WORKING paper

BANQUE DE FRANCE
EUROSYSTÈME

Coordinating the Message: Media Coverage of Fed News and Market Reactions[1]

Sylvérie Herbert[2], Klodiana Istrefi[3] and Béatrice Sagna[4]

December 2024, WP #983

ABSTRACT

This paper examines the homogeneity in media coverage of the Federal Reserve from 1998 to 2021 and its impact on financial markets. Using a dataset of 350,000 articles from major U.S. outlets, we document three key findings: (i) editorial specialization in Fed-related news; (ii) an increase in homogeneity of both topic and tone around significant Fed events and; (iii) a reduction in market volatility and sensitivity to monetary policy surprises when topic coverage becomes more homogeneous. Notably, this effect reverses when the dominant media focus shifts to stock market-related topics.

Keywords: Monetary Policy; Media Transmission; Central Bank Communication.

JEL classification: C55, D83, E44, E58, G1

[1] The authors thank Eleonora Graziera, Michael Ehrmann and Bartosz Mackowiack for useful discussions, as well as participants at the Banque de France seminar for their comments and suggestions. The views expressed herein are those of the authors and may not necessarily reflect those of the Banque de France, the Eurosystem or the IMF.

[2] Banque de France, sylverie.herbert@banque-france.fr.

[3] Banque de France, CEPR, klodiana.istrefi@banque-france.fr.

[4] IMF, BSagna@imf.org.

NON-TECHNICAL SUMMARY

News outlets (i. e. newspapers, news platforms) are vital channels for disseminating economic news, often influencing market participants and households more effectively than direct central bank communications. Media not only filter and interpret information but can also amplify its reach, with important economic consequences. Studies have shown that they can contribute to asset price bubbles, accelerate bank runs, and drive business cycle fluctuations. Thus, understanding how the media select, present, and release central bank information is crucial, as it can shape investor reactions to it.

We document media behavior in covering the US Federal Reserve (Fed) and how it impacts financial markets. Our analysis focuses on two key aspects: (i) the extent of editorial specialization in covering Fed-related topics, and (ii) the homogeneity of coverage—both in topic and tone—over time and around Fed events. Our study draws on over 350,000 news articles discussing the Fed, published by major U.S.-based media outlets such as *Dow Jones*, *The Wall Street Journal* or *Reuters*, spanning the period from 1998 to 2021.

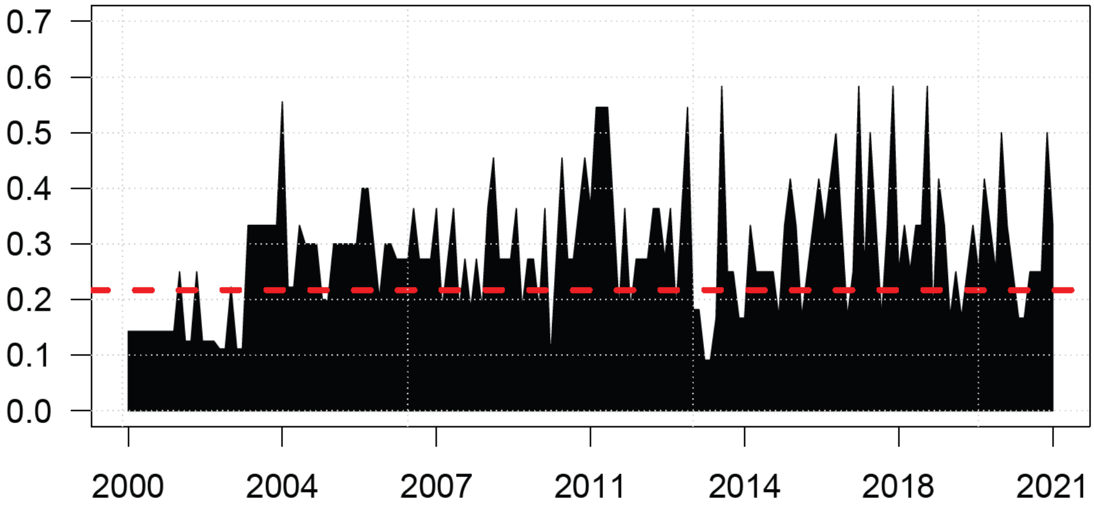
Media coverage of the Fed is time-varying. Coverage is especially high during key periods such as the low interest rate environment of 2003-2005, the Great Financial Crisis (GFC) of 2008, and the adoption of unconventional monetary policies. Coverage intensifies ahead of FOMC meetings, reaching its highest level on meeting days.

