

Media news and market expectations: Insights into the ECB's new data-dependent policy regime

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Abstract

Financial markets are known to respond to ECB policy announcements, yet these reactions could often reflect adjustments to heightened market expectations influenced by prior media coverage. News may have gained importance following the ECB's adoption of a “data-dependent” policy regime amidst persistent inflation in the Euro Area. Our empirical findings underscore the complex interactions between media news and expectations in shaping market dynamics and reactions both before and during official policy announcements.

JEL: E44; E58; G12; D80

Keywords: ECB communication; media news; market expectations

1. INTRODUCTION

Central bank communication has become an essential tool for monetary policy, significantly altering its implementation in recent years (Blinder et al., 2024). For financial markets, it provides critical insights into monetary policy actions and rationale, influencing the value of financial assets, reducing uncertainty and guiding market expectations.

Eugene Fama's efficient market hypothesis posits that all available information is reflected in asset prices. However, recent literature emphasizes the key role of information presentation and communication channels. Media has always been pivotal for central bank transparency and communication efficiency, but its influence is evolving. Information intermediaries, such as newspapers and TV channels, select and convey information in ways that may emphasize certain topics over others. By reporting rumours, interpreting news, or adding a specific focus and tone to a mere description of data and facts, media today may shape market perceptions and expectations beyond what central banks intend.

In summary, the interplay between central bank communication and media coverage shapes the clarity and impact of monetary policy communication. By analysing these interactions, we aim to shed light on the multifaceted role of the media in the monetary policy communication process and its impact on financial markets and their expectations.

Central banks control the overnight rate, but leverage communication to influence interest rates across all maturities and shape market expectations. Following Blinder et al., (2008), we capture these concepts by replacing their assumption of rational expectations with an explicit equation for interest rate expectations for different maturities:

$$r(j) = H_j(y, r, R, \dots, m, s)$$

where j represents the maturity, y the output, r and R are short- and long-term rates, m the media and s are central bank communication signals. This modification considers the explicit impact of media

on central bank monetary policy decisions and financial market expectations. As highlighted by Blinder et al. (2008), this modern view of monetary policy leads directly to several empirical questions that are the central to this paper.

We prove there is an important interaction between m and s that has become significant as of recently. In July 2022, with inflation showing no signs of peaking, the ECB under Christine Lagarde adopted a “data-dependent” approach, refraining from committing to future policy actions. We show this new *regime* is consistent with a significant role of media news in shaping financial market expectations about ECB monetary policy and its transmission cross the Euro Area (EA).

2. ECB COMMUNICATION SHOCKS

Our sample starts in July 2021, when the ECB agreed to a symmetric inflation target of 2%, and ends in May 2024, just weeks before the ECB cut interest rates for the first time in five years. All financial data are from Bloomberg.

We focus on EA periphery and choose to follow Leombroni et al (2021) in deriving two simple ECB communication shocks, or factors, one related to *forward guidance* and one to *risk premium* within the EA, denoted as IR and U respectively. We construct the IR factor as the first principal component of intraday changes in interest rates swaps (IRS) within a tight interval around the ECB press conference.¹ We use the following IRS maturities: 6-month, 1-year, 2-year, 5-year, and 10-year, with all floating rates taken against a 3-month fixed rate. We then regress intraday changes in European equity prices (proxied by futures prices of the nearest contract on the EuroStoxx50 index and considering the same intraday interval as for the IRS) on IR and set the U factor equal to the OLS residual on the

¹We average market quotes for sovereign yields within the 30 minutes before and right after each press conference, and then take the difference. ECB press conferences began at 14:30 before June 2022 but were moved to 14:45 afterwards. Conferences last 1 hour and include a prepared statement and a Q&A session; the exact number of ECB conference days in our sample is 23 (see the online Supplement).

specific days of each scheduled ECB press conference; both IR and U are specified as dummy variables and set to zero on non-conference days.

