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# Interest Rate Surprises When the Fed Doesn't Speak

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**Abstract**

The predictability of monetary policy surprises based on past, public information has been interpreted in two related yet fundamentally different ways. The "Fed information effect" posits that it arises due to markets updating their view of the economy, based on signals implicitly revealed by the FOMC. The "Fed reaction to news" explanation posits that markets update their view of the FOMC's reaction function instead. We show that interest rate surprises calculated around macroeconomic releases exhibit the same predictability pattern as monetary policy surprises. Since these occur at a time when there is no scope for markets to learn about the Fed's behavior, this pattern suggests an additional information channel unrelated to FOMC communication.

JEL classification: E44, E52, E58
Keywords: monetary policy surprises, Fed information effect, Fed reaction to news, interest rate surprises, monetary policy premium

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# 1 Introduction

High-frequency changes in market-based interest rate expectations calculated around monetary policy events—commonly known as monetary policy surprises—have become a ubiquitous tool for the identification of the effects of monetary policy on asset prices, expectations, and the macroeconomy more broadly.[1] Monetary policy surprises owe much of their popularity to the precision with which they can be calculated around the relevant policy announcements, leaving little if any room for other confounding events to contaminate their signal, and therefore allowing for causal interpretation of the estimated effects. At least in principle.

Users of high-frequency based identification have been confronted with two related issues associated with monetary policy surprises. First, the estimated responses of macroeconomic variables and their expectations often display signs incompatible with the conventional understanding of the transmission mechanism of monetary policy (see Campbell, Evans, Fisher and Justiniano, 2012; Nakamura and Steinsson, 2018; Miranda-Agrippino and Ricco, 2021, among others). Second, monetary policy surprises have been shown to be predictable using publicly available information that predates the policy announcements, which is inconsistent with their interpretation as "clean" measures of monetary policy shocks (e.g. Miranda-Agrippino, 2016; Cieslak, 2018; Bauer and Swanson, 2023b).

These patterns have been interpreted in the literature in two related yet fundamentally different ways, both rooted in the premise that monetary policy surprises ought to also capture elements of the systematic—and hence endogenous—component of monetary policy for them to materialise. Proponents of the "Fed information effect" posit that

[1]The empirical literature that has used monetary policy surprises is vast. Early studies go back to at least Kuttner (2001) and Bernanke and Kuttner (2005). Important developments on the use of monetary policy surprises to isolate different dimensions of policy are in Gürkaynak, Sack and Swanson (2005b) and Swanson (2021). Other influential applications for the study of U.S. monetary policy include Gürkaynak, Sack and Swanson (2005a); Gertler and Karadi (2015); Nakamura and Steinsson (2018); Jarociński and Karadi (2020); Miranda-Agrippino and Ricco (2021); Bauer and Swanson (2023a,b). The public datasets of Altavilla, Brugnolini, Gürkaynak, Motto and Ragusa (2019) and Braun, Miranda-Agrippino and Saha (2025) have allowed similar investigations for the monetary policy of the ECB and the Bank of England.

they arise due to market participants also learning about the Fed's view of the economy at the time of policy announcements, based on signals implicitly revealed by Fed officials (e.g. Nakamura and Steinsson, 2018; Jarociński and Karadi, 2020; Miranda-Agrippino and Ricco, 2021).[2] Conversely, proponents of the "Fed response to news" argument reject the notion that the central bank has access to any different insights about the economic outlook relative to the public, and instead argue that market participants learn about the way the Fed responds to economic developments, that is, about the reaction function (Bauer and Swanson, 2023a,b).

While different in interpretation, these two explanations are to a large extent observationally equivalent. In particular, they both appeal to the predictability of monetary policy surprises, and they both give rise to responses of macroeconomic variables that run counter to the textbook effects of monetary policy shocks. In turn, in the empirical identification of monetary policy shocks, these puzzles are equivalently accounted for by projecting monetary surprises on reduced-form expressions of the shocks to which the Fed responds—e.g. as captured by the Fed's official forecasts in Miranda-Agrippino and Ricco (2021), or by macroeconomic news in Bauer and Swanson (2023a,b).[3]

In this paper, we propose to shed light on the relative prevalence of these two explanations by comparing the features—including the predictability patterns—of interest rate surprises calculated around both Fed and non-Fed events. We show that they are in many ways equivalent. In particular, interest rate surprises are predictable by past information also when calculated around macroeconomic releases, such as the consumer price inflation or the employment report. That is, we find predictability in interest rate surprises even when there is no scope for market participants to learn about the Fed's behaviour.

If the predictability of interest rate surprises were to stem solely from a Fed response to news effect, all else equal, one should not expect it to arise when the public is unable

[2]The implicit disclosure of the Fed's view of the economy arises due to the central bank and the public not sharing the same information set. Under these conditions, a surprise decrease in the policy rate can be interpreted either as a monetary policy shock, or as a signal that the Fed is responding to a further deteriorating economic outlook. If the latter interpretation prevails, private forecasts of inflation and output will be revised downward (see e.g. Miranda-Agrippino and Ricco, 2021).

[3]Jarociński and Karadi (2020) propose an alternative method that leverages the comovements between monetary policy surprises and stock market returns implied by monetary policy shocks and by the systematic component of policy as revealed via information effects.

to learn about the policy rule by design. To fix ideas, assume that the central bank sets the level of the policy rate $i_t$ according to:

$$i_t = f_t(\Omega_{t:t+h|t}) + e_t \ , \tag{1}$$

where $f_t(\cdot)$ denotes the policy reaction function, $\Omega_{t:t+h|t}$ denotes the central bank's economic forecasts at horizon up to $t+h$ conditional on an information set dated $t$, and $e_t$ is a zero mean i.i.d. monetary policy shock. Whether calculated around Fed or non-Fed events, interest rate surprises capture the revision in market-based expectations about future interest rates, plus a potentially time-varying risk premium. However, when calculated around FOMC announcements, interest rate surprises will capture revisions in policy expectations that can in principle be due to a combination of both the systematic component of monetary policy—as captured by $f_t(\Omega_{t:t+h|t})$—and the unsystematic one—as captured by $e_t$. In contrast, the release of macroeconomic data only reveals information that is relevant for economic forecasts. It does not directly convey information regarding the policy reaction function, nor about the monetary policy shock. In other words, interest rate surprises calculated around macroeconomic news are purely a response to changes in the economic outlook, and are not contaminated by new information on the Fed's behaviour.[4]

We find that market participants update their policy projections in a similar way when prompted with either monetary policy or macroeconomic news, and argue that the mechanism behind the predictability is likley to be the same. In the latter case, forecasts of the macroeconomic outlook, and hence of the policy outlook, are revised due to explicit macro news being released. While in the former case, this is due to information implicitly disclosed during the policy announcements.

At the same time, we find no evidence of systematic predictability when calculating interest rate surprises at randomly chosen times on the days of key macroeconomic re-

[4]We stress the direct effects of new information on interest rate expectations. There could also be indirect effects, say due to market participants using macroeconomic news to also reassess past Fed behaviour. For example, market participants may be uncertain about the Fed's longer-run inflation target and apply a signal extraction approach to estimate it. In that case, the revelation of inflation data on its own may be marginally informative regarding the Fed's target. However, such indirect effects are likely to be quantitatively smaller than the direct effects which are the focus of this paper, and of the literature more generally.

leases. These placebo regressions highlight the role that the explicit or implicit disclosure of macroeconomic news has in introducing the predictability element in the interest rate surprises. This finding reinforces our conclusion that there is an information mechanism at work, rather than mere sampling variation.

It is worth emphasising that these results do not exclude that, at times, market participants may also be learning about the Fed's preferences. For example, it is plausible that changes in the Committee's composition or chairmanship (Hack, Istrefi and Meier, 2023), or framework reviews that reformulate the policy objectives (e.g. Powell, 2020, 2025), may introduce discrete learning opportunities for the public. However, our evidence suggests that learning about policymakers preferences is at best a partial explanation of the observed behaviour in financial markets. Conversely, our results point to systematic behaviour in financial markets that tightly links policy and macroeconomic expectations revisions, whether prompted by the explicit release of macroeconomic data, or by implicit information effects.

To conduct our analysis, we construct and assemble high-frequency interest rate surprises across different maturities calculated over narrow time windows around two key macroeconomic releases: the consumer price index, and the employment report. We choose these two releases due to them directly mapping into the framing of the Fed's dual mandate—and hence more likely to prompt a revision in market-based interest rate expectations—as well as for their timeliness. The monetary policy surprises are taken from the U.S. Monetary Policy Event-Study Database (USMPD) of Acosta, Ajello, Bauer, Loria and Miranda-Agrippino (2025), which collects high-frequency surprises around all official Federal Open Market Committee (FOMC) communication events for a rich selection of interest rate futures and risky asset prices. We focus on surprises calculated around FOMC decision announcements and the release of the associated statements, and around the press conferences that typically follow them. Interest rate surprises around macroeconomic releases are constructed using the same underlying data and the same guiding principles used for the monetary policy surprises in the USMPD. The only difference is the specific events around which they are calculated.

We study the predictability pattern of both set of surprises using data news for all major U.S. macroeconomic releases, all known to the public by the time interest rate

expectations are revised, and all measured in deviation from Bloomberg consensus forecasts, as in Bauer and Swanson (2023a,b). The sample covers January 1997 to January 2025.

Our results deliver a number of novel insights. First, market participants update their view of the policy outlook in a similar manner whether they receive news about monetary policy or about the state of the economy. Especially for medium-maturity projections that cover horizons between three months and a year ahead, the magnitudes of the revisions are effectively equivalent, suggesting that market participants operate with a model that tightly maps macroeconomic news into policy outcomes. Second, as they become an increasingly important source of monetary policy news, surprises calculated around the post-meeting press conferences inherit the same predictability pattern that was documented in earlier studies for surprises around FOMC policy announcements. Of particular relevance is nonfarm payroll (NFP) news, that provides an early signal about the state of the economy, and predicts policy surprises across the maturity spectrum. Third, equivalent predictability patterns characterise interest rate surprises calculated around macroeconomic releases, again with NFP news playing a particularly important role. Some interesting patterns emerge that are potentially indicative of the way in which markets interpret macroeconomic news in real time, and of their consequent effect on policy projections. In particular, the changing correlation between past macro news and interest rate surprises suggests that the perceived underlying economic drivers may have shifted over the more recent period. Finally, we relax the assumption of a constant risk premium in monetary policy surprises, which may in itself be responsible for the dependence on past information. We show that accounting for the variation in the risk premium does not remove evidence of information frictions in monetary policy surprises, whether detected through predictability using past information, or via price and real activity puzzles in structural VARs.

The paper is organised as follows. Section 2 describes the data used in the paper and their construction. The main results on the predictability of interest rate surprises around Fed and non-Fed events are reported in Section 3 and Section 4 respectively. A more in-depth discussion of our results is in Section 5, and we review the relevant

literature in that context. Section 6 concludes. Additional results are reported in the Online Appendix.

## 2 Variables Definition and Measurement

In this section we describe the data used in the paper and their construction. The analysis centres on three different sets of variables: monetary policy surprises, data news, and interest rate surprises around macroeconomic releases. We describe each in turn.

Monetary policy surprises (MPS) denote the high-frequency reaction of interest rate futures to monetary policy announcements. As such, they capture revisions in market-based expectations about the policy stance that are due to monetary policy decisions and to communication around them. We use the data from the U.S. Monetary Policy Event-Study Database (USMPD) of Acosta, Ajello, Bauer, Loria and Miranda-Agrippino (2025).[5] This database contains monetary policy surprises for a variety of asset prices around all official FOMC communication events since 1994. We focus on monetary policy surprises around the release of FOMC statements, that explain the monetary policy decisions and the economic conditions influencing them, and around the press conferences that follow the monetary policy announcements, and that give the Chair the opportunity to further clarify the policy rationale. For FOMC statements, the monetary surprises are calculated as price revisions over a 30-minute window that brackets the FOMC announcements. For the press conferences, the measurement window goes from 10 minutes before to one hour after the beginning of the press conference.[6]

We consider four measures of monetary policy surprises, intended to capture revisions of market-based policy expectations across the maturity spectrum. Namely, we consider surprises about the Fed Funds Rate at the upcoming FOMC meeting (MP1), in the fourth Fed Funds (FF4) and Eurodollar/SOFR futures (ED4), that respectively capture policy expectations at the three month and the one year horizons, and in a principal component (NSPC) that summarises and aggregates information from five different futures (MP1, MP2, ED2, ED3 and ED4), as is done in Nakamura and Steinsson (2018). The principal

[5]The USMPD is available at `https://sffed.us/USMPD`.

[6]For additional details on the USMPD see Acosta et al. (2025). At the time of writing, the USMPD included monetary policy surprises until January 2025.

component subsumes the effects of announcements about both conventional and unconventional monetary policy, and therefore captures revisions of policy expectations over a horizon of potentially several years (see Acosta et al., 2025).[7] These four monetary policy surprises calculated around FOMC statements and press conferences are plotted in Appendix Figures A.1 - A.2 respectively. FOMC press conferences were first introduced in 2011 and increased to every meeting in January 2019; therefore, the number of observations for press conferences surprises is smaller than for FOMC statements.

Data news denotes the surprise component of headline macroeconomic releases and captures the degree to which the data release either exceeded or fell short of expectations. Following common practice, we calculate data news using Bloomberg forecasts (see e.g. Swanson and Williams, 2014; Gürkaynak, Kisacikoğlu and Wright, 2020; Bauer and Swanson, 2023a,b). Bloomberg polls a number of economists and market participants ahead of every major macroeconomic release, and calculates the consensus forecasts that prevails ahead of each release date. Forecasts can be revised up until the release date, thus capturing the most up to date predictions available.

Let $x_t$ denote a macroeconomic release and $\mathbb{E}_t(x_t)$ the associated consensus forecast. We calculate data news as $\left(x_t - \mathbb{E}_t(x_t)\right)/\sigma_x$, where $\sigma_x$ denotes the sample standard deviation of $x_t$. The scaling factor facilitates the comparison of coefficients across macroeconomic releases that are published in different units (e.g. CPI inflation in percent, and nonfarm payroll employment in thousands). To account for the exceptional volatility of some of the releases during the Covid period, particularly the nonfarm payroll numbers, in our baseline exercises we use the pre-Covid standard deviation to scale the data news. We calculate data news for all the major U.S. macroeconomic releases from January 1997 to May 2025. The full list is reported in Table A.1 in the Appendix.

