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Setting the record straight: The truths about index fund investing

- Index fund investing has numerous benefits, including lower costs, diversification, tax efficiency, and relative return predictability.
- The increased adoption of index fund investing has heightened emphasis on the binary labels of "passive" and "active," as if all index funds can be described as a monolithic, homogeneous strategy. This has led to many faulty assertions about index fund investing.
- Our analysis dispels assertions tied to the growth of index fund investing and offers evidence that refutes key misperceptions.

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Introduction

The advent of, and access to, index fund investing is one of the most significant developments in the investment industry over the past 50 years. To be clear, index fund investing continues to offer professional and individual investors alike opportunities for lower-cost, highly diversified portfolios with consistent relative-return predictability (see the box on page 3).

Yet despite indexing's universal benefits, the continued popularity of index funds among nearly all types of investors across all markets has given way to debates between staunch proponents of passive investing and those of active investing, as well as some notable misperceptions tied to indexing's growth.[1] And while the "active versus passive" debate may further ebb and flow as the ever-evolving investing landscape shifts, the binary labels of *index* and *active* remain less significant than the underlying characteristics of the funds themselves that determine fundamental principles of both index *and* active investing.[2]

Despite these fundamental principles, the fund industry has largely focused on binary labels without adequately considering how index and active funds are used to create portfolios. This myopic view overlooks the broader context in which investors make decisions, including the roles of asset allocation, diversification, and risk management. By concentrating on the labels rather than characteristics, the industry has missed the opportunity to provide a more nuanced understanding of investment strategies.

This paper takes a holistic view of both active and index investing, drawing from a rich body of research that offers detailed insight into how investors make decisions about diversification, asset allocation, cost, and risk. It aims to refute several notable myths surrounding the continued popularity of index fund investing. By dispelling these misperceptions, we seek to provide a clearer and more balanced perspective on the role of index funds in modern portfolio construction.

1 In most cases we use the term "index funds" to refer to both index mutual funds and exchange-traded funds (ETFs), except where explicitly noted.

2 See Lawrence, Patterson, and Ertl (2024) and Patterson, Lawrence, and Ertl (2024) for related discussion.

Indexing has democratized investing and promoted investors' interests through its many advantages

Over the past several decades, index funds have democratized investing across the globe. The benefits are numerous and clear. Indexing has provided the foundation for a broad spectrum of investors to realize their financial dreams, by widening access to capital markets.

Indexing is an investment approach that seeks to track the performance of a specific benchmark, or index. Instead of trying to pick individual winning stocks, indexes hold all—or a representative sample—of the securities in the index that's being tracked. Investing in funds that track these indexes is sometimes referred to as "passive investing."

Five key benefits of indexing

Indexed products, including mutual funds and exchange-traded funds (ETFs), boast a range of advantages for investors:

1. **Diversification.** Maintaining a well-diversified portfolio is an essential part of a successful investment plan, because diversification is one way to reduce volatility. Indexing can be an ideal way to achieve that diversification. After all, an index typically includes more securities than an actively managed fund that is trying to outperform that index. Although the diversification that an equity index fund offers can't protect against broad equity market declines, it can reduce the risk posed by a dramatic decline in any one security or economic sector.
2. **Low costs.** Index funds boast a powerful advantage when it comes to keeping costs low for investors. They often have lower expense ratios, as they cost less to manage and operate, given that they don't require large investment teams to analyze and select securities. Index funds use a buy-and-hold approach, which promotes lower transaction costs. The securities within index funds are generally subject to less turnover than those in funds directed by active managers; this reduces the brokerage commission and other expenses incurred when trading securities. Low costs, whether in the form of expense ratios or transaction costs, are essential for investors who want to maximize their investing power over time. Even seemingly small costs—such as fractions of a percentage point on a fund's overall expenses—can significantly reduce a nest egg over multiple years.
3. **Consistent relative return predictability.** Because of their diversification and low costs, index funds can be an effective way to achieve consistent and competitive returns over the long run (note that **past performance is no guarantee of future results**). These funds' shared objective is not to exceed their target index, but simply to match its performance as closely as possible. For many investors—retirees or near-retirees, for instance—such predictability of relative returns is itself valuable.
4. **Potential for tax efficiency.** Index funds typically have lower portfolio turnover—that is, their holdings are traded less often—than actively managed funds. Most index funds therefore tend to realize and distribute only modest capital gains. This is particularly important for investors holding index funds in taxable accounts. Taxes eat away at actual returns. The significant long-term impact of even small costs makes the tax-diminishing potential of index funds a vital consideration.
5. **Simplicity and transparency.** There's nothing opaque about how index funds are designed or how they operate. They have a precise, easily understood objective—to track the performance of a specific index.

Zero-sum game theory and relative performance predictability are universal

The case for an indexing strategy rests on the zero-sum game theory, noted by Sharpe (1991). It asserts that "(1) before costs, the return on the average actively managed dollar will equal the return on the average passively managed dollar, and (2) after costs, the return on the average actively managed dollar will be less than the return on the average passively managed dollar." Contrary to popular belief, the case for indexing does not rest on market efficiency.

Active management strives to outperform a benchmark by taking active bets against it. A number of active funds achieve outperformance, some even by large magnitudes. But other funds underperform, including those that do so by a large magnitude. Predicting which active funds will outperform is difficult. By contrast, indexing strategies aim to track a benchmark, thus greatly minimizing the range of performance outcomes relative to it.

Expense ratios are typically lower for index funds, promoting performance and wealth accumulation

Costs such as expense ratios drag on fund performance, regardless of whether a fund is categorized as index or active. Even though index funds tend to have lower expense ratios than active funds, the inverse relationship between expense ratios and fund performance applies to both. Active funds with relatively lower expense ratios effectively lower their hurdle to achieving outperformance.

