Credit Where It's Not Due: Misbenchmarking by Active Bond Funds

Abstract

Misspecified benchmarks are prevalent among active bond mutual funds, due in part to the industry's overreliance on the low-risk Bloomberg U.S. Aggregate Index. Active funds outperform their benchmarks by 3% over 36 months, but this is driven by the selection of benchmarks with mismatched systematic risks, not managerial skill. When matched to a more appropriate benchmark based on return correlations, funds actually underperform. Benchmark-adjusted returns drive future flows providing incentives for managers to misbenchmark. While benchmark changes are infrequent, they are strategic: funds switch to easier-to-beat benchmarks following a period of underperformance and subsequently experience a short-term increase in flows.

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Benchmarks are central to the mutual fund industry, serving as critical standards for evaluating manager skill, assessing fund performance, and determining compensation structures (Cremers and Petajisto, 2009; Ivković and Weisbenner, 2009; Sensoy, 2009). While a growing literature analyzes equity funds' benchmarking behavior (Sensoy, 2009; Cremers, Fulkerson, and Riley, 2022; Mullally and Rossi, 2025), relatively little is known about the benchmarking decisions of active bond funds, which hold over $12 trillion in securities. The complexity of bond markets creates challenges for developing comprehensive, tradable benchmarks (Bessembinder, Spatt, and Venkataraman, 2020). In response, fixed income index providers build broad-based and risk-specific indexes that include all eligible issuances meeting predetermined criteria based on issuer type, time to maturity, and credit rating. Fund investment objectives are generally defined by these same observable characteristics (e.g., a short-term investment grade corporate bond fund). Thus, identifying a suitable benchmark for a bond fund should be straightforward.

Despite the seemingly simple matching process between indexes and funds' investment universes, active bond funds persistently outperform their benchmarks, which may be indicative of managerial skill (Fang, Kempf, and Trapp, 2014). The 3-year benchmark-adjusted return for the average fund in our sample is 3.02% and is positive for over 75% of funds. On their face, these results support the claims of industry participants and academics that skilled active bond fund managers exploit inefficiencies in benchmark construction.[1] It may also explain the relative growth in active bond fund assets over the past two decades, which stands out against the outflows from active equity funds over the same period.[2]

In direct contrast to manager skill, widespread misbenchmarking in active bond funds would also explain persistent outperformance by funds. Further, the importance of bench-

[1] One can find marketing materials published by asset managers, such as Fidelity's "Why active management may be better for bond funds," or JP Morgan's "Why active fixed income consistently outperforms the Agg", or Wellington Management's "Five reasons to be active in fixed income." In academic research, Choi, Cremers, and Riley (2024) find active bond fund management creates value for investors.

[2] Chen, Evans, and Sun (2025) find that the 3-year benchmark-adjusted return of active equity funds is -3.22%. From 2005 to the end of 2024 the number of Taxable Bond funds had increased by 30%, while the number of domestic equity funds decreased by 11%. Over that same time total assets managed by taxable bond funds increased from 3.9 trillion in 2005 to 12 trillion by the end of 2024.

mark returns to investors capital allocation decisions may provide managers an incentive to inflate benchmark adjusted-returns.[3] In this paper, we examine the appropriateness of active bond funds' self-selected benchmarks.

To do so, we assemble a comprehensive dataset of U.S. active fixed income funds and their self-declared benchmarks. We first document an important stylized fact: the Bloomberg U.S. Aggregate Index ("the Agg") is declared by approximately 45% of the active funds in our sample as a benchmark - reminiscent of the over-reliance on the S&P 500 by active equity mutual funds in 2004 documented by Sensoy (2009). The Agg is designed to provide broad exposure to the U.S. dollar denominated investment grade bond space. However, active bond funds that declare the Agg as their benchmark span 20 distinct Morningstar investment categories that vary considerably from the broad investment grade universe of the Agg. Notably, active funds benchmarked to the Agg persistently overweight corporate bonds, the issuer type in Agg with the highest credit risk.

By selecting benchmarks with mismatched systematic risks, funds increase the likelihood of generating positive benchmark-adjusted returns. However, in this setting the benchmark outperformance is driven mechanically by the investment objective of the fund, not managerial skill. We find that the average fund's Lipper category outperforms its self-declared benchmark by 3.06% annually, representing more than 100% of the sample mean benchmark-adjusted return. In other words, active bond fund outperformance is driven by the self-selection of easy-to-beat benchmarks ill-suited to reflect the investment objective of the fund, not active skill.

Next we examine the incentive of managers to select easier-to-beat benchmarks. If investors rely on benchmark-adjusted returns to determine their allocation of capital, managers have a financial incentive to misbenchmark. In contrast, if investors, particularly institutions, are aware of misbenchmarking or make alternative risk-adjustments the presentation of returns relative to benchmarks will be inconsequential to flows. Controlling for Morn-

[3] 86% of mutual fund investors say benchmark-adjusted returns are either somewhat important or very important to their capital allocation decisions (Bogfan and Schrass, 2025).

ingstar rating-by-date fixed effects, we find a robust positive relationship between flows and past benchmark-adjusted returns and no significant relationship for unadjusted return and benchmark index returns. This result suggests that investors' flows are driven by a fund's relative performance versus the self-declared benchmark and that rating agencies such as Morningstar do not fully correct investor perceptions of manager skill.

To quantify the extent of benchmark mismatch in fixed-income asset management, we conduct an exercise to identify better-matched benchmarks for each fund. Following Sensoy (2009), we determine the best-matched benchmark as the one with the highest correlation with a fund's gross returns. We consider two distinct universes of possible benchmarks. The first universe includes all benchmarks used by other funds in our sample. Using this universe, 89% of funds are misbenchmarked, since only 11% exhibit the highest correlation with their declared primary benchmark. The second universe is comprised of 67 pseudo-benchmarks constructed from varying allocations to (i) the Agg, (ii) the Bloomberg U.S. Corporate Index, and (iii) the ICE BofA U.S. High Yield Index. This alternative set of benchmarks introduces hybrid levels of credit risk and high yield exposure beyond the investment grade universe of the Agg. We classify a fund as misbenchmarked if the pseudo-benchmarks with the highest correlation to the fund's returns and to the prospectus benchmark are different. Under this more conservative definition, 74% of sample funds are misbenchmarked.

For the sample of misbenchmarked funds in both settings, switching to the best-matched alternative benchmark would improve the correlation by 0.15 on average. One-third of sample funds could achieve a correlation improvement of at least 0.10 by adopting their best-matched alternative benchmark, which we argue is a conservative level to define a fund as misbenchmarked. Relative to properly benchmarked control funds, misbenchmarked funds achieve 2.8% higher benchmark-adjusted returns over 36 months. Crucially, this difference arises entirely from benchmark selection rather than managerial skill. On an unadjusted basis, misbenchmarked funds underperform the control funds by over 1.9%. Misbenchmarked funds also charge significantly higher expense ratios. Thus, investors misled by inflated

benchmark-adjusted performance pay higher fees for no additional value.

To identify whether allocations to higher credit risk is a source of boosted performance, we compare the weights in the pseudo-benchmarks best matched to the declared benchmark and to the funds' returns. For the declared benchmarks, the best matched pseudo alternative on average has weights of 80.9% in Agg, 7.8% in investment-grade corporate, and 11.3% in high-yield. In contrast, the mean weights for the pseudo-match to fund returns are 40.4% in Agg, 24.6% in investment-grade corporate, and 35.1% in high yield. The difference in weights reflects the industry's over-reliance on the Agg as a benchmark despite its inadequate representation of the credit risk of a funds' portfolio. Thus, active bond funds mechanically boost their (reported) benchmark-adjusted performance by holding bonds with greater exposure to known systematic risks.

Choi and Kronlund (2018) find that active corporate bond funds outperform their benchmarks by tilting toward bonds with higher yields relative to the Agg. To disentangle benchmark manipulation from yield-seeking behavior, we employ regressions with Lipper category-by-date fixed effects. We use Lipper classifications because their quantitative methodology mitigates biases inherent in Morningstar's self-reported categorization (Chen, Cohen, and Gurun, 2021). Within the same Lipper category, misbenchmarked funds have statistically significantly higher benchmark-adjusted returns relative to peers. Yet, there is no statistical difference in gross returns. The interaction between the misbenchmarking indicator and fund yield-to-maturity is statistically insignificant, suggesting that benchmark mismatch, rather than reaching for yield, drives claims of superior performance relative to the benchmark.

In the final section of the paper, we examine the propensity, determinants, and impacts of benchmark switches. Using the time series of benchmarks reported in funds' prospectuses, we find that 25% of funds in our sample have changed benchmarks at least once. However, we deem a portion of the changes as incremental (benchmarks remain in the same risk and term category), resulting in only 15% of active bond funds making a significant change. On average, these significant changes move funds toward benchmarks with lower returns, leading

to a higher perceived historical benchmark-adjusted performance.

In evidence of a strategic motive, and an attempt to obfuscate poor performance, we show that funds with a significant benchmark change do so after a period of under-performance. Further, we find that switching to a benchmark in a lower risk category or with lower past returns boost investor flows. Overall, our results on benchmark changes are consistent with our previous results on misbenchmarking: funds are able to hide negative performance and generate excess flows by moving to easier-to-beat benchmarks.

Our study extends the strategic benchmark mismatch phenomenon documented in equity markets by mutual funds (e.g., Sensoy, 2009) and pension funds (Augustin, Binfarè, and Fermand, 2024) to fixed income markets. In equity mutual funds, Chen, Evans, and Sun (2025) find a trend of more precise benchmark selection over time, which they attribute to pressure from the growth of passive investors. Our evidence suggests that active fixed income funds continue to be misbenchmarked, despite ETFs and passive funds accounting for 41% of fixed income mutual fund investments (ICI, 2025). Further, the benchmark changes observed provide no evidence of a trend towards better aligned benchmarks over time, as 57% of all switches post 2019 are to benchmarks that improve a funds' benchmark-adjusted returns compared to only 35% before 2019. Taken together, our findings have substantial implications for investor decision-making and fund selection in active fixed-income management.

We also contribute to the literature on bond fund performance manipulation. Cici, Gibson, and Merrick Jr (2011) show that bond funds mark the valuation of hard-to-value bonds to their advantage and smooth returns. Chen, Cohen, and Gurun (2021) document that bond funds misrepresent the true risk profile of their holdings in an effort to be assigned to an easier-to-beat Morningstar category. We document another distinct manner in which bond funds obfuscate the presentation of fund returns to attract larger flows and charge higher fees: by selecting easier-to-beat benchmarks.

I. Data

To construct our sample of active bond funds, we use the CRSP Survivorship-Bias-Free Mutual Funds database to identify all funds that hold at least part of their portfolio in U.S. corporate bonds. We exclude all ETFs and passive bond funds, identified using the CRSP index fund flag and fund names. We collect fund-level data from CRSP and Bloomberg, including returns, expense ratios, turnover, and tracking error. We compute the growth of assets to fund i in month m as

$$Flow_{i,m} = \frac{TNA_{i,m} - TNA_{i,m-1} \cdot (1 + R_{i,m})}{TNA_{i,m-1}}. \tag{1}$$

Next, we identify each fund's primary benchmark index using funds' semi-annual shareholder reports filed with the SEC and the Morningstar database. For additional tests, we also collect secondary benchmarks where provided. We then collect index-level characteristics from index providers, including monthly time series of the number of bonds, number of corporate bonds, percentage of the index allocated to each of four bond sectors (Treasury, government-related, corporate, and securitized), yield to maturity, duration, coupon, and credit rating.

We obtain bond-level characteristics primarily from ICE Pricing and Reference Data, supplemented by Mergent's FISD, ICE Indexes, TRACE, and name searches to identify bond sectors (Treasury, government-related, corporate, and securitized). We compute each fund's performance relative to its stated primary prospectus benchmark (PPB) as

$$PPB\ Adj\ Return_{i,m} = Fund\ Return_{i,m} - PPB\ Return_{m}, \tag{2}$$

where *Fund Return* is its gross or net reported monthly return.

We calculate portfolio-weighted characteristics of bond funds across the following dimensions: percentage of holdings in corporate bonds, percentage of holdings in Treasury securities, percentage of holdings in Securitized and Government related bonds, average du-

ration of portfolio holdings, average yield-to-maturity of portfolio holdings, average coupon of portfolio holdings, and average credit rating of portfolio holdings. To estimate these fund-level characteristics, we require non-missing data for at least 90% of each fund's ex-cash dollar holdings, except for credit ratings, where we require coverage of at least 70% of ex-cash dollar holdings. To validate our methodology, we compare our calculated statistics to Morningstar fund-level characteristics, which are available beginning in 2017. Over this overlapping period, our estimates for fund-level average duration and credit rating have correlation with Morningstar's reported values of 0.92 and 0.98, respectively, confirming the accuracy of our approach. Summary statistics are presented in Table I.