Finally, the novel data that we bring into the picture are interest rate surprises (IRS) that are calculated around macroeconomic releases. These are intended to capture how market participants revise their policy rate expectations following major macroeconomic announcements that lead to a revision of their view of the economic outlook. We calculate

[7] The principal component can be though of as an average of the Target and Path factors of Gürkaynak, Sack and Swanson (2005b). MP1 and MP2 capture, respectively, the surprise in the two upcoming FOMC meetings, and are obtained by combining information in Federal Funds futures at different maturities (see Gürkaynak et al., 2005b).

interest rate surprises following best practices used in the measurement of monetary policy surprises, as in Acosta et al. (2025). Similarly to what done for FOMC statement surprises, we use a 30-minute event window that brackets the release date time, from 10 minutes before, to 20 minutes after.[8]

We focus on interest rate surprises around the CPI release and around the publication of the employment report, that includes several key labour market statistics, including the closely-watched nonfarm payroll numbers. We chose these two releases for two reasons. First, they directly map into the formulation of the Fed's dual mandate, and are therefore more likely to lead to meaningful revisions in market-based policy rate expectations. Second, they are the most timely of the major macroeconomic data releases, and therefore again more likely to influence market expectations. Indeed, even if the Federal Reserve's price stability objective is officially defined in terms of PCE inflation, the fact that CPI is released a few weeks in advance of the PCE data makes interest rate surprises calculated around the CPI release significantly larger. The timestamps for each of these releases are retrieved from Bloomberg, while the tick-level data for interest rate futures are from LSEG Tick History, the same source used for the USMPD.[9] The sample for interest rate surprises around macroeconomic releases goes from January 1997 to May 2025, with the start date coinciding with the first timestamps available from Bloomberg. To retain consistency with the maturities used for the monetary policy surprises, for each of the macro releases we calculate interest rate surprises for the same four measures, namely the MP1, FF4, ED4 and NSPC.[10] Interest rate surprises around the release of CPI and the employment report are plotted in Figures A.3 - A.4 in the Appendix.

To be clear, monetary policy surprises and interest rate surprises around macro releases are measured in the exact same way, using the same data sources and measurement

[8] To avoid misquotes and interference from possible outliers, also in this case we define pre- and post-event prices as the median price in ten minute windows that bracket the beginning and the end of the event window. For example, for a release scheduled at 8:30 AM, the event window goes from 8:20 AM to 8:50 AM. The interest rate surprise is calculated as the difference between the implied yields that prevail at the beginning and at the end of the event window. In turn, these are calculated as the median implied yield in the pre-event (8:15 AM to 8:25 AM) and post-event (9:45 AM to 9:55 AM) windows.

[9] https://www.lseg.com/en/data-analytics/market-data/data-feeds/tick-history.

[10] As in the case of monetary policy surprises, MP1, FF4 and ED4 surprises are measured in percentage points, while the principal component NSPC is normalised to have unit variance. Following Acosta et al. (2025), we replace missing values in individual contracts with zeros to obtain a time series for the principal component that covers all the FOMC/data release dates in our sample.

principles, with the only difference being the event around which they are respectively calculated. Namely,

$$p_t - p_{t-w} = \begin{cases} mps_t & \text{when } t \in \{\text{FOMC statements, press conferences}\} \\ irs_t & \text{when } t \in \{\text{CPI, employment report}\} \end{cases}, \quad (2)$$

where $p_t$ denotes the implied yield in either Federal Funds or Eurodollar/SOFR futures (or their principal component), and $w$ denotes the width of the measurement window, which is equal to 30 minutes for FOMC statements and macroeconomic releases, and to 70 minutes for the press conferences.

Interest rate surprises around macroeconomic releases and around monetary policy events share remarkably similar properties, and have comparable variability over the common sample, suggesting that market participants revise their expectations about the Fed's policy stance following both set of events, and to a strikingly similar degree (see Appendix Tables A.2 - A.3). This is particularly true for medium-term projections. For example, the standard deviation of ED4 surprises, whose implied forecast horizon is one year, is equal to 6.5 basis points around FOMC statements, 6 bps around press conferences, 5.3 bps around the release of CPI, and 7.7 bps around that of the employment report. For shorter maturity policy expectations, the variability around FOMC statements tends to be somewhat larger, such that the standard deviation of FF4 surprises (3-month implied horizon) is equal to 4.8 bps around FOMC statements, 2.4 bps around press conferences, 3 bps around the CPI release and 3.4 bps around the employment report.[11] Both sets of surprises are also negative on average, suggesting that on average market participants expect monetary conditions to ease. Finally, like monetary policy surprises, interest rate surprises around data releases do not display significant autocorrelation patterns.

[11]Note that there are effectively no news about the current policy stance during the press conference, such that the corresponding MP1 surprises are an order of magnitude smaller relative to those calculated around statements. See also Acosta et al. (2025).

# 3 Predictability of Monetary Policy Surprises

This section sets the stage by reporting results on the predictability of monetary policy surprises. We start by replicating previously identified results about the predictability of FOMC statement surprises, and extend the analysis to monetary policy surprises around FOMC press conferences. We then relax the assumption of a constant risk premium in monetary surprises and show that accounting for variations in the risk premium due to FOMC announcements does not resolve the issue of predictability of monetary policy surprises, nor the associated price and real activity puzzles in monthly VARs. Robustness exercises are discussed within the text and reported in the Online Appendix.

Following Bauer and Swanson (2023a,b), we study the predictability of monetary policy and interest rate surprises using event-study regressions of the form

$$s_t = \alpha + \Gamma news_t + \epsilon_t \ , \tag{3}$$

where $s_t$ denotes either $mps_t$ or $irs_t$, the time index $t$ refers to either days of FOMC announcements (for $mps_t$), or days of the release of CPI and the employment report (for $irs_t$), and $news_t$ is a vector of macroeconomic news that precedes either type of event. For each data news, we include in the regressions the most recent ones at the time of either surprise, such that, for example, for $mps_t$ the payroll news is typically recorded in the same month, as it is typically the case that FOMC announcements fall after the first Friday of the month. Conversely, for the employment report $irs_t$ the most recent nonfarm payroll news refers to the release of the previous month. To facilitate comparability across events, all regressions include observations over the common sample, from January 1997 to January 2025. Our baseline results report more conservative estimates that exclude observations around the Covid years (2020-2021).[12]

Table 1: Predictability of MPS using Past Data News

| | Surprises around FOMC Statements | | | | Surprises around FOMC Press Conferences | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | 0.0271** | 0.0233** | 0.0215* | 0.468** | 0.00122 | -0.0103 | -0.0342* | -0.544* |
| | (2.48) | (2.33) | (1.80) | (2.45) | (1.14) | (-1.38) | (-1.88) | (-1.71) |
| ISM Manufacturing | 0.0157 | 0.0142 | 0.0327** | 0.359 | 0.00062 | 0.00502 | 0.0296 | 0.415 |
| | (0.85) | (1.40) | (2.05) | (1.58) | (0.28) | (0.52) | (1.47) | (1.15) |
| Leading Index | 0.00615 | -0.00301 | -0.00549 | -0.0589 | 0.00103 | 0.00893* | 0.0194 | 0.328 |
| | (0.95) | (-0.48) | (-0.58) | (-0.45) | (0.98) | (1.95) | (1.61) | (1.63) |
| Factory Orders | -0.0164 | -0.00254 | 0.0225 | 0.156 | 0.00360 | -0.00247 | 0.00504 | 0.0511 |
| | (-0.78) | (-0.22) | (1.18) | (0.56) | (1.58) | (-0.14) | (0.13) | (0.08) |
| New Home Sales | 0.0130 | -0.00148 | -0.0170 | -0.149 | 0.00371 | 0.0455 | 0.114* | 2.507** |
| | (0.54) | (-0.10) | (-0.76) | (-0.43) | (1.28) | (1.58) | (1.74) | (2.10) |
| CPI MoM | -0.00091 | -0.00265 | 0.00141 | -0.00238 | -0.00177 | 0.00043 | 0.00095 | -0.173 |
| | (-0.10) | (-0.30) | (0.10) | (-0.01) | (-1.50) | (0.04) | (0.03) | (-0.35) |
| $N$ | 213 | 213 | 213 | 213 | 65 | 65 | 65 | 65 |
| $R^2$ | 0.049 | 0.058 | 0.065 | 0.066 | 0.101 | 0.158 | 0.171 | 0.231 |

*Notes:* Regressions of monetary policy surprises calculated around FOMC statements (left panel) and press conferences (right panel) on most recent data news. Sample: January 1997 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## 3.1 Predictability Around Fed Events

Table 1 reports the coefficients of the predictive regressions for monetary policy surprises. The left hand side of the table reports results for FOMC statements surprises. These confirm the findings in Bauer and Swanson (2023a,b)—also obtained using data news—and are more generally in line with the evidence assembled in other studies on the predictability of monetary policy surprises around FOMC announcements (see e.g. Miranda-Agrippino, 2016; Cieslak, 2018; Miranda-Agrippino and Ricco, 2021; Karnaukh and Vokata, 2022, among others). The release of the nonfarm payroll (NFP) numbers,

[12] Gürkaynak, Kisacikoğlu and Wright (2020) note that headline news of the type we use in our predictive regressions captures only part of the overall news content of macroeconomic releases, and therefore explains only a fraction of the reaction of asset prices to macroeconomic releases. As a consequence, using headline news stacks the odds against finding significant predictive relationships.

that provides an early indication about the state of the economy, emerges as the single most relevant data news for monetary policy surprises. Positive NFP news, that signal a stronger labour market than anticipated, predict tightening surprises across the maturity spectrum. Results are equivalent when calculated over a sample that includes the Covid years (Appendix Table B.2), and become much stronger in the post-2020 sample (Appendix Table B.4), when broader indicators of economic activity such as the ISM Manufacturing PMI and the Conference Board Leading Economic Index also become significant predictors.[13]

The right hand side of Table 1 reports novel results for monetary surprises calculated around the FOMC press conferences. While the smaller number of observations makes the coefficients less precisely estimated, the predictability of monetary policy surprises is apparent, with real activity news again playing an important role.[14] As discussed in Acosta et al. (2025), press conferences tended to convey little information until 2022, but have since become a prevalent source of monetary policy news for market participants, and lead to revisions in policy rate expectations that are at least as large as those associated with FOMC statements. Results reported in Tables B.3 to B.5 in the Appendix—and in Figure 2 as we discuss below—confirm that the predictability of monetary policy surprises around press conferences is entirely a feature of the post-2022 sample. It is worth noting that in the predictive regressions of the press conference surprises the coefficients of the data news have opposite sign relative to those for the statement surprise. This is due to the changing correlation between statement and press conference surprises over our sample (see Acosta et al., 2025, for a detailed discussion on this point).

### 3.1.1 The Role of Time-Varying Risk Premia

A possible explanation for the predictability of monetary policy surprises is that it may signal the presence of a time-varying risk premium (Miranda-Agrippino, 2016). Without

[13] It is worth noting that while these predictive regressions typically display very low $R^2$, purging monetary policy surprises of their predictable component is sufficient to resolve output and price puzzles in aggregate estimates of the effects of monetary policy (see e.g. Miranda-Agrippino, 2016; Miranda-Agrippino and Ricco, 2021; Bauer and Swanson, 2023a,b).

[14] Throughout the paper, we set the measurement windows for monetary poicy surprises to match those in the USMPD. Extending the measurement window for the press conference to end 90 minutes after its beginning makes the predictability stronger, and the coefficients of NFP news significant for FF4, ED4 and NSPC (see Appendix Table B.1).

loss of generality, the price of an interest rate futures with maturity $h$ periods ahead such as those that we use to calculate the $mps_t$ can be expressed as the sum of two components, as follows

$$p_t^{(h)} = \mathbb{E}_t(i_{t+h}) + \nu_t^{(h)} \ , \tag{4}$$

where $\mathbb{E}_t(i_{t+h})$ denotes the market-based expectation about the policy interest rate at horizon $t+h$ conditional on an information set dated $t$, and $\nu_t^{(h)}$ denotes a potentially time-varying risk premium that may be present in the contract. From Eq. (4), monetary policy surprises can then be rewritten as

$$mps_t^{(h)} = \Delta\mathbb{E}_t(i_{t+h}) + \Delta\nu_t^{(h)} \ . \tag{5}$$

Eq. (5) makes it clear that the predictability of monetary policy surprises could in principle be explained by the dependence of the risk premium on macroeconomic fundamentals, a possibility that is however typically assumed away.[15] The key complication with evaluating the plausibility of this channel is that, in general, we do not observe high-frequency revisions in survey-based policy rate expectations, which makes the decomposition in Eq. (4) difficult to operationalise in practice.[16]

We note, however, that for the specific case of policy expectations at very short maturities (i.e. for $h = 0$), we can make use of the same Bloomberg survey used to calculate the data news, to effectively approximate the survey-based policy revision around the upcoming FOMC meeting using the one-day forecast error. Since December 1998, Bloomberg elicits expectations about the level of the Federal Funds rate (FFR) ahead of every scheduled FOMC meeting. Like for other macroeconomic releases, forecasts can be updated up to a day before the event, thus providing a reading of the prevailing expectations just

[15] Much of the literature that uses monetary policy surprises operates under the assumption that monetary policy communication does not alter the risk premium that may be present in the futures contracts used for their construction, whether because it is expected to vary predominantly at business cycle frequencies (Piazzesi and Swanson, 2008), or because it is generally thought not to be a plausibly relevant concept at very short maturities (Cieslak, 2018; Schmeling, Schrimpf and Steffensen, 2022). Direct evidence in support of these arguments is, however, typically based on data sampled at monthly or lower frequency, which may make estimates less sharp. Moreover, it sits somewhat uncomfortably against mounting evidence that monetary policy operates in large part also by shaping risk preferences (see e.g. Bauer, Bernanke and Milstein, 2023; Kashyap and Stein, 2023).

[16] For an alternative decomposition that combines information from stocks and bond prices see Cieslak and Schrimpf (2019).

Table 2: Predictability of Market-Based and Survey-Based Monetary Policy Surprises with Past Data News

| | NFP | ISM | HS | CPI | $R^2$ |
|---|---|---|---|---|---|
| Market-based policy revision $\Delta p_t^{(0)}$ | 0.0113* | 0.0042 | -0.0072 | 0.0013 | 0.028 |
| | (1.86) | (0.52) | (-0.53) | (0.18) | |
| Survey-based policy revision $\Delta \mathbb{E}_t(i_t)$ | 0.0110* | 0.0133 | -0.0280 | 0.0131 | 0.063 |
| | (1.67) | (1.58) | (-1.48) | (1.40) | |
| High-frequency premium change $\Delta \nu_t^{(0)}$ | 0.0004 | -0.0091* | 0.0277* | -0.0118** | 0.068 |
| | (0.07) | (-1.84) | (1.51) | (-2.07) | |

*Notes:* The table reports selected coefficients for predictability regressions on most recent data news. $\Delta p_t^{(0)}$ is the MP1 monetary policy surprise, $\Delta \mathbb{E}_t(i_t)$ the expectation revision based on Bloomberg forecasts, and $\Delta \nu_t^{(0)}$ the resulting change in the risk premium. Sample: all scheduled announcements ($N = 194$) between December 1998 and January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. NFP: Nonfarm Payroll; ISM: ISM Manufacturing; HS: New Home Sales; CPI: CPI MoM. Additional news included in the regressions: Conference Board Leading Index; Factory Orders. All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

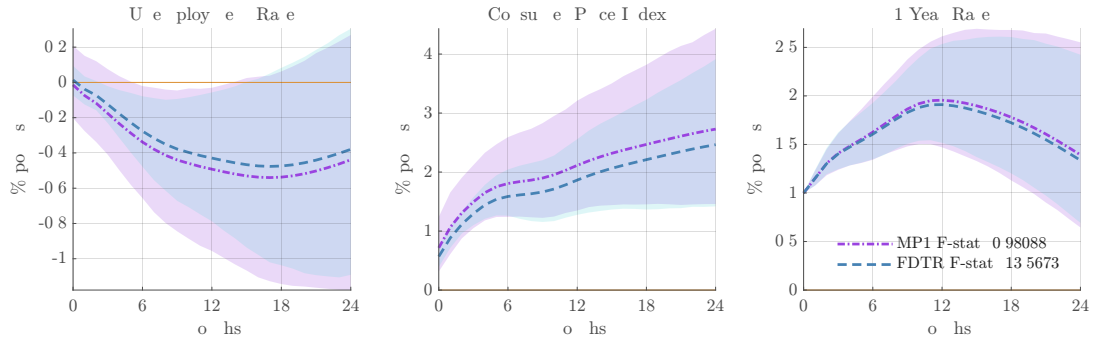
prior to the announcement. After the announcement, the policy rate is revealed, such that post-announcement expectations equal the realisation, and $\Delta \mathbb{E}_t(i_t) = i_t - \mathbb{E}_{t-1\text{day}}(i_t)$.