In addition to performance benefits, lower expense ratios support wealth accumulation. That index funds tend to have lower expense ratios than active funds means that investors can keep more of their assets working for them. **Figure 1** on page 5 shows that the asset-weighted average expense ratio for index funds has consistently been lower than that of active funds. As of December 31, 2025, the average expense ratio for index funds was 0.09%, compared with 0.56% for active funds. While both expense ratios have fallen over time, their difference reflects a performance and wealth accumulation advantage for index funds relative to active funds.

Figure 1 also shows the annual savings realized by index fund investors. Our estimates show that in the absence of index funds, investors would have cumulatively paid roughly $570 billion in additional costs—due to higher expense ratios—since 2000. We further believe that index funds have induced competitive price pressure in the industry, at least partly explaining the downward trend in active fund expense ratios. That trend is noteworthy because it reflects a diminishing revenue source for asset managers, whose business incentives run counter to the trend. Regardless of the cause, declining expense ratios benefit all investors.

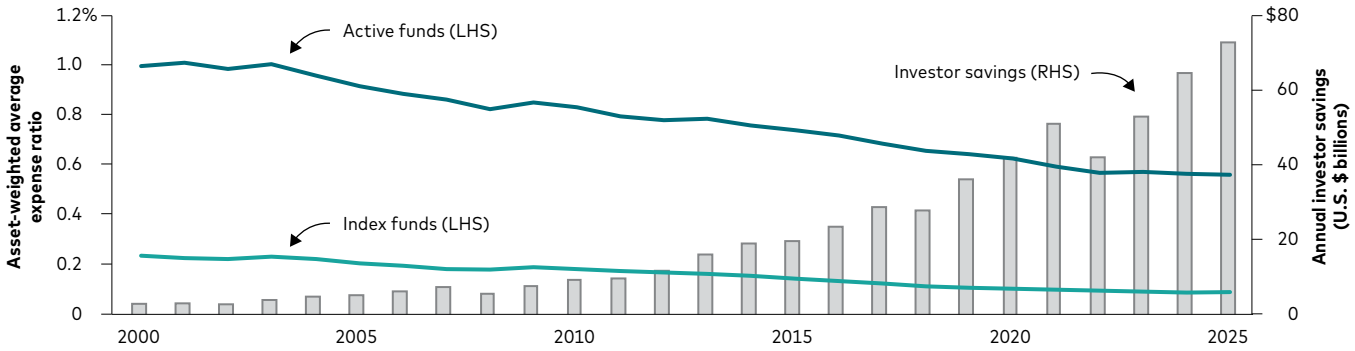
Understanding the continued popularity of index fund investing

The growth in index fund adoption has been supported by the benefits of relative performance predictability and low cost. **Figure 2** on page 5 shows the percentage of equity market capitalization held by equity index funds in several countries or regions.[3] The extent of the adoption, however, tends to be summarized as if index funds constitute a single monolithic strategy. Such a summarizing fails to recognize the multitude of strategies employed by index funds, as well as how investors use individual index funds in the context of overall portfolio construction.

3 We recognize an alternative estimate of the proportion of equity market capitalization held by passive equity strategies attributed to Chinco and Sammon (2024). Our estimate considers only mutual fund and ETF assets, as it allows us to provide a consistent estimate for markets outside the U.S.

FIGURE 1

Index funds have helped drive down the cost of investing

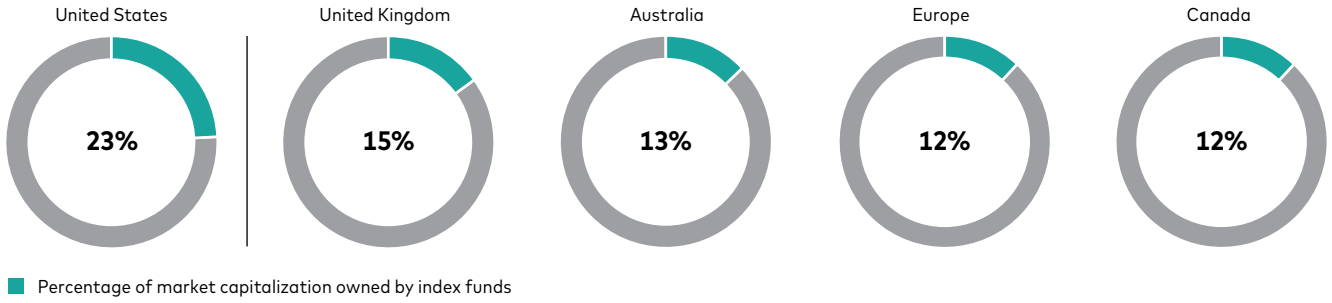


Notes: In this hypothetical example, we assume that, if index funds had not existed, index investors would have invested in active funds charging the then-prevailing asset-weighted average active fund expense ratio. Data reflect the difference between the cumulative expense ratio fees paid by investors owning open-end funds and what they would have paid if index funds didn't exist. Investor savings are calculated as: (asset-weighted expense ratio of actively managed funds multiplied by industry assets) minus (asset-weighted expense ratio of index funds multiplied by industry assets). Data are as of December 31, 2025, for U.S.-domiciled mutual funds and ETFs, based on annual report net expense ratios.

Sources: Vanguard calculations, using data from Morningstar, Inc.

FIGURE 2

Index fund assets as a percentage of market capitalization



Notes: Data are as of December 31, 2025. Percentage of market capitalization owned by index funds is calculated as the aggregate percentage of total market capitalization held by index funds and index ETFs in each index constituent across all identified holders. Holders are identified as index funds based on FactSet's Holder Style category, or if the fund name otherwise contains the term "index." Index constituents are drawn from the Russell 3000 Index for the United States, the FTSE All-Share Index for the United Kingdom, the S&P/ASX 300 Index for Australia, the FTSE Developed Europe All Cap Index for Europe, and the S&P/TSX Composite Index for Canada. Total equity market capitalization is represented by the total market capitalization of each region's respective index. All figures are in U.S. dollars.

