Online Appendix to "Central Bank Information Effects and Transatlantic Spillovers"

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Appendix A Data

A.1 High-frequency financial data

- **ECB interest rate surprise** - The first principal component of the Monetary Event window changes in overnight index swaps (OIS) with maturities 1-, 3-, 6-months and 1-year (Identifiers: OIS1M, OIS3M, OIS6M, OIS1Y).[1] *Source:* EA-MPD of Altavilla et al. (2019). The Monetary Event window starts 15 minutes before the press release and ends 15 minutes after the end of the press conference whenever there is one. The first principal component is rescaled so that its variance equals that of the 1 year OIS rate changes in the Monetary Event window.

- **ECB stock price surprise** - Euro Stoxx 50 index change in the Monetary Event window in percentage points. Identifier: STOXX50E. *Source:* EA-MPD of Altavilla et al. (2019).

- **Fed interest rate surprise** - The first principal component of the Monetary Event Window changes in the current-month and three-month-ahead federal funds fu-

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[1] Prior to computing the first principal component the variables are rescaled by their standard deviations. The variables are not demeaned, to ensure that when all variables are equal to zero the first principal component also equals zero. This first principal component is the linear combination of the rescaled variables that has the maximum second moment (not the maximum variance).

tures contracts and changes in the second, third, and fourth eurodollar futures contracts, which have 1.5, 2.5, and 3.5 quarters to expiration on average (Identifiers: MP1, FF4, ED2, ED3, ED4).[2] Surprises in the Monetary Event Window are obtained by adding up the surprise in the *Press Release window* and the surprise in the *Press Conference window*, whenever there is one. *Sources:* Surprises in the Press Release window, starting 10 minutes before the press release and ending 20 minutes afterwards, come from the Gürkaynak et al. (2005) database updated until June 2019 by Gürkaynak et al. (2022) and available in their replication files at http://www.bilkent.edu.tr/~refet/GKL_replication.zip. Surprises in the Press Conference window, starting 10 minutes before the press conference and ending 15 minutes after the end of the press conference, come from the Thomson Reuters Tick History Database. See Section A.5 for more details on the surprises in the Press Conference window. The first principal component is rescaled so that its variance equals that of the changes in the fourth eurodollar futures contract in the Monetary Event window.

- **Fed stock price surprise** - S&P500 index change in the Monetary Event window, in percentage points. Identifier: SP500. *Source:* as above.

Figure A.1: Cumulated surprises

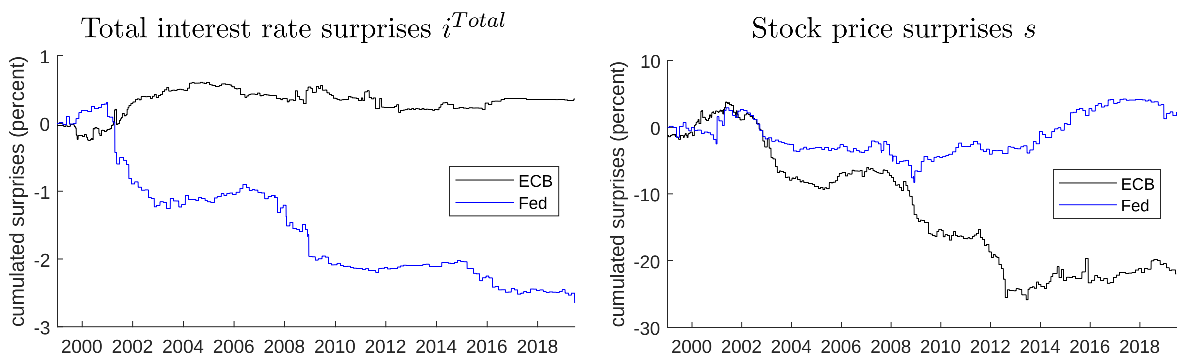


Table A.1 reports the summary statistics of the Fed and ECB interest rate and stock price surprises. The ECB interest rate surprises are close to zero on average and have the standard deviation of about 4 basis points. The Fed interest rate surprises are negative

[2]See footnote 1.

Table A.1: Summary statistics of the surprises

	Total interest rate surprise, i^{Total}		Stock price surprise, s
ECB surprises			
Mean (std. err.)	0.14 (0.26)		-8.43 (3.98)
Standard deviation	4.14		64.38
Auto-correlation (P-value)	-0.08 (0.22)		-0.05 (0.40)
Correlation (i^{Total}, s)		-0.13	
Frequency of sign(i^{Total}) $\neq$ sign(s)		0.51	
N. of observations		261	
Fed surprises			
Mean (std. err.)	-1.55 (0.54)		1.32 (5.49)
Standard deviation	7.08		71.81
Auto-correlation (P-value)	0.03 (0.66)		-0.10 (0.21)
Correlation (i^{Total}, s)		-0.52	
Frequency of sign(i^{Total}) $\neq$ sign(s)		0.66	
N. of observations		171	

Table A.2: Cross-correlations of Fed and ECB surprises

	Total interest rate surprise, i^{Total}		Stock price surprise, s		N. of pairs
correlation between the Fed surprise and the most recent ECB surprise	-0.13	(0.09)	0.04	(0.65)	163
correlation between the Fed surprise and the subsequent ECB surprise	-0.08	(0.31)	0.09	(0.24)	163

Note. P-values in parentheses. There are only 163 pairs of consecutive Fed and ECB surprises because sometimes there are two Fed surprises in a row without an ECB suprise in between.

on average, -1.55 basis point, and they have a larger standard deviation of 7 basis points. Contemporaneous interest rate and stock price surprises are negatively correlated. For the Fed the correlation is as large as -0.52, suggesting that the monetary policy shocks dominate, while for the ECB the correlation is only -0.13. The autocorrelations of the surprises are negligible. For simplicity I do not further purge these surprises from the component predictable by past information as purging makes little difference for subsequent inference. E.g. Miranda-Agrippino and Ricco (2021) purge the surprises using one of the most comprehensive specifications, by regressing them on their own lags and ten factors extracted from macroeconomics variables, but the unadjusted R-squared are below

0.1 (see their Table 3). However, the correlations between the consecutive ECB and Fed surprises have not been explored previously. Table A.2 shows that these correlations are small too. The first correlation of -0.13 is significant at the 10% level but this correlation changes to 0.02 if one omits the large negative Fed surprise on April 18, 2001, which was preceded by a large positive ECB interest rate surprise on April 11. Low correlations between consecutive shocks guarantee that we don't mistake the effects of domestic policy shocks for transatlantic spillovers. Figure A.1 plots the cumulated surprises of both central banks, interest rate surprises in the left panel and stock price surprises in the right panel. This figure shows that also at lower frequencies there is no systematic correlation between the Fed and ECB surprises.

A.2 Macroeconomic news surprises

- **Industry confidence** - European Commission Eurozone Industrial Confidence. Ticker: EUICEMU. *Source:* Bloomberg. *Units:* Index.

- **Unemployment rate** - Eurostat Unemployment Eurozone SA. Ticker: UMRTEMU. *Source:* Bloomberg. *Units:* Percent.

A.3 Daily financial data

- **1-year Bund yield, 10-year Bund yield** - *Source:* Deutsche Bundesbank: Term structure of interest rates on listed Federal securities (method by Svensson) `https://www.bundesbank.de/dynamic/action/en/statistics/time-series-databases/time-series-databases/759784/759784?listId=www_skms_it03a`. *Units:* percent. *Transformation:* none.

- **1-year Treasury bond yield, 10-year Treasury bond yield** - Zero-coupon yield, Continuously Compounded. *Source:* `https://www.federalreserve.gov/pubs/feds/2006/200628/200628abs.html` Identifiers: SVENY01, SVENY10. Reference: Gürkaynak et al. (2007) *Units*: percent. *Transformation:* none.

- **S&P500** - Standard and Poors 500 Composite Index *Source:* Datastream. *Units:* index. *Transformation:* 100*log.

- **Euro Stoxx 50** - Dow Jones Euro Stoxx 50 EUR Price Index - *Source:* Bloomberg. *Units:* index. *Transformation:* 100*log.

- **High yield corporate bond OAS (US)** - ICE BofA US High Yield Index Option-Adjusted Spread (OAS). US dollar denominated below investment grade rated corporate debt publicly issued in the US domestic market. *Source:* Fred, after Ice Data Indices, LLC. Identifier: bamlh0a0hym2. *Units:* percent. *Transformation:* none.

- **High yield corporate bond OAS (EA)** - ICE BofA Euro High Yield Index Option-Adjusted Spread (OAS). Euro denominated below investment grade corporate debt publicly issued in the euro domestic or eurobond markets. *Source:* Fred, after Ice Data Indices, LLC. Identifier: bamlhe00ehyioas. *Units:* percent. *Transformation:* none.

- **EUR per USD** - Exchange rate. *Source:* ECB. *Units:* Euros per one US dollar. *Transformation:* 100*log.

- **Broad dollar ex EUR** - The Broad dollar index, calculated by the Federal Reserve, is a trade-weighted exchange rate with respect to 26 most important trading partners by volume of the bilateral trade. I have recalculated this index taking the euro out of it. The construction of the Broad dollar index is explained in von Beschwitz et al. (2019), `https://www.federalreserve.gov/econres/notes/feds-notes/revisions-to-the-federal-reserve-dollar-indexes-20190115.htm`. The Broad dollar index back to 2006 was downloaded from the Federal Reserve website `https://www.federalreserve.gov/datadownload/Build.aspx?rel=H10` and the euro's weights back to 2006 was downloaded from `https://www.federalreserve.gov/releases/h10/weights/default.htm`. The Broad dollar index and the euro's weights before 2006 were taken from the data appendix of von Beschwitz et al. (2019), `https://www.federalreserve.gov/econres/notes/ifdp-notes/IFDP_Note_Data_Appendix.xlsx`. I have removed the euro from the Broad dollar index and rescaled so that the weights of the remaining currencies add up to 1. *Units:* index, foreign currency per one US dollar. *Transformation:* 100*log.

More in detail, the Broad dollar index at time t (I_t) is $I_t = I_{t-1} \prod_j^N (e_{j,t}/e_{j,t-1})^{w_{j,t}}$, where $e_{j,t}$ is the price of the dollar in terms of the foreign currency j at time t and $w_{j,t}$ is its weight (von Beschwitz et al., 2019). Let the euro be the Nth currency, let $\Delta i_t = \ln(I_t/I_{t-1})$ be the log change of the broad dollar index and let $c_{N,t} = w_{N,t}\ln(e_{N,t}/e_{N,t-1})$ be the euro's contribution to it. The log change of the Broad dollar ex EUR is computed as $\Delta i_t^{\mathrm{exEUR}} = 1/(1-w_{N,t})(\Delta i_t - c_{N,t})$.

- **S&P500 Financials** - The S&P 500 Financials comprises those companies included in the S&P 500 that are classified as members of the GICS financials sector. Number of companies: 66. Total Return index. Ticker: SPTRFINL. *Source:* Bloomberg. *Units:* index. *Transformation:* 100*log.

- **S&P500 Ex-Financials** - The S&P 500 Ex-Financials is designed to provide broad market exposure except for members of the financials sector. Number of companies: 439. Total Return index. Ticker: SPXXFIST. *Source:* Bloomberg. *Units:* index. *Transformation:* 100*log.

- **Wilshire US Small-Cap** - The Wilshire US Small-Cap is a float-adjusted, market capitalization-weighted index of the issues ranked between 750 and 2,500 by market capitalization of the Wilshire 5000 Total Market Index. Number of companies: 1745. Fred identifier: WILLSMLCAP. *Source*: Fred after Wilshire Associates. *Units:* index. *Transformation:* 100*log.

- **Wilshire US Large-Cap** - The Wilshire US Large-Cap Index is a float-adjusted, market capitalization-weighted index of the issues ranked above 750 by market capitalization of the Wilshire 5000 Total Market Index. Together, the components of the Wilshire US Large-Cap, Wilshire US Small-Cap Index and Wilshire US Micro-Cap Index comprise the Wilshire 5000 without gaps or overlaps. Number of companies: 750. Fred identifier: WILLLRGCAP. *Source*: Fred after Wilshire Associates. *Units:* index. *Transformation:* 100*log.

- **Europe-exposed S&P500, US-exposed S&P500** - Based on Worldscope and Datastream. The indices have a fixed composition and consist of 497 stocks that entered the S&P500 for at least 40 quarters between 1998 and 2020. For each of those 497 companies I obtain from Worldscope the share of sales in Europe in their total sales in the years 2000, 2005, 2010, 2015, 2020 and average it over time. I take the daily data on prices and float-adjusted market capitalization from Datastream. Then I construct a price index of these 497 stocks weighted by the float-adjusted market capitalization multiplied by the shares of European sales. There are 252 companies with nonzero and non-missing average European sales shares, for 129 companies the share exceeds 10% and for 90 companies the share exceeds 15%. I proceed analogously for the US-exposed companies. There are 472 companies with nonzero and non-missing average US sales shares, for 175 companies the share exceeds 90% and for 150 companies the share exceeds 95%. *Units:* index. *Transformation:* 100*log.