How do European 10-year sovereign yields react to these ECB communication shocks? For simplicity, we do not consider yield *spreads* (versus Germany) but yield levels directly for selected EA members, using German yields as an explanatory factor:²

$$\Delta yield_t^{ctry} = a + b \Delta yield_t^{GERM} + c_1 IR_t + c_2 U_t + resid_t^{ctry} \quad (1)$$

OLS estimates of (1) reported in Table 1 confirm Leombroni et al., (2021) in that IR and U factors have (with varying degrees) a significant predictive power over the daily changes in 10-year yields for EA periphery countries (with Greece looking like an exception). Longer-term bonds incorporate more easily central bank surprises (because shocks accumulate over a longer period) but we repeat the analysis using 2-year yields in section A of the Supplement.

Table 1: EA periphery yields

OLS estimates of a model explaining daily changes in 10-year yields for EA periphery based on daily changes in German yields, plus the IR_t and U_t factors. Sample: daily data 8th July 2021 – 1st May 2024. Constant terms are omitted from the table. The ***, **, * denote significance and 1%, 5% and 10% respectively; we use HAC standard errors (Bartlett kernel). We also report the Breusch-Godfrey LM statistics for first order serial correlation, $nobs * R^2$, with *p-values* in brackets; similar results obtain for higher order (up to 5) serial correlation.

<i>ctry</i>	France	Italy	Spain	Portugal	Greece
$\Delta yield_t^{GERM}$	1.022***	1.185***	1.053***	1.035***	0.897***
IR_t	0.002**	0.011*	0.005**	0.006**	0.004
U_t	-0.027	-0.149*	-0.060**	-0.047	-0.070
R^2	0.967	0.765	0.916	0.882	0.586
AIC	-5.979	-3.462	-4.932	-4.576	-3.206
BIC	-5.949	-3.433	-4.902	-4.546	-3.176
$nobs * R^2$	0.423	0.908	0.345	0.220	0.750
[p-val]	[0.52]	[0.34]	[0.56]	[0.64]	[0.39]

²By imposing $b = 1$, excluding Greece and Portugal, and restricting the sample to ECB conference days during the 2001-2015 period, one may replicate the results from Leombroni et al., (2021).

Since ECB announced its decision to move to a “data-dependent” regime on 21st July 2022, we perform a series of Chow breakpoint tests but find no indication of a structural break; see section B in the Supplement. Given the clear evidence of a regime change in ECB policy communication, this result prompted us to undertake a more detailed investigation of our model specification (1).

2.1. MEDIA NEWS AND MARKET EXPECTATIONS

News can shape financial market expectations in many ways and in different circumstances. For example, this may happen in case there is some media information that ECB would simply confirm/reject during the Q&A section, or if there is information investors can read in the press but decide to ignore until the conference begins.³ Higher-order expectations can introduce biases and excessive market dynamics simply due to *animal spirits*; the assumption that hours/minutes before the start of an ECB press conference these expectations would be *fair*, and sovereign yields would already include all the available information (e.g. that media covered during the previous days), seems rather stretched.

Ter Ellen et al. (2022) propose a potentially more robust method for identifying central bank communication shocks. They compare media narratives (topics, keywords) before a central bank press conference to the central banker's discussion during the conference, with only the unexpected elements considered as *shocks*. A substantial literature suggests monetary policy decisions by major central banks (ECB included) are largely expected and there are few *actual* surprises in practice. Such surprises, when they do exist, may derive from slight changes in tone during Q&A or unexpected verbal cues about future policy actions, from revealed dissent within the board or other factors; see Blinder et al (2024) for a recent review.

³This challenge is overcome in Leombroni et al., (2021) simply by disregarding yield changes occurring outside of the ECB press conference days for their main results.

Since ECB is headquartered in Frankfurt, German media might enjoy easier access to rumours, staff (or senior officials') discussions and interviews that can be informative about an upcoming policy meeting. Additionally, media in EA periphery countries may frame their coverage of the upcoming meeting by discussing local context and policy challenges, which may be further informative to investors. It is reasonable to suspect that on the very day of the ECB press conference financial markets have already reacted to prior media news and leaks in such a way that a potential bias, either pessimistic or optimistic, cannot be excluded. Once the Q&A session starts in early afternoon, a correction in these expectations, and subsequently in sovereign bond pricing, cannot be excluded.