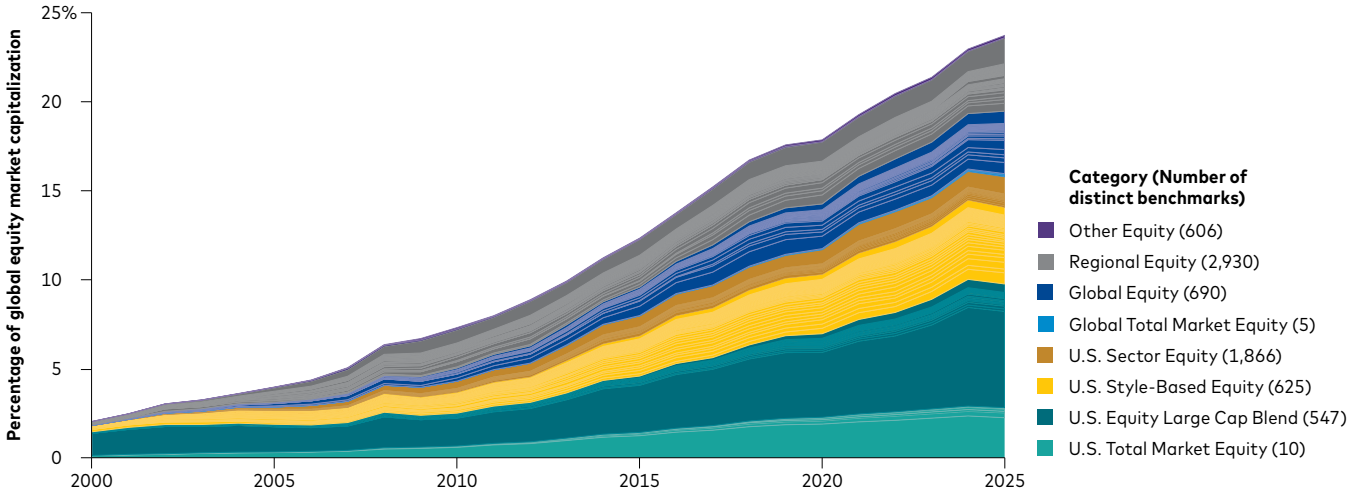
Sources: Vanguard calculations, using data from FactSet.

Since 2000, assets held by index funds have increased globally, but so has the diverse array of index funds and their underlying strategies. **Figure 3** shows equity index fund assets under management as a fraction of global market capitalization over time. Funds have been separated out first by their broad investment objective and second by their benchmarks. While index fund investing has grown steadily since 2000, this growth has clearly not occurred monolithically through investment in the same securities. Rather, it has grown through an increasingly diverse array of index fund offerings, tracking thousands of indexes, each with a different stock composition. Index funds do not, in fact, constitute a monolithic, homogeneous strategy.

Investors have used this diverse array of index funds to implement actively oriented portfolio strategies. A truly passive portfolio would be one that tracks a total market index. Even a portfolio that holds a large-cap growth index fund to capture exposure to U.S. equities would be an active portfolio relative to the U.S. total market.[4] We employ the methodology used by Plagge, Wang, and Rowley (2022) to demonstrate that the performance of a portfolio consisting of U.S. equity index fund investor assets reflects that of an active portfolio.

FIGURE 3

Index funds comprise an increasingly diverse array of strategies



Notes: Data are as of December 31, 2025. The chart depicts the net assets in U.S. dollars of equity index mutual funds and ETFs worldwide as a fraction of the market capitalization of the MSCI ACWI Index in U.S. dollars, annually from January 1, 2000, through December 31, 2025. Funds are sorted into eight distinct investment categories that group funds within Morningstar's Global Category. U.S. Total Market Equity includes index mutual funds and ETFs whose benchmark index is market-capitalization-weighted per Morningstar and whose name (or underlying benchmark index) uses at least one of the phrases "total market," "broad market," "Russell 3000," and "Wilshire 5000." Global Total Market Equity comprises all funds tracking broad market benchmarks for global equities. U.S. Style-Based Equity comprises funds within the Global Category that are in one of the following U.S. Equity groups: Large Cap Value, Large Cap Growth, Mid Cap, or Small Cap; Large Cap Blend is presented separately. U.S. Sector Equity comprises all Morningstar sector-based Global Category groupings. Global Equity consists of any fund whose Global Category is Global Equity or Global Equity Large Cap. Regional Equity comprises all international equity not otherwise classified as Global Equity. Shading variations within categories are illustrative and depict distinct benchmarks used by funds within a given investment category; some distinct benchmarks are occluded for visual acuity. Distinct benchmarks are defined as any named benchmark, excluding variations due to reported currency and return types (e.g., the price and total return versions of the same underlying benchmark are considered a single distinct benchmark). The MSCI ACWI Index was chosen for its historical longevity and targets about 85% of global investable equities; it excludes many small-cap and microcap stocks that are often held within index funds, thus likely overstating the overall ownership fraction.

Sources: Vanguard calculations, using data from Morningstar, Inc.