- **Fed funds futures next FOMC, Fed funds futures 3m, Fed funds futures 6m** - The rates implied by the 30-days federal funds futures after the Next FOMC meeting (based on the current month or next month futures, depending on the date of the next FOMC meeting), in 3-months and in 6-months. *Source*: Haver. Identifiers: PNFP@DAILY, PFFN3P@DAILY and PFFN6P@DAILY *Units:* percent. *Transformation:* none.

A.4 Monthly variables

- **Effective Federal Funds Rate** - daily average. *Source:* Fred, after Board of Governors of the Federal Reserve System. Identifier: FEDFUNDS. *Units:* Percent. *Transformation:* none.

- **Shadow Federal Funds Rate (Wu-Xia)** - Wu and Xia (2016). Downloaded from https://sites.google.com/view/jingcynthiawu/shadow-rates. *Units:* Percent. *Transformation:* none.

- **Shadow Federal Funds Rate (Krippner)** - Krippner (2013, 2015). Downloaded from https://www.ljkmfa.com/visitors/. *Units:* Percent. *Transformation:* none.

- **Broad euro** - Broad Effective Exchange Rate for Euro Area. *Source:* Fred, after

BIS. Identifier NBXMBIS. *Units:* index, foreign currency per one Euro. *Transformation:* 100*log.

- **US Real GDP and GDP Deflator** - Interpolation by Stock and Watson (2010) updated to 2019Q1. See the replication files for Jarociński and Karadi (2020). *Transformation:* 100*log.

- **Euro area Real GDP and GDP Deflator** - Own interpolation following Stock and Watson (2010). See the replication files for Jarociński and Karadi (2020). *Transformation:* 100*log.

The remaining monthly variables are the monthly averages of the daily variables discussed in A.3.

A.5 Fed announcement surprises in the press conference windows

The dates and times of the Fed press conferences. The dates and times of the Fed post-FOMC meeting press conferences come from the Bloomberg Economic Calendar. (See also Bodilsen et al. (2021) for a convenient summary table in their Online Appendix.) The Fed started to hold press conferences after FOMC meetings on April 27, 2011. In the years 2011-2018 the press conferences were held after every other FOMC meeting and since 2019 after every FOMC meeting. In the years 2011-2012 the FOMC announcements were published at 12:30 and the press conferences started at 14:15. From 2013 onward the FOMC announcement was issued at 14:00 and the press conference started at 14:30.

Press Conference Window I define a Press Conference Window that starts 10 minutes before the start of the press conference and ends 75 minutes after the start of the press conference. From 2013 onward the start of the Press Conference Window coincides with the end of the GSS FOMC press release window (the GSS window ends 20 minutes after the press release). For the 8 press conferences held in the years 2011-2012 there is a gap between the end of the GSS window and the start of the Press Conference Window. The press conferences last approximately one hour, so the Press Conference Window ends approximately 15 minutes after the end of the press conference, like in the Altavilla et al. (2019) dataset of the ECB surprises.

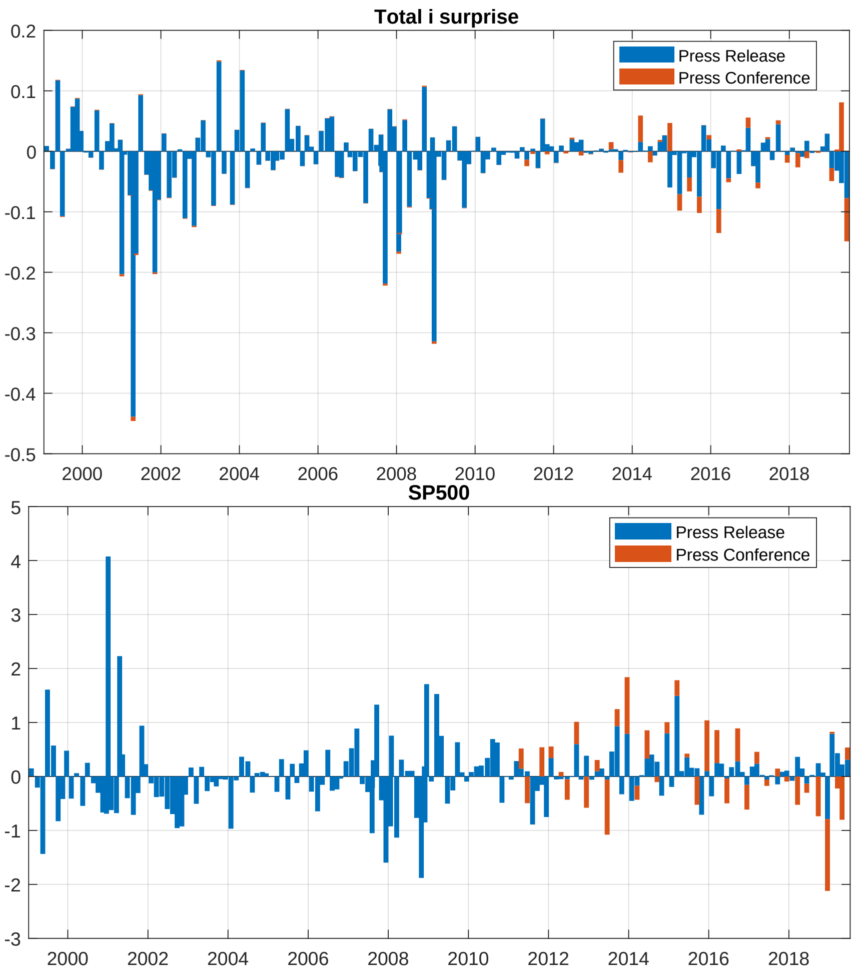
Summary statistics about press conference (PC) surprises. The changes in the PC Window of the variables MP1, FF4, ED2, ED3, ED4 and SP500, defined in Gürkaynak et al. (2005) are extracted from the Thomson Reuters Tick History database. There are 36 press conferences between April 2011 and June 2019. Figures A.2, A.3, A.4 present the GSS surprises for all FOMC announcements from January 1999 until June 2019 along with the PC surprises available for 36 of these FOMC announcements. Table A.3 reports summary statistics computed on these 36 dates. The PC variance share is defined as $\text{var}(x^{PC})/(\text{var}(x^{PC})+\text{var}(x^{GSS}))$, where x^{PC} is the surprise in variable x in the PC window and x^{GSS} is the surprise in variable x in the press release window coming from the GSS database. The table reports also the correlations between x^{PC} and x^{GSS} and their statistical significance. First, on the press conference days the press conference windows account for about one third of the variance of interest rate derivatives with maturities 3 months and more, and less than that near-term futures MP1. For stock prices the press conference windows account for 57% of the variance. Second, we can see in Figures A.2, A.3, A.4 that in the press conference windows asset prices tend to move in the same direction as in the preceding announcement windows. Indeed, Table A.3 shows that the correlations between the surprises in the two windows are positive, though not always statistically significant. For the stock prices the correlation is 0.45 and highly significant.

Table A.3: Press conference (PC) surprises - variance shares and correlations with the GSS surprises

Variable	PC variance share	Corr(x^{PC}, x^{GSS})	p-value
MP1	0.04	0.15	0.41
FF4	0.29	0.19	0.28
ED2	0.38	0.34	0.04
ED3	0.35	0.29	0.08
ED4	0.29	0.23	0.17
Total i surprise (i.e. the 1st Principal Component of the above)	0.31	0.29	0.09
SP500	0.57	0.45	0.01

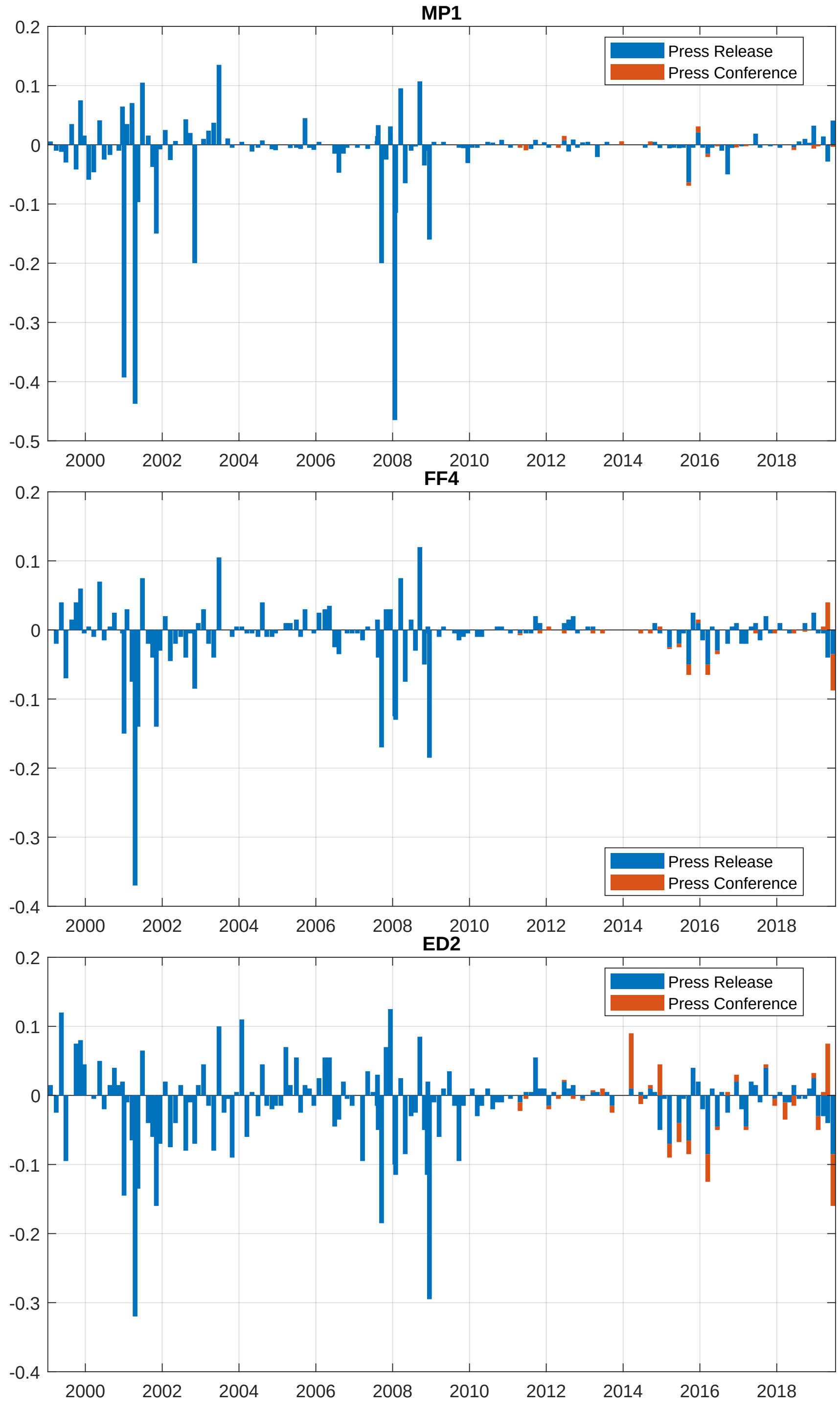
Note. The PC variance share of variable x is defined as $\text{var}(x^{PC})/(\text{var}(x^{PC})+\text{var}(x^{GSS}))$. The p-value indicates the statistical significance of the correlation. Both the variance shares and the correlations are computed over the 36 observations with press conferences.

