

# Passive Overlap: Exploring Closet Indexers

A new formula for evaluating active managers' fees

By David Blanchett



In a working paper titled “How Active Is Your Fund Manager?” Martijn Cremers and Antti Petajisto introduce a metric they call “active share,” which is a measure of how different a fund’s underlying holdings are from the holdings of its benchmark index.<sup>1</sup> They find that a significant number of mutual funds (especially large-cap funds) have significant active share. The purpose of this paper is to explore this concept and provide the reader with an idea of how “active” domestic equity funds really are.

In this paper, the author uses the term “passive overlap” to describe the percentage of the portfolio holdings that are the same as the respective index; it is essentially the opposite side of the coin of the “active share” concept outlined by Cremers and Petajisto. The calculation methodologies differ slightly: For comparison purposes, passive overlap would be roughly one minus active share.

### Exploring Active Value

First, it’s important to point out there’s nothing necessarily wrong with a mutual fund that has holdings that are very similar to its benchmark (i.e., a high level of passive overlap), even if it is not an index fund. The goal of any actively managed fund should be to outperform an appropriately determined benchmark either on a pure return or risk-adjusted basis. If a portfolio manager feels that he or she has no unique insight into a particular sector, it would only make sense to “index” that portion of the portfolio. However, the larger the percentage of the portfolio that becomes passively managed, the less the portfolio manager is doing to earn his or her fee. If active management cost the same as passive management, this would be of little concern; however, as many of us know, active management typically costs a good/great deal more.

The cost of passive management varies by category (where domestic large-cap equity tends to be the less expensive and international investing tends to be more expensive); investor size (where larger investors tend to pay lower fees than smaller investors); and manager (where managers with better performance should be able to command higher fees). For simplicity purposes, let’s assume the average index (i.e., passive) fund costs 20 basis points (bps) and the average active fund costs 100 bps (the author is fully aware that there are funds for both groups that cost a good deal more and a good deal less; consider this to be a reasonable approximation). Therefore, the “active value” of the active management should be equal to or greater than the difference between the two values, or 80 bps. Basic math dictates that the higher the percentage of the fund that is passively managed, the lower the probability that the fund will end up outperforming its benchmark.

While investors are willing to tolerate tracking error to varying degrees, the “cost” of investing with an active manager should be, in theory, based on the portion of that portfolio that is actually being actively managed. This statement should not be expected to hold unilaterally; however, it does make intuitive sense. If an investor knew which portion of the portfolio a portfolio manager planned to invest passively (i.e., the same as the index), ideally the investor

would invest those monies separately and passively, thereby paying a lower investment management cost, and only leave those monies with the active portfolio manager that will be “actively” invested (for which the portfolio manager commands a higher fee).

While this type of strategy would be incredibly difficult (if not impossible) for the vast majority of investors to implement in the real world, a basic tenet of the reasoning is simply that the more similar the portfolio allocation is to the benchmark allocation, the less investment (e.g., a mutual fund) should cost. This point is presented visually in Figure 1, where different combinations of Passive Overlap and investment cost (i.e., expense ratio) are considered from the perspective of an investor looking to get the highest “value” out of active management.

Note in Figure 1 that the optimal combination for an investor (the lower left box, shaded green) is Low Expense & Low Overlap. With this combination, an investor looking to invest in active management is getting the greatest possible value. Contrast this with the two boxes shaded yellow: Low Expense & High Overlap (upper left) and High Expense & Low Overlap (lower right). Low Expense & High Overlap would be similar to an enhanced index strategy or active manager that only deviated slightly from the target benchmark allocation. This would be a portfolio manager only seeking to add incremental alpha, but he or she is charging a lower fee in response to his or her strategy. High Expense & Low Overlap is clearly less optimal than Low Expense & Low Overlap due to the higher fee, but high-quality (i.e., alpha-generating) active management commands a fee, and if an active manager is truly delivering alpha, he or she will likely command a premium for his or her services. The remaining red, or suboptimal combination, is High Expense & High Overlap: This would be a manager known as a “closet indexer,” charging an active management fee for a passive investing strategy. This is the combination to most beware of and is the type of investment this paper most hopes to shed light on.