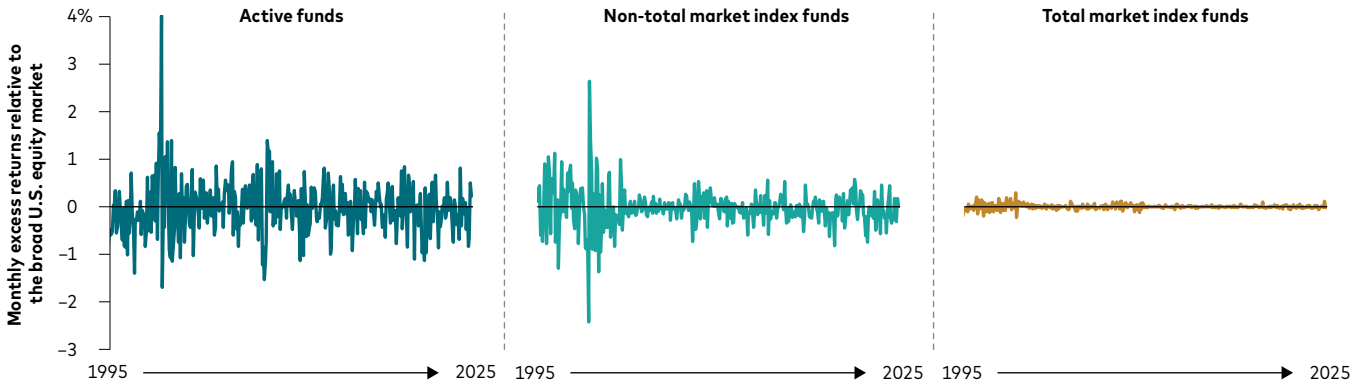
4 For related discussions, see Gaba et al. (2024); Plagge, Wang, and Rowley (2022); and Rowley (2024).

Figure 4 shows the asset-weighted excess returns of three representative portfolios relative to a proxy for the total U.S. stock market. The portfolios consist of equity index funds whose objective is to track the total U.S. market, equity index funds whose objective is to track a subcomponent of that market (for example, large-cap growth), and traditional U.S. active equity funds. These portfolios essentially reflect the aggregate performance of what are known, respectively, as total market index fund investors, non-total market index fund investors, and active fund investors.

The total market index funds portfolio reflects the truly passive portfolio approach to gaining exposure to the U.S. stock market. Its excess returns sit in a tight range around zero, approximating a flat line. The active funds portfolio would be expected to demonstrate considerable variability around zero. However, the non-total market index funds portfolio also demonstrates substantial variability around zero, in that regard appearing to be an active experience. These results suggest that many index fund investors use passive for active exposure.

FIGURE 4

Index fund investors build actively oriented portfolios



Notes: Monthly excess returns are relative to the Dow Jones U.S. Total Stock Market Index. The funds include U.S.-domiciled index mutual funds and ETFs in the U.S. Equity and Sector Equity Morningstar categories. The total market index funds category includes index mutual funds and ETFs whose benchmark index is market-capitalization-weighted per Morningstar and whose name (or underlying benchmark index) uses at least one of the phrases "total market," "broad market," "Russell 3000," or "Wilshire 5000." The non-total market index funds category includes any index fund or ETF that is not classified as belonging to the total market index funds category. Active funds include any non-index fund per Morningstar. Performance of funds that seek to track the Dow Jones U.S. Total Stock Market Index, or any index, will vary because of the funds' fees, tracking error, and other factors. Data spans from December 31, 1995, through December 31, 2025. **Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.**

Sources: Vanguard calculations, using data from Morningstar, Inc.

Debunking notable myths associated with the growth of index fund investing

Despite the diverse array of individual fund strategies and wide-ranging use by investors to build their portfolios, the increased adoption of index fund investing has led to many faulty assertions surrounding it.

Market-cap-weighted index funds haven't made the largest stocks larger

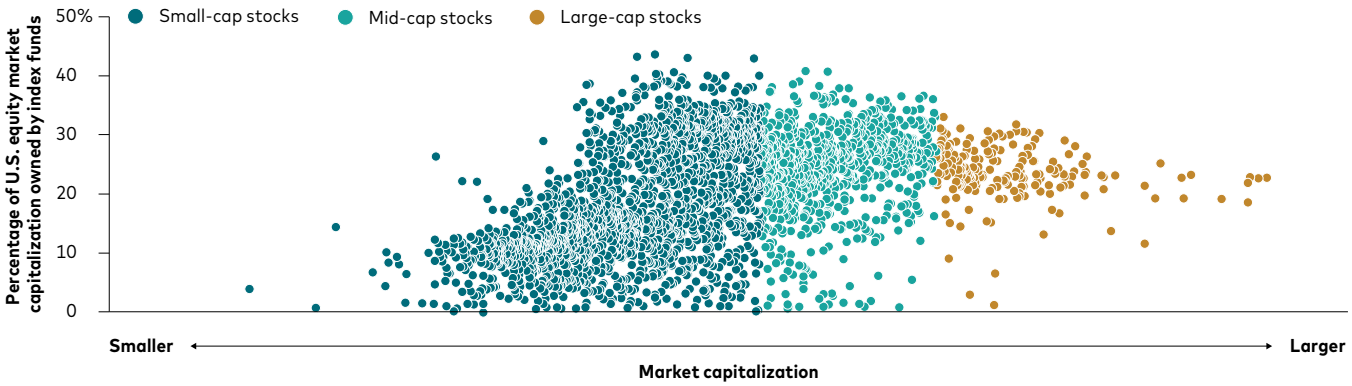
It is often believed that market-cap-weighted indexing "makes the largest stocks larger" and therefore "reinforces market concentration." Market-cap-weighted index funds don't do either, *because of market-cap weighting itself*. A market-cap-weighted index fund invests in each stock proportional to the stock's market-cap weighting. This does not make any stock larger than another and thus does not reinforce concentration. For example, if an index fund invests $1 million in a portfolio in which stock A has a 3% weight and stock B has a 0.01% weight, the fund allocates 3% to stock A and 0.01% to stock B. These allocations are in line with each stock's existing market weight and thus would not make stock A incrementally larger than stock B (see the **Appendix** on page 14).

