RESEARCH

Dimensional

Indices Acting Active: Index Decisions May Be More Active than You Think

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KEY TAKEAWAYS

- Index providers make choices about what stocks and countries to include in the index, as well as how to manage rebalancing.
- Index fund investors may overlook the fact that the creation and maintenance of an index fund entails numerous active decisions.
- Beyond tracking considerations, it is important for index fund investors to perform due diligence on decisions made by their index provider.

Index funds are widely viewed as a way for investors to achieve broad, passive exposure to certain markets or asset classes. However, index fund investors may overlook the fact that the creation and maintenance of an index fund entails numerous active decisions. In practice, index providers make many choices that have important implications for the characteristics and returns of the benchmarks they produce. As with any investment strategy, it is imperative for investors in index funds to evaluate whether these choices align with and serve their investment objectives.

Which Index Represents the Market?

Different index providers make different methodology choices, which can ultimately lead to indices designed to target the same asset class having disparate returns. As an illustration, **Exhibit 1** shows the annual returns of three US small cap indices over the past 20 years, ending in 2023. The average return difference between the best and worst performer was 4.9% and in some years that difference was markedly higher. For example, in 2009 and 2021, the return of the best-performing index exceeded that of the worst-performing index by more than 10%. Return spreads of this magnitude may be more commonly associated with active strategies than with indices passively tracking the same asset class.

EXHIBIT 1: Which US Small Cap Index Is Passive?
Annual returns (%), 2004–2023

■ S&P SmallCap 600 Index ■ Russell 2000 Index ■ CRSP US Small Cap Index

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
HIGHER RETURNS	22.6	8.7	18.4	2.0	−31.1	40.1	28.0	1.0	18.6	41.3	7.5	−2.0	26.6	16.2	−8.5	27.3	20.0	26.8	−16.1	18.1
	20.0	7.7	16.0	−0.3	−33.8	27.2	26.9	−1.9	16.3	38.8	5.8	−3.7	21.3	14.6	−9.3	25.5	19.1	17.7	−17.6	16.9
LOWER RETURNS	18.3	4.6	15.2	−1.6	−36.8	25.6	26.3	−4.2	16.3	38.5	4.9	−4.4	18.3	13.2	−11.0	22.8	11.3	14.8	−20.4	16.1
	4.3	4.1	3.2	3.6	5.7	14.5	1.7	5.2	2.3	2.8	2.6	2.4	8.3	3.0	2.5	4.6	8.7	12.0	4.3	2.0

Difference between highest and lowest (%)
Average difference = 4.9%

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This observation is not unique to small cap indices. Perhaps surprisingly, even indices designed to represent the total US market can behave differently from one another. As **Exhibit 2** shows, the annual spread in returns among four providers of total US market benchmarks over the past 20 years ranged from 0.2% to 3.2%, with an average spread of 1%.

EXHIBIT 2: Which Total Market Index Is Passive?
Annual returns (%), 2004–2023

■ S&P Composite 1500 Index ■ MSCI USA IMI Index (gross dividends) ■ Russell 3000 Index ■ CRSP US Total Market Index

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
HIGHER RETURNS	12.4	6.4	15.9	5.8	−36.7	28.9	17.9	1.8	16.4	33.6	13.1	1.0	13.0	21.3	−5.0	31.1	21.1	28.4	−17.8	26.2
	12.3	6.3	15.7	5.8	−37.0	28.7	17.2	1.2	16.4	33.6	12.6	0.6	12.7	21.2	−5.2	31.0	21.0	26.1	−19.2	26.0
	11.9	6.1	15.7	5.5	−37.0	28.3	16.9	1.0	16.2	33.4	12.6	0.5	12.7	21.1	−5.2	30.9	20.9	25.7	−19.2	26.0
LOWER RETURNS	11.8	5.7	15.3	5.1	−37.3	27.2	16.4	0.7	16.2	32.8	12.5	0.4	12.7	21.1	−5.2	30.8	17.9	25.7	−19.5	25.5
	0.6	0.8	0.6	0.6	0.6	1.6	1.5	1.0	0.2	0.8	0.6	0.6	0.4	0.2	0.3	0.3	3.2	2.8	1.7	0.8

Difference between highest and lowest (%)
Average difference = 1.0%

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These return differences underscore the reality that no single approach exists to defining a market. According to the Investment Company Institute (ICI), "index construction and administration often involve a significant number of assumptions, inputs, rules, and methodological choices."[1] Among these are what stocks and countries to include, what weights to give them, and when to add them. Also, crucially, index providers decide how and how often to rebalance their indices so that they continue to track the market or asset class they are intended to represent.