It looks natural to consider all these media news in our model, creating a specific variable "News". To do that, we extract the volume of country-specific media news that include one of the following keywords: "central bank" or "Lagarde" and take this as a share in total news volume to compute a proxy for the relative media interest or attention towards ECB that is paid by media in a specific country; more details are in section D of the Supplement. Data on media news come from GDELT – an online project set up with support from Google to monitor online global media.

Based on the above economic arguments, missing the variable "News" in equation (1) has generated misleading estimates due to an omitted variable bias. We re-estimate the model in Table 2. We report OLS estimates from this extended model specification including the lagged volume of (German and local) media news but also its interactions with the two factors, IR and U ; to maximize the impact of media coverage, we average GDELT news volumes over a 5-day period (one week), and then take the log-difference to insure stationarity. Many of these interactions are statistically significant; given their dummy-like dynamics (i.e. interactions are equal to zero on non-conference days), this implies media coverage would be simply moderating the impact of ECB communication shocks on EA periphery yields, revealing the complex, nonlinear interaction between news and market expectations.

Table 2: EA periphery yields with media news' interactions

OLS estimates of a model explaining daily changes in 10-year yields for EA periphery based on daily changes in German yields, plus the IR_t and U_t factors, as well as their interactions with the lagged changes in the volume of German and local news including the keywords “central bank” or “Lagarde”. By \times we denote interactions. Sample: daily data 8th July 2021 – 1st May 2024. Constant terms are omitted from the table. The ***, **, * denote significance and 1%, 5% and 10% respectively; we use HAC standard errors (Bartlett kernel). We also report the Breusch-Godfrey LM statistics for first order serial correlation, $nobs \times R^2$, with p -values in brackets; similar results obtain for higher order (up to 5) serial correlation.

<i>ctry</i>	France	Italy	Spain	Portugal	Greece
$\Delta yield_t^{GERM}$	1.022***	1.175***	1.054***	1.035***	0.897***
IR_t	0.003*	0.020**	0.005*	0.006**	0.012*
U_t	-0.006	-0.209***	-0.039	0.049	-0.061
$News_{t-1}^{GERM}$	0.255*	0.268	0.212	0.107	0.675
$IR_t \times News_{t-1}^{GERM}$	1.069**	0.666	1.554*	2.762***	1.014
$U_t \times News_{t-1}^{GERM}$	11.153	87.95***	7.250	-5.448	67.168**
$News_{t-1}^{ctry}$	-0.096	-0.394	-0.079	-0.003	0.335
$IR_t \times News_{t-1}^{ctry}$	-0.508	-4.285	1.541	-0.685	-0.640**
$U_t \times News_{t-1}^{ctry}$	-8.022**	-143.9***	-11.36	-26.22***	3.866
R^2	0.968	0.783	0.918	0.886	0.594
AIC	-5.979	-3.521	-4.923	-4.592	-3.203
BIC	-5.905	-3.492	-4.849	-4.517	-3.128
$nobs \times R^2$	0.012	0.303	1.102	0.705	2.442
[p-val]	[0.91]	[0.58]	[0.29]	[0.40]	[0.12]

The Chow breakpoint tests on this extended specification largely confirm the structural break occurring on 21st July 2022. This time, statistical evidence generally indicates that model coefficients do change once ECB decided to follow a “data-dependent” regime; section B in the online Supplement provides more details, revealing more statistically significant interactions with “News” in the post-break (rather than pre-break) sub-sample. By adding media news and its interactions, our extended model specification is better equipped in reflecting the nonlinear influences of central bank communication shocks on EA periphery yields during a period marked by severe uncertainty and challenges.

3. CONCLUSIONS

Our empirical results show that in the days leading up to ECB press conferences, media reports may shape financial market expectations about sovereign yields dynamics in EA periphery. During the press conference, these expectations can be confirmed or contradicted, making news' impact more complex.