Figure A.2: Fed surprises in the Press Release and Press Conference windows



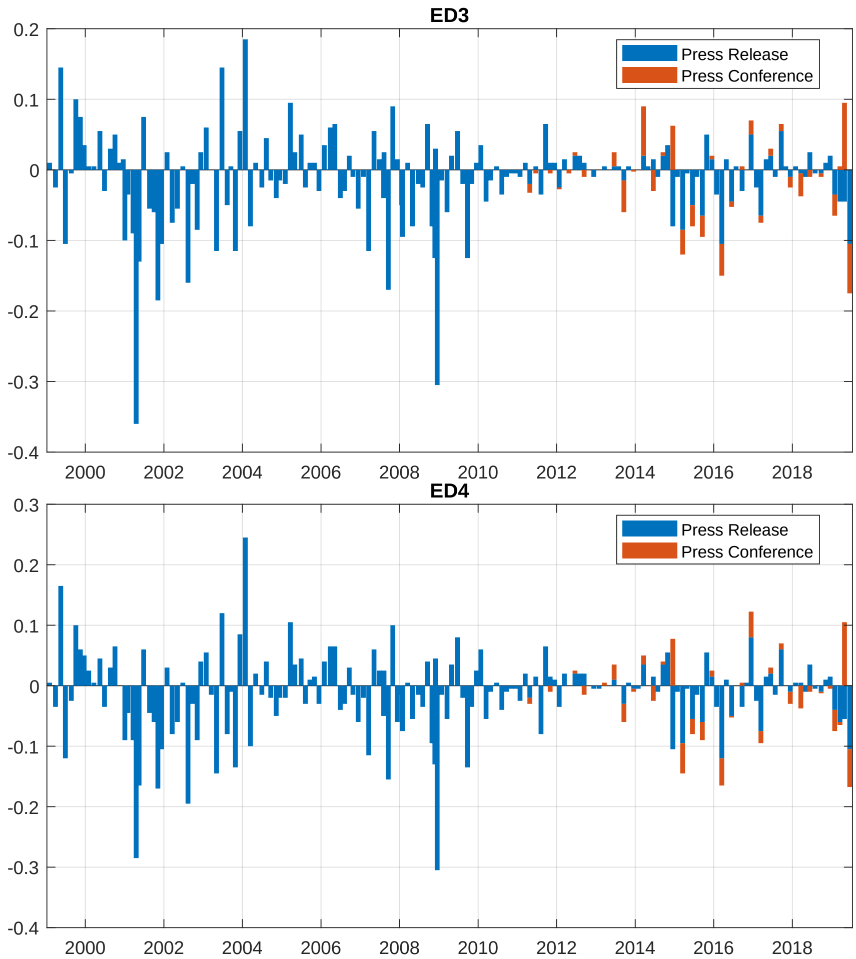
Note. Blue bars show the surprises in the press release window, from GSS. Red bars show the surprises in the press conference window, from Thomson Reuters Tick History.

Figure A.3: Fed surprises in the Press Release and Press Conference windows - continued



Note. Blue bars show the surprises in the press release window, from GSS. Red bars show the surprises in the press conference window, from Thomson Reuters Tick History.

Figure A.4: Fed surprises in the Press Release and Press Conference windows - continued



Note. Blue bars show the surprises in the press release window, from GSS. Red bars show the surprises in the press conference window, from Thomson Reuters Tick History.

Appendix B Rotational sign restrictions

This section explains the details of rotational sign restrictions. Recall that the goal is to decompose the interest rate surprises into a sum of two orthogonal components, such that the first one is associated with a negative co-movement of the interest rate and stock price surprises and the second is associated with their positive co-movement.

Recall also that i^{Total} is a vector of interest rate surprises, s is a vector of stock price surprises, i^{MP} is a vector of monetary policy shock proxies and i^{CBI} is a vector of central bank information shock proxies. Each of the four vectors has length T, where T is the number of central bank announcements in the dataset. Let $M = (i^{Total}, s)$ be a $T \times 2$ matrix with columns i^{Total} and s. I decompose M as

$$M = UC, \quad \text{where} \quad U = \left(i^{MP}, i^{CBI}\right), \quad (i^{MP})' i^{CBI} = 0 \quad \text{and} \quad C = \begin{pmatrix} 1 & c_{MP} < 0 \\ 1 & c_{CBI} > 0 \end{pmatrix}. \tag{B.1}$$

The decomposition in (B.1) is not unique. There is a range of "rotations" of U and C that all satisfy the sign restrictions $c_{MP} < 0$ and $c_{CBI} > 0$.

B.1 Computing the decomposition

U and C are computed as

$$U = QPD \quad \text{and} \quad C = D^{-1} P' R \tag{B.2}$$

where the matrices Q, P, D, R are obtained in three steps.

1. *Decompose M into two orthogonal components* using the QR decomposition,

$$M = QR, \quad \text{where} \quad Q'Q = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \quad \text{and} \quad R = \begin{pmatrix} r_{11} > 0 & r_{12} \\ 0 & r_{22} > 0 \end{pmatrix}. \tag{B.3}$$

Note that in many software packages do not impose the normalization that the diagonal elements of R are positive, in this case this has to be imposed ex post.

2. *Rotate* these orthogonal components using the rotation matrix P,

$$P = \begin{pmatrix} \cos(\alpha) & \sin(\alpha) \\ -\sin(\alpha) & \cos(\alpha) \end{pmatrix}. \tag{B.4}$$

- To satisfy the sign restrictions use any angle α in the following range

$$\alpha \in \left(0, \arctan \frac{-r_{22}}{r_{12}}\right) \quad \text{if} \quad r_{12} < 0, \tag{B.5a}$$

$$\alpha \in \left(\arctan \frac{r_{12}}{r_{22}}, \frac{\pi}{2}\right) \quad \text{if} \quad r_{12} \geq 0. \tag{B.5b}$$

- To obtain the desired variance share $\operatorname{var}(i^{MP}) / \operatorname{var}(i^{Total})$ use

$$\alpha = \arccos \sqrt{\frac{\operatorname{var}(i^{MP})}{\operatorname{var}(i^{Total})}}. \tag{B.6}$$

3. *Rescale* the resulting orthogonal components with a diagonal matrix D to ensure that they add up to the interest rate surprises i^{Total}. It is straightforward to show that

$$D = \begin{pmatrix} r_{11}\cos(\alpha) & 0 \\ 0 & r_{11}\sin(\alpha) \end{pmatrix}. \tag{B.7}$$

B.2 Properties and derivations

Result 1. The variance shares implied by the above decomposition are

$$\frac{\operatorname{var}(i^{MP})}{\operatorname{var}(i^{Total})} = \cos^2(\alpha) \quad \text{and} \quad \frac{\operatorname{var}(i^{CBI})}{\operatorname{var}(i^{Total})} = \sin^2(\alpha). \tag{B.8}$$

Proof This is the straightforward implication of using the matrix D given in (B.7) in $U = QPD$.■

Result 2. Considering $\alpha \in (-\pi, \pi)$, the sign restrictions $c_{MP} < 0$ and $c_{CBI} > 0$ are satisfied if and only if α satisfies (B.5a)-(B.5b).

Proof. Consider the "unscaled" decomposition $M = \tilde{U}\tilde{C}$ where $\tilde{U} = QP$ and $\tilde{C} = P'R$. $\tilde{C}$ contains the impact of the two "unscaled" shocks in $\tilde{U}$ on the interest rate and stock price surprises, so $\tilde{C}$ should satisfy

$$\tilde{C} = \begin{pmatrix} \tilde{c}_{11} > 0 & \tilde{c}_{12} < 0 \\ \tilde{c}_{21} > 0 & \tilde{c}_{22} > 0 \end{pmatrix}$$

$\tilde{C} = P'R$ implies the following system of inequalities

$$r_{11} \cos \alpha > 0 \tag{B.9}$$

$$r_{12} \cos \alpha - r_{22} \sin \alpha < 0 \tag{B.10}$$

$$r_{11} \sin \alpha > 0 \tag{B.11}$$

$$r_{12} \sin \alpha + r_{22} \cos \alpha > 0 \tag{B.12}$$

Assume without loss of generality that $\alpha \in (-\pi, \pi)$. (B.9) and (B.11) imply that $\alpha \in (0, \pi/2)$. If $r_{12} < 0$, (B.10) is slack and (B.12) implies (B.5a). If $r_{12} > 0$, (B.12) is slack and (B.10) implies (B.5b). ■

Result 3. The variance share of the monetary policy shock must be within the following bounds:

$$\frac{\text{var}(i^{MP})}{\text{var}(i^{Total})} \in \begin{cases} (\rho^2, 1) & \text{if } \rho < 0, \\ (0, 1 - \rho^2) & \text{if } \rho \geq 0. \end{cases} \tag{B.13}$$

Proof. This follows from (B.5a), (B.5b) and (B.8). To simplify the expressions use the fact that $\cos(\arctan(x)) = 1/\sqrt{1 + x^2}$. This implies

$$\frac{\text{var}(i^{MP})}{\text{var}(i^{Total})} \in \left(\frac{r_{12}^2}{r_{22}^2 + r_{12}^2}, 1 \right) \text{ if } r_{12} < 0 \text{ and } \frac{\text{var}(i^{MP})}{\text{var}(i^{Total})} \in \left(0, \frac{r_{22}^2}{r_{12}^2 + r_{22}^2} \right) \text{ if } r_{12} \geq 0. \tag{B.14}$$

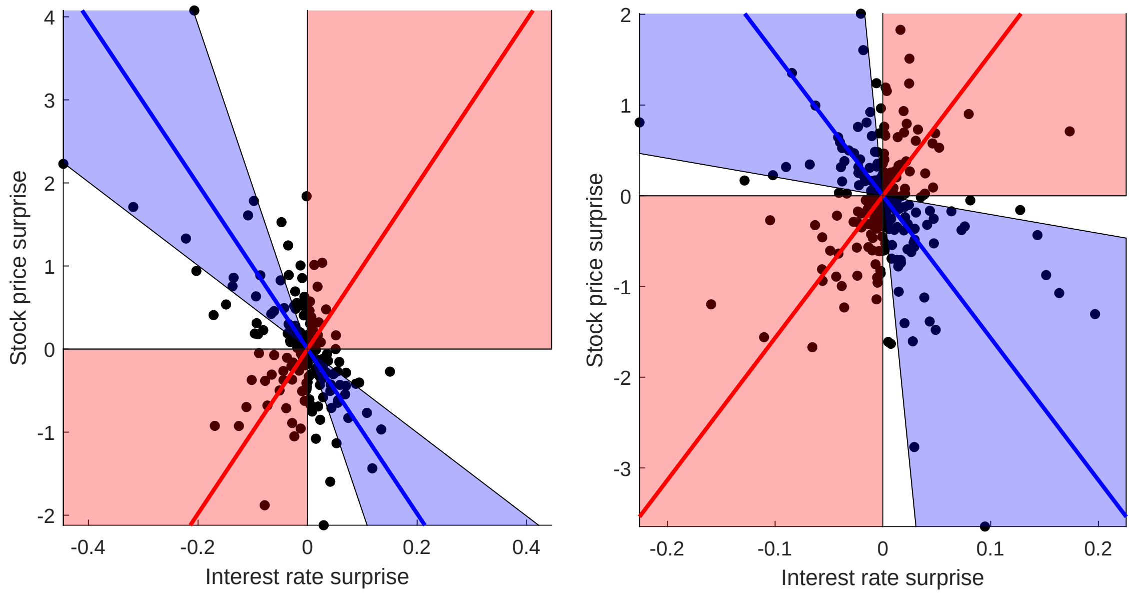
To simplify further notice that $M'M = R'Q'QR = R'R$, and hence

$$\begin{pmatrix} i^{Total\prime} i^{Total} & i^{Total\prime} s \\ \ldots & s's \end{pmatrix} = \begin{pmatrix} r_{11}^2 & r_{11} r_{12} \\ \ldots & r_{12}^2 + r_{22}^2 \end{pmatrix} . \blacksquare \tag{B.15}$$

B.3 Results for the Fed and ECB surprises studied in this paper

Figure B.1 reports the surprises and the admissible range of decompositions. The scatter plots show the interest rate surprises and stock price surprises for all Fed and ECB an-

Figure B.1: Alternative sign restriction-based decompositions of central bank surprises.



Fed announcements ECB announcements

Note. Each dot corresponds to one announcement. In each plot, the blue line represents the relationship $s = c_{MP} * i^{MP}$ and the red line represents the relationship $s = c_{CBI} * i^{CBI}$ for the median rotation. Blue and red ranges represent the slopes of these relations for all the admissible decompositions.

nouncements. The blue regions indicate all the admissible negative relations between i^{Total} and s conditionally on the monetary policy shock, i.e. all the admissible lines $s = c_{MP}\, i^{MP}$. The red regions indicate all the corresponding positive relations between i^{Total} and s conditionally on the central bank shock, i.e. all the admissible lines $s = c_{CBI}\, i^{CBI}$.

Table B.1: Coefficients c_{MP} and c_{CBI} and variance shares corresponding to selected rotations

Percentile of the admissible rotations	Fed			ECB		
	c_{MP}	c_{CBI}	$\frac{\text{var}(i^{MP})}{\text{var}(i^{Total})}$	c_{MP}	c_{CBI}	$\frac{\text{var}(i^{MP})}{\text{var}(i^{Total})}$
00th	-5.0	∞	1.00	-2.1	∞	1.00
25th	-7.3	27.1	0.93	-7.9	39.3	0.88
50th	-9.9	9.9	0.75	-15.7	15.7	0.57
75th	-13.5	3.6	0.51	-31.1	6.3	0.22
100th	-19.5	0.0	0.26	-118.8	0.0	0.02

Table B.1 reports the coefficients c_{MP}, c_{CBI} and variance shares $\frac{\text{var}(i^{MP})}{\text{var}(i^{Total})}$ for selected rotations. Smaller rotation angles produce i^{MP} shocks that affect stock price surprises less and account for a higher share of variance of i^{Total}. For both the ECB and the Fed the smallest admissible rotation angle corresponds to the recursive decomposition and implies that all interest rate surprises are interpreted as monetary policy shocks i^{MP} (and the unexplained variation in stock price surprises is attributed to the 'FOMC risk shock' as in Kroencke et al. 2021).