How Are Stock Eligibility Decisions Made?

Index providers must determine which group of stocks best represents a market or asset class, as well as when the stocks are added, when they are dropped, and at what weight they are held. These decision points can add up to significant differences in stock exposure between two indices that purport to cover the same asset class or market.

For instance, investors might expect that determining what constitutes a large cap stock in the US is a routine process. However, the timing of Tesla's inclusion in the S&P 500 index serves as an illustration that this expectation may not hold true. In January 2020, Tesla's stock was trading at approximately $40 per share, making it roughly the 60th-largest company in the United States by market capitalization. However, at that time, Tesla had not yet met all the eligibility criteria for the S&P 500. Later that year, in November, S&P Dow Jones announced that Tesla was eligible and would be added to the S&P 500 in December. Meanwhile, over the course of 2020, Tesla's stock price increased. By the day before its addition, Tesla's stock was worth approximately $200 per share, making it the sixth-largest company in the US by market capitalization.[2]

Missing out on Tesla's returns for most of 2020 detracted from the returns of the S&P 500 in that year compared to those of US large cap indices that included the stock, such as the Russell 1000 Index. The Tesla example highlights the fact that differences in index methodologies can have consequences for returns in a manner similar to stock selection decisions by active managers.

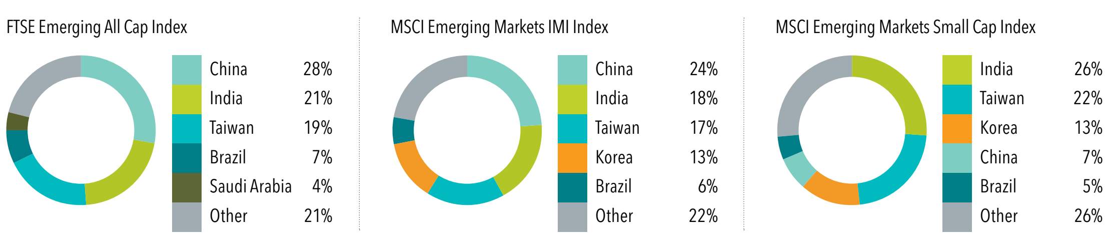
1. "Indexes and How Funds and Advisers Use Them: A Primer," Investment Company Institute, January 2021.
2. Tesla stock price data from Bloomberg LP. Bloomberg data provided by Bloomberg.

How Are Country Decisions Made?

In the case of indices that comprise multiple countries, index providers also face the task of deciding which countries to include and what weights to assign them. Major providers of international indices often come to different determinations of which countries are developed vs. emerging, leading to different underlying country exposures for indices targeting similar international asset classes. For example, South Korea represents 12% of the MSCI Emerging Markets IMI Index, making it the fourth-largest market in that benchmark, while it has no weight in the FTSE Emerging All Cap Index, as FTSE considers South Korea a developed market.

Other methodology decisions may also impact country weights, even for indices offered by the same provider. Country weights are often linked to the overall size of a country's securities universe, so the methodology for selecting and including stocks can impact these weights. For instance, rules determining which stocks to consider large vs. small can meaningfully affect country weights in large cap vs. small cap indices. In the MSCI Emerging Markets IMI Index, which covers the full market-capitalization spectrum from large cap to small cap stocks, China is the largest country, with a weight of 24%. In the MSCI Emerging Markets Small Cap Index, India is the biggest country, with a 26% weight, and China represents only 7%, starkly smaller than its representation in the IMI index (see **Exhibit 3**).

EXHIBIT 3: Weight in Top Five Countries across Emerging Markets Indices, as of December 31, 2023



What Is the Approach to Rebalancing?

