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Markets

David Booth's Dimensional Stirs Up Old Passive-Investing Fears

- Quant firm's researchers find fresh evidence of 'index effect'
- Investors are leaving returns on table, new study says

by Emily Graffeo
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Wall Street has long thought that one of passive investing's biggest flaws was fading away. Not so fast, says Dimensional Fund Advisors.

The so-called index effect, where stocks joining a major benchmark display abnormal returns in the days leading up to their addition before reversing after, is alive and well, according to the pioneering quant firm. As a result, investors with trillions of dollars in passive products are leaving "returns on the table," Dimensional argues in a new study.

It's all because index funds tend to doggedly track their gauges with rigid, predictable trades. The effect means they aren't operating efficiently.

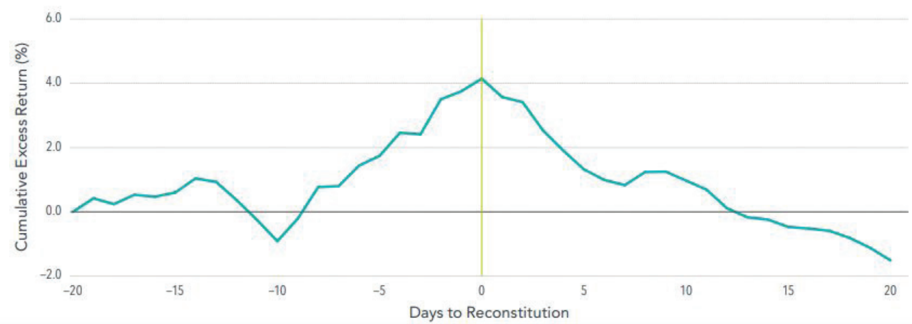
"Index funds are systematically buying at temporarily high prices when they're adding and selling at temporarily low prices, which is the opposite of what you're supposed to do as an investor," said Joel Schneider, deputy head of portfolio management at Dimensional. "They're doing the exact opposite because of their own mechanics."

On one level, the conclusions of the David Booth-founded firm are no surprise. They align with Dimensional's own founding principles, which see shortcomings in both indexing and stock picking (it takes a path between the two with systematic, rules-based approaches).

Yet for all their popularity, index funds remain a divisive topic in the financial world. While their many fans point to their dirt-cheap fees, track record against active managers and general role in democratizing investing, critics see price-insensitive whales that are eating Corporate America and potentially distorting the market.

The research rekindles one of the oldest worries about passive investing at a sensitive time. Dimensional's study landed not long after concerns were raised about index funds pushing trading activity to the close, and in the same month that Vanguard Group warned investors US regulators may limit the size of company stakes the passive giant can hold.

EXHIBIT 1: Average Cumulative Excess Return of Index Additions and Deletions in 20 Days around Reconstitution, *2014–2023*



Past performance is no guarantee of future results.

Cumulative excess returns (CERs) are calculated as the cumulative sum of the daily excess returns for an individual security vs. its respective index from market close 20 trading days before reconstitution. Cumulative excess returns for deletions are multiplied by −1 before being averaged with cumulative excess returns of additions. Value-weighted average CERs are calculated by weighting the sets of CERs on a day by the securities' respective free-float market capitalizations as of the most recent month prior to reconstitution. Migrating events for S&P, Russell, and CRSP indices are excluded; see Appendix 1 for more information. Tesla's addition to the S&P 500 on December 18, 2020, is excluded. Indices are not available for direct investment; therefore their performance does not reflect the expenses associated with the management of an actual fund.

Using data from 10 US stock indexes from 2014 to 2023, Dimensional researchers Kaitlin Hendrix, Jerry Liu and Trey Roberts looked at the performance of securities in the 20 trading days before and after index changes. The method is similar to earlier studies, but the trio made crucial adjustments.

Ever since the index effect was first documented, the companies that run the gauges and the issuers of funds following them have taken mitigating steps. This has included increasing the frequency of reconstitution events and having more overlap between benchmarks in the same family, like between a mid-cap and large-cap index. Dimensional sought to strip out the latter by focusing on "nonmigrating" stocks – those which were not moving from one gauge to another within the same family.

It found that the average cumulative excess return of securities added to or deleted from an index is 4% over the 20 trading days before inclusion, which is followed by a decline of -5.7% in the 20 days after.

The well-studied reason behind the moves is that most index funds, in order to minimize tracking error with their respective benchmarks, only buy incoming stocks or sell outgoing ones on the day that the changes go into effect. Meantime, active investors can buy right after the announcement, selling at a higher price when the passive products need to buy.

