

## Counterpoint Global Insights

# Stock Market Concentration

## How Much Is Too Much?

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### Introduction

Opportunity cost is a key concept in capital allocation. The idea is that when you evaluate a choice you should consider the cost of passing on the next best alternative. Those who invest in equity mutual funds that are actively managed almost always have the option to put money into an equity index fund that provides broad market exposure at a relatively low expense. In fact, the Securities and Exchange Commission requires managers of mutual funds in the U.S. to report their results along with an “appropriate broad-based securities market index” as a benchmark.<sup>1</sup>

The S&P 500, an index of approximately 500 U.S. stocks with large capitalizations that make up about 80 percent of the total stock market, is by far the most popular benchmark for U.S. equity funds. Just as a sports team might scout a competitor before a big game, an active manager can examine the S&P 500 to assess its strategy. The goal is to beat the benchmark.

An index committee constructs the S&P 500.<sup>2</sup> The committee tends to follow some criteria but there are no hard and fast rules.<sup>3</sup> For example, companies currently eligible for inclusion should have a market capitalization of at least \$18 billion (with a sufficient amount that trades freely), have been profitable in the most recent quarter and cumulatively profitable over the past four quarters, and maintain sector representation consistent with the total market. On average, there are about 25 changes in the S&P 500 annually, or about 5 percent of the total number of stocks. One removal and addition to the index constitutes a single change.<sup>4</sup>

More notable than what the index committee does is what it does not do. There are no macroeconomic forecasts, sector or industry limits, position weightings, factor analyses, or performance expectations. The index has low turnover and invests for the long term. A high percentage of equity funds that invest in large capitalization stocks have underperformed the S&P 500 over the past decade.<sup>5</sup> But the facts about active management are not as dire as some headlines proclaim, and manager skill exists.<sup>6</sup>

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By design, the size of the investment in each stock within the S&P 500 reflects the relative market capitalization of the company.<sup>7</sup> If you invest \$1,000 in the S&P 500, you get more of the companies with big market values and less of the companies with small market values. Stock market concentration measures how much of the overall market capitalization is in a small number of stocks.

In the decade ended in 2023, the concentration of the U.S. stock market, measured as the weighting of the top 10 stocks, nearly doubled from 14 to 27 percent. This means that a limited number of stocks have played a large role in the market's total return. For example, the appreciation of seven stocks, dubbed the "Magnificent Seven," were responsible for more than one-half of the S&P 500's gain of 26.3 percent in 2023.<sup>8</sup>

This has led to a lot of discussion in the investment community. Topics include the challenge of beating the benchmark when so few stocks drive results, worries about the loss of diversification, speculation about whether the stock market is in a bubble, and fears that the inflows into index funds and other rules-based strategies have contributed to the mindless bidding up of a handful of stocks. Some of these concerns are groundless.<sup>9</sup> But it is hard to produce excess returns relative to an index that has a small number of stocks making an outsized difference in the overall results.

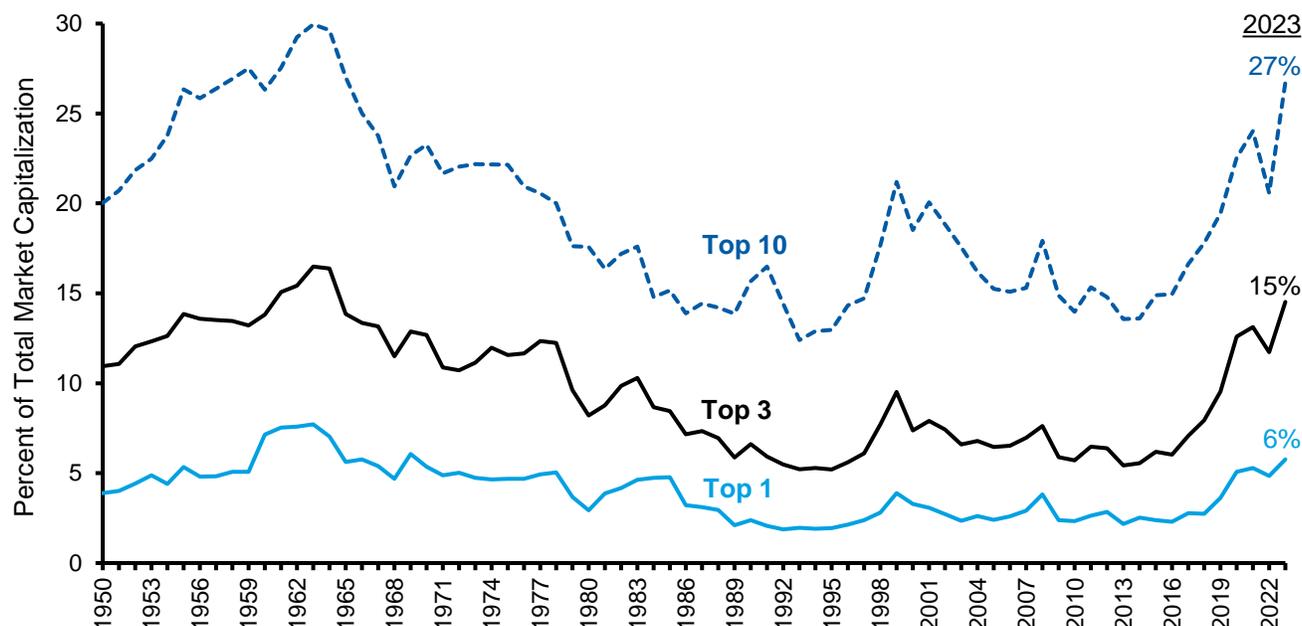
We review four topics in this report. First, we look at concentration over the past three-quarters of a century to see where we stand today. We also examine which companies have the largest stock market capitalizations and how that population has changed. Next, we ask whether there is a correct level of concentration, both by comparing the U.S. to other global markets and by presenting the possibility that concentration was too low in the past. We then seek to determine whether fundamental corporate performance supports the current increase in concentration. Finally, we reflect on what this development means for active equity managers.

## Stock Market Concentration Since 1950

Exhibit 1 shows stock market concentration in the U.S., measured as the market capitalization of the top 1, 3, and 10 companies relative to total capitalization, from 1950 to 2023. Concentration at the end of 2023 was 27 percent, approaching the prior peak of 30 percent in 1963. The lowest concentration over this time was 12 percent in 1993, and the level was 14 percent as recently as 2014.

The MSCI All Country World Index, which includes mid and large capitalization stocks in 23 developed and 24 emerging economies and covers about 85 percent of the global investable equity universe, shows a similar pattern. The top 10 stocks in that index were about 19 percent of the total capitalization at the end of 2023, more than double the level ten years earlier. This result is not altogether surprising as U.S. companies were 9 of the 10 constituents on December 30, 2023.<sup>10</sup>

Concentration continued to increase in early 2024. As of the end of the first quarter, concentration was 28 percent in the U.S. and 20 percent for the MSCI All Country World Index.

**Exhibit 1: Stock Market Concentration in the U.S., 1950-2023**

Source: FactSet; Compustat; U.S. Securities and Exchange Commission, Annual Reports, see [www.sec.gov/reports](http://www.sec.gov/reports); Counterpoint Global.

