What Can Macro-Active Bond Funds Tell Us about Monetary Policy Change?*

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Abstract

This paper focuses on actively managed bond mutual funds, whose performance is most sensitive to monetary policy shocks. We document significant and persistent FOMC-day outperformance by macro-active bond funds, which is particularly pronounced during periods of heightened macroeconomic disagreement and attention. Consistent with their forecasting ability, these funds' pre-FOMC portfolio duration adjustments can predict FOMC-day monetary policy shocks beyond the information offered by economic data and asset returns. Furthermore, we show that this macro-investing skill extends to GDP and CPI announcements and is consistently shared across various fund styles within fund families.

Keywords: Macro-Timing, Bond Funds, Macro Announcement, Monetary Policy

JEL classification: G01, G11, G12, G14, G23

First draft: November 2023. *This draft:* May 2025.

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1 Introduction

Scheduled macroeconomic announcements, such as Federal Open Market Committee (FOMC) releases, are key moments when new information gets incorporated into asset prices. These events can reshape investor expectations, influence the yield curve, and alter risk premiums.[1] While previous research has extensively examined the impact of macro announcements on asset prices, there has been less focus on how institutional investors, particularly fixed-income funds, trade around these events.

Our primary focus is on government bond funds because price movements in the Treasury market are significantly influenced by market-moving macroeconomic news (e.g., Fleming and Remolona (1999), Balduzzi, Elton, and Green (2001)). Given that government bond funds primarily invest in interest rate products, it follows that macroeconomic announcement days should be the most important moment for bond fund managers to exercise their skills, if any, in effectively timing the Treasury bond market. Moreover, among various mutual fund styles, government bond funds are notably the most macro-active.[2] Their turnover rate strongly comoves with the level of monetary policy uncertainty and tends to peak during major events such as the tech bubble in 2001, the global financial crisis of 2008, and the Fed's tapering of 2015.

Given these distinct attributes, government bond funds offer a valuable lens through which we can gain insights into the perspective of investors regarding monetary policy. By delving into their performance around FOMC announcements, we ask the questions: Do institutional investors possess superior macro investing skills? And if they do, can their proactive adjustments to duration exposure ahead of the FOMC announcements offer valuable insights into shifts in monetary policy?

Overall, we find evidence that macro-active government bond funds exhibit strong out-

[1]See Savor and Wilson (2013, 2014), Lucca and Moench (2015), Cieslak, Morse, and Vissing-Jorgensen (2019), and Hu, Pan, Wang, and Zhu (2022), among others.

[2]The average annual turnover rates are 192% for government bond funds, 154% for investment-grade funds, and 82% for equity funds. Compared to corporate bond funds, government bond funds also have the advantage that they are less affected by liquidity and credit risks.

performance on FOMC announcement days, and such outperformance persists over time. While similar patterns are observed in corporate bond and equity funds, the magnitude of outperformance is much smaller. In contrast to the mixed evidence in the literature regarding the market timing abilities of bond funds (e.g., Chen, Ferson, and Peters (2010) and Huang and Wang (2014)), our focus on the most informationally sensitive events for bond funds provides a more direct test of their timing abilities. Furthermore, we demonstrate that the observed FOMC-day alpha is largely driven by their macro-timing strategies, as these funds proactively adjust their portfolio duration ahead of the announcements. Notably, these duration adjustments uniquely predict monetary policy shocks that go beyond the information available in traditional economic and financial indicators.

FOMC-Day Performance: Using daily return data from U.S. government bond funds from 1998 to 2021, we first document significant fund outperformance on FOMC announcement days. By applying a four-factor model that includes the first three principal components of the bond market and the aggregate risk factor of the stock market, we find that government bond funds, on average, outperform by 1.42 bps (t-stat = 2.46) on FOMC days, with the most actively managed funds achieving up to 4.23 bps (t-stat = 3.63). In contrast, passive index funds do not exhibit such FOMC-day outperformance. Although these returns may seem modest in absolute terms, they are notable compared to the average daily return of 1.77 bps and a standard deviation of 29.5 bps for government bonds.

Extending the analysis to other styles of mutual funds, we find that corporate and equity funds also tend to outperform on FOMC announcement days, but with a much weaker magnitude. For instance, actively managed corporate bond funds, on average, outperform by 2.12 bps (t-stat = 1.97) on FOMC announcement days. Actively managed equity funds have an FOMC-day alpha of 4.09 bps (t-stat = 1.63), which is economically trivial given their daily return volatility of 137 bps.[3]

[3]While our primary focus is on government bond funds, which offer the most robust and clear evidence of macro-trading, we find that macro-investing skills are likely shared across styles within the same fund family. For example, a one standard deviation increase in the FOMC-day alpha of corporate bond funds within the same family is associated with a 3.69 bps (t-stat = 12.54) increase in the focal government fund's FOMC-day alpha.

Moreover, this outperformance is distinctly linked to the FOMC announcement news release, as no similar outperformance is observed on the days immediately before or after the announcement. To further validate this finding, we conduct two placebo FOMC-day tests: (1) by matching each FOMC-day with a non-macro day that exhibits very similar asset return distributions, and (2) by randomly generating 10,000 simulated placebo FOMC paths. Our analysis indicates that the probability of funds achieving a similar magnitude of outperformance on these placebo days is less than 0.03%. Additionally, our findings remain robust when evaluating fund performance using benchmark-adjusted returns or by incorporating TIPS, MBS, and Agency factors into the alpha estimation.

Explaining the FOMC-Day Alpha: To understand the drivers of funds' FOMC-day outperformance, we next examine its cross-sectional determinants along three key aspects: fund activeness, past performance, and the transferability of skill. First, in alignment with the notion of active fund management, we document a significant positive relationship between macro-day performance and various proxies for fund activeness, including fund turnover, idiosyncratic risk taking, and the R-squared measure derived from the factor model (Amihud and Goyenko (2013)). Among these activeness proxies, idiosyncratic volatility stands out as the strongest predictor, both economically and statistically. A one standard deviation increase in idiosyncratic volatility predicts an increase of 1.05 bps (t-stat = 3.48) in FOMC-day alpha. Notably, the coefficient for systematic volatility is negative and statistically insignificant, indicating that macro-day outperformance is not the result of passive risk-taking.

Such active management is further evident in their portfolio holdings. Funds with stronger FOMC-day performance tend to take on slightly higher leverage, maintain larger bond holdings, and exhibit a greater use of derivative assets. For instance, funds in the highest quintile of macro-day performance are 10% more likely to use Treasury futures and other interest rate derivatives, compared to those in the lowest quintile. In addition to utilizing a more diverse set of derivative instruments, these funds also more actively adjust portfolio maturity and duration. Notably, the best-performing quintile demonstrates a 0.2-year higher duration volatility (t-stat = 5.47) compared to their peers.

Second, we observe performance persistence in funds' macro-investing ability, that is, funds' past FOMC-day performance significantly and positively predicts their future FOMC-day performance. A one standard deviation increase in funds' past FOMC-day alpha, over the preceding 24 months, predicts a 0.61 bps (t-stat = 2.95) increase in future FOMC-day alpha.[4] Thus, contrary to existing literature (Carhart (1997), Brown and Goetzmann (1995), Blake et al. (1993)), which often reports little outperformance or performance persistence, our focus on information-intensive macroeconomic announcement days reveals that funds not only outperform on FOMC days, but their past macro-day performance significantly predicts future success. This suggests that FOMC-day alpha reflects genuine skill in processing macro-relevant information – a transferable capability that persists over time.

Finally, if the observed outperformance is attributable to their active macro-trading ability, we would expect a fund that exhibits predictive skill for FOMC shocks to also demonstrate similar proficiency in anticipating other macroeconomic announcements. Supporting this hypothesis, our findings reveal that a fund's performance on FOMC days is significantly and positively correlated with its performance on GDP announcement days and CPI announcement days. Specifically, a one standard deviation increase in FOMC-day alpha leads to a 0.54 bps increase (t-stat = 1.91) in GDP-day alpha and a 0.48 bps increase (t-stat = 2.19) in CPI-day alpha for government bond funds. Similar trends are observed for corporate and equity funds.

Information on Monetary Policy: While a fund's FOMC-day performance reflects its macro-investing ability, it doesn't directly reveal the managers' expectations regarding FOMC outcomes. Specifically, when macro-active funds increase their duration exposure relative to less active funds ahead of an FOMC announcement, can these adjustments predict a reduction in interest rates on the announcement day? To explore this, we examine the duration changes made by government bond funds. Their liquid portfolios, which are less susceptible to stale pricing, enable us to detect their duration change made immediately before the announcements.

[4] This relationship with fund activeness and past performance is also evident in corporate and equity funds.

We estimate fund duration using a return-based approach by regressing fund returns against yield changes. The regression coefficient captures the percentage change in fund price (returns) with respect to a one-unit change in interest rates, which is precisely the definition of modified duration. The change in duration, $\Delta Duration$, is the difference between the duration measured during the [-14, -1] window before the announcement and that measured during the [-28, -15] window. We first validate the effectiveness of this duration change measure by demonstrating that active funds adjust their duration exposure ahead of FOMC announcements, increasing duration before rate cuts and decreasing it before hikes. A back-of-the-envelope calculation indicates that the alpha predicted by duration adjustment can account for approximately 72% of the magnitude of the observed FOMC-day alpha.

Using pre-announcement duration change to predict announcement-day yield curve movements, we find that $\Delta Duration$ contains unique and non-redundant information about upcoming monetary policy decisions, beyond signals derived from economists' forecasts, economic news, and indicators from the Treasury, stock, and commodity markets. A one standard deviation increase in $\Delta Duration$ predicts a 2.41 bps (t-stat=3.85) reduction in the 2-year yield on the day of the announcement, with an R^2 of 8.2%. Consistent with the expectation that monetary policy primarily affects the shorter end of the yield curve (Hanson and Stein (2015)), the predictive power of $\Delta Duration$ is strongest at the 2-year horizon and gradually declines at longer maturities. Importantly, when we replace announcement-day yield changes with high-frequency monetary policy shock measures from Nakamura and Steinsson (2018) and Gürkaynak, Sack, and Swanson (2005), our findings remain robust.

Finally, we explore the time-series variation in funds' FOMC-day outperformance and the predictability of $\Delta Duration$ over time. We show that fund managers' macro-investing ability becomes more valuable during periods when opportunities to excel are greater – such as when economists disagree strongly on the Fed's decision, when market attention to FOMC announcements is heightened, and when announcements are likely to introduce large shocks to the bond market. For instance, a one standard deviation increase in Bloomberg Fed funds rate disagreement is associated with an increase in FOMC-day alpha of 2.9 bps (t-stat=2.77) for the most actively managed funds. Meanwhile, during those periods, the predictability of $\Delta Duration$ is also much stronger.[5]

Related Literature: Our paper is related to the literature on the predictability of monetary policy change. Kuttner (2001) and Piazzesi and Swanson (2008) discuss the effectiveness of utilizing Fed funds futures to gauge expected changes in monetary policy. Additionally, Cieslak (2018), Bauer and Chernov (2024), and Bauer and Swanson (2023b) provide evidence that various macroeconomic indicators and measures from treasury, stock, and commodity markets can effectively predict monetary policy shocks. Our findings complement this literature by demonstrating that the duration exposure of government bond funds prior to FOMC announcements contains unique information about monetary policy changes, beyond what can be deduced from macroeconomic and financial data. Our findings are consistent with those of Czech, Huang, Lou, and Wang (2021), who demonstrate that aggregate order flows from mutual funds in the UK are effective in forecasting gilt returns.

Our paper also contributes to the literature on mutual fund trading skills, particularly market timing ability. Prior research generally finds that both bond and equity mutual funds struggle to consistently outperform the market, although there is considerable variation across funds.[6] Kacperczyk et al. (2014) and Kacperczyk et al. (2016) highlight the time-varying nature of mutual fund managers' stock-picking and market timing abilities over the economic cycles. Within the context of bond funds, Amihud and Goyenko (2013) and Choi, Cremers, and Riley (2021) find that fund activeness can be a significant predictor of performance. Huang and Wang (2014) and Chen, Ferson, and Peters (2010) show that while bond funds exhibit positive market timing ability in general, this ability becomes neutral or negative when public news is factored in.

Against this general finding and motivated by the importance of monetary policy announce-

[5]While announcements marked by high disagreement and large surprises often coincide with periods of heightened market volatility, we find that the market-level indices such as the VIX are unimportant for the macro-day outperformance.

[6]See, for example, Fama and French (2010), Blake, Elton, and Gruber (1993), Elton, Gruber, and Blake (1995), Ferson, Henry, and Kisgen (2006), Cici and Gibson (2012), Pástor, Stambaugh, and Taylor (2017), and Choi and Kronlund (2018), among others.

ments, we evaluate mutual funds' macro-timing ability by examining performance within a narrow window around these announcements. Since managers' attention to macroeconomic factors can vary over time (Fisher, Martineau, and Sheng (2022)), these announcement days, rich in macroeconomic information, provide a direct test of their macro-investing skills. Our study is the first to highlight the stark contrast between macro and non-macro days in bond fund performance evaluation. We also demonstrate the persistence and transferability of macro-day performance across different announcements, over time, and within fund families. This finding of macro-active funds with superior macro-timing skills distinguishes our work in the literature and contributes to discussions on the value of active portfolio management.

Finally, our paper connects to the literature on the pricing impact of macro announcements. Savor and Wilson (2013, 2014) demonstrate that equity returns differ on days with and without macroeconomic announcements, though such a contrast is much weaker for treasuries. Lucca and Moench (2015) find that equities experience higher average returns before FOMC announcements, a finding extended by Hu, Pan, Wang, and Zhu (2022) to other key macro announcements like GDP. We find that government bond fund managers, on average, exhibit stronger macro investing ability than equity fund managers. This divergence in trading behavior across mutual fund styles reflects the differing risk-return profiles of these asset classes: equities offer higher premiums for higher risks, while bonds provide lower premiums and are viewed as better investment opportunities by bond funds on announcement days.

The rest of the paper is organized as follows. Section 2 outlines the data and methodology. Section 3 discusses funds' FOMC-day performance and links it to their macro investing abilities. Section 4 examines the predictive power of fund duration changes for FOMC-day yield curve movements and monetary policy shocks. Section 5 explores the interconnectedness of funds' macro-investing skills within the same fund family and extends the analysis to other macroeconomic announcements. Finally, Section 6 concludes the paper.

2 Data and Methodology

2.1 Data

Data concerning scheduled FOMC and other macro announcements are collected from the Bloomberg economic calendar. We exclusively consider scheduled macroeconomic announcements in our analysis, as unscheduled announcements do not provide fund managers with the time or opportunity to adjust their portfolios proactively. We retrieve the announcement dates for the five most important U.S. macroeconomic announcements, based on the Bloomberg relevance score. The five macroeconomic series include the Federal Open Market Committee (FOMC), Gross Domestic Product (GDP), Total Nonfarm Payroll Employment (NFP), the Consumer Price Index (CPI), and the Institute for Supply Management manufacturing index (ISM). During our sample period, we have a total of 186 FOMC announcements, 279 GDP announcements, and 280 announcements each for NFP, CPI, and ISM. In cases where announcements coincide with holidays, we use the next trading day as the designated announcement day.

The data on mutual funds are obtained from the survivor-bias free Center for Research in Security Prices (CRSP) mutual fund database. The sample period spans from September 1998 to December 2021, as CRSP only started providing daily return data for funds after September 1998. Our analysis includes government bond funds (Govt), investment-grade bond funds (Corp), and equity funds. We define the investment styles of these funds using methodologies similar to those in Choi, Kronlund, and Oh (2022), Goldstein, Jiang, and Ng (2017), and Kacperczyk, Sialm, and Zheng (2008). Government bond funds are identified by a CRSP style code starting with "IG". Money market funds, identified by the CRSP style code starting with "IM", are not included. We also exclude funds specializing in inflation-protected securities (CRSP style code "IGT"), as the illiquidity of TIPS could introduce an additional risk factor to our analysis of government bond funds.[7] Corporate bond funds and equity funds are classified based on a combination of Lipper, Strategic Insight, and Wiesenberger

[7]Including TIPS funds yields qualitatively similar, and sometimes stronger, results.

objective codes.[8] As our primary focus is on actively managed mutual funds, we exclude index funds, ETF funds, and ETN funds from the sample.[9]

From CRSP, we collect funds' daily returns, total net assets (TNA), fund age, turnover ratio, monthly flows, and expense ratios. To obtain information on fund prospectus benchmarks, manager characteristics, and daily flows, we use data from Morningstar, matching each fund from CRSP with Morningstar data using the CUSIP of each fund share class. To ensure data quality, we require funds to have at least \$1 million in total assets under management, be older than 12 months, and a zero-return-day (ZRD) ratio $\leq 60\%$.[10]

After applying these screening procedures, our sample includes 851 government bond fund share classes, 2,364 corporate bond fund share classes, and 3,811 equity funds.[11] Table 1 reports the distribution of the main variables used in our analyses, summarized using fund-quarter observations for each style category. All variables except daily return are winsorized within each style category at the 1% and 99% percentiles to mitigate the impact of outliers. On average, government and corporate bond funds in our sample have sizes of \$262 million and \$579 million, respectively, while equity funds, since they are at the fund level, generally have a larger size of \$1.11 billion. Regarding performance, the average daily raw return for government bond funds is 1.77 bps, with a standard deviation of 29.54 bps.[12] Corporate bond funds show similar performance, with a daily raw return of 1.98 bps and a standard deviation of 25.26 bps. Consistent with the volatile nature of the equity market, equity funds have a daily return of 4.15 bps and an exceptionally high volatility of 136.55

[8]Corp funds are those with (1) Lipper objective code of "A", "BBB", "SII", "SID", "IID", or (2) Strategic Insight objective code of "CGN", "CHQ", "CIM", "CMQ", "CPR", "CSM", or (3) Wiesenberger objective code of "CBD'. Equity funds are those with (1) Lipper class of "EIEI", "G", "LCCE", "LCGE", "LCVE", "MCCE", "MCGE", "MCVE", "MLCE", "MLGE", "MLVE", "SCCE", "SCGE", "SCVE", or (2) Strategic Insight objective code of "AGG", "GMC", "GRI", "GRO", "ING", "SCG", or (3) Wiesenberger objective code of "G", "G-I", "AGG", "GCI", "GRI", "GRO", "LTG", "MCG", "SCG", or (4) Policy code of "CS".