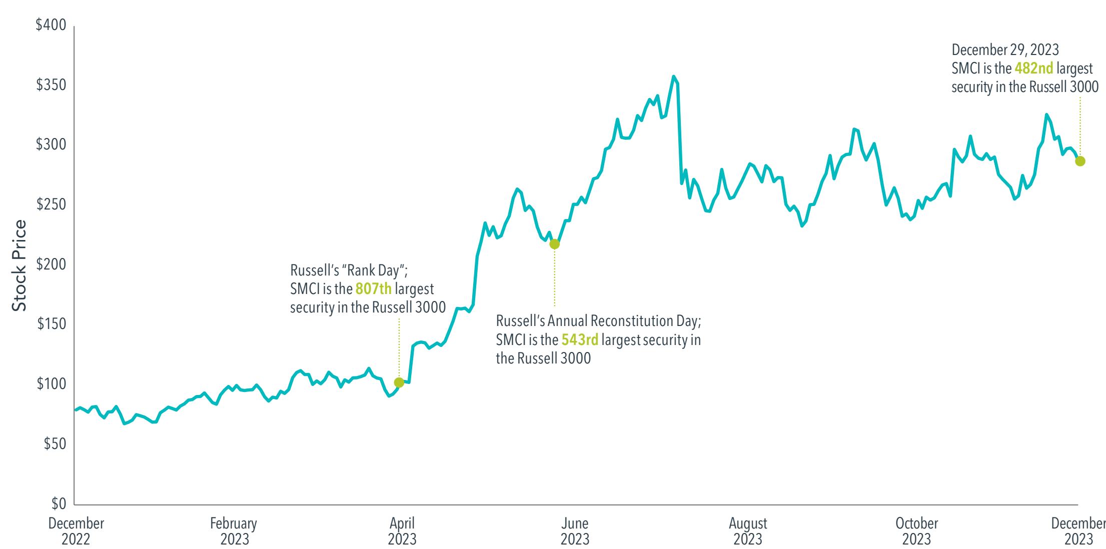
Arguably, one of the most important areas of decision-making for index providers is rebalancing. While some investors may view indexing as a "set it and forget it" way to invest, in practice, markets change every day: New companies go public, existing companies go bankrupt, countries experience geopolitical events, and the list goes on from there. Even if an index is attempting to provide exposure to the broad market, these changes require regular maintenance. For indices attempting to capture more targeted segments of the broad market—for example, small cap or value companies—rebalancing decisions may be even more critical since, by definition, companies move in and out of these market segments as their characteristics change.

Index providers must decide how frequently to rebalance an index to reflect market changes that naturally occur. Determining rebalance frequency, however, may put index providers in a challenging position, since each index rebalance requires fund managers who track an index to do trades to match the index rebalance decisions, which creates costs for those funds. Intuitively, more frequent rebalancing helps limit style drift in an index. Style drift represents a potential opportunity cost for investors who are seeking to capture the returns of a particular market segment. However, because index rebalancing generates costs related to trading for funds tracking indices, index managers may consider both the potential benefits of rebalancing more frequently to maintain style consistency and the potential costs for managers tracking their index to track frequent rebalances.

In practice, most indices undergo reconstitution periodically at prespecified dates. Between reconstitution dates, stocks can remain in an index even when they no longer meet its parameters. A recent example is Super Micro Computer, an information technology company added to the Russell 2000 Index during its annual reconstitution at the end of June 2023 (see **Exhibit 4**). Super Micro Computer was still a small cap stock according to Russell's definition in late April 2023, when Russell ranked stocks for potential inclusion in its indices. However, between the ranking on April 28 and the reconstitution on June 23, the stock grew to be one of the largest 600 stocks in the US, well within the usual territory of the large cap Russell 1000 Index. Under the Russell 2000 Index's current rules, the stock seems likely to remain a part of the index till the next rebalancing in June 2024, despite its current large cap characteristics.

EXHIBIT 4: Not So Micro After All

Super Micro Computer (SMCI) remains in the Russell 2000 Index, despite its rise in market capitalization



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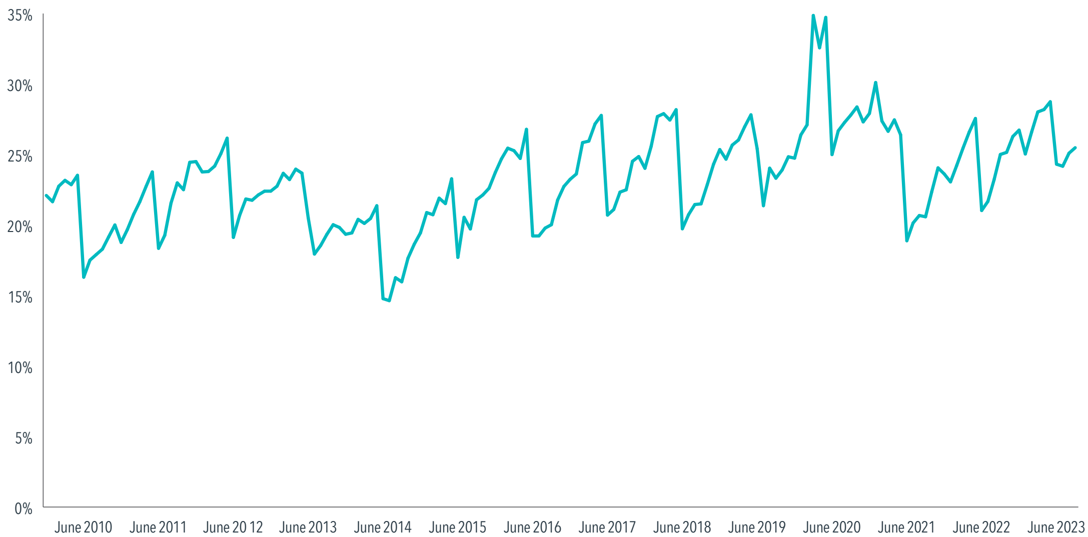
SMCI source: Russell. The specific company identified is not representative of the securities purchased, sold, or recommended for advisory clients, and it should not be assumed that the investment or company identified was or will be profitable. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights to the Russell Indexes. Source: Bloomberg data provided by Bloomberg. Super Micro Computer Inc. (SMCI) was chosen due to its significant change in market capitalization between the Russell "Rank Day" to the Russell Reconstitution Day. On the Reconstitution Day, SMCI was the largest market capitalization stock in the Russell 2000 Index and would have been in the top 500 largest by market capitalization in the Russell 3000 Index. For research and educational purposes.