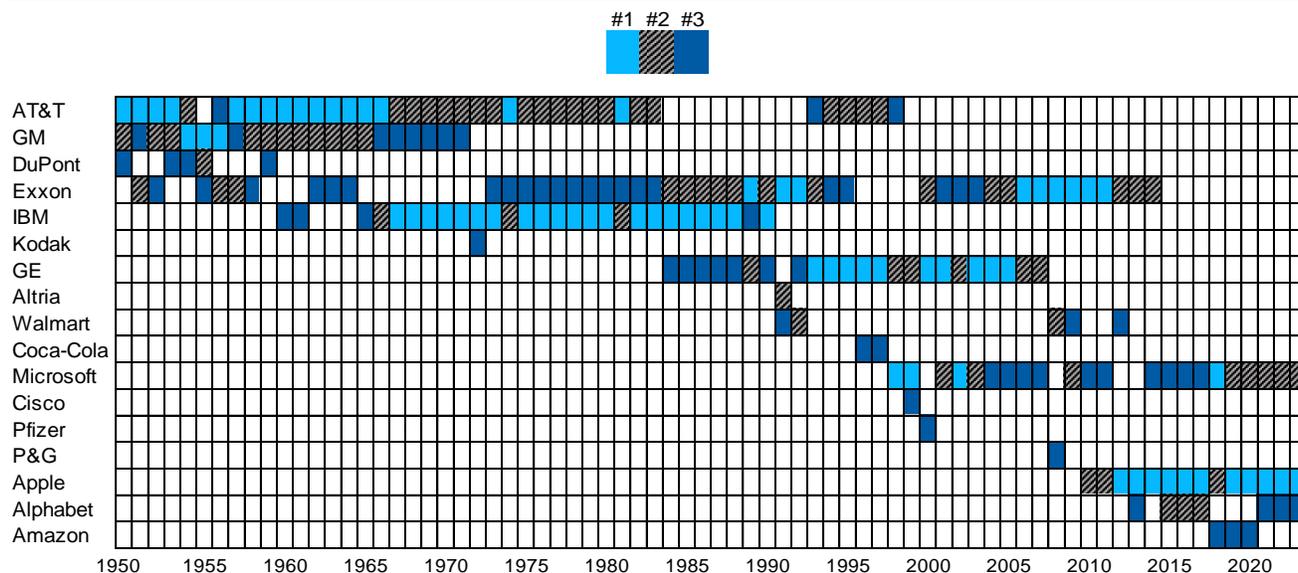
Note: Universe includes companies listed on the New York Stock Exchange, NASDAQ, and NYSE American stock exchanges, excluding American depositary receipts; Market capitalizations reflect calendar year-end.

Elroy Dimson, Paul Marsh, and Mike Staunton, professors of finance, studied stock market concentration back to 1900.<sup>11</sup> They found that concentration in the 1930s was similar to that of the early 1960s in the U.S. and estimated that the top 10 stocks were 38 percent of the market in 1900.<sup>12</sup> The current concentration is high relative to the levels 10 years ago but has plenty of precedent. That noted, what feels disconcerting to many investors is that the rate of increase in concentration in the last decade is the most rapid since 1950.

Exhibit 2 shows the stocks of the companies that have been among the top three in market capitalization at the end of the year from 1950 to 2023. Remarkably, just 17 are on the list, only 11 stocks have held a spot in the top 3 for more than two years, and 4 have fleetingly been number one at some point during a year but failed to hold the top position at the year's conclusion.<sup>13</sup> This is from a population of about 28,000 stocks that have been listed at any time since 1950.<sup>14</sup> Companies that are in one of the top positions most frequently over this period include ExxonMobil (47 years), AT&T (39), IBM (28), General Electric (23), and Microsoft (22). The average number of appearances is 13 and the median is 5. Nvidia, a computing infrastructure company that has benefitted from the increase in spending on artificial intelligence, reached the top 3 in early 2024.

Hendrik Bessembinder, a professor of finance, calculated that the total wealth creation for the stocks of all U.S. public companies was \$55.1 trillion from 1926 to 2022.<sup>15</sup> A stock had to generate a return in excess of U.S. Treasury bills to create wealth. Twelve of these market capitalization leaders also appear on Bessembinder's list of the top 20 value creators, and all but Eastman Kodak are in the top 35.

**Exhibit 2: Stocks with the Largest Market Capitalizations in the U.S., 1950-2023**



Source: FactSet and Counterpoint Global.

Note: Market capitalizations reflect calendar year-end; Some of these companies have varied their names over time; GM=General Motors; P&G=Procter & Gamble; Exxon=ExxonMobil; IBM=International Business Machines; GE=General Electric; Altria was previously known as Philip Morris.

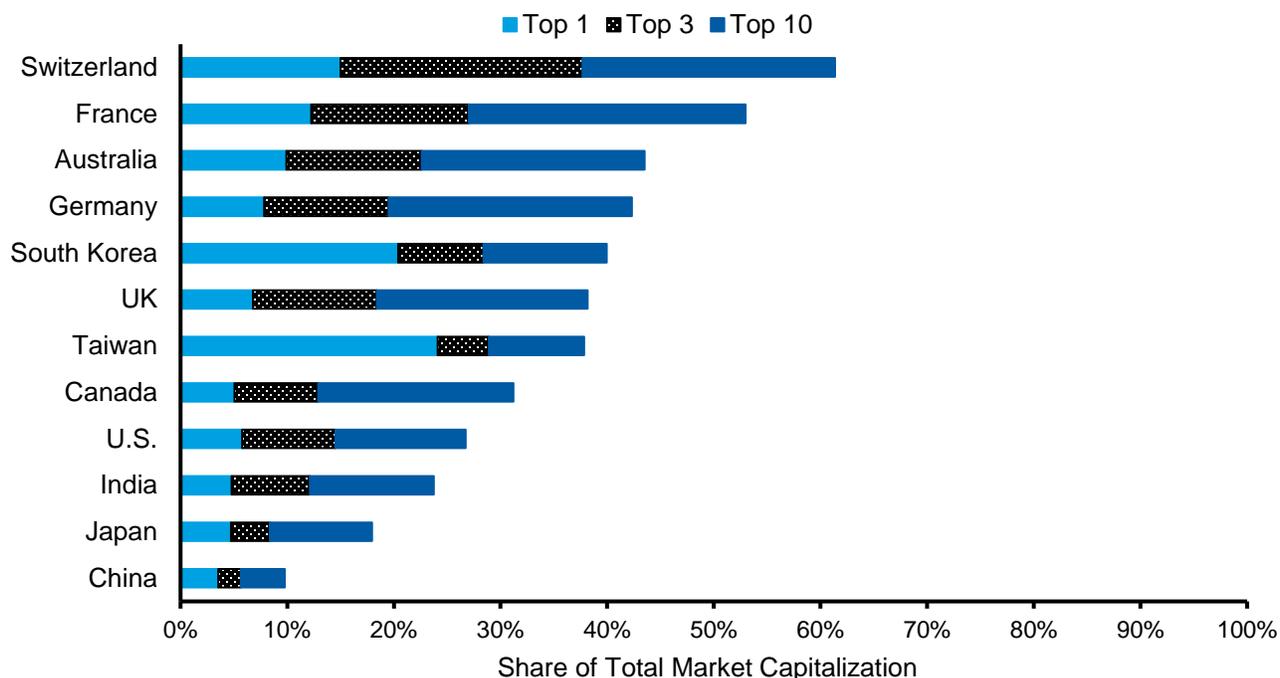
**What Should Concentration Be?**

Many investors have a sense that concentration is too high because it has risen sharply from a much lower level. But perhaps we should ask whether concentration was too low before. In other words, can we estimate the “right” level of concentration?