While there may be systematic differences between the marginal investor pricing the monetary surprises and the consensus expectation of the professionals surveyed by Bloomberg, a comparison between the survey-based revision and the corresponding short maturity policy surprises (MP1) can help us gauge the extent to which changes in risk premia around the FOMC announcements are likely to play a defining role in this context.[17]

We find that in fact any variation in risk premia around FOMC announcements is likely to operate in addition to any information frictions present in the monetary policy surprises, and that separately give rise to their predictability (see e.g. Coibion and Gorodnichenko, 2012, 2015). In Table 2 we repeat the same predictive regressions of Table 1 using the three components of Eq. (5). The sample starts in December 1998, and is dictated by the availability of the Bloomberg forecasts for the FFR (FDTR). While

[17]Combining bond yields with survey forecasts follows the intuition of Crump, Eusepi and Moench (2016) who use it to extract a model-free measure of the term premium. We provide more details on the monetary policy premium implied by our decomposition in Appendix C.

FIGURE 1: REAL ACTIVITY AND PRICE PUZZLES WITH MARKET-BASED AND SURVEY-BASED MONETARY POLICY SURPRISES




*Notes*: Impulse response functions to a monetary policy shock identified using either the market-based surprise (MP1, purple dash-dotted line) or the survey-based surprise (FDTR, blue dashed line) as an instrumental variable in benchmark monthly monetary VAR that includes the unemployment rate, the consumer price index (in logs), and the 1-year rate as the policy variable. Shock normalised to yield a 1 ppt impact increase in the policy rate. VAR(12). Sample: January 1998 to December 2024. The VAR accounts for extreme volatility during the Covid pandemic as in Lenza and Primiceri (2022). Shaded areas denote 90% posterior credible sets.

the risk premium component displays a strong element of dependence on past information, Table 2 shows that even if variations in risk premia are accounted for, survey-based surprises remain predictable by past information.

Consistently, Figure 1 shows that the impulse response functions to monetary policy shocks identified using either monetary policy surprises or survey-based expectation revisions are by and large equivalent. Without additional controls that can at least in part account for their endogenous nature, either measure fails to recover responses that align with the traditional transmission mechanism of monetary policy. That is, accounting for the risk premium component does not help to resolve the price and real-activity puzzles. This indicates that the endogeneity of monetary policy surprises that is relevant for the empirical identification of monetary policy shocks stems primarily from the expectation component not capturing only exogenous shifts in policy.

# 4 Predictability of Interest Rate Surprises

Interest rate surprises around macroeconomic releases display the same type of predictability pattern as monetary policy surprises. Table 3 reports our novel results for

TABLE 3: PREDICTABILITY OF IRS USING PAST DATA NEWS

| | **Surprises around CPI Release** | | | | **Surprises around Employment Report** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | -0.0017 | -0.0004 | -0.0029 | -0.0368 | 0.0056* | 0.0078* | 0.0216** | 0.265** |
| | (-0.47) | (-0.09) | (-0.37) | (-0.21) | (1.82) | (1.76) | (2.10) | (1.99) |
| ISM Manufacturing | 0.0002 | 0.0035 | -0.0007 | -0.0192 | -0.0055 | -0.0044 | -0.0130 | -0.185 |
| | (0.10) | (0.74) | (-0.08) | (-0.14) | (-1.33) | (-0.75) | (-0.91) | (-1.05) |
| Leading Index | 0.0061*** | 0.0056* | 0.012* | 0.249* | 0.0003 | 0.0009 | 0.0014 | 0.0409 |
| | (2.99) | (1.89) | (1.67) | (1.90) | (0.09) | (0.23) | (0.15) | (0.36) |
| New Home Sales | 0.0033 | 0.0116 | 0.0189 | 0.429 | -0.0027 | -0.0116 | -0.0227 | -0.298 |
| | (0.52) | (1.08) | (0.84) | (0.97) | (-0.32) | (-0.90) | (-0.75) | (-0.73) |
| PPI MoM | -0.0014 | -0.0020 | 0.0001 | -0.0332 | -0.0005 | -0.0037 | -0.00276 | -0.0451 |
| | (-0.91) | (-0.80) | (0.02) | (-0.34) | (-0.22) | (-1.04) | (-0.32) | (-0.42) |
| Industrial Production | -0.0006 | 0.0015 | 0.0019 | 0.0345 | -0.0039* | -0.0054* | -0.0108* | -0.159* |
| | (-0.39) | (0.63) | (0.37) | (0.37) | (-1.81) | (-1.79) | (-1.66) | (-1.79) |
| GDP | -0.0011 | -0.0019 | -0.0019 | -0.0882 | -0.0041 | -0.0076 | -0.0164 | -0.222 |
| | (-0.29) | (-0.31) | (-0.16) | (-0.37) | (-1.12) | (-1.38) | (-1.25) | (-1.32) |
| $N$ | 299 | 299 | 301 | 303 | 298 | 300 | 303 | 303 |
| $R^2$ | 0.034 | 0.016 | 0.015 | 0.020 | 0.033 | 0.036 | 0.037 | 0.038 |

*Notes:* Regressions of interest rate surprises calculated around the release of CPI (left panel) and the Employment Report (right panel) on most recent data news. Sample: January 1997 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

interest rate surprises around the release of CPI and of the employment report calculated using the same framework discussed in Section 3. Following the release of important macroeconomic data, market participants revise their expectations about the policy stance in a predictable way, and in a similar manner to when expectations are updated following monetary policy events.

While the pattern of predictability is broadly similar, some differences arise depending on the release around which the interest rate surprise is calculated, and across subsamples. In general, CPI $irs_t$ —i.e. policy rate expectation revisions prompted by the release of CPI—tend to be predictable by past news about economic activity, as seen in the results reported on the left hand side of the table. In particular, news of a stronger economy as

signalled by the Conference Board leading indicator predicts that markets will revise their policy expectations upwards following the CPI release. Nonfarm payroll news becomes an important predictor of CPI $irs_t$ with the inclusion of the Covid years (Appendix Table D.1), and more generally over the most recent sample (Appendix Table D.3). Interestingly, NFP news enters with a negative sign over the post-2020 sample, suggesting that market participants may have perceived a shift in the underlying economic drivers.

The predictability is evident also in the case of interest rate surprises occurring around the release of the employment report, with past real activity news predicting upward revisions in policy rate expectations on the day of the publication of the employment report.[18] The right hand side of Table 3 reports results for this case. Mirroring the evidence for CPI $irs_t$, inflation news as signalled by the producer price index becomes a significant predictor in the post-2020 sample, and enters with a negative sign (Appendix Table D.3). It is also interesting to note that over this latter sample past NFP news switches sign, and is only significant for medium-term revisions in interest rate expectations.

## 4.1 Placebo Regressions

One possible issue with the predictive regressions is that they may be picking up somewhat spurious correlations rather than genuine properties of the interest rate surprises. To address this point, we construct two sets of "placebo" $irs_t$, calculated on the same days of the release of the CPI and the employment report, but at a randomly chosen time (2:00 PM ET). We start by noting that, as expected, when no major news is released the extent to which markets reprice is minimal. The overall variability of the placebo $irs_t$ is decisively smaller than that of the actual $irs_t$, with standard deviations that range from half to 7 times smaller across maturities (Appendix Table A.4). We then substitute the placebo $irs_t$ in place of the actual $irs_t$ for CPI and the employment report, and re-run the predictive regressions of Table 3.[19]

It is immediately apparent that the predictability pattern diverges from what docu-

[18] Note that the correlation between NFP and industrial production news is negative and equal to -0.14 over the full sample.

[19] In some cases, the placebo $irs_t$ end up coinciding with monetary policy surprises (18 times in the case of CPI $irs_t$ and one time for employment report $irs_t$). We have removed these observations from our sample.

TABLE 4: PREDICTABILITY OF PLACEBO IRS USING PAST DATA NEWS

| | **Surprises around Placebo CPI Release** | | | | **Surprises around Placebo Employment Report** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | -0.0002 | 0.0008 | 0.0024 | 0.0630 | 0.0011 | 0.0004 | 0.0016 | 0.1330 |
| | (-0.13) | (0.84) | (1.22) | (0.76) | (1.60) | (0.43) | (1.30) | (1.21) |
| ISM Manufacturing | 0.0010 | -0.0011 | -0.0027 | -0.0020 | 0.0030** | 0.0009 | 0.0015 | 0.1350 |
| | (0.71) | (-0.85) | (-1.23) | (-0.02) | (2.49) | (0.89) | (0.87) | (0.93) |
| Leading Index | -0.0001 | 0.0004 | -0.0012 | -0.0569 | -0.0007 | -0.0009 | 0.0002 | -0.0235 |
| | (-0.07) | (0.53) | (-0.78) | (-0.83) | (-0.92) | (-1.45) | (0.15) | (-0.22) |
| New Home Sales | -0.0015 | -0.0013 | 0.0057 | 0.192 | 0.0024 | 0.0021 | -0.0035 | -0.114 |
| | (-0.68) | (-0.65) | (1.07) | (0.90) | (1.49) | (1.14) | (-1.17) | (-0.48) |
| PPI MoM | 0.0003 | 0.0006 | 0.0022* | 0.0927 | -0.0008 | -0.0005 | -0.0015 | -0.110 |
| | (0.52) | (1.09) | (1.67) | (1.63) | (-1.34) | (-1.05) | (-1.41) | (-1.12) |
| Industrial Production | 0.0006 | 0.0012* | 0.0018 | 0.116 | -0.0001 | 0.0005 | 0.0010 | 0.109 |
| | (0.71) | (1.74) | (1.04) | (1.46) | (-0.16) | (0.64) | (1.07) | (1.27) |
| GDP | -0.0001 | -0.0006 | -0.0016 | -0.0262 | 0.0010 | 0.0005 | 0.0029 | 0.242 |
| | (-0.09) | (-0.57) | (-0.71) | (-0.28) | (1.13) | (0.42) | (1.65) | (1.59) |
| $N$ | 281 | 281 | 281 | 281 | 298 | 298 | 299 | 299 |
| $R^2$ | 0.006 | 0.023 | 0.031 | 0.025 | 0.049 | 0.019 | 0.034 | 0.027 |

*Notes:* Regressions of interest rate surprises calculated in a 30-min window around 2:00 PM ET on the day of the release of CPI (left panel) and the Employment Report (right panel) on most recent data news. Sample: January 1997 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

mented in Table 3. Results for the placebo predictive regressions are reported in Table 4 for the baseline sample and in Appendix Table D.4 for the full sample including the Covid years. Based on these placebo regression, it is not possible to detect any stable or systematic predictability either across samples, or across different data news. We take this as a validation of the predictive relationship established earlier. In particular, as a sign that it is the presence of detectable macro news in the interest rate surprises that gives rise to their predictability.

## 4.2 The Role of Contemporaneous News

This latter observation may suggest that the predictability of interest rate surprises calculated around (now actual) macroeconomic releases could stem from omitting the contemporaneous news that market participants are reacting to. For example, CPI $irs_t$ are the direct response of market participants to the current news in the CPI release. If the current CPI news correlates with other macro news—and the comovement among macroeconomic aggregates would suggest that it might—the predictive regressions in Table 3 may attribute predictive power to past news due to the omission of the current one. This would arise due to possible correlation across data news for different variables, rather than serial correlation in each data news. We address this point by augmenting the predictive regressions with the contemporaneous news around which each $irs_t$ is calculated. We focus on the two key releases in each case. Namely, headline and core CPI for the consumer price release, and NFP and the unemployment rate for the employment report. Results are reported in Table 5 for contemporaneous headline CPI and NFP news, and in Appendix Table D.5 for contemporaneous core CPI and unemployment rate news. The table displays the coefficients of the univariate regressions on the contemporaneous news in the top panel, and of the augmented predictive regressions in the bottom panel. Not surprisingly, on release days positive CPI/core CPI news leads to upward policy rate expectation revisions across the maturity spectrum. And the same holds true for positive (negative) nonfarm payroll (unemployment) news. Importantly, results in the tables show that the significance of either contemporaneous or past news is not altered when these are all included as explanatory variables. That is, controlling for contemporaneous news does not drive away the predictive relationship with past information established in Table 3.