[9]Passive funds are identified by index fund flags B, D, E, or ET flags F or N.

[10]The zero-return-day (ZRD) ratio is the fraction of days with zero returns in the last quarter. A higher ZRD indicates greater susceptibility to stale pricing issues (Choi, Kronlund, and Oh (2022)).

[11]We use individual fund share classes as our unit of observation for bond funds, following Choi, Kronlund, and Oh (2022) and Goldstein, Jiang, and Ng (2017), as funds typically issue multiple share classes with heterogeneous fee schedules and investor restrictions. Following the literature on equity mutual funds (e.g., Kacperczyk et al. (2008) and Lou (2012)), the unit of observation for equity funds is at the fund level.

[12]As our focus is on examining the macro-investing ability of fund managers, we use funds' raw returns or gross returns in our analysis.

bps, about five times higher than that of bond funds. On FOMC announcement days, fund returns, particularly those of equity funds, are markedly higher, with returns of 4.51 bps for government bond funds, 4.66 bps for corporate bond funds, and 33.74 bps for equity funds. The notably higher returns for equity funds are primarily driven by the underlying asset returns, as documented in Savor and Wilson (2013, 2014) and Lucca and Moench (2015). The average expense ratios vary across fund types, ranging from 0.87% to 1.22%. In terms of turnover, government bond funds stand out with the highest turnover ratio of 196%, followed by 169% for corporate bond funds, and 78% for equity funds.

2.2 Fund Turnover and Monetary Policy Uncertainty

Figure 1 further shows the annual turnover rates for various fund styles on a quarterly basis from 1998 to 2021. Fund turnover ratios are calculated as the minimum of total purchases or total sales, divided by the 12-month average total net assets (TNA), with higher values indicating more active management. To relate fund activeness with monetary policy, we also plot monetary policy uncertainty on the right axis, measured by the standard deviation of changes in 2-Year Treasury yields (Hanson and Stein (2015)).[13]

Consistent with the statistics presented in Table 1, Figure 1 shows that government bond funds consistently exhibit higher turnover rates than other fund styles. Notably, the turnover across various fund styles is positively correlated with periods of monetary policy uncertainty, with the strongest effect observed in government bond funds. For instance, during the 2001 tech bubble, the 2008 global financial crisis, and the 2015 Fed tapering, turnover for government bond funds surged by approximately 100% from pre-event levels. During these periods, corporate bond funds also experienced increased turnover, although the effects were least pronounced for equity funds. This pattern aligns with the understanding that government bond funds primarily hold interest rate-sensitive products, with minimal exposure to credit and firm-specific risks, making interest rate risk and monetary policy their primary concerns.

[13]Throughout the paper, we use the nominal par-coupon yield curve data constructed by Gürkaynak, Sack, and Wright (2010). This data is sourced from the Federal Reserve's website: https://www.federalreserve.gov/pubs/feds/2006/200628/200628abs.html.

Focusing more closely on government bond funds, the lower graph in Figure 1 reports (1) the turnover rates for the most active quintile of government funds, and (2) the excess turnover of active funds compared to passive funds within the same Morningstar categories.[14] The turnover of actively managed government bond funds closely comoves with the interest rate volatility, with a correlation of 51.4%. During both the 2008 financial crisis and the 2015 Fed tapering, annualized turnover for the most active government bond funds surged from a baseline average of 278% to 829% and 564% respectively. These dramatic increases – representing 2-4 standard deviation moves from mean levels – suggest that fund managers executed substantial duration and yield curve positioning changes in response to changing policy expectations. The 2015 taper tantrum episode proves particularly important, as the turnover peak occurred during an economic expansion rather than recession. This pattern implies that monetary policy uncertainty itself – distinct from broader economic conditions – drives fund managers' trading activity.

2.3 Estimation of Fund Performance – Four-Factor Model

To analyze fund performance and differentiate the skill of fund managers from the inherent movements of the underlying assets, we utilize a four-factor model comprising one stock factor and three bond factors. The model is specified as follows:

$$\begin{aligned} R_t - r_t^f = \alpha + \beta^{\mathrm{L}} \left(R_t^{\mathrm{Level}} - r_t^f \right) + \beta^{\mathrm{S30}} \left(R_t^{\mathrm{Slope30}} - r_t^f \right) + \beta^{\mathrm{S10}} \left(R_t^{\mathrm{Slope10}} - r_t^f \right) \\ + \beta^{\mathrm{E}} \left(R_t^{\mathrm{Stock}} - r_t^f \right) + \varepsilon_t, \end{aligned} \tag{1}$$

where R_t represents the day-t fund return and r_t^f denotes the risk-free rate of one-month Treasury bill, sourced from Kenneth French's website. The intercept, α, captures the fund's factor-adjusted performance. The stock factor, $R_t^{\mathrm{Stock}} - r_t^f$, is calculated by subtracting the risk-free rate from the CRSP value-weighted market return index (VWRETD). The bond factors, *Level*, *Slope*30 and *Slope*10, reflect returns associated with day-to-day variations in the Treasury yield curve.

[14] The most active quintile of funds is identified based on their last-quarter idiosyncratic volatility, which we discuss in detail in Section 3.3.

To construct these bond factors, we perform a principal component analysis (PCA) on the daily return indices of the 2-, 5-, 10-, and 30-year Barclays US Treasury bonds from September 1998 to December 2021. Unlike PCA in the yield space, PCA in the return space allows the resulting principal components to directly serve as portfolio returns. We use the eigenvectors of each principal component to create corresponding bond portfolios, normalizing them to represent a net long position of a dollar investment. The first factor, $R_t^{\text{Level}} - r_t^f$, is derived from the return of the first normalized portfolio minus the risk-free rate. The portfolio weights on the 2-, 5-, 10-, and 30-year indices are 3.57%, 13.38%, 26.96%, and 56.09%, respectively, effectively mimicking a parallel shift in the yield curve.[15] Similarly, R_t^{Slope30} and R_t^{Slope10} are constructed from the second and third principal portfolio returns. R_t^{Slope30} primarily captures yield differences between the 30-year and the short end, with weights of 26.04%, 60.74%, 56.56%, and -43.34% on the 2-, 5-, 10-, and 30-year indices, respectively. R_t^{Slope10} focuses more on the yield difference between the 10- and 2-year bonds, with weights of 101.26%, 86.36%, -116.88%, and 29.26%.[16]

To further assess corporate bond funds, we extend the model by incorporating the *Corp* factor, which is calculated as the return on the Barclays US Corporate Bond Index minus the risk-free rate. The four- (five-) factor model effectively explains approximately 91% of the daily performance variations in government funds, 99% in equity funds, and 85% in corporate bond funds. As robustness checks, in Appendix Section 2, we also evaluate funds' performance using their prospectus benchmark indices and under alternative factor models by further including TIPS (Treasury Inflation-Protected Securities), MBS (Mortgage-Backed Securities), and agency bond factors. Detailed documentation of the bond factor construction and the effectiveness of bond factors in explaining fund returns is provided in Appendix Section 1.

[15]By employing PCA in the return space, longer-duration bonds receive higher weights due to their larger price movements for the same unit change in yields.

[16]Although the third principal component is often referred to as the curvature factor, we label it as Slope10 since it relates more to the 10- minus 2-year yield slope.

3 FOMC-Day Fund Performance

In this section, we examine how funds perform specifically on days when the Federal Open Market Committee (FOMC) makes announcements. If fund managers are adept at predicting and capitalizing on news related to monetary policy, we expect them to outperform on FOMC announcement days when shocks about monetary policy are realized.

3.1 Fund Performance around FOMC Announcements

We start by estimating the FOMC-day alphas for various styles of mutual funds using Equation (1). For each fund, in each quarter t, we estimate the factor loadings by regressing daily excess returns against the four (or five) factors over a rolling 24-month window from quarter $t-8$ to $t-1$. We then compute the daily factor-adjusted excess return as the actual returns in quarter t minus the return predicted by the factor model ($Ret_{i,t} - \sum_k \hat{\beta}^k_{i,t} \times Factor^k_t$). Table 2 reports value-weighted average alphas across funds for each event day i surrounding the FOMC announcement t (i.e., $t-1$, t, and $t+1$), and over all trading days ("All Days").

As shown in Table 2, government bond funds exhibit significantly positive alphas on FOMC announcement days. For the general category of actively managed government bond funds ("All"), the FOMC-day alpha is 1.42 bps (t-stat = 2.46). We also report the factor-adjusted excess returns for the most actively managed quintile fund portfolio ("Most Active").[17] Consistent with their macro activeness as discussed in Section 2.2, these funds deliver even stronger FOMC-day outperformance, with an alpha of 4.23 bps (t-stat = 3.63).[18] While a daily alpha of a few basis points might seem modest, it is economically meaningful and statistically significant for government bond funds, whose average daily return is 1.77 bps with a standard deviation of 29.5 bps. In contrast, we fail to identify any substantial FOMC-day outperformance for passively managed index funds ("Passive Index"). Their average alpha on FOMC days is 0.54 bps (t-stat = 0.92), which is neither statistically nor economically

[17]Active funds are the top quintile group of funds sorted based on last-quarter factor-adjusted idiosyncratic volatility. Section 3.3 discusses the cross-sectional relationship between various proxies of fund activeness and FOMC-day performance.

[18]The FOMC-day outperformance is robust under alternative factor models and when estimated using benchmark-adjusted return, which we discuss in detail in Appendix Section 2.

significant. Moreover, across all trading days, average alphas are considerably smaller – 0.47 bps (t-stat = 5.56) for the full sample and 0.56 bps (t-stat = 2.37) for the most active funds.[19]

In line with the hypothesis that the FOMC-day alpha is closely linked to fund managers' skill in anticipating and trading on the release of monetary policy news, we find that the outperformance is exclusively concentrated on the day of the FOMC announcement (i=0), and becomes insignificant for -1, and +1 trading days around the announcement. The upper graph of Figure 2 plots the four factor-adjusted excess returns, as well as the benchmark-adjusted excess returns, for the most active government bond funds over a [-10, +10] day event window around FOMC announcements. The results show a pronounced and statistically significant daily alpha on the FOMC day ($i = 0$), which declines sharply as we move away from the FOMC day.

The lower panel of Figure 2 plots the time series of quarterly FOMC-day four-factor adjusted excess returns for the most active government bond funds, alongside two proxies for monetary policy uncertainty: the standard deviation of daily changes in 2-year Treasury yields and the macro-attention index from Fisher, Martineau, and Sheng (2022). The figure reveals a strong comovement between monetary policy uncertainty and the magnitude of FOMC-day alpha. Notably, alpha tends to peak during periods of significant monetary policy changes, such as 2006-09 and the Fed tapering and rate lift-off around 2015-16. These periods of elevated alpha are also characterized by higher fund turnover, as shown in Figure 1, indicating active trading on monetary policy news is a key driver of FOMC-day outperformance.

For corporate bond funds, which derive returns from both interest rate exposure and the credit risk of underlying bonds, we observe a much weaker FOMC-day alpha of 0.81 bps (t-stat = 0.95) for "All" funds, and 2.12 bps (t-stat = 1.97) for the "Most Active" portfolio. For equity funds, the FOMC-day alpha is 1.22 bps (t-stat = 1.66) for the full sample, and is statistically insignificant for the most active group. This differs from the equity premium observed before and on the day of FOMC announcements (e.g., Savor and Wilson (2013, 2014)

[19]Untabulated results indicate that net-of-fee alphas on all days are insignificant, while they are significant for FOMC days.

and Lucca and Moench (2015)). Our findings suggest that equity mutual funds are less capable of capitalizing on monetary policy news compared to bond funds. This difference in macro-day performance across various fund types is economically intuitive, reflecting the shift from macro-sensitive bond funds, which primarily invest in interest rate securities, to equity funds that focus more on micro-level firm fundamentals.

3.2 Placebo FOMC Announcements

As Treasury returns in general are much more volatile on FOMC days than non-macro days,[20] to ensure that our findings are not mechanically driven by differences in return distributions between macro and non-macro days, we perform a validation test using placebo FOMC events constructed from non-macro days. Specifically, we match each FOMC day with a non-macro day that exhibits the closest bond and stock factor returns, except that no macro announcement occurs on the placebo day. Figure 3 compares the distribution of government bond fund alphas on actual FOMC days versus the placebo FOMC days. The distribution of FOMC-day alphas is generally more positive compared to placebo FOMC days, with a higher mean and greater skew toward positive values. The lack of significant alpha on placebo days, despite employing the same factor model and estimation methodology, reduces concerns that our results are due to any misspecification in the four-factor model.

Moreover, following Hillenbrand (2025), we conduct another placebo analysis to examine fund performance across 10,000 simulated placebo FOMC paths. Each placebo path is generated by randomly selecting the same number of days within a month as actual FOMC meetings. We compute for each placebo FOMC path the alpha for the actively managed funds and plot the alpha distribution in the lower graph of Figure 3. The resulting alpha distribution is centered around zero, and only 3 out of 10,000 simulated alphas exceed the observed 4.23 bps, highlighting the statistical significance of FOMC-day outperformance.

[20]The Bloomberg Treasury Index has a daily return standard deviation of 27.4 bps on non-macro days and 32.4 bps on FOMC days. Days that fall outside the [-1, 1] window of the five macro announcements are classified as non-macro days.

3.3 Fund Activeness and Performance Persistence

To better understand the drivers of funds' FOMC-day performance, in this subsection, we further explore the cross-sectional determinants of funds' macro-investing abilities by analyzing the relationship between fund activeness and FOMC-day performance. We use several proxies to capture fund activeness. *Turnover* is the decile rank of a fund's turnover ratio, measured at the end of quarter $t-1$. As demonstrated in Section 2.2, aggregate fund turnover is highly responsive to changes in monetary policy uncertainty. Thus, we anticipate that, in the cross-section, funds with higher turnover will also demonstrate greater macro-investing activeness.

Additionally, as suggested by Amihud and Goyenko (2013), the extent to which a factor model can explain fund returns serves as an indicator of fund passiveness. Therefore, we simultaneously estimate *Idio* σ, *Sys* σ, and R^2 based on the four-factor model from Equation (1), using daily observations from quarter $t-1$. Specifically, *Sys* σ is defined as the standard deviation of the model's fitted values, *Idio* σ as the standard deviation of the residuals, and $1-R^2$ as one minus the regression's R-squared. Higher values of *Idio* σ and $1-R^2$ indicate greater fund activeness that cannot be explained by the factor model. We then assess the determinants of FOMC-day performance conditional on fund activeness using Fama-MacBeth regressions in Table 3, controlling for a range of fund characteristics including *Log(Size)*, *Log(Age)*, *Fee*, *Flow*, and the average return over the past 12 months (*Momentum*), all observed at the end of quarter $t-1$. For ease of interpretation, all independent variables are standardized to have a mean of zero and a standard deviation of one.

We observe a robust positive relationship between proxies for activeness and fund performance on FOMC announcement days for government bond funds. A one standard deviation increase in fund *Turnover*, observed at the end of quarter $t-1$, predicts a 0.19 bps (t-stat = 2.02) increase in quarter-t FOMC-day alpha. Similarly, a one standard deviation increase in *Idio* σ and $1-R^2$ predicts increases of 1.05 bps (t-stat = 3.48) and 0.33 bps (t-stat = 2.46) in FOMC-day alpha, respectively. Notably, the coefficient related to systematic volatility is negative and statistically insignificant, indicating that macro-day outperformance is not driven by passive risk-taking. Instead, it is through dynamic portfolio risk adjustments, reflected in idiosyncratic or discretionary risk-taking, that fund managers can achieve enhanced performance on FOMC announcement days.

Extending the cross-sectional analysis to other fund styles in Appendix Table IA2, we observe similar patterns. Both idiosyncratic volatility and $1 - R^2$ effectively capture fund activeness and can predict the cross-sectional variation in funds' macro-day performance. For example, a one standard deviation increase in *Idio* σ predicts 0.65 bps (t-stat=2.32) and 2.91 bps (t-stat=2.90) increases in the FOMC-day performance for corporate bond and equity funds, respectively. Consistent with existing literature (e.g., Pástor et al. (2017), Kacperczyk et al. (2005)), turnover is generally a weaker predictor of fund performance on macro days across different fund types, although the sign remains consistent.

If the FOMC-day performance of funds is indeed attributed to their proficiency and activeness in macro investing, it is anticipated that this macro-investing skill would carry forward over time. In other words, funds that have previously demonstrated positive FOMC-day alpha should continue to exhibit positive FOMC-day alpha in the future. Column (4) further reports the time-series persistence of FOMC-day performance. By regressing funds' FOMC-day alpha against their past FOMC-day performance, $\alpha^{\text{Past-FOMC}}$, estimated over the past rolling 24 months, we observe strong predictability of future FOMC-day alpha based on their past FOMC-day performance. A one standard deviation increase in past FOMC-day alpha is associated with a 0.61 bps (t-stat=2.95) increase in future FOMC-day alpha. Hence, in contrast to the existing literature which often finds little outperformance and performance persistence for mutual funds, we document a distinct two-day effect: Not only do funds outperform the market on the announcements of FOMC, but their past FOMC-day alpha also serves as a positive and statistically significant predictor of their forthcoming FOMC-day alpha.

Regarding control variables, we find that most fund characteristics have very limited predictive power for macro-day performance, with the exception of the past 12-month return. A one standard deviation increase in $Momentum$ results in an increase of approximately

0.5 bps in FOMC-day performance. This finding also supports the evidence of performance persistence. Further analysis in Appendix Section 3 shows that independent funds and those targeting institutional investors tend to outperform more on FOMC days. Among the various proxies, as presented in Column (5), idiosyncratic volatility stands out as the most robust predictor of FOMC-day alpha, both in terms of economic magnitude and statistical significance. Consequently, in subsequent analyses concerning monetary policy information, we focus on idiosyncratic volatility as our primary measure of fund activeness.