Fed-related news content is diverse. It spans topics from more financial ones (e.g.,, stock and bond market) to more macroeconomic and policy ones (e.g., monetary policy, economic condititions). The intensity of focus on these topics varies over time. In the late 1990s, coverage was heavily centered on stock market news but emphasis shifted toward monetary policy before the GFC. Post-GFC, the focus on Fed-related topics became more balanced across monetary policy, bond and stock markets.

Importantly, we document heterogeneity in media topic specialization when covering the Fed. For instance, general-interest outlets, such as *The Washington Post* and the *Associated Press*, cover broader economic policy and political issues in relation to the Fed, while newswires like *Dow Jones* provide real-time market updates. Despite their specialization, media outlets often converge in their coverage, particularly around FOMC meetings, with a noticeable increase of homogeneity in both topic and tone (see Figure 1) .

Finally, we explore how homogeneity in media coverage influences financial market reactions. We find that on average, topic and tone homogeneity typically dampens stock and bond market reactions. Interestingly, markets react more strongly when the coverage homogeneity centers on the stock market topic. This result suggests that deviations from the usual focus on the monetary policy topic generate newsworthy signals for markets. When focusing on coverage around FOMC meeting days, we find that tone homogeneity amplifies market reactions to monetary policy surprises, irrespective of the topic.

Figure 1: Homogeneity of news coverage on FOMC dates



Note: The homogeneity measure ranges from 0 to 1, and represents the fraction of newspapers where the most frequently covered topic aligns with the predominant topic across all newspapers on that day. The red line indicates the sample mean of homogeneity across all days.

Coordonner le message : couverture médiatique sur la Fed et réaction des marchés

RÉSUMÉ

Cet article examine l'homogénéité de la couverture médiatique sur la Réserve fédérale entre 1998 et 2021 et son impact sur les marchés financiers. En construisant une base de données de 350 000 articles provenant de grands médias américains, nous documentons trois résultats clés : (i) une spécialisation éditoriale dans les nouvelles liées à la Fed ; (ii) une augmentation de l'homogénéité tant du sujet que du ton autour des événements importants de la Fed ; et (iii) une réduction de la volatilité du marché et de la sensibilité aux surprises de politique monétaire lorsque la couverture thématique devient plus homogène (dans le cas du sujet). Il convient de noter que cet effet s'inverse lorsque l'attention médiatique homogène se déplace vers des sujets liés aux marchés boursiers.

Mots-clés : politique monétaire ; transmission des médias ; communication des banques centrales.

1 Introduction

News outlets are a critical channel for disseminating economic news, often informing market participants and households more than direct central bank communications.[1] Media filter and interpret information, often amplifying its effects, i.e., creating asset price bubbles, accelerating bank runs, like for Silicon Valley Bank in 2023, and driving business cycle fluctuations.[2] Thus, understanding how media selection of information, i.e., the editorial function, influences the transmission of information is crucial, as it can shape investors' disagreement or its alignment with central bank communications. This editorial function of media can be summarized by two aspects: (i) to which extent do they specialize in specific topics; and (ii) how their alignment—termed *homogeneity* in coverage— evolves in specific contexts.