In practice, U.S. equity index funds' highest proportional ownership are in small- and mid-cap stocks and not large-caps (**Figure 5**). Each point on the figure represents the rank order of a stock in the Russell 3000 Index by size and its corresponding aggregate ownership by index funds. Moving along the figure's x-axis, stocks increase in size, and aggregate ownership by index funds tends to increase. The highest levels of ownership by index funds, however, are reached around the small- and mid-cap range, after which ownership amounts begin to decrease. The largest stocks possess lower aggregate ownership than most of the small- and mid-cap stocks. Several factors could explain this, but Plagge, Wang, and Rowley (2022) highlight that an aggregate portfolio of index fund investors tilts away from large-caps.

Even if index fund investors were truly passive in aggregate—if they all simply held the market—the relationship would be a flat line (that is, each stock would be owned by index funds in equal proportion). Given the diversity of equity index fund offerings and investors using passive for active, it should not be a surprise that index funds' ownership of stocks is not market-cap proportional. Index funds have not made the largest stocks larger.

FIGURE 5

Index funds don't own an outsized share of large-caps



Notes: Chart shows the relationship between a stock's market capitalization and index fund ownership. Market capitalization is on the x-axis and is on a logarithmic scale. To label stocks, we apply the Russell U.S. Equity Index Methodology breakpoint to the underlying constituents. We first sort constituents in the Russell 3000 Index in descending order as of their December 31, 2025, market capitalization. Constituents are sorted by market capitalization and labeled as "Large-cap" for the 200 largest stocks, "Mid-cap" for stocks 201–1000, and "Small-cap" for the remaining stocks. Percentage of U.S. equity market capitalization owned by index funds is calculated as the aggregate percentage of total market capitalization held by index funds and index ETFs in each index constituent across all identified holders. Holders are identified as index funds based on FactSet's Holder Style category, or if the fund name otherwise contains the term "index."

Sources: Vanguard calculations, using data from FactSet.

The growth of index fund investing doesn't inhibit price discovery

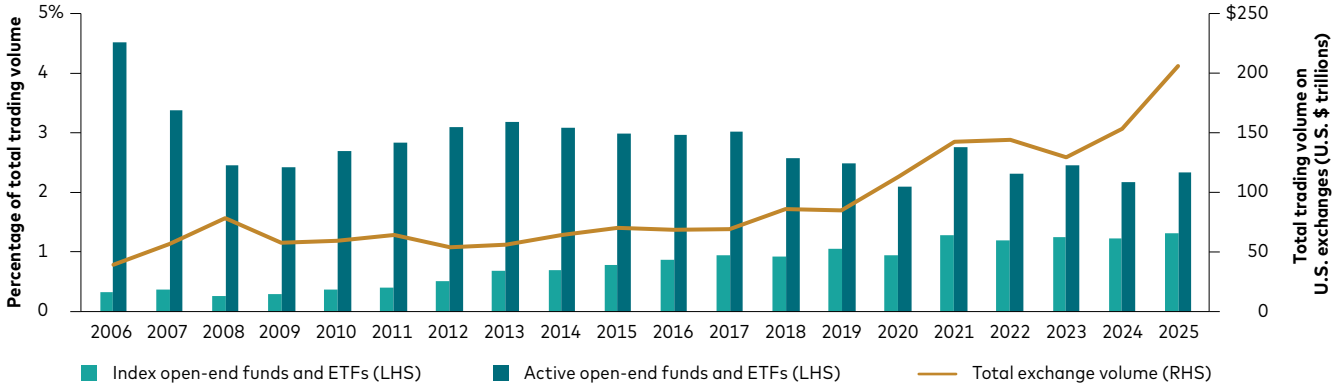
It is commonly argued that index fund investing leads to too large of an influence on price because of too much trading, or that it perhaps leads to less price discovery due to limited trading. We apply the methodology used by Rowley, Zorina, and Zhu (2019) to determine the extent to which this is true. **Figure 6** shows the fraction of U.S. equity trading volume attributable to the portfolio management of index and active funds, as well as the overall level of trading volume across U.S. exchanges.

Index fund trading volume constitutes just over 1% of total trading activity. Although active fund trading volume is higher (2% of total volume), mutual funds and ETFs remain a small part of overall market activity. Broker-dealers, market makers, and other investors constitute the lion's share of trading activity every day.

Trading volume has slowly increased from about $38 trillion in 2006 to about $206 trillion in 2025. During that period, active fund volume remained between 2% and 5% of total trading volume, while index fund trading volume slowly grew from about 0.3% of total volume to 1.3%. Index funds are an important source of ownership, but the claim that they are becoming the primary driver of market dynamics is demonstrably false. Index fund investing leaves ample room for price discovery.

FIGURE 6

Index fund trading volume is a drop in the bucket



Notes: The percentage of total trading volume is cash-flow adjusted turnover as a percentage of total notional U.S. exchange trading volume. Data include all available equity open-end funds and ETFs with U.S. equity exposure from January 1, 2006, through December 31, 2025, in each category as defined by Morningstar. Data include net assets, turnover ratio, net flow, and U.S. equity exposure data from Morningstar, along with total trading volume on U.S. exchanges from Cboe Exchange. Data are as of December 31, 2025.

Sources: Vanguard calculations, using data from Morningstar, Inc., and Cboe Exchange, Inc.; originally published in Rowley, Zorina, and Zhu (2019).