One place to start is to look at equity markets outside of the U.S. Exhibit 3 shows the market concentration at the end of 2023 for a dozen of the largest markets around the world. The U.S. is the fourth most diversified market notwithstanding the recent increase in concentration. However, since the U.S. was approximately 60 percent of the total equity market capitalization in 2023, changes in the composition of the U.S. have an outsized impact on the aggregate as measured by indices such as the MSCI All Country World Index.

One study of 47 equity markets from 1989 to 2011 found that the average weighting of the top 10 positions was 48 percent.<sup>16</sup> In 2001, Finland and Switzerland had concentrations in excess of 80 percent. At its peak in the early 2000s, one stock, Nokia, was about two-thirds of the total market capitalization of the Finnish market.<sup>17</sup>

**Exhibit 3: Stock Market Concentration in the Largest Global Equity Markets, 2023**



Source: FactSet and Counterpoint Global.

Note: Stacked bars reflect cumulative concentrations; Universe includes companies on the following stock exchanges: Switzerland: SIX Swiss Exchange; France: Euronext Paris; Australia: Australian Securities Exchange (ASX); Germany: Xetra (Frankfurt Stock Exchange); South Korea: Korea Exchange; United Kingdom (UK): London Stock Exchange; Taiwan: Taiwan Stock Exchange and Taipei Exchange; Canada: Toronto Stock Exchange; U.S.: New York Stock Exchange, NASDAQ, and NYSE American; India: Bombay Stock Exchange (BSE); Japan: Tokyo Stock Exchange; China: Shanghai Stock Exchange and Shenzhen Stock Exchange.

The U.S. stock market has become more concentrated because large capitalization stocks have realized total shareholder returns in excess of the market overall. This allows us to explore a counterfactual: what would concentration have been in the past if investors had valued the stocks of the big companies so that they earned returns in line with the market?

To do this, we take the market capitalizations of the top 1, 3, and 10 companies as of the end of 2023 and discount them back 5 and 10 years at the market return. We can then see what the market capitalizations would have been had the market priced the stocks “efficiently.”<sup>18</sup>

Exhibit 4 shows the results. The top panel shows that the actual weighting of the top 10 stocks was 17.8 percent in 2018, but it would have been 22.1 percent had their market capitalizations at that time anticipated the 2023 result. The bottom panel shows the same analysis going back to 2013, with the actual weighting of 13.6 percent and a weighting of 18.1 percent after considering the counterfactual.

**Exhibit 4: Actual versus Theoretical Market Concentration in the U.S. Anticipating 2023 Results****Five Years Prior**

Weight in Top:	Actual 2018	Theoretical 2018
1	2.7%	4.8%
3	7.9%	12.0%
10	17.8%	22.1%

**Ten Years Prior**

Weight in Top:	Actual 2013	Theoretical 2013
1	2.2%	3.9%
3	5.4%	9.8%
10	13.6%	18.1%

Source: FactSet and Counterpoint Global.

Note: Market return is the total shareholder return of the Russell 3000 Index; Theoretical adjustment only made for the top 1, 3, and 10 companies.

We conclude this section by suggesting it is very hard to determine the correct level of concentration. Stock market concentrations are generally much higher outside than inside the U.S., but the U.S. makes up a majority of the total capitalization in the world. Further, the possibility that large capitalization stocks were mispriced a decade ago, allowing them to deliver very high total shareholder returns through 2023, suggests that concentration may have been too low.

Another approach is to see if the underlying fundamentals support the shift in concentration over time. We want to know if the change in market capitalization of the leading companies is backed by value creation.

**Fundamentals and Concentration**

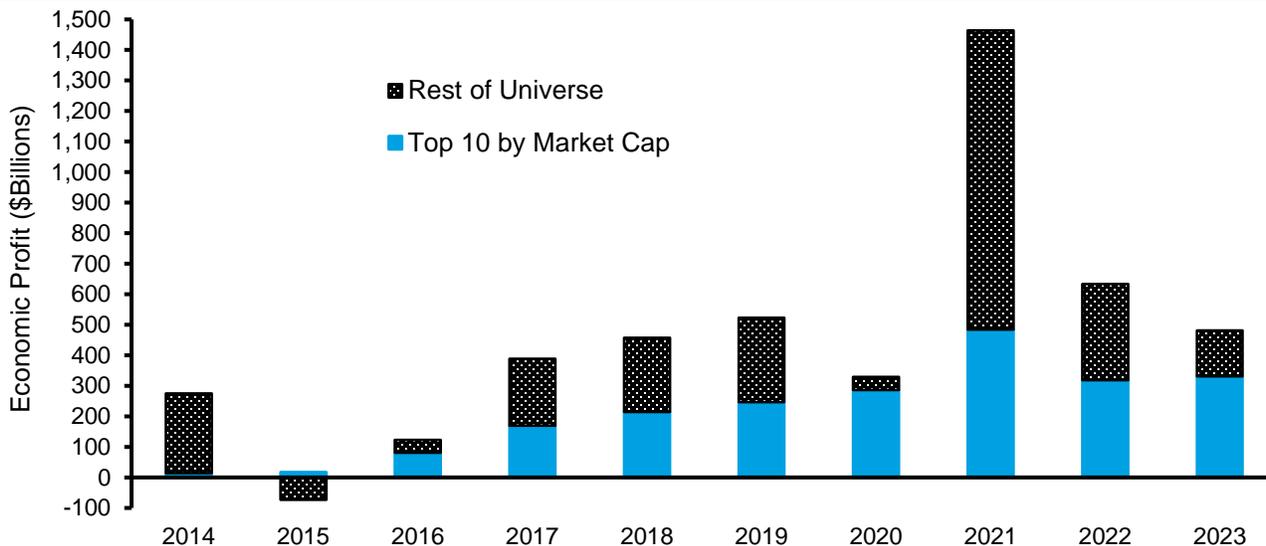
The most basic way to think about stock market concentration is to consider the distribution of value creation. Individual companies commonly see their value creation prospects improve and worsen during their lifetimes. Stock prices tend to reflect expectations about future value creation.

Stock market concentration may be justified if the market capitalizations mirror the value creation prospects. Economic profit is one way to measure the magnitude of value creation. Economic profit equals return on invested capital (ROIC) minus the weighted average cost of capital (WACC) times invested capital [Economic Profit = (ROIC – WACC) × Invested Capital]. For example, the economic profit of a company that has an ROIC of 13 percent, a WACC of 8 percent, and invested capital of \$1,000 would be \$50 [(0.13 – 0.08) × \$1,000 = \$50].

Note that economic profit measures not only value creation (the difference between ROIC and WACC) but also the size of the opportunity via invested capital. More concretely, the spread between ROIC and WACC provides a sense of the appropriate multiple of enterprise value to invested capital.<sup>19</sup> That multiple times invested capital offers an estimate of enterprise value, from which it is straightforward to calculate equity market capitalization. There is a reasonably direct link between economic profit and equity market capitalization.