3.4 Portfolio Holdings and Dynamic Adjustments

To shed light on how and through which instruments funds achieve superior macro-day performance, we examine the holdings of government bond funds as an illustration. We obtain detailed holdings data of government bond mutual funds from Morningstar Direct. Table 4 presents the portfolio holding characteristics for quintile groups of funds sorted based on their past 24-month FOMC-day performance ($\alpha^{\text{Past-FOMC}}$). Columns (1) to (3) report the average portfolio weights of bonds, cash, and other assets held by funds in each group, while columns (4) to (8) report the fraction of funds with interest rate derivative usage.

Our analysis reveals that funds with better FOMC-day performance tend to take on slightly higher leverage, hold smaller cash reserves, maintain larger bond holdings, and exhibit a greater presence of other derivative assets. Specifically, funds in the highest $\alpha^{\text{Past-FOMC}}$ quintile hold 2% more bonds (t-stat = 4.40) and 4% less cash (t-stat = 4.51) compared to those in the lowest quintile. Among various interest rate derivatives, over 30% of the best-performing funds use Treasury futures, compared to around 20% for the worst-performing group. The usage of Eurodollar futures, Fed funds futures, interest rate swaps, and currency derivatives is also significantly higher for the best-performing group, with extra usage rates ranging from 4% to 13%. This suggests that fund managers not only take larger positions in bonds but also actively use derivatives to manage portfolio risk exposure, consistent with the findings of Choi et al. (2023).[21]

[21] As the information on notional amount and long and short positions of derivatives is reported with very low quality, following Deli and Varma (2002) and Chen (2011), we focus on the proportion of funds that invest in derivative assets.

In addition to using a more diverse set of instruments, we find that funds also actively adjust portfolio maturity and duration to achieve the macro-day performance. To capture the time-series variation in portfolio maturity, we compute the value-weighted Treasury maturity for each fund on a quarterly basis. The standard deviation (STD) of maturity is calculated for each fund each quarter, representing the time-series volatility of maturity over the past 24 months. A higher STD indicates a higher frequency of adjustments, suggesting that the fund is more actively managing its bond maturity profile to respond to changing market conditions.

To better capture the full portfolio duration exposure—particularly in light of the substantial use of derivatives by these funds (Choi et al. (2023); Barth et al. (2024))—we utilize a return-based approach. This approach enables us to efficiently and timely measure the combined impact of all fund holdings, including cash, bonds, and derivatives. Specifically, for each fund, duration is estimated quarterly by the sensitivity of fund returns ($Ret_{i,t}$) to yield curve changes (Δy_t). Here, Δy_t is defined as the average yield change across 2-, 5-, 10-, 15-, and 20-year Treasury yields. The regression specification is as follows:

$$Ret_{i,t} = a_i + b_i \times \Delta y_t + \varepsilon_{i,t}. \tag{2}$$

The negative value of the coefficient b_i captures the fund's return (percentage price change) with respect to a 1% change in yield. This is precisely the definition of modified duration, which measures the sensitivity of a bond's price to changes in interest rates. Given that government bond fund returns are less prone to the issue of stale pricing, this regression framework provides a method to infer portfolio duration in a timely manner, even without access to high-frequency holdings data. Similar to maturity, the time-series standard deviation of fund duration is calculated to capture the active duration adjustment behavior of funds, with a higher standard deviation indicating more active adjustments.

From columns (9) to (12), we observe that government bond funds hold treasuries with an average maturity of around eight years, consistent with the findings of Huang and Wang (2014), and their portfolio duration averages around four years. The best-performing funds have higher duration and higher maturity, and significantly higher standard deviations of duration and maturity compared to the worst-performing funds. For instance, the average value of duration and the time-series volatility of duration are one year (t-stat=4.31) and 0.2 years (t-stat=5.47) larger for the top-performing funds relative to the bottom-performing funds. Collectively, these findings suggest that government bond mutual funds actively manage their duration exposure by adjusting bond maturities and utilizing a diverse range of interest rate derivatives. This active management is likely the key contributor to the gains realized on FOMC announcement days.

4 Information on Monetary Policy Change

In this section, we explore whether the ex-ante duration adjustments made by actively managed government bond funds contain predictive information about upcoming FOMC policy decisions. We focus on government bond funds because previous results indicate that they are the most active group capable of successfully trading on monetary policy. Additionally, their liquid return profiles enable us to detect high-frequency duration changes leading up to the announcements.

4.1 Fund Duration Change

To infer fund managers' expectations regarding the FOMC outcome, we examine the changes in their portfolio duration just before the FOMC announcement. We anticipate that managers will increase their duration exposure in anticipation of a rate cut and decrease it in anticipation of a rate hike. We use Equation (2) from Section 3.4 to measure funds' duration exposure. To capture the adjustments made immediately prior to the FOMC announcement, we construct $\Delta Duration^i_{t-1}$ as the difference between the duration estimated in the window [-14, -1] before the announcement and the duration estimated in the window [-28, -15] before the announcement:

$$\Delta Duration^i_{t-1} = Duration^i_{[t-14,\, t-1]} - Duration^i_{[t-28,\, t-15]}, \tag{3}$$

where $t = 0$ is the FOMC announcement day. We estimate duration using two-week windows because the Beige Book, which provides the Federal Reserve's information on economic conditions, is typically released two weeks before each FOMC meeting. Therefore, the two-week period following the Beige Book's release serves as a critical window for analyzing how funds interpret the Fed's perspective and adjust their positions in anticipation of monetary policy decisions.

Since duration is estimated using daily fund returns rather than being directly constructed from portfolio holdings, we first verify that $\Delta Duration^i_{t-1}$ effectively captures managers' actual duration adjustment behavior. We do this by linking the estimated duration change to the funds' performance on FOMC announcement days. If our $\Delta Duration^i_{t-1}$ accurately reflects the manager's portfolio adjustments, and given that actively managed funds tend to outperform on FOMC days, we expect $\Delta Duration^i_{t-1}$ to be greater than zero when rates decrease and less than zero when rates increase.

In Panel A of Table 5, we report the average $\Delta Duration_{t-1}$ for quintile groups of funds sorted based on their last-quarter activeness. We categorize all FOMC events into two groups: those with a yield increase ($\Delta y^{\text{FOMC}}_t > 0$) and those with a yield decrease ($\Delta y^{\text{FOMC}}_t < 0$) on announcement days. We then report the value-weighted duration change for quintile groups of funds sorted by their level of activeness. Focusing on the most actively managed government bond funds, we observe a significant decrease in duration ($\Delta Duration_{t-1}$=-0.33) before FOMC-day yield increases, and an increase in duration ($\Delta Duration_{t-1}$=0.19) before yield decreases. The difference between these two is -0.53, with a t-statistic of 3.03. In contrast, for passively managed (inactive) funds, we do not observe such active duration adjustments before the announcement. The difference in $\Delta Duration_{t-1}$ before positive and negative monetary policy shocks is an insignificant 0.01, with a t-statistic of 0.22. This suggests that more active funds are better at anticipating and adjusting duration exposure to expected FOMC outcomes than their passive counterparts, and our $\Delta Duration_{t-1}$ measure successfully captures it.

Furthermore, the upper graph of Figure 4 reports funds' FOMC-day alpha, conditional on whether the funds' pre-announcement $\Delta Duration^i_{t-1}$ aligns with the announcement monetary policy shock. We classify funds into three distinct categories based on their varying levels of activeness and the alignment of $\Delta Duration^i_{t-1}$ with the announcement-day yield change Δy_t^{FOMC}. Notably, active funds that make accurate predictions – where $-\Delta Duration^i_{t-1}$ and Δy_t^{FOMC} share the same sign – can generate a substantial FOMC-day alpha of 3.17 bps (t-stat=3.20). In contrast, active funds with opposing positions show performance akin to inactive funds, resulting in an FOMC-day alpha of about 1.25 bps (t-stat=1.17). As a back-of-envelope calculation, we estimate the duration-implied FOMC-day alpha for actively managed bond funds by multiplying the fund's duration change by the average yield change on FOMC days ($\hat{\alpha} = \Delta Duration_{t-1} \times \Delta y_t^{\text{FOMC}}$). We find that the alpha predicted by duration adjustment can explain around 72% of the magnitude of the actual alpha. Taken together, these pieces of evidence suggest that $\Delta Duration_{t-1}$, despite being computed based on daily returns, is quite effective in capturing managers' pre-announcement portfolio adjustment behaviors.

4.2 Predicting Monetary Policy Change

After confirming the reliability of $\Delta Duration_{t-1}$, we next examine the ability of changes in duration to forecast yield curve movement (or monetary policy shock) on FOMC announcement days using the following regression model:

$$\Delta y_t^k (\text{or } MPS_t) = a + b \times \Delta Duration_{t-1} + \varepsilon_t, \tag{4}$$

where Δy_t^k is the change in k-year Treasury yield on announcement day t, with k ranging from 2 years to 20 years. We also include the monetary policy shock measure, NS, from Nakamura and Steinsson (2018), and the $Target$ and $Path$ factors from Gürkaynak, Sack, and Swanson (2005), as dependent variables.[22] Using high-frequency data, Nakamura and Steinsson (2018) show that unexpected changes in interest rates in a 30-minute window surrounding FOMC

[22]The NS measure is derived from the principal component of unanticipated changes over 30-minute windows in five interest rates: the federal funds rate immediately following the FOMC meeting, the anticipated federal funds rate following the subsequent FOMC meeting, and projected 3-month eurodollar interest rates at horizons of two, three, and four quarters. We thank Miguel Acosta for providing the data.

announcements more effectively capture news pertaining to monetary policy. In a similar vein, Gürkaynak, Sack, and Swanson (2005) show that unanticipated changes in the federal funds rate (target factor) capture only a small fraction of the monetary policy news, while large variations in long-term yield are captured by the path factor associated with FOMC statements. The independent variable is $\Delta Duration_{t-1}$, calculated as the value-weighted average of duration changes within the respective quintile group, scaled by the standard deviation of duration changes. The coefficient estimates of b along with the regressions' R^2 are reported in Panel B of Table 5.

Focusing on the most active quintile, we find that the duration change of macro-active funds significantly and negatively predicts changes in the yield curve on announcement days. A one standard deviation increase in $\Delta Duration_{t-1}$ predicts a 2.41 bps (t-stat=3.85) reduction in the 2-year yield on the day of the announcement, with an R^2 of 8.2%. In contrast, for inactive funds, which fail to outperform on FOMC days, their changes in duration lack the ability to predict variations in the yield on announcement days. This contrast also suggests that the predictability of $\Delta Duration_{t-1}$ is unlikely to be mechanically driven by the yield change itself.

Moreover, consistent with the expectation that monetary policy primarily affects the shorter end of the yield curve, the predictive power of duration change is strongest at the 2-year horizon (Hanson and Stein (2015)). This predictive ability gradually diminishes to -1.88 bps with an R^2 of 3.7% at the 10-year horizon, and -1.07 bps with an R^2 of 1.5% at the 20-year horizon.[23] When replacing the announcement-day yield change with the high-frequency monetary policy news measures, our findings remain consistent. A one standard deviation increase in $\Delta Duration_{t-1}$ predicts a 27.4% (t-stat=2.59) standard deviation reduction in NS monetary policy shock, a 19.1% (t-stat=1.62) standard deviation reduction in the $Target$ factor, and a 20% (t-stat=2.03) standard deviation reduction in the $Path$ factor.

[23] In untabulated results, we also investigate the ability of manager duration change to predict yield curve movements within a [-2, +2] trading-day window surrounding the announcement. The results reveal that $\Delta Duration_{t-1}$ solely predicts yield changes on the FOMC announcement day (t=0), rather than the yield changes on t =-2, -1, 1, 2 around the announcement.

As a graphical illustration, the lower graph of Figure 4 presents the relation between the changes in 2-year yield and the adjustments in duration made by the most actively managed funds. The figure clearly indicates that the adjustment in duration negatively predicts the change in the 2-year yield on the day of the announcement, and this effect is not influenced by significant outliers. The opacity of the dots corresponds to the magnitude of FOMC-day alpha for the funds. Notably, the darker green dots are positioned at both the upper left and lower right ends of the graph, signifying occasions when fund managers accurately predicted the correct direction.

4.3 Controlling for Other MPS Predictors

By examining the changes in fund managers' duration using publicly available fund return data, we show that active government bond fund managers either possess insightful information or have the ability to anticipate monetary policy decisions that might surprise the broader market. Bauer and Swanson (2023b) and Bauer and Swanson (2023a) show that the Fed's monetary policy decisions are influenced by the arrival of public news, with monetary policy surprises being correlated with macroeconomic and financial data available before the FOMC announcement. This raises the question: are fund managers' duration adjustments also responding to the same public information? Moreover, can these duration adjustments enhance forecasting accuracy when integrated with economists' forecasts and signals from the equity, commodity, and treasury markets?

In Table 6, we conduct a comprehensive analysis to evaluate the predictive capabilities of duration changes alongside various other potential indicators of FOMC-day yield curve shifts. Drawing on insights from existing literature, we incorporate three distinct sets of predictors. The first set includes forecasts from Bloomberg and Blue Chip economists regarding changes in monetary policy. *Bloomberg* refers to forecasts by Bloomberg economists on changes in the Fed funds rate from its latest value, while *BlueChip* pertains to survey forecasts of the Fed funds rate change for the FOMC announcement quarter.[24] We find that both variables

[24]The forecasted change in the Fed funds rate is calculated as the difference between the latest and the previous month's Blue Chip forecast for the upcoming FOMC quarter.

positively predict monetary policy shocks (NS) or changes in the FOMC-day 2-year yield, although the statistical significance is weak. Meanwhile, the effect of $\Delta Duration_{t-1}$ remains significant and of similar economic magnitude as in Table 5. This is somewhat expected, as economists' projected changes primarily reflect anticipated rate adjustments, which are likely already incorporated into market prices prior to the announcement.

Secondly, to capture the forecasting power of aggregate economic activities on changes in monetary policy, we introduce *Employment* as a control variable, defined as the percentage change in nonfarm payroll employment over the preceding year, following the methodology in Cieslak (2018). While employment exhibits a positive predictive relationship with announcement-day yield changes, the coefficient on $\Delta Duration_{t-1}$ remains at 2.41 bps with a t-statistic of 3.86. This suggests that fund managers' informational advantage is not entirely driven by the arrival of employment news.

We further include financial asset-based predictors to evaluate the informativeness of $\Delta Duration_{t-1}$. First, we examine the returns observed over the preceding three months in the equity (S&P 500) and commodity market (Bauer and Swanson (2023b)). Both equity and commodity returns positively predict rate increases on the announcement days, though their statistical and economic significance is weaker compared to that of duration change. A one-standard deviation increase in $S\&P500_{\text{3M}}$ and $Commodity_{\text{3M}}$ predicts 0.80 bps (t-stat=1.46) and 0.90 bps (t-stat=2.11) increases in the 2-year yield, respectively. While accounting for the influence of the equity and commodity markets, a one-standard deviation increase in $\Delta Duration_{t-1}$ is associated with an approximate 2.3 bps increase in the 2-year yield.

Finally, we include a collection of variables from the Treasury market, including the change in the shadow federal funds rate ($ShadowFF_{\text{3M}}$) from Wu and Xia (2016), the Baa-Treasury spread ($BaaSpread_{\text{3M}}$), and the 2-year Treasury yield $\Delta y^{\text{2YR}}_{\text{3M}}$ from 3 months before the monetary policy announcement to the day before the monetary policy announcement (Swanson (2023)). We also include $Slope_{\text{3M}}$, which refers to the change in the yield curve slope in the same 3-month window, as defined in Gürkaynak, Sack, and Wright (2007), γ, a tent-shaped linear function of forward rates for the most recent month (Cochrane and

Piazzesi (2005)), and $Forward^{2YR}$, the last-month 2-year forward-spot spread (Fama and Bliss (1987)). These variables exhibit limited efficacy in forecasting FOMC-day yield changes, whereas the significance of $\Delta Duration_{t-1}$ remains robust both economically and statistically.

In summary, the evidence suggests that changes in duration exposure by fund managers provide unique and non-redundant predictive information about monetary policy surprises, extending beyond those derived from economists' forecasts, economic news, and signals from the Treasury, stock, and commodity markets.

4.4 Dynamic Performance and Predictability Over Time

Section 2.2 highlights that the macro-activeness of funds varies significantly over time, likely due to fluctuations in monetary policy uncertainty. In this section, we examine the factors influencing funds' performance on FOMC days and whether these variations also affect the predictive power of duration changes in relation to monetary policy shocks. If funds' outperformance on FOMC days is linked to their macro-investing abilities, we expect them to perform better during periods with greater investment opportunities and pronounced information asymmetry between the funds and the public. Such conditions often arise when macroeconomic announcements have the potential to trigger significant bond market shocks or when there is considerable disagreement regarding the Fed's decisions.

We use the standard deviation of daily changes in the 2-year Treasury yield ($\sigma(\Delta y^{2YR})$) over the past month to proxy monetary policy uncertainty.[25] To measure attention to FOMC announcements, we use the monetary macro-attention index (MAI) from Fisher, Martineau, and Sheng (2022). Disagreement about monetary policy is measured using Bloomberg and Blue Chip forecasts. *Bloomberg Disagreement* is calculated as the difference between the 75th and 25th percentiles of the latest economist forecasts on the target Fed funds rate. *Blue Chip Disagreement* is measured as the difference between the top 10 and bottom 10 forecasts on the current-quarter Fed funds rate.[26] To measure FOMC announcement surprise, we use the

[25] As Figure 1 shows a strong downward trend in turnover, possibly related to the level of interest rates over time, we detrend $\sigma(\Delta y^{2YR})$ and use its decile rank in the analysis.

[26] The Blue Chip surveys are conducted monthly, usually within the first three business days of each month, to gather economists' views on changes in the quarterly Fed funds rate.

1-day change in the spot-month Fed funds futures rate (*Surprise*) from Kuttner (2001) on the announcement day. For ease of comparison, all the above variables are standardized to have a mean of zero and a standard deviation of one.