[Insert Table I here]

II. Stylized Facts about Bond Fund Benchmarking

To understand benchmarking practices in the fixed-income asset management industry, we first examine variation in benchmark selection across all funds. Figure 1A displays the frequency with which each index is designated as a fund's benchmark. We find that 410 of 959 funds (43%) in our sample select the Bloomberg U.S. Aggregate Index as one of their their benchmarks. The prevalence of the Agg as a benchmark for fixed-income funds is strikingly similar to the widespread use of the S&P 500 among equity funds documented by Sensoy (2009). During his 1994–2004 sample period, 44% of equity funds were benchmarked to the S&P 500.

[Insert Figure 1 here]

The fact that a large number of funds select the Agg as their primary benchmark is not inherently indicative of misbenchmarking. The Agg is a "broad-based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market" (Bloomberg, 2024); funds providing similar exposures could reasonably select the Agg as

their benchmark. To examine whether such benchmarking is appropriate, we tabulate the Morningstar categories of funds that declare the Agg as their benchmark. Figure 1B shows that the majority of Agg-benchmarked funds are categorized as core or core-plus, categories with issuer types and risk exposures similar to those of the Agg. However, a significant number funds with other Morningstar categories, including high yield, inflation-protected bond, and global bond funds, also declare the Agg as their benchmark. The Morningstar categories that they are in represent market segments not included in the Agg and carry materially different risk-return profiles. This provides initial evidence that reliance on the Agg as a benchmark may be inappropriate for a substantial subset of funds.

In Figure 2 we further examine the variation in investment strategies among funds benchmarked to the Agg. Here, we take all funds benchmarked to the Agg in December 2023 and plot each fund's percentage allocation to corporate bonds (y-axis) against the average duration of its holdings (x-axis). Each circle represents an individual fund benchmarked to the Agg and the "x" represents the Agg itself.

Focusing on corporate bond holdings, the Agg allocates approximately 25% to corporate bonds. However, among active bond funds using the Agg as their benchmark, there is wide variation in corporate bond allocations. Some funds hold less than 20% of their portfolios in corporate bonds, while others allocate more than 80%. This dispersion highlights the heterogeneity in portfolio composition across Agg-benchmarked funds, suggesting that some may be more appropriately benchmarked to alternative indices. We observe similar, though less pronounced, variation in portfolio duration relative to the Agg's duration.

[Insert Figure 2 here]

We systematically examine the characteristics of funds benchmarked to the Agg, including percentage holdings of corporate bonds, percentage holdings of Treasuries, average credit rating, and average duration, and tabulate their year-by-year distributions relative to the characteristics of the Agg. Figure 3 shows that the portfolio characteristics of Agg-benchmarked funds tend to differ substantially from those of the Agg, with wide dispersion

across funds. For example, Panel A shows that funds benchmarked to the Agg hold, on average, a higher percentage of corporate bonds than the Agg itself. The average over-allocation to corporate bonds has declined over time, from 16% in 2010 to 8% in 2023. However, the distribution of corporate bond over-allocation remains wide across funds, with an interquartile range of more than 21%.

[Insert Figure 3 here]

Panel B of Figure 3 shows Agg-benchmarked funds' allocations to Treasury securities relative to the Agg itself. On average, funds benchmarked to the Agg under-allocate to Treasuries by approximately 20 percentage points relative to the index. This under-allocation has remained stable throughout our sample period, with wide cross-fund variation. Panel C shows that Agg-benchmarked funds tend to hold securities with lower credit ratings than the index, although this difference has narrowed toward the end of our sample period. Finally, Panel D shows that the average duration of holdings in Agg-benchmarked funds is lower, on average, than that of the Agg. Duration also exhibits wide dispersion across Agg-benchmarked funds.

[Insert Figure 4 here]

As an illustrating example of fund misbenchmarking, consider the J.P. Morgan Corporate Bond Fund. Figure 4 shows the fund's legal prospectus. The J.P. Morgan Corporate Bond Fund primarily invests in corporate bonds; its investment strategies stipulate that at least 80% of the assets should be in corporate bonds. The prospectus states that "[t]he Fund is managed relative to the Bloomberg U.S. Corporate Index". However, when the fund presents its performance on the fact sheet, as displayed in Figure 5, it lists the Bloomberg U.S. Aggregate Index as its first benchmark ("Benchmark 1") alongside the Bloomberg U.S. Corporate Index. Furthermore, the relative performance graph in the fact sheet compares the fund return only to the Agg, while excluding the stated corporate benchmark altogether. Notably, the fund's performance lags the Bloomberg U.S. Corporate Index over the 1-, 5-, and 10-year horizons, while comfortably outperforming the Agg over the same periods.

[Insert Figure 5 here]

This example about the J.P. Morgan Corporate Bond Fund also raises the possibility that bond fund may add, drop, or switch indexes to potentially alter their perceived performance and affect investor flows. In later sections, we will systematically investigate bond fund benchmark changes.

III. Main Results

A. *Strategic incentives for misbenchmarking*

We first investigate whether fund managers have incentives to select mismatched benchmarks. We posit that mutual fund flows are positively influenced by benchmark-adjusted returns, generating incentives for funds to select poorly matched benchmarks to make their performance appear more attractive to investors. To estimate the relationship between investor flows and PPB-adjusted performance, we estimate the following regression specification:

$$Flow_{i,m} = \alpha_m + \beta_1 PPBAdj.Ret_{i,m-1} + \beta_2 Unadj.Ret_{i,m-1} + \gamma X_{i,m-1} + \epsilon_{i,m}, \tag{3}$$

where $PPBAdj.Ret$ is a fund's return adjusted by the return of its primary prospectus benchmark, $PPBRet$ is the return of a fund's primary prospectus benchmark, and $Unadj.Ret$ is the unadjusted fund return. All performance metrics are measured over a trailing 36-month window. The vector X includes fund characteristics: the natural logarithm of fund assets, the natural logarithm of fund age, the expense ratio, and the turnover ratio. Standard errors are double-clustered by fund and time.

[Insert Table II here]

Table II displays the results from the flow-performance regressions. In Columns (1) and (2), we show that a fund's unadjusted return and benchmark-adjusted return are sep-

arately positively related to fund flows after controlling for category-by-date, and rating-by-date fixed effects. For example, in Column (2), a one standard deviation increase in $PPBAdj.Ret$ is associated with a 0.29% increase in monthly fund flow. In the next few specifications, we include both $PPBAdj.Ret$ and fund unadjusted return in horse-race regressions. The results reported in column (3) shows that, when both variables are included as regressors, $PPBAdj.Ret$ is positively associated with future fund flows, while the coefficient on fund unadjusted return is insignificant. This suggests that investors rely heavily on (self-reported) benchmark-adjusted return of bond funds in allocating their capital. In column (4), while Morningstar ratings explain some variation in fund flows, consistent with Ben-David, Li, Rossi, and Song (2022) and Evans and Sun (2021), the positive association between benchmark-adjusted returns and fund flows remains statistically significant, though with slightly attenuated magnitude. Finally, in column (5) we include fund fixed effects and in column (6) we use a Fama-MacBeth specification. Our results remain robust to these specifications.[4] The coefficient on tracking error is statistically indistinguishable from zero except in the specification with fund fixed effects (column 3), where tracking error is negatively associated with fund flows.

Given that bond fund flows respond positively to PPB-adjusted returns, we decompose PPB-adjusted returns into two components for fund i in Lipper Class l in month m:

$$PPBAdj.Ret_{i,l,m} = (FundRet_{i,m} - \overline{CatRet_{l,m}}) + (\overline{CatRet_{l,m}} - PPBRet_{i,m}). \quad (4)$$

The first term on the right-hand side represents fund performance relative to its Morningstar category peers, capturing returns from active management strategies such as security selection or reaching for yield that deliver outperformance above the category average. The second term represents category-level outperformance relative to the fund's declared benchmark, capturing returns that arise when a fund selects a benchmark with mismatched

[4]In untabulated results, we also run these regressions using primary benchmark returns instead of the fund's unadjusted returns; the coefficients of interest, β_1, are qualitatively unchanged.

characteristics (e.g., lower risk exposure) relative to the fund's Morningstar category.

In Table III, we examine whether investors can differentiate the sources of a fund's benchmark-adjusted returns and whether fund flows respond differently to within-category fund performance versus category-benchmark mismatch. If fund investors can "see through" funds' strategic choice of benchmarks and compare fund returns against category peers, we should expect the term $(\overline{CatRet_{l,m}} - PPBRet_{i,m})$ to have no association with with fund flows.

[Insert Table III here]

The results in Table III show that both $(FundRet_{i,m} - \overline{CatRet_{l,m}})$ and $(\overline{CatRet_{l,m}} - PPBRet_{i,m})$ are significantly positively associated with fund flows. This suggests that fund investors respond positively to benchmark-adjusted performance generated by category-benchmark mismatch. Particularly, in column (2), we compare funds within the same Morningstar category by including category-by-time fixed effects, and the coefficients on $(FundRet_{i,m} - \overline{CatRet_{l,m}})$ and $(\overline{CatRet_{l,m}} - PPBRet_{i,m})$ are both positive and statistically indistinguishable from each other. This suggests that the return difference derived from fund return itself and the return difference derived from funds within the same category choosing different benchmarks attract investor flows with similar magnitude. It appears that fund investors do not appear to differentiate between the sources of benchmark-adjusted returns provides further evidence that bond funds have incentives to strategically game benchmark selection to attract capital flows.

B. Mismatched and corrected benchmarks

We next systematically examine the extent to which active bond funds select benchmarks that do not accurately reflect their risk profiles and whether such misbenchmarking generates favorable benchmark-adjusted performance. Following Sensoy (2009), we use return correlations to identify alternative benchmarks that better proxy for funds' risk exposures. For

each fund, we calculate correlation coefficients using the full time series of monthly returns.[5]

We consider two universes of alternative benchmarks. First, we use the complete set of 239 distinct benchmarks declared by funds in our sample. For each of the 959 funds, we compute the correlation between the fund's monthly gross returns and every benchmark in this universe. The alternative benchmark with the highest correlation to a fund's returns is designated the *best-matched benchmark* of the fund.

[Insert Table IV here]

Of the 959 analyzed funds, only 102 (11%) exhibit the highest correlation with their declared primary prospectus benchmarks. As shown in Panel of IV, these matched funds have an average correlation of 0.971 with their chosen benchmarks. In Panel B, we include the remaining funds, whose highest correlation is with another index (not their chosen benchmark) that is used by at least one other active bond mutual fund. The correlation between fund returns and the chosen benchmark is 0.76, while the correlation with the best-matched benchmark is 0.92; switching to the best-matched benchmark would improve the average correlation by 0.16.

Moreover, funds appear to strategically select benchmarks they can outperform more easily. For misbenchmarked funds, Panel B of Table IV shows that best-matched benchmark returns exceed declared benchmark returns by an average of 8.77 basis points (bps) per month. When adjusted by their declared benchmarks, active bond funds generate average gross monthly returns of 8.84 bps and net monthly returns of 3.11 bps. However, when adjusted by their best-matched benchmarks, active bond funds generate gross benchmark-adjusted returns of 0.79 bps, and net benchmark-adjusted returns of -4.94 bps per month.

There is considerable variation in the degree of misbenchmarking. For example, a fund might track the ICE BofA U.S. High Yield Index while its returns correlate more closely

[5]The majority of funds report a single benchmark. However, some funds report two or more benchmarks for unclear reasons (Mullally and Rossi, 2025). To be conservative in this analysis, when a fund reports multiple benchmarks, we designate the benchmark with the highest correlation with fund returns as the fund's "primary" benchmark.

with the Bloomberg U.S. High Yield Index. In such cases, however, the correlation improvement from switching benchmarks is minimal. Therefore, in Panel C of Table IV, we examine various thresholds for economically meaningful correlation improvements. For 423 funds with correlation improvements of at least 0.05, declared benchmarks underperform best-matched benchmarks by an average of 17 bps per month, substantially enhancing reported benchmark-adjusted returns and potentially influencing investor flows. While gross returns relative to declared benchmarks appear economically meaningful for this group (approximately 13 bps per month), adjusting fund returns by best-matched benchmark returns yields negative benchmark-adjusted performance: average gross adjusted returns of -1.63 bps and net adjusted returns of -7.29 bps per month.