Exhibit 5 shows the economic profit of the top 10 companies by market capitalization and of the rest of the universe. Our calculations of ROIC and invested capital include adjustments for intangible investments.<sup>20</sup> In 2023, we estimate that the aggregate economic profit for the U.S. public companies in our universe was \$481 billion, and that the top 10 companies by market capitalization contributed \$331 billion to that total. The top 10 stocks at the end of 2023 were 27 percent of the market capitalization and the companies earned 69 percent of the economic profit.

**Exhibit 5: Economic Profit of Top 10 by Market Cap and of Rest of Universe, U.S., 2014-2023**

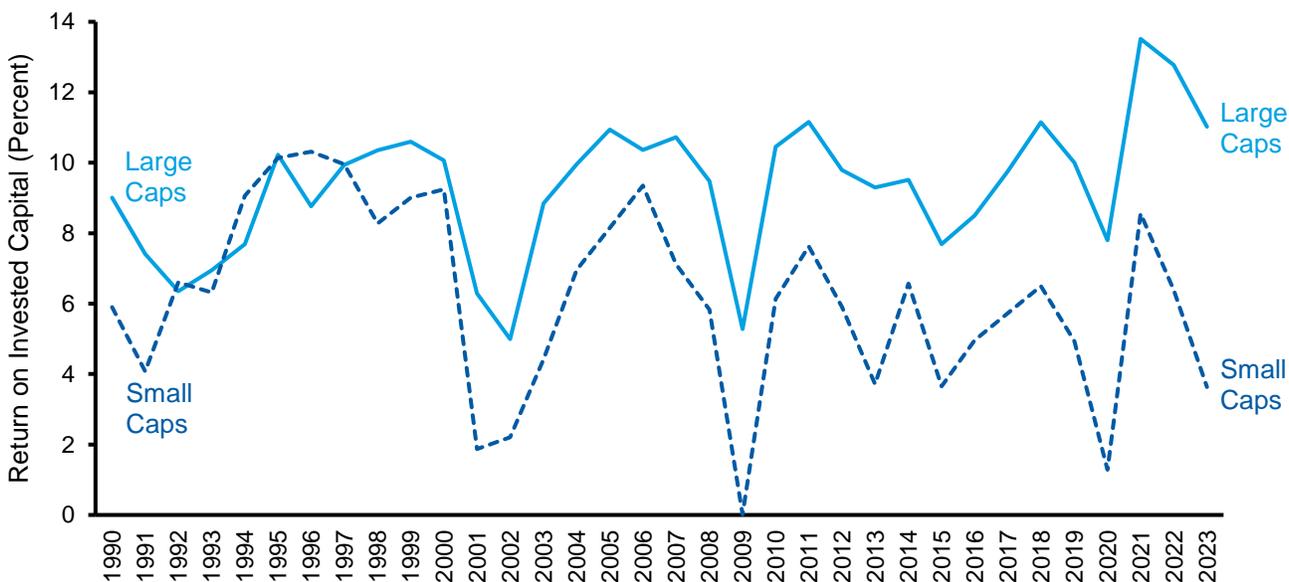


Source: FactSet and Counterpoint Global.

In the 10 years through 2023, a period when concentration rose sharply, the top 10 stocks averaged 19 percent of the market capitalization while the companies averaged 47 percent of the economic profit. From 1990 to 2023, the top 10 were 17 percent of the market capitalization and 46 percent of the economic profit. The expectations priced into the market may be wrong, but it would be hard to argue that the market capitalizations of the largest companies are without some fundamental support.

Our calculations show that the gap between the ROICs of large cap and small cap companies has expanded in recent decades (see exhibit 6). Specifically, the aggregate ROIC for large caps was 0.8 percentage points higher than that of small caps on average from 1990 to 1999, and 4.1 percentage points higher from 2000 to 2023.<sup>21</sup>

**Exhibit 6: Aggregate ROIC for Large and Small Capitalization Stocks in the U.S., 1990-2023**



Source: FactSet and Counterpoint Global.

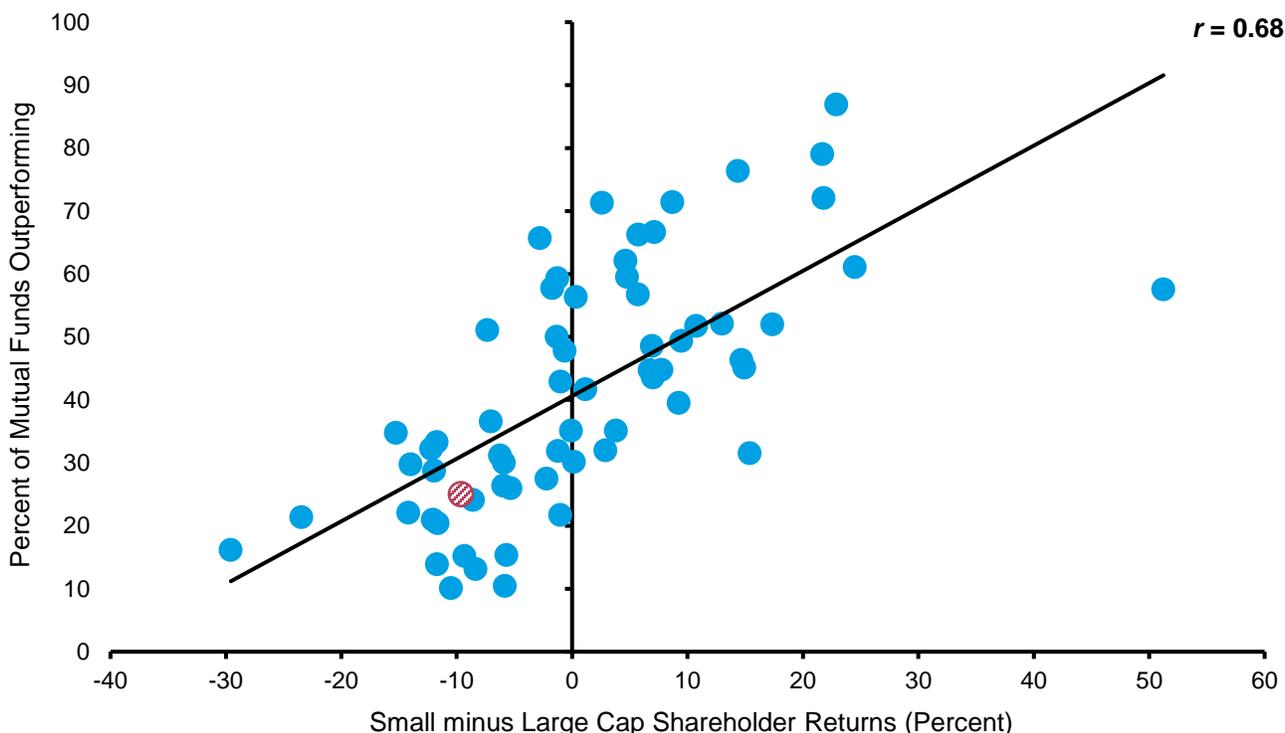
This rising disparity in ROIC does not directly address the ROIC for the top companies that have driven concentration higher. We estimate that the ROIC in calendar 2023 was 46.6 percent for the top company by market capitalization, averaged 29.6 percent for the top 3, and averaged 27.4 percent for the top 10. The aggregate ROIC for the Russell 3000, an index that captures most U.S. public companies, was 10.1 percent. We exclude companies in the financial and real estate sectors.

Investors have to deal with the world as it is rather than how they wish it to be. In that spirit, we now review some of the implications of rising concentration on running a portfolio that uses a broad-based index as a benchmark for results.