This mechanism became especially relevant after the ECB adopted a “data-dependent” regime in July 2022, amid persistent inflation in the Euro Area.

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Needless to say, all remaining errors are our own.

REFERENCES

Blinder, A.S., Ehrmann, M., Fratzscher, M., De Haan, J., & Jansen, D.J. (2008). Central bank communication and monetary policy: A survey of theory and evidence. *Journal of Economic Literature*, 46(4),910-945.

Blinder, A.S., Ehrmann, M., De Haan, J., & Jansen, D. J. (2024). Central bank communication with the general public: Promise or false hope?. *Journal of Economic Literature*, 62(2),425-457.

Leombroni, M., Vedolin, A., Venter, G., & Whelan, P. (2021). Central bank communication and the yield curve. *Journal of Financial Economics*, 141(3),860-880.

Ter Ellen, S., Larsen, V. H., & Thorsrud, L. A. (2022). Narrative monetary policy surprises and the media. *Journal of Money, Credit and Banking*, 54(5),1525-1549.

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[ONLINE SUPPLEMENT]

Section A: Robustness checks

A first robustness check (available upon request) uses sovereign 10-year sovereign yield spreads (against Germany) rather than 10-year yield levels. While a drop in explanatory power, or R^2 , is to be expected, results are qualitatively similar with those reported in Tables 1 and 2 in the main text.

A second robustness check includes in model (1) two additional dummy variables for the calendar dates when inflation figures (both flash and the detailed estimates) are officially released to the public. Inflation data can be expected to drive monetary policy and hence long-term yields, particularly in a data-dependent policy regime. Some of these dummies are indeed statistically significant for some EA periphery countries, but the main results of the paper are qualitatively unchanged.

Below, we redo the empirical analysis reported in Tables 1 and 2 in the main text using 2-year sovereign yields (in levels) instead of 10-year sovereign yields. Note that long-term yields are better at reflecting central bank communication surprises simply because a change in monetary policy would have more pronounced effects on long-term bonds over a longer period. Results from Table A1 below are consistent with the ones in the main text but are less robust; moreover, for some countries there is now evidence of first order serial autocorrelation according to the Bresch-Godfrey test. To save space, estimates are condensed into a single table A1. For completeness, and readers' convenience, we also report the HAC standard errors in parentheses.

Table A1: Robustness check using 2-year sovereign yields

Table reports the OLS estimates of a model explaining daily changes in 2-year yields for selected EA members based on daily changes in Germany yields, on the IR_t and U_t factors as well as their interactions with the lagged changes in the volume of German and local media news (taken as a 5-day moving average) including the keywords “central bank” or “Lagarde”. By \times we denote the relevant interactions. Sample: daily data 8th July 2021 – 1st May 2024. Constant terms are omitted from the table. The ***, **, * denote significance and 1%, 5% and 10% respectively. HAC standard errors (Bartlett kernel) are reported in parentheses below the coefficients. We also report the Breusch-Godfrey LM statistics for first order serial correlation, $nobs \times R^2$, with p -values in brackets; similar mixed results obtain for higher order (up to 5) serial correlation.