Table 7 shows that government bond funds' FOMC-day outperformance is significantly larger when the announcement is associated with higher attention and disagreement. For the most active quintile of funds, a one standard deviation increase in last month's *MAI* and $\sigma(\Delta y^{2\text{YR}})$ predicts a 2.59 bps (t-stat=2.09) and a 3.64 bps (t-stat=2.99) increase in the funds' four-factor adjusted FOMC-day excess return the next month. For macro disagreement, the corresponding economic and statistical significance are of similar magnitudes: 2.87 bps (t-stat=2.77) for Bloomberg disagreement and 4.30 bps (t-stat=3.34) for Blue Chip disagreement.

In addition to macro attention and disagreement, we observe stronger FOMC-day performance when the announcement surprise is of greater magnitude.[27] Specifically, a one standard deviation increase in the magnitude of macro surprise (i.e., the absolute value of the surprise) is associated with a 2.18 bps (t-stat=1.72) increase in FOMC-day alpha. Interestingly, and perhaps unsurprisingly, the direction of the macro surprise does not significantly affect FOMC-day performance, which suggests that government bond funds can achieve outperformance with both positive and negative news and are not constrained by the direction of the announcement outcome.

Finally, in the last two columns, we introduce proxies for the risks associated with the FOMC announcement, namely the *VIX* and the *Pre-FOMC Drift*. The *Pre-FOMC Drift* measures the stock market returns from the previous day's close at 4 pm to 5 minutes before the FOMC release. According to Hu et al. (2022), the *Pre-FOMC Drift* reflects the accumulation of heightened uncertainty regarding the magnitude of the news' impact on the market. We find that neither of these risk proxies can explain the variations in government bond funds' FOMC-day performance. The coefficient on *VIX* is 0.76 bps (t-stat=0.51), and

[27]One caveat is that these surprise measures are based on the announcement-day yield change and thus are not intended for predictive purposes.

the coefficient on the *Pre-FOMC Drift* is 2.21 bps (t-stat=1.24).[28] This evidence further supports the notion that the FOMC-day outperformance of government bond mutual funds is uniquely tied to their ability to successfully time the announcement outcome, rather than being driven by market risks or uncertainties.

Given the time-series variation in funds' FOMC-day performance, we further investigate whether the predictive capability of fund duration changes over time in a similar pattern. Specifically, we explore whether changes in fund managers' duration carry greater information during periods marked by intensified attention and uncertainty regarding the Fed's decision. To test this hypothesis, Table 8 reports the time-varying forecasting power of fund duration change. We include the last-month standard deviation of 2-year Treasury yield change ($\sigma(\Delta y^{2\text{YR}})$), the monetary macro attention index (MAI), the Blue Chip disagreement (*BC Disp*) from Table 7, and their interactions with duration change into the baseline forecasting model of Equation (4).[29]

Table 8 consistently shows negative coefficient estimates for the interaction terms across various specifications. This indicates that the forecasting power of duration changes is enhanced when the market is more focused on FOMC announcements or when these announcements are accompanied by significant uncertainty. Specifically, a one standard deviation increase in the rank of $\sigma(\Delta y^{2\text{YR}})$ boosts the predictive capacity of duration changes on FOMC-day 2-year yield changes by 1.63 bps (t-stat=2.37). Similarly, a one standard deviation increase in the macro attention index amplifies the predictive magnitude on the NS (Nakamura and Steinsson (2018)) by 0.29 bps (t-stat=2.68). These findings suggest that fund managers' adjustments in duration offer valuable and dynamic insights, aligning with their time-varying performance on FOMC days.

5 Shared Macro-Investing Skill

In this section, we examine the interconnectedness of funds' macro-investing skills within the same fund family, as well as their performance on other macroeconomic announcements,

[28]Replacing VIX with Treasury VIX still fails to significantly explain macro-day alpha.

[29]We do not include FOMC-day surprises, VIX, and other measures in Table 7 to avoid look-ahead bias.

including GDP, Non-Farm Payroll (NFP), Consumer Price Index (CPI), and ISM releases.

5.1 Interconnected Skill within Fund Family

In Section 3.1, we document the outperformance on FOMC days, which is most pronounced among government bond funds but also evident in corporate bond and equity funds. This raises the question of how FOMC-day performance is interconnected among various fund styles within the same fund family. For instance, if a PIMCO government bond fund outperforms on an FOMC day, could this imply potential outperformance for a PIMCO corporate bond fund as well? Cici et al. (2017) and Auh and Bai (2020) indicate that fund families often provide research support and encourage the sharing of insights and information among their fund managers. If FOMC-day performance is driven by a common skill shared within the family (Brown and Wu (2016)), we might expect this macro-investing expertise to be transferable across different fund styles managed by the same family.[30]

Table 9 presents Fama-MacBeth regression estimates that examine the relationship between the FOMC-day performance of government bond funds and other funds within the same family. The dependent variable, $Govt\ \alpha_t^{i \in A}$, represents the FOMC-day alpha of government bond fund i in quarter t, with fund i belonging to family A. Independent variables include the FOMC-day alphas of other government bond funds (excluding the focal fund i), as well as corporate bond funds and equity funds within the same fund family A.

Columns (1) to (3) reveal a significant positive relation between the FOMC-day performance of fund i and that of other funds in the same family. A one standard deviation increase in the FOMC-day alpha of family-level government bond funds, excluding the focal fund i, is associated with an increase of 3.52 bps (t-stat=14.24) in fund i's FOMC-day alpha. Similarly, a one standard deviation increase in the FOMC-day alpha of same-family corporate bond funds corresponds to an increase of 3.69 bps (t-stat=12.54) in the focal government fund i's FOMC-day alpha. This suggests that FOMC-day performance is interconnected not only among government bond funds within the same family but also extends across styles to

[30] If macro-investing ability is unique to individual managers, or if competition rather than collaboration prevails within fund families (Evans et al. (2020)), we might not observe such a relationship.

corporate bond funds. We find no significant relationship between the FOMC-day alpha of government bond funds and that of equity funds within the same fund family, indicating a larger barrier in information transmission across major asset classes.

This within-family and cross-style transferability of macro-investing skills is unlikely to be merely mechanical. When we replace the independent variables with the past 24 months' macro-day performance of other funds in the family, as shown in columns (4) to (6), the positive relationship persists, albeit with a weaker magnitude. This suggests that the macro-investing capabilities of other funds in the same family can predict a fund's FOMC-day performance. This interconnected macro-investing ability likely arises from institutional characteristics that enable macro trading and facilitate the flow of information within the fund family.

5.2 Relation to Other Macro Announcements

In our primary analysis, we examine the macro-investing capabilities of government bond funds, particularly in the context of FOMC announcements. We explore how institutional investors trade on monetary policy news and how their adjustments in portfolio duration can serve as a predictive tool for such news. Beyond FOMC announcements, these macro-investing skills may also enable funds to achieve superior performance during other significant macroeconomic events, such as employment, GDP, and inflation announcements, which are pivotal to monetary policy decisions. If the FOMC-day alpha we have identified indeed reflects genuine macro-investing skill, it is reasonable to expect these capabilities to extend across various macroeconomic announcements.

Table 10 illustrates the relationship between funds' performance on FOMC days and their performance on other macroeconomic announcement days, including Gross Domestic Product (GDP), Nonfarm Payrolls (NFP), the Consumer Price Index (CPI), and the Institute for Supply Management (ISM). We regress funds' factor-adjusted average excess returns on other macro-announcement days in quarter t (α_t^{GDP}, α_t^{NFP}, α_t^{CPI}, α_t^{ISM}) against their contemporaneous FOMC-day alpha (α_t^{FOMC}). We observe a significantly positive relationship across different macro announcements. A one standard deviation increase in FOMC-day alpha is associated with a 0.54 bps increase (t-stat = 1.91) in GDP-day alpha for government bond funds, 0.49 bps (t-stat = 2.02) for corporate bond funds, and 2.99 bps (t-stat = 3.01) for equity funds. Similar results are found for CPI and ISM announcements. Collectively, these findings suggest that a fund's performance on FOMC days correlates with its success on other macroeconomic announcement days, indicating that the FOMC-day alpha captures genuine skill in processing macro-relevant information – a transferable capability that extends across different types of announcements.

Despite this interconnected skill across various announcements, the unconditional evidence of outperformance on other macro announcements is mixed. Appendix Table IA3 reports the unconditional performance of various fund styles on other macroeconomic announcement days, showing varied results. One exception is the GDP announcements, which demonstrate an outperformance of around 4-6 basis points. However, since approximately 25% of GDP announcements occur at the turn of the month, excluding the last and first trading days of a month reveals that this outperformance largely disappears.[31]

6 Conclusions

In this paper, we examine whether managers of actively managed mutual funds possess superior skills in processing macroeconomic information and whether their proactive management of interest rate risk ahead of FOMC announcements can predict monetary policy shocks.

We demonstrate that government bond funds actively adjust their interest rate exposure in anticipation of changes in monetary policy. Their macro-investing abilities allow them to consistently outperform the market on days when FOMC announcements are scheduled. In contrast, on days without significant macroeconomic announcements, where there is less macro-relevant news, the opportunity for managers to leverage their skills is limited, resulting in no significant outperformance. Consistent with the findings of Kacperczyk,

[31] FOMC announcements are less influenced by the turn-of-the-month effect because they are scheduled on various calendar days.

Van Nieuwerburgh, and Veldkamp (2016) and Fisher, Martineau, and Sheng (2022) on the time-varying attention and skill of fund managers, the presence of macro-day alpha for actively managed mutual funds suggests that these funds, particularly bond funds, are highly attuned to macroeconomic news, using their superior macro-investing skills to outperform the market. This capability is persistent, correlates within fund families, and is closely linked to metrics of fund activeness such as idiosyncratic volatility and turnover.

Furthermore, we provide evidence that the informational advantage of fund managers stems, at least in part, from their ability to forecast the content of macroeconomic announcements. The adjustments in duration exposure made by macro-active funds just before announcements serve as a robust predictor of yield curve changes on FOMC announcement days, surpassing the predictive accuracy of existing monetary policy indicators. Caballero and Simsek (2022) argue that market participants may hold diverse opinions about optimal interest rate policies, and the Fed could benefit from considering these nuanced market views. By effectively capturing fund managers' expectations through their duration adjustments, our analysis offers valuable insights for policymakers and market participants.

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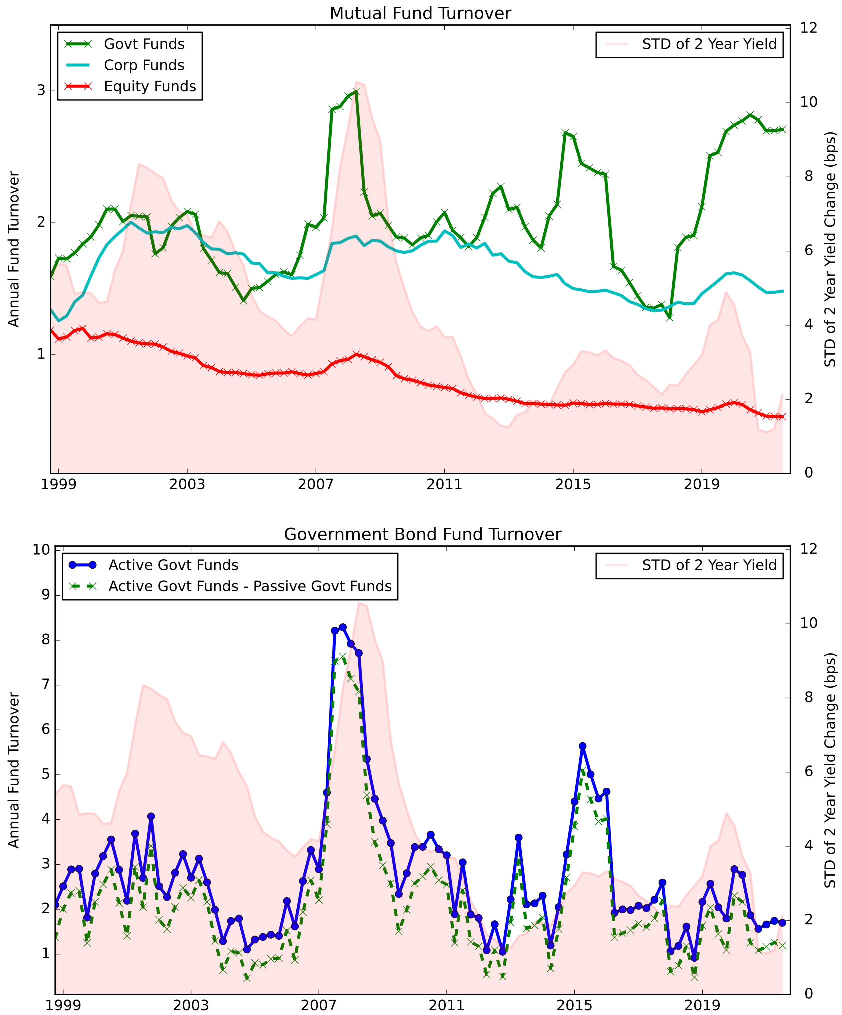
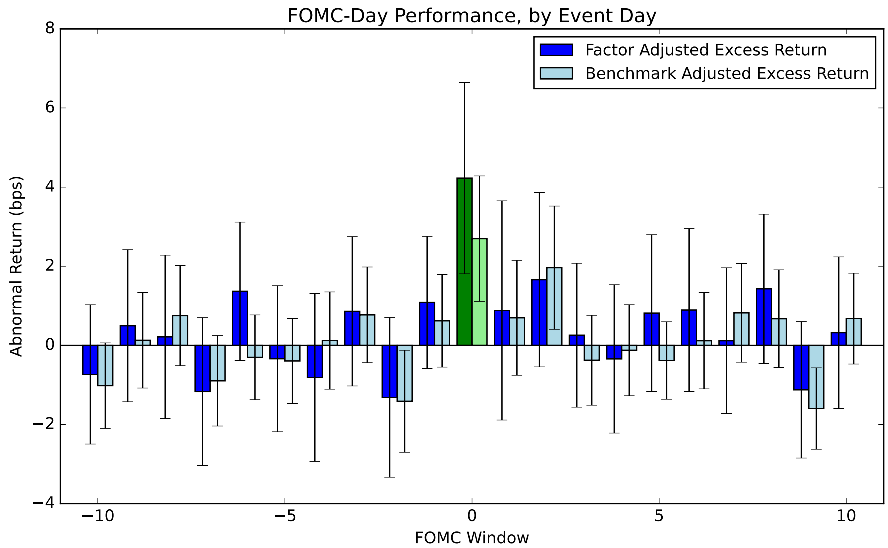
Figure 1

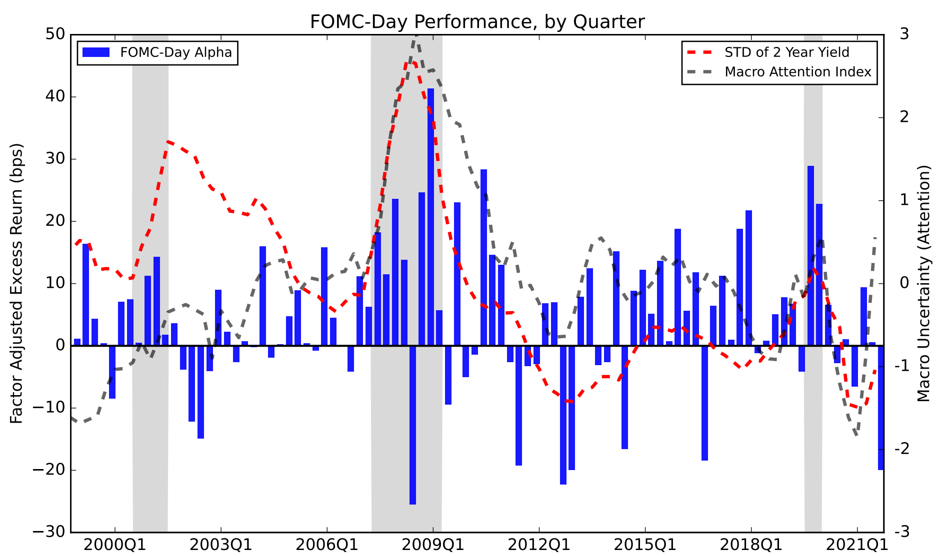
Turnover for Different Styles of Mutual Funds



Notes – The upper graph displays the annual turnover rates for three categories of mutual funds: government bond funds (Govt), investment-grade bond funds (Corp), and equity funds. The turnover rates are calculated as the minimum value between total sales and total purchases, divided by the average total net assets (TNA) over a 12-month period. The lower graph shows (1) the turnover rates for the most active quintile of government bond funds, and (2) the excess turnover of active funds relative to passive funds within the same Morningstar categories. The right axis (pink shaded area) displays the standard deviation of daily changes in the 2-year Treasury yield, estimated using a 12-month rolling window. The grey shaded areas indicate the NBER recession periods. The sample period is from 1998 to 2021.