## 4.3 Controlling for Other Policy-Related Events

A final concern may relate to the fact that while FOMC announcements are not scheduled to happen at the same time of the release of the CPI and the employment report, other monetary policy news may still fall within the $irs_t$ measurement windows,

## Table 5: Predictability of IRS using Past Data News: Role of Contemporaneous Headline CPI and NFP News

| | Surprises around CPI Release | | | | Surprises around Employment Report | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| **Panel A:** *Contemporaneous News Only* | | | | | | | | |
| CPI MoM (time $t$) | 0.0089*** | 0.0158*** | 0.0450*** | 0.801*** | | | | |
| | (2.91) | (3.04) | (4.79) | (4.37) | | | | |
| Nonfarm Payrolls (time $t$) | | | | | 0.0211*** | 0.0369*** | 0.0943*** | 1.193*** |
| | | | | | (6.43) | (8.65) | (9.31) | (9.56) |
| $N$ | 302 | 302 | 304 | 306 | 310 | 312 | 316 | 316 |
| $R^2$ | 0.043 | 0.044 | 0.110 | 0.099 | 0.180 | 0.275 | 0.345 | 0.325 |
| **Panel B:** *Augmented Predictive Regressions* | | | | | | | | |
| CPI MoM (time $t$) | 0.0107*** | 0.0187*** | 0.0512*** | 0.928*** | | | | |
| | (3.05) | (3.29) | (5.07) | (4.55) | | | | |
| Nonfarm Payrolls (time $t$) | | | | | 0.0238*** | 0.0421*** | 0.108*** | 1.371*** |
| | | | | | (6.18) | (8.47) | (8.49) | (8.96) |
| Nonfarm Payrolls | -0.0028 | -0.0023 | -0.0081 | -0.138 | -0.0037 | -0.0099** | -0.0242** | -0.310** |
| | (-0.80) | (-0.61) | (-1.18) | (-0.90) | (-1.09) | (-2.12) | (-2.03) | (-2.07) |
| ISM Manufacturing | -0.0004 | 0.0028 | -0.0028 | -0.0599 | -0.0040 | -0.0027 | -0.0086 | -0.126 |
| | (-0.18) | (0.56) | (-0.31) | (-0.40) | (-1.03) | (-0.50) | (-0.77) | (-0.87) |
| Leading Index | 0.0061*** | 0.0052* | 0.0116 | 0.241* | 0.0007 | 0.0016 | 0.0037 | 0.0680 |
| | (2.86) | (1.74) | (1.58) | (1.80) | (0.25) | (0.49) | (0.47) | (0.70) |
| New Home Sales | 0.0039 | 0.0136 | 0.0243 | 0.529 | 0.0003 | -0.0087 | -0.0156 | -0.199 |
| | (0.63) | (1.30) | (1.08) | (1.21) | (0.04) | (-0.88) | (-0.68) | (-0.63) |
| PPI MoM | -0.0032* | -0.0052* | -0.0084 | -0.190* | -0.0001 | -0.0029 | -0.0004 | -0.0151 |
| | (-1.86) | (-1.78) | (-1.61) | (-1.80) | (-0.05) | (-0.93) | (-0.05) | (-0.17) |
| Industrial Production | -0.0005 | 0.0018 | 0.0029 | 0.0514 | -0.0026 | -0.0026 | -0.0035 | -0.0671 |
| | (-0.32) | (0.82) | (0.59) | (0.58) | (-1.29) | (-0.96) | (-0.59) | (-0.87) |
| GDP | 0.0002 | 0.0003 | 0.0040 | 0.0189 | -0.0053 | -0.0090* | -0.0203* | -0.269* |
| | (0.06) | (0.05) | (0.38) | (0.09) | (-1.56) | (-1.90) | (-1.88) | (-1.95) |
| $N$ | 294 | 294 | 296 | 298 | 295 | 297 | 300 | 300 |
| $R^2$ | 0.092 | 0.071 | 0.142 | 0.139 | 0.218 | 0.314 | 0.392 | 0.373 |

*Notes:* Regressions of interest rate surprises calculated around the release of CPI and the Employment Report on contemporaneous (time $t$) and past data news. Sample: January 1997 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

thereby invalidating our case study.[20] In a recent contribution, Swanson and Jayawickrema (2024) have shown that Fed Chair speeches and congressional testimonies carry a significant amount of monetary policy news. These events do not follow a pre-set calendar as FOMC announcements do. But financial markets—including stocks, bonds, and interest rate futures—generally react to them more strongly than they do to classic monetary policy announcements. Hence, Fed Chair speeches and testimonies to Congress that happen to coincide with the release of the CPI or the employment report may well contaminate the $irs_t$ with monetary policy news. Over the sample used in this paper, there are 51 instances in which speeches or testimonies are scheduled on the same day of a release of either the CPI or the employment report. Of these, 9 happen at a time that falls within the $irs_t$ measurement windows.[21] In Appendix Table D.6 we remove these observations from the predictive regressions. We find that results are virtually identical to those reported in Table 3, suggesting that it is not contamination from other types of monetary policy news that makes the interest rate surprises predictable.

Taking stock, our results show that interest rate surprises calculated around key macroeconomic releases display the same predictability pattern as monetary policy surprises. The predictability is not due to the omission of contemporaneous news, nor is it a reflection of confounding monetary policy news conveyed by speeches or other public appearances of the Fed Chair. But, as our placebo regressions highlight, it is intrinsically linked to the presence of macro news in the $irs_t$.

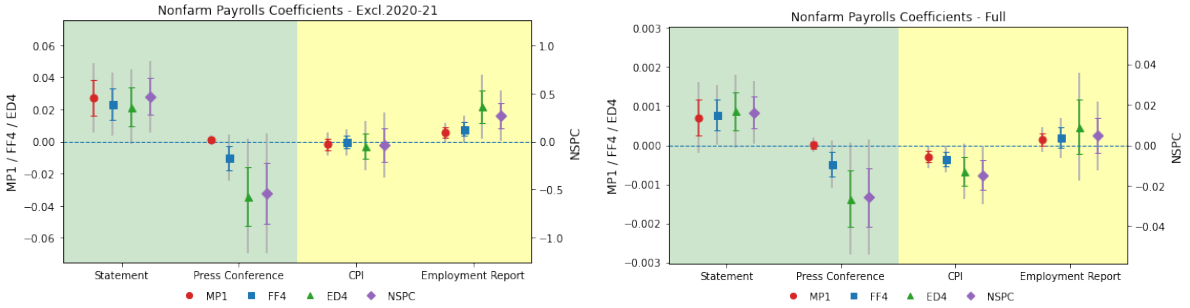
To highlight the similarity between the predictability patterns in $mps_t$ and $irs_t$, Figure 2 visualises the NFP news coefficients across type of surprises, maturity of the interest rate expectation revisions, as well as subsamples.[22] We use a green background to highlight the coefficients for monetary policy surprises, and a yellow background for the

[20] The CPI and employment report are both released by the U.S. Bureau of Labor Statistics (LBS) at 8:30 AM ET. Even in the cases in which the release date coincides with an FOMC policy announcement, the latter is typically scheduled at 2:00 PM ET, several hours after the close of the measurement window for the $irs_t$.

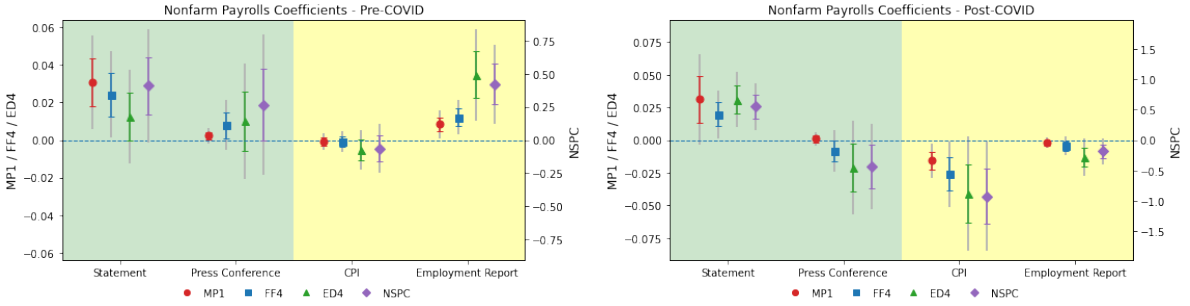
[21] We thank Eric Swanson for graciously sharing the dates and times of the conflicting speeches. We have retrieved the dates and timestamps of the Fed Chair's testimonies to Congress from the website of the Federal Reserve Board.

[22] The coefficients in the top-left subplot correspond to those in Tables 1 and 3. The coefficients plotted in the remaining subplots use estimates reported in Appendix Tables B.2 to B.4 for $mps_t$, and in Appendix Tables D.1 to D.3 for $irs_t$.

FIGURE 2: PAST NFP NEWS PREDICTS INTEREST RATE SURPRISES AROUND MONETARY EVENTS AND MACROECONOMIC RELEASES




(a) baseline (b) 1997-2025




(a) 1997-2019 (b) 2020-2025

*Notes*: Each subplot reports the coefficient of the most recent NFP news on interest rate surprises calculated around monetary policy events (FOMC statements and press conferences, green background) and around data releases (CPI and employment report, yellow background). MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). Multivariate regressions including data news of various releases and a constant. Huber-White standard errors.

interest rate surprises around macroeconomic releases. In all cases, the NFP news is the most recent publication available to market participants at the time of the event that triggers the policy rate expectation revisions. The coefficients for the regressions with the principal component as the dependent variable (NSPC, purple diamonds) are plotted on the right-axis, to accommodate the different scaling.

The figure effectively summarises the main results noted in this section and in Section 3. Namely, the strong predictability of both $mps_t$ and $irs_t$ surprises across the board, the changing correlation between statement and press conference surprises in the pre and post 2020 samples, the importance of NFP news for CPI $irs_t$ in the most recent years, and the strong predictability of unemployment $irs_t$.

# 5 Discussion of the Results

To guide the discussion, consider the simplified framework introduced in Section 1, in which the central bank sets the level of the policy rate using Eq. (1), reported below for convenience

$$i_t = f_t(\Omega_{t:t+h|t}) + e_t \ . \tag{1}$$

As shown in Section 3, under the assumption of a constant risk premium, monetary policy surprises capture the revisions in market-based policy rate expectations due to the policy announcement, namely

$$mps_t = \Delta\mathbb{E}_t(i_{t+h}) + \varsigma_t \qquad \varsigma_t \sim WN(0, \sigma_\varsigma) \ , \tag{6}$$

where $\varsigma_t$ denotes a possible white noise measurement error. Under the additional assumptions that markets know the Fed's reaction function, and that their respective view of the outlook coincide, they can also be interpreted as a measure of the monetary policy shock. That is,

$$mps_t = e_t + \varsigma_t \qquad \varsigma_t \sim WN(0, \sigma_\varsigma) \ . \tag{7}$$

The formalisation in Eq. (7), together with its underlying assumptions, have been used in the earlier literature to identify the effects of monetary policy shocks in a variety of settings (e.g. Campbell, Evans, Fisher and Justiniano, 2012; Gertler and Karadi, 2015; Nakamura and Steinsson, 2018, among many others).

The predictability of monetary policy surprises using public information that predates the FOMC announcements, first documented in Miranda-Agrippino (2016), has challenged this notion in a profound way. Crucially, the predictability stands at odds with the idea that monetary policy surprises are only a function of monetary policy shocks. Rather, it signals that they also correlate with the systematic component of policy, encapsulated in the term $f_t(\Omega_{t:t+h|t})$ in Eq. (1). That is, at the time of the monetary policy announcements, market participants may also learn about the Fed's view of the economy ($\Omega_{t:t+h|t}$), about its reaction function ($f_t$), or indeed about both.[23]

[23] In Section 3 we have shown that while risk premia may not be constant around FOMC announcements, their variation is not what causes monetary policy surprises to be endogenous to the economic cycle, and hence predictable. We will therefore abstract from the role of risk premia in what follows.

According to the Fed information effect interpretation, market participants learn primarily about the Fed's view of the outlook ($\Omega_{t:t+h|t}$, see e.g. Melosi, 2016; Nakamura and Steinsson, 2018; Jarociński and Karadi, 2020; Miranda-Agrippino and Ricco, 2021). This interpretation centres on the notion that the reaction function, albeit time-varying, is a relatively slow-moving object (see e.g. Primiceri, 2005; Cogley and Sargent, 2005; Kim and Nelson, 2006). One may postulate that more discrete changes are introduced as the composition of the Committee changes (as in e.g. Hack, Istrefi and Meier, 2023), or following strategy reviews that introduce new framings of the policy objectives (e.g. Powell, 2020, 2025). But it is unlikely that it would be a regular occurrence. Indeed, transparent communication and stable and predictable monetary policy have served as critical guiding principles for the conduct of the Fed over the recent decades (e.g. Bernanke, 2013; Yellen, 2016; Powell, 2025). At the same time, this interpretation requires that the information sets of the central bank and of market participants differ, such that their forecasts are not aligned. Some have challenged this view on the basis that this requirement should be interpreted in its more stringent form, whereby the central bank's information set is superior to that of the markets. That is, the Fed ought to know more about future economic developments than market participants do for an information transfer to happen.

While earlier studies had noted a superior accuracy of Fed's forecasts relative to private sector forecasts, the more recent evidence is more mixed, and generally suggesting that the forecast accuracy is in fact comparable, albeit with some exceptions at longer horizons (see e.g. Romer and Romer, 2000; Jung, El-Shagi and Giesen, 2014; Paul, 2020; Hoesch, Rossi and Sekhposyan, 2023). However, it is important to note that while sufficient, this is not in fact a necessary condition for the information effect to arise. While it may well be the case that ex post the information sets of market participants and of the Fed may turn out to be not that dissimilar, it remains true that this is an assessment that can only be done a posteriori.[24] At the time of FOMC announcements, the Fed's view of the economy—whether more or less accurate than that of the public—is the one based upon which monetary policy decisions are taken, and remains unknown to the public at large. Indeed, the collection of official forecasts the underlie the policy decisions are

[24]Note also that, typically, these assessments compare the performance of the Fed's forecasts with that of a consensus among private sector contributors which, being effectively a combination of different forecasts, tends to be more accurate than any individual ones on average.

only published with a lag of several years, implying that there is still scope for market participants to learn about the Fed's view of the economy, using information disclosed in the policy statements and the press conferences that follow them.

The ex-post comparable accuracy between the Fed and private sector forecasts has nonetheless led some to dismiss the information effect interpretation in favour of the alternative Fed's response to news (Bauer and Swanson, 2023a,b). According to this view, if there can be no learning about the rule's inputs, it must be the case that market participants are learning about how the Fed responds to economic developments. That is, about $f_t$. Bauer, Pflueger and Sunderam (2024) estimate a perceived reaction function using data from professional forecasters and show that indeed the perceived coefficients are updated following monetary policy announcements, albeit admittedly only with some delay. That is, not necessarily at the time of the announcements.

In practice, these two interpretations are by and large observationally equivalent. As noted, they are both detected by appealing to the predictability of monetary policy surprises. They both give rise to counterintuitive responses of macroeconomic variables. And they are both accounted for in empirical analyses by essentially removing the predictable component of monetary policy surprises, by projecting them on reduced-form expressions of the structural shocks to which the Fed responds.

Our paper's premise is that if the predictability of interest rate surprises were to stem solely from a Fed response to news effect, all else equal, one should not expect it to be present when market participants are unable to learn about the Fed's behaviour by design. The novel evidence reported in Section 4 should be understood in this context. Interest rate surprises calculated around macroeconomic releases capture revisions in market-based policy rate expectations in a manner similar to monetary policy surprises. That is,

$$irs_t = \Delta \mathbb{E}_t(i_{t+h}) + \varsigma_t \qquad \varsigma_t \sim WN(0, \sigma_\varsigma) \ , \tag{8}$$

where again we use $\varsigma_t$ to denote a possible white noise measurement error. Taken at face value, Eq. (8) is equivalent to Eq. (6). The critical difference between $mps_t$ and $irs_t$, however, is that while in the former case the revision in market-based policy expectations $\Delta \mathbb{E}_t(i_{t+h})$ can in principle be due to a combination of both systematic and unsystematic

monetary policy—i.e. to any of $f_t$, $\Omega_{t:t+h|t}$, and $e_t$—in the latter it can only be due to changes in the forecasts of the economic outlook.[25] As market participants update their interest rate projections following the release of macroeconomic data, they must do so while holding the policy rule fixed, and conditioning on the absence of monetary policy shocks. Indeed, by design, there is nothing that markets can learn about how the Fed may want to respond to the data just released. But they can and do learn about the economic outlook. It follows that the predictability of $irs_t$ can be ascribed to an "explicit information effect", this time triggered by the publication of macroeconomic data, but that similarly prompts an update of economic forecasts.[26]

Our interpretation of the results in Sections 3 and 4 is that the mechanism underlying the predictability of both $mps_t$ and $irs_t$ is to a large extent equivalent. In one case, the macroeconomic outlook, and hence the policy outlook, are revised due to explicit macro news being released. In the other, due to information implicitly disclosed by Fed officials at the time of policy announcements.

