

What Matters in ETF Selection?

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Comments are enormously welcome!

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1. Objective

The 2017 Trends in Investing Survey Report, conducted by the Financial Planning Association® (FPA®), the *Journal of Financial Planning*, and sponsored by Longboard Asset Management, shows that in each of the last three years Exchange-Traded Funds (ETFs) have been the preeminent investment vehicle used by financial advisers. 88 percent of the advisers surveyed in 2017 indicate that they currently use or recommend ETFs with their clients and half of those surveyed in 2017 plan to increase their use or recommendation of ETFs with clients in the future. The widespread and growing use of ETFs by financial advisers motivates the purpose of this study: to address the question of “what matters in ETF selection?”.

2. Significance

Explains Hougan (2014), low expenses are the main characteristic that investors look for when selecting an ETF. Challenging this common practice, Hougan develops a compelling theory that it is more important for investors to consider tracking difference, defined as the difference between the net-of-expense return on an ETF and the return on its benchmark index, when they go about selecting an ETF. Hougan’s novel theory creates the need for this study: to explore the importance of both expense ratio and tracking difference in ETF selection.

3. Methods

To answer the question of “what matters in ETF selection?”, annual report net expense ratios, yearly net-of-expense returns, and the names of primary prospectus benchmarks are gathered from Morningstar Direct’s survivor-bias-free United States Exchange Traded Funds Universe. To include only traditional long-only unlevered passively managed ETFs, the sample excludes funds that are inverse/short funds or leveraged funds and includes only index funds. The sample is also restricted to exclude funds that are “trading funds” as indicated by their Morningstar Institutional Category. This restriction is imposed because Morningstar (2012) explains that such funds are not suitable for long-term investors and are designed for active traders. To calculate tracking difference, yearly returns on primary prospectus benchmark indexes are gathered from Morningstar Direct’s survivor-bias-free Global Indexes in USD (United States Dollars) Universe.

Next, on January 1 of each year, each ETF with a valid annual report net expense ratio in the prior year and a valid tracking difference in the prior year is assigned to one of five portfolios based on its quintile rank of annual report net expense ratio in the prior year and also to one of five portfolios based on its quintile rank of tracking difference in the prior year. Then the average annual performance of these equally-weighted portfolios are analyzed. Finally, the performance of portfolios that are double-sorted based on both of the postulated determinants of performance are analyzed.

4. Results

Figure 1 displays the number of ETFs that constitute the portfolios in each year. The rise in the number of ETFs is consistent with the growth in the rate of usage of ETFs by financial advisers. 2001 was chosen as the first year of the sample period because this is the first year in which there were at least five eligible constituents.