### Methodology

To determine how similar mutual funds are to their benchmarks, an analysis was conducted. All investments

Figure 1



Figure 2

Benchmark ETFs			
Category	Ticker	Name	# of Holdings
Large Growth	IWF	iShares Russell 1000 Growth	644
Large Blend	IWB	iShares Russell 1000	990
Large Value	IWD	iShares Russell 1000 Value	656
Mid-Cap Growth	IWP	iShares Russell Midcap Growth	505
Mid-Cap Blend	IWR	iShares Russell Midcap	799
Mid-Cap Value	IWS	iShares Russell Midcap Value	540
Small Growth	IWO	iShares Russell 2000 Growth	1,201
Small Blend	IWM	iShares Russell 2000	1,939
Small Value	IWN	iShares Russell 2000 Value	1,296

Source: iShares

Figure 3

Passive Overlap By Investment Category December 31, 2008			
Percentile	Large Growth	Large Blend	Large Value
95%	50.96%	60.47%	51.96%
75%	37.28%	51.42%	43.78%
50%	23.47%	26.43%	28.74%
25%	20.69%	21.84%	24.66%
5%	6.91%	5.40%	6.67%
Percentile	Mid-Cap Growth	Mid-Cap Blend	Mid-Cap Value
95%	27.42%	27.68%	30.42%
75%	20.18%	14.66%	19.80%
50%	10.85%	4.89%	10.02%
25%	8.37%	3.59%	7.70%
5%	2.10%	1.36%	2.10%
Percentile	Small Growth	Small Blend	Small Value
95%	24.48%	35.36%	37.12%
75%	18.22%	24.31%	23.92%
50%	8.49%	6.80%	8.41%
25%	6.91%	5.53%	6.15%
5%	2.26%	1.47%	1.72%

Source: Morningstar

categorized in one of the nine domestic equity categories based on a Dec. 31, 2008 Morningstar data feed were included in this study. Note, though, since holdings data is often delayed for mutual funds, holdings data is used based on its effective date from both Dec. 31, 2008 and March 31, 2009 data feeds. Index funds, enhanced index funds and ETFs were removed from the test sample.

Passive overlap was determined by comparing the holdings of the mutual fund (or ETF) to the comparable Russell iShares ETF in the same Morningstar category (e.g., the holdings for Large Blend fund would be compared to the

holdings for the iShares Russell 1000 Index Fund). This methodology differs from the methodology employed by Cremers and Petajisto, who compute active share by comparing the mutual fund holdings to 19 different indexes (a group that includes Russell, S&P and Wilshire benchmarks), and determining the active share based on the index with the highest overlap. The author's reliance on the Morningstar style categories to select a single index allows for a more "apples to apples" comparison.

The actual ETFs, as well as the number of holdings as of Dec. 31, 2008, are included in Figure 2.

Note that the initial overlap tests were also conducted against S&P, MSCI and Wilshire benchmarks, but the results (correlations) among the tests were similar (high) enough that overlap benchmark was reduced to the Russell indexes for simplicity purposes.

Information on the amount of passive overlap by investment category for the respective Russell benchmark is included in Figure 3. In Figure 3, a fund in the 95th percentile would have more passive overlap than all but 5 percent of the funds studied; a fund in the 75th percentile would have more passive overlap than all but 25 percent of the funds studied, etc.

Ideally, we would expect a negative relationship between passive overlap and expense ratio, where funds with higher levels of passive overlap (i.e., are more indexlike) have lower expense ratios. Figure 4 illustrates the respective expense ratios and Passive Overlap percentages for the test funds for the large-cap category and the mid-cap and small-cap categories (combined).

While the regression coefficient was negative for both regressions, the coefficient of determination ( $R^2$ ) was low for both, suggesting there is little relationship (in the aggregate) between expense ratio and passive overlap. Note, though, that the level of passive overlap was considerably higher for the large-cap funds versus the mid-cap and small-cap funds, which is demonstrated by a higher intercept of 0.35 (versus 0.20 for the mid-cap and small-cap funds).

### Cost Of Active Management

Although it is relatively easy to compare the passive overlap between managers to determine which is the "most active," passive overlap ignores one key aspect of active management: an investment's expense ratio. One way to determine the true "cost" of active management for an investment would be to allocate the expense ratio of the fund over the amount that does not match its benchmark, i.e., its nonpassive overlap (or its Active Portfolio), minus the cost of investing (i.e., a passive strategy). This could be calculated using the following formula:

$$\text{Active Portfolio Cost} = (\text{Expense Ratio} - \text{Cost of Passive Strategy}) / (1 - \text{Passive Overlap})$$

In the calculation, it's important to subtract the cost of a passive strategy from the expense ratio since this value represents the minimum amount it would cost to be invested in the market. Doing so also allows someone to calculate

the Active Portfolio Cost of different index or enhanced index funds, which tend to have denominators close to zero due to the high level of passive overlap.