It should be noted that the evidence in this paper does not rule out that market participants may, at times, also be learning about $f_t$. But it certainly rejects the notion that an information effect—intended as an implicit update of the economic forecasts—is absent. In other words, allowing for a Fed response to news effect does not by itself preclude that information effects may also be present, or indeed prevalent. This notion finds support also in other recent contributions. Acosta (2023) shows that the effects of FOMC communication shocks that lead to a revision in expectations about the macroeconomic outlook persist also after controlling for a concomitant Fed response to news channel. Similar conclusions are reached in Jarociński and Karadi (2025) using a different identification strategy, and in Ricco and Savini (2025) who allow for the presence of both

[25] An equivalent assumption is made in Zhu (2023) to extract an FOMC information shock using daily changes in interest rates around the release of macroeconomic data.

[26] Again here we stress the direct effects. Gürkaynak, Sack and Swanson (2005a) note that a model in which the public is allowed to learn about the long-run inflation target from monetary policy announcements can account for a number of regularities in the response of long-term interest rates to both monetary and macroeconomic news. Also in that case, however, macro news is not directly informative about the long-run policy target. A scenario in which the public would be able to extract signals about the Fed's preferences from macro news alone would have to plausibly equip them with quite a sophisticated algorithm able to disentangle economic shocks from policy preference shocks in real time. It is also worth noting that, over the sample used in this paper, long-horizon inflation expectations have remained remarkably stable within the range 2-2.5%, see e.g. https://www.philadelphiafed.org/surveys-and-data/cpi10.

channels, and note that the effects of shocks to the parameters of Fed's rule tend to be second-order relative to information effects. Complementary evidence is also reported in Swanson and Jayawickrema (2024), that show that controlling for the Fed response to news is not necessarily sufficient to remove real activity puzzles in VARs. It is worthwhile to note that the reverse is generally not true. For example, Miranda-Agrippino (2016); Miranda-Agrippino and Ricco (2021) show that once orthogonalising with respect to the Fed's information set, $mps_t$ are no longer predictable by past public information.

# 6 Conclusions

In this paper, we have provided novel evidence that helps to shed light on the empirical prevalence of instances in which market participants learn about the Fed's view of the economy, relative to learning about the Fed's reaction function. We have set up a case study in which we have compared the properties of market-based revisions of policy rate expectations following two classes of events. On the one hand, Fed events, like FOMC decision announcements and post-meeting press conferences, where markets can update their policy projections due to a combination of both systematic and unsystematic monetary policy. On the other hand, non-Fed events, like the release of the CPI and of the employment report, where markets can only update their view of the policy path due to an update of their own forecast of the macroeconomic outlook.

Our results show that FOMC press conference surprises inherit the same predictability pattern noted for FOMC statements. Moreover, and importantly, they show that the predictability pattern persists also when interest rate surprises are calculated around key macroeconomic releases. That is, when there is no scope for market participants to learn about the Fed's behaviour. More broadly, we show that market participants update their policy projections in a remarkably similar way, whether they are prompted with policy news, or news about the economy. Finally, by relaxing the assumption of constant risk premia around FOMC announcements, we further show that information frictions that are relevant for the empirical identification of monetary policy shocks operate in addition to any variation in risk compensations.

Taken together, our results show that market participants operate under a model

that tightly maps macroeconomic news into policy projections, regardless of the ultimate origin of the public signal. While this does not rule out that at times markets may also learn about the policy rule, it gives more weight to the notion that the predictability arises due to markets updating their view of the economic outlook, whether implicitly and based on signals from Fed officials, or explicitly after the release of macroeconomic data.

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# Online Appendix

## Interest Rate Surprises When the Fed Doesn't Speak

Silvia Miranda-Agrippino  John C. Williams

## Table of Contents

# A Additional Details on Data

Table A.1 lists the data releases used to construct the data news, their release schedule and sample availability.

Table A.2 reports summary statistics for interest rate surprises calculated around FOMC statements and press conferences.

Table A.3 reports summary statistics for interest rate surprises calculated around the CPI and unemployment release.

Table A.4 reports summary statistics for placebo interest rate surprises calculated on the days of the release of the CPI and unemployment report but at 2:00 PM ET.

Figure A.1 plots the monetary policy surprises calculated around FOMC statements.

Figure A.2 plots the monetary policy surprises calculated around FOMC press conferences.

Figure A.3 plots the interest rate surprises calculated around the CPI release.

Figure A.4 plots the interest rate surprises calculated around the unemployment release.

Table A.1: US Data Releases

| Variable | Timing | Sample |
|---|---|---|
| Non-Farm Payrolls | Beginning of month at 8:30 AM for prior month | 01/10/1997 – 06/06/2025 |
| Unemployment Rate | Beginning of month at 8:30 AM for prior month | 01/10/1997 – 06/06/2025 |
| GDP | Advanced, Second, and Third release | 04/30/1997 – 06/26/2025 |
| Industrial Production | Mid-month at 9:15 AM for prior month | 11/15/1996 - 05/15/2025 |
| Factory Orders | Beginning of month at 10:00 AM for two months prior | 11/01/1996 – 06/03/2025 |
| New Home Sales | End of the month at 10:00 AM for the prior month | 08/29/1997 – 05/23/2025 |
| CPI | Mid-month at 8:30 AM for prior month | 12/12/1996 – 06/11/2025 |
| Core CPI | Mid-month at 8:30 AM for prior month | 01/14/1997 – 06/11/2025 |
| PPI | Mid-month at 8:30 AM for two months prior | 12/12/1997 – 06/12/2025 |
| Consumer Confidence | End of month at 10:00 AM for current month | 02/15/1997 – 05/27/2025 |
| Leading Index | Mid-month at 10:00 AM for prior month | 12/30/1996 – 05/19/2025 |
| ISM Manufacturing | Beginning of month at 10:00 AM for prior month | 11/01/1996 – 06/02/2025 |
| ISM Services Index | Beginning of month at 10:00 AM for prior month | 02/05/2008 – 06/04/2025 |

*Notes:* Release date-times (all in ET) are retrieved from Bloomberg.

Table A.2: MPS Summary Statistics

| | Statements | | | Press Conference | | |
|---|---|---|---|---|---|---|
| | Mean | Std Dev | Autocorr | Mean | Std Dev | Autocorr |
| MP1 | -0.0125 | 0.0662 | 0.0311 (0.632) | -0.0002 | 0.0055 | -0.2141 (0.055) |
| FF4 | -0.0067 | 0.0481 | 0.1272 (0.049) | -0.0047 | 0.0236 | 0.1260 (0.262) |
| ED4 | -0.0090 | 0.0649 | -0.0097 (0.881) | -0.0112 | 0.0602 | 0.1244 (0.269) |
| NSPC | 2e-9 | 1 | 0.0750 (0.247) | -2e-10 | 1 | 0.1589 (0.156) |

*Notes:* Summary statistics for interest rate surprises calculated around FOMC statements and press conferences. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). P-values in parentheses. Sample January 1997 to January 2025.

Table A.3: IRS Summary Statistics

| | CPI | | | Unemployment | | |
|---|---|---|---|---|---|---|
| | Mean | Std Dev | Autocorr | Mean | Std Dev | Autocorr |
| MP1 | -0.0011 | 0.0169 | -0.0899 (0.103) | -0.0006 | 0.0239 | 0.0953 (0.084) |
| FF4 | -0.0017 | 0.0296 | -0.0424 (0.442) | -0.0016 | 0.0338 | 0.0820 (0.135) |
| ED4 | -0.0001 | 0.0531 | -0.0045 (0.934) | -0.0024 | 0.0766 | -0.0297 (0.585) |
| NSPC | -6e-11 | 1 | -0.0313 (0.564) | -7e-10 | 1 | 0.0217 (0.690) |

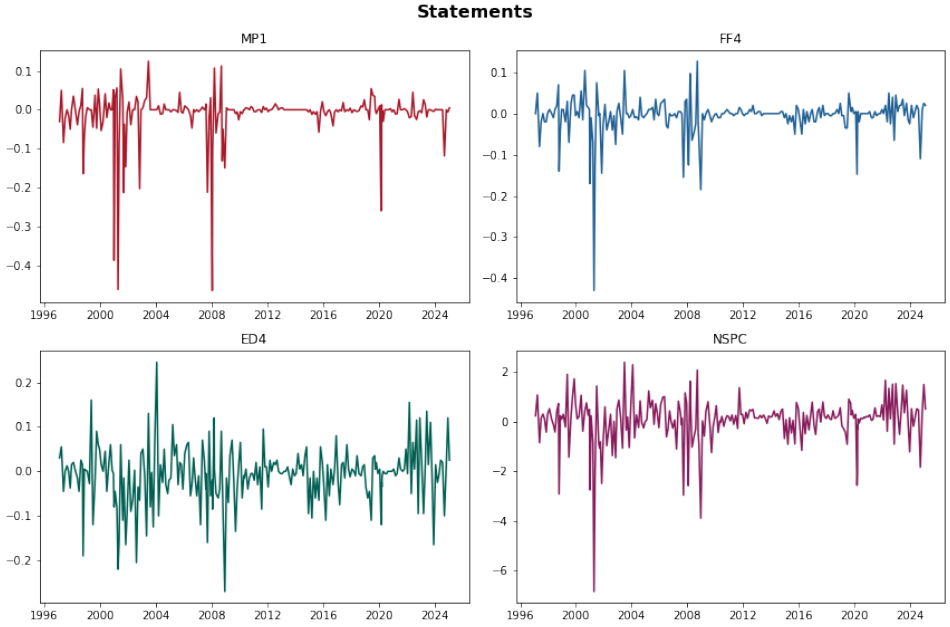
*Notes:* Summary statistics for interest rate surprises calculated around the release of CPI and the unemployment report. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). P-values in parentheses. Sample January 1997 to January 2025.

## Table A.4: Placebo IRS Summary Statistics

| | CPI | | | Unemployment | | |
|---|---|---|---|---|---|---|
| | Mean | Std Dev | Autocorr | Mean | Std Dev | Autocorr |
| MP1 | -0.0002 | 0.0081 | -0.1945 (0.0006) | -0.0001 | 0.0071 | -0.0923 (0.0913) |
| FF4 | -0.0006 | 0.0066 | 0.1035 (0.0682) | 0.0001 | 0.0061 | 0.0901 (0.0991) |
| ED4 | 0.0004 | 0.0144 | 0.0092 (0.8721) | -0.0001 | 0.0110 | 0.0064 (0.9061) |
| NSPC | 0.0607 | 0.6100 | 0.0453 (0.4256) | 0.0002 | 1.0015 | -0.0507 (0.3516) |

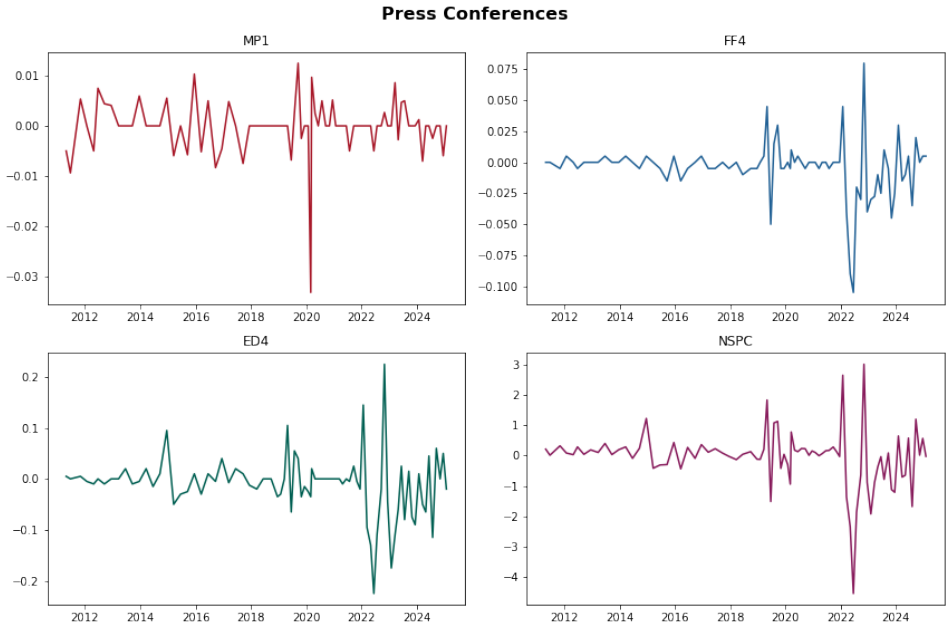
*Notes:* Summary statistics for placebo $irs_t$ calculated on the day of the release of CPI and the unemployment report but at 2:00 PM ET. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). P-values in parentheses. Sample January 1997 to January 2025, excludes FOMC announcements that fall within the placebo $irs_t$ measurement window.

## Figure A.1: Monetary Policy Surprises Around FOMC Statements



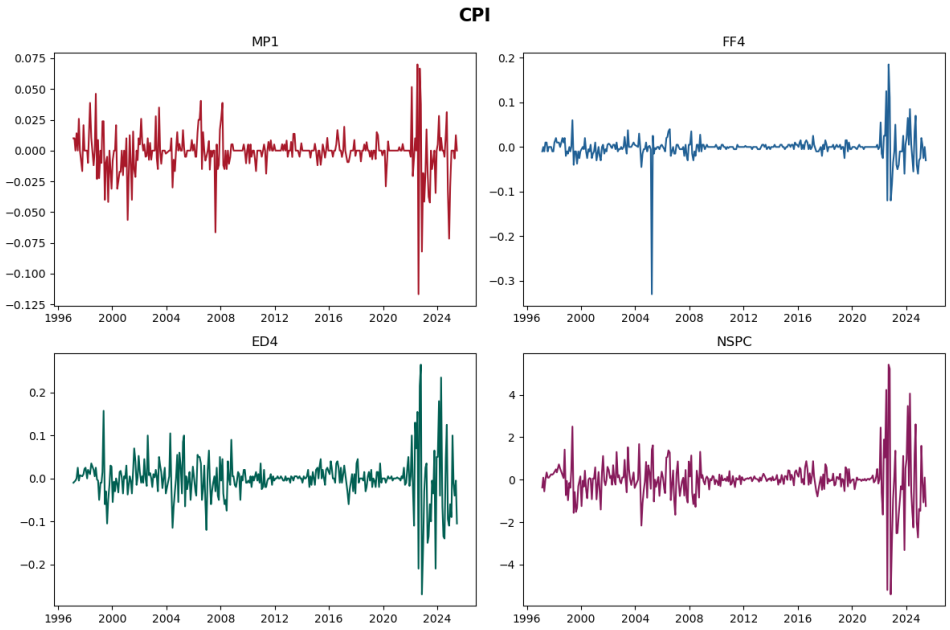

*Notes*: MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018).