	France		Italy		Spain		Portugal		Greece	
$\Delta yield_t^{GERM}$	0.846*** (0.024)	0.843*** (0.025)	0.914*** (0.065)	0.914*** (0.062)	0.869*** (0.024)	0.871*** (0.024)	0.775*** (0.024)	0.775*** (0.024)	0.420*** (0.065)	0.417*** (0.067)
IR_t	-0.007*** (0.003)	-0.003 (0.002)	0.012* (0.006)	0.023*** (0.008)	0.004** (0.002)	0.007** (0.003)	0.006* (0.003)	0.002 (0.003)	0.003 (0.005)	0.012** (0.005)
U_t	-0.012 (0.012)	-0.065*** (0.020)	-0.172** (0.076)	-0.230*** (0.057)	-0.047* (0.027)	-0.049 (0.041)	-0.005 (0.034)	0.069* (0.039)	-0.112*** (0.042)	-0.172*** (0.033)
$News_{t-1}^{GERM}$		-0.233 (0.241)		0.968* (0.509)		-0.153 (0.186)		0.225 (0.179)		0.229 (0.251)
$IR_t \times$ $News_{t-1}^{GERM}$		-3.363*** (0.666)		-0.355 (2.166)		-0.225 (1.158)		2.827** (1.349)		-2.482** (1.077)
$U_t \times$ $News_{t-1}^{GERM}$		3.107 (8.346)		88.49*** (22.11)		11.356 (15.724)		-25.44* (14.44)		54.87** (24.52)
$News_{t-1}^{ctry}$		0.274 (0.446)		-0.919 (0.611)		0.034 (0.292)		-0.130 (0.182)		0.341 (0.322)
$IR_t \times$ $News_{t-1}^{ctry}$		1.412 (0.887)		-3.854* (2.250)		0.959 (1.565)		-1.077 (0.725)		0.963*** (0.231)
$U_t \times$ $News_{t-1}^{ctry}$		21.44*** (7.868)		-120.7*** (30.87)		-4.682 (6.749)		-16.38* (8.983)		6.475* (3.370)
R^2	0.757	0.756	0.625	0.641	0.796	0.796	0.753	0.756	0.258	0.268
AIC	-4.379	-4.370	-3.542	-3.575	-4.527	-4.514	-4.501	-4.504	-3.554	-3.550
BIC	-4.360	-4.322	-3.523	-3.527	-4.507	-4.466	-4.482	-4.456	-3.535	-3.502
$nobs \times R^2$	2.745	2.662	0.202	0.941	5.575	4.773	0.003	0.004	18.94	19.01
[p-val]	[0.098]	[0.10]	[0.65]	[0.33]	[0.02]	[0.029]	[0.96]	[0.95]	[0.00]	[0.00]

Section B: Structural break tests

Table B1 below displays the Chow breakpoint tests for a structural break in the coefficients of the model specified in equation (1) and reported back in Table 1 in the main text – hence a model without media coverage and its interactions. According to these tests, we cannot reject the null hypothesis of *No break at specified breakpoints*.

Table B1: Chow breakpoint tests for ECB policy regime

This table reports the Chow breakpoint test statistics for the date of 21st July 2022, the day when ECB announced it is moving to a “data-dependent” policy regime. The model coefficients are reported back in Table 1 in the main text. Sample: daily data 8th July 2021 – 1st May 2024. The p-values are reported in square parentheses below the relevant statistics.

	France	Italy	Spain	Portugal	Greece
<i>F – statistic</i>	0.557	1.361	0.345	0.563	1.880
[p-val]	[0.694]	[0.246]	[0.848]	[0.690]	[0.112]
<i>LR ratio</i>	2.256	5.493	1.397	2.277	7.575
[p-val]	[0.689]	[0.240]	[0.845]	[0.685]	[0.108]

In Table B2 instead we perform the same Chow breakpoint test on the extended model including media news and its interactions with the two factors, as reported in Table 2 from the main text. Except for Portugal, this time the tests reject the null hypothesis.

Table B2: Chow breakpoint tests for ECB policy regime

This table reports the Chow breakpoint test statistics for the date of 21st July 2022, the day when ECB announced it is moving to a “data-dependent” policy regime. The model coefficients are reported back in Table 2 in the main text. Sample: daily data 8th July 2021 – 1st May 2024. The p-values are reported in square parentheses below the relevant statistics.

	France	Italy	Spain	Portugal	Greece
<i>F – statistic</i>	1.612	2.917	1.724	0.375	3.033
[p-val]	[0.099]	[0.001]	[0.072]	[0.957]	[0.001]
<i>LR ratio</i>	16.455	29.452	17.580	3.868	30.592
[p-val]	[0.087]	[0.001]	[0.063]	[0.953]	[0.001]

The next table B3 repeats the regression analysis from Table 2 by splitting the sample into pre-break (or pre-Jul. 2022) and post-break (or post-Jul. 2022). As can be seen below, changes between the two split samples can be observed for the statistical significance of the IR_t coefficients, and the interaction terms $U_t \times News_{t-1}^{GERM}$; other changes can be observed but are not consistent across countries. Overall, there are more statistically significant interactions with “News” in the post-break sample.