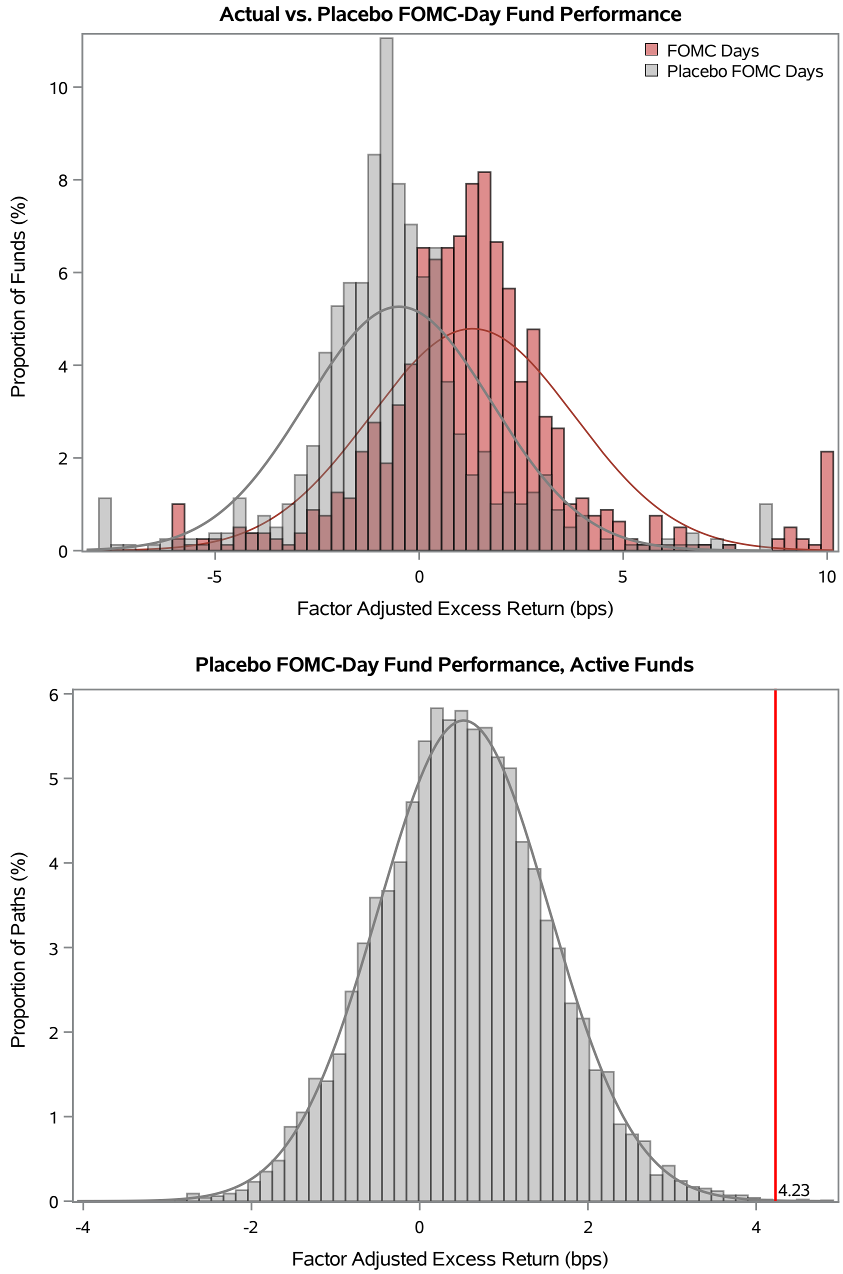
Figure 2
FOMC-Day Fund Performance





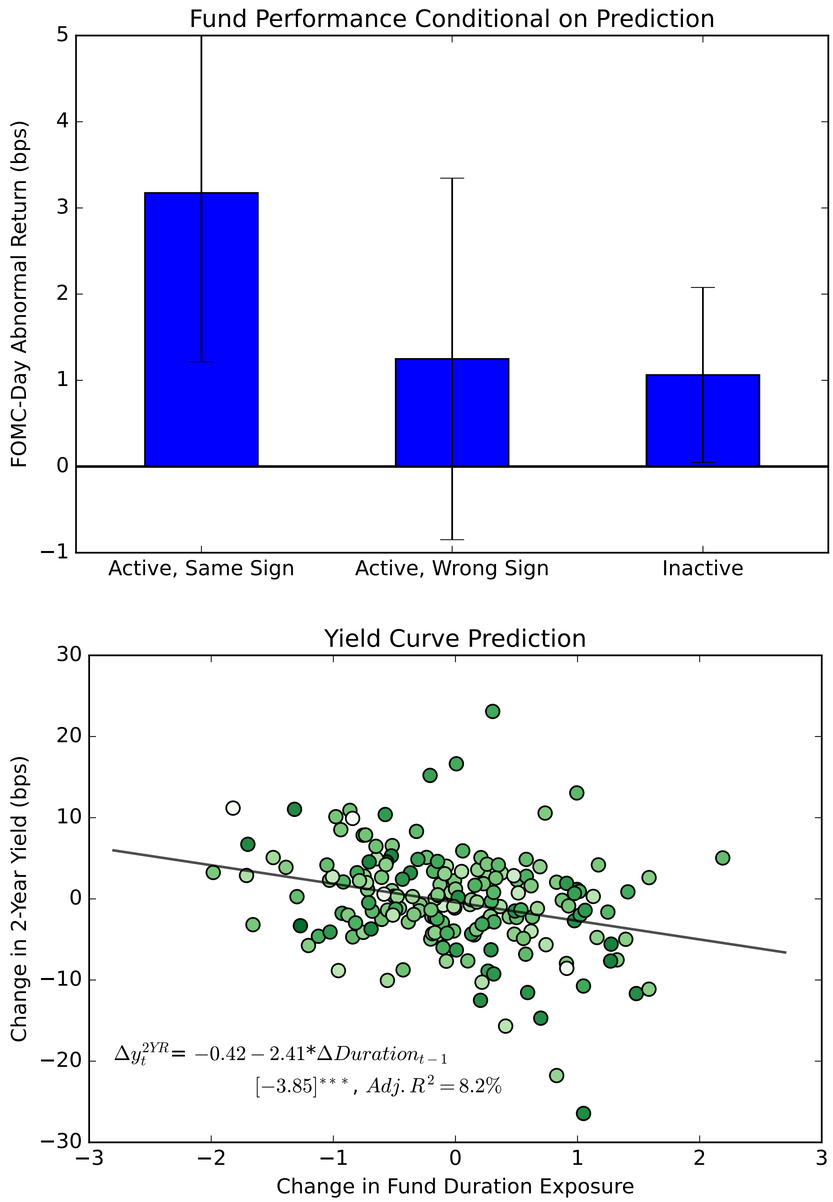
Notes – The upper graph illustrates the abnormal returns of actively managed mutual funds for each day within the [-10, 10] window surrounding an FOMC announcement. Day 0 corresponds to the day of the FOMC announcement. For each event day, we plot both the four-factor-adjusted excess returns and the benchmark-adjusted returns for the most actively managed government bond funds. The black line represents the 95% confidence interval. The lower graph presents the four-factor-adjusted FOMC-day excess returns, averaged quarter by quarter, for the period from 1998 to 2021. The red dotted line (right axis) represents the volatility of the 2-year Treasury yield, calculated as the standard deviation of daily changes in the 2-year yield over the past 12 months. The grey dotted line (right axis) represents the 12-month moving average of the monetary macro attention index (MAI) from Fisher, Martineau, and Sheng (2022). Both the standard deviation of the 2-year yield and the MAI are standardized, with means of zero and standard deviations of one.

Figure 3
Placebo FOMC Days



Notes – The upper graph presents the distribution of individual fund alphas on FOMC days and on placebo FOMC days. Each placebo day is selected by matching an FOMC day to a non-macro day that exhibits the closest four factor returns. For each fund, we compute the four-factor-adjusted daily excess return in quarter t by using the risk loadings estimated from the preceding 24 months, specifically from quarter $t-8$ to $t-1$. The FOMC and placebo alphas are the averages of these four-factor-adjusted excess returns on the respective days. The lower graph displays the distribution of the most active funds' alpha across 10,000 simulated placebo FOMC paths, with the actual FOMC-day alpha of 4.23 bps as a reference. Following Hillenbrand (2025), each placebo path is generated by randomly selecting the same number of days within a month as actual FOMC meetings.

Figure 4
Fund Duration Change and Monetary Policy Shocks



Notes – The upper graph presents the distribution of funds' FOMC-day alpha, conditional on changes in their pre-announcement duration. The change in fund duration exposure ($\Delta Duration^i_{t-1}$) is computed as the duration measured within the window [-14, -1] prior to the announcement, relative to the window of [-28, -15] preceding the announcement. Duration is estimated by the sensitivity of fund returns to yield curve changes, using the regression model $Ret_{i,t} = a + b_i \times \Delta y_t + \varepsilon_t$, where the negative value of the coefficient b_i captures the Duration. Funds are considered to have made correct predictions if they increase their duration exposure (i.e., $\Delta Duration^i_{t-1}{>}0$) when yield decreases ($\Delta y_t^{\text{FOMC}} < 0$) on the announcement day. For instance, the label "Active, Same Sign" refers to funds that are in the top quintile for idiosyncratic volatility in the previous quarter and have successfully anticipated the direction of the Treasury yield change, as inferred from $\Delta Duration^i_{t-1}$. The lower graph illustrates the predictability of changes in pre-announcement duration exposure of actively managed government bond funds in relation to changes in the 2-year Treasury yield on announcement days. The darker the green dots, the more positive the FOMC-day fund alpha.

Table 1
Summary Statistics

	Govt Funds		Corp Funds		Equity Funds	
	Mean	STD	Mean	STD	Mean	STD
Daily Return	1.77	29.54	1.98	25.26	4.15	136.55
FOMC Return	4.51	31.53	4.66	29.02	33.74	134.21
Log(Size)	4.05	1.92	4.31	2.19	5.35	1.98
Log(Age)	4.46	0.95	4.26	1.05	4.63	1.00
Fee	0.97	0.47	0.87	0.42	1.22	0.43
Flow	0.07	6.73	0.53	6.51	0.07	5.40
Turnover	1.96	2.50	1.69	1.70	0.78	0.71
Idio σ	9.13	5.08	8.70	5.02	41.70	27.71
Sys σ	20.39	14.04	19.22	9.88	108.16	63.53
R^2	0.77	0.18	0.79	0.16	0.83	0.17

Notes – This table reports the mean and standard deviation of fund returns and fund characteristics for government bond funds (Govt), investment-grade bond funds (Corp), and equity funds. *Daily Return* is the daily raw returns of funds in bps. *FOMC Return* is funds' daily raw returns on FOMC announcement days in bps. *Log(Size)* is the natural logarithm of a fund's total net assets in millions of dollars. *Log(Age)* is the natural logarithm of the number of months since a fund's inception. *Fee* is a fund's annual expense ratio in percent. *Flow* is the last-month fund's flow in percent, estimated as $\frac{TNA_t - TNA_{t-1}(1+Ret_t)}{TNA_{t-1}}$. *Turnover* is the annualized turnover ratio, computed as the minimum of aggregated purchases or sales, scaled by the 12-month average TNA. Idiosyncratic volatility (*Idio* σ), systematic volatility (*Sys* σ) and R^2 are estimated simultaneously using daily observations in the last quarter under the four (five) factor model. The sample period is from September 1998 to December 2021.

Table 2
Mutual Fund Performance around FOMC Announcement Days

Fund Style	Type	Variable	-1	FOMC	+1	All Days
Govt Funds	All	α	−0.41	1.42**	0.86	0.47***
		t-stat	(−1.22)	(2.46)	(1.52)	(5.56)
	Most Active	α	1.09	4.23***	0.88	0.56**
		t-stat	(1.32)	(3.63)	(0.67)	(2.37)
	Passive Index	α	−0.23	0.54	0.69	0.29***
		t-stat	(−0.87)	(0.92)	(1.22)	(3.16)
Corp Funds	All	α	−0.66	0.81	0.65	0.42***
		t-stat	(−1.30)	(0.95)	(1.10)	(3.90)
	Most Active	α	−0.48	2.12*	0.69	0.67***
		t-stat	(−0.70)	(1.97)	(0.78)	(4.14)
	Passive Index	α	−0.58	1.39*	0.48	0.28**
		t-stat	(−1.30)	(1.92)	(0.67)	(2.51)
Equity Funds	All	α	−0.73	1.22*	1.90**	0.28**
		t-stat	(−1.04)	(1.66)	(2.58)	(1.99)
	Most Active	α	−3.72	4.69	4.23	−0.24
		t-stat	(−1.15)	(1.63)	(1.25)	(−0.41)
	Passive Index	α	0.61	−1.01*	0.80	0.04
		t-stat	(0.76)	(−1.66)	(1.10)	(0.25)

Notes –This table presents the performance of government bond funds (Govt), investment-grade bond funds (Corp), and equity funds around FOMC announcement days. To evaluate fund performance, we apply the four-factor model (Equation 1) to government bond and equity funds, and the extended five-factor model to corporate bond funds. For each fund, factor-adjusted daily excess returns are estimated quarterly using risk loadings derived from the prior 24-month window. For each event day i surrounding the FOMC announcement t (i.e., $t-1$, t, and $t+1$), as well as for the full sample of days ("All Days"), the table reports the value-weighted average alpha across funds. "Most Active" refers to the most actively managed funds, identified based on their last-quarter idiosyncratic volatility. Passively managed index funds are included for comparison. Alphas are estimated for the value-weighted portfolios directly. The standard errors are adjusted for heteroskedasticity. The t-stats are in parentheses. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively.

Table 3
Fund Activeness and Performance Persistence

	Dep. Var. = FOMC-Day Performance, α_t^{FOMC}				
	(1)	(2)	(3)	(4)	(5)
Turnover	0.193**				0.154*
	(2.02)				(1.82)
Idio σ		1.051***			0.997***
		(3.48)			(3.31)
Sys σ		−0.272			−0.384
		(−0.84)			(−1.06)
1-R^2			0.328**		−0.088
			(2.46)		(−0.64)
$\alpha^{\text{Past-FOMC}}$				0.608***	0.369*
				(2.95)	(1.98)
Log(Size)	0.084	0.072	0.106	0.074	0.054
	(1.08)	(0.96)	(1.41)	(0.92)	(0.75)
Log(Age)	−0.094	−0.057	−0.083	−0.032	−0.017
	(−1.00)	(−0.71)	(−0.91)	(−0.29)	(−0.20)
Fee	−0.039	−0.012	0.020	−0.039	−0.036
	(−0.30)	(−0.10)	(0.16)	(−0.30)	(−0.32)
Flow	−0.019	−0.030	−0.014	−0.016	−0.016
	(−0.29)	(−0.45)	(−0.22)	(−0.25)	(−0.24)
Momentum	0.561	0.527	0.684**	0.516	0.619
	(1.66)	(1.22)	(2.29)	(1.53)	(1.37)
Intercept	1.084**	1.371**	0.926*	0.957*	1.178*
	(2.04)	(2.09)	(1.80)	(1.95)	(1.88)
Observations	27,074	27,013	27,013	27,071	27,013
R-squared	10.9%	19.4%	12.2%	13.9%	25.6%
Number of groups	91	91	91	91	91

Notes – This table presents the Fama-MacBeth regression estimates on the determinants of government bond funds' FOMC-day alpha conditional on their activeness and past performance. The dependent variable is fund's quarter-t FOMC-day factor-adjusted average excess return. *Turnover* is the decile rank of fund's turnover ratio, measured at the end of quarter $t-1$. *Idio* σ, *Sys* σ, and R^2 are estimated simultaneously using daily observations from quarter $t-1$, where *Sys* σ is the standard deviation of the fitted values from the four-factor model, *Idio* σ is the standard deviation of the residuals, and R^2 is the regression R-squared. $\alpha^{\text{Past-FOMC}}$ denotes the average factor-adjusted excess returns on FOMC days over the past 24 months from quarter $t-8$ to $t-1$. We control for fund-level characteristics, including *Log(Size)*, *Log(Age)*, *Fee*, *Flow*, and the average return over the past 12 months (*Momentum*), all observed at the end of quarter $t-1$. For ease of interpretation, all the independent variables are standardized with means of zero and standard deviations of one. The standard errors are Newey-West adjusted with three lags. The t-stats are in parentheses.

Table 4
Portfolio Holdings

	Portfolio Weight			Funds with Derivative Ownership					Bond Maturity		Duration	
$\alpha^{\text{Past-FOMC}}$	Bonds	Cash	Other	TNote Futures	Tbond Futures	IR Futures	IR Swap	Currency Derivatives	Mean	STD	Mean	STD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Loser	95.7%	1.9%	2.4%	22.3%	15.2%	6.6%	8.7%	3.7%	8.2	1.2	4.1	0.6
2	97.3%	1.7%	0.8%	23.8%	14.2%	6.5%	9.8%	3.7%	7.1	1.2	3.6	0.5
3	96.5%	1.5%	2.0%	25.5%	14.7%	4.1%	10.0%	4.1%	6.7	1.2	3.6	0.5
4	96.3%	1.3%	2.3%	29.7%	18.6%	6.3%	13.0%	4.1%	7.6	1.3	3.8	0.5
Winner	97.7%	−2.1%	4.5%	33.6%	25.9%	10.4%	21.6%	8.9%	9.5	1.5	5.2	0.8
Winner-Loser	2.0%	−4.0%	2.2%	11.3%	10.7%	3.8%	12.9%	5.2%	1.3	0.2	1.0	0.2
t-stat	(4.40)	−(4.51)	(2.45)	(6.43)	(6.40)	(4.06)	(6.43)	(5.52)	(3.56)	(5.29)	(4.31)	(5.47)

Notes – This table reports the portfolio holding characteristics for quintile groups of government bond funds, sorted based on their past 24-month FOMC-day performance ($\alpha^{\text{Past-FOMC}}$). Columns (1) to (3) report the average weights of bonds, cash, and other assets held by funds in each group. Columns (4) to (8) report the fraction of funds with derivative ownership, where TNote Futures include 2-, 3-, 5-, 7-, and 10-year treasury futures, TBond Futures include 20- and 30-year treasury futures, and IR Futures include Eurodollar futures and Fed funds futures. Columns (9) and (10) present the average value-weighted maturity of Treasury bonds held by a fund, as well as the time-series standard deviation of this maturity for each fund, estimated using the past 24 months. Similarly, columns (11) and (12) report the mean and standard deviation of portfolio duration. Duration is estimated for each fund each quarter by the sensitivity of fund return to yield curve change, using the regression specification $Ret_{i,t} = a_i + b_i \times \Delta y_t + \varepsilon_t$, where the negative value of the coefficient b_i captures fund duration. We calculate these statistics for each fund quarter, and then report the statistics averaged within each quintile group and over time. The last two rows provide the difference between the top and bottom quintile groups, with t-statistics in parentheses. The sample period is from Q4 1998 to Q4 2021.