Appendix C Local projection results

C.1 Additional local projection results

Table C.1: The effect of ECB interest rate surprises and shocks on financial variables

$$y_{t+h} - y_{t-1} = \alpha + \beta_h \, i_t^{Total,ECB} + u_t.$$

$$y_{t+h} - y_{t-1} = \alpha + \beta_h^{MP} \, i_t^{MP} + \beta_h^{CBI} \, i_t^{CBI} + u_t.$$

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
1-year Bund yield										
β_h	1.04***	1.02***	1.04***	0.96***	0.98***	0.87**	0.91**	0.95**	0.81**	0.97*
	(0.16)	(0.19)	(0.22)	(0.24)	(0.28)	(0.35)	(0.36)	(0.45)	(0.40)	(0.51)
R-sq	0.37	0.26	0.24	0.18	0.16	0.08	0.06	0.05	0.02	0.03
N.obs.	261	261	261	261	261	261	261	261	261	261
1-year Treasury yield										
β_h	0.11	0.22	0.22	0.11	0.13	-0.01	-0.11	-0.32	-0.35	-0.26
	(0.16)	(0.18)	(0.21)	(0.18)	(0.22)	(0.28)	(0.25)	(0.33)	(0.37)	(0.44)
R-sq	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N.obs.	261	261	261	261	261	261	261	261	261	261
10-year Bund yield										
β_h	0.39***	0.43**	0.51**	0.54**	0.63**	0.35	0.24	0.12	0.42	0.59
	(0.14)	(0.19)	(0.20)	(0.23)	(0.26)	(0.34)	(0.42)	(0.50)	(0.45)	(0.50)
R-sq	0.04	0.04	0.04	0.04	0.04	0.01	0.00	0.00	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (median rotation)	0.25	0.33	0.51*	0.45	0.52	0.32	0.23	0.07	0.31	0.66
	(0.21)	(0.26)	(0.27)	(0.31)	(0.34)	(0.43)	(0.50)	(0.63)	(0.54)	(0.63)
β_h^{CBI} (median rotation)	0.57***	0.56**	0.52**	0.65**	0.76**	0.39	0.26	0.18	0.56	0.50
	(0.19)	(0.24)	(0.25)	(0.28)	(0.31)	(0.42)	(0.50)	(0.53)	(0.56)	(0.62)
F-test	0.28	0.47	0.98	0.58	0.56	0.89	0.96	0.86	0.71	0.83
R-sq	0.05	0.04	0.04	0.04	0.04	0.01	0.00	0.00	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	0.34*	0.42	0.54*	0.53*	0.58*	0.28	0.01	-0.13	0.04	0.25
	(0.18)	(0.26)	(0.28)	(0.32)	(0.35)	(0.43)	(0.52)	(0.67)	(0.50)	(0.59)
β_h^{CBI} (simple)	0.49***	0.45**	0.44*	0.57**	0.72**	0.51	0.73	0.64	1.24**	1.32**
	(0.16)	(0.23)	(0.24)	(0.27)	(0.34)	(0.49)	(0.54)	(0.49)	(0.56)	(0.63)
F-test	0.54	0.93	0.79	0.92	0.78	0.72	0.34	0.35	0.11	0.22
R-sq	0.05	0.04	0.04	0.04	0.04	0.01	0.01	0.01	0.02	0.02
N.obs.	261	261	261	261	261	261	261	261	261	261
10-year Treasury yield										
β_h	0.15	0.35	0.35	0.30	0.29	-0.13	-0.11	-0.36	-0.13	-0.30
	(0.20)	(0.24)	(0.30)	(0.30)	(0.27)	(0.51)	(0.53)	(0.65)	(0.68)	(0.90)
R-sq	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (median rotation)	-0.00	0.11	0.05	-0.13	0.02	-0.54	-0.33	-0.56	-0.34	-0.56
	(0.26)	(0.27)	(0.31)	(0.33)	(0.31)	(0.63)	(0.67)	(0.80)	(0.81)	(1.09)
β_h^{CBI} (median rotation)	0.34	0.64**	0.74**	0.86**	0.63*	0.40	0.16	-0.11	0.15	0.03
	(0.24)	(0.29)	(0.37)	(0.40)	(0.35)	(0.60)	(0.60)	(0.71)	(0.78)	(0.92)
F-test	0.26	0.09	0.07	0.02	0.13	0.21	0.51	0.58	0.57	0.56
R-sq	0.01	0.02	0.03	0.03	0.01	0.01	0.00	0.00	0.00	0.00
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	0.12	0.23	0.09	0.04	0.19	-0.52	-0.39	-0.70	-0.58	-0.80
	(0.28)	(0.30)	(0.32)	(0.32)	(0.32)	(0.59)	(0.68)	(0.83)	(0.82)	(1.18)
β_h^{CBI} (simple)	0.21	0.60**	0.92**	0.86*	0.50	0.72	0.49	0.36	0.85	0.75
	(0.19)	(0.30)	(0.43)	(0.51)	(0.42)	(0.69)	(0.62)	(0.73)	(0.81)	(0.86)
F-test	0.80	0.38	0.12	0.17	0.55	0.17	0.34	0.34	0.22	0.29
R-sq	0.00	0.02	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity.

Table C.2: The effect of ECB monetary policy and information shocks on Fed funds futures, omitting the Zero Lower Bound period.

	$h = 1$	$h = 2$	$h = 3$	$h = 4$	$h = 5$	$h = 10$	$h = 15$	$h = 20$	$h = 25$	$h = 30$
Fed funds futures next FOMC										
β_h^{MP} (median rotation)	-0.38**	-0.41**	-0.44**	-0.45	-0.55	-1.11*	-1.26*	-1.85**	-2.05**	-2.39**
	(0.17)	(0.17)	(0.18)	(0.47)	(0.46)	(0.57)	(0.68)	(0.77)	(0.88)	(0.94)
β_h^{CBI} (median rotation)	0.41	0.44	0.37	1.29**	1.18**	1.15	1.22	1.20	0.87	1.37
	(0.28)	(0.29)	(0.24)	(0.55)	(0.60)	(0.91)	(1.07)	(1.22)	(1.59)	(1.64)
F-test	0.06	0.05	0.03	0.03	0.03	0.02	0.04	0.02	0.07	0.03
R-sq	0.02	0.02	0.02	0.06	0.05	0.05	0.04	0.04	0.04	0.05
N.obs.	181	181	181	181	181	181	181	181	181	181
β_h^{MP} (simple)	-0.19***	-0.19**	-0.21*	0.20	0.17	-0.02	-0.14	-0.49	-0.53	-0.66
	(0.07)	(0.09)	(0.12)	(0.45)	(0.42)	(0.48)	(0.61)	(0.72)	(0.77)	(0.88)
β_h^{CBI} (simple)	0.32	0.33	0.21	0.59	0.30	-0.38	-0.26	-0.58	-1.36	-0.95
	(0.26)	(0.27)	(0.15)	(0.38)	(0.55)	(1.26)	(1.38)	(1.56)	(2.12)	(2.24)
F-test	0.06	0.07	0.03	0.50	0.86	0.79	0.94	0.96	0.72	0.91
R-sq	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01
N.obs.	181	181	181	181	181	181	181	181	181	181
Fed funds futures 3m										
β_h^{MP} (median rotation)	-0.23	-0.39**	-0.29	-0.49***	-0.56***	-0.94***	-1.10***	-1.58***	-1.91***	-2.20***
	(0.15)	(0.17)	(0.18)	(0.18)	(0.19)	(0.26)	(0.33)	(0.48)	(0.57)	(0.69)
β_h^{CBI} (median rotation)	0.22	0.35	0.35	0.64**	0.29	0.51	0.47	0.73	1.02	1.21
	(0.18)	(0.23)	(0.24)	(0.25)	(0.36)	(0.54)	(0.72)	(1.06)	(1.13)	(1.19)
F-test	0.02	0.01	0.04	0.00	0.03	0.02	0.08	0.05	0.03	0.02
R-sq	0.02	0.03	0.02	0.05	0.03	0.04	0.03	0.04	0.04	0.04
N.obs.	181	181	181	181	181	181	181	181	181	181
β_h^{MP} (simple)	-0.21	-0.28*	-0.17	-0.25	-0.25	-0.47**	-0.61**	-0.70*	-0.91*	-1.09*
	(0.14)	(0.14)	(0.17)	(0.17)	(0.18)	(0.20)	(0.27)	(0.39)	(0.49)	(0.64)
β_h^{CBI} (simple)	0.39**	0.45*	0.37	0.61**	-0.03	0.09	0.06	-0.24	0.05	0.21
	(0.16)	(0.24)	(0.25)	(0.27)	(0.56)	(0.81)	(0.89)	(1.48)	(1.57)	(1.62)
F-test	0.01	0.01	0.07	0.01	0.70	0.50	0.47	0.76	0.56	0.45
R-sq	0.04	0.04	0.02	0.04	0.01	0.01	0.01	0.01	0.01	0.02
N.obs.	181	181	181	181	181	181	181	181	181	181
Fed funds futures 6m										
β_h^{MP} (median rotation)	-0.07	-0.02	0.02	-0.24	-0.28	-0.69	-0.81*	-1.22**	-1.43**	-1.66**
	(0.23)	(0.25)	(0.29)	(0.28)	(0.35)	(0.44)	(0.42)	(0.51)	(0.60)	(0.75)
β_h^{CBI} (median rotation)	0.33	0.47	0.59*	0.84**	0.73*	0.95	1.01	0.95	1.24	1.61
	(0.23)	(0.32)	(0.33)	(0.35)	(0.44)	(0.59)	(0.75)	(1.02)	(1.05)	(1.12)
F-test	0.14	0.18	0.11	0.01	0.03	0.02	0.06	0.09	0.05	0.02
R-sq	0.01	0.01	0.02	0.04	0.02	0.03	0.02	0.02	0.02	0.03
N.obs.	178	179	178	179	179	178	179	178	179	178
β_h^{MP} (simple)	-0.06	0.03	0.12	0.02	0.07	-0.21	-0.30	-0.54	-0.63	-0.81
	(0.21)	(0.24)	(0.32)	(0.29)	(0.41)	(0.42)	(0.36)	(0.41)	(0.50)	(0.70)
β_h^{CBI} (simple)	0.50***	0.58*	0.61*	0.73**	0.38	0.60	0.69	0.36	0.63	1.21
	(0.19)	(0.33)	(0.32)	(0.34)	(0.53)	(0.84)	(0.91)	(1.35)	(1.33)	(1.53)
F-test	0.05	0.18	0.28	0.12	0.64	0.39	0.31	0.52	0.37	0.23
R-sq	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
N.obs.	178	179	178	179	179	178	179	178	179	178

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$. The sample excludes the period between 16 December 2008 and 15 December 2015, when the Fed funds rate was stuck near zero.