## Figure A.2: Monetary Policy Surprises Around FOMC Press Conferences



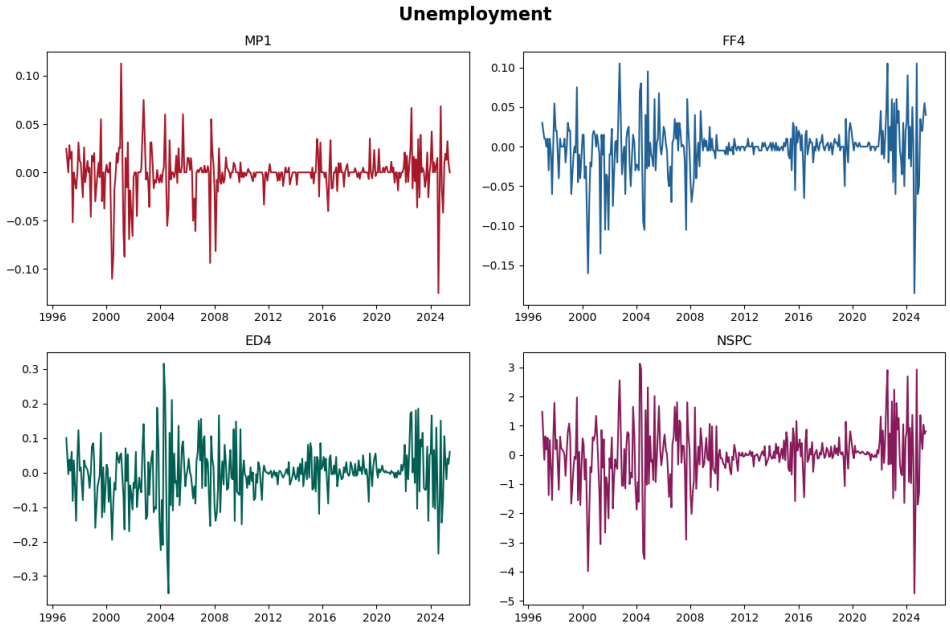

*Notes*: MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018).

FIGURE A.3: INTEREST RATE SURPRISES AROUND CPI RELEASE




*Notes*: MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018).

## Figure A.4: Interest Rate Surprises Around Employment Report Release




*Notes*: MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018).

# B Robustness & Additional Results: MPS

Table B.1 reports results for the predictability of monetary policy surprises around FOMC statements and press conferences using the most recent data news over the baseline sample. Monetary policy surprises around the press conference are calculated using an extended 100-minute window that ends 90 minutes after the beginning of the press conference. The left hand side of the table is the same as Table 1.

Table B.2 reports results for the predictability of monetary policy surprises around FOMC statements and press conferences using the most recent data news over the 1997-2025 sample.

Table B.3 reports results for the predictability of monetary policy surprises around FOMC statements and press conferences using the most recent data news over the 1997-2019 sample.

Table B.4 reports results for the predictability of monetary policy surprises around FOMC statements and press conferences using the most recent data news over the 2020-2025 sample.

Table B.5 reports results for the predictability of monetary policy surprises around FOMC statements and press conferences using the most recent data news over the 2022-2025 sample.

## Table B.1: Predictability of MPS using Past Data News
## Extended Press Conference Window, Baseline Sample, Pre-COVID Scale

| | **Surprises around FOMC Statements** | | | | **Surprises around FOMC Press Conferences** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | 0.0271** | 0.0233** | 0.0215* | 0.472** | 0.00169 | -0.0132* | -0.0381** | -0.639* |
| | (2.48) | (2.33) | (1.80) | (2.46) | (1.58) | (-1.69) | (-2.00) | (-1.89) |
| ISM Manufacturing | 0.0156 | 0.0142 | 0.0327** | 0.358 | 0.00130 | 0.00405 | 0.0322 | 0.365 |
| | (0.85) | (1.40) | (2.05) | (1.56) | (0.61) | (0.41) | (1.53) | (0.98) |
| Leading Index | 0.00615 | -0.00301 | -0.00549 | -0.0525 | 0.00149 | 0.00979** | 0.0190 | 0.335 |
| | (0.95) | (-0.48) | (-0.58) | (-0.41) | (1.39) | (2.04) | (1.48) | (1.58) |
| Factory Orders | -0.0165 | -0.00254 | 0.0225 | 0.151 | 0.00409* | -0.00470 | 0.00752 | -0.0499 |
| | (-0.79) | (-0.22) | (1.18) | (0.54) | (1.83) | (-0.26) | (0.18) | (-0.08) |
| New Home Sales | 0.0130 | -0.00148 | -0.0170 | -0.149 | 0.00356 | 0.0440 | 0.0968 | 2.201* |
| | (0.54) | (-0.10) | (-0.76) | (-0.43) | (1.27) | (1.57) | (1.55) | (1.89) |
| CPI MoM | -0.000994 | -0.00265 | 0.00141 | 0.00633 | -0.00170 | 0.00130 | 0.00226 | -0.122 |
| | (-0.11) | (-0.30) | (0.10) | (0.03) | (-1.50) | (0.12) | (0.08) | (-0.27) |
| Observations | 213 | 213 | 213 | 213 | 65 | 65 | 65 | 65 |
| $R^2$ | 0.049 | 0.058 | 0.068 | 0.066 | 0.140 | 0.187 | 0.161 | 0.223 |

*Notes:* Regressions of monetary policy surprises calculated around FOMC statements and press conferences on most recent data news. Press conference window from 10 minutes before to 90 minutes after the beginning of the press conference. Sample: January 1997 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table B.2: Predictability of MPS using Past Data News
## Full Sample, Pre-COVID Scale

| | **Surprises around FOMC Statements** | | | | **Surprises around FOMC Press Conferences** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | 0.00071 | 0.00078** | 0.00087* | 0.0162** | 0.000008 | -0.00048 | -0.00137* | -0.0257* |
| | (1.52) | (2.01) | (1.82) | (2.05) | (0.09) | (-1.54) | (-1.86) | (-1.78) |
| ISM Manufacturing | 0.0179 | 0.0150 | 0.0328** | 0.385* | 0.00120 | 0.000210 | 0.0131 | 0.155 |
| | (1.04) | (1.60) | (2.33) | (1.89) | (0.66) | (0.03) | (0.86) | (0.55) |
| Leading Index | -0.00296 | -0.00683 | -0.00881 | -0.149 | -0.000378 | 0.00920** | 0.0203** | 0.338* |
| | (-0.37) | (-1.12) | (-1.00) | (-1.13) | (-0.25) | (2.31) | (2.06) | (1.94) |
| Factory Orders | -0.0164 | -0.00270 | 0.0242 | 0.177 | -0.000540 | -0.00474 | -0.00602 | -0.196 |
| | (-0.78) | (-0.23) | (1.33) | (0.64) | (-0.15) | (-0.32) | (-0.18) | (-0.36) |
| New Home Sales | 0.00556 | -0.00398 | -0.0210 | -0.228 | 0.00256 | 0.0263 | 0.0690 | 1.507* |
| | (0.27) | (-0.31) | (-1.07) | (-0.75) | (1.08) | (1.41) | (1.56) | (1.78) |
| CPI MoM | 0.00515 | 0.00237 | 0.00509 | 0.0819 | -0.000220 | 0.00127 | 0.00365 | -0.00348 |
| | (0.57) | (0.29) | (0.39) | (0.44) | (-0.15) | (0.14) | (0.16) | (-0.01) |
| $N$ | 234 | 234 | 234 | 234 | 82 | 82 | 82 | 82 |
| $R^2$ | 0.012 | 0.016 | 0.052 | 0.029 | 0.011 | 0.097 | 0.090 | 0.123 |

*Notes:* Regressions of monetary policy surprises calculated around FOMC statements and press conferences on most recent data news. Sample: January 1997 to January 2025. Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table B.3: Predictability of MPS using Past Data News
## Pre-COVID Sample, Pre-COVID Scale

| | **Surprises around FOMC Statements** | | | | **Surprises around FOMC Press Conferences** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | 0.0306** | 0.0243** | 0.0124 | 0.408* | 0.00233 | 0.00789 | 0.0101 | 0.265 |
| | (2.41) | (2.09) | (0.97) | (1.87) | (1.13) | (1.16) | (0.64) | (0.98) |
| ISM Manufacturing | 0.0167 | 0.0129 | 0.0271 | 0.298 | 0.000439 | -0.00700 | -0.00265 | -0.111 |
| | (0.87) | (1.22) | (1.64) | (1.26) | (0.18) | (-1.23) | (-0.18) | (-0.46) |
| Leading Index | 0.00517 | -0.00380 | 0.00241 | 0.00239 | -0.000271 | 0.000368 | 0.000586 | -0.0268 |
| | (0.70) | (-0.53) | (0.25) | (0.02) | (-0.17) | (0.10) | (0.05) | (-0.14) |
| Factory Orders | -0.0176 | 0.000947 | 0.0288 | 0.246 | 0.00784* | 0.00762 | -0.0108 | -0.0334 |
| | (-0.75) | (0.07) | (1.46) | (0.80) | (1.88) | (0.83) | (-0.38) | (-0.08) |
| New Home Sales | 0.0207 | 0.00597 | -0.00774 | 0.0410 | 0.00595 | 0.0133 | 0.0391 | 0.669 |
| | (0.79) | (0.40) | (-0.34) | (0.12) | (0.88) | (0.81) | (0.87) | (0.96) |
| CPI MoM | -0.00293 | -0.00266 | 0.00436 | 0.00158 | -0.00454* | -0.00261 | -0.0129 | -0.229 |
| | (-0.27) | (-0.27) | (0.29) | (0.01) | (-1.97) | (-0.72) | (-0.74) | (-0.98) |
| $N$ | 188 | 188 | 188 | 188 | 40 | 40 | 40 | 40 |
| $R^2$ | 0.054 | 0.052 | 0.054 | 0.050 | 0.145 | 0.094 | 0.044 | 0.056 |

*Notes:* Regressions of monetary policy surprises calculated around FOMC statements and press conferences on most recent data news. Sample: January 1997 to December 2019. Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table B.4: Predictability of MPS using Past Data News
## Post-COVID Sample, Post-COVID Scale

| | **Surprises around FOMC Statements** | | | | **Surprises around FOMC Press Conferences** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | 0.0313* | 0.0196** | 0.0308*** | 0.551*** | 0.000952 | -0.00851 | -0.0212 | -0.433 |
| | (1.76) | (2.13) | (2.84) | (2.78) | (0.36) | (-1.06) | (-1.17) | (-1.20) |
| ISM Manu | 0.0333 | 0.0244* | 0.0671** | 0.925** | 0.00252 | 0.00589 | 0.0319 | 0.392 |
| | (1.27) | (1.77) | (2.15) | (2.26) | (0.69) | (0.33) | (0.85) | (0.56) |
| Leading Index | -0.0987 | -0.0610 | -0.118** | -1.923** | -0.00516 | 0.0374 | 0.0790 | 1.412 |
| | (-1.39) | (-1.60) | (-2.28) | (-2.27) | (-0.51) | (1.56) | (1.48) | (1.37) |
| Factory Orders | -0.0213 | -0.0309 | 0.0219 | -0.0362 | -0.00668 | -0.0113 | 0.0134 | -0.175 |
| | (-0.45) | (-1.09) | (0.34) | (-0.05) | (-0.98) | (-0.38) | (0.21) | (-0.17) |
| New Home Sales | -0.0134 | -0.0124 | -0.0262* | -0.407* | 0.00184* | 0.0125 | 0.0315 | 0.695* |
| | (-1.36) | (-1.45) | (-1.89) | (-2.00) | (1.91) | (1.45) | (1.44) | (1.76) |
| CPI MoM | 0.0203 | 0.00206 | -0.0218 | -0.0972 | 0.00246 | 0.00703 | 0.0277 | 0.381 |
| | (0.93) | (0.13) | (-0.94) | (-0.28) | (0.86) | (0.42) | (0.67) | (0.53) |
| $N$ | 46 | 46 | 46 | 46 | 42 | 42 | 42 | 42 |
| $R^2$ | 0.197 | 0.213 | 0.226 | 0.287 | 0.089 | 0.141 | 0.135 | 0.181 |

*Notes:* Regressions of monetary policy surprises calculated around FOMC statements and press conferences on most recent data news. Sample: January 2020 to January 2025. Data news are standardised using the standard-deviation calculated over the same sample. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table B.5: Predictability of MPS using Past Data News
## 2022-2025, Pre-COVID Scale

| | **Surprises around FOMC Statements** | | | | **Surprises around FOMC Press Conferences** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | 0.00195 | 0.00823 | 0.0195 | 0.232 | 0.00138 | -0.0217* | -0.0667** | -1.069** |
| | (0.18) | (0.56) | (0.55) | (0.59) | (1.13) | (-1.96) | (-2.19) | (-2.25) |
| ISM Manufacturing | 0.000507 | 0.0530* | 0.181** | 1.973** | 0.000139 | 0.0451 | 0.145 | 2.122 |
| | (0.02) | (1.86) | (2.57) | (2.59) | (0.03) | (1.17) | (1.67) | (1.50) |
| Leading Index | -0.00180 | 0.00290 | -0.00729 | -0.0702 | 0.00264** | 0.0109 | 0.0216 | 0.460 |
| | (-0.14) | (0.24) | (-0.24) | (-0.23) | (2.24) | (0.67) | (0.57) | (0.77) |
| Factory Orders | 0.00277 | 0.00284 | 0.0539 | 0.491 | 0.000933 | -0.00377 | 0.0385 | 0.338 |
| | (0.16) | (0.16) | (0.84) | (0.77) | (0.32) | (-0.10) | (0.51) | (0.28) |
| New Home Sales | -0.0606 | -0.0694 | -0.122 | -1.950* | 0.00794** | 0.0857 | 0.199 | 4.261* |
| | (-1.07) | (-1.22) | (-1.70) | (-1.82) | (2.24) | (1.55) | (1.46) | (1.92) |
| CPI MoM | -0.00348 | -0.0267 | -0.0669* | -0.729* | 0.000472 | 0.00786 | 0.0241 | 0.163 |
| | (-0.32) | (-1.51) | (-1.84) | (-1.74) | (0.32) | (0.31) | (0.39) | (0.17) |
| $N$ | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| $R^2$ | 0.180 | 0.341 | 0.387 | 0.442 | 0.315 | 0.307 | 0.318 | 0.421 |

*Notes:* Regressions of monetary policy surprises calculated around FOMC statements and press conferences on most recent data news. Sample: January 2022 to January 2025. Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

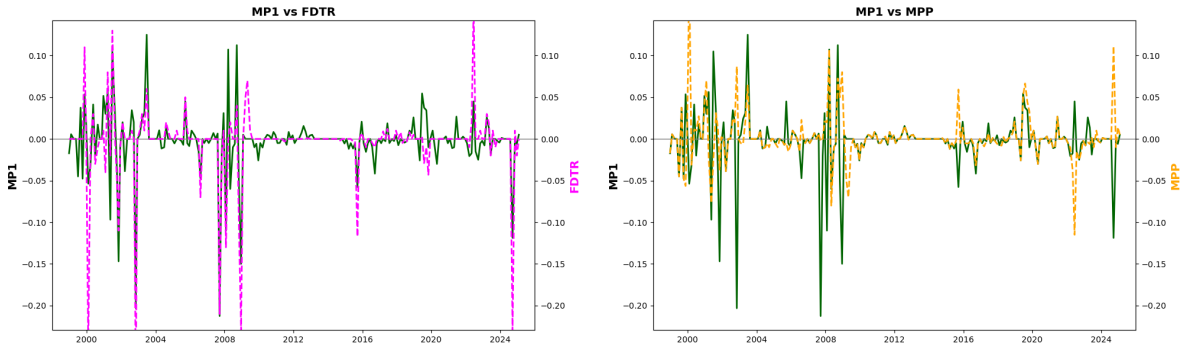
# C Monetary Policy Premium

A by-product of the decomposition used in Section 3 is an estimate of the variation in the instant ($h = 0$) risk premium around FOMC announcements, $\Delta\nu_t^{(0)}$. The model-free nature of this estimate of the term premium, which builds on the intuition developed in Crump, Eusepi and Moench (2016), implies that the estimated change in the risk premium may also capture differences between the expectations of the marginal investor and consensus expectations, or other frictions in futures market, in addition to genuine shifts in investors' risk attitudes. That said, it is interesting to note a few notable properties of the estimated $\Delta\nu_t^{(0)}$, which we refer to in what follows as the Monetary Policy Premium, or MPP.