In this paper, we investigate the editorial function of the media with regard to the Federal Reserve and how it affects financial markets. Our contributions are threefold. First, we document editorial specialization in the coverage of Fed-related news.[3] Second, while there is heterogeneity in specialization, we show that media reporting becomes more homogeneous in both topic and tone around important Fed-related events. Third, we document that homogeneous topic coverage reduces market movements and their sensitivity to monetary policy surprises. However, this effect reverses when the dominant topic on which the media align is related to stock markets. Furthermore, tone homogeneity (typically negative) acts as an amplifier of market movements on FOMC days.

Our dataset, sourced from Dow Jones Factiva, includes over 350,000 news articles discussing the Fed from a representative set of major U.S.-based outlets like the Wall Street Journal and Reuters, spanning 1998 to 2021. Fed-related articles were filtered by relevant keywords (e.g., "Fed", "FOMC"). We find that media coverage of the Fed exhibits dynamic patterns, particularly around FOMC days. Coverage intensified during the low-rate environment of 2003-2005, the Great Financial Crisis (GFC) of 2008, and during the adoption of unconventional monetary policies. Specific events, such as tapering discussions in 2013, leadership transitions in 2014, and the first

[1]For example, Hayo and Neuenkirch (2015) find that financial market participants rely as much on media reports of central bank events than on self-monitoring. From a survey of financial agents around the world about how they process news about their central bank, they find that 40% of respondents rely equally on media and self-monitoring to process news, and even more on media to learn about a foreign central bank.

[2]See Pedersen (2022) on how media can create asset price bubbles, Cookson et al. (2023) on how it can accelerate bank runs and Chahrour et al. (2021) on how sectoral focus can drive business cycle fluctuations.

[3]This is in line with Nimark and Pitschner (2019), which documents editorial specialization in general news coverage.

rate hikes in 2015, further boosted interest. We observe that while FOMC days attract the most coverage, attention gradually builds in the days leading up to the meeting and peaks on the day itself, reflecting increased anticipation. Non-FOMC days with key developments, such as data releases during the silent period, also draw considerable media attention.

Using text-based methods (Latent Dirichlet Allocation, LDA), we classify Fed-related articles into various topics, including finance-related ones (stocks, bonds, corporate news) and broader discussions on monetary policy, macroeconomic conditions, and governance. We find that in the late 1990s, stock market news dominated, but post-2000 events, such as the dot-com bubble and Fed rate cuts, shifted attention toward monetary policy. Post-GFC, coverage became balanced between monetary policy, bond markets, and stocks.

In addition, we observe heterogeneity in the specialization of news outlets with regard to Fed's topic coverage. General-interest outlets, like the *Washington Post* and *Associated Press* cover broader economic policy and political issues in relation to Fed often including monetary policy. Specialized outlets, such as *US Fed News*, focus on the Fed's activities and financial stability, while newswires like *Dow Jones* provide real-time market updates. Despite covering multiple topics, most outlets specialize in a few related areas, with outlets like the *Wall Street Journal* and *Reuters* balancing monetary policy with bond markets and macroeconomic news. However, this heterogeneity in Fed coverage is time-varying as the media seem to deviate from their specialization: topic and tone of coverage become more homogeneous leading up to FOMC meetings. On these days, the media tend to converge on key topics like monetary policy, stock markets, and bond markets. In terms of tone, we find that homogeneity peaks after the FOMC meeting, with coverage becoming more negative and less neutral.[4]

Finally, we look at how media coordination, in terms of topic and tone, can affect asset prices through the information it transmits. We find topic homogeneity on its own tends to decrease market reactions (mainly on the Treasury yield curve and the S&P500). This suggests that homogeneous coverage builds consensus, decreasing divergent interpretations of economic signals. However, markets react strongly when topic homogeneity is conditioned on a stock market topic. This may suggest that deviations from expected prevalent topic (usually monetary policy), creates news. In such cases, the *news* lies in breaking away from the ordinary. Moreover, we find that homogeneity of tone amplifies the market's response to monetary policy surprises,

[4] In addition, when comparing reporting across different events, we find that FOMC statements attract the most coverage and generate more homogeneous reporting compared to other events such as the release of Fed Minutes, macroeconomic data releases, and speeches by Board members.

regardless of the topic.