The Active Portfolio Cost formula enables someone to determine the relative cost of different active managers. For example, let's assume you are choosing between two funds: Fund 1 has an expense ratio of 80 bps and a passive overlap of 50 percent, and Fund 2 has a cost of 100 bps and a passive overlap of 10 percent. In the absence of any information on passive overlap, assuming an investor was indifferent between Fund 1 and Fund 2, he or she would likely select Fund 1 since it has an expense ratio (or management fee) that is 20 bps cheaper. However, when you calculate the Active Portfolio Cost, assuming a 20 bps passive strategy cost, the "cost" of Fund 1 is 120 bps, while the cost of Fund 2 is 89 bps. In other words, Fund 2 is cheaper than Fund 1 when you consider the portion of the total portfolio that is actively managed.

Let's extend this analysis to some actual mutual funds tested in the analysis. For example, based entirely on expense ratio, the T. Rowe Price Diversified Mid-Cap Growth Fund (PRDMX) would appear to be relatively cheap. Its expense ratio of 1.16 percent puts it in the 40th percentile of all mid-cap growth funds tested (i.e., it's cheaper than 60 percent of its peers). However, its passive overlap is 53.67 percent (i.e., a little over half of the portfolio is invested exactly as its Russell Midcap Growth benchmark), creating an Active Portfolio Cost of 2.07 percent. This puts the fund in approximately the 85th percentile of all mid-cap growth funds tested (i.e., it's more expensive than 85 percent of its peers) and makes it significantly less attractive from an "active value" perspective.

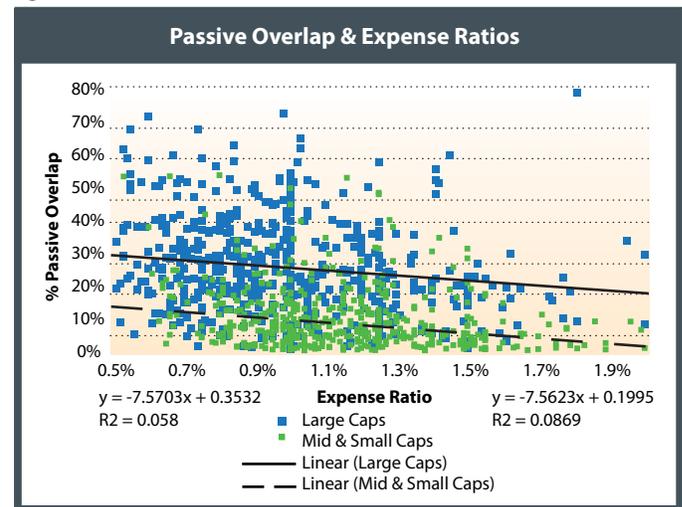
## Conclusion

This paper explores how "active" many active mutual fund managers really are. It may surprise, as well as perhaps concern, the reader to know the degree of similarity in stock allocation between many mutual funds and their benchmarks. Although there's nothing wrong with an active manager choosing to invest at least part of his or her portfolio passively, in theory, the fee an active manager charges should reflect the unique insights and abilities of that manager.

To play devil's advocate, taken to the extreme, someone could argue that if an active manager truly thought the best stock allocation possible for his or her fund was benchmark allocation, he or she would be using his or her skill to make the determination and should be compensated accordingly. While this argument does have some merit, an investor would be far better served in such a situation investing in the same index (at a cheaper cost) and then reinvesting with the active manager when the manager decides to "go active." It would be difficult/impossible to do this in the real world, but at the end of the day, active managers are paid based on performance (or really outperformance), and replicating significant portions of an index and charging a higher fee is not exactly a value-add for investors.

The Active Portfolio Cost metric introduced here allows comparison of investments with varying levels of expense

Figure 4



Source: Morningstar

ratios and passive overlap. By incorporating the expense ratio into the calculation, managers can be held accountable for their degree of passive investment in an actively managed portfolio. This formula allows the user to determine the actual cost of active managers' services and better understand the true total cost of a fund.

## Endnote

<sup>1</sup> Cremers, Martijn and Antti Petajisto, "How Active Is Your Fund Manager? A New Measure that Predicts Performance" Working Paper, March 2009 (forthcoming in the Review of Financial Studies).