Table 5

Fund Duration Change and Monetary Policy Shocks

Panel A: Pre-Announcement Fund Duration Change

	Yield Increase		Yield Decrease		Difference	
	$\Delta Duration$	t-stat	$\Delta Duration$	t-stat	$\Delta Duration$	t-stat
Most Active	−0.33	(2.53)	0.19	(1.73)	−0.53	(3.03)
4	−0.08	(0.99)	0.08	(1.17)	−0.16	(1.51)
3	−0.04	(0.49)	0.08	(1.45)	−0.12	(1.28)
2	−0.03	(0.51)	0.06	(1.36)	−0.09	(1.24)
Least Active	0.01	(0.19)	−0.00	(0.12)	0.01	(0.22)

Panel B: Predicting Monetary Policy Shocks Using $\Delta Duration$

		Δy^{2YR}	Δy^{5YR}	Δy^{10YR}	Δy^{15YR}	Δy^{20YR}	NS	$Target$	$Path$
Most Active	Coeff.	−2.412***	−2.467***	−1.875**	−1.401**	−1.074*	−0.274**	−0.191	−0.200**
	t-stat	(−3.85)	(−3.11)	(−2.45)	(−2.13)	(−1.82)	(−2.59)	(−1.62)	(−2.03)
	Adj.R^2	8.2%	5.8%	3.7%	2.5%	1.5%	4.1%	1.7%	1.9%
4	Coeff.	−0.998*	−0.665	−0.119	0.201	0.410	−0.228**	−0.127	−0.189**
	t-stat	(−1.97)	(−1.35)	(−0.27)	(0.49)	(1.02)	(−2.19)	(−0.99)	(−2.26)
	Adj.R^2	1.4%	0.1%	−0.5%	−0.5%	−0.1%	3.6%	0.7%	2.3%
3	Coeff.	−1.030*	−0.801	−0.211	0.139	0.325	−0.207*	−0.089	−0.190**
	t-stat	(−1.79)	(−1.45)	(−0.45)	(0.33)	(0.80)	(−1.90)	(−0.74)	(−2.18)
	Adj.R^2	1.3%	0.2%	−0.5%	−0.5%	−0.3%	2.5%	0.0%	2.0%
2	Coeff.	−0.851	−1.002	−0.470	−0.054	0.192	−0.158	−0.041	−0.165*
	t-stat	(−1.36)	(−1.42)	(−0.77)	(−0.10)	(0.38)	(−1.40)	(−0.31)	(−1.97)
	Adj. R^2	0.5%	0.4%	−0.3%	−0.5%	−0.5%	0.9%	−0.5%	1.0%
Least Active	Coeff.	−0.296	0.116	0.381	0.601	0.742	−0.146	−0.218	−0.020
	t-stat	(−0.44)	(0.14)	(0.50)	(0.88)	(1.16)	(−1.00)	(−1.35)	(−0.18)
	Adj.R^2	−0.4%	−0.5%	−0.4%	−0.1%	0.2%	0.4%	1.6%	−0.5%

Notes – Panel A reports the change in fund duration prior to FOMC announcements. Duration is estimated by the return-yield relationship specified in the regression model: $Ret_{i,t} = a + b_i \times \Delta Yield_t + \epsilon_t$, where the negative value of the coefficient b_i captures the Duration. The pre-announcement duration change, $\Delta Duration^i_{t-1}$, is computed as the difference in duration measured within the window [-14, -1] prior to the announcement, relative to the window of [-28, -15] days preceding the announcement. We categorize all FOMC events into two groups: those with a yield increase ($\Delta y_t^{\text{FOMC}} > 0$) and those with a yield decrease ($\Delta y_t^{\text{FOMC}} < 0$) on announcement days. We then report the value-weighted duration change for quintile groups of funds sorted by their level of activeness. Panel B reports the predictive power of $\Delta Duration_{t-1}$ for monetary policy shocks. We use the standardized $\Delta Duration_{t-1}$ for each quintile group of funds to predict the FOMC-day changes in Treasury yields (2-20 years) using the model:

$$\Delta y_t^k (\text{or } MPS_t) = a + b \times \Delta Duration_{t-1} + \varepsilon_t.$$

We also report the coefficient estimates using high-frequency monetary policy shocks (NS) from Nakamura and Steinsson (2018), as well as the target and path factors from Gürkaynak, Sack, and Swanson (2005), as additional dependent variables. The standard errors are adjusted for heteroskedasticity, and the t-statistics are provided in parentheses.

Table 6

Controlling for Other Monetary Policy Predictors

Panel A. Predicting FOMC-Day Δy^{2YR}											
$X=$	*Bloomberg*	*BlueChip*	*Employment*	$S\&P500_{3M}$	$Commodity_{3M}$	$ShadowFF_{3M}$	$BaaSpread_{3M}$	Δy^{2YR}_{3M}	$Slope_{3M}$	γ	$Forward^{2YR}$
X	0.349	0.160	0.668**	0.795	0.895**	0.615	−0.968	−0.034	−0.246	−0.126	−0.499
	(0.66)	(0.56)	(2.02)	(1.46)	(2.11)	(1.02)	(−1.60)	(−0.05)	(−0.37)	(−0.32)	(−1.02)
$\Delta Duration$	−2.414***	−2.452***	−2.407***	−2.255***	−2.429***	−2.488***	−2.430***	−2.413***	−2.416***	−2.413***	−2.504***
	(−3.87)	(−3.63)	(−3.86)	(−3.65)	(−3.90)	(−3.90)	(−3.98)	(−3.82)	(−3.85)	(−3.83)	(−3.95)
Observations	185	161	185	185	185	185	185	185	185	185	185
Adj.R^2	8.0%	7.6%	8.9%	9.3%	9.8%	8.7%	10.2%	7.7%	7.8%	7.7%	8.3%

Panel B. Predicting *NS*											
$X=$	*Bloomberg*	*BlueChip*	*Employment*	$S\&P500_{3M}$	$Commodity_{3M}$	$ShadowFF_{3M}$	$BaaSpread_{3M}$	Δy^{2YR}_{3M}	$Slope_{3M}$	γ	$Forward^{2YR}$
X	0.293***	0.145	0.133**	0.273***	0.245**	0.196**	−0.212**	0.201*	−0.217**	−0.098	−0.079
	(3.31)	(1.26)	(2.37)	(2.64)	(2.46)	(2.36)	(−2.25)	(1.83)	(−2.24)	(−1.46)	(−1.08)
$\Delta Duration$	−0.276***	−0.309***	−0.273**	−0.221**	−0.279***	−0.299***	−0.278***	−0.264***	−0.279***	−0.275**	−0.289***
	(−2.82)	(−2.82)	(−2.60)	(−2.24)	(−2.77)	(−2.81)	(−2.70)	(−2.61)	(−2.68)	(−2.59)	(−2.75)
Observations	185	161	185	185	185	185	185	185	185	185	185
Adj.R^2	13.0%	7.0%	5.5%	11.5%	10.1%	7.7%	8.5%	8.0%	8.7%	4.6%	4.3%

Notes – The table reports the forecasting power of fund duration change on yield changes (Panel A) and the NS monetary policy shocks (Panel B), while controlling for other monetary policy predictors. We use the following regression specification:

$$\Delta y^{2YR}(\text{or } NS_t) = a + b \times \Delta Duration_{t-1} + c \times X_{t-1} + \varepsilon_t.$$

$\Delta Duration$ is the value-weighted pre-announcement duration change observed for the most active quintile group of funds, scaled by the standard deviation of duration change. *Bloomberg* and *BlueChip* capture economists' forecasts on Fed funds rate changes. *Employment* is the percentage change in nonfarm payroll employment over the past one year (Cieslak (2018)). Following Bauer and Swanson (2023b), $S\&P500_{3M}$ and $Commodity_{3M}$ represent the last three-month returns in equity and commodity market, respectively. $ShadowFF_{3M}$, $BaaSpread_{3M}$, and Δy^{2YR}_{3M}, are the changes in the Wu and Xia (2016) shadow federal funds rate, the Baa-Treasury spread, and 2-year Treasury yield over the same period (Swanson (2023)). $Slope_{3M}$ refers to the change in the slope of the yield curve over the last three months (Gürkaynak, Sack, and Wright (2007)). γ is a tent-shaped linear function of forward rates constructed following Cochrane and Piazzesi (2005) for the last month. $Forward^{2YR}$ is the last-month 2-year forward-spot spread constructed following Fama and Bliss (1987). All the independent variables are measured using values just before the FOMC announcement, and are standardized with means of zero and standard deviations of one. The standard errors are adjusted for heteroskedasticity, and the t-stats are provided in parentheses. *, **, and *** denote significance at 10%, 5% and 1% levels, respectively.

Table 7

Impact of Announcement Uncertainty and Surprises on Fund Performance

		$\sigma(\Delta y^{2\text{YR}})$	*MAI*	*Disagreement* *Bloomberg*	*Disagreement* *BlueChip*	*Surprise*	|*Surprise*|	*VIX*	*Pre-FOMC Drift*
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
All	β^{TM}	0.737	1.714***	1.161***	2.559***	−0.366	1.066**	−0.186	0.464
	t-stat	(1.30)	(2.83)	(3.03)	(3.62)	(−0.62)	(2.15)	(−0.32)	(0.61)
Most Active	β^{TM}	2.591**	3.644***	2.868***	4.301***	−1.610	2.178*	0.760	2.205
	t-stat	(2.01)	(2.99)	(2.77)	(3.34)	(−1.19)	(1.72)	(0.51)	(1.24)
Least Active	β^{TM}	−0.553	0.300	−0.063	0.328	−0.310	−0.187	−0.446	0.106
	t-stat	(−1.15)	(0.68)	(−0.13)	(0.55)	(−0.56)	(−0.33)	(−0.82)	(0.16)

Notes – This table reports the impact of announcement uncertainty and surprise on the FOMC-day performance of funds. We regress funds' FOMC-day returns against measures of announcement disagreement, surprise, and risk, while controlling for the four-factor returns on announcement days:

$$Ret_t^{\text{FOMC}} - r_t^f = \alpha + \beta^{\text{TM}} \times AnnProxy_t + \textstyle\sum_k \beta^k \times Factor_t^k + \varepsilon_t.$$

The coefficients, β^{TM}, on the announcement measure *AnnProxy* are reported. For *AnnProxy*, we include the following variables: $\sigma(\Delta y^{2\text{YR}})$, which is the decile rank of the standard deviation of daily changes in the 2-year Treasury yield over the past month, adjusted for the downward trend; *MAI*, which is the last-month monetary macro attention index in Fisher, Martineau, and Sheng (2022); *Bloomberg Disagreement*, constructed as the difference between the 75th and 25th percentiles of the latest economist forecasts for the Fed funds rate; *BlueChip Disagreement*, which measures the difference between the top 10 and bottom 10 most recent forecasts on the current-quarter Fed funds rate; *Surprise*, derived from the 1-day change in the spot-month future rate following the methodology of Kuttner (2001); and |*Surprise*|, representing the absolute values of the announcement-day surprise. To account for the risk associated with announcements, we also include the *VIX* index and the *Pre-FOMC Drift* of Hu, Pan, Wang, and Zhu (2022). We report the regression estimates separately for value-weighted returns of all government bond mutual funds in our sample ("All"), as well as for the most and least actively managed funds, categorized based on their last-quarter idiosyncratic volatility. For ease of interpretation, all independent variables are standardized to have a mean of zero and a standard deviation of one. The t-statistics are in parentheses.

Table 8
Time-Varying Predictability of Fund Duration Changes

	$\Delta y^{2\text{YR}}$			*NS*		
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta Duration$	-2.148^{***}	-2.366^{***}	-2.478^{***}	-0.225^{**}	-0.271^{***}	-0.305^{***}
	(-3.82)	(-3.78)	(-3.68)	(-2.48)	(-2.75)	(-2.98)
$\Delta Duration \times \sigma(\Delta y^{2\text{YR}})$	-1.627^{**}			-0.256^{**}		
	(-2.37)			(-2.21)		
$\Delta Duration \times MAI$		-0.946^{*}			-0.294^{***}	
		(-1.81)			(-2.68)	
$\Delta Duration \times BC\ Disp$			-0.734			-0.299^{**}
			(-1.11)			(-2.24)
$\sigma(\Delta y^{2\text{YR}})$	-0.841^{*}			-0.256^{***}		
	(-1.73)			(-3.40)		
MAI		0.122			-0.096	
		(0.29)			(-1.45)	
$BC\ Disp$			0.188			-0.146
			(0.30)			(-1.51)
Observations	185	185	162	185	185	162
Adj.R^2	12.2%	8.3%	7.9%	13.0%	8.7%	13.6%

Notes – This table reports the forecasting power of fund duration changes on monetary policy shocks, conditioned on pre-announcement monetary policy uncertainty. We use the decile rank of the standard deviation of changes in the 2-year Treasury yield, calculated using daily observations from the previous month ($\sigma(\Delta y^{2\text{YR}})$), the last month monetary macro attention index (*MAI*) from Fisher, Martineau, and Sheng (2022), and the latest Blue Chip disagreement on the current-quarter Fed funds rate (*BC Disp*) to capture monetary policy uncertainty. These variables, along with their interactions with duration change, are included in the model. All independent variables are standardized to have means of zero and standard deviations of one. Standard errors are adjusted for heteroskedasticity, and t-statistics are shown in parentheses.

Table 9

Interconnected Macro-Skill within the Same Fund Family

	Y= *Govt* $\alpha_t^{i\in A}$						
	(1)	(2)	(3)		(4)	(5)	(6)
Govt α_t^{A-i}	3.516***			*Govt* α_{t-1}^{A-i}	0.461*		
	(14.24)				(1.92)		
Corp α_t^{A}		3.688***		*Corp* α_{t-1}^{A}		0.519*	
		(12.54)				(1.75)	
Equity α_t^{A}			−0.223	*Equity* α_{t-1}^{A}			0.313
			(−1.27)				(1.66)
Log(Size)	−0.012	0.083	0.087	*Log(Size)*	−0.042	0.067	0.082
	(−0.14)	(1.16)	(1.06)		(−0.41)	(0.90)	(1.06)
Log(Age)	−0.029	−0.078	−0.106	*Log(Age)*	−0.029	−0.076	−0.116
	(−0.35)	(−0.71)	(−1.05)		(−0.26)	(−0.68)	(−1.18)
Fee	−0.079	0.015	−0.039	*Fee*	−0.103	−0.016	−0.036
	(−0.57)	(0.13)	(−0.29)		(−0.71)	(−0.13)	(−0.26)
Flow	0.006	−0.026	−0.026	*Flow*	0.010	−0.014	−0.027
	(0.09)	(−0.38)	(−0.40)		(0.15)	(−0.19)	(−0.40)
Momentum	0.517	0.261	0.455	*Momentum*	0.469	0.446	0.561*
	(1.28)	(0.70)	(1.37)		(1.09)	(1.24)	(1.74)
Intercept	0.844***	0.278	1.071*	*Intercept*	0.769	0.934*	1.301**
	(2.77)	(0.77)	(1.98)		(1.49)	(1.80)	(2.36)
Observations	19,174	23,239	26,040	Observations	19,173	23,237	26,040
R-squared	30.1%	24.7%	12.1%	R-squared	17.5%	14.8%	11.4%
# of groups	91	91	91	# of groups	91	91	91

Notes – This table presents the Fama-MacBeth regression estimates on the relationship between the FOMC-day performance of government bond funds and that of other funds within the same family. The dependent variable is the government fund i's FOMC-day factor-adjusted average excess return in quarter t (*Govt* $\alpha_t^{i\in A}$), where fund i belongs to fund family A. In columns (1) to (3), the independent variables, *Govt* α_t^{A-i}, is the quarter-t FOMC-day alphas of other government bond funds in fund family A, excluding the focal fund i itself. Similarly, *Corp* α_t^{A} and *Equity* α_t^{A} are the FOMC-day alphas of investment-grade and equity funds within the same family A in quarter t, respectively. In columns (4) to (6), we replace the quarter-t family fund performance with their average FOMC-day performance over the past 24 months observed by the end of quarter $t-1$ (*Govt* α_{t-1}^{A-i}, *Corp* α_{t-1}^{A}, and *Equity* α_{t-1}^{A}). We control for fund-level characteristics, including *Log(Size)*, *Log(Age)*, *Fee*, *Flow*, and the average return over the past 12 months (*Momentum*), all observed at the end of quarter $t-1$. For ease of interpretation, all the independent variables are standardized with means of zero and standard deviations of one. The standard errors are Newey-West adjusted with three lags. The t-statistics are in parentheses.

Table 10

Interconnected Macro-day Performance

	Govt Funds				Corp Funds				Equity Funds			
	α_t^{GDP}	α_t^{NFP}	α_t^{CPI}	α_t^{ISM}	α_t^{GDP}	α_t^{NFP}	α_t^{CPI}	α_t^{ISM}	α_t^{GDP}	α_t^{NFP}	α_t^{CPI}	α_t^{ISM}
α_t^{FOMC}	0.542*	0.083	0.482**	0.379***	0.492**	0.056	0.348*	0.258**	2.991***	0.757	1.810**	1.526*
	(1.91)	(0.56)	(2.19)	(2.68)	(2.02)	(0.41)	(1.83)	(2.31)	(3.01)	(0.95)	(2.24)	(1.90)
Idio σ	1.180***	−0.104	−0.652***	0.383	1.678***	−0.480***	−0.830***	−0.271**	1.600**	1.187	−0.141	−0.504
	(4.89)	(−0.52)	(−3.50)	(1.31)	(5.60)	(−4.09)	(−6.19)	(−2.04)	(2.07)	(1.39)	(−0.20)	(−0.45)
Log(Size)	0.033	0.067	0.076	0.139*	0.049	0.029	−0.081**	0.008	0.290*	0.241*	0.009	−0.346
	(0.52)	(1.50)	(1.52)	(1.90)	(0.92)	(0.69)	(−2.34)	(0.17)	(1.75)	(1.86)	(0.05)	(−1.43)
Log(Age)	0.099	−0.175**	−0.137**	−0.175**	0.14	−0.106**	0.094**	−0.063	−0.101	−0.229	0.065	0.719***
	(0.80)	(−2.58)	(−2.41)	(−2.03)	(1.65)	(−2.35)	(2.38)	(−1.13)	(−0.58)	(−1.25)	(0.29)	(3.34)
Fee	−0.163**	0.108**	0.272***	0.167**	−0.091*	0.044*	−0.004	0.051*	0.191	0.129	−0.073	−0.159
	(−2.14)	(2.07)	(4.75)	(2.29)	(−1.90)	(1.81)	(−0.12)	(1.68)	(1.15)	(0.87)	(−0.57)	(−0.76)
Flow	0.015	0.066*	0.021	−0.007	0.033	−0.041	0.014	0.028	0.043	0.322***	0.029	0.126
	(0.29)	(1.73)	(0.62)	(−0.15)	(0.84)	(−1.20)	(0.45)	(0.81)	(0.37)	(2.76)	(0.23)	(0.92)
Momentum	0.266	0.431	0.061	0.056	−0.035	0.798***	0.464***	0.179	0.612	1.102	3.174	1.814
	(0.82)	(1.65)	(0.20)	(0.25)	(−0.16)	(4.23)	(2.75)	(1.07)	(0.35)	(0.59)	(1.57)	(0.66)
Observations	27,011	27,009	27,010	27,010	83,207	83,206	83,207	83,205	183,548	183,549	183,556	183,554
R-squared	23.0%	20.6%	23.9%	20.8%	18.1%	10.5%	14.3%	9.8%	22.7%	19.6%	23.5%	20.8%
Number of groups	91	91	91	91	91	91	91	91	91	91	91	91

Notes – This table presents Fama-MacBeth regression results examining the interconnected macro-day performance. The dependent variables are the factor-adjusted average excess returns on other macro announcements in quarter t (α_t^{GDP}, α_t^{NFP}, α_t^{CPI}, α_t^{ISM}). The independent variables include fund's FOMC-day factor-adjusted average excess return in quarter t (α_t^{FOMC}) and fund-level characteristics. For ease of interpretation, all the independent variables are standardized with means of zero and standard deviations of one. t-statistics, adjusted for heteroskedasticity, are reported in parentheses.