There are studies that document reporting biases in the media. Gentzkow and Shapiro (2010), Mullainathan and Shleifer (2005) demonstrate that news reporting is highly responsive to consumer preferences, leading newspapers to adopt specific editorial lines. Nimark and Pitschner (2019) formalize the concept of state-dependent editorial function of newspapers. Newspapers, by filtering what is newsworthy, to cater to different audience, induce agents to learn not only from the news itself, but from the fact that it is reported or not, and therefore can influence the extent of common knowledge of an event. This can sizably impact expectations in a strategic setting. We contribute to this literature by empirically documenting media specialization in reporting on the Fed. Beyond confirming the existence of editorial preferences, we explore how the alignment of coverage—both in topic and tone—affects market movements. Specifically, we examine whether coordinated coverage influences market behavior, both during the intermeeting period and around FOMC meetings. Our study helps better understand what drives investors' beliefs.

Media sentiment has been shown to affect expectations of various agents, households (Larsen et al. (2021)), and markets on FOMC days, by providing information even beyond that included in the statement (Schmanski et al. (2023)). However, the literature has so far focused on this specific day, and a small selection of journals, staying silent on the coordination across journals and the role they can play outside of meeting days. Our approach offers a broader view of the role of echo chambers and coordinating role that media play, through an extensive dataset encompassing more than 10 major news outlets. This extends the knowledge of how media process, spread and coordinate news beyond the intensity and tonality of coverage.[5]

Section 2 presents our data set and the dynamics of media reporting. Section 3 documents specialization and homogeneity of coverage. We study the market impact of homogeneity of coverage in Section 4. Section 5 concludes.

2 Media coverage on the Federal Reserve

Below we discuss the construction of our corpus of news coverage of the Federal Reserve (Fed) and present stylized facts about this coverage.

[5] Berger et al. (2011) have documented for the ECB the intensity of negative and positive tone in news articles.

2.1 Factiva-based corpus of Fed-related media articles

Our source for news articles about the Fed is Dow Jones Factiva, a global news database with content from more than 330,000 sources. To retrieve articles that talk about the Fed, we apply filters on the content, subject code, company code, language, and region.

First, we filter articles containing the following list of keywords in the body of the text: Fed, Federal Reserve, FOMC and Federal Open Market Committee. We simultaneously restrict articles to be written in English (language code "en"), the region covered in the article to be the United States (region code "USA") and the headquarter of the news outlet to be the United States (country of origin "USA"). The publication date time is also restricted to be after January 1st, 1998, because before that Factiva coverage was quite sparse. To avoid articles talking about other federal agencies, such as the Federal Bureau, we also include a filter for the company (the code for the Federal Reserve is "Fed"), or if the company is not flagged but the article still mentions the Fed, the articles need to cover economics subject (the subject code is "ecat"). From this first filter stage, we end up with 545,669 articles.

In a second step, we restricted the sample of articles to the twelve major news outlets: *Dow Jones*, the *Wall Street Journal*, *Washington Post*, *Houston Chronicle*, *Reuters*, *RTT News*, *US Fed News*, *Market Watch*, *Associated Press*, *Barrons*, *Investor Business Daily*, and *Business Wire*. This list includes the most important national outlets and the top ranked outlets in terms of average circulation, and have been available consistently since 1999.[6][7]

Some of these outlets contain several branches, like the *Dow Jones* divided between 10 branches according to their specialization (commodities, emerging markets, global equities, and so on), or the *Wall Street Journal* with 11 (central banking, financial regulation, private equity, etc.). We group all into a main outlet. We document information on the source code, start and end date, as well as the grouping and the classification of whether they are of general interest or business/finance in Table 1. Our sample covers articles from January 1998 to August 2021.[8]

Finally, we control for duplicate articles in a given day. If a news outlet publishes

[6]From the output of the first stage we dropped local newspapers such as Denver Post, Benzinga, Richmond Times, St Paul Pioneers, or specialized audience blogs such as Fly on the wall.