For subsets of funds where best-matched benchmarks improve return correlation by at least 0.10, 0.25, and 0.50, we find increasingly strong evidence that benchmark mismatch inflates reported benchmark-adjusted returns. For example, among funds with potential correlation improvements of at least 0.50, the average fund reports gross outperformance of 17.31 bps per month relative to its declared benchmark while underperforming its best-matched benchmark by 3.67 bps per month on a gross basis. The underperformance is more pronounced on a net basis, averaging -9.23 bps per month. This analysis provides robust evidence of widespread strategic benchmark selection in fixed-income funds.

While using the complete set of primary benchmarks declared by sample funds is an intuitive choice for alternative benchmarks, we also recognize that funds may invest a significant portion of their holdings in asset classes not covered by their best-matched benchmark from this universe. In such cases, selecting the best-matched benchmark from this limited set may not fully capture a fund's risk profile and invoke regulatory compliance risk. As a second universe of alternative benchmarks, we construct a suite of pseudo-benchmarks that allow for hybrid exposures across credit quality segments:

$$Pseudo_{b,t} = \omega_{b.AGG} R_{AGG,t} + \omega_{b,IG} R_{IG,t} + \omega_{b,HY} R_{HY,t}. \tag{5}$$

For each pseudo-benchmark b, the weights $\omega_{j,b}$ vary across three market indices: the Bloomberg U.S. Aggregate Index (AGG), the Bloomberg U.S. Corporate Index (IG), which includes only investment-grade corporate bonds, and the ICE BofA U.S. High Yield Index (HY), which includes only non-investment-grade bonds. We vary the weights in increments of 10% across the three indices, subject to the constraint that weights sum to one. In addition, we include an equally weighted index. This generates 67 pseudo-benchmarks in total. This universe of alternative benchmarks allows for hybrid levels of credit risk and introduces high-yield exposure beyond the investment-grade universe of the Agg. Furthermore, it enables us to abstract from trivial differences between primary and best-matched benchmarks in the first universe, such as a high-yield fund using the ICE BofA U.S. High Yield Index as its primary benchmark when the Bloomberg U.S. High Yield Index would be marginally better matched.

We calculate the correlation between each fund's gross returns and all 67 pseudo-benchmark returns. We also calculate the correlation between each fund's primary prospectus benchmark returns and all pseudo-benchmark returns. If the same pseudo-benchmark exhibits the highest correlation with both the fund's gross returns and its primary prospectus benchmark returns, we classify the fund as properly benchmarked. By this criterion, 249 of the 959 sample funds (26%) are properly benchmarked, shown in Panel A of Table V. These funds have relatively high correlation with their chosen primary prospectus benchmark (0.93).

[Insert Table V here]

For the remaining 74% of the funds, we classify them as misbenchmarked and tabulate three metrics in Table V: (i) the correlation between fund returns and primary prospectus benchmark returns, (ii) the correlation between fund returns and best-matched pseudo-benchmark returns, and (iii) the correlation improvement, defined as the difference between (ii) and (i). On average, switching to the best-matched pseudo-benchmark increases the correlation with fund returns by 0.15. The median improvement is 0.056.

Examining the returns of primary prospectus benchmarks and best-matched pseudo-benchmarks, we again find that best-matched pseudo-benchmarks outperform declared benchmarks by an average of 11.74 bps per month. By selecting their declared benchmarks instead of best-matched pseudo-benchmarks, active bond funds thus generate substantially inflated benchmark-adjusted returns. For example, as shown in Table V, when adjusted by their declared benchmarks, sample funds' average gross and net benchmark-adjusted returns are 10.37 bps and 4.97 bps per month, respectively. However, when adjusted by best-matched pseudo-benchmark returns, average gross adjusted returns fall to -0.26 bps and average net adjusted returns fall to -5.67 bps per month.

Finally, by comparing the weights ω_{AGG}, ω_{IG}, and ω_{HY} of the pseudo-benchmark best matched to a fund's returns against the weights of the pseudo-benchmark best matched to the fund's primary prospectus benchmark returns, we demonstrate how credit risk exposure drives the return differential between declared and best-matched benchmarks. Table V shows that the pseudo-benchmark best matched to primary prospectus benchmark returns has mean (median) weights of 80.9% (100%) on the Agg, 7.8% (0.0%) on the investment grade corporate index, and 11.3% (0.0%) on the high yield index. In contrast, the pseudo-benchmark best matched to fund returns has mean (median) weights of 40.4% (40%) on the Agg, 24.6% (20%) on investment grade, and 35.1% (20%) on high yield. Therefore, it is evident that active bond funds systematically select benchmarks that understate their corporate bond holdings and credit risk exposure, and as a result, are able to claim positive benchmark-adjusted performance.

C. Misbenchmarked funds

Misbenchmarked funds differ systematically from properly benchmarked funds across several dimensions. In Table VI, we present a comparison of fund characteristics between misbenchmarked and properly benchmarked funds. We define a fund as misbenchmarked if switching to its best-matched alternative benchmark would improve the correlation with fund returns

by at least 0.10. The control group consists of funds that either exhibit the highest correlation with their primary prospectus benchmark or have correlation improvements of less than 0.10 from their best-matched benchmark.

[Insert Table VI here]

Table VI shows that misbenchmarked funds generate significantly higher benchmark-adjusted gross returns (4.71% over 36 months) compared to properly benchmarked funds (1.92%), with this difference driven almost entirely by benchmark selection rather than managerial skill. Specifically, for misbenchmarked funds, best-matched alternative benchmarks outperform their declared benchmarks by 5.64% over 36 months. If these funds were benchmarked to their best-matched alternatives, their benchmark-adjusted gross returns would fall to -0.94%. In contrast, properly benchmarked funds have average benchmark-adjusted gross returns of 1.14% over 36 months. If these funds were instead benchmarked to their best-matched alternatives, their benchmark-adjusted returns would decline only modestly to 0.79%.

When we examine the portfolio characteristics of misbenchmarked and properly benchmarked funds, we find that misbenchmarked funds on average have lower yields to maturity, lower duration, and lower allocations to corporate bonds as compared unconditionally to properly benchmarked funds. This suggests that misbenchmarked funds are not in general "reaching for yield" relative to other funds in general; rather, they strategically select benchmarks that understate the risk (and hence expected return) of their portfolios relative to their chosen benchmarks. In the Appendix, we repeat this exercise using mismatched and properly benchmarked funds as defined using the pseudo-benchmark alternatives; the results are qualitatively similar to those in Table VI.

To further distinguish bond fund misbenchmarking from reaching-for-yield behavior (for example, as documented by Choi and Kronlund, 2018), we regress funds' PPB-adjusted gross return on both an indicator for misbenchmarking ($Misbenchmarked$) and proxies for funds'

risk-taking:

$$PPB\text{-}adj\ Gross\ Ret_{i,m} = \alpha_{l,m} + \beta_1 Misbenchmarked_i + \beta_2 Risk_{i,m-1} + \beta_3(Risk_{i,m-1} * Misbenchmarked_i) + \gamma X_{i,m-1} + \epsilon_{i,m} \quad (6)$$

where the $Misbenchmarked$ is equal to one for funds meeting the strict definition of strategic misbenchmarking where the correlation improvement of the best matched benchmark improves the correlation by more than 10% relative to the primary prospectus benchmark, and zero otherwise. We use two value-weighted proxies for fund risk exposure ($Risk$) based on their portfolio holdings: yield to maturity and duration. We include Lipper class-by-date fixed effects, $\alpha_{l,m}$ in regressions, effectively comparing two funds from the same Lipper class as determined by their quantitative methodology in the same month. The control variables $X_{i,m-1}$ include fund total net assets, fund age, expense ratio, turnover and fund flow. Standard errors are double-clustered at the fund and month level.

[Insert Table VII here]

Columns (1) and (2) of Table VII show that funds with mismatched benchmarks generate significantly higher benchmark-adjusted gross returns compared to other funds in the same Lipper category, outperforming by approximately 10.92 bps per month. In columns (3) through (6), we include fund yield-to-maturity and duration as proxies for fund risk-taking. Misbenchmarked funds continue to generate significantly higher benchmark-adjusted gross returns even after controlling for these risk measures. Importantly, the coefficient on the interaction between the risk measure and the misbenchmarking indicator is statistically insignificant, suggesting that misbenchmarked funds generate strong benchmark-adjusted performance independent of reaching-for-yield behavior, consistent with strategic benchmark selection.

In the final two columns of Table VII, we examine whether misbenchmarked funds generate higher returns on an unadjusted basis. We replace the dependent variable in Equation

(6) with unadjusted monthly gross fund returns. As reported in columns (7) and (8), there is no evidence that misbenchmarked funds generate statistically different unadjusted gross returns relative to other funds in the same Lipper category.

While misbenchmarked funds generate similar gross return as compared to other funds, they charge a higher expense ratio to investors. In Table VIII, we examine the expense ratio of misbenchmarked funds relative to other funds. Controlling for fund characteristics and including Lipper class-by-year fixed effects, we find that funds that we classify as misbenchmarked —either relative to the universe of observed benchmarks (columns 1 to 3) or the universe of pseudo benchmarks (columns 4 to 6)—tend to charge a higher expense ratio by the amount of 10.1 to 14.5 basis points per annum as compared to other funds. Therefore, misbenchmarking appears attractive for fund managers: they are able to market better benchmark-adjusted performance, attract higher investor flows, and charge higher fees for their assets under management.

D. Bond fund benchmark changes

In this section, we focus on a subset of bond funds that have changed their benchmark within our sample period. To this end, we manually collect from SEC EDGAR the full time series of each bond fund's self-declared benchmark(s) from their summary prospectuses. Through our sample period, 236 funds (25% of our sample) make at least one change to their benchmark, and there are 396 fund-years with changes.[6] In Figure 6, we show that the number of changes is relatively constant over time, though there is a large spike of funds adding an index in the last year of our sample. Related to our previous findings that many misbenchmarked funds use Bloomberg U.S. Aggregate Index as their benchmark, we find that 76 benchmark changes involve a fund adding the Agg as its benchmark, including 39 funds in 2024 alone.

[Insert Figure 6 here]

[6]For the purposes of this analysis, we do not distinguish the 'order' in which benchmarks are presented, so a fund that keeps the same set of benchmarks but swaps the primary and secondary benchmark is not counted as a change.

We next analyze *how* funds change their benchmarks. In particular, we classify all benchmarks into seven categories based on their risk exposure. We then examine whether an added (dropped) benchmark has the same or different risk or term as the existing (remaining) benchmarks. From the least risky to the most risky, these categories include

1. Risk-free: indexes linked to LIBOR or Treasury securities;

2. GovCredit: investment grade indexes that hold U.S. Treasuries, government-related bonds (encompassing non-U.S. sovereigns, government agencies, local authorities, and supranationals), and corporate bonds;

3. Agg: investment grade indexes that hold Treasuries, government-related bonds, corporate bonds and securitized bonds;

4. Credit: investment grade indexes that hold government-related bonds and corporate bonds;

5. Universal: indexes that hold securities in the Aggregate indexes plus high yield corporate bonds;

6. IGCorp: indexes that hold investment grade corporate bonds; and

7. HY/Equity: indexes that hold high yield bonds or equities.

In Table IX, for all fund-years with benchmark changes, we compare the fund's benchmark risk category in year t (displayed in rows) to its benchmark risk category in year $t+1$ (displayed in columns).[7] For example, if a fund has a Credit benchmark in year t and adds an Agg benchmark in year $t+1$, we count it as a "Credit-to-Agg" change. If a fund uses both a Credit and a Universal benchmarks in year t and drops the Universal benchmark in year $t+1$, we count it as a "Universal-to-Credit" change.

[7]There are many funds that perform benchmark changes in two year increments, with a typical pattern of benchmarks of index A in year t-1, indexes A and B in year t, and index B in year t+1. For purposes of these transition matrices, these two-year changes are counted as one change.