C.2 Local projection results corresponding to the figures in the text

Table C.3: The effect of ECB monetary policy and information shocks on financial variables

$$y_{t+h} - y_{t-1} = \alpha + \beta_h^{MP}\, i_t^{MP} + \beta_h^{CBI}\, i_t^{CBI} + u_t.$$

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
SP500										
β_h^{MP} (median rotation)	-7.08**	-7.14	-12.05**	-12.28	-9.45	-16.71	-1.00	-8.89	-8.92	-6.80
	(3.58)	(5.14)	(5.67)	(8.06)	(6.00)	(14.04)	(9.22)	(10.84)	(10.89)	(11.95)
β_h^{CBI} (median rotation)	16.16***	22.18***	25.45***	24.22***	27.97***	19.60	26.63**	23.17*	26.61*	23.91
	(4.20)	(7.58)	(6.80)	(9.20)	(9.22)	(12.30)	(12.70)	(12.95)	(14.77)	(14.86)
F-test	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.03	0.05	0.12
R-sq	0.07	0.08	0.09	0.07	0.07	0.04	0.03	0.02	0.02	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-1.59	-2.32	-5.40	-8.44	-5.51	-16.57	0.05	-5.91	-1.90	-0.39
	(2.68)	(3.97)	(5.03)	(7.54)	(5.16)	(14.35)	(9.47)	(10.62)	(10.39)	(10.48)
β_h^{CBI} (simple)	13.20**	22.97**	25.40***	29.78***	33.67***	32.99***	34.81**	28.90**	25.02	21.82
	(5.16)	(11.10)	(8.48)	(11.12)	(10.59)	(11.44)	(13.97)	(14.42)	(16.20)	(16.79)
F-test	0.01	0.03	0.00	0.00	0.00	0.01	0.04	0.05	0.16	0.26
R-sq	0.03	0.06	0.06	0.08	0.07	0.06	0.04	0.02	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
High yield corporate bond OAS (US)										
β_h^{MP} (median rotation)	0.05	-0.13	-0.07	0.38	0.45	1.60	0.14	-0.58	-1.02	-1.02
	(0.39)	(0.45)	(0.58)	(0.77)	(0.90)	(2.10)	(2.48)	(3.07)	(3.41)	(3.48)
β_h^{CBI} (median rotation)	-1.26***	-2.21***	-2.60***	-3.11***	-3.37***	-3.36*	-3.48	-3.20	-3.05	-4.37
	(0.46)	(0.77)	(0.94)	(1.07)	(1.20)	(1.94)	(2.28)	(2.63)	(3.06)	(3.25)
F-test	0.01	0.00	0.01	0.00	0.00	0.01	0.12	0.38	0.57	0.41
R-sq	0.05	0.09	0.09	0.09	0.08	0.03	0.02	0.01	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-0.14	-0.27	-0.25	-0.02	0.02	1.31	0.58	0.32	0.07	-0.14
	(0.40)	(0.42)	(0.53)	(0.76)	(0.90)	(2.27)	(2.67)	(3.22)	(3.57)	(3.49)
β_h^{CBI} (simple)	-1.36**	-2.70***	-3.18**	-3.58**	-3.89**	-4.61**	-5.77**	-6.10**	-6.15**	-7.50**
	(0.54)	(1.04)	(1.32)	(1.51)	(1.69)	(2.12)	(2.34)	(2.46)	(2.75)	(3.05)
F-test	0.07	0.03	0.04	0.03	0.04	0.05	0.07	0.11	0.16	0.11
R-sq	0.04	0.10	0.11	0.10	0.08	0.05	0.05	0.03	0.02	0.03
N.obs.	261	261	261	261	261	261	261	261	261	261

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$.

Table C.3: Continued

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
EUR per USD										
β_h^{MP} (median rotation)	-7.67***	-8.66***	-7.78***	-7.88**	-8.63**	-5.82	-11.69**	-7.91	-10.27*	-18.14**
	(2.32)	(2.39)	(2.71)	(3.68)	(4.18)	(6.05)	(5.87)	(5.74)	(5.38)	(8.28)
β_h^{CBI} (median rotation)	-2.06	-5.40*	-4.61	-4.81	-5.84	-7.66	-13.99**	-17.43**	-16.01**	-18.66**
	(2.44)	(3.10)	(3.35)	(3.91)	(4.31)	(4.99)	(6.37)	(6.93)	(7.36)	(9.19)
F-test	0.11	0.39	0.47	0.55	0.64	0.83	0.80	0.34	0.57	0.96
R-sq	0.06	0.06	0.04	0.04	0.04	0.01	0.04	0.03	0.03	0.05
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-5.80***	-8.49***	-6.90***	-7.47**	-7.31*	-7.11	-13.30***	-11.54***	-12.70***	-22.76***
	(2.03)	(2.18)	(2.35)	(3.56)	(3.84)	(4.80)	(4.62)	(4.34)	(3.68)	(7.91)
β_h^{CBI} (simple)	-3.92	-4.52	-5.29	-4.53	-7.61	-5.59	-11.44	-13.26*	-12.99	-9.00
	(2.79)	(4.03)	(4.33)	(4.57)	(5.17)	(4.72)	(7.22)	(7.97)	(8.70)	(11.14)
F-test	0.59	0.39	0.74	0.61	0.96	0.82	0.83	0.85	0.98	0.31
R-sq	0.05	0.07	0.04	0.04	0.04	0.01	0.04	0.03	0.03	0.05
N.obs.	261	261	261	261	261	261	261	261	261	261
Broad dollar ex EUR										
β_h^{MP} (median rotation)	0.35	0.98	1.31	2.10	1.80	4.59	1.19	4.63	3.68	1.03
	(1.16)	(1.23)	(1.36)	(2.10)	(2.54)	(3.54)	(3.25)	(3.48)	(3.34)	(3.82)
β_h^{CBI} (median rotation)	-3.23***	-4.34***	-5.22***	-6.79***	-5.87***	-5.79*	-8.06**	-7.20**	-8.63**	-11.05**
	(1.09)	(1.40)	(1.64)	(2.17)	(2.27)	(3.04)	(3.66)	(3.51)	(3.99)	(4.58)
F-test	0.01	0.00	0.00	0.00	0.01	0.01	0.03	0.01	0.03	0.07
R-sq	0.04	0.05	0.06	0.07	0.04	0.03	0.03	0.03	0.03	0.03
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-0.24	-0.21	-0.08	0.38	1.17	2.61	-0.73	2.35	0.59	-2.54
	(1.09)	(1.19)	(1.28)	(2.15)	(2.47)	(3.59)	(3.37)	(3.40)	(2.83)	(2.89)
β_h^{CBI} (simple)	-3.31***	-3.80**	-4.71**	-6.47**	-7.42***	-5.48*	-7.46*	-6.79*	-6.66	-7.98
	(1.24)	(1.81)	(2.27)	(2.65)	(2.44)	(3.13)	(4.12)	(3.88)	(4.35)	(5.13)
F-test	0.06	0.10	0.08	0.04	0.01	0.09	0.20	0.07	0.16	0.35
R-sq	0.03	0.03	0.04	0.04	0.05	0.02	0.02	0.02	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$.

Table C.4: The effect of European industrial confidence surprises on financial variables

$$y_{t+h} - y_{t-1} = \alpha + \beta_h \, z_t^{IndConf} + u_t$$

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
1-year Treasury yield										
β_h	0.01	0.27	0.20	1.13*	1.61**	2.03**	2.68**	2.62*	3.98**	5.04**
	(0.43)	(0.48)	(0.59)	(0.58)	(0.74)	(0.96)	(1.34)	(1.38)	(1.70)	(1.96)
R-sq	0.00	0.00	0.00	0.02	0.03	0.02	0.03	0.02	0.04	0.05
N.obs.	196	196	196	196	196	196	196	196	196	196
10-year Treasury yield										
β_h	0.15	1.04	1.21	2.34***	3.12***	2.84**	5.17**	5.67**	6.95**	7.08**
	(0.57)	(0.71)	(0.82)	(0.82)	(1.03)	(1.29)	(2.48)	(2.53)	(2.82)	(2.87)
R-sq	0.00	0.01	0.01	0.04	0.05	0.03	0.05	0.05	0.06	0.05
N.obs.	196	196	196	196	196	196	196	196	196	196
SP500										
β_h	-9.86	16.97	13.07	27.42	42.43**	40.21**	75.35*	42.76*	39.88	77.42**
	(10.47)	(19.82)	(21.14)	(17.31)	(18.75)	(20.13)	(38.95)	(24.50)	(34.37)	(37.88)
R-sq	0.01	0.01	0.00	0.01	0.03	0.02	0.04	0.01	0.01	0.02
N.obs.	196	196	196	196	196	196	196	196	196	196
High yield corporate bond OAS (US)										
β_h	-0.96	-2.40*	-2.49	-4.23**	-5.55**	-9.32***	-13.75**	-12.15*	-9.69	-10.56
	(0.99)	(1.46)	(1.76)	(2.03)	(2.29)	(2.97)	(6.00)	(6.78)	(9.78)	(11.36)
R-sq	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.02	0.01	0.01
N.obs.	196	196	196	196	196	196	196	196	196	196
EUR per USD										
β_h	-17.31**	-19.03**	-21.55**	-23.08**	-32.54***	-31.53**	-23.08	-33.51	-56.89**	-40.54*
	(7.21)	(8.08)	(8.48)	(9.22)	(10.54)	(14.22)	(27.47)	(26.68)	(22.62)	(22.97)
R-sq	0.04	0.03	0.03	0.03	0.05	0.03	0.01	0.01	0.03	0.02
N.obs.	196	196	196	196	196	196	196	196	196	196
Broad dollar ex EUR										
β_h	-3.90	-5.14	-3.05	-3.94	-8.20	-13.97*	-17.14	-23.08**	-26.94**	-28.92**
	(2.90)	(4.22)	(6.04)	(6.37)	(6.34)	(8.03)	(11.01)	(9.66)	(11.91)	(13.43)
R-sq	0.01	0.01	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.02
N.obs.	196	196	196	196	196	196	196	196	196	196

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity.

Table C.5: The effect of euro area unemployment rate surprises on financial variables

$$y_{t+h} - y_{t-1} = \alpha + \beta_h \, z_t^{Unemp} + u_t$$

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
1-year Treasury yield										
β_h	-0.40	-0.81	-1.28*	-1.04	-1.47**	-1.89*	-2.78*	-2.17	-2.85	-2.34
	(0.44)	(0.62)	(0.76)	(0.76)	(0.73)	(0.97)	(1.64)	(1.44)	(1.84)	(1.84)
R-sq	0.00	0.01	0.02	0.01	0.02	0.02	0.03	0.01	0.02	0.01
N.obs.	229	229	229	229	229	229	229	229	229	229
10-year Treasury yield										
β_h	-0.88	-1.22*	-1.69**	-1.60*	-1.75**	-0.88	-1.68	-0.53	-0.41	0.75
	(0.56)	(0.64)	(0.75)	(0.86)	(0.85)	(1.17)	(1.47)	(1.67)	(1.86)	(1.82)
R-sq	0.01	0.02	0.02	0.02	0.02	0.00	0.01	0.00	0.00	0.00
N.obs.	229	229	229	229	229	229	229	229	229	229
SP500										
β_h	-25.39**	-22.83*	-25.72*	-35.10*	-42.78**	-49.37	-87.15**	-62.98*	-60.07	-60.78
	(12.58)	(13.45)	(15.42)	(21.11)	(21.49)	(30.63)	(34.30)	(34.01)	(37.57)	(42.64)
R-sq	0.02	0.02	0.01	0.02	0.02	0.02	0.04	0.02	0.01	0.01
N.obs.	229	229	229	229	229	229	229	229	229	229
High yield corporate bond OAS (US)										
β_h	1.87	2.65	4.06	3.95	4.52	5.67	7.20	5.40	1.82	0.70
	(1.88)	(2.25)	(2.99)	(3.26)	(3.83)	(5.29)	(6.73)	(7.50)	(8.96)	(9.52)
R-sq	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00
N.obs.	229	229	229	229	228	229	229	229	229	229
EUR per USD										
β_h	29.11***	31.55***	31.56***	32.38***	27.44**	23.55	23.87	23.53	22.79	36.90
	(7.21)	(7.93)	(9.46)	(10.07)	(11.53)	(14.80)	(19.42)	(21.03)	(21.38)	(24.16)
R-sq	0.10	0.09	0.08	0.06	0.04	0.01	0.01	0.01	0.01	0.01
N.obs.	229	229	229	229	229	229	229	229	229	229
Broad dollar ex EUR										
β_h	8.67**	8.68*	9.90*	9.38	8.70	9.49	17.11	18.19	14.33	21.62
	(3.87)	(4.44)	(5.43)	(6.42)	(8.10)	(8.32)	(11.79)	(11.85)	(11.72)	(13.94)
R-sq	0.04	0.03	0.03	0.02	0.01	0.01	0.02	0.02	0.01	0.01
N.obs.	229	229	229	229	229	229	229	229	229	229

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity.

Table C.6: The effect of ECB monetary policy and information shocks on stock sub-indices.