[7]In comparison to Gambetti et al. (2023), our sample is much more comprehensive, as the authors collect from Factiva only three major newspapers (The New York Times, the Wall Street Journal and The Washington Post) or Ter Ellen et al. (2022) or Pinter and Kočenda (2023) based on between one to two outlets. Our sample encompass the majority of the information transmitted to the general public about the Fed, by the media.

[8]Note that we do not distinguish between news wires or printed press, as we want to capture the universe of information delivered to the public, regardless of timeliness of the information, and capturing both the specialized or more general audience.

Table 1: Summary of Newspaper, time coverage and classifications

Source Code A1	**Newspaper**	**Name**	**Start date**	**End date**	**Classification**
DJCS		Dow Jones Commodities Service	1996-03-10	2013-10-16	Business/Finance
OSTDJ		Dow Jones Commodities Service (OSTDJ)	2004-04-27	2007-06-29	Business/Finance
EM		Dow Jones Emerging Markets Report	1995-05-01	2013-10-16	Business/Finance
DJI		Dow Jones Global Equities News	1994-07-25	2013-10-16	Business/Finance
CM	1	Dow Jones Global FX & Fixed Income News	1995-01-19	2013-10-16	Business/Finance
DJON		Dow Jones Global News Select	1997-03-14	2013-10-16	Business/Finance
DJDN		Dow Jones Institutional News	2013-10-16		Business/Finance
DJ		Dow Jones News Service	1979-06-13	2013-10-16	Business/Finance
FWS		Oster Dow Jones Select	1999-03-02	2004-05-03	Business/Finance
WSJO		The Wall Street Journal Online	1997-09-01		Business/Finance
J		The Wall Street Journal	1979-06-13		Business/Finance
WCWSJB		WSJ Blogs	2005-05-28	2021-05-17	Business/Finance
WSJPOD		WSJ Podcasts	2021-07-27		Business/Finance
RSTPROBK		WSJ Pro Bankruptcy	2017-04-19		Business/Finance
RSTPROCB	2	WSJ Pro Central Banking	2017-04-19		Business/Finance
RSTPROCY		WSJ Pro Cybersecurity	2017-04-19		Business/Finance
RSTPROFR		WSJ Pro Financial Regulation	2017-04-19	2018-08-01	Business/Finance
RSTPROPE		WSJ Pro Private Equity	2017-04-19		Business/Finance
RSTPROVC		WSJ Pro Venture Capital	2017-04-19		Business/Finance
WSJM		WSJ. The Magazine from The Wall Street Journal	2008-09-05		Business/Finance
MRKWC	3	MarketWatch	2007-11-13		Business/Finance
RTTNEW	4	RTT News (U.S.)	2014-07-14		Business/Finance
APPLAN		AP Planner	2011-03-30		General Interest
APRS	5	Associated Press Newswires	1985-12-03		General Interest
APGOV		Associated Press Newswires (U.S. Fed. Gov. Feed)	1992-10-09		General Interest
WP	6	The Washington Post	1977-01-01		General Interest
WPCOM		Washington Post.com	2007-10-11		General Interest
LBA	7	Reuters News	1987-05-27		General Interest (leans Business)
NFINCE	8	Business Wire	2005-04-28		Business/Finance
B		Barron's	1987-01-05		Business/Finance
WCBBE	9	Barron's Blogs (U.S.)	2009-07-09		Business/Finance
BON		Barron's Online (U.S.)	2008-04-16		Business/Finance
INDFED	10	US Fed News	2000-07-31		Business/Finance
	11	Houston Chronicle	1901-10-14		General Interest
INVDAI	12	Investor's Business Daily (U.S.)			Business/Finance

the same article on two consecutive business days but on two different supports (i.e., print and online), we keep this article as this potentially reaches or targets a different audience. We treat similarly articles published with the same title but a month apart. If an article with the same title is published in two consecutive days, with the same word count but a different body of the article, we keep it. This leaves us with a sample of $N = 351,860$ news articles covering close to 70% of the initial sample. Tables A.1 and A.2 in Appendix show the distribution of these articles for each outlet and some summary statistics. We cover about 7600 days, with an average (median) of 6 (3) articles per newspaper. The outlets with the highest number of articles on the Federal Reserve are *Dow Jones*, *Wall Street Journal* and *MarketWatch*.