We first observe that there are a large number of observations on the diagonal, indicating that funds change their benchmark indexes within the same risk category. As an example, consider a fund that drops the ICE BofA US High Yield Constrained Index, but retains Bloomberg's U.S. High Yield - 2% Issuer Cap. In later analysis, we term these benchmark changes as "incremental" changes (assuming there is also no change to the time to maturity focus of the benchmarks, e.g., from intermediate to short). On the off-diagonal elements, we show fund benchmark changes in which the risk category of the benchmarks changes. We identify these changes to the risk or term of the benchmark as "significant" changes. Of note, here we show that across almost all categories, the most common switch is a change to an Aggregate benchmark (which is dominated by, but not limited to, the Bloomberg U.S. Aggregate Bond Index). By ranking the categories according to increasing risk, we also show that there are slightly more funds that move their benchmarks toward lower risk categories (77 moves below the diagonal line) than toward higher risk categories (69 moves above the diagonal line). The largest off-diagonal category is high yield funds moving toward an Aggregate benchmark. Providing additional evidence of industry-wide reliance on a single benchmark even when the systematic risk of the benchmark does not match the funds holdings.

Why do funds change their benchmarks? The most straightforward explanation for a benchmark change is a concurrent change to the funds' investment strategy. Here, a significant shift in strategy would require a change in the fund benchmark to match the new risk characteristics of the portfolio. However, when we compare the Lipper investment category of benchmark-switching funds, we only find 22 instances (out of 236 changes) where the category is different before and after the benchmark change. As a result, we do not think strategy switches are driving our results.

Another possible reason to change benchmarks is to improve the optics of the fund's performance. Simply put, by adding a benchmark with lower returns than current benchmarks or dropping a benchmark with higher returns than remaining benchmarks, a fund can

improve the reported benchmark-adjusted return (Mullally and Rossi, 2025). In order to examine this possibility, we define $\Delta BenchmarkRet$ as follows. For benchmark additions:

$$\Delta BenchmarkRet_{p,t} = Return\_Added_{p,t} - Return\_Existing_{p,t}. \tag{7}$$

For benchmark deletions:

$$\Delta BenchmarkRet_{p,t} = Return\_Remaining_{p,t-1} - Return\_Dropped_{p,t-1}. \tag{8}$$

Note that there is a slight difference in timing for measuring return differences. For benchmark additions, we can observe the returns of added and existing benchmarks in the year of benchmark addition. However, for benchmark deletions, we can only observe the return of both dropped and remaining benchmarks as reported by the fund in the year prior to the deletion. Across benchmark additions and deletions, the interpretation on the sign of $\Delta BenchmarkRet$ is the same: a negative number indicates that the fund has switched benchmarks in a manner that improves their self-reported benchmark-adjusted return.

In Figure 7, we display the $\Delta BenchmarkRet$ for all benchmark additions (top panel) and benchmark deletions (bottom panel) in our sample. Consistent with how benchmark returns and fund returns are displayed in fund prospectuses, we plot 1-year, 5-year, and 10-year return separately.

[Insert Figure 7 here]

Across all time periods, mean $\Delta BenchmarkRet$ are significantly negative, indicating that on average funds switch benchmarks in a way that improves their fund's perceived performance. For example, the top left sub-figure shows that, when a fund adds an additional benchmark, the 1-year return of the added benchmark is on average 1.1% lower than the fund's existing benchmark. The bottom left figure suggests that, when a fund drops one of its (multiple) existing benchmarks, the return of the remaining benchmark(s) is on average

0.5% lower than the dropped benchmark.

We further split the sample of benchmark changes into significant changes and incremental changes. We deem a benchmark change as significant if a fund adds or drops a benchmark that moves into either a different risk or term category. In Figure 8, we plot the 1-year $\Delta BenchmarkRet$ for significant changes in the left column, and incremental changes in the right column. Funds with a significant benchmark addition have a mean $\Delta BenchmarkRet$ of -1.7% (statistically significant at the 1% level), compared to a non-significant mean of 0.1% for incremental benchmark additions. For benchmark deletions, the average $\Delta BenchmarkRet$ is similar across significant and incremental changes.

[Insert Figure 8 here]

If funds strategically add or drop benchmarks to improve their perceived performance, we hypothesize that the funds most likely to do this would be those that have underperformed in the past. We examine this possibility in Table X. To test the relationship between past performance and the likelihood of switching we use the following linear probability model on a fund's decision to switch based on historical performance:

$$D(Switch_{i,t}) = alpha_{c,t} + \beta * 3yr\_return_{i,t} + controls_{i,t} + \epsilon_{i,t}, \tag{9}$$

where $D(Switch_{i,c,t})$ is a dummy that takes on a value of 1 if fund i in Lipper class c changes benchmarks in month t. We measure historical returns on both a gross basis, and adjusted for the performance of the fund's best-matched pseudo benchmark (as described in section III.B). For the sample of control funds, we include only those funds that never make a benchmark change that are in the same Lipper class as the switching fund; we include Lipper class-by-month fixed effects to compare within category fund performance. Fund-level controls include expense ratio, turnover ratio, log of fund age and log of lagged fund assets. Standard errors are clustered at the year level.

[Insert Table X here]

The results reported in Table X show that, consistent with our hypothesis, funds are more likely to change their benchmark if they have underperformed their Lipper category peers over the previous three years. For all fund switches in column 1 and 4, this relationship is stronger using the pseudo benchmark adjusted returns, compared to using actual fund returns. However, as we noted above, not all benchmark switches are equal. Next, we directly examine the relationship between past performance and the nature of the benchmark change. In columns 2 and 5 *Significant* takes the value of one for significant switches, and zero for incremental changes and control funds that never change their benchmark. In columns 3 and 6, *Incremental* takes the value of one for incremental switches, and zero for significant switches and control funds. For incremental changes, we find no significant relationship between past performance and the likelihood of switching benchmarks. However, for the significant switches, we find a strong negative coefficient on both past three year raw and risk-adjusted fund returns. In other words, poorly performing funds are more likely to switch benchmarks in a significant manner, consistent with a strategic motive that may obfuscate poor past performance.

We next examine if these strategic changes are successful in increasing fund flows. To do this, we examine the dynamics of monthly fund flows around the changes of bond fund benchmarks. For each benchmark change event in month t, we consider month $t-36$ to month $t-13$ as the pre-period and month $t+1$ to $t+24$ as the post-period.[8] The control sample includes funds that never make change to their benchmarks in our sample period. We then estimate the effect of benchmark changes on fund flows using a difference-in-difference (diff-in-diff) framework:

$$Flow_{i,t} = \alpha_i + \gamma_t + \beta Post_t \times BmrkChg_i + Controls + \epsilon_{i,t}. \tag{10}$$

Since we include both fund fixed effects and event-by-time fixed effects in the regression,

[8] As we do not know the precise month in which a fund changes its benchmark, we discard the observations between month $t-12$ and $t-1$.

coefficients of the base level of *Post* and *BmrkChg* are absorbed. In some specifications, we interact our coefficient of interest with variables that separate the benchmark switches into sub-categories, including incremental vs significant switches, funds that switch to a lower risk or higher risk category, or funds that switch to a benchmark with lower or higher historical returns.

[Insert Table XI here]

In column (1) of Table XI, we find that, on average, fund flows are relatively unchanged for a fund that changes its benchmark. As we documented earlier, we may not expect to see a flow response to all switches, as about 40% of our switches are incremental and do not materially change the risk or return of the benchmark. However, as column (2) indicates, if a fund switches to an alternative benchmark with a lower risk exposure profile, investor flows in the ensuing 24 months are significantly higher than the flows prior to the change of benchmarks. This is consistent with the notion that investors are attracted to the fund's seemingly higher benchmark-adjusted return after the fund switches to an easier-to-beat index. In column (3) we further interact incremental switches, and those that lowered (raised) the return of the funds benchmark. Here, we again find that the increase in flows is concentrated in those switches that lowered the risk of the benchmark, an in-turn, the relative performance of the fund. Incremental switches have no effect on flows. As there is significant overlap in switches that lower the risk of the benchmark, while also lowering the return, in column (4) we examine switches that lower the return of the benchmark in isolation. As we would expect, in this setting, we find that benchmark switches that lower the return of the benchmark also lead to increase flows. Finally, in column (5) we examine four different types of switches. To do this, we split significant and incremental switches into those that lower the benchmark return, and those that do not. Consistent with investors directly responding to the benchmark adjusted returns, we find that significant switches that lower returns lead to increased flows, while those that increase benchmark returns lower flows. Across both types of incremental switches we see no change in flows.

We plot these fund flows in Figure 9. Noticeably, funds that make meaningful switches to a lower risk benchmark (blue long dash line) have much higher post-switch flows, compared to all switches (gray solid line).

[Insert Figure 9 here]

In this section we document multiple novel facts about active bond funds that make benchmark switches. First, while equity funds have moved toward more accurate benchmarks (Chen et al., 2025), active bond funds have continued to switch to lower-return, easier-to-beat benchmarks, even in the later part of our sample. Second, our results are driven by significant benchmark switches, where a fund moves to a benchmark in a different risk or term categoryas opposed to incremental benchmark switches. It is the significant switches that move funds' benchmark returns lower on average, and these switches are done by funds with poor historical performance. And finally, it is only funds that make significant changes who experience higher fund flows.

IV. Conclusion

This paper provides systematic evidence of widespread benchmark misbenchmarking among active bond mutual funds. We document that these funds choose benchmarks that do not accurately reflect their risk exposures or investment strategies. By strategically selecting lower-risk, lower-return benchmarks, these funds generate inflated benchmark-adjusted returns that attract significant investor flows despite delivering no genuine managerial skill. While benchmark switches are relatively rare, underperforming funds exhibit a clear pattern of switching to benchmarks with lower risk profiles following poor performance, suggesting intentional gaming rather than benign misspecification.

Our findings have important implications for investors, asset managers, and regulators. For investors, our results highlight the critical need to look beyond benchmark-adjusted returns when evaluating bond fund performance. The positive relationship be-

tween benchmark-adjusted returns and fund flows, even when generated purely through benchmark mismatch, suggests that many investors fail to account for the appropriateness of funds' self-declared benchmarks. For the asset management industry, our evidence that misbenchmarked funds charge significantly higher expense ratios—approximately 10 to 15 basis points per year while delivering inferior risk-adjusted performance raises concerns about value destruction. Unlike equity markets, where benchmark misalignment has declined from 45% in 2008 to 27% by 2020, the bond fund industry shows no evidence of improvement, with three-quarters of funds remaining misbenchmarked as of 2024.

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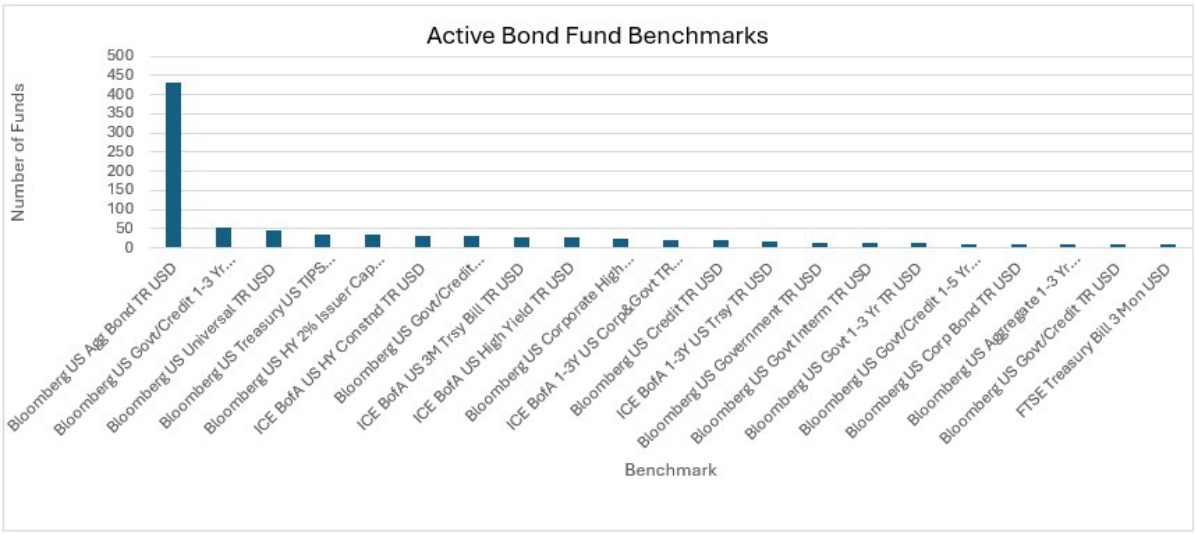
Panel A. Common Bond Fund Benchmarks



