Dimensional

The Cost of Tracking an Index

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Early on, indices were a simple tool allowing investors to evaluate a manager's performance on a risk-adjusted basis. The use of indices evolved with the introduction of index funds, providing potential benefits to investors including low costs, low turnover, and transparency.

Today, many investors use index funds as an easy way to gain diversified exposure to an asset class. But are the indices themselves precise representations of the underlying asset class? If not, it may not be worth incurring the costs required to track them perfectly.

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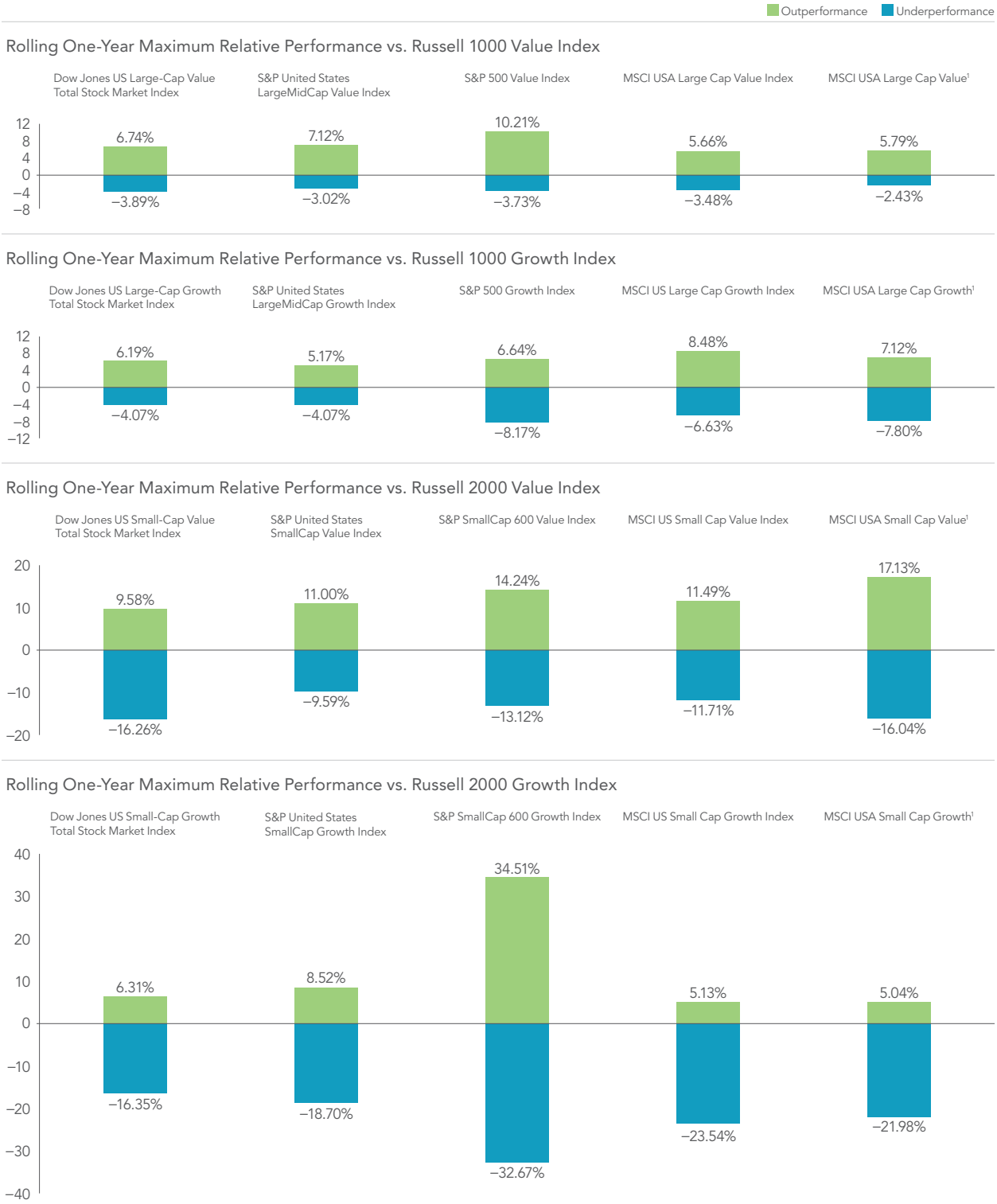
SIZEABLE PERFORMANCE DIFFERENCES AMONG BENCHMARK INDICES

One way to address this question is by examining the returns across indices that seek to represent the same asset class. Many different indices exist intending to represent the same (or very similar) asset classes, but each index has slightly different definitions and reconstitution (or rebalancing) schedules.