Put another way, by the time index funds actually acquire the shares, the expectations that billions of dollars will need to buy the stock have already been priced in.

To some market players, the cost is a necessary price paid by index funds to ensure ample liquidity when they need to rebalance en masse. The pros front-running the actual reconstitution are effectively helping dilute that demand over a few days, and stand ready to trade with the

funds at the key time. And while passive products may buy and sell inefficiently, their otherwise low running costs have saved investors billions in typical fees.

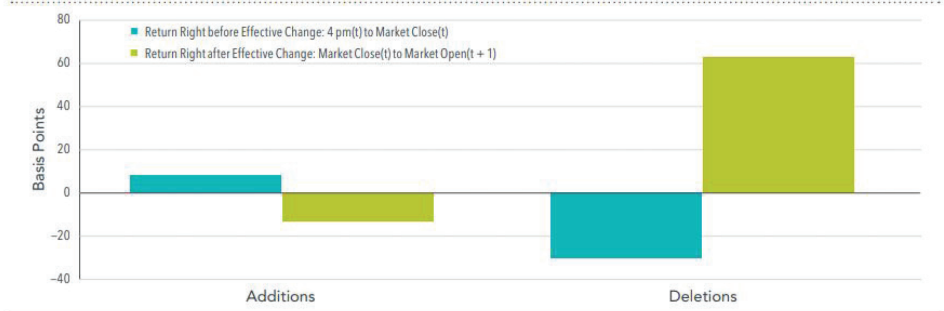
The results of the research also contradict several studies in recent years that claimed the index effect was in structural decline. Various causes have been cited for its apparent disappearance, from the changes made by those designing the benchmarks to the front-running trade becoming crowded.

Meanwhile, some fund issuers maintain discretion to build a position in a stock in advance of adding it to a fund, theoretically blunting the index effect.

Yet trading volumes on reconstitution day, and in particular at the close, suggest those are in a minority. Dimensional used high-frequency trading data from between 2019 and 2023 to show “abnormally high trade volume” on rebalance day, concentrated around the close. The firm also found a good chunk of the abnormal returns it measured occurred at this time, matching a similar pattern seen in Europe.

Austin, Texas-based Dimensional is the largest issuer of actively managed ETFs, with roughly $151 billion across its lineup, according to data compiled by Bloomberg.

EXHIBIT 2: Price Pressure into Closing Auction on Index Reconstitution Days and Overnight Price Reversal after Index Reconstitution, *2019–2023*



Past performance is no guarantee of future results.

Regression specification for the price pressure into closing auction is: $Ret^{Auc,T}_{LastMid,T} = a + b * Additions + c * Deletions + e_T$*, where* $Ret^{Auc,T}_{LastMid,T}$ *is the gross return (in bps) from last midpoint price of the continuous session on T to the closing auction price. Regression specification for the overnight reversal is:* $Ret^{Open,T+1}_{Auc,T} = a + b * Additions + c * Deletions + e_T$*, where* $Ret^{Open,T+1}_{Auc,T}$ *is the market-adjusted return (in bps) from closing auction price on T to open auction price on T + 1.* $Additions$ *is an indicator variable with 1 for index additions and 0 for other stocks.* $Deletions$ *is an indicator variable with 1 for index deletions and 0 for other stocks. Day fixed effects are included. The blue bars and lime-green bars represent the coefficient estimates for the* $Additions$ *and* $Deletions$ *indicator variables in the former and latter model, respectively. Samples includes all index addition and deletion events, as well as all other US stocks traded on the same index reconstitution days. Index migrations and events due to corporate actions are excluded. For CRSP indices, we include all five days of the transition period in the price pressure regression, but we only include the last day in the overnight reversal regression. Tesla's addition to the S&P 500 on December 18, 2020, is excluded. The regression models and results are in* ***Exhibit 12****. Indices are not available for direct investment; therefore their performance does not reflect the expenses associated with the management of an actual fund.*

The firm says investors can look to mitigate the index effect by trading on different dates or spreading trades over a few days, but the best option would be “a daily process that consistently focuses on stocks with higher expected returns and spreads turnover across all trading days in the year.”

“Such an approach allows investors to avoid the cost of demanding immediacy from the market,” the researchers wrote. “A daily process that uses real-time market information can enhance investment outcomes by maintaining continuous and accurate exposure to securities with higher expected returns while also spreading turnover through time.”

– With assistance from Justina Lee

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