### Portfolio Implications of Rising Concentration

Rising stock market concentration is challenging for active managers because on average they own stocks with smaller market capitalizations than those in their benchmarks.<sup>22</sup> That means when large cap stocks do well relative to small cap stocks, the percentage of mutual funds that outperform the benchmark tends to go down. When small caps outperform large caps, active managers outperform at a higher rate. Exhibit 7 shows this relationship from 1960 to 2023. The striped red dot shows the outcome for 2023.

### Exhibit 7: Performance of Small Versus Large Capitalization Stocks and Active Mutual Fund Outperformance Rates, U.S., 1960 to 2023, Annual



Source: Outperformance Rates: Morningstar Direct (1960-1999) and “SPIVA® U.S. Scorecard,” S&P Dow Jones Indices Research (2000-2023); Small minus Large Cap Performance: Kenneth R. French (1960-1979) and FactSet (1980-2023); Counterpoint Global.

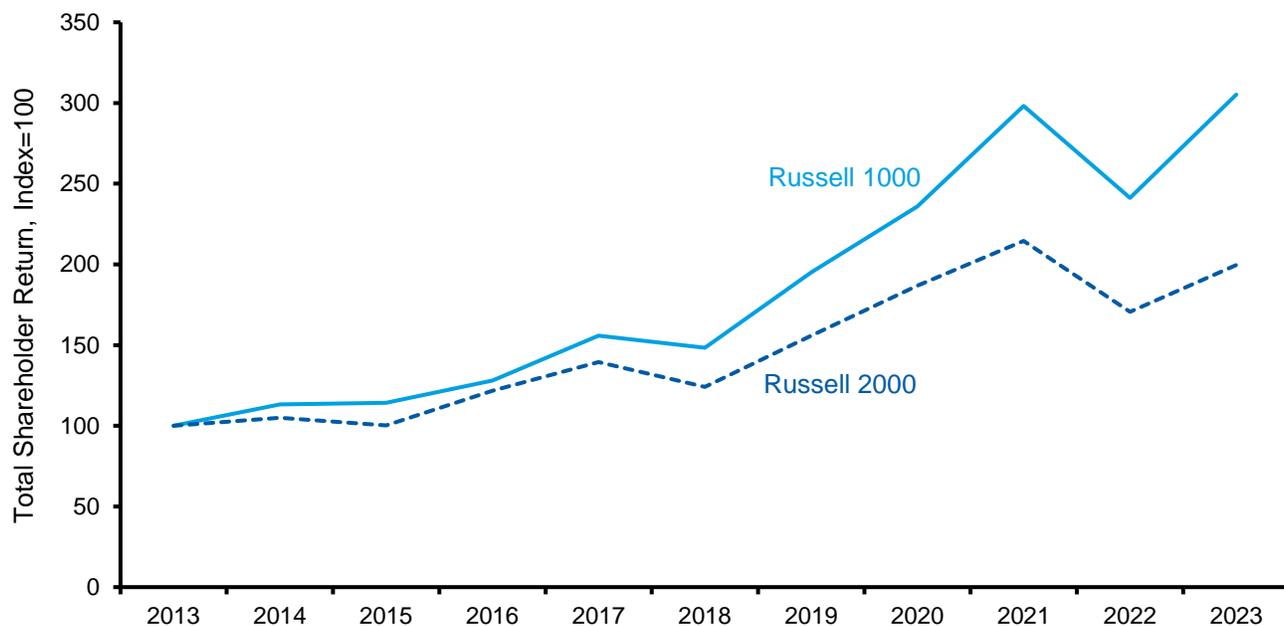
Note: Small minus large cap is Small Minus Big Fama/French Factor (1960-1979) and Russell 2000 minus Russell 1000 using total shareholder returns (1980-2023); r is the Pearson correlation coefficient.

Of the past five complete decades, the two best, measured as the percentage of funds that outperformed the market, were the 1970s and 2000s. In the 1970s, 50 percent of active managers beat the benchmark, based on annual averages, but the compound annual total shareholder return (TSR) for the S&P 500 was 5.9 percent. In the 2000s, an average of 48 percent of managers outperformed annually but the market returned -0.9 percent. In these decades, small caps delivered better returns than large caps.

Contrast those results with what happened in the 1980s, 1990s, and 2010s. The S&P 500 was up 17.5 percent in the 1980s, 18.2 percent in the 1990s, and 13.6 percent in the 2010s. But active managers were challenged, with an average of 40 percent beating the market annually in the 1980s, 36 percent in the 1990s, and just 34 percent in the 2010s. In each of these decades, large cap stocks generated returns handily in excess of small cap stocks.

The rate of increase in concentration over the past decade was the steepest in history. Exhibit 8 shows the TSR for the Russell 1000, a proxy for large cap stocks, relative to the Russell 2000, which reflects small caps, for the ten years ended in 2023. One hundred dollars invested in the Russell 1000 would have grown to \$305, for a compound annual TSR of 11.8 percent. One hundred dollars invested in the Russell 2000 would have grown to \$200, for a compound annual TSR of 7.2 percent. Further, large cap stocks delivered higher returns than small cap stocks in 9 of the last 10 years.

#### Exhibit 8: Total Shareholder Returns for the Russell 1000 and 2000, 2014-2023



Source: FactSet and Counterpoint Global.

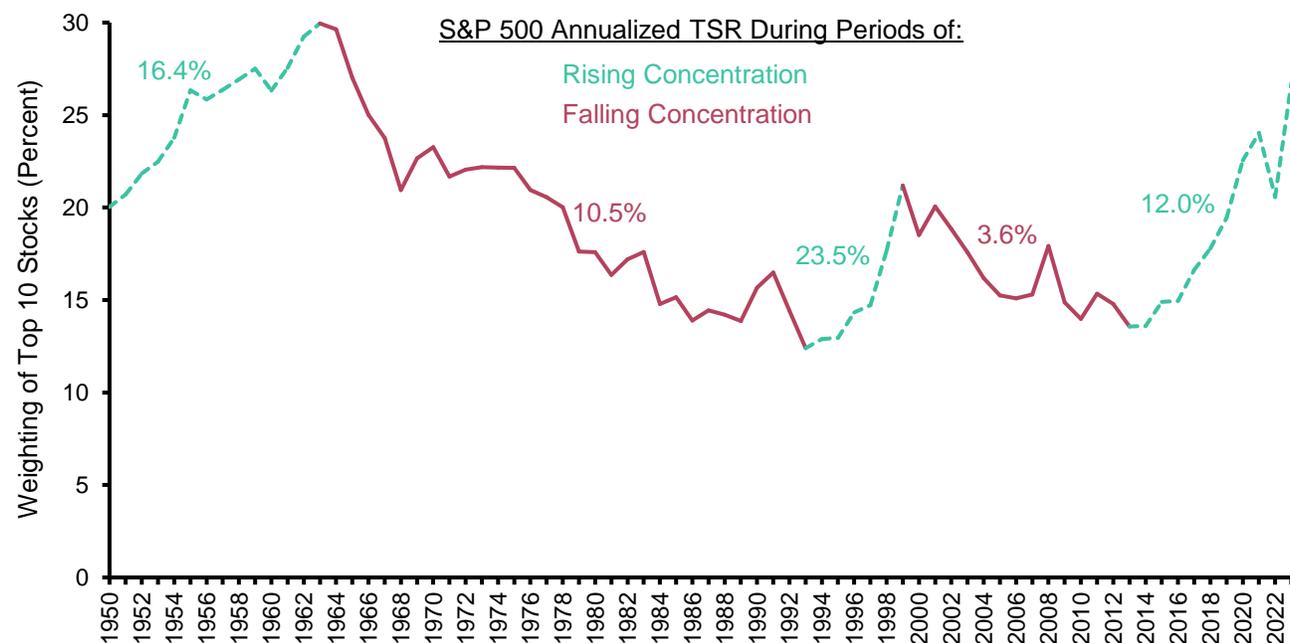
In response to the rise in concentration, leading financial economists were asked their opinion about the following statement: “investors seeking a well-diversified passive equity portfolio should consider alternatives to market-cap-weighted indices.”<sup>23</sup> Thirty percent agreed with the statement, 45 percent disagreed or strongly disagreed, and 25 percent were uncertain. Those who agreed argued either that the stock market failed to reflect all investable assets or that market-capitalization-weighted indices are on the wrong side of exploiting inefficiency because overvalued stocks are too large in the portfolio and undervalued stocks are too small. The latter point is a topic of ongoing debate.<sup>24</sup>