Table B3: EA periphery yields with media news’ interactions: split samples

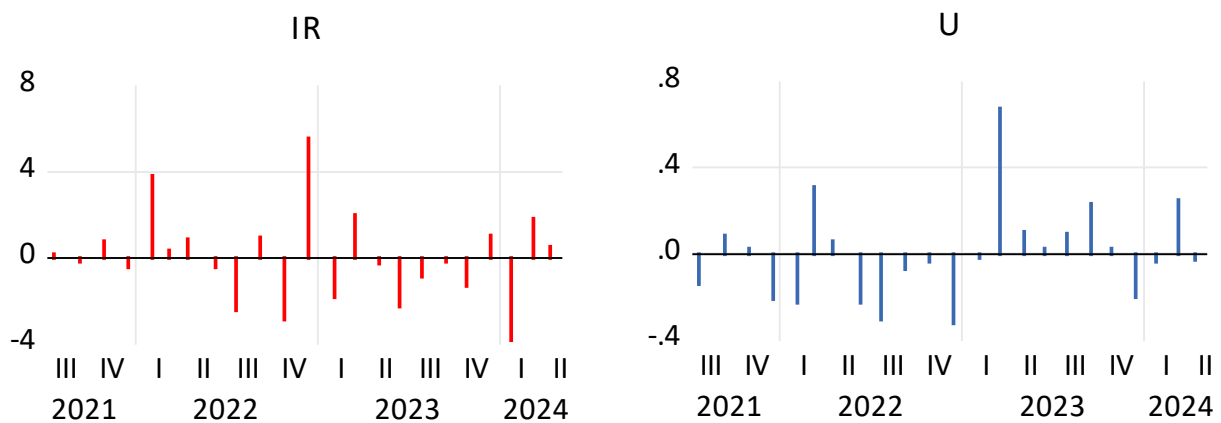
OLS estimates of a model explaining daily changes in 10-year yields for EA periphery based on daily changes in German yields, plus the IR_t and U_t factors, as well as their interactions with the lagged changes in the volume of German and local news including the keywords “central bank” or “Lagarde”. By \times we denote interactions. Daily data. Samples: pre-Jul/22 spans 8 Jul 2021 – 21 Jul 2022, while post-Jul/22 spans 22 Jul 2022 – 1 May 2024. Constant terms are omitted from the table. The ***, **, * denote significance and 1%, 5% and 10% respectively; we use HAC standard errors (Bartlett kernel). We also report the Breusch-Godfrey LM statistics for first order serial correlation, $nobs \cdot R^2$, with p -values in brackets; similar results obtain for higher order (up to 5) serial correlation.

ctry	France	Italy	Spain	Portugal	Greece	France	Italy	Spain	Portugal	Greece
	pre-Jul/22					post-Jul/22				
$\Delta yield_t^{GERM}$	1.011***	1.148***	1.063***	1.034***	0.972***	1.025***	1.173***	1.050***	1.034***	0.869***
IR_t	0.001	0.017	-0.006	0.003	0.074	0.003***	0.040***	0.008***	0.007***	0.018***
U_t	0.049	-0.564***	0.177	0.130	0.029	0.045**	-0.088**	0.026	0.032	-0.011
$News_{t-1}^{GERM}$	0.187	0.680	0.459	0.145	3.165***	0.283	-0.044	0.046	0.035	-0.831
$IR_t \times News_{t-1}^{GERM}$	4.478	-4.536	9.012	1.797	31.29*	0.965***	-3.195	1.346*	2.376	-1.974
$U_t \times News_{t-1}^{GERM}$	-28.08	105.44	-87.66	-26.49	-11.82	18.79***	171.15***	37.186*	26.77*	122.0***
$News_{t-1}^{ctry}$	0.159	-1.113	0.075	-0.074	1.007	-0.187	0.013	-0.125	0.070	-0.298
$IR_t \times News_{t-1}^{ctry}$	3.097	-6.825	17.50*	-4.463	12.12*	-2.169**	-8.867***	-0.852	-0.481	0.625
$U_t \times News_{t-1}^{ctry}$	-6.074	-214.8***	-18.28	-24.64	-114.7	-27.54**	-132.3**	-12.33	-12.43	3.446
R^2	0.946	0.735	0.869	0.831	0.494	0.976	0.818	0.941	0.910	0.692
AIC	-5.731	-3.478	-4.641	-4.368	-2.842	-6.127	-3.568	-5.121	-4.696	-3.516
BIC	-5.575	-3.322	-4.485	-4.212	-2.686	-6.021	-3.462	-5.015	-4.589	-3.409
$nobs \cdot R^2$	0.481	9.99	6.315	7.79	0.216	0.274	2.49	2.029	2.45	0.511
[p-val]	[049]	[0.00]	[0.01]	[0.01]	[0.64]	[0.60]	[0.12]	[0.15]	[0.12]	[0.47]

