by DEBORAH KIDD, CFA

Active Share Adds Value in Search for Alpha

By quantifying a fund's degree of active management, active share provides a means of distinguishing funds that have the potential for outperformance from those that are likely to deliver index-like returns. When active share is used in conjunction with tracking error, the two measures together can differentiate between types of active managers. Both the degree of active management and the type of active management may have implications for manager or fund evaluation.

The active-versus-passive debate has taken a new turn, based not on whether active management beats passive management but on whether high levels of active management beat low levels of active management. Managers who look like the index cannot beat it. This is the simple premise behind "active share," a term introduced by Cremers and Petajisto (2009) in an influential 2006 study. It has been years since a portfolio metric has attracted this much interest. Echoing the response of investors to the Sharpe ratio, active share has been called simple, elegant, and powerfully informative.

"Active share has been gaining traction over the last several years," says Frederic C. Filippelli, CFA, director of investment governance at Prudential Retirement.[1] "The 2006 study by Cremers and Petajisto was a catalyst in focusing the investment industry on this measure as an important data point in making the connection between active management and manager skill or superior performance."

Active share is not a performance measure but rather a measure that quantifies the degree of a fund's active management. Because active share is holdings based, it can provide current information that can be used to determine the degree of a manager's bets, monitor consistency in strategy over time, and—some say—predict which funds or managers will outperform.

ACTIVE SHARE DEFINED

Active share is the percentage of a fund's holdings that differs from its benchmark index's holdings. Calculating active share is not difficult, but it does require knowledge of all the holdings in a fund or portfolio as well as the benchmark index for the point in time for which active share is measured. Active share is determined as follows:

$$\text{Active share} = \frac{1}{2}\sum_{i=1}^{N}\left|\omega_{fund,i} - \omega_{index,i}\right|,$$

where $\omega_{fund,i}$ is the fund weighting of stock i and $\omega_{index,i}$ is the index weighting of stock i. The differences between the weights of the fund's securities and the weights of the benchmark's securities are summed and divided by 2. Cremers and Petajisto calculated active share for long-only equity funds, although they suggested including any cash or bond positions held in a fund. For a long-only fund, active share will be between 0% and 100%. As a simple example, consider a fund benchmarked to an equal-weighted index of 100 stocks. If the fund's positions were concentrated in only 10 of the index's stocks, the fund would have an active share of 90%; the overlap between the fund's stocks and the index's stocks is 10%. If the fund's holdings constituted 50 of the index's stocks, the fund would have an active share of 50%.

Cremers and Petajisto determined the threshold for active management based on the mathematics of outperformance: About half of an index's stocks will have returns above the index return, and about half will have returns below the index return. Portfolios that hold more than 50% of an index's stocks are bound to hold stocks that will underperform the index. The lower the active share of a portfolio, the more skilled the manager's bets will have to be to compensate for the underperforming securities. Index funds have less than 20% active share.

Funds with active share between 20% and 60% are considered "closet indexers"; these funds are not index funds but nevertheless have a low share of bets away from their benchmark indices. Portfolios that have an active share of more than 80% are generally considered highly active. The upper limit of 60% for closet indexing reflects the authors' view that an active manager should construct a portfolio from a universe of what he or she believes to be the top 40% of an index's holdings. In practice, these ranges are somewhat dependent on the capitalization range of the portfolio and index. A large-cap fund with an active share of 80% is relatively more active than a small-cap fund with an active share of 80%, for instance.

Cremers and Petajisto say active share is particularly valuable for identifying closet indexers. These funds are structured to deliver index-like returns while charging expensive active management fees. The authors also say active share is valuable for identifying not only the level of active management but also, when used in conjunction with tracking error, the type of active management. According to their study results, some forms of active management are far more likely to outperform than others.

MEASURING ACTIVE MANAGEMENT: TRACKING ERROR VS. ACTIVE SHARE

The traditional way to measure the degree of active management is through the use of tracking error. Tracking error measures active risk taken, expressed as the standard deviation of a fund's returns minus the benchmark's returns. Zero tracking error indicates a pure index fund. The higher the tracking error, the greater the difference in returns between the fund and the index and the more active bets the manager has taken. Deviations in the range of a manager's tracking error over time may signal a change in manager strategy or style. Because tracking error is calculated *ex post*, a fund's positioning may have changed by the time the information becomes available.

Active share, in contrast, can convey current information regarding fund holdings and the degree of active management. Moreover, a return history is not required to calculate or interpret active share.

Tracking error and active share offer different perspectives on active management. Together, the two measures can be used to distinguish among different types of active management. Managers can outperform their benchmarks via one of two approaches: stock selection or factor bets. Cremers and Petajisto grouped managers according to five types of active management based on these two approaches: (1) diversified stock pickers, (2) concentrated stock pickers, (3) factor timing, (4) closet indexers, and (5) pure index funds. Diversified stock pickers make active bets on individual stocks within industries; concentrated stock pickers make bets on individual stocks as well as factor bets; factor timing includes market timers, sector rotators, and tactical asset allocators; and closet indexers stay close to the benchmark while purporting to be actively managed.