Figure C.1 plots the MP1 surprise against the survey-based expectation revision (panel a), and against the implied change in the monetary policy premium (MPP, panel b) over all scheduled FOMC announcements between December 1998 and January 2025. Unsurprisingly, the survey and market-based revisions are strongly positively correlated. Across both measures, a clear asymmetry emerges in the way the public is primed ahead of upcoming policy changes, such that easing surprises are on average an order of magnitude larger than tightening surprises (see also Table C.1). Conditional on there being a policy change, survey-based revisions tend to be larger in absolute value relative to the market-implied ones. As a consequence, the estimated change in the MPP is typically positive during easing cycles, and negative during tightening episodes. Very interestingly, however, the correlation between a positive market surprise and the associated negative change in the MPP is only significant for tightening episodes, which is suggestive of monetary policy tightenings leading to a significant compression of risk (Table C.1, see also Bauer, Lakdawala and Mueller, 2021; Baker, Bloom, Davis and Sammon, 2021).

In Table 2 we showed that the MPP is strongly predictable by past macroeconomic news and, differently from either of the remaining components, owes much of its predictability to inflation news. Higher than expected inflation, which is associated with future tightening surprises, significantly predicts a compression in the MPP, suggesting that inflation risk may be its primary driver. In Table C.2 we compare the MPP with the daily change in implied variances calculated from LIBOR/SOFR options-implied dis-

FIGURE C.1: HIGH-FREQUENCY MONETARY POLICY PREMIUM




(a) survey-based $\Delta\mathbb{E}_t(i_t)$ (b) high-frequency $\Delta\nu_t^{(0)}$

*Notes*: Panel (a) plots the MP1 monetary policy surprise (green, solid) and the survey-based expectation revision about the current policy rate (purple, dashed). Panel (b) plots the MP1 monetary policy surprise (green, solid) and the implied change in the monetary policy premium around FOMC announcements (orange, dashed). All scheduled FOMC announcements between December 1998 and January 2025.

TABLE C.1: MPP SUMMARY STATISTICS

| | **MP1** | | **FDTR** | | **MPP** | | **MP1 & MPP** |
|---|---|---|---|---|---|---|---|
| | Mean | Std Dev | Mean | Std Dev | Mean | Std Dev | Correlation |
| Full sample | -0.0031 | 0.0367 | -0.0054 | 0.0469 | 0.0016 | 0.0288 | 0.024 (0.73) |
| Easing | -0.0280 | 0.0937 | -0.0513 | 0.1033 | 0.0234 | 0.0515 | 0.079 (0.71) |
| Tightening | 0.0021 | 0.0222 | 0.0067 | 0.0500 | -0.0046 | 0.0388 | -0.289 (0.06) |
| No change | -0.0004 | 0.0169 | -0.0003 | 0.0149 | -0.0001 | 0.0157 | 0.586 (0.00) |
| Any change | -0.0087 | 0.0599 | -0.0141 | 0.0781 | 0.0054 | 0.0455 | -0.081 (0.51) |

*Notes:* Summary statistics for market-based surprise change in the policy rate expected at the upcoming FOMC meeting (MP1), high-frequency survey-based revision about policy rate expectation at the upcoming FOMC meeting (FDTR), and change in the associated monetary policy premium (MPP). P-values in parentheses. All scheduled meetings between December 1998 and January 2025.

tributions at maturities ranging from 3 month to a year ahead calculated as in Mertens and Williams (2021). Across maturities, the implied variances tend to decline following FOMC announcements, suggesting that they primarily capture the resolution of interest rate uncertainty. As a consequence, the correlation between the implied variances and the MPP depends on the direction of the policy change.

Figure C.2 reports impulse response functions to monetary policy shocks identified

Table C.2: MPP vs Changes in Option-Implied Variance on FOMC Days

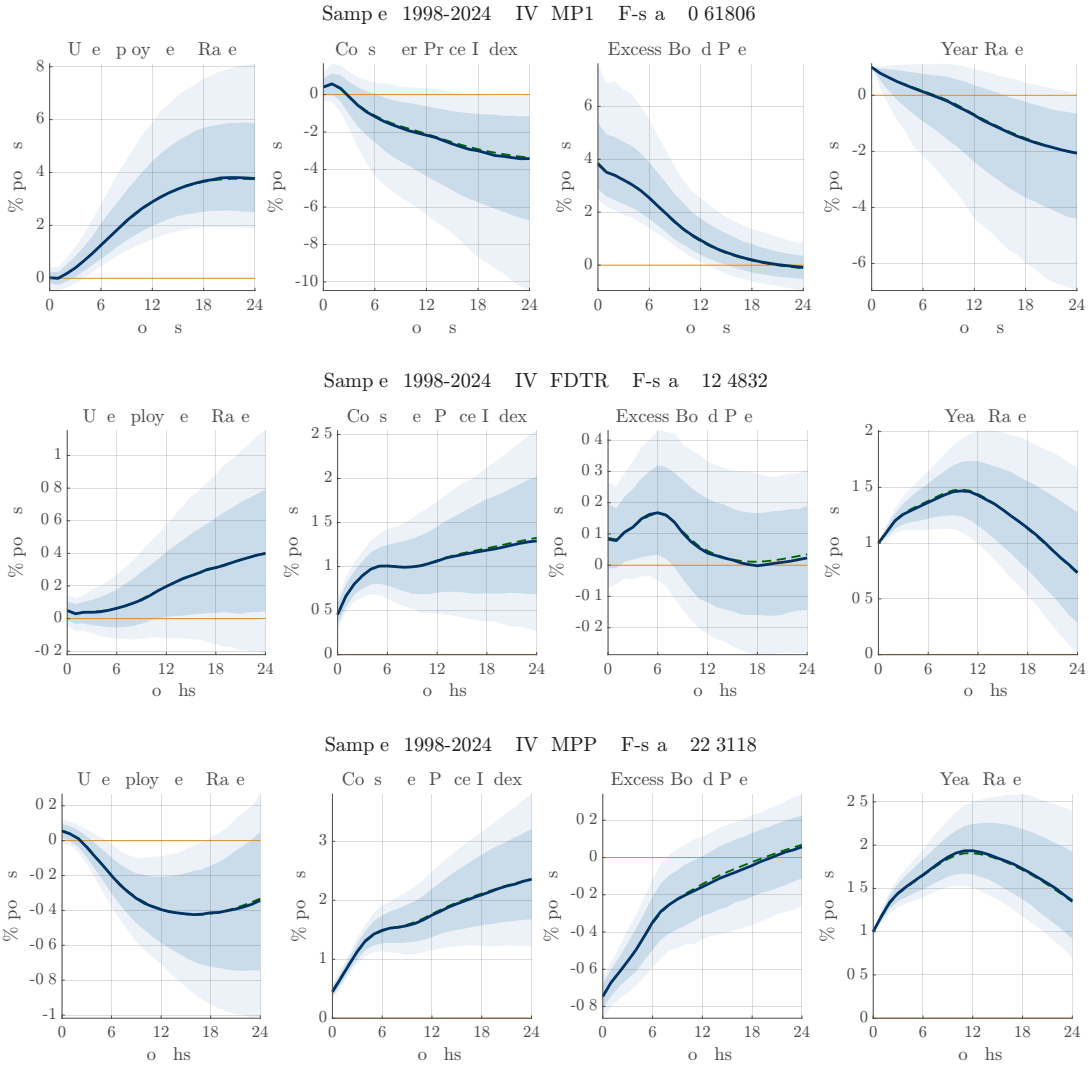
| | **MPP** | **IV 3-month** | | **IV 6-month** | | **IV 9-month** | | **IV 12-month** | |
|---|---|---|---|---|---|---|---|---|---|
| | mean | mean | corr | mean | corr | mean | corr | mean | corr |
| Full sample | 0.0016 | -0.0123 | -0.064 (0.39) | -0.0191 | -0.075 (0.31) | -0.0167 | -0.161 (0.03) | -0.0312 | 0.048 (0.52) |
| Easing | 0.0234 | -0.0504 | -0.457 (0.08) | -0.0735 | -0.312 (0.24) | -0.0726 | -0.692 (0.00) | -0.0541 | -0.337 (0.20) |
| Tightening | -0.0046 | -0.0212 | 0.633 (0.00) | -0.0335 | 0.436 (0.01) | -0.0372 | 0.341 (0.04) | -0.0808 | 0.609 (0.00) |
| No change | -0.0001 | -0.005 | 0.100 (0.26) | -0.008 | 0.061 (0.49) | -0.0038 | -0.133 (0.13) | -0.0141 | 0.011 (0.90) |
| Any change | 0.0054 | -0.03 | -0.070 (0.62) | -0.0456 | -0.084 (0.55) | -0.0479 | -0.151 (0.28) | -0.0727 | 0.133 (0.34) |

*Notes:* Summary statistics for high-frequency monetary policy premium (MPP) and change in option implied variance on FOMC days at maturities 3, 6, 9 and 12 months. P-values in parentheses. All scheduled meetings between December 1998 and January 2025.

using monetary policy surprises and their expectation and risk premium components as external instruments. The top row of the figure shows IRFs obtained with the monetary policy surprise MP1, the central row IRFs are obtained using the survey-based policy expectation revision FDTR, and the bottom row the IRFs using the MPP as IV for the shock. The composition of the VAR is kept fixed, and includes the unemployment rate, the consumer price index (in logs), the Excess Bond Premium (EBP) of Gilchrist and Zakrajšek (2012) and the 1 year rate as the policy variable. The sample goes from January 1998 to December 2024, corresponding to the length of the instruments: FDTR is only available since December 1998 which constrains the length of MPP, and we use the same sample for MP1 to enhance comparability. We include 12 lags and account for the extreme volatility during the Covid pandemic as in Lenza and Primiceri (2022).

It is interesting to note that while MP1 surprises suffer from very low first-stage F-statistic, both the survey-based expectation revision (FDTR) and the MPP are strong IV, with first-stage F-statistics equal to 12.5 and 22.3 respectively, against a mere 0.6 for MP1. Moreover, two interesting results emerge. First, including the EBP largely resolves the puzzles noted in Figure 1 for MP1 (see also Miranda-Agrippino and Ricco, 2021, 2023) but not for the survey-based FDTR. Second, it is the risk premium component (MPP) of monetary policy surprises rather than the expectation component (FDTR) that elicits a strong impact response of credit costs to monetary policy shocks.

## Figure C.2: IRFs to Monetary Policy Shocks: MP1, FDTR, MPP as IV




*Notes*: Impulse response functions to a monetary policy shock in monthly monetary VAR that includes the unemployment rate, CPI, the EBP, and the 1-year rate as the policy variable. Shock normalised to yield a 1 ppt impact increase in the policy rate and identified using MP1 (top panel), FDTR (mid panel) and MPP (bottom panel) as instrumental variables. VAR(12). Sample: January 1998 to December 2024. The VAR accounts for extreme volatility during the Covid pandemic as in Lenza and Primiceri (2022). Shaded areas denote 68% and 90% posterior credible sets.

# D Robustness & Additional Results: IRS

Table D.1 reports results for the predictability of interest rates surprises around the release of CPI and the employment report using the most recent data news over the 1997-2025 sample.

Table D.2 reports results for the predictability of interest rates surprises around the release of CPI and the employment report using the most recent data news over the 1997-2019 sample.

Table D.3 reports results for the predictability of interest rates surprises around the release of CPI and the employment report using the most recent data news over the 2020-2025 sample.

Table D.4 reports results for the placebo $irs_t$ predictive regressions using the most recent data news over the full 1997-2025 sample.

Table 5 reports results for the augmented predictive regressions that also include contemporaneous Core CPI and Unemployment Rate news. Dependent variables are the interest rates surprises around the release of CPI and the employment report. Baseline sample.

Table D.6 reports results for the predictive regressions that exclude observations that coincide with Fed Chair speeches and Congress testimonies. Dependent variables are the interest rates surprises around the release of CPI and the employment report. Baseline sample.