Increase in index fund investing doesn't spur or intensify market volatility

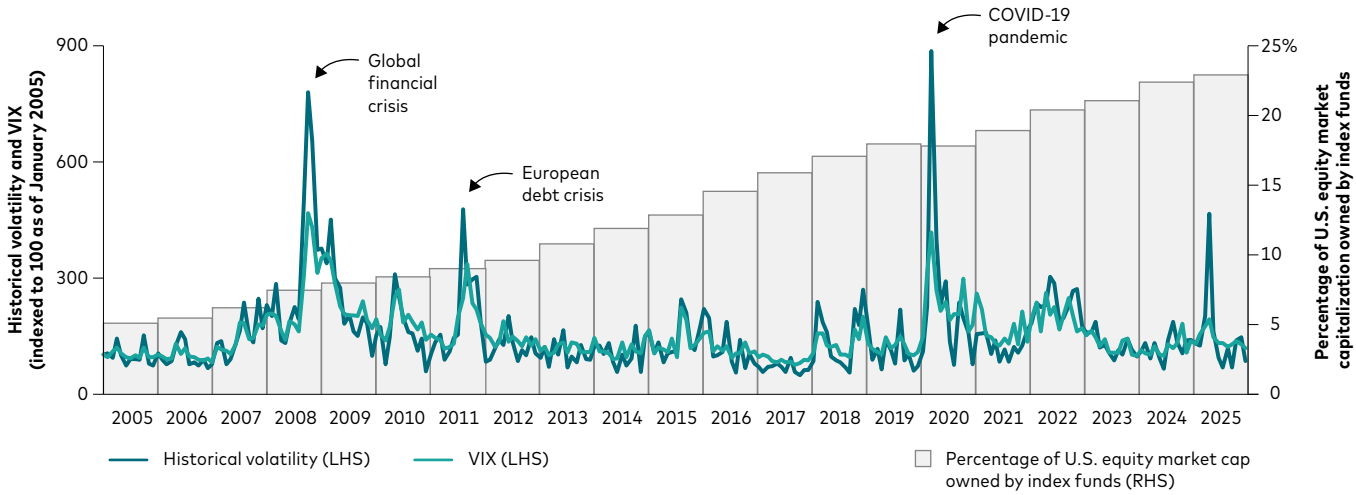
Negative assertions question the role of index fund investing during periods of market volatility. Specifically, has the growing fraction of assets owned by index funds increased such volatility? We employ the methodology used by Zorina et al. (2019) to answer this question.

Figure 7 shows the lack of a relationship between U.S. equity index fund assets as a proportion of the U.S. stock market and two proxies for market volatility. It provides compelling visual evidence that while index fund assets have consistently trended upward, volatility has not commensurately done so. And notable spikes in volatility are clearly associated with notable market events, such as Black Monday in 1987 (which preceded any meaningful prevalence of index fund assets), the 2008 global financial crisis, and the COVID-19 pandemic in 2020.[5]

Even during periods of volatility, markets remain resilient. Pingel, Lawrence, and Rodemer (2023) tested the relationship between market volatility and volume for stocks in the Russell 3000 Index from July 2008 through December 2022. They showed that when market volatility increases, so does the volume of individual stocks. They also showed that this relationship holds for stocks regardless of their typical trading volume levels.

FIGURE 7

Market volatility is unrelated to index fund assets



Notes: Historical volatility is defined as the standard deviation of Russell 3000 Index monthly returns. X-axis labels correspond to year-ends. VIX represents the monthly price history of the Cboe Volatility Index. Both the volatility and VIX metrics are indexed to 100 based on their values as of January 2005. Percentage of U.S. equity market capitalization owned by index funds is calculated as the aggregate percentage of total market capitalization held by index funds in each index constituent across all identified holders. Holders are identified as index funds based on FactSet's Holder Style category, or if the fund name otherwise contains the term "index." Index constituents are drawn from the Russell 3000 Index, and total equity market capitalization is represented by the total market capitalization of the Russell 3000 Index. Data are as of December 31, 2025. **Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.**

Sources: Vanguard calculations, using data from FactSet and Cboe; originally published in Zorina et al. (2019).

5 Zorina et al. (2019) further demonstrates that macroeconomic factors are strongly correlated with, and predictive of, market volatility.

For stocks at various levels of typical daily volume, **Figure 8** shows the change in volume when volatility doubles. The figure's first bar includes stocks in the fifth percentile of volume (that is, those with the lowest volume levels). Those stocks' volume increases by roughly 25% when volatility doubles. Moving along the figure's x-axis—and thus observing this relationship for stocks with higher volumes—we see that the response is not dissimilar.

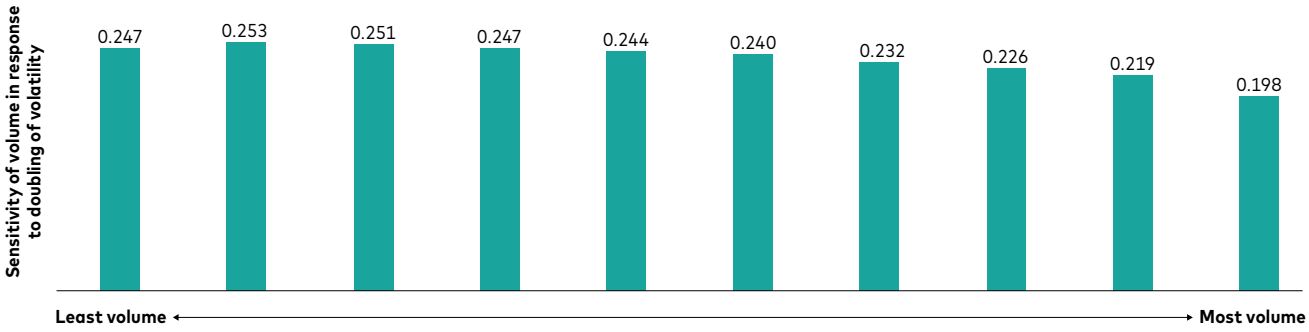
Stocks with relatively lower levels of volume appear slightly more likely to see an increase than those with higher volumes. It is still the case, though, that across the volume spectrum, a stock's trading volume increases by roughly 20% to 25% when volatility *doubles*.[6] This suggests ample liquidity when volatility spikes. The relationship between volatility and volume, much like the overall volatility level, is not tied to the growth of index fund investing.