Panel B. Morningstar Categories of AGG-benchmarked funds

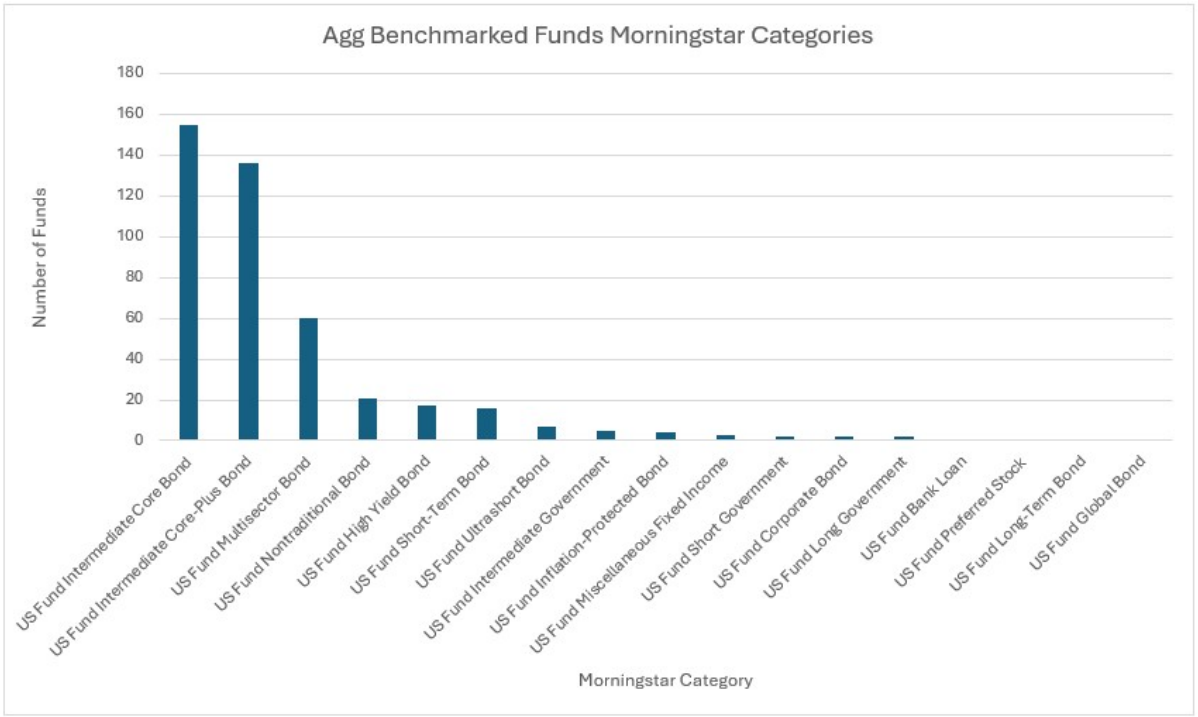


Figure 1. Fund Benchmarks and Morningstar Categories
Panel A reports the top 20 most common benchmarks used by funds in our sample. For each fund, we use the primary prospectus benchmark reported by Morningstar. Panel B reports the number of funds in each Morningstar category that use the Agg as a primary benchmark.

Figure 2. Cross-Sectional Fund Characteristics by % Corporate Bond Holdings and Duration

The sample for this figure is all active bond funds that list the Bloomberg U.S. Aggregate Index as their primary prospectus benchmark in December 2023. Blue circles represent the fund observations, and the red x represents the Agg itself. The y-axis is the % of the porfolio in corporate bonds, and the x-axis is the portfolio duration.

Figure 3. Difference between fund characteristics and the Agg Index characteristics: by year

This figure reports the inter-quartile range of the deviation of fund characteristics from benchmark characteristics for Agg benchmarked funds for each year in the sample. Panel A and B measure the deviation in corporate and treasury bond holdings, respectively. Panel C and D measure the deviation in portfolio rating and duration, respectively.

JPMorgan Corporate Bond Fund

Class/Ticker: A/CBRAX; C/CBRCX; I/CBFSX

What is the goal of the Fund?

The Fund seeks to provide total return.

What are the Fund's main investment strategies?

The Fund mainly invests in corporate bonds that are rated investment grade by a nationally recognized statistical rating organization or in securities that are unrated but are deemed by the Fund's adviser, J.P. Morgan Investment Management Inc. (JPMIM or the adviser) to be of comparable quality. Under normal circumstances, the Fund invests at least 80% of its assets in corporate bonds. "Assets" means net assets plus the amount of borrowings for investment purposes. A "corporate bond" is defined as a debt security issued by a corporation or non-governmental entity with a maturity of 90 days or more at the time of its issuance. As part of its principal strategy, the Fund invests in corporate bonds structured as corporate debt securities, debt securities of real estate investment trusts (REITs) and master limited partnerships (MLPs), public or private placements, restricted securities and other unregistered securities.

The Fund is managed relative to the Bloomberg U.S. Corporate Index (the benchmark). Under normal circumstances, the Fund's duration is the duration of the benchmark, plus or minus one year. Duration is a measure of price sensitivity of a debt security or a portfolio of debt securities to relative changes in interest rates. For instance, a duration of "five years" means that a security's or portfolio's price would be expected to decrease by approximately 5% with a 1% increase in interest rates (assuming a parallel shift in yield curve). As of May 31, 2024, the duration of the benchmark was 6.85 years. The Fund

AVERAGE ANNUAL TOTAL RETURNS
(For periods ended December 31, 2023)

	Past 1 Year	Past 5 Years	Past 10 Years
CLASS I SHARES			
Return Before Taxes	8.94%	2.84%	3.18%
Return After Taxes on Distributions	7.03	1.00	1.39
Return After Taxes on Distributions and Sale of Fund Shares	5.23	1.47	1.72
CLASS A SHARES			
Return Before Taxes	4.67	1.81	2.53
CLASS C SHARES			
Return Before Taxes	7.18	2.10	2.52
BLOOMBERG U.S. AGGREGATE INDEX (Reflects No Deduction for Fees, Expenses, or Taxes)	5.53	1.10	1.81
BLOOMBERG U.S. CORPORATE INDEX (Reflects No Deduction for Fees, Expenses, or Taxes)	8.52	2.63	2.95

Figure 4. JP Morgan Corporate Bond Fund: Prospectus

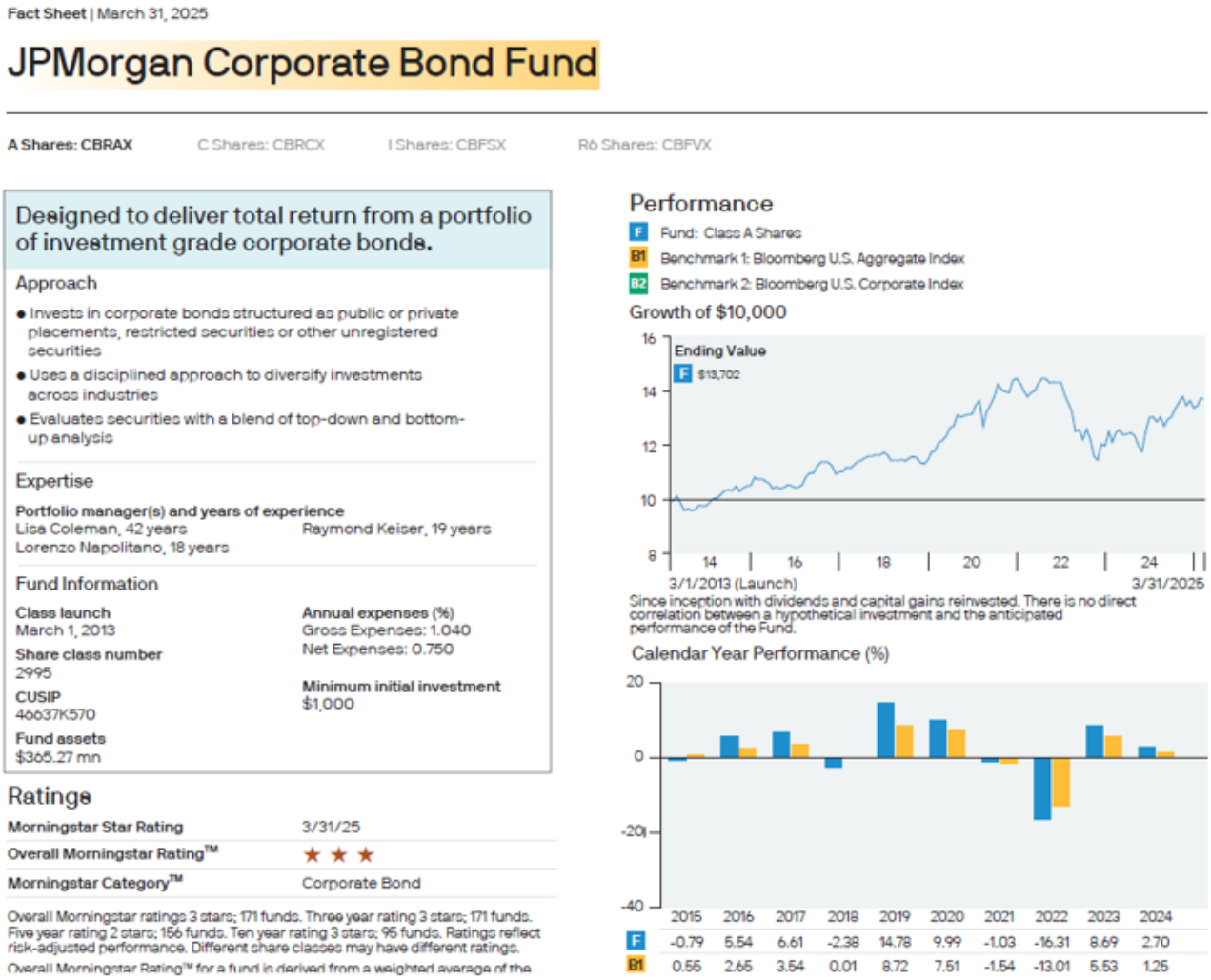


Figure 5. JP Morgan Corporate Bond Fund: Fact Sheet

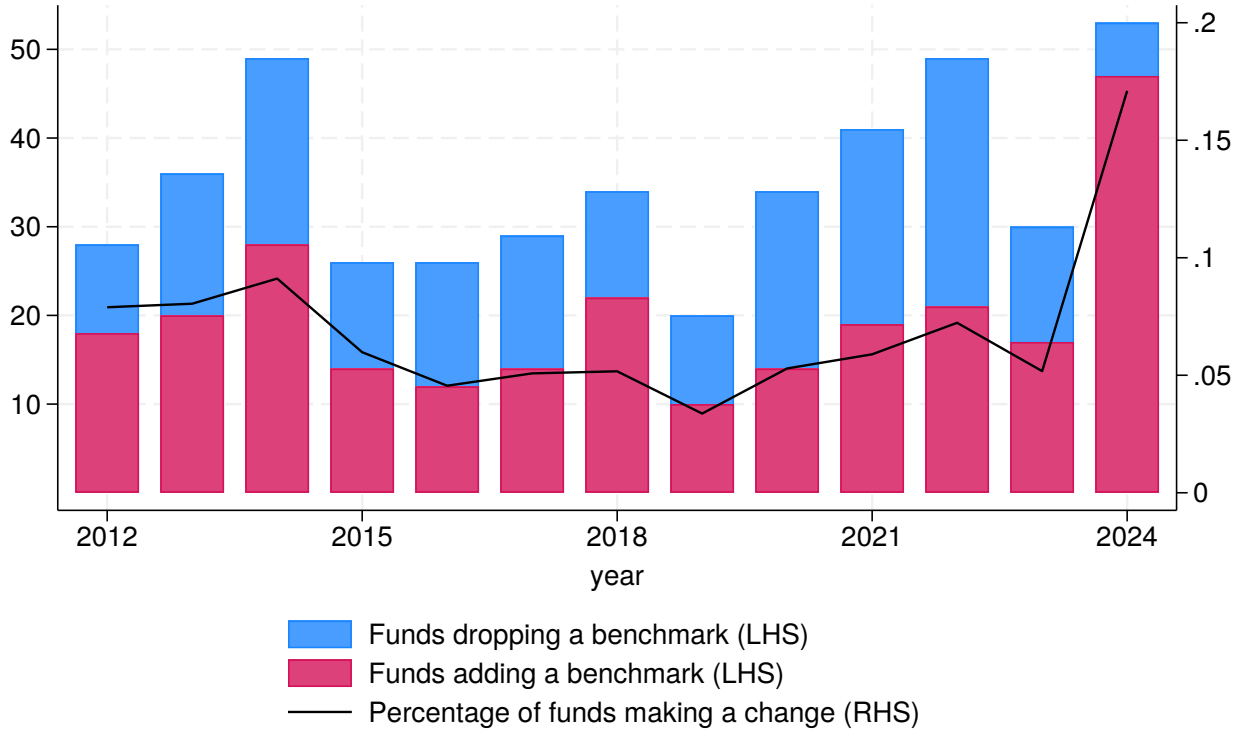


Figure 6. Number of Benchmark Changes by Year
This figure uses a sample of benchmark changes collected directs from funds' summary prospectus. The Blue (Red) bars represent the number of funds dropping (adding) a benchmark each year. The black line represents the percentage of active bond funds that change their benchmark each year.