"Tracking error puts significantly more weight on correlated active bets—in other words, bets on systematic factors," say Cremers and Petajisto. "This makes tracking error a reasonable proxy for factor timing. In contrast, active share puts equal weight on all active bets, regardless of whether the risk in such bets is largely diversified away in a portfolio. Thus it serves as a reasonable proxy for stock selection" (p. 3336). The relationships among types of active management and tracking error and active share are shown in the following table.

The research results from Cremers and Petajisto show that active bets on industries (factor timing) led to high tracking error without large deviations from index stocks. Conversely, active bets on individual stocks within industries (diversified stock pickers) resulted in low tracking error because industry weightings were relatively similar. Concentrated stock pickers demonstrated both high tracking error and high active share, whereas

Types of Active Management		
	Active Share	**Tracking Error**
Diversified stock pickers	High	Low
Concentrated stock pickers	High	High
Factor timing	Low	High
Closet indexers	Low	Low
Pure index funds	Zero	Zero

Source: Cremers and Petajisto (2009, p. 3331).

closet indexers had low tracking error and low active share. Index funds, as expected, had little to no tracking error or active share.

PREDICTING PERFORMANCE PERSISTENCE

Cremers and Petajisto analyzed the performance of the fund categories from 1990 to 2003 and found that funds with the highest active share had the best performance, outperforming their benchmarks by 1.51–2.40% annually before fees and expenses and 1.13–1.15% after fees and expenses. Funds with the lowest active share underperformed their benchmarks by 0.11% to –0.63% before fees and –1.42% to –1.83% after fees and expenses. Factor-timing funds had the poorest performance, both net and gross of fees. Closet indexers' returns were close to their benchmark returns, but these funds underperformed after fees and transaction costs. The best-performing funds were concentrated stock pickers and diversified stock pickers. Among these groups, funds with the highest active share, fewest assets, and best prior year performance generated average annual outperformance of 6.5% a year on a net basis. Cremers and Petajisto also found that active share is extremely persistent, more so than tracking error, and that high active share is a significant indicator of future alpha. They suggest that investors in search of alpha choose small funds that outperformed in the prior year and have a high degree of active share. Although the authors say size by itself is not a predictor of alpha, they found that a significant number of funds with assets greater than $1 billion were closet indexers.

Active share has its skeptics as well as its supporters. Larry Swedroe (2011), cofounder and director of research for the BAM Alliance, questions whether the high returns to high active share mutual funds and the predictive power of active share found in the Cremers and Petajisto study could be the result of skewed distributions and an "incubator bias." Swedroe notes that the study results are based on time series averages of equally weighted average returns, which give rise to the possibility that some of the outperformance related to high active share may be dominated by a few highly concentrated funds with enormous returns. Additionally, small-stock pickers with good performance in the previous year are the types of funds most likely to be affected by the incubator bias. Such funds are typically young funds with good performance; poorly performing funds are not launched.[2]

A 2012 Vanguard study examined the role of high active share in performance persistence and did not find a causative relationship (Schlanger, Philips, and LaBarge 2012). Funds were separated into a 4-year evaluation period and a 6-year performance period over a 10-year time horizon ending 31 December 2011. Higher active share funds on average outperformed lower active share funds during both periods, although none outperformed the passively managed benchmark indices for the performance period. Closet indexers underperformed in both the evaluation and the performance periods. The study also found that higher active share produced a greater dispersion of returns, suggesting that a corresponding degree of underperformance is as likely as outperformance. Higher active share funds also tended to have higher expense ratios, on average. Funds that generated the greatest alpha were those with the highest active share and the lowest average cost. The study also noted that the funds with the highest levels of active share were dominated by mid- and small-cap stocks.

A 2010 Morningstar study that extended the Cremers and Petajisto study time horizon by five years largely confirmed the original study results, particularly among index-like funds, although Morningstar suggested results should continue to be evaluated over longer time horizons (Kinnel 2010). Morningstar also found that active share is a less useful concept for small- and mid-cap funds. The vast number of stocks in those universes generally leads to high levels of active share even for widely diversified funds. Filippelli points out that one must be cautious when using active share to evaluate a selection of small-cap managers. "Small-cap managers may look alike in that they may all have high active share. They can't all be great stock pickers," he says. "Active share has become a component of our manager evaluation process, but successfully assessing manager skill requires a process involving multiple data points and an astute understanding of the connections between them." Morningstar found that a percentage ranking was more useful than a raw active share score for identifying active share in small- and mid-cap funds. In a follow-up study to the original Cremers and Petajisto work, Petajisto (2010) also found a percentile ranking to be useful when evaluating active share for small- and mid-cap funds.

Sean Chatburn, CFA, principal, and Matthew Reckamp, principal, of Mercer use active share in their manager selection and evaluation process but stop short of saying high active share should lead to outperformance.

"We would not necessarily say that because a manager has high active share they should outperform," says Reckamp.[3] "Quite often, highly active portfolios are concentrated; they may have stock-specific exposures or specific tilts that, in the short run, could overwhelm the benefits from being active and cause a manager to under-perform in a disparate fashion."