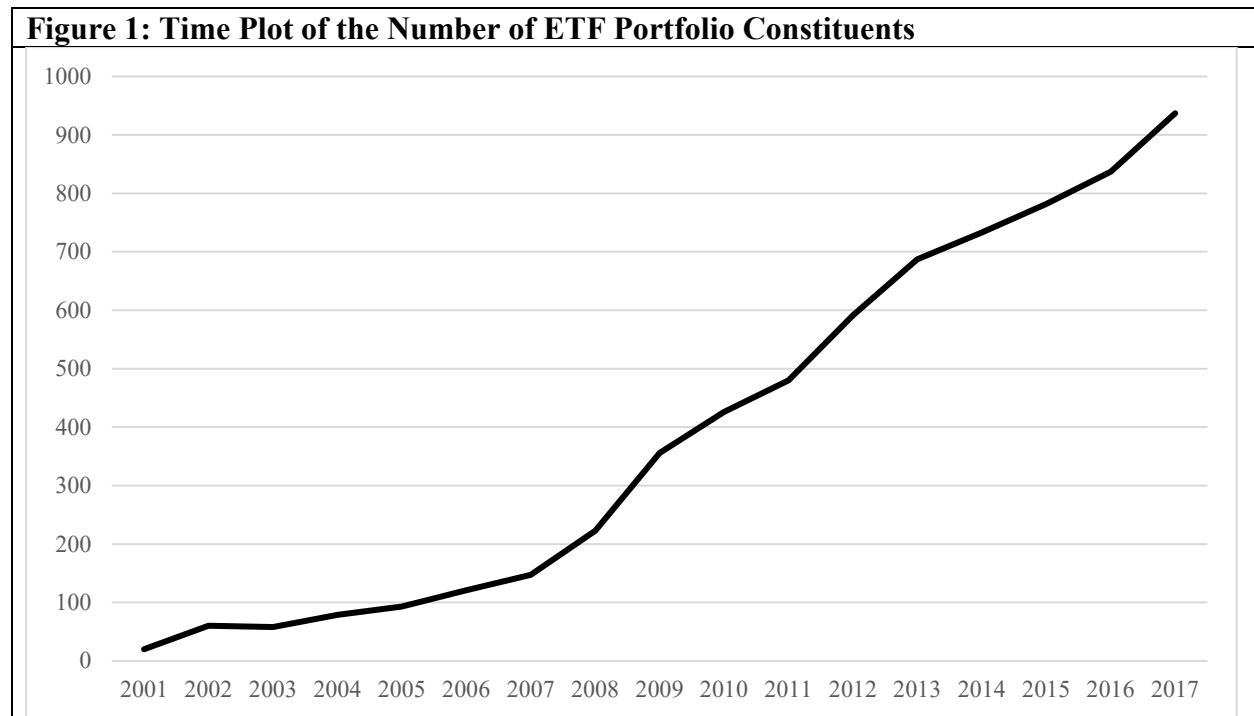


Table 1 displays the average annual tracking difference of each of the portfolios over the sample period. There is a pronounced negative relationship between expenses and performance. The funds in the “Cost Efficient Portfolio”, consisting of those that ranked in the bottom quintile of annual report net expense ratio in the prior year, underperformed their benchmarks by just 0.11% per year on average. The funds in the Quintile 2 Portfolio underperformed their benchmarks by

0.38% per year on average, over three times as much as those in the “Cost Efficient Portfolio”, and the funds in the “Expensive Portfolio”, consisting of those that ranked in the top quintile of annual report net expense ratio in the prior year, underperformed their benchmarks by a whopping 1.23% per year on average. Turning to the performance of the tracking difference-sorted portfolios, the funds in the “Loser Portfolio”, consisting of those that ranked in the bottom quintile of tracking difference in the prior year, underperformed their benchmarks by 0.90% per year. The funds in the “winner portfolio”, consisting of those that ranked in the top quintile of tracking difference in the prior year, underperformed by 0.65% per year, making this portfolio the second-worst performing tracking difference-sorted portfolio. Interestingly, the Quintile 4 Portfolio performed the best among the tracking difference-sorted portfolios, underperforming by only 0.25% per year.

Table 1: Main Results	
<i>Panel A: Expense-Sorted Portfolios</i>	
	Average Annual Tracking Difference
Cost Efficient Portfolio	-0.11%
Quintile 2 Portfolio	-0.38%
Quintile 3 Portfolio	-0.83%
Quintile 4 Portfolio	-0.68%
Expensive Portfolio	-1.23%
<i>Panel B: Tracking Difference-Sorted Portfolios</i>	
	Average Annual Tracking Difference
Loser Portfolio	-0.90%
Quintile 2 Portfolio	-0.63%
Quintile 3 Portfolio	-0.35%
Quintile 4 Portfolio	-0.25%
Winner Portfolio	-0.65%
Note: Boldface font indicates $p < 0.01$ from lower one-sided single-sample t-test	

Taken together, there are two main implications from Table 1 for financial planners. First, the difference in the performance between the two extreme expense-sorted portfolios is over four times the difference in the performance between the two extreme tracking difference-sorted portfolios (1.12% vs. 0.25%). Second, the relationship between tracking difference in the prior year and performance is very curvilinear. It should also be noted that because of this pronounced curvilinearity, it would not be econometrically sound to perform regression analysis to analyze the impact of past tracking difference on future tracking difference.

Based on the results from the one-dimensional sorts, it appears that it is more important for investors to consider expense ratio than tracking difference when they go about selecting an ETF. This gives rise to the question of whether investors should consider tracking difference at

all in their ETF selection process. To answer this question, one must first answer two other questions. First, what is the relationship between expense ratio and contemporaneous tracking difference? Second, what is the relationship between past and future tracking difference among funds that rank within a particular quintile of expense ratio? The remainder of this paper addresses each of these two fundamental questions in turn by using two-dimensional sorts.

