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# Risk-reduction strategies in fixed income portfolio construction

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**Executive summary.** In this commentary, we expand upon previous research on the value of adding indexed holdings to a portfolio of actively managed equity funds. Here we evaluate a similar strategy for fixed income, examining the benefits of introducing broadly diversified, risk-controlled index funds or ETFs to a portfolio consisting of actively managed bond funds.

We first illustrate the challenges associated with selecting top-performing actively managed funds without the benefit of perfect foresight. We then demonstrate, using historical data, that even a portfolio made up of the best-returning active bond funds over the long run can experience uncomfortable periods of underperformance. Finally, we show how the addition of an index fund or ETF can enhance the diversification of a fixed income portfolio while retaining the potential for alpha, or excess returns.

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## Introduction

### A changed environment for fixed income investing

In 2000, the percentage of indexed assets in fixed income mutual funds was roughly half that for equity funds—6.6% versus 12.9%, according to Morningstar data. Since then, the percentages have grown to 17.4% for fixed income and 28.6% for equities. These data suggest that, while investors have been slower to adopt indexing strategies in their fixed income portfolios, such adoption is accelerating.

One reason bond indexing may have been overlooked historically is that, relative to equities, lower-cost ETFs and index funds were not as widely available to investors as actively managed funds. Now, however, the number and variety of bond index funds and ETFs has grown, making it easier for investors to implement a risk- and cost-reduction strategy using these vehicles.

Another possible reason for the underrepresentation of indexed strategies in fixed income portfolios is that since the early 1980s, interest rates have trended lower, leading to very strong returns for bond portfolios regardless of whether they were indexed or actively managed.<sup>1</sup> As a result, investors had less incentive to find low-cost and potentially less volatile alternatives. Today, however, investors face an environment in which bond yields are very low, meaning that cost can play a greater role in investor net returns. Index funds and ETFs generally offer lower expenses than comparable actively managed funds.<sup>2</sup>

Finally, the impact of interest rate volatility may have been less obvious historically. For example, in 2000, a portfolio with a 5-year duration and an initial yield of 7.4%—the “yield to worst” for the Barclays Capital U.S. Aggregate Bond Index as of January 31 that year—would have enough income to cushion much of the blow to total returns if market yields were to rise (causing prices to fall). In such circumstances, portfolio managers could take on longer-duration positions relative to their benchmark without incurring significant risk of negative returns. While the managers might underperform the benchmark if interest rates moved against their position, investors could still see positive total return and be less inclined to react.

Today, however, the managers of such portfolios are dealing with initial yields closer to 2%.<sup>3</sup> As a result, the income cushion is thinner, so interest rate increases are likelier to lead to significant relative and absolute underperformance.

### For fiduciary portfolios, a new set of hurdles

In this environment, a clear challenge in the management of fiduciary portfolios is that near-term performance can lead to oversight questions or even significant portfolio turnover. This “business risk” exists because clients or investment committee members often focus on short- to intermediate-term performance, even if the portfolio’s stated objectives are characterized as long-term.

*Notes about risk: All investing is subject to risk. Past performance is no guarantee of future returns. Investments in bond funds are subject to interest rate, credit, and inflation risk. Diversification does not ensure a profit or protect against a loss in a declining market. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.*

1 Since January 1981, the average return for fixed income funds has been 7.73% annually, according to Lipper Inc.

2 For more information, see the Vanguard research paper *The Case for Indexing* (Philips, 2011).

3 The duration of the broad U.S. bond market has remained relatively anchored between 4 and 5 years since it was first tracked in 1989.

They also tend to focus on excess return. This is especially problematic if the primary objective of the fixed income portfolio is to provide diversification as a counter to equity risk.

Mitigation of this fiduciary challenge is an often-overlooked benefit of adding indexed investments to a portfolio consisting primarily of actively managed funds. Active management provides flexibility in terms of duration, yield-curve exposure, and credit quality. As the data in this paper will show, adding a low-cost, broadly diversified index component to the portfolio can counter some of the risk of underperformance should these bets not pay off, while still preserving the potential for excess return offered by the active approach.

### The double challenge of an all-active strategy

Perhaps the biggest hurdle in overseeing an actively managed fixed income portfolio is finding managers who can outperform in the long run. Relatively few do, as we will show. And then there is the second challenge: persuading the client or committee to stay with such a manager during the periods of underperformance that are almost certain to occur from time to time.

