an increasing number of active mutual fund managers should be able to outperform corresponding index benchmarks.

So, what does the data show? The evidence does not support that notion. The line in **Exhibit 1** shows the passively invested equity mutual fund assets in the US increasing from about 10% to 25% over 13 years.[4] Bars depict the percentage of active managers that both survived and beat their index benchmark over rolling three-year periods from 2004–2016. Although index equity fund holdings relative to the total equity markets have proportionately increased steadily, this strategic change has not resulted in corresponding mispricing opportunities for

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.

Source: 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.

active managers. As evidenced by that group's continued low level of outperformance, concerns about any dangers from mispricing appear unjustified.

Price Impact from Index Flows?

Some suggest that higher asset flows into index funds causes price distortions because passive index investment strategies function simply as price takers, "free riding" on all the research and diligent efforts of active managers. But again, the available empirical returns evidence does not support that contention.

Exhibit 2 shows that, although the S&P 500 Index of large U. S. stocks returned 21.8% in 2017, Amazon rose 56.0% while General Electric returned –42.9% for the same year, almost a 100% return difference. Yet both stocks have a similar market capitalization and therefore have similar weights in commercial market cap-weighted index indices. If the positive flow of assets into index funds alone were driving prices, you might expect index constituents to have more similar returns to each other and returns more similar to the broad S&P 500 index. Yet as we see, individual stock constituents of the index had hugely divergent returns, ranging from +133.7% to –84.0%.

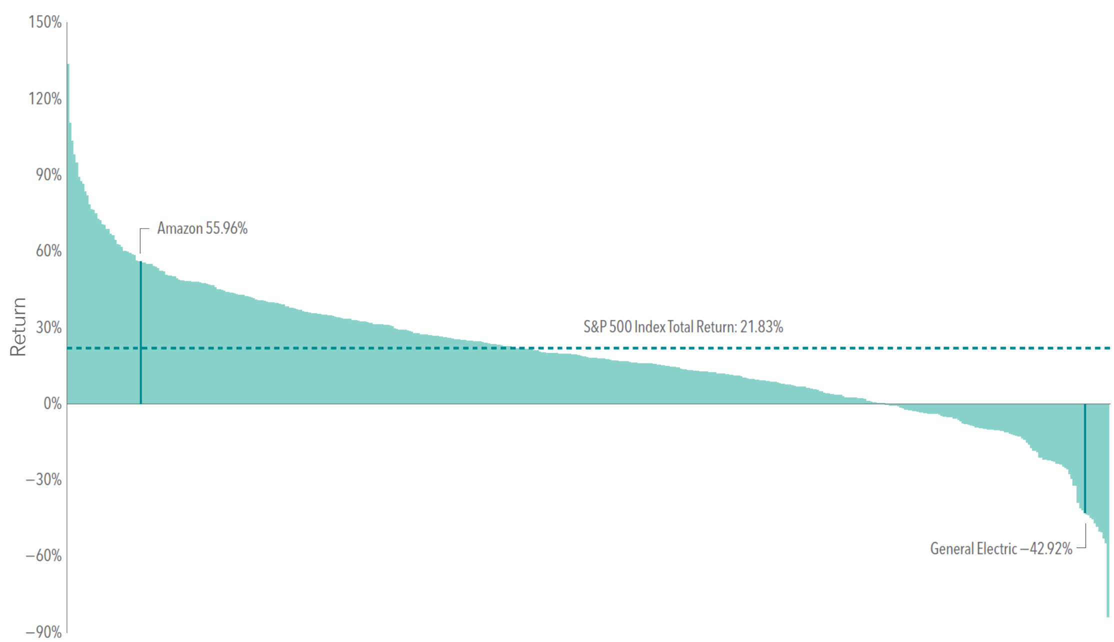
Investors who trade actively based on new information, expectations, tastes, preferences, and other considerations still set prices. The intense competition and voluntary exchange among even a shrinking number of market participants actively trading publicly-traded securities remain the very mechanism that keeps prices "fair."

The index boogeyman may not be real, but his mythology is well entrenched—and sounding the alarm on index funds during long periods of rising stock prices is nothing new. Following a surge of growth fund prices back in the 1990s followed by a major tech bust, index funds' distortion of market prices was first promoted by the media and by active managers to pass the blame.

Princeton University's Burton Malkiel addressed the issue in 2001. He 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.'"[5]

As far as conventional wisdom is concerned, 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.

Conclusion

Traditional investing assumes a manager's tactical ability to profitably move between different securities or funds by smart trading. Tactics strongly tied to past performance are often the main criterion for evaluating an investment's future potential. Yet investor outcomes are usually severely compromised by high taxes, high fees, high turnover and other drags to return.

Investment models derived from economic science and empirical research, also employing sound judgment and thoughtful portfolio implementation are far more likely to have successful outcomes. By working closely with Dimensional Fund Advisors, whose decades of experience connects academic theory with practical strategies, clients of Professional Financial can better control their financial future, manage uncertainty, and enjoy peace of mind.

We believe the most important decision regarding wealth management is not **what** you should learn. Rather, it is deciding, **who** is a professional advisor can you really trust? Who understands you and your goals and values, and has the reputation, expertise, education and judgement so you are confident that they know what you don't even know to ask? You can never know enough about wealth management, but you can become informed of the principles you need to know in order to make a decision to hire the right consultant.

While market returns during the last several years have allowed most clients good outcomes and get on track, disappointing returns will occur once again. Investors must have an enduring economic philosophy and a commitment to their investment policy. It will be severely tested time and time again. For most people, staying the course for a successful retirement experience requires a trusted wealth professional—one with a team you are confident can help you connect your present with your ideal future, and help you find financial freedom for you and your family—enabling you to make a fingerprint impact and finish life strong.

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 In reality, since active investor cannot know the true "break even" point, prices will continue to increase even beyond that point—sometimes for quick a long while.

4 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.

5 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