To examine the relationship between expense ratio and contemporaneous tracking difference, in each year each ETF is allocated to one of 25 portfolios based on its quintile rank of annual report net expense ratio in the prior year and on its quintile rank of tracking difference in the prior year. Table 2 displays the number and percentage of fund-year observations that belong to each of these 25 portfolios. If there was no relationship between the two posited determinants of performance, then there should be an independent and identical distribution of fund-years across each of the portfolios. However, this does not appear to be the case. Table 2 clearly shows that funds with a low expense ratio tend to demonstrate relatively strong performance in the same year and funds with a high expense ratio tend to exhibit relatively weak performance in the same year. Nonetheless, there are a decent number of funds in each of the 25 portfolios. This diversity allows for an empirically sound exploration into the relationship between past and future tracking difference among funds that rank within a particular quintile of expense ratio.

Table 2: Number of Fund-Year Observations in Each Double-Sorted Portfolio					
	<i>Expense-Sorted Portfolios</i>				
<i>Tracking Difference-Sorted Portfolios</i>	Cost Efficient	2	3	4	Expensive
Loser	85 (1.28%)	103 (1.55%)	185 (2.79%)	346 (5.22%)	503 (7.59%)
2	74 (1.12%)	162 (2.44%)	437 (6.59%)	432 (6.52%)	214 (3.23%)
3	263 (3.97%)	521 (7.86%)	339 (5.11%)	151 (2.28%)	93 (1.40%)
4	804 (12.13%)	304 (4.59%)	162 (2.44%)	80 (1.21%)	46 (0.69%)
Winner	367 (5.54%)	263 (3.97%)	313 (4.72%)	212 (3.20%)	171 (2.58%)

Table 3 displays the average annual tracking difference of each of the double-sorted portfolios. The best performing double-sorted portfolio within the “cost efficient” group was not the “Cost Efficient Winner” but rather the “Cost Efficient Loser”, very slightly outperforming by 0.01%. The “Cost Efficient Winner” performed on par with the “Cost Efficient” single-sorted portfolio, implying that financial planners who look for a low expense ratio when developing ETF recommendations for their clients will not improve the performance of their clients’ portfolios by incorporating strong historical performance into their ETF search process. Taken together, there

is no discernable relationship between past and future tracking difference among “cost efficient” ETFs and “performance chasing” in the market for such ETFs does nothing to improve the performance of clients’ portfolios. These findings were also robust within the other expense-sorted portfolios.

Table 3: Average Annual Tracking Difference on Double-Sorted Portfolio					
	<i>Expense-Sorted Portfolios</i>				
<i>Tracking Difference-Sorted Portfolios</i>	Cost Efficient	2	3	4	Expensive
Loser	0.01%	-0.67%	-0.65%	-0.61%	-1.65%
2	-0.36%	-0.43%	-0.56%	-0.71%	-0.70%
3	-0.12%	-0.32%	-0.43%	-0.51%	-0.83%
4	-0.15%	-0.22%	-0.46%	-0.57%	-0.61%
Winner	-0.11%	-0.78%	-0.57%	-0.62%	-1.27%

Note: **Boldface font** indicates $p < 0.01$ from lower one-sided single-sample t-test

5. Conclusions / Relevance

Hougan (2014) developed an intriguing theory that it is more important for investors to consider tracking difference than expense ratio when they go about selecting an ETF. This study examines the impact of both characteristics on ETF performance. The relationship between expenses and performance is much stronger than the relationship between tracking difference and performance. This study shows that the slightly positive relationship between tracking difference and performance is attributable to the fact that funds with stronger tracking difference tend to have lower expenses.

In the 2017 Trends in Investing Survey, conducted by the FPA®, the *Journal of Financial Planning*, and sponsored by Longboard Asset Management, financial advisers indicated that lower costs are the most significant advantage of ETFs over mutual funds. The practical implication of this study is that low costs should also be the main characteristic that financial advisers look for when selecting an ETF.

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