Exhibit 9 shows the returns for the S&P 500, or its predecessor, when stock market concentration goes from a trough to a peak and from a peak to a trough. The TSR for the recent rise starting in 2014 goes through 2023, as the peak has yet to be established. The market tends to produce returns above the historical average in periods when concentration is rising and returns below the average when concentration is falling. The S&P 500's compound annual TSR over the full period was 11.4 percent.

The market's runup in the mid to late 1990s and subsequent correction from 2000 to 2013 were extraordinary. The top 3 stocks at the end of 1999, Microsoft, General Electric, and Cisco, embedded extremely high expectations. As a crude proxy for that optimism, the price-earnings (P/E) multiple based on consensus earnings estimates for the next 12 months was 65 for Microsoft, 42 for General Electric, and 97 for Cisco. From the beginning of January 2000 to the trough in concentration at the end of 2013, the compound annual TSR was -1.0 percent for Microsoft, -1.4 percent for General Electric, and -5.6 percent for Cisco.

The top 3 at the end of 2023 had substantially more modest P/Es, with Apple at 29, Microsoft at 31, and Alphabet at 21. Those multiples are above the average of S&P 500 stocks, but the economic returns for the businesses are also above the average.

**Exhibit 9: S&P 500 Annual Returns During Rising and Falling Concentration, 1950-2023**



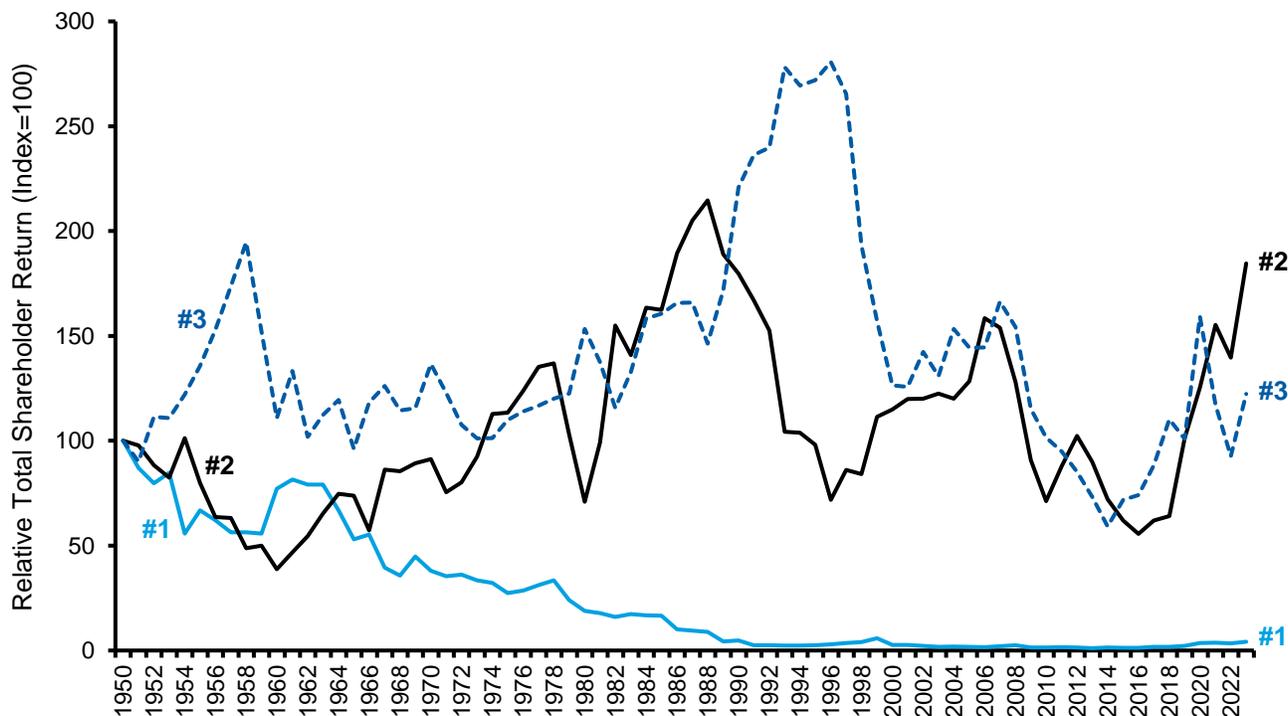
Source: FactSet and Counterpoint Global.

To investigate how the shareholders of the top companies fared over time, we created an index of the TSR relative to the S&P 500 for each of the largest three stocks starting at the end of 1950. The index is set at 100 for the individual spots and changes annually based on the relative TSRs of the stocks in the positions at the end of the prior year.

Exhibit 10 shows the results. Two findings are noteworthy. First, the top stock has historically been a bad investment. Specifically, the arithmetic average of the series of annual returns of the top stock relative to the S&P 500 from 1950 to 2023 was -1.9 percent. The geometric return of the series was -4.3 percent, reflecting the fact that the series was volatile. That the top stock delivers poor results is consistent with past research.<sup>25</sup>

However, the second and third largest stocks fared considerably better. The index for the second largest stock had an average arithmetic return of 2.6 percent and a geometric return of 0.8 percent. This series was also volatile, but not as volatile as that of the number one stock. Likewise, the third largest stock did well, with an arithmetic return of 1.6 percent and a geometric return of 0.3 percent. The volatility of this series was lower than that of the top two stocks.