Internet Appendix for
"What Can Macro-Active Bond Funds Tell Us About Monetary Policy Change? "

Claire Yurong Hong, Jun Pan, and Shiwen Tian

This appendix provides supplemental materials for the paper titled "What Can Macro-Active Bond Funds Tell Us About Monetary Policy Change?" Section 1 describes the methodology for constructing bond factors and assesses the effectiveness of the factor model in explaining variations in bond and fund returns. Section 2 presents additional robustness tests of funds' FOMC-day alpha. Section 3 explores other characteristics related to funds' FOMC-day performance. Lastly, Section 4 reports the distribution of capital flows around FOMC-announcement days.

Contents

1. Bond Factor Constructions

Litterman and Scheinkman (1991) provide evidence that three factors – representing the level, slope, and curvature of the yield curve – can effectively capture its shape and day-to-day fluctuations. We construct these three government bond factor portfolios using principal component analysis (PCA) based on the return indices of the 2-, 5-, 10-, and 30-year Barclays U.S. Treasury bonds. Unlike the traditional approach of performing PCA in the yield space, we conduct our analysis in the return space, enabling the resulting factors to directly serve as actual portfolio returns. Our PCA analysis utilizes Treasury return indices from September 1998 to December 2019. Panel A presents the eigenvectors for each principal component, which are essentially linear combinations of the 2-, 5-, 10-, and 30-year bond indices, with the coefficients determined by the corresponding eigenvectors.

$$\begin{cases} PC1_t = D_1 \times R_t^{2Y} + D_2 \times R_t^{5Y} + D_3 \times R_t^{10Y} + D_4 \times R_t^{30Y} \\ PC2_t = G_1 \times R_t^{2Y} + G_2 \times R_t^{5Y} + G_3 \times R_t^{10Y} + G_4 \times R_t^{30Y} \\ PC3_t = F_1 \times R_t^{2Y} + F_2 \times R_t^{5Y} + F_3 \times R_t^{10Y} + F_4 \times R_t^{30Y}, \end{cases} \tag{A1}$$

where $D^T = (D_1, D_2, D_3, D_4)^T$, $G^T = (G_1, G_2, G_3, G_4)^T$ and $F^T = (F_1, F_2, F_3, F_4)^T$ represent the eigenvectors for the three principal components (PCs) as reported in Panel A. For example, the first principal component assigns weights of 0.056, 0.210, 0.423, and 0.880 to the 2-, 5-, 10-, and 30-year bond indices, respectively. In line with the findings of Litterman and Scheinkman (1991), these three principal components effectively capture the variations in bond returns: the first principal component accounts for 95.43% of the variations, while the second and third principal components explain an additional 4.18% and 0.32%, respectively. Importantly, since all three bond factors are orthogonal by construction, the combination of all three PCs collectively explains 99.93% of the variations in the returns of the 2-, 5-, 10-, and 30-year Barclays U.S. Treasury indices.

Panel A. Eigenvector for the Three PCs			
	$PC1$	$PC2$	$PC3$
2 Year	0.056	0.268	−0.564
5 Year	0.210	0.625	−0.481
10 Year	0.423	0.582	0.651
30 Year	0.880	−0.446	−0.163
Eigenvalue/Total	95.43%	4.18%	0.32%

Panel B. Bond Factors' Portfolio Weights			
	Level	*Slope*30	*Slope*10
2 Year	3.57%	26.04%	101.26%
5 Year	13.38%	60.74%	86.36%
10 Year	26.96%	56.56%	−116.88%
30 Year	56.09%	−43.34%	29.26%

The principal components (PCs), however, cannot be directly taken as portfolio returns in the bond market, since the eigenvectors do not sum up to one. To address this, we perform the following transformation to normalize each principal component, ensuring that the resulting portfolio can be interpreted as a net long position of a dollar investment.

$$\begin{cases} R_t^{\text{Level}} = PC1_t / \sum_{i=1}^{4} D_i \\ R_t^{\text{Slope30}} = PC2_t / \sum_{i=1}^{4} G_i \\ R_t^{\text{Slope10}} = PC3_t / \sum_{i=1}^{4} F_i. \end{cases} \tag{A2}$$

Panel B reports the portfolio weights after normalization. The normalized first principal component (PC1) portfolio is labeled as *Level* (R_t^{Level}), reflecting its role in capturing the overall level of interest rate movements on bond returns. The respective portfolio weights for the 2-, 5-, 10-, and 30-year bond index returns are 3.57%, 13.38%, 26.96%, and 56.09%. Longer-duration bonds are assigned higher weights due to the duration effect: for the same unit change in yields, long-duration bonds experience greater returns. As shown in Panel C, when regressing changes in daily yields across various maturities on the level portfolio return, a 10 bps increase in R_t^{Level} corresponds to a decrease of 0.48 bps, 0.72 bps, 0.81 bps, and 0.72 bps in the 2-, 5-, 10-, and 30-year yields, respectively, which effectively replicates a parallel shift of the yield curve.

We refer to the normalized second and third principal components as *Slope*30 (R_t^{Slope30}) and *Slope*10 (R_t^{Slope10}), rather than the traditional slope and curvature factors, because of their distinct weight distributions across various bond maturities. Specifically, the R_t^{Slope30} portfolio assigns weights of 26.04%, 60.74%, 56.56%, and -43.34% to the 2-, 5-, 10-, and 30-year bond indices, respectively. Meanwhile, the R_t^{Slope10} portfolio allocates weights of 101.26%, 86.36%, -116.88%, and 29.26% to the same indices. In essence, $Slope30$ reflects a positive influence from short-maturity bonds and a negative influence from 30-year bonds, while $Slope10$ is characterized by a pronounced negative exposure to 10-year maturity bonds.

	Panel C. Bond Factors and Yield Curve Change				
	2 Year	5 Year	10 Year	30 Year	10-2 Year
Level	-0.048^{***}	-0.072^{***}	-0.081^{***}	-0.072^{***}	-0.032^{***}
	(−113.82)	(−182.31)	(−161.26)	(−97.38)	(−58.20)
$Slope30$	-0.144^{***}	-0.136^{***}	-0.067^{***}	0.029^{***}	0.077^{***}
	(−97.65)	(−99.23)	(−41.17)	(12.13)	(40.43)
$Slope10$	-0.137^{***}	-0.037^{***}	0.050^{***}	-0.007	0.187^{***}
	(−36.55)	(−11.03)	(14.40)	(−1.49)	(38.33)
Intercept	0.131^{***}	0.126^{***}	0.072^{***}	0.054^{*}	-0.059^{***}
	(6.88)	(7.79)	(4.06)	(1.80)	(−2.80)
Observations	5,825	5,825	5,825	5,825	5,825
Adj.R^2	91.4%	95.6%	94.5%	82.1%	81.9%

When mapping the return space into the yield space, we consistently observe significant relationships between both $Slope30$ and $Slope10$ and changes in the yield curve slope, as indicated by the difference between the 10-year and 2-year yields. Specifically, a 10 bps increase in R_t^{Slope30} results in a 0.29 bps increase in the 30-year yield, accompanied by decreases in the 2-, 5-, and 10-year yields. Likewise, the same 10 bps increase in R_t^{Slope10} corresponds to a 0.50 bps increase in the 10-year yield and decreases in the 2- and 5-year yields. Therefore, even though the third principal component is often regarded in academic literature and by practitioners as the curvature factor, we interpret the second and third principal components as both reflecting slope variations, with $Slope30$ capturing more of the 30-year slope and $Slope10$ capturing more of the 10-year slope.

Finally, Panel D illustrates the effectiveness of the factor models in capturing the risk-taking behavior of government bond funds, equity funds and corporate bond funds on both FOMC days and all days. We utilize the four-factor model for government bond funds and equity funds. For Corp funds, we extend the model by adding the *Corp* factor, which is the return on the Barclays US Corporate Bond Index minus the risk-free rate. Panel D reveals that the four-factor model accounts for approximately 91% of the variations in government bond fund returns and 99% in equity fund returns. For corporate bond funds, the extended five-factor model effectively explains around 85% of the variations in daily fund returns.

Panel D. Fund Performance and Factor Models						
	FOMC Days			All Days		
	Govt	Equity	Corp	Govt	Equity	Corp
Level	0.289***	−0.004	−0.048	0.293***	−0.008***	0.076***
	(29.97)	(−0.36)	(−0.72)	(117.62)	(−2.96)	(7.30)
*Slope*30	0.346***	−0.019	0.149***	0.313***	−0.007	0.177***
	(15.20)	(−0.78)	(4.31)	(45.34)	(−0.82)	(15.11)
*Slope*10	0.141***	0.093*	0.171***	0.066***	0.030*	0.041*
	(3.48)	(1.83)	(2.89)	(4.21)	(1.83)	(1.78)
Stock	0.005	0.970***	0.006	0.007***	0.975***	0.016***
	(0.90)	(130.12)	(0.67)	(4.71)	(487.55)	(7.81)
Corp			0.709***			0.457***
			(4.89)			(21.95)
Intercept	1.782***	1.382*	1.272*	0.443***	0.231	0.430***
	(3.35)	(1.89)	(1.67)	(4.83)	(1.63)	(3.70)
Observations	185	185	185	5,807	5,807	5,807
Adj. R^2	91.9%	99.3%	84.9%	89.8%	99.2%	84.9%

2. Additional Robustness Tests

2.1. Alternative Factor Models

To alleviate concerns regarding the reliability of our alpha estimation, we examine the difference in fund returns relative to their prospectus benchmark index returns. Information on funds' benchmark indices is collected from Morningstar Direct. As shown in Appendix Table IA1, we replace the factor-adjusted excess returns with benchmark-adjusted returns to examine funds' performance around FOMC announcement days. Consistent with our main findings, government bond funds exhibit significant outperformance on FOMC days, with the most active funds earning a value-weighted benchmark-adjusted return of 2.70 bps (t-stat=2.81).

To further test the robustness of our alpha estimation, we estimate government bond funds' FOMC-day alpha under alternative factor model specifications, using the value-weighted portfolios of "All" funds, the "Most Active" funds, and the "Least Active" funds, respectively. As reported in Panel A of Appendix Table IA1, the FOMC-day alpha remains consistently positive and significant across different factor models. In row (a), we use the baseline four-factor model. Rows (b) and (c) report FOMC-day alpha estimates using net fee returns and equal-weighted fund returns, respectively. Rows (d) and (e) introduce an MBS factor and a $TIPS$ factor to our baseline specification, considering that government bond funds may also invest in mortgage-backed securities and TIPS. Row (f) further adds the *Agency* factor to form a seven-factor model in the estimation of fund alpha. Finally, row (g) replaces the $Level$, $Slope30$, and $Slope10$ factors with the Barclays US Treasury 2-year, 10-year and 30-year index excess returns. Across all alternative specifications, the additional alpha earned on FOMC days remains robust, ranging from 1.03 bps to 1.84 bps for general government bond funds, 2.70 bps to 4.23 bps for the most active quintile, and statistically insignificant for the least active quintile, supporting the reliability of our results.

2.2. Alternative Activeness Measures

In our analysis of information on monetary policy, we use funds' last quarter idiosyncratic volatility as a proxy for their activeness. This choice is based on the observation that idiosyncratic volatility is the strongest predictor of FOMC-day alpha among various activeness proxies, as demonstrated in Table 3. To further validate the robustness of our activeness measure, we conduct a principal component analysis (PCA) to capture the combined effect of multiple activeness indicators. Specifically, each quarter, we perform a PCA on fund *Turnover*, *Idio* σ, and $1-R^2$, then use the first principal component as an alternative measure of fund activeness.

In Appendix Table IA4, we categorize government bond funds into quintile groups based on this alternative activeness measure, then examine the relationship of their duration changes and FOMC outcomes. The results remain consistent with Table 5. Panel A shows a difference of -0.25 (t-stat=1.89) in $\Delta Duration_{t-1}$ between periods preceding an FOMC-day yield increase versus a yield decrease for the most active quintile group – a larger adjustment than that observed for the least active quintile. In Panel B, duration changes in macro-active funds significantly and negatively predict shifts in the yield curve on announcement days, whereas duration adjustments in less active funds fail to predict yield variations.

3. Other Fund and Family Characteristics

Appendix Table IA5 examines the explanatory power of additional fund- and family-specific attributes in relation to their performance on FOMC announcement days. Specifically, we include variables such as fund duration as defined in Table 4 (*Duration*), family size (*Log(FamilySize)*), an *Independent* dummy (set to 1 if the fund operates independently and is not affiliated with any insurance company, broker, commercial, or investment banks), an *Institutional* dummy (set to 1 if the fund's share class is aimed at institutional investors), a *Teammanage* dummy (set to 1 if the fund is managed by multiple managers), and the manager's experience (*Log(Manager Experience)*), measured from the time they entered the fund industry.

Our analysis shows that independent funds and those targeting institutional investors tend to perform better on FOMC announcement days. Specifically, independent funds and those with institutional share classes exhibit additional alpha outperformance of 0.40 (t-stat = 2.16) and 0.25 (t-stat = 2.63), respectively, on these days. These findings are consistent with previous studies (e.g., Evans and Fahlenbrach (2012), Hao and Yan (2012), Di Maggio and Kacperczyk (2017), and Choi and Kronlund (2018)), which emphasize the strong governance structures and the propensity for risk-taking among institutional and independent funds.

4. Capital Flows

To investigate whether investors are aware of fund managers' macro-investing skills and whether FOMC-day performance is influenced by flow-induced trading pressure Lou (2012), Appendix Table IA6 presents the distribution of capital flows surrounding FOMC announcements. We obtain daily fund flow data from Morningstar Direct and construct dummy variables for the two days before and after each FOMC announcement. To control for potential confounding factors and seasonal effects, we included controls for factor returns, turn-of-month and turn-of-year dummies, the VIX, and the TED rate.

The regression results indicate an absence of abnormal flows around FOMC announcement days. The coefficient estimates for the time dummies are generally insignificant, a pattern that holds not only for the broader sample of actively managed government bond funds but also for the most and least active quintiles. In summary, while government bond funds demonstrate superior macro-investing abilities around FOMC announcements, investors do not appear to adjust their capital allocation behavior in response to these events.

Table IA1
FOMC-Day Alpha under Alternative Specifications

Panel A. Benchmark Adjusted Excess Returns						
Fund Style	Type	Variable	-1	FOMC	+1	All Days
Govt Funds	All	α	-0.56^{**}	1.11^{***}	0.54	0.10
		t-stat	(-2.01)	(2.83)	(1.40)	(1.54)
	Most Active	α	0.62	2.70^{***}	0.70	0.19
		t-stat	(0.88)	(2.81)	(0.79)	(1.00)
	Passive Index	α	0.17	0.07	0.06	0.01
		t-stat	(0.78)	(0.24)	(0.17)	(0.25)
Corp Funds	All	α	-1.02^{*}	1.12	0.31	0.27^{***}
		t-stat	(-1.76)	(1.56)	(0.50)	(2.63)
	Most Active	α	-0.65	2.31^{**}	0.47	0.59^{***}
		t-stat	(-0.85)	(2.18)	(0.52)	(4.06)
	Passive Index	α	0.00	0.20	0.09	0.66
		t-stat	(0.00)	(0.52)	(0.23)	(1.17)
Equity Funds	All	α	-1.13	1.73^{**}	0.38	0.49
		t-stat	(-1.39)	(2.16)	(0.40)	(1.53)
	Most Active	α	-1.16	6.59^{***}	-1.52	0.36
		t-stat	(-0.53)	(3.09)	(-0.61)	(0.80)
	Passive Index	α	0.01	0.34^{**}	-0.44^{***}	0.23^{**}
		t-stat	(0.09)	(2.26)	(-2.87)	(1.97)

Panel B. FOMC-Day Alpha Using Alternative Factor Models						
	All		Most Active		Least Active	
	α	t-stat	α	t-stat	α	t-stat
(a) Baseline	1.78^{***}	(3.35)	4.23^{***}	(3.63)	0.25	(0.60)
(b) Net Fee Return	1.54^{***}	(2.89)	3.97^{***}	(3.41)	0.00	(0.00)
(c) Equal-weighted Return	1.63^{***}	(3.38)	3.22^{***}	(3.98)	0.38	(1.17)
(d) 3 Bond Factors+Stock+MBS	1.47^{***}	(3.04)	3.89^{***}	(3.31)	-0.08	(0.23)
(e) 3 Bond Factors+Stock+TIPS	1.51^{***}	(2.81)	3.54^{***}	(3.09)	0.23	(0.51)
(f) 3 Bond Factors+Stock+MBS+TIPS+Agency	1.03^{**}	(2.32)	3.09^{***}	(2.76)	-0.20	(0.57)
(g) 2YR+10YR+30YR+Stock	1.84^{***}	(3.38)	4.23^{***}	(3.64)	0.33	(0.74)

Notes – Panel A presents the benchmark-adjusted excess returns for government bond funds (Govt), investment-grade bond funds (Corp), and equity funds around FOMC announcement days. We obtain each fund's prospectus benchmarks from Morningstar. The benchmark index returns are collected from Morningstar and supplemented by Bloomberg. Panel B reports government bond funds' FOMC-day fund performance under alternative factor specifications. In row (a), we estimate fund alpha using the baseline four-factor model. In row (b) and (c), we estimate fund alpha using the net-fee returns and equal-weighted fund returns, respectively. In row (d) and (e), we incorporate the MBS factor and $TIPS$ factor, respectively, into our baseline specification. In row (f), we estimate fund alpha using a seven-factor model, which includes the MBS, $TIPS$, and *Agency* factors in addition to the baseline specifications. In row (g), we substitute the three bond factors with the 2-year, 10-year, and 30-year bond factors, which are calculated as the difference between the Barclays Treasury 2-year, 10-year, and 30-year index returns and the risk-free rate. We report alphas estimated for value-weighted portfolios of all actively-managed government bond funds ("All"), the "Most Active" and the "Least Active" funds, respectively. The t-stats are in parentheses.