**Figure 1**, on page 4, illustrates the difficulty of selecting a manager who can consistently outperform over the long term. For our analysis, we looked at the performance of all the actively managed intermediate-term investment-grade funds that existed for the three years ended in December 1999. We chose to evaluate intermediate-term funds because they tend to have average durations close to that of the broad bond market, and we started with the 1997–1999 period for consistency with other Vanguard studies on related topics.<sup>4</sup> We ended up with 128 funds that met our criteria.

Figure 1a tracks these funds through non-overlapping three-year periods through 2011. The first row shows how many of the original 128 were available at the beginning of each period; the second row shows how many were merged or liquidated in the ensuing three years. Incredibly, by the start of the final period on January 1, 2009, only 40 of the original 128 funds still existed—and 13 of the 40 disappeared by the end of December 2011. The cumulative survival rate: 21.1% (27/128). Finally, in the third row, we show the percentage of the starting funds in each period that outperformed the average return of a group of broad market index funds. For example, in the three years through 1999, 11% of the actively managed funds outperformed—i.e., only 14 of the 128 beat the index funds' average.

Interestingly, we can take this analysis one step further by carving out the 20 top-performing funds from the first three-year period (Figure 1b). Performing a similar analysis, we see that by the end of 2011, only 7 of those 20 remained. Further, in none of the periods did all of the funds in this group actually outperform the average broad market index fund. The lack of consistency in performance is notable, as is the relative frequency of underperformance for even the top funds.

This simple case study underscores just how quickly performance can change. Note that even though a fund may have delivered positive cumulative alpha for the entire period studied, there is still a risk of underperformance versus a passive option. Pairing these funds with a low-cost index vehicle could have reduced overall portfolio volatility relative to the market benchmark while preserving the potential for long-term excess return.

### The benefits of adding risk control

To demonstrate how a broad-market index fund can help mitigate volatility, we created an extreme example. With the benefit of perfect hindsight, we evaluated short- and intermediate-term actively

<sup>4</sup> See *Enhanced Practice Management: The Case for Combining Active and Passive Strategies* (Philips and Kinniry, 2012) and *The Case for Indexing* (Philips, 2011).

**Figure 1.** How quickly things change: The fate of 128 active bond funds, 1997–2011

These data reflect annualized returns for non-overlapping three-year periods, a fairly typical span for performance evaluation, for all the actively managed investment-grade funds available to investors in January 1997. Returns were measured against the average result for a set of index funds targeting the Barclays Capital U.S. Aggregate Bond Index. As the tables show, underperformance was common and attrition was striking: Of the 128 starting funds, only 27 existed in December 2011.

**1a. Funds surviving each period and the percentage that outperformed**

	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011
Funds available at the beginning of the period	128	112	83	64	40
Funds merged or liquidated	16	29	19	24	13
% outperforming the average return of passive total market funds	11%	14%	36%	8%	48%

**1b. A closer look at the top 20 performers from the first period**

	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011
Funds available at the beginning of the period	20	20	17	14	10
Funds merged or liquidated	0	3	3	4	3
% outperforming the average return of passive total market funds	70%	30%	59%	21%	50%

Notes: For funds with multiple share classes, we used the class with the lowest expense ratio to give each fund the best chance of outperformance. In the event of a tie in expense ratios, we chose a share class alphabetically. In choosing a sample of index funds, we excluded funds with expense ratios above 25 basis points, because for index funds the expense ratio is the primary determinant of both tracking error and overall portfolio quality. The outperformance percentage for active funds represents the number of funds with excess returns greater than zero divided by the number of funds available at the beginning of each period.

Sources: Morningstar and Vanguard data.

managed investment-grade corporate bond funds and built an equal-weighted portfolio using the five funds that generated the highest average returns from January 1997 through December 31, 2011.<sup>5</sup> This “best of the best” portfolio would have outperformed the average return for broad-market index funds by 137 basis points a year after fund costs—delivering impressive outperformance to the client.

But evaluation via hindsight obscures the fact that such a client would have needed admirable fortitude to stay the course for the 15 years, given the periods of significant underperformance that the portfolio and its component funds endured. Such periods can be particularly trying for clients when the fixed income allocation is generally viewed as diversification for the riskier assets in a broad portfolio.