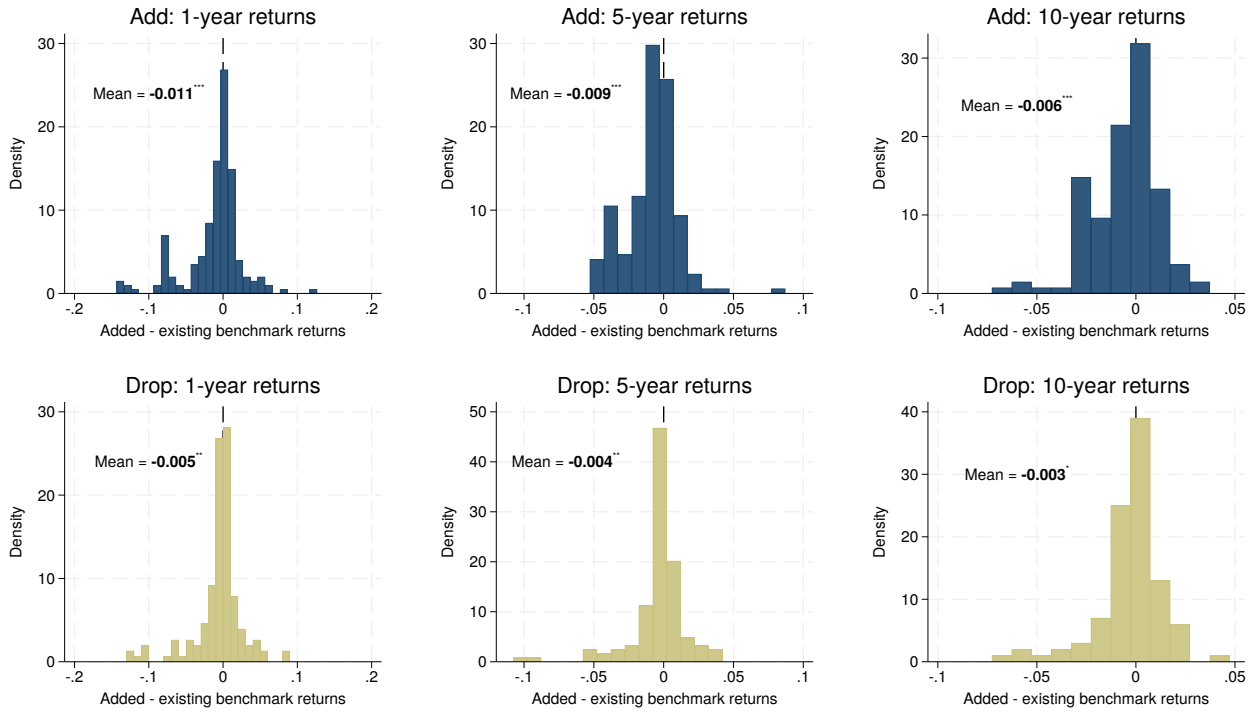


Figure 7. Calculations of $\Delta BenchmarkRet$: All changes
This figure plots the distribution of the change in returns when funds add (top row) or drop (bottom row) a benchmark. For benchmark additions, the return is calculated as the return of the benchmark(s) added minus the return of the existing benchmark(s). For benchmark deletions, the return is calculated as the return of the remaining benchmark(s) minus the return of the dropped benchmark(s).

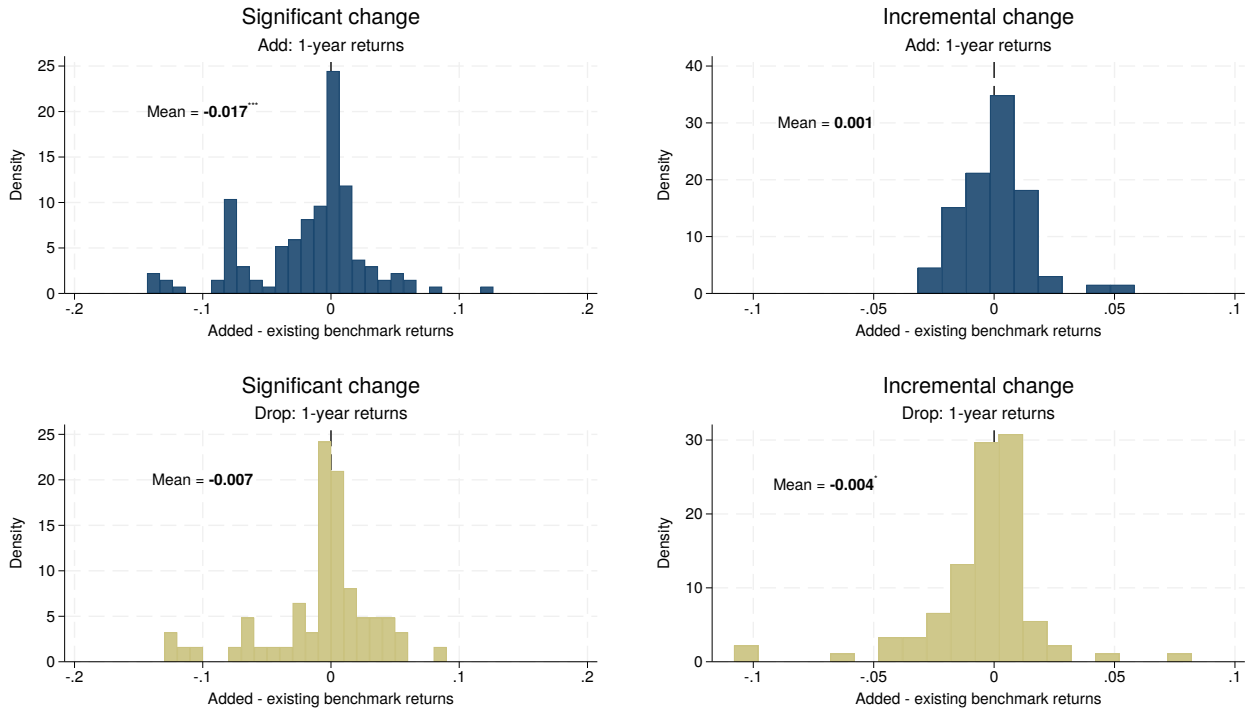


Figure 8. Calculations of $\Delta BenchmarkRet$: Significant vs incremental changes
This figure plots the distribution of the change in returns when funds make a significant benchmark change (top row) or and incremental benchmark change (bottom row) a benchmark. Significant benchmark changes are defined as those benchmark switches where the new benchmark has a different risk categorization. An incremental switch is one where the there is the new benchmark has the same risk categorization.

Figure 9. Flows Around Benchmark Changes
This figure plots the average 12 month fund flows for funds that make a benchmark change. Flows are adjusted based on the average flows to all funds in the same Lipper category. The solid grey line is the average flows for all funds that switch. The dashed blue line is the average flows for funds that change to a lower risk benchmark. The dashed red line is the average flows for funds that change to a lower return benchmark. The dashed green line is the average flow for those funds that make a meaningful change.

Table I. Summary Statistics

This table presents the summary statistics for the active fixed income funds in our sample for the period January 2011 – December 2024. PPB Adjusted Gross Return (%) is the gross return of the fund, computed as the net return plus one-twelfth of the expense ratio, minus the return of the fund's Primary Prospectus Benchmark (PPB). Gross Return-Category Return is the fund's gross return in excess of the average return of funds in the same Lipper Category and date. Rating is computed as the value weighted average of the fund's holdings using the median of numerical conversions of letter ratings from the three main rating agencies (AAA=1, AA+=2,...).

	Mean	Stdev	p10	p25	p50	p75	p90
Net Return 1m (%)	0.24	1.43	-1.27	-0.27	0.20	0.84	1.76
Gross Return 1m %	0.30	1.43	-1.21	-0.21	0.26	0.90	1.82
PPB Adj Gross Return 1m (%)	0.09	0.77	-0.46	-0.11	0.07	0.28	0.70
PPB Adj Gross Return 36m (%)	3.03	5.30	-1.23	0.46	2.11	4.75	9.18
Gross Return - Category Return 36m (%)	-0.00	4.64	-3.90	-1.66	-0.02	1.69	4.03
Category Return - PPB Return 36m (%)	3.07	4.75	-1.23	0.81	2.62	4.56	8.48
Flow (%)	0.17	5.43	-3.44	-1.36	-0.20	1.17	3.96
Age (Years)	15.28	10.54	3.67	7.08	13.33	21.58	29.08
Assets ($M)	2205.95	7752.75	55.40	145.20	457.80	1500.05	4561.85
Expense (%)	0.73	0.33	0.31	0.50	0.75	0.95	1.07
Turnover %	100.71	227.90	0.90	1.09	47.00	104.00	245.00
Rating	5.35	3.88	1.00	2.57	4.21	7.25	12.16
Yield to Maturity	3.76	2.59	1.24	2.13	3.19	5.13	6.70
Duration	4.12	2.53	1.55	2.56	3.93	5.14	6.26
Coupon	3.65	1.72	1.62	2.51	3.37	4.66	6.13
Time to Maturity	9.33	4.90	3.93	5.82	8.51	12.46	15.38
Option Adjusted Spread	148.22	147.37	15.90	45.01	94.24	207.71	375.51
% Corporate	43.58	32.36	0.00	17.22	39.35	71.24	92.89
% Treasury	18.67	24.22	0.00	0.00	10.03	26.59	50.74
% Securitized	19.51	21.22	0.00	0.00	14.10	33.65	46.93
% Equity	2.01	11.03	0.00	0.00	0.00	0.00	1.39
% Muni	0.61	3.28	0.00	0.00	0.00	0.26	1.10

Table II. The Importance of Benchmark Adjusted Returns on Flows

This table examines the relationship between benchmark adjusted returns and fund flows. *Benchmark Adj. Return* is the return of the fund minus the prospectus benchmark over the past 36 months. *Fund Unadjusted Return* is the net return of the fund over the previous 36 months. Tracking error is the standard deviation of the residual from a regression of fund returns on benchmark returns over the previous 36 months. We also control for the total net assets of the fund, the age of the fund, expense ratio, turnover. Those further defined in Appendix A1. Columns 1-5 are OLS regressions, and Column 6 is a Fama-MacBeth regression with Newey-West standard errors lagged by 6 months. For all OLS modes, standard errors are clustered by fund and date; *,**,*** represent significance at the 10%, 5%, and 1% level respectively.

Regression model	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)	FMB (6)
Benchmark Adj. Return		0.060***	0.087***	0.057***	0.100***	0.104***
		(0.011)	(0.012)	(0.013)	(0.014)	(0.013)
Fund Unadjusted Return	0.042***		-0.003	0.008	-0.021**	0.010
	(0.012)		(0.007)	(0.014)	(0.009)	(0.010)
Tracking Error	-0.132	-0.027	-0.154	-0.036	-1.259***	-0.034
	(0.113)	(0.124)	(0.158)	(0.122)	(0.346)	(0.146)
Observations	86,913	86,913	87,163	86,913	87,163	87,233
Adjusted R-squared	0.085	0.087	0.042	0.087	0.096	0.030
Date FE	NO	NO	YES	NO	YES	NO
Category-by-Date FE	YES	YES	NO	YES	NO	NO
Rating-by-Date FE	YES	YES	NO	YES	NO	NO
Fund FE	NO	NO	NO	NO	YES	NO
Controls	YES	YES	YES	YES	YES	YES

Table III. Flow-performance Relationship: Decomposing Returns

This table presents the results of monthly regressions of monthly flow on the lagged components of benchmark-adjusted returns,. PPB Adjusted Net Return 36m (m-1). Benchmark-adjusted returns are the 36-month sum of difference between net monthly fund return, and of the monthly return on the primary prospectus benchmark (PPB). We then decompose the excess return into two components. First, Net Ret-Category Ret measures the funds net returns in excess of the category average. Second, Category Ret-PPB Ret 36m (m-1) is the average gross return of all funds in the same Lipper Class and date in excess of the fund's PPB return. All specifications include control variables (LIST), but coefficients are not reported. Column (1) uses date fixed effects, column (2) includes Morningstar Rating-by-date and Lipper Category-by-date fixed effect.Column (3) uses fund and date fixed effects. Column (4) uses a Fama-MacBeth regression with Newey-West standard errors up to 6 lags. For OLS models, Standard errors clustered at the fund and date level are presented in parenthesis below the coefficient. * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level.