Section C: The ECB communication shocks

The figure below presents the time-series of the two communication shocks (or factors) used in the empirical analysis. Both are specified as dummies, where the non-zero values correspond to ECB press conference days and are estimated as explained in the main text, section 2.

Our sample starts on 8th of July 2021 when the Governing Council of the ECB officially announced the new policy strategy of a symmetric 2% inflation target.⁴ The new strategy was to be applied starting with the next regular monetary policy meeting, held on 22nd of July 2021 – which is also our first non-zero value displayed in the figure below for both factors.



⁴ See <https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210708~dc78cc4b0d.en.html>.

Section D: Media news variable construction

Media news volumes from the GDELT Project (i.e. Global Database of Events, Language, and Tone) are downloaded as a share in total global news. Hence, in order to construct the relative ratio of country-specific media news referring to ECB in total local media news, one simply needs to extract two time-series and then divide them appropriately. GDELT also allows us to restrict our search to a specific country, say $CTRY$; hence, the first series is extracted according to a specific list a keywords (in our case “central bank” or “Lagarde”) and the second series is extracted according to a general keyword (in our case, we used “and” – which is a general conjunction appearing in all articles). Our media news variable entering the OLS regression in Table 2 is built and defined according to the following steps:

- build a relative ratio of country-specific daily news volume referring to ECB in total news volume as:

$$ECBnews^{CTRY} = \frac{CTRYnews_keywords("central\ bank", "Lagarde")/global_news}{CTRYnews_keywords("and")/global_news}$$

- construct the weekly change in relative news volume entering the regressions reported in Table 2:

$$News_t^{CTRY} = \sum_{j=0, \dots, 4} \Delta \log (1 + ECBnews^{CTRY}_{t-j})$$

As an example, the figure below plots $News_t^{GERM}$, which is one of the variables used in Table 2.