<sup>5</sup> For this analysis, we excluded specialty funds such as those focused on mortgages, floating-rate notes, bank loans, or high-yield bonds. To maintain a pool of funds most likely used by most investors, we concentrated on short- and intermediate-term government and corporate funds from the Morningstar database. Rather than start the analysis partway through a year to achieve an even 15-year period, we elected to simply add on nine months at the end so as to capture recent data.

For example, over the 12 months through February 2009, our “Top Five” portfolio trailed the market by 873 basis points. And for the three years through November 2008, the portfolio lagged the market benchmark by 591 basis points cumulatively. Much of this underperformance was due to two funds, which trailed by –13.65% and –15.56% in 2008 (the other three funds also trailed to a lesser extent). Such a result likely would have led many fiduciaries to replace the underperforming funds for lack of confidence in the manager’s process. But as hindsight shows, it was these same two funds that drove much of the Top Five portfolio’s outperformance in 2009, exceeding the market by 20.29% and 27.97%.

To many it’s likely no surprise that these five funds were heavily weighted toward corporate or other “risk premia” bonds. Over time and given a normal environment, one would expect corporate bonds to outperform a benchmark more heavily weighted in government bonds. However, one must also expect greater volatility and downside risk as a result of these exposures. For our Top Five portfolio, this risk manifested itself in 2008–2009 during the global financial crisis.

In **Figure 2**, on page 6, we compare the rolling excess returns for our Top Five active portfolio with those for a 50% active/50% passive portfolio over 12- and 36-month windows. For our passive allocation we created a second portfolio made up of index

funds that seek to track the Barclays U.S. Aggregate Index. Not surprisingly, the active/passive portfolio produced lower excess returns and tracking error over time. It also held up better during the global financial crisis.<sup>6</sup>

#### **How likely is an investor to select an outperforming active portfolio?**

To envision creating a real-world portfolio comparable to our Top Five, one must ignore the very real challenge of selecting high-performing managers. For example, according to Morningstar data, of the 629 actively managed bond funds available to investors on January 1, 1997, only 309 actually survived through December 2011 (a 51% attrition rate with a median underperformance of –140 basis points for the 12 months prior to going dark). Of the 309 survivors, only 30 (4.8% of the original 629) produced higher returns than the Barclays U.S. Aggregate Index over the full period.

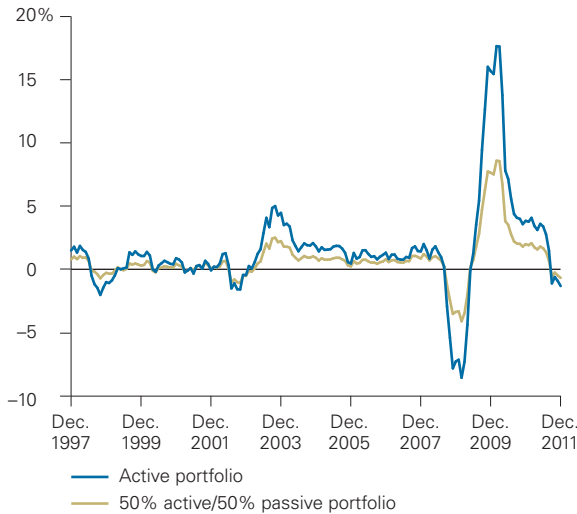
For those 30 funds, the median annualized excess return was just 32 basis points. For the 279 funds that survived the full period but *underperformed*, the median annualized underperformance was –101 basis points. By comparison, the index funds aiming to track the Barclays U.S. Aggregate Index underperformed by an average of –13 basis points—roughly the amount of their expenses. In other words, while it’s certainly possible to outperform a benchmark if high-performing managers are

<sup>6</sup> We recognize that one potential drawback for our analysis is a duration mismatch between the Top Five funds and our market proxy. As a result, we replicated our analysis by dividing our sample into short-term funds and intermediate-term funds, comparing each group to a more appropriate indexed portfolio. With these groups, we followed our original process. To identify each group’s top five funds, we looked at outperformance versus, respectively, the Barclays Capital U.S. 1–5 Year Government/Credit Index and the Barclays Capital U.S. 5–10 Year Government/Credit Index. Our results were nearly identical, although with slightly more variation in the active portfolio’s return over time.