Super Micro Computer is not an isolated example. **Exhibit 5** shows the weight of the 1,000 largest stocks in the Russell 2000 Index since 2009. Notably, the exposure to these larger cap stocks tends to increase each year between the June reconstitution dates. Moreover, Russell incorporates methodology adjustments to reduce turnover during reconstitution events that can contribute to the index's exposure to the 1,000 largest stocks. These include bands near the market-capitalization break points and multiweek lags between ranking and reconstitution dates.

EXHIBIT 5: Big Fish in a Small Pond

Weight of 1,000 largest stocks in Russell 2000 Index, December 31, 2009–June 30, 2023



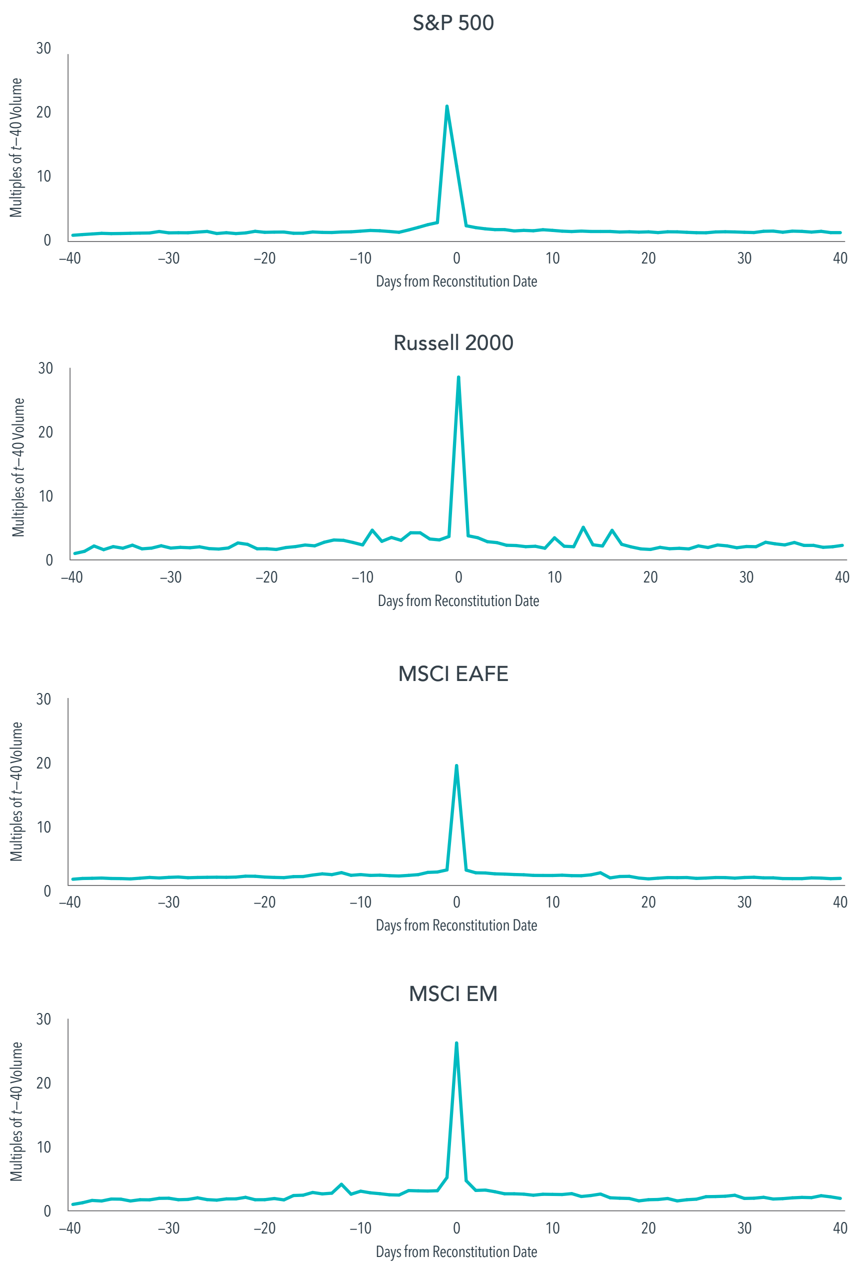
Source: Dimensional, using data from Russell. Data shown is the weight of the Russell 2000 Index in the 1,000 largest stocks. The 1,000 largest stocks are identified based on the descending order of total issuer weight in the Russell 3000 Index. Indices are not available for direct investment. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes.