## Table D.1: Predictability of IRS using Past Data News
## Full Sample, Pre-COVID Scale

| | **Surprises around CPI Release** | | | | **Surprises around Employment Report** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | -0.00029* | -0.00035** | -0.00067* | -0.0147** | 0.00015 | 0.00019 | 0.00047 | 0.00462 |
| | (-1.96) | (-1.98) | (-1.83) | (-2.00) | (0.87) | (0.73) | (0.67) | (0.53) |
| ISM Manufacturing | 0.00046 | 0.00340 | 0.00000 | -0.00594 | -0.00441 | -0.00342 | -0.0102 | -0.147 |
| | (0.23) | (0.79) | (0.00) | (-0.05) | (-1.19) | (-0.66) | (-0.81) | (-0.94) |
| Leading Index | 0.00548*** | 0.00509* | 0.0108 | 0.219* | 0.00038 | 0.00062 | 0.00141 | 0.0357 |
| | (2.63) | (1.81) | (1.58) | (1.74) | (0.15) | (0.19) | (0.18) | (0.36) |
| New Home Sales | 0.00239 | 0.0104 | 0.0170 | 0.376 | -0.00121 | -0.00924 | -0.0164 | -0.220 |
| | (0.43) | (1.10) | (0.86) | (0.97) | (-0.16) | (-0.82) | (-0.62) | (-0.61) |
| PPI MoM | -0.00151 | -0.00201 | -0.00025 | -0.0391 | -0.000393 | -0.00351 | -0.00237 | -0.0393 |
| | (-1.01) | (-0.84) | (-0.05) | (-0.42) | (-0.17) | (-1.01) | (-0.28) | (-0.38) |
| Industrial Production | -0.00049 | 0.00093 | 0.00043 | 0.0128 | -0.00260* | -0.00374* | -0.00710 | -0.107* |
| | (-0.55) | (0.59) | (0.12) | (0.21) | (-1.76) | (-1.78) | (-1.51) | (-1.71) |
| GDP | -0.00103 | -0.00181 | -0.00196 | -0.0832 | -0.00310 | -0.00670 | -0.0151 | -0.194 |
| | (-0.32) | (-0.33) | (-0.19) | (-0.40) | (-0.96) | (-1.38) | (-1.30) | (-1.31) |
| $N$ | 322 | 322 | 324 | 327 | 322 | 324 | 327 | 327 |
| $R^2$ | 0.029 | 0.015 | 0.013 | 0.017 | 0.015 | 0.021 | 0.016 | 0.018 |

*Notes:* Regressions of interest rate surprises calculated around the release of CPI and the Employment Report on most recent data news. Sample: January 1997 to January 2025. Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table D.2: Predictability of IRS using Past Data News
## Pre-COVID Sample, Pre-COVID Scale

| | **Surprises around CPI Release** | | | | **Surprises around Employment Report** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | -0.00068 | -0.00082 | -0.00528 | -0.0629 | 0.0083** | 0.0121** | 0.0348*** | 0.420*** |
| | (-0.31) | (-0.28) | (-0.99) | (-0.67) | (2.17) | (2.59) | (2.81) | (2.76) |
| ISM Manufacturing | 0.00044 | 0.00222 | -0.00790 | -0.116 | -0.00812** | -0.00893* | -0.0223 | -0.319* |
| | (0.21) | (0.50) | (-1.12) | (-1.03) | (-2.16) | (-1.69) | (-1.59) | (-1.97) |
| Leading Index | 0.00197 | -0.00084 | -0.00269 | -0.0364 | -0.00058 | 0.00126 | -0.00264 | 0.00154 |
| | (1.17) | (-0.56) | (-0.69) | (-0.53) | (-0.18) | (0.35) | (-0.30) | (0.01) |
| New Home Sales | -0.00268 | 0.00594 | 0.0105 | 0.144 | -0.00341 | -0.0123 | -0.0221 | -0.313 |
| | (-0.55) | (0.96) | (0.74) | (0.57) | (-0.36) | (-0.87) | (-0.65) | (-0.69) |
| PPI MoM | -0.00039 | -0.00102 | -0.00007 | -0.0143 | -0.00015 | -0.00215 | -0.00017 | -0.00673 |
| | (-0.31) | (-0.87) | (-0.02) | (-0.23) | (-0.06) | (-0.59) | (-0.02) | (-0.06) |
| Industrial Production | 0.00059 | 0.00247* | 0.00350 | 0.0846 | -0.00416** | -0.00564** | -0.00909 | -0.153* |
| | (0.55) | (1.74) | (0.97) | (1.42) | (-2.03) | (-2.10) | (-1.42) | (-1.90) |
| GDP | -0.00065 | 0.00179 | 0.00264 | -0.00332 | -0.00268 | -0.00479 | -0.00801 | -0.127 |
| | (-0.27) | (0.57) | (0.36) | (-0.03) | (-0.69) | (-0.88) | (-0.56) | (-0.75) |
| $N$ | 257 | 257 | 259 | 261 | 256 | 258 | 261 | 261 |
| $R^2$ | 0.009 | 0.009 | 0.021 | 0.018 | 0.055 | 0.061 | 0.061 | 0.068 |

*Notes:* Regressions of interest rate surprises calculated around the release of CPI and the Employment Report on most recent data news. Sample: January 1997 to December 2019. Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table D.3: Predictability of IRS using Past Data News
## Post-COVID Sample, Post-COVID Scale

| | **Surprises around CPI Release** | | | | **Surprises around Employment Report** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | -0.0158** | -0.0261** | -0.0411* | -0.929** | -0.00213 | -0.00440 | -0.0131* | -0.184* |
| | (-2.35) | (-2.05) | (-1.84) | (-2.02) | (-1.03) | (-1.22) | (-1.78) | (-1.72) |
| ISM Manufacturing | 0.00429 | 0.0147 | 0.0610 | 0.773 | 0.0152 | 0.0226 | 0.0365 | 0.633 |
| | (0.55) | (0.97) | (1.67) | (1.34) | (1.04) | (1.02) | (1.06) | (1.05) |
| Leading Index | 0.0479** | 0.0745** | 0.137* | 2.849* | 0.00351 | -0.00134 | 0.0281 | 0.292 |
| | (2.32) | (2.15) | (1.82) | (1.95) | (0.21) | (-0.05) | (0.52) | (0.37) |
| New Home Sales | 0.00695 | 0.0116 | 0.0232 | 0.513 | 0.00398 | 0.00269 | 0.00428 | 0.0950 |
| | (1.21) | (1.02) | (0.90) | (1.05) | (0.79) | (0.32) | (0.30) | (0.42) |
| PPI MoM | -0.00825 | -0.00906 | -0.00460 | -0.250 | -0.00347 | -0.0106* | -0.0228** | -0.292* |
| | (-1.42) | (-0.72) | (-0.21) | (-0.56) | (-0.99) | (-1.80) | (-2.05) | (-1.78) |
| Industrial Production | -0.00177 | 0.00463 | 0.0146 | 0.143 | 0.00119 | -0.00190 | -0.0121 | -0.0805 |
| | (-0.24) | (0.37) | (0.57) | (0.30) | (0.20) | (-0.18) | (-0.56) | (-0.26) |
| GDP | -0.0219 | -0.0596 | -0.0924 | -2.009 | -0.0156 | -0.0479 | -0.121 | -1.381 |
| | (-0.52) | (-0.78) | (-0.61) | (-0.65) | (-0.45) | (-0.86) | (-1.14) | (-0.85) |
| $N$ | 65 | 65 | 65 | 66 | 66 | 66 | 66 | 66 |
| $R^2$ | 0.133 | 0.110 | 0.098 | 0.101 | 0.043 | 0.058 | 0.078 | 0.063 |

*Notes:* Regressions of interest rate surprises calculated around the release of CPI and the Employment Report on most recent data news. Sample: January 2020 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the same sample. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table D.4: Predictability of Placebo IRS using Past Data News
## Full Sample, Pre-COVID Scale

| | **Surprises around Placebo CPI Release** | | | | **Surprises around Placebo Employment Report** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | -0.00002 | 0.00036 | 0.00115* | 0.0353 | 0.00001 | 0.00002 | 0.00014*** | 0.00766* |
| | (-0.06) | (1.31) | (1.81) | (1.39) | (0.29) | (0.64) | (2.70) | (1.66) |
| ISM Manufacturing | 0.00108 | -0.00092 | -0.00244 | 0.00279 | 0.00267** | 0.00073 | 0.00153 | 0.142 |
| | (0.81) | (-0.81) | (-1.22) | (0.03) | (2.36) | (0.72) | (1.02) | (1.07) |
| Leading Index | -0.00006 | 0.00045 | -0.00128 | -0.0514 | -0.00085 | -0.00063 | 0.00059 | 0.0193 |
| | (-0.07) | (0.61) | (-0.88) | (-0.82) | (-1.23) | (-1.16) | (0.54) | (0.20) |
| New Home Sales | -0.00098 | -0.00098 | 0.00506 | 0.164 | 0.00143 | 0.00214 | -0.00303 | -0.114 |
| | (-0.49) | (-0.53) | (1.08) | (0.86) | (0.88) | (1.31) | (-1.15) | (-0.54) |
| PPI MoM | 0.00022 | 0.00061 | 0.00223* | 0.0937* | -0.00067 | -0.00025 | -0.00110 | -0.0744 |
| | (0.34) | (1.12) | (1.81) | (1.71) | (-1.15) | (-0.58) | (-1.08) | (-0.82) |
| Industrial Production | 0.00044 | 0.00092** | 0.00141 | 0.0827 | -0.00020 | 0.00023 | 0.00054 | 0.0652 |
| | (0.79) | (2.12) | (1.23) | (1.64) | (-0.45) | (0.44) | (0.81) | (1.07) |
| GDP | 0.00019 | -0.00034 | -0.00171 | -0.0221 | 0.00056 | 0.00041 | 0.00238 | 0.195 |
| | (0.15) | (-0.35) | (-0.86) | (-0.26) | (0.66) | (0.42) | (1.56) | (1.46) |
| $N$ | 304 | 304 | 304 | 304 | 322 | 322 | 323 | 323 |
| $R^2$ | 0.005 | 0.017 | 0.027 | 0.020 | 0.032 | 0.012 | 0.024 | 0.017 |

*Notes:* Regressions of interest rate surprises calculated in a 30-min window around 2:00 PM ET on the day of the release of CPI and the Employment Report on most recent data news. Sample: January 1997 to January 2025. Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

## Table D.5: Predictability of IRS using Past Data News: Role of Contemporaneous Core CPI and Unemployment Rate News

| | Surprises around CPI Release | | | | Surprises around Employment Report | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| **Panel A:** *Contemporaneous News Only* | | | | | | | | |
| Core CPI (time $t$) | 0.0056*** | 0.0100*** | 0.0270*** | 0.490*** | | | | |
| | (4.32) | (3.85) | (7.35) | (6.28) | | | | |
| Unemployment Rate (time $t$) | | | | | -0.0662*** | -0.106*** | -0.199*** | -2.957*** |
| | | | | | (-3.73) | (-4.22) | (-3.88) | (-4.18) |
| $N$ | 312 | 313 | 315 | 318 | 310 | 312 | 315 | 315 |
| $R^2$ | 0.104 | 0.111 | 0.249 | 0.237 | 0.046 | 0.060 | 0.040 | 0.052 |
| **Panel B:** *Augmented Predictive Regressions* | | | | | | | | |
| Core CPI (time $t$) | 0.0058*** | 0.0102*** | 0.0281*** | 0.509*** | | | | |
| | (4.35) | (3.83) | (7.46) | (6.35) | | | | |
| Unemployment Rate (time $t$) | | | | | -0.0693*** | -0.112*** | -0.211*** | -3.089*** |
| | | | | | (-3.72) | (-4.21) | (-4.00) | (-4.21) |
| Nonfarm Payrolls | -0.0021 | -0.0013 | -0.0051 | -0.0895 | 0.0082*** | 0.0110** | 0.0274** | 0.354*** |
| | (-0.63) | (-0.36) | (-0.81) | (-0.62) | (2.69) | (2.46) | (2.56) | (2.60) |
| ISM Manufacturing | -0.0005 | 0.0028 | -0.0030 | -0.0625 | -0.0051 | -0.0051 | -0.0143 | -0.201 |
| | (-0.19) | (0.56) | (-0.36) | (-0.45) | (-1.32) | (-0.90) | (-1.01) | (-1.17) |
| Leading Index | 0.0060*** | 0.0051* | 0.0114* | 0.237* | 0.0002 | 0.0007 | 0.0010 | 0.0348 |
| | (2.93) | (1.76) | (1.66) | (1.87) | (0.06) | (0.17) | (0.11) | (0.30) |
| New Home Sales | 0.0011 | 0.0087 | 0.0113 | 0.295 | -0.0011 | -0.0107 | -0.0216 | -0.271 |
| | (0.19) | (0.91) | (0.65) | (0.84) | (-0.13) | (-0.82) | (-0.72) | (-0.66) |
| PPI MoM | -0.0019 | -0.0029 | -0.0020 | -0.0768 | -0.0005 | -0.0034 | -0.0022 | -0.0362 |
| | (-1.23) | (-1.18) | (-0.45) | (-0.85) | (-0.23) | (-0.96) | (-0.27) | (-0.36) |
| Industrial Production | -0.0006 | 0.0015 | 0.0018 | 0.0333 | -0.0035 | -0.0044 | -0.0088 | -0.132 |
| | (-0.44) | (0.71) | (0.38) | (0.38) | (-1.64) | (-1.52) | (-1.38) | (-1.53) |
| GDP | 0.0001 | 0.0002 | 0.0041 | 0.0201 | -0.0048 | -0.0085 | -0.0181 | -0.245 |
| | (0.04) | (0.04) | (0.45) | (0.11) | (-1.36) | (-1.57) | (-1.38) | (-1.49) |
| $N$ | 293 | 293 | 295 | 297 | 295 | 297 | 300 | 300 |
| $R^2$ | 0.148 | 0.125 | 0.273 | 0.264 | 0.085 | 0.099 | 0.080 | 0.093 |

*Notes:* Regressions of interest rate surprises calculated around the release of CPI (left panel) and the Employment Report (right panel) on contemporaneous (time $t$) and past data news. Sample: January 1997 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D.6: Predictability of IRS using Past Data News: Excluding Fed Chair Speeches and Testimonies to Congress

| | **Surprises around CPI Release** | | | | **Surprises around Employment Report** | | | |
|---|---|---|---|---|---|---|---|---|
| | MP1 | FF4 | ED4 | NSPC | MP1 | FF4 | ED4 | NSPC |
| Nonfarm Payrolls | -0.0017 | -0.0004 | -0.0029 | -0.0373 | 0.0066** | 0.0083* | 0.0225** | 0.282** |
| | (-0.46) | (-0.09) | (-0.37) | (-0.22) | (2.11) | (1.83) | (2.11) | (2.05) |
| ISM Manufacturing | 0.0001 | 0.0037 | -0.0001 | -0.0130 | -0.0049 | -0.0044 | -0.0130 | -0.182 |
| | (0.05) | (0.76) | (-0.01) | (-0.09) | (-1.19) | (-0.73) | (-0.91) | (-1.03) |
| Leading Index | 0.0063*** | 0.0055* | 0.0121 | 0.251* | 0.0002 | 0.0006 | 0.0010 | 0.0347 |
| | (2.93) | (1.76) | (1.57) | (1.81) | (0.08) | (0.16) | (0.11) | (0.30) |
| New Home Sales | 0.0029 | 0.0116 | 0.0188 | 0.424 | -0.0017 | -0.0116 | -0.0231 | -0.294 |
| | (0.45) | (1.06) | (0.82) | (0.94) | (-0.19) | (-0.88) | (-0.76) | (-0.70) |
| PPI MoM | -0.0014 | -0.0020 | 0.0002 | -0.0321 | -0.0008 | -0.0039 | -0.0031 | -0.0498 |
| | (-0.91) | (-0.80) | (0.03) | (-0.33) | (-0.33) | (-1.07) | (-0.36) | (-0.46) |
| Industrial Production | -0.0007 | 0.0015 | 0.0019 | 0.0347 | -0.0040* | -0.0053* | -0.0105 | -0.156* |
| | (-0.47) | (0.62) | (0.37) | (0.36) | (-1.84) | (-1.74) | (-1.61) | (-1.76) |
| GDP | -0.0010 | -0.0020 | -0.0022 | -0.0909 | -0.0040 | -0.0073 | -0.0159 | -0.214 |
| | (-0.26) | (-0.32) | (-0.18) | (-0.38) | (-1.09) | (-1.31) | (-1.20) | (-1.27) |
| $N$ | 294 | 294 | 296 | 298 | 295 | 297 | 300 | 300 |
| $R^2$ | 0.035 | 0.016 | 0.015 | 0.020 | 0.037 | 0.036 | 0.037 | 0.039 |

*Notes:* Regressions of interest rate surprises calculated around the release of CPI and the Employment Report on most recent data news. Sample: January 1997 to January 2025 excluding Covid years (2020-2021). Data news are standardised using the standard-deviation calculated over the pre-Covid sample ending in 2019. MP1: surprise change in the policy rate expected at the next FOMC meeting; FF4: surprise change in 3-month policy expectations; ED4: surprise change in year ahead policy expectations; NSPC: principal component of surprise changes in interest rates at different maturities as in Nakamura and Steinsson (2018). All regressions include a constant. Huber-White t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.