Table IA2

Fund Activeness and Perfomance Persistence– Other Funds

	Dep. Var. = FOMC-Day Performance α_t^{FOMC}									
	Corp Funds					Equity Funds				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Turnover	0.075				0.057	0.471				0.465
	(0.78)				(0.65)	(1.14)				(1.59)
Idio σ		0.651**			0.754***		2.905***			2.128
		(2.32)			(2.67)		(2.90)			(1.15)
Sys σ		−0.208			−0.393*		−5.647			−3.524
		(−1.34)			(−1.88)		(−1.59)			(−0.78)
1-R^2			0.254*		−0.214			2.754***		−0.006
			(1.81)		(−1.63)			(3.02)		(−0.00)
$\alpha^{\text{Past-FOMC}}$				0.514**	0.394**				2.414**	2.521***
				(2.52)	(2.12)				(2.62)	(3.07)
Log(Size)	0.034	0.005	0.006	0.010	0.005	0.083	0.231	0.229	0.008	0.190
	(0.44)	(0.07)	(0.07)	(0.13)	(0.08)	(0.38)	(1.17)	(1.07)	(0.04)	(0.97)
Log(Age)	−0.001	0.047	0.065	0.004	0.011	0.139	−0.199	−0.165	0.054	−0.254
	(−0.01)	(0.69)	(0.95)	(0.07)	(0.17)	(0.49)	(−0.59)	(−0.53)	(0.20)	(−0.90)
Fee	0.037	0.062	0.051	0.050	0.064	0.890**	0.275	0.379	0.778*	0.195
	(0.63)	(1.17)	(0.85)	(0.93)	(1.42)	(2.00)	(1.14)	(1.04)	(1.88)	(0.94)
Flow	0.077	0.067	0.092*	0.072	0.050	0.048	−0.035	0.002	−0.077	−0.078
	(1.51)	(1.39)	(1.72)	(1.48)	(1.26)	(0.28)	(−0.25)	(0.01)	(−0.47)	(−0.57)
Momentum	0.318	0.294	0.551**	0.082	0.122	3.185	3.017	2.707	3.160	2.345
	(1.52)	(1.06)	(2.01)	(0.34)	(0.40)	(1.23)	(1.27)	(1.05)	(1.42)	(1.16)
Intercept	0.733	0.685	0.561	0.542	0.524	−0.341	−4.494*	−0.153	−1.053	−3.633
	(1.22)	(1.26)	(0.92)	(0.97)	(0.98)	(−0.16)	(−1.69)	(−0.07)	(−0.57)	(−1.36)
Observations	83,312	83,208	83,208	83,308	83,208	183,727	183,558	183,558	183,715	183,558
R-squared	5.5%	10.1%	6.3%	7.8%	14.8%	10.5%	20.2%	12.9%	14.3%	25.1%
Number of groups	91	91	91	91	91	91	91	91	91	91

Notes – This table presents the Fama-MacBeth regression estimates on the determinants of FOMC-day alpha for investment-grade bond funds (Corp), and equity funds conditional on their activeness and past performance. The dependent variable is fund's quarter-t FOMC-day factor-adjusted average excess return. *Turnover* is the decile rank of fund's turnover ratio, measured at the end of quarter $t-1$. *Idio* σ, *Sys* σ, and R^2 are estimated simultaneously using daily observations from quarter $t-1$, where *Sys* σ is the standard deviation of the fitted values from the four- (or five-) factor model, *Idio* σ is the standard deviation of the residuals, and R^2 is the regression R-squared. $\alpha^{\text{Past-FOMC}}$ denotes the average factor-adjusted excess returns on FOMC days over the past 24 months from quarter $t-8$ to $t-1$. We control for fund-level characteristics, including *Log(Size)*, *Log(Age)*, *Fee*, *Flow*, and *Momentum*, all observed at the end of quarter $t-1$. For ease of interpretation, all the independent variables are standardized with means of zero and standard deviations of one. The standard errors are Newey-West adjusted with three lags. The t-stats are in parentheses.

Table IA3
Mutual Fund Performance on other Macro Announcement Days

	Govt Funds			Corp Funds			Equity Funds		
	All	Most Active	Passive Index	All	Most Active	Passive Index	All	Most Active	Passive Index
FOMC	1.42**	4.23***	0.54	0.81	2.12*	1.39*	1.22*	4.69	−1.01*
	(2.46)	(3.63)	(0.92)	(0.95)	(1.97)	(1.92)	(1.66)	(1.63)	(−1.66)
GDP	3.69***	4.76***	3.49***	4.96***	6.44***	4.55***	1.99***	4.10	−0.57
	(7.79)	(5.13)	(4.42)	(7.74)	(7.47)	(6.00)	(3.07)	(1.43)	(−1.10)
GDP (ex. TOM)	0.60*	0.58	−0.27	0.54	1.02	−0.29	1.83**	2.37	−0.00
	(1.91)	(0.63)	(−0.77)	(1.41)	(1.57)	(−0.66)	(2.41)	(0.71)	(−0.00)
NFP	−0.02	−0.12	−0.48	0.34	0.23	−0.52	0.11	1.31	−1.22**
	(−0.06)	(−0.13)	(−1.09)	(0.77)	(0.39)	(−1.08)	(0.20)	(0.50)	(−2.29)
CPI	−0.90***	−1.46	−0.73**	−1.62***	−1.51**	−1.01***	0.71	−3.01	0.15
	(−2.65)	(−1.64)	(−2.02)	(−3.12)	(−2.30)	(−2.69)	(1.26)	(−1.17)	(0.25)
ISM	0.76**	1.18	0.54	0.20	0.14	0.24	−0.25	−1.72	0.50
	(2.47)	(1.34)	(1.60)	(0.57)	(0.24)	(0.68)	(−0.37)	(−0.46)	(0.63)

Notes – This table presents the factor-adjusted excess returns for various styles of mutual funds on days when macroeconomic announcements are made. The announcements considered include those from the Federal Open Market Committee (FOMC), Gross Domestic Product (GDP), Nonfarm Payrolls (NFP), Consumer Price Index (CPI), and the Institute for Supply Management (ISM). Since approximately 25% of GDP announcements coincide with the turn of the month, "GDP (ex. TOM)" represents fund performance on GDP announcement days that fall outside the last and first trading days of a month. We estimate the factor-adjusted daily excess returns for each fund in each quarter by utilizing risk loadings derived from the preceding 24 months. "All" is the value-weighted averages of fund alphas for each event, then averaged across events over time. "Most Active" and "Passive Index" are the alphas for the value-weighted portfolio consisting of the most actively managed funds and passively-managed index funds, respectively.

Table IA4 Fund Duration Change and Monetary Policy Shocks – Alternative Activeness Measures

Panel A: Pre-Announcement Fund Duration Change						
	Yield Increase		Yield Decrease		Difference	
	$\Delta Duration$	t-stat	$\Delta Duration$	t-stat	$\Delta Duration$	t-stat
Most Active	−0.10	(1.15)	0.14	(1.52)	−0.25	(1.89)
4	−0.13	(1.55)	0.11	(1.93)	−0.24	(2.33)
3	−0.06	(0.85)	0.08	(1.27)	−0.14	(1.47)
2	−0.08	(1.13)	0.08	(1.51)	−0.16	(1.77)
Least Active	−0.10	(1.29)	0.08	(1.33)	−0.18	(1.84)

Panel B: Predicting Monetary Policy Shocks Using $\Delta Duration$									
		Δy^{2YR}	Δy^{5YR}	Δy^{10YR}	Δy^{15YR}	Δy^{20YR}	*NS*	*Target*	*Path*
Most Active	Coeff.	−2.182***	−2.005***	−1.369**	−0.952	−0.681	−0.309***	−0.184	−0.253**
	t-stat	(−3.73)	(−2.82)	(−2.00)	(−1.58)	(−1.23)	(−2.79)	(−1.48)	(−2.45)
	Adj.R^2	6.3%	3.5%	1.6%	0.8%	0.3%	5.1%	1.4%	3.2%
4	Coeff.	−1.474**	−1.258**	−0.699	−0.366	−0.143	−0.293**	−0.128	−0.268**
	t-stat	(−2.35)	(−2.13)	(−1.37)	(−0.80)	(−0.34)	(−2.35)	(−0.86)	(−2.54)
	Adj.R^2	2.5%	1.0%	0.0%	−0.4%	−0.5%	4.4%	0.4%	3.5%
3	Coeff.	−0.870	−0.729	−0.369	−0.056	0.152	−0.199*	−0.127	−0.149*
	t-stat	(−1.53)	(−1.29)	(−0.75)	(−0.13)	(0.37)	(−1.87)	(−1.02)	(−1.74)
	Adj.R^2	0.7%	0.0%	−0.4%	−0.5%	−0.5%	2.0%	0.5%	0.9%
2	Coeff.	−1.166	−1.036	−0.370	0.089	0.364	−0.214	−0.105	−0.187*
	t-stat	(−1.54)	(−1.34)	(−0.56)	(0.15)	(0.66)	(−1.53)	(−0.62)	(−1.90)
	Adj.R^2	1.2%	0.4%	−0.4%	−0.5%	−0.3%	1.9%	0.0%	1.3%
Least Active	Coeff.	−0.793	−0.694	−0.304	0.001	0.193	−0.151	−0.131	−0.088
	t-stat	(−1.41)	(−1.07)	(−0.53)	0.00	(0.40)	(−1.46)	(−1.07)	(−1.08)
	Adj.R^2	0.5%	0.0%	−0.4%	−0.5%	−0.5%	1.0%	0.6%	0.0%

Notes – This table examines the relationship between fund duration change and FOMC outcomes across different quintiles of government bond funds, categorized based on their last-quarter activeness. We perform principal component analysis (PCA) on *Turnover*, *Idio* σ, and $1 - R^2$ each quarter, and take the first principal component as a proxy for fund activeness. Panel A reports the change in fund duration prior to FOMC announcements. We categorize all FOMC events into two groups: those with a yield increase (($\Delta y_t^{\text{FOMC}} > 0$) and those with a yield decrease (($\Delta y_t^{\text{FOMC}} < 0$) on announcement days. We then report the value-weighted duration change for quintile groups of funds sorted by their level of activeness. Panel B reports the predictive power of $\Delta Duration_{t-1}$ for monetary policy shocks. We use the standardized $\Delta Duration_{t-1}$ for each quintile group of funds to predict the FOMC-day changes in Treasury yields (2-20 years) using the model:

$$\Delta y_t^k (\text{or } MPS_t) = a + b \times \Delta Duration_{t-1} + \varepsilon_t.$$

We also report the coefficient estimates using high-frequency monetary policy shocks (*NS*) from Nakamura and Steinsson (2018), as well as the target and path factors from Gürkaynak, Sack, and Swanson (2005), as additional dependent variables. The standard errors are adjusted for heteroskedasticity, and the t-statistics are provided in parentheses.

Table IA5
Conditional on Additional Fund Characteristics

	Dep. Var. = FOMC-Day Performance α_t^{FOMC}						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Idio σ	1.039***	0.995***	0.939***	0.989***	1.020***	0.974***	0.995***
	(3.52)	(3.24)	(3.08)	(3.12)	(3.18)	(3.10)	(3.51)
Duration	0.219						0.326
	(0.71)						(1.12)
Log(FamilySize)		0.150					0.141
		(1.18)					(1.21)
Independent			0.404**				0.349*
			(2.16)				(1.87)
Institutional				0.253**			0.306***
				(2.63)			(2.97)
Teammanage					−0.099		−0.079
					(−0.50)		(−0.47)
Manager Experience						−0.115	−0.080
						(−1.09)	(−0.86)
Log(Size)	0.067	0.033	0.087	0.095	0.062	0.082	−0.019
	(0.89)	(0.46)	(1.12)	(1.25)	(0.81)	(1.15)	(−0.33)
Fee	−0.018	−0.020	−0.000	0.039	0.005	0.009	−0.007
	(−0.15)	(−0.16)	(−0.00)	(0.31)	(0.04)	(0.07)	(−0.06)
Flow	−0.036	−0.017	−0.028	−0.011	−0.009	−0.027	−0.073
	(−0.54)	(−0.24)	(−0.43)	(−0.17)	(−0.13)	(−0.38)	(−1.14)
Log(Age)	−0.049	−0.024	−0.074	−0.074	−0.038	−0.047	0.037
	(−0.61)	(−0.28)	(−0.85)	(−0.83)	(−0.42)	(−0.51)	(0.47)
Momentum	0.520	0.303	0.384	0.382	0.271	0.257	0.460
	(1.12)	(0.81)	(0.97)	(0.98)	(0.73)	(0.70)	(1.07)
Intercept	1.388**	1.486***	1.417**	1.614**	1.691***	1.658***	0.918
	(2.15)	(2.64)	(2.35)	(2.62)	(2.77)	(2.75)	(1.56)
Observations	27,013	27,005	27,009	26,771	26,436	26,384	26,379
R-squared	19.7%	18.0%	17.3%	16.3%	17.4%	17.5%	25.4%
Number of groups	91	91	91	91	91	91	91

Notes – This table reports the Fama-MacBeth regression estimates for the determinants of government bond funds' performance on FOMC days, while accounting for additional fund-level and family-level characteristics. Specifically, we include variables such as fund duration as defined in Table 4 (*Duration*), the logarithm of family size (*Log(FamilySize)*), an *Independent* dummy (set to 1 if the fund operates independently and is unaffiliated with any insurance company, broker, commercial, or investment bank), an *Institutional* dummy (set to 1 if the fund's share class is aimed at institutional investors), a *Teammanage* dummy (set to 1 if the fund is managed by multiple managers), and the logarithm of months since the manager entered the fund industry (*Log(Manager Experience)*). For ease of interpretation, all the continuous independent variables are standardized with means of zero and standard deviations of one. The standard errors are Newey-West adjusted with three lags. The t-statistics are in parentheses.

Table IA6
Fund Flows around FOMC Announcements

	All		Most Active		Least Active	
	(1)	(2)	(3)	(4)	(5)	(6)
$D(t=-2)$	−0.856	−0.594	−1.250	−0.833	−1.986	−1.919
	(−1.06)	(−0.73)	(−1.01)	(−0.71)	(−1.50)	(−1.43)
$D(t=-1)$	−1.083	−0.807	0.639	0.966	−0.418	−0.340
	(−1.53)	(−1.20)	(0.73)	(1.15)	(−0.34)	(−0.28)
$D(t=0)$	−0.356	−0.138	−1.273	−1.197	−1.873*	−1.667
	(−0.58)	(−0.23)	(−1.06)	(−1.04)	(−1.80)	(−1.64)
$D(t=1)$	−0.475	−0.102	−0.488	−0.233	−0.677	−0.108
	(−0.59)	(−0.13)	(−0.60)	(−0.29)	(−0.57)	(−0.09)
$D(t=2)$	−0.311	−0.104	0.656	0.753	−0.493	−0.170
	(−0.43)	(−0.16)	(0.67)	(0.81)	(−0.37)	(−0.13)
Level		−0.007**		−0.006		−0.003
		(−2.44)		(−1.64)		(−0.75)
*Slope*30		0.005		0.004		0.013
		(0.56)		(0.36)		(0.96)
*Slope*10		0.018		0.014		0.019
		(1.09)		(0.69)		(0.82)
Stock		0.004*		0.004**		0.007***
		(1.82)		(2.05)		(2.64)
TOM		0.338		1.476***		−1.017*
		(1.11)		(3.50)		(−1.95)
TOY		−1.654***		−2.064***		−0.722
		(−4.60)		(−3.70)		(−1.17)
VIX		0.371***		0.354***		0.407***
		(13.86)		(11.67)		(11.02)
TED		−0.030***		−0.035***		−0.037***
		(−4.33)		(−4.60)		(−4.08)
Intercept	−0.210	−6.430***	−1.562***	−7.513***	0.318	−6.151***
	(−1.35)	(−14.87)	(−7.39)	(−14.94)	(1.23)	(−10.09)
Observations	3,365	3,365	3,365	3,365	3,365	3,365
Adj.R^2	−0.1%	14.5%	0.0%	7.1%	0.0%	5.9%

Notes – The table reports the distribution of flows to government bond funds around FOMC announcements. We regress value-weighted government bond fund daily flows on FOMC announcement event day dummies. The dummy variable, denoted as $D(t=i)$, takes the value one for the i^{th} trading day around the FOMC announcement and zero otherwise, with t=0 representing the announcement day. In columns (2), (4) and (6), we include control variables for the factor returns on the same day (*Level*, *Slope*30, *Slope*10, and *Stock* factors), turn-of-month (TOM) and turn-of-year (TOY) dummies, VIX (CBOE Volatility Index), and TED rate (TED spread). The TOM dummy takes a value of one if the day falls within the [-3, +3] trading days at the turn of the month, and the TOY dummy equals one if the month is January or December, and zero otherwise. The TED spread is calculated as the difference between the three-month LIBOR and the three-month Treasury bill rate.