2.2 The time-varying media focus on the Fed

Focusing on the intensity of media coverage during FOMC monetary policy days reveals several key patterns. First, there is substantial variation in coverage, with a clear distinction between the periods before and after 2008. To illustrate these patterns, we present the Fed's media coverage across three sub-periods in Figure 1.

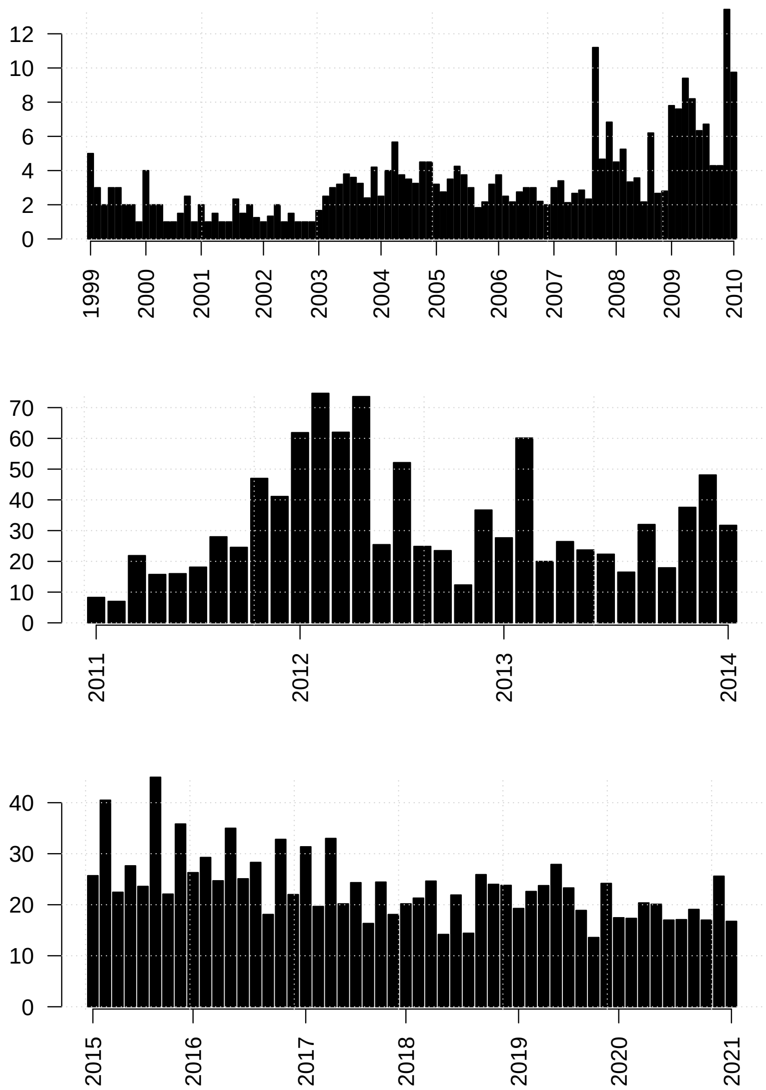
Media interest in FOMC days is dynamic rather than constant: not all meetings attract the same level of attention. We observe that coverage surged during 2003-2005, a period characterized with very low rates and the first rate hike in 2004. Later, the Great Financial Crisis (GFC) in 2008 and the adoption of unconventional monetary policies led to sustained higher levels of coverage compared to the early 2000s, marking a permanent shift in Fed's news coverage post-2008.[9]

Specific events also drove peaks in coverage. For instance, uncertainty in mid-2012 surrounding the extension of unconventional monetary policies renewed media interest in FOMC days. Other spikes occurred during tapering discussions in 2013, the leadership transition from Bernanke to Yellen in 2014, and in 2015 as markets closely monitored the Fed for its first rate hikes after nearly a decade of interest rates at the zero lower bound.