Exhibit 1 shows the maximum rolling one-year performance differences for indices in the same asset class from January 1999 to December 2015. For simplicity, the Russell indices were used as a representative performance benchmark for each asset class. The charts show that the degree of performance differences over any given one-year period can be significant. For example, the S&P 500 Value Index outperformed the Russell 1000 Value Index by 10.21% over a one-year period. The differences in small caps are even more dramatic with the Russell 2000 Growth Index outperforming the S&P SmallCap 600 Growth Index by 34.51% over a one-year period. During that period, index funds attempting to track the S&P SmallCap 600 Growth Index would likely have significantly underperformed funds attempting to track the Russell 2000 Growth Index even though both were intended to represent the same asset class.

Exhibit 1: Performance Differences Between Indexes *(January 1999–December 2015)*



1. "USA" refers to the US portion of the MSCI ACWI Index.

Past performance is not a guarantee of future results. All indices are gross dividends. Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio. Russell data © Russell Investment Group 1995–2016, all rights reserved. The S&P data are provided by Standard & Poor's Index Services Group. MSCI data © MSCI 2016, all rights reserved.

The differences in index returns may stem from differences in construction methodologies and reconstitution schedules. Interestingly, these differences are often arbitrary and generally not intended to improve returns. But over any given time period, research has shown that one index has performed better than the rest—what we believe is a purely random event.

WHAT ARE THE COSTS?

The selection of a specific index as the benchmark to track is subjective because each of these indices targets the desired asset class in a similar fashion, with no evident expected return benefit attached to choosing one index over another. Given the subjective nature of this decision and the research indicating that selecting any particular benchmark will likely produce performance differences relative to the others, logic would suggest that trying to achieve perfect replication of an index may not be the most appropriate objective due to the potentially high costs.

Reconstitution

The potential costs can be incurred in many ways. First, when indices are reconstituted (reconstitution is how an index rebalances, typically once or twice per year), index fund managers will have to trade specific securities at a specific time. This can put substantial liquidity demands on the securities being added to and removed from the indices. For an index fund manager, a favorable price on a stock is one that matches the price used to calculate the index. This means that buying a stock at a lower price than the one used to price the index would be unfavorable for an index fund. Why? Because an index fund manager's objective is to match the returns of an index, not to generate higher returns. Stocks that are dropped from an index tend to be under selling pressure, while stocks that are added tend to experience price increases. Consequently, the trading that occurs during reconstitution periods can be especially disadvantageous for an index fund investor.

Style Drift

Another potential cost is style drift between reconstitution dates. Prices (and therefore expected returns) are changing constantly, so in the period between reconstitution dates an index may include securities that no longer belong to the asset class that the benchmark index is meant to represent.

Index fund managers seeking to minimize tracking error relative to that index must hold those securities even if they do not currently reflect the characteristics of the asset class. This constraint, in place to help control turnover, may reduce the expected returns of an index fund relative to the intended asset class. For example, take a value index made up of securities with low relative prices (low price-to-book ratios). If one of the securities increases in price (relative to the other securities in the index) following reconstitution, all else equal, that security now has a lower expected return. The infrequent rebalancing process of index funds may result in holding securities that fall outside of and that possibly have lower expected return potential than their intended asset class.

Concentration Risk

Any strategy that deviates from the total market can become susceptible to unnecessary sector concentration risk. For example, the Russell 1000 Growth Index differs from the market by providing exposure primarily to large cap growth stocks. In the early 2000s, as technology stocks climbed in price and became more growth-oriented, the index's weight in tech stocks increased until they were held at more than 50%. An index fund manager tracking this index would be expected to mirror its holdings and sector weights regardless of the concentration risk.

If a strategy deviates from the market by selecting only a subset of securities with certain characteristics or weighting securities by something other than market cap, it is generally important to consider the degree of single security, sector, or country over- or underweight relative to the market. This approach helps avoid unnecessary concentration risk.

The objective behind all of these judgments—infrequent rebalancing, holding securities that may have drifted outside of the intended asset class, and targeting specific portfolio weights regardless of concentration—is to achieve a daily return as close as possible to that of the chosen index. But how does this objective fit with the investor's original objective to obtain a strategy that maintains a consistent focus on the intended asset class while remaining diversified? Are these two objectives the same?

PURSUING HIGHER EXPECTED RETURNS WHILE BALANCING COSTS

Dimensional's investment approach emphasizes maintaining a consistent focus on the intended asset class and achieving broad diversification without incurring the costs required to track an arbitrary index. Rather than trading during pre determined reconstitution periods, our dynamic portfolio management process focuses on what should be in the portfolio each day to pursue higher expected returns within the intended asset class. We spread out trading across the entire year instead of waiting for a specific rebalancing date. We recognize that market prices change daily, impacting a security's expected return. At the same time, we carefully balance the risks, costs, and other tradeoffs inherent in competitive markets. We believe this approach helps us pursue higher expected returns in a cost-effective manner and creates opportunities to add value.