	OLS (1)	OLS (2)	OLS (3)	FMB (4)
(1) Fund Return - Category Return	0.118***	0.064***	0.107***	0.178***
	(0.014)	(0.013)	(0.018)	(0.030)
(2) Category Return - PPB Return	0.063***	0.057***	0.067***	0.071***
	(0.012)	(0.012)	(0.015)	(0.014)
Observations	87,163	86,913	87,163	87,233
Adjusted R-squared	0.043	0.087	0.096	0.030
Date FE	YES	NO	YES	NO
Rating-by-Date FE	NO	YES	NO	NO
Category-by-Date FE	NO	YES	NO	NO
Fund FE	NO	NO	YES	NO
Controls	YES	YES	YES	YES

Table IV. Evidence of misbenchmarking using the universe benchmarks

In this table we present the performance of funds compared to their primary prospectus benchmarks (PPB) and the universe of all benchmarks used within our sample. Panel A presents statistics for funds whose correlation is highest with their PPB (matched). Panel B presents the subsample of funds whose correlation is highest with a benchmark that is not their PPB (unmatched). Panel C includes the funds in Panel B whose matched benchmark outperforms their PPB and that have increasing levels of correlation improvement (at least 0.05, 0.10, 0.25, and 0.50).

Panel B: Properly Benchmarked Funds	N	Mean	SD	p10	p25	p50	p75	p90
Fund Correlation with Best Matched Benchmark	102	0.971	0.024	0.940	0.961	0.976	0.990	0.994
Fund PPB Adj. Gross Return 1m (bps)	102	3.059	7.431	-1.559	0.131	2.294	5.459	9.247
Fund Best Matched Adj. Gross Return 1m (bps)	102	3.059	7.431	-1.559	0.131	2.294	5.459	9.247
Fund PPB Adj. Net Return 1m (bps)	102	-1.148	7.160	-7.504	-3.347	-1.546	1.496	4.884
Fund Best Matched Adj. Net Return 1m (bps)	102	-1.148	7.160	-7.504	-3.347	-1.546	1.496	4.884

Panel B: Misbenchmarked Funds	N	Mean	SD	p10	p25	p50	p75	p90
Fund Correlation with PPB (1)	857	0.756	0.284	0.304	0.632	0.890	0.956	0.976
Fund Correlation with Best Matched Benchmark (2)	857	0.920	0.091	0.809	0.906	0.956	0.975	0.985
Best Matched Benchmark Correlation Improvement ((2) - (1))	857	0.165	0.231	0.002	0.009	0.051	0.243	0.517
Best Matched Benchmark Ret. – PPB Ret 1m (bps)	857	8.765	12.697	-2.508	1.122	5.581	12.401	26.963
Fund PPB Adj. Gross Return 1m (bps)	857	8.835	12.629	-1.134	3.186	7.182	12.762	23.809
Fund Best Matched Adj. Gross Return 1m (bps)	857	0.788	12.118	-8.989	-2.766	1.469	6.052	11.786
Fund PPB Adj. Net Return 1m (bps)	857	3.107	12.511	-7.818	-2.069	2.084	7.292	17.364
Fund Best Matched Adj. Net Return 1m (bps)	857	-4.937	12.325	-16.109	-8.395	-3.598	0.724	5.850

	≥ 0.05		≥ 0.10		≥ 0.25		≥ 0.50	
Panel C: Misbenchmarked Funds, by Correlation Improvement	N	Mean	N	Mean	N	Mean	N	Mean
Fund Correlation with PPB (1)	423	0.581	322	0.486	203	0.338	91	0.148
Fund Correlation with Best Matched Benchmark (2)	423	0.887	322	0.868	203	0.849	91	0.853
Best Matched Benchmark Correlation Improvement ((2) - (1))	423	0.306	322	0.382	203	0.511	91	0.705
Best Matched Benchmark Ret. – PPB Ret 1m (bps)	423	16.762	322	19.502	203	22.792	91	28.594
Fund PPB Adj. Gross Return 1m (bps)	423	13.008	322	14.697	203	16.465	91	17.312
Fund Best Matched Adj. Gross Return 1m (bps)	423	-1.632	322	-2.117	203	-2.815	91	-3.673
Fund PPB Adj. Net Return 1m (bps)	423	7.352	322	8.893	203	10.637	91	11.758
Fund Best Matched Adj. Net Return 1m (bps)	423	-7.285	322	-7.917	203	-8.638	91	-9.226

Table V. Evidence of misbenchmarking using the pseudo benchmarks

In this table we present the performance of funds compared to a set of pseudo benchmarks, created using 67 weighted combinations of the Bloomberg U.S. Aggregate Index (AGG), the Bloomberg U.S. Corporate Index (IG), and the ICE BofA U.S. High Yield Index (HY). Panel A includes funds whose primary prospectus benchmark (PPB) and fund return both correlate to the same pseudo benchmark (matched). Panel B includes funds whose PPB correlate to a different pseudo benchmark than the fund itself (mismatched). ω represents the weight in each component for the fund's pseudo benchmark and the PPB's pseudo benchmark.

Panel A: Matched Funds	N	Mean	SD	p10	p25	p50	p75	p90
Fund Correlation with PPB	249	0.927	0.110	0.837	0.928	0.959	0.979	0.990
Fund PPB Adj. Gross Return 1m (bps)	249	2.080	11.507	-5.269	-0.126	2.519	6.393	12.363
Fund Best Matched Adj. Gross Return 1m (bps)	249	1.010	12.440	-9.849	-4.537	1.975	7.106	13.918
Fund PPB Adj. Net Return 1m (bps)	249	-3.941	11.884	-13.959	-6.598	-2.629	0.415	5.144
Fund Best Matched Adj. Net Return 1m (bps)	249	-5.011	12.660	-16.456	-10.534	-4.210	1.145	7.420

Panel B: Mismatched Funds	N	Mean	SD	p10	p25	p50	p75	p90
Fund Correlation with PPB (1)	710	0.726	0.297	0.277	0.564	0.870	0.951	0.975
Fund Correlation with Best Matched Benchmark (2)	710	0.879	0.135	0.706	0.845	0.927	0.967	0.985
Best Matched Benchmark Correlation Improvement ((2) - (1))	710	0.153	0.234	-0.019	0.005	0.056	0.245	0.494
Best Matched Benchmark Ret. – PPB Ret 1m (bps)	710	11.736	12.783	-2.862	3.218	8.657	20.248	29.690
Fund PPB Adj. Gross Return 1m (bps)	710	10.374	11.854	0.190	4.310	8.115	13.849	25.791
Fund Best Matched Adj. Gross Return 1m (bps)	710	-0.260	12.728	-16.111	-6.603	1.247	6.170	12.660
Fund PPB Adj. Net Return 1m (bps)	710	4.968	11.339	-4.447	-0.524	3.331	8.506	18.230
Fund Best Matched Adj. Net Return 1m (bps)	710	-5.666	12.490	-21.549	-11.832	-3.723	1.320	6.994
ω_{AGG} of Best Matched Pseudo Benchmark -Fund	710	0.404	0.325	0	0	0.4	0.7	0.8
ω_{IG} of Best Matched Pseudo Benchmark -Fund	710	0.246	0.235	0	0	0.2	0.4	0.6
ω_{HY} of Best Matched Pseudo Benchmark -Fund	710	0.351	0.311	0	0.1	0.2	0.6	0.9
ω_{AGG} of Best Matched Pseudo Benchmark -PPB	710	0.809	0.353	0.05	0.9	1	1	1
ω_{IG} of Best Matched Pseudo Benchmark -PPB	710	0.078	0.228	0	0	0	0	0.317
ω_{HY} of Best Matched Pseudo Benchmark -PPB	710	0.113	0.276	0	0	0	0.1	0.3

Table VI. Tests of Differences in Control and Misbenchmarked Funds

This table presents the difference in portfolio characteristics between funds with mismatched benchmarks and a control sample. Funds are designated as misbenchmarked if an alternative benchmark improves gross return correlation by at least 0.10 and the monthly difference between the matched and prospectus benchmark (PPB) returns is positive, and zero otherwise. Mismatch is identified using the entire benchmark universe. * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level.

	Control	Mismatched	Difference
Flow (%)	0.062	0.351	-0.289***
Age (Yrs)	16.384	13.703	2.681***
Assets ($M)	3042.283	2252.398	789.885***
Expense (%)	0.647	0.675	-0.029***
Turnover (%)	125.477	106.425	19.052***
Net Ret 36m (%)	9.184	7.285	1.899***
Gross Ret 36m (%)	11.079	9.236	1.843***
PPB Adjusted Gross Return 36m (%)	1.923	4.707	-2.784***
Match - PPB Return 36m (%)	1.138	5.643	-4.505***
Match Adjusted Gross Return 36m (%)	0.785	-0.936	1.721***
Rating	5.537	4.917	0.621***
Yield to Maturity	3.769	3.807	-0.038*
Duration	4.633	2.788	1.844***
Coupon	3.800	3.339	0.461***
Time to Maturity	9.743	8.651	1.092***
Option Adjusted Spread	154.659	109.252	45.407***
% Corporate	46.372	41.102	5.270***
% Treasury	21.897	12.759	9.138***
% Securitized	17.599	25.848	-8.249***
% Equity	0.768	2.033	-1.266***
% Muni	0.751	0.481	0.270***

Table VII. Misbenchmarked Funds and Gross Adjusted Performance

This table reports the results of monthly regression of gross primary prospectus benchmark adjusted returns on mismatched benchmark and proxies for reach for yield. The dependent variable is the difference between gross monthly fund return, computed as net returns plus one-twelfth of the expense ratio, net of the monthly return on the primary prospectus benchmark. Mismatch is an indicator variable equal to one if an alternative benchmark improves gross return correlation by at least 0.10 and the monthly difference between the matched and prospectus benchmark (PPB) returns is positive, and zero otherwise. YTM and TTM are value-weighted measures of the yield to maturity and time to maturity respectively, of the fund holdings. All regressions include lagged monthly controls for expense ratio, fund turnover, log of fund assets, log of fund age, and flow, but the coefficients are not reported. Odd number columns include date fixed effects and even include Lipper class-by-date fixed effects. Standard errors clustered at the fund and date level are presented in parenthesis below the coefficient.

	PPB Adjusted Return						Gross Fund Return	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Misbenchmarked	8.321*	8.624**	4.576*	7.949**	7.020	8.496*	-0.043	0.009
	(4.234)	(3.786)	(2.353)	(3.294)	(6.149)	(4.826)	(0.044)	(0.022)
Misbenchmarked * YTM (m-1)			0.621	-0.090				
			(0.772)	(0.536)				
YTM (m-1)			0.013	0.118				
			(0.460)	(0.318)				
Misbenchmarked * TTM (m-1)					0.130	-0.057		
					(0.274)	(0.189)		
TTM (m-1)					0.091	0.073		
					(0.275)	(0.110)		
Observations	109,661	109,628	89,654	89,593	99,143	99,048	109,661	109,628
Adjusted R-squared	0.109	0.341	0.095	0.332	0.106	0.356	0.583	0.848
Date FE	NO	NO	NO	NO	NO	NO	NO	NO
Lipper-by-Date FE	NO	YES	NO	YES	NO	YES	NO	YES

Table VIII. Misbenchmarking and expense ratios

This table reports the results of annual regression of expense ratios on mismatched benchmark. The dependent variable is the expense ratio. In Columns 1 to 3, Mismatch is an indicator variable equal to one if an alternative benchmark improves gross return correlation by at least 0.10 and the monthly difference between the matched and prospectus benchmark (PPB) returns is positive, and zero otherwise. In Columns 4 to 6, Mismatch is an indicator variable equal to one if a Pseudo benchmark, composed of the Bloomberg U.S. Aggregate Index, the Bloomberg U.S. Corporate Index, and the ICE BofA U.S. High Yield indices, improves gross return correlation by at least 0.10 and on average outperforms the PPB. The variable is equal to zero for all funds whose PPB returns, and fund gross returns match the same Pseudo benchmark. All regressions include lagged monthly controls for the log of fund assets, log of fund age, turnover and flow, but the coefficients are not reported. Each column includes a different rolling thirty-six month sum of fund performance. All columns include Lipper class-by-year fixed effects. Standard errors clustered at the fund and year level are presented in parenthesis below the coefficient.