However, at times Fed's coverage is higher on non-FOMC days. Figure A.1 in Appendix shows the evolution of the daily news coverage of the Fed on all days over our sample. Nevertheless, comparing the dynamic of coverage around FOMC days, we do notice raising attention leading to the FOMC, peaking on the meeting day,

[9]This pattern holds on regular days as well, see Figure A.1 in Appendix. Schmanski et al. (2023) document a similar pattern for the Dow Jones only. They interpret this growth in media coverage as a response to an increase in information demand related to central banks actions to address the 2008 crisis, but also due to Dow Jones launching new services. We show all patterns stand after removing the Dow Jones, in Appendix section A.2.2.

Figure 1: Daily news outlets coverage on FOMC days: ratio of articles/news outlets



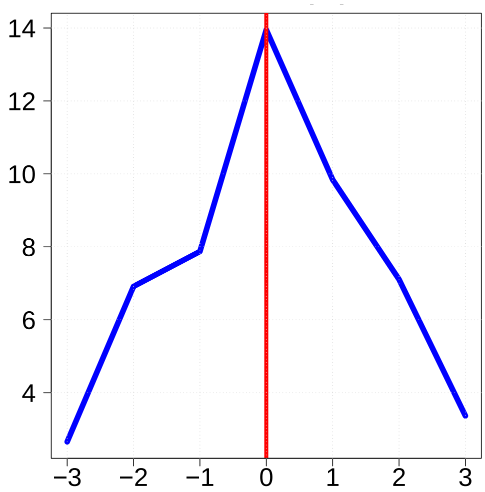
Notes: This figure shows the daily ratio of articles for the 12 news outlets, on FOMC days exclusively.

to decrease quite rapidly after (Figure 2).[10]

Nonetheless, raised attention on the Fed through media coverage does not mean news outlets cover the same topic related to the Fed. In the next section, we document the information content of news outlets' articles, in terms of topics and tone, as well as editorial practices of these outlets.

[10] Ahead of the policy meeting, there is anticipation about the policy decision. In absence of any Fed official communication during the silent period, investors, economists, and journalists analyze data releases, as there is a need for information and agents acquire this information (Ehrmann and Hubert (2023)).

Figure 2: Daily number of articles/outlets around FOMC days



Notes: This figure shows the daily ratio of articles for the 12 news outlets, around FOMC days exclusively. The y-axis represents the mean number of articles per new outlets (ratio of total articles in a given day over active newspapers). The sample covers 1998-2021.

3 News media' focus and homogeneity of coverage

Media outlets act as a curator of information by selecting, framing and presenting news stories to inform the public. They sift through vast amounts of data and events to determine what is newsworthy and relevant to their audience. At the same time, the audience favors a specific outlet for their editorial choices: the general public may favor general interest newspapers, more likely to cover more diverse news than a business or finance outlet, which, on the contrary, may be favored by investors. This editorial function of newspapers has been documented by Nimark and Pitschner (2019). They show that while different outlets typically emphasize different topics, major events shift the general news focus and make coverage more homogeneous. In other words, not only do significant events increase coverage, but they also increase the *similarity* of coverage: while different agents would receive different information (hence a different information set), big events make the coverage homogeneous, hence their information set more homogeneous.

In this section, we build on their theoretical framework that formalizes the state-dependent editorial behavior of the media, this "news selection function", to document (i) the difference in editorial preferences of newspapers reporting on the Fed; (ii) state-dependent behavior insofar as newspapers can shift from their favored topic toward what is considered the newsworthy topic of the day (i.e., coverage becomes homogeneous across outlets).