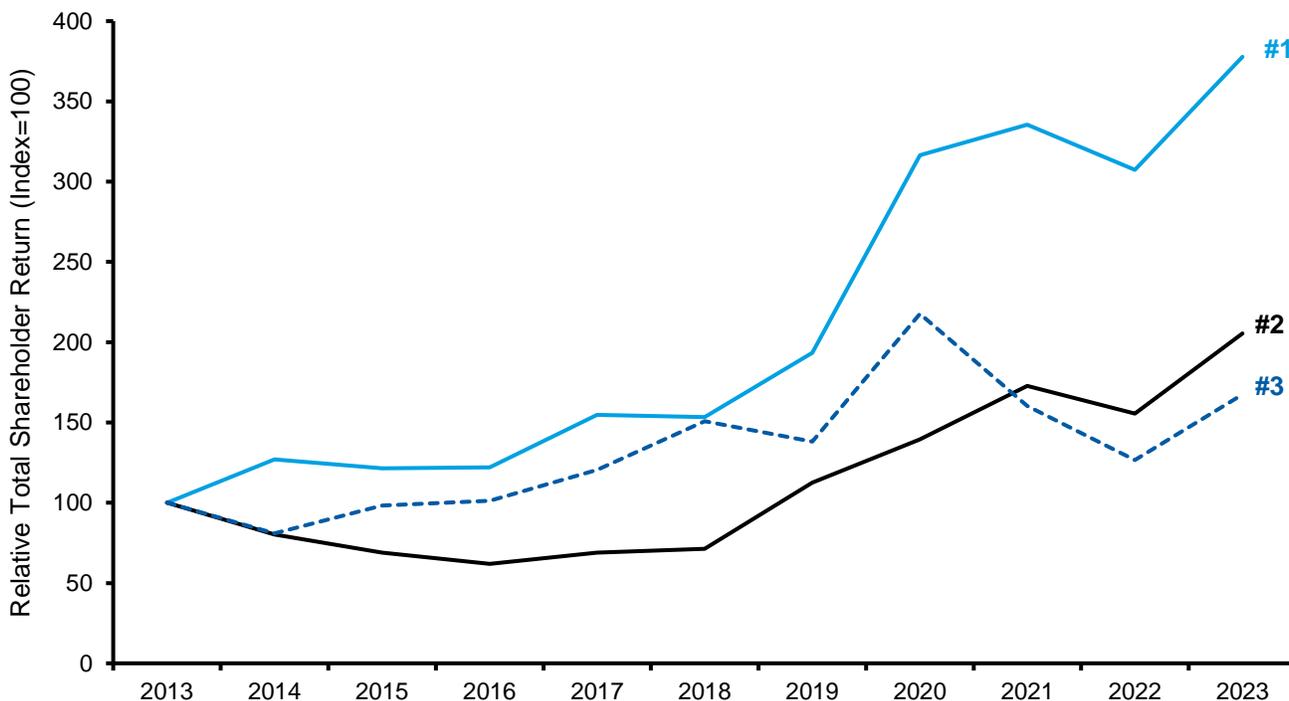
**Exhibit 10: Index of Annual Relative Returns for Top 1, 2, and 3 Stocks in the U.S., 1950-2023**



Source: FactSet; Center for Research in Security Prices; Counterpoint Global.

Note: Past performance is no guarantee of future returns.

Exhibit 11 reveals the second noteworthy finding: the top 3 stocks produced markedly better relative returns from the end of 2013 through 2023 than they did in the past. This is notwithstanding the swoon in large cap technology stocks in 2022. The arithmetic average annual excess return was 15.9 percentage points for owning the largest stock, 9.8 percentage points for the second largest stock, and 8.4 percentage points for the third largest stock over this time. The corresponding excess geometric returns were 14.2, 7.5, and 5.3 percentage points. These results largely reflect the relative returns of the main stocks that have shuffled through the top three spots, including Apple, Microsoft, and Alphabet.

**Exhibit 11: Index of Annual Relative Returns for Top 1, 2, and 3 Stocks in the U.S., 2014-2023**

Source: FactSet and Counterpoint Global.

Note: Past performance is no guarantee of future returns.

It is a tautology to say that stock market concentration has increased because the stocks of large cap stocks have done well. That trees do not grow to the sky, an acknowledgement that there is a limit to growth and size, would suggest caution. A focus on the strong fundamental results for these companies and the argument that new technologies, such as artificial intelligence, may disproportionately benefit the larger firms would support a more constructive view.

## Conclusion

Investors in equity mutual funds that are actively managed generally have an alternative. They can allocate capital to diversified index funds. Because of this, active managers seek to generate returns in excess of the benchmark. As a result, index fund returns and the manner in which the index achieves them are both relevant. Returns for index funds are not the result of macroeconomic forecasts, factor analyses, or overweighting sectors, industries, or positions. Indices do periodically rebalance but for the most part the committees let the chips fall where they may.

The last decade has seen a sharp increase in stock market concentration, which captures the percentage of the overall market capitalization that is in a small number of stocks. This is of practical concern because active managers, who typically construct portfolios with average market capitalizations that are smaller than those of their benchmarks, struggle to generate excess returns when concentration is on the rise. For instance, 30 percent of U.S. mutual funds outperformed their benchmarks on average in each year from 1960 to 2023 when concentration was rising, and 47 percent outperformed when concentration was falling.

Concentration also raises unease about the possible loss of sufficient diversification, the prospects that the largest stocks are overvalued, and the potential deleterious effect of flows into index funds. Some of these concerns are difficult to quantify.

Not many stocks have been among the leaders in market capitalization. Just 11 stocks have spent more than two years in a spot among the top 3 since 1950. Nine of these 11 companies appear on the list of the greatest wealth creators in the U.S. stock market since 1926.

It is reasonable to ask whether stock market concentration in the U.S. is too high today or whether it was too low in the past. The U.S. stock market, even after a decade of increasing concentration, remains one of the more diversified markets in the world. But the U.S. has an outsized impact on global indices such as the MSCI All Country World Index because it represents about 60 percent of the capitalization of all equity markets.

We can calculate what concentration would have looked like in the past had today's leaders in market capitalization earned a market rate of return over the past 5 and 10 years. This simple analysis, which assumes that stocks are properly priced today and were mispriced in the past, shows that the theoretical concentration was higher than the actual concentration.

Fundamental results can justify rising concentration. From 2014 to 2023, the top 10 stocks were 19 percent of the market capitalization, on average, while the companies made up 47 percent of the total economic profit. In 2023, the top 10 equities were 27 percent of the market capitalization and the firms contributed 69 percent to the total economic profit. The relative market capitalizations of the stocks of these companies is not without a fundamental foundation.

The S&P 500 has delivered returns above the average when concentration was rising and below the average when concentration was falling. The results were pronounced for the concentration changes associated with the inflating and deflating of the dot-com bubble, with compound annual returns of 23.5 percent from 1994 through 1999 and just 3.6 percent from 2000 to 2013. The largest stocks at the apex in 1999 traded at very high multiples of earnings and cash flow. The top stocks today are at a premium to the overall market but also represent companies with solid ROICs and growth prospects.

Owning the stock of the largest company has historically been a poor investment relative to the market overall until about a decade ago. Owning the second and third largest stocks produced excess returns from 1950 to 2023. However, all three of the top stocks have provided stellar relative returns from 2014 to 2023. Where we go from here is anyone's guess, but assessments of sustainable competitive advantage and growth will be central to determining that path.

**Please see Important Disclosures on pages 16-18**

## Endnotes

<sup>1</sup> The United States Securities and Exchange Commission Form N-1A.

<sup>2</sup> "S&P 500 Factsheet," *S&P Dow Jones Indices*, April 30, 2024. Also, see [www.spglobal.com/spdji/en/research-insights/index-literacy/the-sp-500-and-the-dow/](http://www.spglobal.com/spdji/en/research-insights/index-literacy/the-sp-500-and-the-dow/).

<sup>3</sup> There is sufficient discretion that some argue the S&P 500 is "not meaningfully passive." See Adriana Z. Robertson, "The (Mis)uses of the S&P 500," *University of Chicago Business Law Review*, Vol. 2, No. 1, 2023, Article 3.