"We focus on building a mosaic of a manager to determine if that manager will generate excess returns, and if so, which elements he or she will use to gener-ate those excess returns," adds Chatburn.[4] "Our view of a manager is based on building that collective mosaic. Active share is just one more tool in our tool box."

PRACTICAL APPLICATIONS

Chatburn finds active share useful in identifying how active a manager is in expressing his views through port-folio construction. "Active share becomes especially rel-evant when a portfolio's benchmark has three, four, or five stocks that make up a good portion of the index," he says. "During 2012, there were a lot of conversations about how portfolio managers were managing their active share to Apple, which was approximately 8% of the Russell 1000 Growth Index."

Active share is also useful for monitoring funds for clues to changes in style, strategy, or managers. Petajisto calculated the active share of the famed Fidelity Magel-lan fund from 1980 to 2009 and found it varied dra-matically, from highly active under Peter Lynch to closet indexing during Robert Stansky's tenure and back to highly active when Harry Lange took the helm. During the closet indexing period, the fund routinely underper-formed its benchmark.

The prediction of underperformance for closet indexers is a conclusion that practitioners and academics alike agree on. Low active share funds with low tracking error and pricey active management fees are a poor bet for investors. For these funds, active share does offer a degree of performance prediction. A fund with index-like holdings will generate index-like returns, and after sub-tracting expensive fees, it will underperform its bench-mark. Investors should take care, however, not to group enhanced index funds into this category. These funds are designed to add value through small bets and low track-ing error. They differ from closet indexers because they have correspondingly lower fees relative to their lower level of active management. Finally, not all funds that straddle the 60% closet indexing threshold will under-perform. Some funds with active share of around 60% have been found to outperform their benchmarks.

For users of active share, selecting the appropri-ate benchmark is key. "The critical question with active share is getting the benchmark right," notes Ron Surz, vice president at eVestment Alliance.[5] "You'll get high active share if you specify the wrong benchmark." Cre-mers and Petajisto assigned benchmarks chosen from among 19 indices based upon the index for which a fund had the lowest relative active share. Petajisto used the benchmarks self-reported by managers in the funds' pro-spectuses.[6] Vanguard used style-matched Russell bench-marks, reflecting choices fund investors themselves might choose. The significance of appropriate benchmark selec-tion was highlighted by Roll (1978), who showed that even small differences among benchmarks can lead to large variations in tracking error and information ratios. The result will be the same for active share.

ACTIVE SHARE IN THE FUTURE

Recent industry trends reflect a greater demand for more actively managed funds, making the active share measure of particular interest to consultants and fiduciaries. Reck-amp says the index-centric portfolios that were popular in the investment industry during the 1990s have given way to a preference for obtaining beta through inex-pensive, passive strategies and reserving higher fees for highly active strategies that can generate alpha; the two strategies are often combined in a barbell or core–satel-lite approach. As the preference for enhanced indexing has waned, the number of closet indexers appears to have grown, according to Petajisto, who estimated that closet indexers accounted for approximately one-third of all mutual fund assets in 2009.

Reckamp says that because of active share's popular-ity, managers are beginning to speak in terms of active share when describing their strategy or style but are often unaware of how active their portfolio truly is. "We see a lot of managers, and we have the benefit of being able to compare and contrast them, something the man-agers themselves are unable to do. It's not unusual for a manager to describe his portfolio as being highly active when, relative to his peers, it isn't," he says.

The increased focus on active share may encourage some managers to seek outperformance by investing out-side their benchmark indices. For this reason, Reckamp

believes active share is likely to evolve into two calculations: active share from index names and active share from outside the index. "A portfolio's active share measure of 80%, for example, may be broken down into index and non-index constituents," he says. "Holding different weights in index constituents is a pure form of active share, as opposed to holding stocks that aren't in the benchmark at all and inflating the active share that way. If a manager is permitted to go beyond the index, then perhaps that index isn't the most appropriate benchmark."

Selecting a manager or fund will not be as easy as simply identifying those with high active share relative to their benchmark indices, even if the indices are well chosen. "Bets away from the benchmark are indeed a necessary condition for alpha, but not a sufficient condition," notes Surz. Still, active share does provide a distinctive piece to the manager selection puzzle. Vanguard's study, for instance, compared active share with four typical manager evaluation tools (concentration, style drift, excess return, and tracking error) and found none of these measures should be substituted for it. The information conveyed from active share, they conclude, is unique.

NOTES

1. Interview with the author on 28 March 2013.
2. Cremers and Petajisto addressed incubator bias by "eliminating observations before the starting year reported by CRSP [mutual fund database] as well as the observations with a missing fund name in CRSP." They also excluded funds with assets under management of less than $10 million.
3. Interview with the author on 20 March 2013.
4. Interview with the author on 20 March 2013.
5. Interview with the author on 14 March 2013.
6. Petajisto accounted for the possibility of a manager reporting a misleading benchmark by controlling for any remaining beta, size, value, and momentum exposures separately.

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Deborah Kidd, CFA, is senior vice president at Boyd Watterson Asset Management, LLC.