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
Europe-exposed										
β_h^{MP} (median rotation)	-6.13	-9.42	-15.40**	-19.01**	-15.27*	-19.20	-13.63	-13.54	-13.92	-10.50
	(4.81)	(5.91)	(6.90)	(8.98)	(8.36)	(15.46)	(12.37)	(12.51)	(13.27)	(15.65)
β_h^{CBI} (median rotation)	14.34***	16.70**	19.09**	14.59	20.38*	9.41	23.04	24.79	30.01	23.79
	(5.49)	(7.60)	(7.96)	(10.31)	(11.58)	(14.47)	(16.09)	(16.11)	(18.76)	(19.36)
F-test	0.01	0.01	0.00	0.00	0.00	0.07	0.04	0.04	0.04	0.14
R-sq	0.03	0.03	0.04	0.03	0.03	0.02	0.01	0.01	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-1.99	-5.12	-8.42	-14.93*	-11.95	-21.72	-10.11	-7.30	-6.39	-4.60
	(3.82)	(4.42)	(5.76)	(8.41)	(7.33)	(15.21)	(12.35)	(11.73)	(11.77)	(13.67)
β_h^{CBI} (simple)	13.24**	17.37**	17.21**	18.56	26.74*	25.57*	29.36	25.93	30.52	24.15
	(5.42)	(8.76)	(8.34)	(11.57)	(13.65)	(14.54)	(19.27)	(20.92)	(25.40)	(26.31)
F-test	0.02	0.02	0.01	0.02	0.01	0.02	0.08	0.17	0.19	0.33
R-sq	0.02	0.02	0.02	0.03	0.03	0.04	0.02	0.01	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
US-exposed										
β_h^{MP} (median rotation)	-3.53	-0.77	-5.36	-3.17	-0.67	-6.34	11.38	-1.12	1.59	-4.83
	(5.07)	(7.04)	(8.75)	(12.49)	(9.00)	(21.62)	(16.57)	(22.02)	(21.41)	(21.50)
β_h^{CBI} (median rotation)	24.00***	36.16***	37.50***	36.72***	37.66***	25.77	27.59	14.85	17.03	7.30
	(6.94)	(11.25)	(11.01)	(12.67)	(13.75)	(17.90)	(17.28)	(19.08)	(21.53)	(21.13)
F-test	0.00	0.00	0.00	0.01	0.01	0.10	0.44	0.49	0.60	0.68
R-sq	0.07	0.09	0.07	0.06	0.05	0.02	0.02	0.00	0.00	0.00
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	3.88	7.10	3.08	2.80	4.53	-5.22	15.90	4.96	10.65	2.26
	(4.91)	(6.49)	(7.77)	(12.14)	(8.77)	(23.03)	(16.15)	(22.95)	(19.30)	(19.28)
β_h^{CBI} (simple)	18.58*	33.30**	35.66**	39.03**	41.02**	35.49*	24.04	7.90	3.54	-3.24
	(9.56)	(16.89)	(14.43)	(15.52)	(17.43)	(18.95)	(23.07)	(23.38)	(27.94)	(28.09)
F-test	0.17	0.15	0.05	0.07	0.06	0.17	0.77	0.93	0.83	0.87
R-sq	0.03	0.07	0.05	0.05	0.05	0.02	0.02	0.00	0.00	0.00
N.obs.	261	261	261	261	261	261	261	261	261	261

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$.

Table C.6: Continued

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
SP500 Financials										
β_h^{MP} (median rotation)	-8.09	-6.79	-16.30*	-16.97	-15.60	-36.68	-19.01	-25.12	-29.91	-29.14
	(5.72)	(9.20)	(9.24)	(12.94)	(10.48)	(26.60)	(16.94)	(17.99)	(18.87)	(18.29)
β_h^{CBI} (median rotation)	16.27**	24.05**	33.09***	32.67**	39.85***	26.39	31.76	28.49	28.50	26.14
	(6.95)	(12.08)	(10.93)	(14.61)	(15.32)	(20.61)	(19.67)	(21.00)	(24.69)	(23.98)
F-test	0.01	0.02	0.00	0.00	0.00	0.00	0.02	0.02	0.04	0.06
R-sq	0.03	0.04	0.07	0.06	0.06	0.05	0.02	0.02	0.02	0.02
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-3.59	-5.54	-10.96	-13.52	-10.01	-35.92	-13.90	-21.76	-21.95	-20.27
	(4.79)	(7.38)	(8.04)	(12.44)	(9.94)	(28.32)	(18.11)	(18.70)	(20.28)	(17.31)
β_h^{CBI} (simple)	15.85*	33.01**	40.33***	44.03**	48.83***	48.57***	39.99*	41.53*	33.55	28.07
	(8.64)	(16.77)	(13.45)	(18.14)	(18.35)	(18.07)	(21.35)	(24.72)	(24.32)	(26.15)
F-test	0.05	0.04	0.00	0.01	0.00	0.01	0.05	0.04	0.08	0.12
R-sq	0.02	0.06	0.07	0.07	0.06	0.08	0.03	0.03	0.02	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
SP500 Ex-Financials										
β_h^{MP} (median rotation)	-6.87**	-6.65	-11.28**	-11.34	-8.25	-13.30	1.96	-5.73	-5.08	-2.66
	(3.34)	(4.63)	(5.21)	(7.27)	(5.52)	(12.22)	(8.15)	(9.88)	(9.95)	(11.33)
β_h^{CBI} (median rotation)	16.02***	21.35***	24.13***	22.49***	25.67***	18.00	25.56**	22.11*	26.05*	23.51*
	(3.90)	(6.97)	(6.32)	(8.43)	(8.47)	(11.27)	(11.87)	(12.00)	(13.56)	(13.74)
F-test	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.05	0.07	0.16
R-sq	0.07	0.08	0.09	0.07	0.06	0.03	0.03	0.02	0.02	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-1.20	-1.66	-4.42	-7.50	-4.64	-13.44	2.42	-2.99	1.74	3.50
	(2.43)	(3.58)	(4.64)	(6.73)	(4.70)	(12.28)	(8.15)	(9.44)	(9.05)	(9.70)
β_h^{CBI} (simple)	12.56***	21.25**	22.86***	27.06***	30.77***	30.09***	33.48**	26.77**	23.26	20.25
	(4.75)	(10.22)	(7.84)	(10.14)	(9.57)	(10.72)	(13.19)	(13.34)	(15.32)	(15.71)
F-test	0.01	0.03	0.00	0.00	0.00	0.01	0.04	0.07	0.22	0.36
R-sq	0.03	0.06	0.06	0.07	0.06	0.05	0.04	0.02	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$.

Table C.6: Continued

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
Wilshire US Small-Cap										
β_h^{MP} (median rotation)	-6.44	-8.20	-13.83**	-15.21	-12.24*	-19.77	8.22	-2.41	-3.73	-2.37
	(4.03)	(6.20)	(6.67)	(9.52)	(7.25)	(17.99)	(12.37)	(16.45)	(16.91)	(18.07)
β_h^{CBI} (median rotation)	20.81***	28.62***	28.64***	30.67***	32.32***	26.83*	40.98**	35.54*	41.36**	38.11*
	(5.92)	(10.68)	(9.13)	(11.74)	(11.39)	(16.29)	(16.38)	(18.22)	(20.13)	(20.96)
F-test	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.07	0.09	0.17
R-sq	0.07	0.08	0.09	0.07	0.06	0.04	0.04	0.02	0.02	0.02
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-0.45	-2.39	-7.42	-10.17	-7.70	-20.95	6.51	-2.35	3.42	4.20
	(3.25)	(4.79)	(5.88)	(8.97)	(6.46)	(18.14)	(12.39)	(15.90)	(15.50)	(14.71)
β_h^{CBI} (simple)	18.32**	30.11*	30.99**	37.21**	39.45***	46.92***	56.98***	49.72***	43.12**	39.37*
	(7.92)	(16.57)	(12.04)	(15.25)	(13.32)	(15.39)	(17.73)	(19.11)	(20.62)	(23.42)
F-test	0.03	0.06	0.00	0.01	0.00	0.00	0.02	0.04	0.12	0.20
R-sq	0.04	0.07	0.07	0.08	0.07	0.07	0.06	0.03	0.02	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
Wilshire US Large-Cap										
β_h^{MP} (median rotation)	-6.90*	-7.54	-12.36**	-12.67	-10.08*	-16.76	-0.35	-8.64	-8.36	-8.33
	(3.61)	(5.22)	(5.73)	(8.09)	(6.05)	(14.32)	(9.00)	(11.05)	(11.04)	(12.35)
β_h^{CBI} (median rotation)	16.50***	23.20***	25.56***	24.24***	27.53***	20.33	27.09**	23.12*	27.05*	24.71
	(4.29)	(7.82)	(6.99)	(9.32)	(9.32)	(12.65)	(12.74)	(13.08)	(14.89)	(15.32)
F-test	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.04	0.06	0.10
R-sq	0.07	0.08	0.09	0.07	0.06	0.03	0.03	0.02	0.02	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261
β_h^{MP} (simple)	-1.46	-2.45	-5.77	-8.90	-6.21	-16.70	0.66	-5.71	-1.15	-1.45
	(2.71)	(4.01)	(5.08)	(7.55)	(5.22)	(14.61)	(9.18)	(10.78)	(10.47)	(10.87)
β_h^{CBI} (simple)	13.73**	23.93**	25.80***	30.11***	33.47***	34.20***	35.29**	28.85**	25.02	22.49
	(5.33)	(11.62)	(8.72)	(11.25)	(10.69)	(11.79)	(14.25)	(14.60)	(16.49)	(17.39)
F-test	0.01	0.03	0.00	0.00	0.00	0.01	0.04	0.06	0.18	0.24
R-sq	0.03	0.06	0.06	0.08	0.07	0.07	0.04	0.02	0.01	0.01
N.obs.	261	261	261	261	261	261	261	261	261	261

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$.

Table C.7: The effect of European industrial confidence surprises on stock sub-indices

$$y_{t+h} - y_{t-1} = \alpha + \beta_h \, z_t^{IndConf} + u_t$$

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
Europe-exposed										
β_h	-6.07	20.60	12.15	27.74	41.11**	41.11*	74.73	53.25	31.62	49.06
	(11.53)	(17.20)	(18.82)	(18.22)	(18.97)	(23.44)	(46.39)	(33.40)	(40.89)	(45.70)
R-sq	0.00	0.01	0.00	0.01	0.02	0.01	0.03	0.01	0.00	0.01
N.obs.	196	196	196	196	196	196	196	196	196	196
US-exposed										
β_h	-0.18	39.13	26.06	33.58	52.60	45.23	105.14**	88.70**	95.10*	124.28**
	(15.70)	(27.79)	(31.08)	(30.95)	(32.93)	(27.52)	(46.28)	(37.09)	(49.94)	(57.26)
R-sq	0.00	0.02	0.01	0.01	0.02	0.01	0.04	0.02	0.02	0.02
N.obs.	196	196	196	196	196	196	196	196	196	196
SP500 Financials										
β_h	-14.69	34.56	22.18	44.14	72.18**	85.76*	143.64*	99.08*	86.85	180.87**
	(17.15)	(34.91)	(33.52)	(27.87)	(36.38)	(49.51)	(78.68)	(52.26)	(61.60)	(81.70)
R-sq	0.01	0.02	0.00	0.02	0.03	0.03	0.05	0.02	0.01	0.04
N.obs.	196	196	196	196	196	196	196	196	196	196
SP500 Ex-Financials										
β_h	-8.51	14.25	11.67	24.12	38.01**	32.94*	63.73*	32.98	30.60	59.49*
	(9.60)	(17.85)	(19.41)	(16.23)	(17.16)	(17.70)	(33.93)	(22.85)	(31.96)	(34.04)
R-sq	0.00	0.01	0.00	0.01	0.02	0.01	0.03	0.01	0.00	0.01
N.obs.	196	196	196	196	196	196	196	196	196	196
Wilshire US Small-Cap										
β_h	-22.22	11.02	4.66	26.14	36.62	36.87	75.31	27.83	22.39	58.70
	(16.72)	(28.29)	(26.87)	(23.67)	(24.64)	(28.22)	(50.24)	(34.76)	(49.29)	(53.03)
R-sq	0.02	0.00	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01
N.obs.	196	196	196	196	196	196	196	196	196	196
Wilshire US Large-Cap										
β_h	-9.52	16.45	12.49	27.77	42.60**	39.12*	74.15*	38.95	38.42	74.66**
	(10.58)	(19.94)	(21.17)	(17.35)	(18.67)	(20.23)	(39.51)	(24.18)	(34.71)	(37.78)
R-sq	0.00	0.01	0.00	0.02	0.03	0.02	0.03	0.01	0.01	0.02
N.obs.	196	196	196	196	196	196	196	196	196	196

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity.