Index fund investing doesn't limit active managers' ability to perform

Some claims assert that the growth of index fund investing enhances the co-movement of stocks, thus limiting the opportunities for active managers to perform well. Volatility is the variability of the market's return, whereas dispersion is the variability of individual stocks' returns around the market's return. Critically, dispersion captures the magnitude of variability around market returns—rather than simply the general direction of movement—and represents the opportunity for stock selection. Active managers seek to add value by trying to pick outperforming stocks or avoid underperforming stocks, or both.

FIGURE 8

Markets remain resilient in the wake of volatility



Notes: Sensitivity of volume in response to increased volatility is defined as abnormal volume elasticity with respect to doubling in abnormal VIX; specifically, the chart shows the regression coefficient for abnormal volume relative to abnormal VIX, calculated by regressing abnormal volume on abnormal VIX and a series of control variables. See Pingel, Lawrence, and Rodemer (2023), where this was originally published, for a description of abnormal volume and abnormal VIX. Liquidity on the *y*-axis is represented by deciles of abnormal volume (the 5th, 15th, 25th, 35th, 45th, 55th, 65th, 75th, 85th, and 95th percentiles in sequence across the bars). Data are as of December 31, 2022.

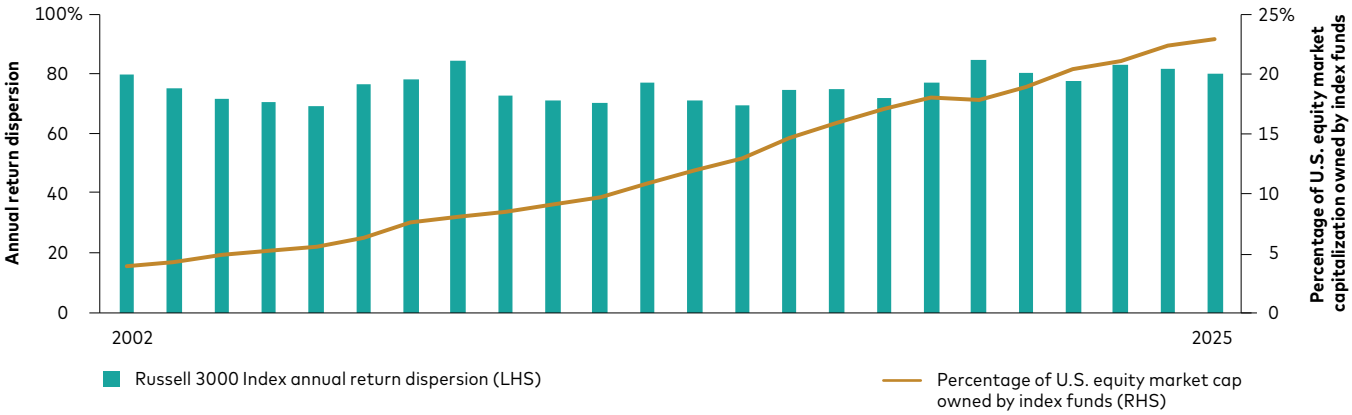
Sources: Vanguard calculations, using data from Refinitiv, FactSet, and OneTick.

6 Pingel, Lawrence, and Rodemer (2023) also show that individual stocks may experience idiosyncratic liquidity shocks, typically driven by firm-specific news. These shocks, though, are not tied to overall market volatility.

Figure 9 shows the lack of a relationship between the growth of index fund investing and dispersion. We measure dispersion as the fraction of stocks in the Russell 3000 Index that have either outperformed or underperformed the index *by at least 10 percentage points* in a given calendar year.[7] It provides compelling visual evidence that while index fund assets have consistently trended upward, dispersion has not materially changed over time. Dispersion has fluctuated with apparent randomness around 70%. For active managers, dispersion levels around 70% represent a great opportunity to add value—conditional on effective stock selection.

FIGURE 9

Dispersion has remained unchanged



Notes: Dispersion is defined as the percentage of stocks in the Russell 3000 Index that have either outperformed or underperformed the index by at least 10 percentage points in a given calendar year. Percentage of U.S. equity market capitalization owned by index funds is calculated as the aggregate percentage of total market capitalization held by index funds in each index constituent across all identified holders. Holders are identified as index funds based on FactSet's Holder Style category, or if the fund name otherwise contains the term "index." Index constituents are drawn from the Russell 3000 Index, and total equity market capitalization is represented by the total market capitalization of the Russell 3000 Index. Data are as of December 31, 2025. **Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.**

Sources: Vanguard calculations, using data from FactSet and RIMES.