	Universe of Benchmarks			Pseudo Benchmarks		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Misbenchmarked	0.101***	0.119***	0.122***	0.127**	0.139***	0.145***
	(0.025)	(0.024)	(0.025)	(0.044)	(0.041)	(0.043)
Observations	7,131	7,131	7,131	3,955	3,955	3,955
Adjusted R-squared	0.338	0.341	0.332	0.383	0.389	0.380
Controls	YES	YES	YES	YES	YES	YES
Date FE	YES	YES	YES	YES	YES	YES
Lipper-by-Year FE	NO	YES	YES	NO	YES	YES

Table IX. Benchmark changes: Risk category transition matrix

This transition matrix documents the old and new risk categories for funds making a benchmark change. The columns are the risk categories of a fund's benchmark in the year before the benchmark change, while the rows are the risk categories of a fund's new benchmark following a change.

	Post Switch Risk Category						
Pre Switch Risk Category	Risk-free	GovCredit	Agg	Credit	Universal	IGCorp	HY/Equity
Risk-free	40	0	16	6	2	3	1
GovCredit	2	23	29	1	0	2	2
Agg	4	8	56	4	6	4	4
Credit	0	1	12	12	3	4	0
Universal	1	0	10	2	1	0	0
IGCorp	1	0	7	0	1	6	1
HY/Equity	0	1	29	0	7	1	82

Table X. Why do funds change benchmarks?

The table examines the likelihood of benchmark switches. *Switch* takes the value of 1 for the first switch of a fund. *Significant* takes the value of 1 for the first switch of a fund, if the switch involved a change in the risk category of the benchmark, and zero for control funds and switches that did not involve a change in benchmark risk categorization. *Incremental* takes the value of 1 for the first switch of a fund, if the switch did not result in a change in the risk category of the benchmark, and zero for control funds and switches where benchmark risk categorization changed. Control funds are those funds that never change their benchmark that are in the same Lipper Category as the switching fund. All regressions include lagged monthly controls for expense ratio, fund turnover, log of fund assets, log of fund age, and flow, but the coefficients are not reported. Lipper class-by-date fixed effects are included in each column. Standard errors clustered at the year level are presented in parenthesis below the coefficient.

	Switch	Significant	Incremental	Switch	Significant	Incremental
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Raw 36m Ret	-0.0201	-0.0447*	0.0246			
	(0.0245)	(0.0239)	(0.0183)			
Psuedo bmrk 36m adj Ret				-0.0721**	-0.0719***	-0.000205
				(0.0291)	(0.0165)	(0.0189)
Expense	0.898	0.481	0.417	0.907	0.438	0.469
	(0.712)	(0.445)	(0.469)	(0.715)	(0.448)	(0.464)
Turnover	-0.000870	-0.000680	-0.000190	-0.000879	-0.000661	-0.000219
	(0.000571)	(0.000511)	(0.000184)	(0.000556)	(0.000501)	(0.000186)
Fund Age	0.00194	0.00174	0.000195	0.00183	0.00165	0.000182
	(0.00281)	(0.00224)	(0.00166)	(0.00280)	(0.00224)	(0.00167)
TNA	0.000936	0.000727	0.000209	0.00104	0.000719	0.000317
	(0.000986)	(0.000841)	(0.000547)	(0.000963)	(0.000877)	(0.000528)
Constant	0.00667	0.00729	-0.000614	0.00467	0.00331	0.00137
	(0.00739)	(0.00833)	(0.00733)	(0.00765)	(0.00818)	(0.00667)
Observations	9,005	9,005	9,005	9,005	9,005	9,005
R-squared	0.029	0.037	0.040	0.030	0.037	0.040
Category-by-Date FE	YES	YES	YES	YES	YES	YES

Table XI. Benchmark Changes and Subsequent Fund Flows and Performance

The table examines the flow to funds that switch their benchmarks and uses a stacked differences-in-differences design. Control funds are all funds that never change their benchmark. The pre-period for treated and control funds is t-36 to t-12 from the switch date. The post period is all observations 24 months after the switch. *Switch* takes the value of 1 for the 24 month period after a change in benchmarks. *Lower (Higher) Risk Bmrk* is an indicator variable that takes the value of one for a switch that lowers (raises) the risk classification of the funds benchmark. *Lower Ret Bmrk* is an indicator variable that takes the value of one for a switch that lowers the previous 5yr return funds benchmark. *Significant* takes the value of 1 if the switch involved a change in the risk category of the benchmark. *Incremental* takes the value of 1 if the switch did not result in a change in the risk category of the benchmark. All regressions include lagged monthly controls for expense ratio, fund turnover, log of fund assets, log of fund age, and flow, but the coefficients are not reported. Fund, Morningstar Rating, and Event-by-Date fixed effects are included in each column. Standard errors clustered by fund and date level are presented in parenthesis below the coefficient.

VARIABLES	(1)	(2)	(3)	(4)	(5)
Switch	0.005	-0.297		-0.323	
	(0.234)	(0.290)		(0.310)	
Switch * Lower Risk Bmrk		0.968**	0.707**		
		(0.430)	(0.334)		
Switch * Incremental			0.196		
			(0.427)		
Switch * Higher Risk Bmrk			-0.449		
			(0.339)		
Switch * Lower Ret Bmrk				0.727*	
				(0.433)	
Switch * Significant * Lower Ret Bmrk					0.553*
					(0.321)
Switch * Significant * No Ret Advange Bmrk					-0.757**
					(0.328)
Switch * Incremental * Lower Ret Bmrk					0.015
					(0.638)
Switch * Incremental * No Ret Advange Bmrk					0.075
					(0.479)
Observations	298,947	298,947	298,947	297,752	298,947
Adjusted R-squared	0.151	0.151	0.151	0.151	0.151
Controls	YES	YES	YES	YES	YES
Fund FE	YES	YES	YES	YES	YES
Morningstar Rating FE	YES	YES	YES	YES	YES
Event-by-Date FE	YES	YES	YES	YES	YES

V. Appendix

Table A1. Evidence of misbenchmarking using the pseudo benchmarks

In this table we present the performance of the funds that have greater correlation with a pseudo benchmark other than the Primary Prospectus Benchmark (PPB). Pseudo benchmarks are composed using 65 potential weighted combinations of the Bloomberg US Aggregate Index (AGG), the Bloomberg US Corporate Index (IG), and the ICE BOFA US High Yield Index (HY). Panel A presents the summary statistics for the sample of funds that have higher correlations with a pseudo benchmark. Weight Fund AGG (IG, HY) is the weight of the AGG (IG, HY) components of the Pseudo Index with the highest correlation to the fund returns. Weight PPB AGG (IG, HY) is the weight of the AGG (IG, HY) components of the Pseudo Index with the highest correlation to the fund's primary prospectus benchmark (PPB). Diff AGG measures the difference in the weight of the of the AGG component of the psuedo benchmarks with the highest correlation with the fund returns and with the PPB. Panel B repeats the analysis for subsamples of funds with mismatched benchmarks which are determined based on the difference between the correlation with the pseudo benchmark and the PPB, Correl Improvement, requiring that the pseudo benchmark on average outperforms the PPB.

Var	N	Mean	SD	p10	p25	p50	p75	p90
Fund Correlation with PPB (1)	391	0.566	295	0.468	177	0.318	70	0.118
Fund Correlation with Best Matched Benchmark (2)	391	0.851	295	0.826	177	0.808	70	0.818
Best Matched Benchmark Correlation Improvement ((2) - (1))	391	0.286	295	0.357	177	0.49	70	0.7
Best Matched Benchmark Ret. – PPB Ret 1m (bps)	391	19.259	295	22.705	177	26.927	70	32.422
Fund PPB Adj. Gross Return 1m (bps)	391	14.233	295	15.744	177	16.966	70	19.366
Fund Best Matched Adj. Gross Return 1m (bps)	391	-2.718	295	-4.002	177	-5.346	70	-3.598
Fund PPB Adj. Net Return 1m (bps)	391	8.533	295	9.886	177	11.125	70	13.621
Fund Best Matched Adj. Net Return 1m (bps)	391	-8.418	295	-9.861	177	-11.187	70	-9.342
ω_{AGG} of Best Matched Pseudo Benchmark -Fund	391	0.297	295	0.211	177	0.141	70	0.049
ω_{IG} of Best Matched Pseudo Benchmark -Fund	391	0.284	295	0.288	177	0.249	70	0.204
ω_{HY} of Best Matched Pseudo Benchmark -Fund	391	0.419	295	0.501	177	0.61	70	0.747
ω_{AGG} of Best Matched Pseudo Benchmark -PPB	391	0.946	295	0.95	177	0.957	70	0.93
ω_{IG} of Best Matched Pseudo Benchmark -PPB	391	0.031	295	0.023	177	0.021	70	0.039
ω_{HY} of Best Matched Pseudo Benchmark -PPB	391	0.023	295	0.027	177	0.022	70	0.031

Table A2. Tests of Differences in Control and Misbenchmarked Funds

This table presents the difference in portfolio characteristics between misbenchmarked funds and a control sample. The table uses pseudo-indices composed of the Bloomberg U.S. Aggregate, Bloomberg U.S. Corporate Bond, and ICE BofA U.S. High Yield indices. * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Pseudo Benchmarks

	Control	Mismatched	Difference
Flow (%)	-0.224	0.421	-0.645***
Age (Yrs)	17.175	13.431	3.744***
Assets ($M)	2041.610	2383.014	-341.404***
Expense (%)	0.702	0.682	0.019***
Turnover (%)	101.085	112.938	-11.852***
Net Ret 36m (%)	9.738	7.640	2.099***
Gross Ret 36m (%)	11.776	9.614	2.162***
PPB Adjusted Gross Return 36m (%)	1.257	4.992	-3.735***
Match - PPB Return 36m (%)	0.330	5.861	-5.531***
Match Adjusted Gross Return 36m (%)	0.927	-0.869	1.796***
Rating	5.882	5.125	0.757***
Yield to Maturity	3.719	3.985	-0.265***
Duration	4.288	2.723	1.564***
Coupon	3.924	3.430	0.494***
Time to Maturity	8.535	8.683	-0.148***
Option Adjusted Spread	152.832	118.726	34.106***
% Corporate	42.202	42.842	-0.640**
% Treasury	27.939	10.729	17.210***
% Securitized	14.386	25.890	-11.503***
% Equity	0.988	2.207	-1.220***
% Muni	0.403	0.452	-0.049***

Table A3. Misbenchmarked Funds and Gross Adjusted Performance

This table reports the results of monthly regression of gross primary prospectus benchmark adjusted returns on mismatched benchmark and proxies for reach for yield. The dependent variable is the difference between gross monthly fund return, computed as net returns plus one-twelfth of the expense ratio, net of the monthly return on the primary prospectus benchmark. Mismatch is an indicator variable equal to one if a Pseudo benchmark, composed of the Bloomberg U.S. Aggregate, the Bloomberg U.S. Corporate, and the ICE BofA U.S. High Yield indices, improves gross return correlation by at least 0.10 and on average outperforms the PPB. The variable is equal to zero for all funds whose PPB returns, and fund gross returns match the same Pseudo benchmark. YTM and TTM are value-weighted measures of the yield to maturity and time to maturity respectively, of the fund holdings. All regressions include lagged monthly controls for expense ratio, fund turnover, log of fund assets, log of fund age, and flow, but the coefficients are not reported. Odd number columns include date fixed effects and even include Lipper class-by-date fixed effects. Standard errors clustered at the fund and date level are presented in parenthesis below the coefficient.

	PPB Adjusted Return						Gross Fund Return	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mismatch	11.490**	14.237**	6.787**	9.309*	6.650	13.487**	-0.056	0.023
	(5.501)	(5.697)	(3.409)	(5.210)	(6.071)	(6.211)	(0.039)	(0.030)
Mismatch * YTM (m-1)			0.589	0.806				
			(0.837)	(0.941)				
YTM (m-1)			-0.181	-1.038				
			(0.601)	(0.871)				
Mismatch * TTM (m-1)					0.500*	-0.053		
					(0.264)	(0.234)		
TTM (m-1)					-0.258	0.063		
					(0.207)	(0.142)		
Observations	61,430	61,355	47,002	46,870	55,285	55,083	61,430	61,355
Adjusted R-squared	0.144	0.367	0.121	0.341	0.135	0.375	0.487	0.805
Date FE	NO	NO	NO	NO	NO	NO	NO	NO
Lipper-by-Date FE	NO	YES	NO	YES	NO	YES	NO	YES