Table C.8: The effect of euro area unemployment rate surprises on stock sub-indices

$$y_{t+h} - y_{t-1} = \alpha + \beta_h \, z_t^{Unemp} + u_t$$

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
Europe-exposed										
β_h	-20.77	-9.99	-8.20	-20.77	-32.43	-46.64	-64.13*	-38.08	-38.07	-43.74
	(14.46)	(15.64)	(17.79)	(22.78)	(22.30)	(31.04)	(36.24)	(37.21)	(43.17)	(51.24)
R-sq	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
N.obs.	229	229	229	229	229	229	229	229	229	229
US-exposed										
β_h	-36.26*	-31.34	-40.94	-61.38*	-73.03**	-91.54*	-139.18***	-121.71**	-115.75**	-125.56**
	(19.79)	(24.41)	(26.68)	(36.33)	(36.36)	(50.03)	(46.93)	(49.48)	(49.19)	(58.87)
R-sq	0.02	0.01	0.02	0.03	0.03	0.03	0.05	0.04	0.03	0.02
N.obs.	229	229	229	229	229	229	229	229	229	229
SP500 Financials										
β_h	-36.74*	-31.63	-43.47*	-59.01	-80.79**	-64.59	-125.07**	-79.26	-64.74	-63.90
	(19.20)	(23.18)	(25.87)	(36.39)	(39.82)	(44.92)	(54.44)	(55.81)	(66.08)	(70.88)
R-sq	0.02	0.01	0.02	0.02	0.03	0.02	0.03	0.02	0.01	0.01
N.obs.	229	229	229	229	229	229	229	229	229	229
SP500 Ex-Financials										
β_h	-23.23*	-20.46	-22.10	-27.22	-34.94*	-45.44	-78.69**	-57.80*	-57.10*	-57.57
	(12.02)	(12.60)	(14.73)	(19.86)	(19.29)	(29.70)	(31.99)	(31.60)	(34.45)	(39.37)
R-sq	0.02	0.01	0.01	0.01	0.02	0.02	0.03	0.02	0.01	0.01
N.obs.	229	229	229	229	229	229	229	229	229	229
Wilshire US Small-Cap										
β_h	-36.36**	-34.49*	-41.82**	-49.91*	-60.17**	-56.30	-106.91**	-88.09*	-83.50	-78.26
	(15.91)	(18.69)	(20.83)	(26.35)	(27.83)	(38.04)	(42.97)	(47.52)	(51.34)	(56.30)
R-sq	0.03	0.02	0.02	0.02	0.03	0.02	0.04	0.02	0.01	0.01
N.obs.	229	229	229	229	228	229	229	229	229	228
Wilshire US Large-Cap										
β_h	-25.92**	-23.84*	-27.04*	-35.55*	-42.90**	-49.80	-88.94***	-63.35*	-60.92	-61.37
	(12.62)	(13.54)	(15.69)	(21.43)	(21.66)	(30.88)	(34.22)	(34.25)	(37.51)	(42.87)
R-sq	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.02	0.01	0.01
N.obs.	229	229	229	229	228	229	229	229	229	228

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity.

Table C.9: The effect of Fed monetary policy and information shocks on financial variables
$$y_{t+h} - y_{t-1} = \alpha + \beta_h^{MP}\, i_t^{MP} + \beta_h^{CBI}\, i_t^{CBI} + u_t.$$

	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
1-year Bund yield										
β_h^{MP} (median rotation)	0.30***	0.33**	0.30**	0.25	0.24	-0.05	-0.12	0.06	0.00	-0.02
	(0.08)	(0.14)	(0.13)	(0.16)	(0.15)	(0.23)	(0.30)	(0.34)	(0.36)	(0.39)
β_h^{CBI} (median rotation)	0.26**	0.31	0.10	0.19	0.26	0.37	0.84**	1.14***	1.27***	1.64***
	(0.11)	(0.19)	(0.17)	(0.20)	(0.20)	(0.31)	(0.39)	(0.42)	(0.48)	(0.49)
F-test	0.77	0.92	0.28	0.75	0.91	0.16	0.02	0.02	0.01	0.00
R-sq	0.21	0.12	0.08	0.05	0.05	0.01	0.04	0.05	0.05	0.06
N.obs.	171	171	171	171	171	171	171	171	171	171
β_h^{MP} (simple)	0.27***	0.31**	0.28**	0.23	0.26	0.02	-0.01	0.23	0.22	0.23
	(0.07)	(0.14)	(0.13)	(0.17)	(0.17)	(0.24)	(0.30)	(0.34)	(0.36)	(0.39)
β_h^{CBI} (simple)	0.44***	0.39**	0.05	0.23	0.14	0.30	0.96**	0.91**	0.86	1.38***
	(0.14)	(0.18)	(0.21)	(0.22)	(0.23)	(0.34)	(0.41)	(0.45)	(0.55)	(0.53)
F-test	0.29	0.74	0.33	1.00	0.68	0.47	0.04	0.20	0.31	0.06
R-sq	0.22	0.12	0.08	0.05	0.05	0.00	0.02	0.02	0.02	0.03
N.obs.	171	171	171	171	171	171	171	171	171	171
10-year Bund yield										
β_h^{MP} (median rotation)	0.19	0.16	0.17	0.08	0.17	0.04	-0.10	-0.10	-0.11	-0.21
	(0.12)	(0.15)	(0.16)	(0.17)	(0.17)	(0.21)	(0.19)	(0.25)	(0.31)	(0.33)
β_h^{CBI} (median rotation)	0.02	0.13	-0.03	0.12	0.23	0.21	0.38	0.61	0.79	0.72
	(0.14)	(0.20)	(0.21)	(0.22)	(0.23)	(0.32)	(0.34)	(0.48)	(0.66)	(0.60)
F-test	0.16	0.86	0.33	0.86	0.78	0.58	0.17	0.16	0.21	0.16
R-sq	0.04	0.02	0.01	0.00	0.02	0.00	0.01	0.01	0.02	0.01
N.obs.	171	171	171	171	171	171	171	171	171	171
β_h^{MP} (simple)	0.14	0.16	0.14	0.09	0.19	0.04	-0.06	-0.01	0.02	-0.15
	(0.13)	(0.16)	(0.17)	(0.18)	(0.18)	(0.22)	(0.19)	(0.25)	(0.29)	(0.29)
β_h^{CBI} (simple)	0.19	0.11	-0.01	0.11	0.17	0.35	0.57	0.65	0.67	1.10
	(0.13)	(0.21)	(0.26)	(0.26)	(0.29)	(0.38)	(0.36)	(0.61)	(0.83)	(0.69)
F-test	0.82	0.85	0.61	0.96	0.96	0.48	0.11	0.31	0.47	0.09
R-sq	0.03	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.02
N.obs.	171	171	171	171	171	171	171	171	171	171
Euro Stoxx 50										
β_h^{MP} (median rotation)	-6.21***	-6.43***	-5.20*	-5.39	-4.83	-11.50***	-6.32	-7.38	-2.02	-1.55
	(2.22)	(2.38)	(2.79)	(3.31)	(3.33)	(2.85)	(4.12)	(5.71)	(7.72)	(8.36)
β_h^{CBI} (median rotation)	5.71	0.27	1.40	-4.54	-5.19	-2.11	-0.21	2.11	7.30	10.11
	(6.29)	(7.66)	(8.37)	(10.89)	(10.50)	(6.06)	(9.12)	(10.65)	(12.34)	(16.04)
F-test	0.09	0.44	0.49	0.95	0.98	0.17	0.56	0.45	0.50	0.53
R-sq	0.05	0.03	0.02	0.01	0.01	0.05	0.01	0.01	0.00	0.00
N.obs.	171	171	171	171	171	171	171	171	171	171
β_h^{MP} (simple)	-5.62***	-5.78***	-4.48**	-3.98*	-4.17*	-9.48***	-5.17	-3.92	1.26	0.87
	(1.63)	(1.88)	(2.13)	(2.34)	(2.37)	(2.40)	(3.56)	(5.07)	(7.40)	(7.15)
β_h^{CBI} (simple)	12.54	1.79	2.34	-13.84	-10.20	-7.84	-2.81	-13.85	-7.56	3.55
	(7.66)	(11.13)	(12.11)	(14.82)	(15.12)	(10.67)	(12.31)	(11.01)	(15.49)	(26.18)
F-test	0.02	0.50	0.58	0.51	0.69	0.88	0.85	0.40	0.60	0.92
R-sq	0.06	0.03	0.01	0.02	0.02	0.04	0.01	0.01	0.00	0.00
N.obs.	171	171	171	171	171	171	171	171	171	171

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$.

Table C.9: Continued

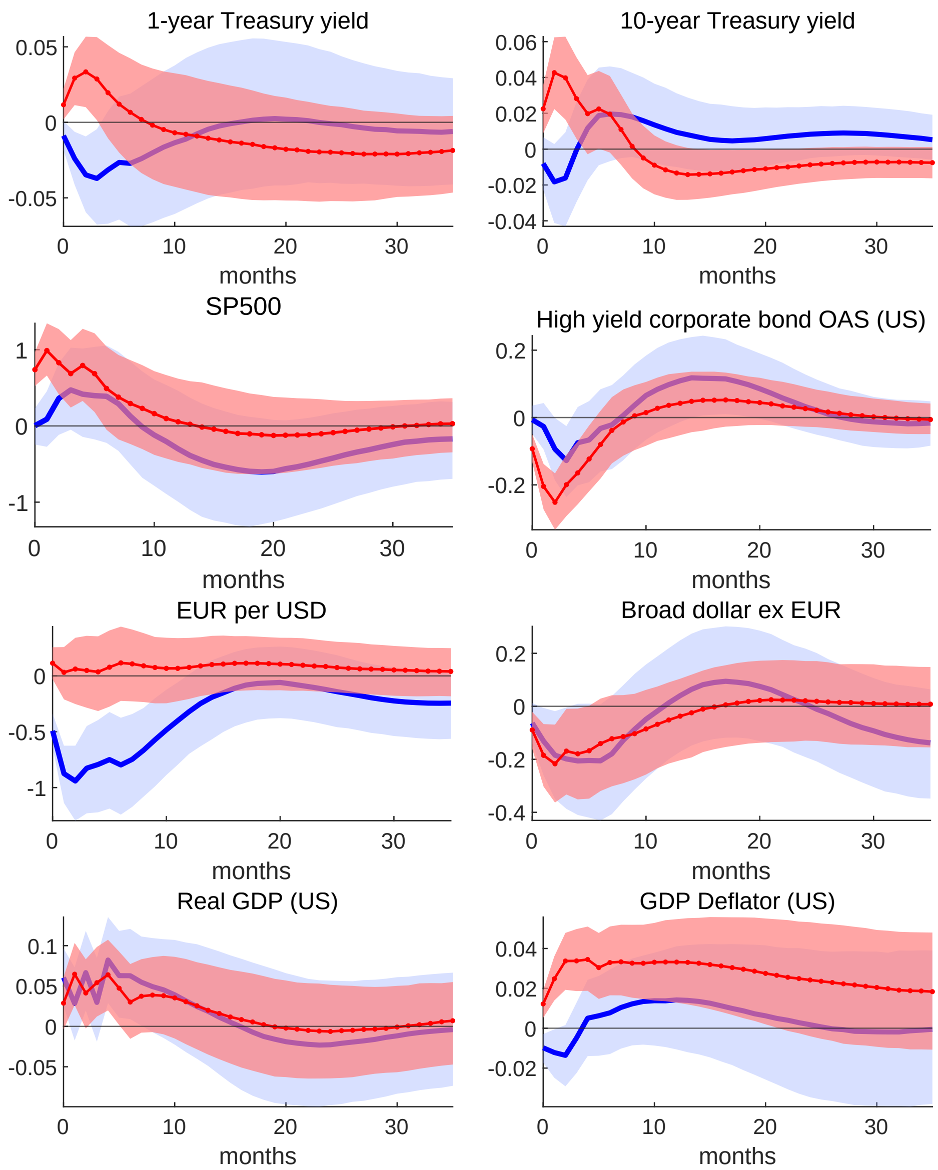
	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=10$	$h=15$	$h=20$	$h=25$	$h=30$
High yield corporate bond OAS (EA)										
β_h^{MP} (median rotation)	0.50*	0.64**	0.89***	0.99**	1.07**	4.03***	5.89***	6.04***	5.63***	5.80**
	(0.28)	(0.32)	(0.30)	(0.38)	(0.44)	(0.82)	(1.43)	(1.70)	(1.95)	(2.29)
β_h^{CBI} (median rotation)	0.60	-0.06	-0.30	-0.71	-0.56	0.39	1.00	0.26	-0.38	-0.56
	(1.05)	(0.90)	(0.87)	(1.02)	(1.19)	(1.43)	(1.91)	(2.20)	(2.59)	(3.18)
F-test	0.93	0.49	0.24	0.16	0.25	0.04	0.01	0.01	0.03	0.05
R-sq	0.03	0.02	0.04	0.04	0.04	0.19	0.20	0.14	0.09	0.07
N.obs.	171	171	171	171	171	171	170	171	171	171
β_h^{MP} (simple)	0.53**	0.57*	0.75***	0.70**	0.76**	3.45***	5.35***	5.27***	4.85**	5.17**
	(0.22)	(0.29)	(0.27)	(0.34)	(0.39)	(0.74)	(1.48)	(1.76)	(1.96)	(2.29)
β_h^{CBI} (simple)	0.51	-0.21	-0.39	-0.25	0.14	1.21	0.40	0.41	-0.36	-1.95
	(1.27)	(1.10)	(1.01)	(1.08)	(1.27)	(1.67)	(2.47)	(2.43)	(2.54)	(3.29)
F-test	0.99	0.49	0.28	0.40	0.64	0.22	0.08	0.09	0.08	0.06
R-sq	0.03	0.02	0.03	0.02	0.02	0.16	0.18	0.13	0.08	0.06
N.obs.	171	171	171	171	171	171	170	171	171	171
EUR per USD										
β_h^{MP} (median rotation)	5.57***	8.28***	7.38***	5.68***	4.40**	3.21	1.57	1.20	1.57	1.92
	(1.77)	(2.43)	(1.41)	(1.74)	(1.87)	(1.98)	(2.39)	(2.74)	(3.51)	(4.21)
β_h^{CBI} (median rotation)	5.39	4.58	3.43	2.57	1.08	1.85	4.81	6.48	2.48	8.75
	(3.35)	(3.08)	(2.79)	(3.08)	(3.30)	(3.46)	(4.27)	(4.95)	(5.80)	(6.71)
F-test	0.96	0.25	0.27	0.43	0.41	0.74	0.52	0.35	0.89	0.34
R-sq	0.13	0.17	0.13	0.07	0.03	0.01	0.01	0.01	0.00	0.01
N.obs.	171	171	171	171	171	171	171	171	171	171
β_h^{MP} (simple)	5.53***	8.10***	6.71***	5.17***	3.85**	3.47**	2.80	1.96	1.47	2.51
	(1.68)	(2.50)	(1.09)	(1.42)	(1.62)	(1.75)	(2.22)	(2.60)	(3.43)	(4.00)
β_h^{CBI} (simple)	5.50*	2.50	4.55*	3.35	2.00	-1.29	-1.03	5.88	4.01	10.83
	(2.97)	(2.18)	(2.69)	(3.21)	(3.85)	(4.10)	(3.87)	(4.69)	(5.57)	(8.12)
F-test	0.99	0.09	0.46	0.60	0.66	0.27	0.37	0.45	0.69	0.35
R-sq	0.13	0.17	0.12	0.06	0.03	0.01	0.01	0.01	0.00	0.01
N.obs.	171	171	171	171	171	171	171	171	171	171
Broad dollar ex EUR										
β_h^{MP} (median rotation)	3.61***	3.95***	3.68***	3.01***	2.31**	3.00**	3.48**	3.71**	4.03*	4.32
	(0.90)	(1.05)	(1.02)	(1.06)	(1.00)	(1.19)	(1.46)	(1.88)	(2.27)	(2.68)
β_h^{CBI} (median rotation)	2.83	3.01	2.56	2.86	2.90	4.16**	5.61**	4.52	4.26	6.08
	(2.06)	(2.07)	(2.31)	(2.95)	(2.87)	(2.00)	(2.53)	(2.97)	(3.46)	(3.84)
F-test	0.75	0.70	0.68	0.96	0.86	0.66	0.50	0.81	0.95	0.69
R-sq	0.17	0.17	0.12	0.07	0.05	0.06	0.06	0.04	0.03	0.03
N.obs.	171	171	171	171	171	171	171	171	171	171
β_h^{MP} (simple)	3.52***	3.77***	3.35***	2.88***	2.27***	3.18***	3.91***	3.88**	4.33*	4.89*
	(0.80)	(0.97)	(0.92)	(0.88)	(0.82)	(0.98)	(1.27)	(1.85)	(2.23)	(2.60)
β_h^{CBI} (simple)	2.77	3.45*	3.84	3.70	3.69	3.92*	4.53**	4.11	2.36	3.67
	(1.92)	(1.95)	(2.37)	(3.33)	(3.32)	(2.07)	(2.17)	(2.58)	(3.59)	(4.41)
F-test	0.72	0.88	0.85	0.81	0.68	0.75	0.80	0.94	0.63	0.80
R-sq	0.17	0.17	0.12	0.07	0.05	0.06	0.06	0.04	0.03	0.03
N.obs.	171	171	171	171	171	171	171	171	171	171