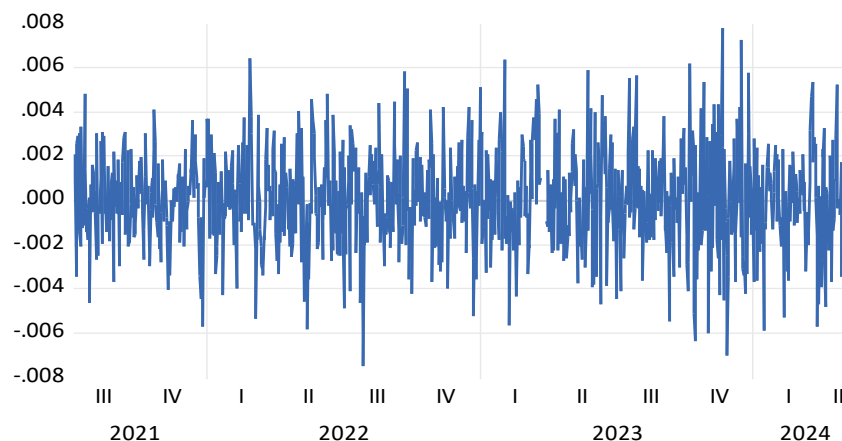


Table D1: Top articles published by German media before each 2024 ECB meeting

ECB meeting	Date	Top article	URL
	22/01/2024 21:30	Devisen : Eurokurs knapp unter 1 , 09 US - Dollar	https://www.wallstreet-online.de/nachricht/17723089-devisen-eurokurs-knapp-1-09-us-dollar
	23/01/2024 12:15	Devisen : Euro gibt zum US - Dollar nach - Yen kurzzeitig fester	https://www.finanznachrichten.de/nachrichten-2024-01/61205559-devisen-euro-gibt-zum-us-dollar-nach-yen-kurzzeitig-fester-016.htm
	23/01/2024 12:30	Euro Dollar Kurs : Darum verliert der Euro zum Dollar	https://www.finanzen.net/nachricht/devise/german-euro-dollar-kurs-darum-verliert-der-euro-zum-dollar-13196458
	23/01/2024 12:45	Deutsche Anleihen : Leichte Verluste - Renditeanstieg in Japan	https://www.finanzen.net/nachricht/anleihen/deutsche-anleihen-leichte-verluste-renditeanstieg-in-japan-13197140
	23/01/2024 21:30	ECB Staff Dissatisfied With Lagarde Leadership In Union Survey	https://www.finanznachrichten.de/nachrichten-2024-01/61210777-ecb-staff-dissatisfied-with-lagarde-s-leadership-in-union-survey-020.htm
	24/01/2024 08:45	Deutsche Anleihen : Leichte Gewinne zum Start	https://www.finanznachrichten.de/nachrichten-2024-01/61214677-deutsche-anleihen-leichte-gewinne-zum-start-016.htm
	24/01/2024 08:45	Chinas Notenbank lockert Geldpolitik zur Unterstützung der Wirtschaft	https://www.finanzen.net/nachricht/aktien/ab-5-februar-chinas-notenbank-lockert-geldpolitik-zur-unterstuetzung-der-wirtschaft-13199232
	24/01/2024 09:45	Chinas Notenbank lockert Geldpolitik	https://www.nordkurier.de/wirtschaft/chinas-notenbank-lockert-geldpolitik-2218017
	24/01/2024 19:45	Gold Settles Lower As Focus Shifts To Riskier Assets After Strong Data	https://www.finanznachrichten.de/nachrichten-2024-01/61222176-gold-settles-lower-as-focus-shifts-to-riskier-assets-after-strong-data-020.htm
25/01/2024		Press conference	https://www.ecb.europa.eu/press/press_conference/html/index.en.html?date=2024-01-25
	02/03/2024 03:15	Zentralbanken an der Börse : Welche Notenbanken sind eigentlich börsennotiert ?	https://www.finanzen.net/nachricht/aktien/zentralbanken-an-der-boerse-welche-notenbanken-sind-eigentlich-boersennotiert-11593776
	04/03/2024 15:15	Inflation in der Türkei steigt auf 67 Prozent	https://www.sueddeutsche.de/wirtschaft/inflation-tuerkei-1.6420812
	06/03/2024 12:45	BÖRSE ONLINE – Seit 1987 , Deutschlands erstes Börsenmagazin	https://www.boerse-online.de/dpa-afx/devise/euro-steigt-vor-powell-auftritt-in-richtung-109-us-dollar-355012.html
07/03/2024		Press conference	https://www.ecb.europa.eu/press/press_conference/html/index.en.html?date=2024-03-07
	05/04/2024 10:00	Powell sieht Fed auf dem Weg zur Zinswende	https://www.faz.net/aktuell/finanzen/powell-sieht-fed-auf-dem-weg-zur-zinswende-19629334.html
	08/04/2024 11:00	Gold Edges Higher Ahead Of Busy Data Week	https://www.finanznachrichten.de/nachrichten-2024-04/61886109-gold-edges-higher-ahead-of-busy-data-week-020.htm
11/04/2024		Press conference	https://www.ecb.europa.eu/press/press_conference/html/index.en.html?date=2024-04-11

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