During reconstitution events, index funds that seek to mimic the returns of their benchmarks have limited flexibility in how much to trade and when. An index fund manager can ensure low tracking error by trading additions and deletions at their closing prices on the reconstitution date. If a benchmark is widely followed, multiple index-tracking fund managers are likely to be trading the same stocks at a similar time, driving up volumes and exacerbating the potential for higher trading costs. Trading costs incurred in index rebalancing do not show up in fees of index fund managers but can potentially reduce returns to investors.

Not surprisingly, trade volumes for index additions and deletions to major indices have tended to be unusually high on reconstitution dates—many multiples higher than typical volumes in those stocks. As **Exhibit 6** shows, this pattern has been true across different index providers and indices that track different markets.

EXHIBIT 6: Avoiding Immediacy-Driven Price Movement

Equal-weighted average trade volume for index additions and deletions, 2018–2022



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Due Diligence on Decision-Makers

Common practice has been to measure index fund managers by how closely they track their target indices. However, tracking error does not reveal the impact of methodology decisions made by index providers. For example, if the index experiences style drift and the manager tracks the index perfectly, the opportunity cost is hidden within a low-tracking-error metric. If an index manager buys an addition to the index at the same price it enters the index, no performance impact is seen, even if the price is the highest of the day.

In a sense, index fund managers outsource decisions regarding the construction and maintenance of the index portfolio to index providers, generally focusing instead on tracking their target benchmarks. However, index providers themselves typically are not fiduciaries. Major index providers are usually independent third parties. According to MSCI, "This fiduciary duty is fundamentally at odds with the role of the index providers in the capital markets ecosystem, which is to produce independent and rules-based information for use by market participants."[3] S&P Dow Jones echoes that sentiment, stating, "Each index is designed in accordance with stated rules; it is not intended to meet the investment objective of any individual licensee or investor."[4]

Investing, even in passive index strategies, involves multiple decisions. Index providers make crucial choices about what stocks and countries to include in the index, as well as how to manage the important task of rebalancing. These decisions help shape the investment exposure and returns for index investors. There isn't one best approach to delivering market exposure, so beyond tracking considerations, it is important for index investors to perform due diligence on decisions made by their index provider.

3. Neil Acres, Managing Director and Global Head of Government and Regulatory Affairs, MSCI Inc., *letter to US Securities and Exchange Commission*, August 15, 2022.

4. Joe DePaolo, General Counsel, S&P Dow Jones Indices, *letter to US Securities and Exchange Commission*, August 16, 2022.

Glossary

Fiduciary: An individual or entity that is legally or ethically required to act impartially and provide advice in the best interest of its clients.

Index fund: A fund that uses a set of rules to determine what assets to hold and at what weightings, seeking to mimic the stated index. These funds aim to track the index's performance.

Large cap: Stocks with a relatively large market capitalization.

Market capitalization: The total value of all shares of a company's stock, calculated by multiplying the price of a stock by its total number of outstanding shares.

Passive index strategy: An investment approach that uses a set of rules to determine what assets to hold and at what weightings, seeking to mimic the stated index. This approach aims to track the index's performance.

Reconstitution: A period when stocks are added to or dropped from an index.

Small cap: Stocks with a relatively small market capitalization.

Style drift: When an investor's portfolio deviates over time from its investment objective or targeted asset category.

Tracking error: A measure used to quantify how closely a portfolio follows an index or benchmark, often defined as the standard deviation of the difference between the portfolio and index returns.

Value stock: A stock trading at a low price relative to its book value.

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