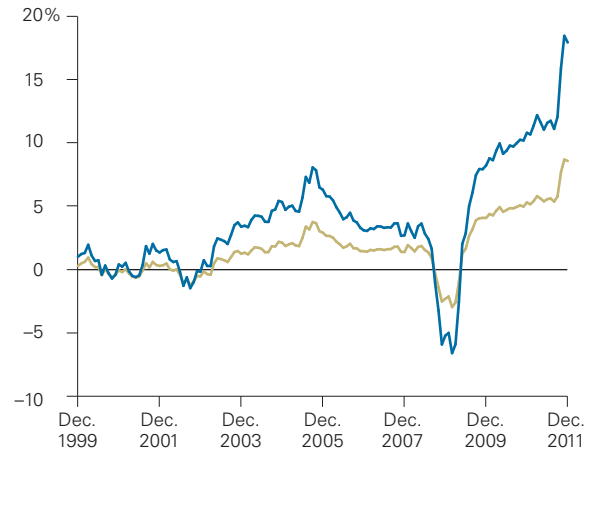
**Figure 2.** Rolling excess returns for active and 50% active/50% passive portfolios, 1997–2011

The active portfolio consists of the five top-performing investment-grade bond funds for the overall period. The 50%/50% portfolio includes the same five active funds and a set of index funds seeking to track the Barclays Capital U.S. Aggregate Bond Index. Returns are measured against the Barclays benchmark over 12-month and 36-month periods.

**a. Rolling 12-month periods**



**b. Rolling 36-month periods**



Notes: For funds with multiple share classes, we used the class with the lowest expense ratio to give each fund the best chance of outperformance. In the event of a tie in expense ratios, we chose a share class alphabetically. In choosing a sample of index funds, we excluded funds with expense ratios above 25 basis points, because for index funds the expense ratio is the primary determinant of both tracking error and overall portfolio quality.

Sources: Morningstar, Barclays Capital, and Vanguard.

selected, historically the potential for underperformance has been greater, and its extent has been larger.

These statistics show just how difficult it can be for any investor, sophisticated or not, to identify the particular funds that are going to outperform over a long period and then hold them for the entire period. A more likely scenario could be one in which the actively managed holdings deliver notably less excess return than those in our ideal portfolio. In that event, mitigating significant underperformance can be even more critical to long-term success for the investment committee or advisory practice.

## Conclusion

In an environment of increasing challenges for fixed income managers, the role of indexed strategies is gaining in importance.

For financial advisors, successful practice management today means not only adding new clients but keeping existing clients. Behavioral finance tells us that investors care more about losses than gains, and these losses can be either absolute or relative to peers (i.e., regret). The risk to an advisor's practice is that in volatile markets and uncertain times, clients who talk about negative experiences can have much more impact than those

who make positive referrals. Indexing helps alleviate this asymmetry by mitigating the risk of unwise investor behavior and negative feedback loops.

For institutional investors, the combination of fiduciary oversight and investment committee turnover means that every decision can be scrutinized on a regular basis even if it did not originate with the current committee. Because most committee members serve part-time and are not rewarded for picking successful managers, they may spend relatively little time making investment decisions but still face potentially significant risk if things go wrong because of the fiduciary nature of the mandates. When a portfolio's core is allocated to a passive strategy, or at least complemented by a passive strategy, relative underperformance and fiduciary risk can be mitigated.

On top of these benefits, index holdings can reduce the all-in portfolio costs to the client, sometimes significantly. Further, adding a slice of passively managed funds or ETFs can help free up resources typically spent on research and oversight of managers. These resources can then be redirected to other areas more in the advisor's or committee's control.

Finally, a benefit specifically for advisors: Those who employ index products may be better able to shift client conversations from the sometimes-difficult topic of investment performance to estate and family wealth planning, which are not subject to the risks of the market. These services can be a more reliable base upon which to build an enduring practice.

## References

Philips, Christopher B., and Francis M. Kinniry Jr., 2010. *Enhanced Practice Management: The Case for Combining Active and Passive Strategies*. Valley Forge, Pa.: The Vanguard Group.

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