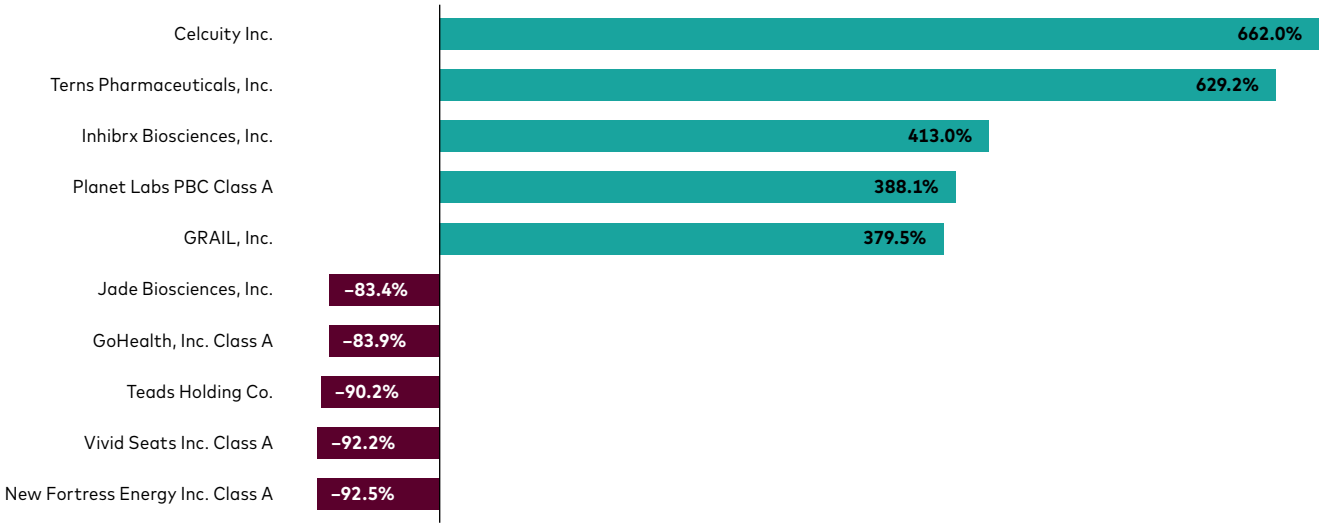
7 For example, suppose the index return is 10%. Our dispersion metric captures stocks whose return exceeds 20% and stocks whose return is below 0%.

When viewed at the individual stock level, dispersion can be quite extreme. **Figure 10** shows the five stocks with the highest returns and the five with the lowest returns in the Russell 3000 Index for calendar year 2025. For investors, such variability in individual stock returns highlights why the properties of broad diversification are so critical. In short, the increase in index fund assets has not altered dispersion levels.

FIGURE 10

Individual stocks display extreme dispersion

Russell 3000 Index constituents with the five highest and five lowest total returns
December 31, 2024, through December 31, 2025



Notes: Data include the annual total return (%) for stocks in the Russell 3000 Index that were included in the index on both December 31, 2024, and December 31, 2025, and not otherwise reported as added or deleted from the index throughout the calendar year. The table shows the Russell 3000 Index constituents with the five highest and five lowest total returns. **Past performance is no guarantee of future returns.**

Sources: Vanguard calculations, based on data from FactSet.

Conclusion

Index funds provide notable benefits for investors: Investing in low-cost index funds that track a market segment with relative performance predictability can help investors achieve their goals, with approximately $570 billion of costs saved since 2000 in the form of lower expense ratios for index fund investors. Misperceptions about the growth of index fund investing should not distract from this fact.

Appendix

Figure 11 shows how much the Vanguard S&P 500 ETF (VOO) would hypothetically acquire of the five largest and five smallest stocks for two different net-cash-flow amounts. VOO would acquire each stock based on the stock's market-cap weight, regardless of the size of the cash flow.

In the figure's Scenario 1, the Apple stock's 6.71% weight equates to $849,468, while the 0.01% weight of the Mohawk stock equates to $1,496. In Scenario 2—a cash flow 100 times larger than Scenario 1—VOO would still acquire Apple at a 6.71% weight and Mohawk at 0.01%. And just as the $84.9 million acquired in Apple in Scenario 2 exceeds the $849,468 acquired in Scenario 1, the $149,618 acquired in Mohawk in Scenario 2 is larger than the $1,496 in Scenario 1.

Also noteworthy is that, for a given cash-flow amount, VOO would acquire roughly the same percentage of shares outstanding for each stock. For a given stock, the hundredfold increase in the percentage of shares outstanding acquired in Scenario 2 is proportional to the hundredfold increase in cash flow.

FIGURE 11

Market-cap-weighted index funds don't make one stock larger than another

Basket information		Scenario 1 cash flow: $12,654,879			Scenario 2 cash flow: $1,265,487,852		
Stock	**Weight**	**Dollars**	**Shares**	**Percent of stock's shares outstanding**	**Dollars**	**Shares**	**Percent of stock's shares outstanding**
Apple Inc.	6.71%	$849,468	4,059	0.000028%	$84,946,752	405,900	0.0028%
Microsoft Corp.	6.22%	$787,227	2,009	0.000027%	$78,722,665	200,900	0.0027%
NVIDIA Corp.	5.81%	$734,664	6,618	0.000028%	$73,466,418	661,800	0.0028%
Amazon.com, Inc.	3.81%	$481,736	2,549	0.000027%	$48,173,551	254,900	0.0027%
Meta Platforms, Inc.	2.56%	$323,984	592	0.000023%	$32,398,384	59,200	0.0023%
APA Corp.	0.01%	$1,635	100	0.000028%	$163,500	10,000	0.0028%
Caesars Entertainment, Inc.	0.01%	$1,621	57	0.000029%	$162,108	5,700	0.0029%
Charles River Laboratories International, Inc.	0.01%	$1,605	14	0.000029%	$160,524	1,400	0.0029%
Franklin Resources, Inc.	0.01%	$1,572	84	0.000027%	$157,248	8,400	0.0027%
Mohawk Industries, Inc.	0.01%	$1,496	14	0.000027%	$149,618	1,400	0.0027%

Notes: Data are as of April 28, 2025. The table shows values related to the five largest and five smallest basket holdings given two hypothetical amounts of cash flow into Vanguard S&P 500 ETF (VOO).

Sources: Vanguard calculations, based on data from Bloomberg and Vanguard.

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