Notes: Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Constant terms are not reported for brevity. Ftest: p-value of the F-test for H0: $\beta_h^{MP} = \beta_h^{CBI}$.

Appendix D Additional VAR results

D.1 Simple ("poor man") decomposition

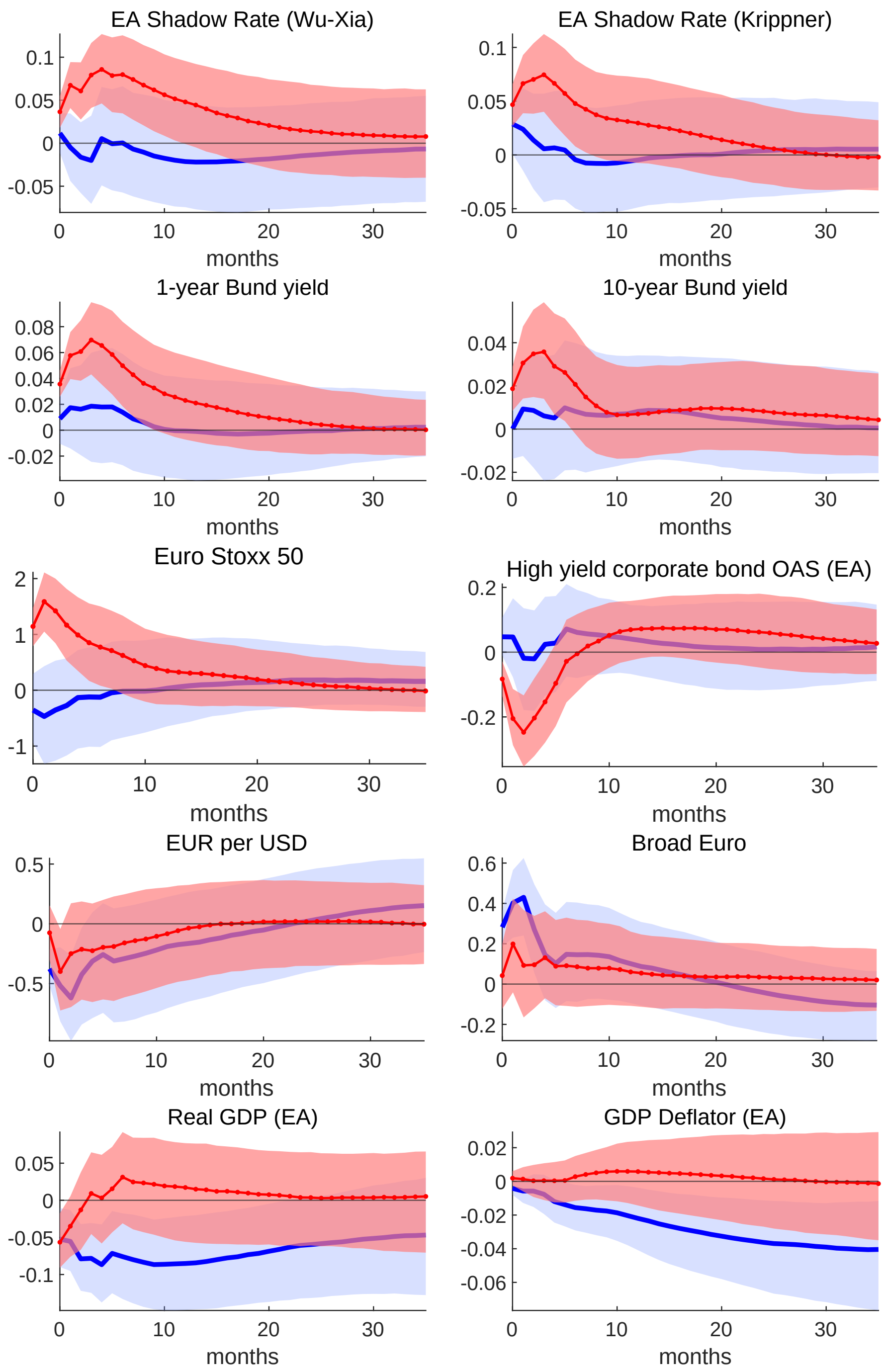
Figure D.1: The effects of ECB shocks on the US variables: Impulse responses to one standard deviation MP and CBI shocks obtained with the simple decomposition in monthly VARs.



Note: The red solid-dotted lines represent the point-wise posterior medians of the impulse responses to the central bank information shock. The red areas show pointwise 16-84 percentile bands. The blue solid lines and blue areas show the same objects for the monetary policy shock. The figure is based on 10,000 draws from the Gibbs sampler.

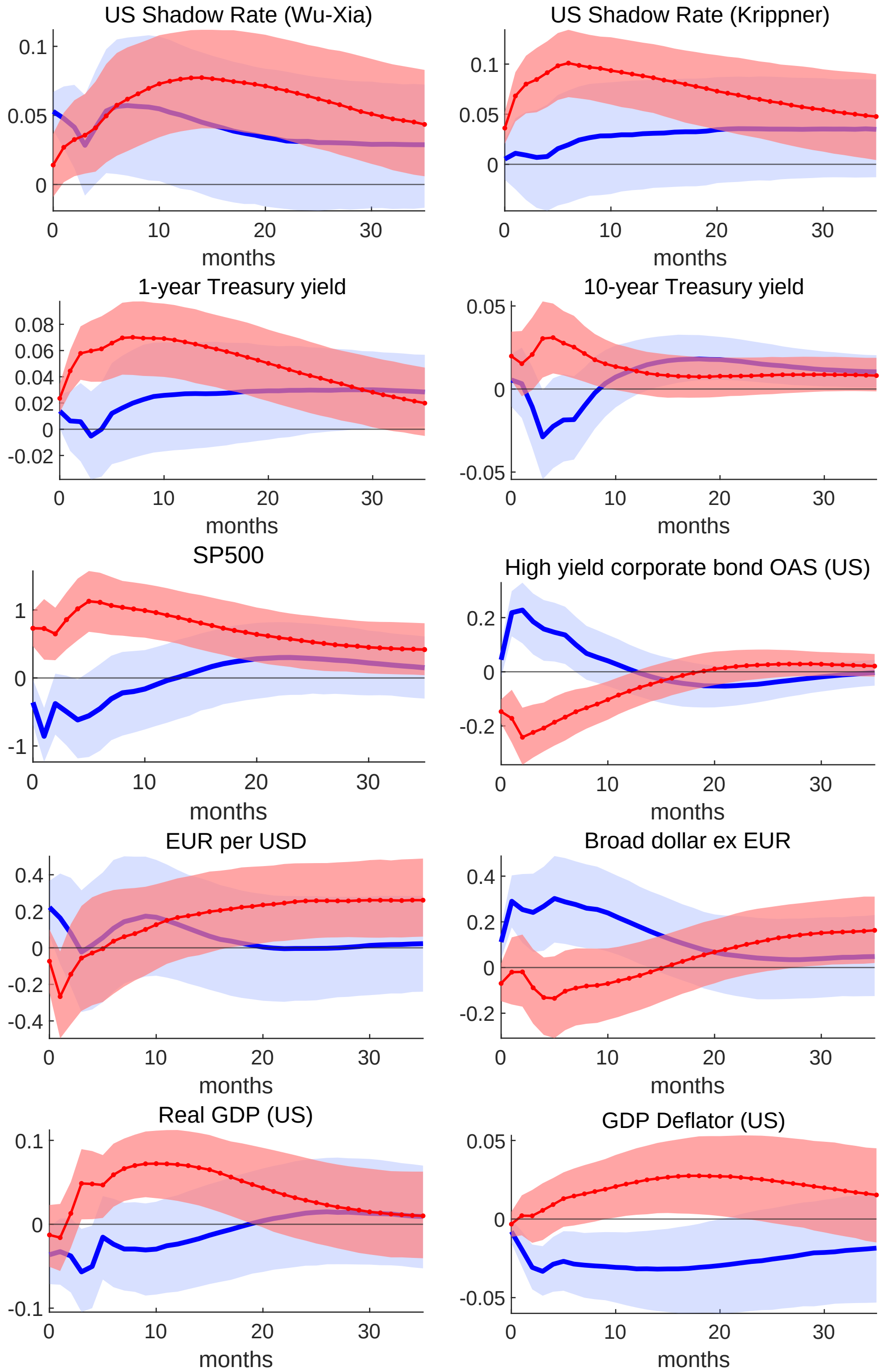
D.2 Domestic effects of monetary policies

Figure D.2: The effects of ECB shocks on the euro area variables: Impulse responses to one standard deviation "rotation-based" MP and CBI shocks in monthly VARs.



Note: The red solid-dotted lines represent the point-wise posterior medians of the impulse responses to the central bank information shock. The red areas show pointwise 16-84 percentile bands. The blue solid lines and blue areas show the same objects for the monetary policy shock. The figure is based on 10,000 draws from the Gibbs sampler.

Figure D.3: The effects of Fed shocks on the US variables: Impulse responses to one standard deviation "rotation-based" MP and CBI shocks in monthly VARs.



Note: The red solid-dotted lines represent the point-wise posterior medians of the impulse responses to the central bank information shock. The red areas show pointwise 16-84 percentile bands. The blue solid lines and blue areas show the same objects for the monetary policy shock. The figure is based on 10,000 draws from the Gibbs sampler.

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