<sup>4</sup> Hamish Preston and Aye M. Soe, "What Happened to the Index Effect? A Look at Three Decades of S&P 500® Adds and Drops," *S&P Dow Jones Indices Research*, September 2021 and Michael J. Mauboussin, Dan Callahan, and Darius Majd, "Corporate Longevity: Index Turnover and Corporate Performance," *Credit Suisse Global Financial Strategies*, February 7, 2017.

<sup>5</sup> Anu R. Ganti, Tim Edwards, Joseph Nelesen, Davide Di Gioia, and Sabatino Longo, "SPIVA® U.S. Scorecard," *S&P Dow Jones Indices Research*, March 6, 2024.

<sup>6</sup> K.J. Martijn Cremers, Jon A. Fulkerson, and Timothy B. Riley, "Challenging the Conventional Wisdom on Active Management: A Review of the Past 20 Years of Academic Literature on Actively Managed Mutual Funds," *Financial Analysts Journal*, Vol. 75, No. 4, Fourth Quarter 2019, 8-35; Jonathan B. Berk, Jules H. van Binsbergen, and Max Miller, "Mutual Funds: Skill and Performance," *Journal of Portfolio Management*, Vol. 46, No. 5, April 2020, 17-31; and David Nanigian, "The Historical Record on Active versus Passive Mutual Fund Performance," *Journal of Investing*, Vol. 31, No. 3, April 2022, 10-22.

<sup>7</sup> More accurately, a company's market capitalization, total shares outstanding times stock price, is adjusted by the investable weight factor (IWF). IWF equals the shares available to trade ("float") divided by total shares outstanding. Float is total shares outstanding less shares owned by individuals or entities that exceed 10 percent of total shares. For example, the IWF for Microsoft is 0.985 (7,415.4 ÷ 7,528.3). That means the weight in the index is market capitalization of \$3.122 trillion (7,528.3 × \$414.74) times 0.985, or \$3.075 trillion (as of May 10, 2024).

<sup>8</sup> Chris Banse, "Market Concentration and the Magnificent Seven: Where Next?" *Russell Investments*, February 21, 2024. The Magnificent Seven includes Apple, Amazon, Alphabet, Meta, Microsoft, Nvidia, and Tesla. The article refers to the Russell 1000, an index of the largest 1,000 stocks in the U.S. by market capitalization, but the point is true for the S&P 500 as well. See <https://russellinvestments.com/us/blog/market-concentration-magnificent-seven>.

<sup>9</sup> For a terrific discussion of these issues, see the series, "Owenomics: Observations on Behavioral Finance & Markets," by Owen Lamont. Recent posts that are relevant include "Higher Stock Market Concentration Does Not Mean Higher Risk" (March 2024), "Don't Blame Indexing for Your Problems" (February 2024), and "Magnificent Ignorance about the Magnificent Seven" (February 2024). See [www.acadian-asset.com/investment-insights/owenomics](http://www.acadian-asset.com/investment-insights/owenomics).

<sup>10</sup> The index's official numbers are lower because it treats Alphabet as two separate companies. We consider Alphabet to be one company, which increases the concentration 70 basis points at year-end 2023 and 60 basis points at the end of the first quarter of 2024.

<sup>11</sup> Elroy Dimson, Paul Marsh, and Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns* (Princeton, NJ: Princeton University Press, 2002), 28-32.

<sup>12</sup> Jason Zweig, a journalist, reports that the average concentration of the top 10 stocks in the U.S. in the 1930s was 32.9 percent. See Jason Zweig, "What Amazon's Rise to No. 1 Says About the Stock Market," *Wall Street Journal*, January 11, 2019.

<sup>13</sup> Jason Zweig, "Apple Still Wears the Market Crown. It Can Easily Slip." *Wall Street Journal*, September 4, 2020.

<sup>14</sup> Hendrik Bessembinder, "Wealth Creation in the U.S. Public Stock Markets 1926-2019," *Journal of Investing*, Vol. 30, No. 3, April 2021, 47-61 and <https://wpcarey.asu.edu/departments-finance/faculty-research/do-stocks-outperform-treasury-bills>.

<sup>15</sup> Ibid.

<sup>16</sup> Kee-Hong Bae, Warren Bailey, and Jisok Kang, "Why Is Stock Market Concentration Bad for the Economy?" *Journal of Financial Economics*, Vol. 140, No. 2, May 2021, 436-459.

<sup>17</sup> “Stock Market Concentration,” *Economist*, April 12, 2001.

<sup>18</sup> This analysis makes two large simplifying assumptions. First is that the market was efficient at the end of 2023 and inefficient 5 or 10 years prior. Stock prices reflect expectations about future financial results, and total returns over time ultimately capture changes in expectations. (Dividends also play a role, but typically a much smaller one). One could argue that the stocks were priced efficiently in the prior period and are overpriced today. There is no simple way to resolve this conundrum. Second, we discount the market capitalizations using the return of the Russell 3000. The beta, which measures the return of an individual security relative to the return on the market index, for most of these companies was in excess of 1.0. This means that they were on average riskier than the market and that our discount rate was too low.

<sup>19</sup> Michael J. Mauboussin and Dan Callahan, “Return on Invested Capital: How to Calculate ROIC and Handle Common Issues,” *Consilient Observer: Counterpoint Global Insights*, October 6, 2022.

<sup>20</sup> Michael J. Mauboussin and Dan Callahan, “ROIC and Intangible Assets: A Look at How Adjustments for Intangibles Affect ROIC,” *Consilient Observer: Counterpoint Global Insights*, November 9, 2022.

<sup>21</sup> To do this calculation, we start with the Russell 3000, which captures the market capitalization of nearly every public company in the U.S., and remove companies in the financial and real estate sectors. We then divide that population in two based on market capitalization at the end of each calendar year, with the largest one-third deemed to be large cap and the smaller two-thirds small cap. ROICs are adjusted for intangible assets and are based on aggregate dollar amounts for the two groups.

<sup>22</sup> Gerald P. Madden, Kenneth P. Nunn Jr., and Alan Wiemann, “Mutual Fund Performance and Market Capitalization,” *Financial Analysts Journal*, Vol. 42, No. 4, July-August 1986, 67-70. Using data from Morningstar Direct, we found that as of year-end 2023 the 500-plus active mutual funds based in the U.S. that use the S&P 500 as their primary prospectus benchmark had an average market cap of \$146 billion versus \$242 billion for the Vanguard 500 Index Fund Admiral. This Vanguard fund seeks to track the performance of the S&P 500 Index. Further, nearly 80 percent of the funds had a lower average market cap than that of the benchmark. Morningstar’s definition of average market cap is the geometric mean of the market caps of all the stocks a fund owns.

<sup>23</sup> “Stock Market Concentration,” *University of Chicago—Kent A. Clark Center for Global Markets*, February 27, 2024. See [www.kentclarkcenter.org/surveys/stock-market-concentration/](http://www.kentclarkcenter.org/surveys/stock-market-concentration/).

<sup>24</sup> André F. Perold, “Fundamentally Flawed Indexing,” *Financial Analysts Journal*, Vol. 63, No. 6, November/December 2007, 31-37.

<sup>25</sup> Rob Arnott, “Too Big to Succeed,” *Fundamental Index Newsletter*, June 2010.

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