3.1 Topic modeling

First, we need to quantify the informational content of the news coverage on the Fed. Our aim is to classify each article into different topics and study the variation in these topics' coverage over time and across news outlets. To this aim, we estimate a topic model based on a Latent Dirichlet Allocation (LDA, Blei et al. (2003)), which is an unsupervised learning algorithm that clusters terms according to their co-occurrence across newspaper articles.

In a first step, we start by preprocessing the corpus of articles: we make all words lower case, remove punctuation and numbers, remove stop words, such as "the", "and" and "a", which have little informational value. Next, we perform *stemming* by reducing the inflected form of a word to its root form, using WordNet (Miller et al., 1990). This enables us to group words like "inflation" and "inflationary" to their stem "inflat".

In a second step, we estimate the LDA model. Topics in the LDA models are determined endogenously. The input required by the LDA algorithm is a corpus of text and a pre-specified number of clusters C. The output is distribution of words for each cluster and a series of proportions that express the share of article d that is captured by topic k, denoted by $\{\theta_{k,d}\}_{d=1}^{D} \in [0, 1]$, for $d = 1, ..., D$, where D denotes the total number of articles and k is the cluster (topic) index.[11] In the literature, the choice of the number of clusters varies considerably. As a general guideline, the number should be an increasing function of the number of documents, their size and the breadth of topics covered (see the discussion in Dybowski and Kempa (2020)). We estimated the LDA from 6 to 12 clusters and chose $C = 8$. This is a level of clustering that gives the highest coherence score, without an overlap between topics.[12] The higher the number of clusters, the more likely that two clusters cover the same topic.

The correlation between topics is a good indicator of the quality of our topic identification. We find that our 8 topics tend to be negatively correlated with one another, with a correlation of around -0.20 between most topics (see Figure B.1 in Appendix). This means that if attention is dedicated to one topic, it decreases the proportion of the other topic (i.e., there does not seem to be complementary topics).

In a third step, we label clusters based on what we think is the most likely topic

[11] Since LDA models have become popular in economic research, we do not discuss the methodology in further detail here, but refer the reader to the appendix. Prior specifications for the document-topic and topic-word distributions are taken from Hansen and McMahon (2016).

[12] The coherence score is a metric used to evaluate the quality of topics generated by the LDA. It measures how meaningful and interpretable the topics are by considering the degree of semantic similarity between the words within each topic. High coherence means that the topic words are closely related in meaning, such that they form a coherent set of words describing a topic.

behind these terms. Table 2 shows these clusters and their associated distribution of words.[13][14]

Table 2: LDA clusters based on Fed-related news

Ref.	Words	Topics
Topic 1	[bank, loan, company, financial, interest, business, asset, market, income, rate]	**Financial Institutions Lending & Investment**
Topic 2	[market, rate, dollar, growth, economy, rise, investor, high, month, expect]	**Macroeconomic news & market reactions**
Topic 3	[percent, net, income, loan, total, interest, increase, asset, quarter, company]	**Corporate Financial Performance**
Topic 4	[company, market, new, report, rate, high, price, month, percent, trump]	**Economic policy & politics**
Topic 5	[stock, market, price, rise, index, high, fall, rate, low, share]	**Stock markets**
Topic 6	[rate, inflation, economy, feed, market, policy, economic, interest, time, growth]	**Monetary policy & transmission**
Topic 7	[rate, market, bond, yield, interest, low, investor, bank, fund, feed]	**Bond markets**
Topic 8	[market, price, bond, stock, yield, rate, rise, high, index, sale]	**Financial market snapshot (stock & bond yields, commodities)**

Notes: For each of the 8 topics estimated using the LDA, the table shows the 10 words with the highest probabilities occurring in that topic. The order of words is in descending order in terms of probabilities assigned to them in the given topic.

We observe that Topic 1 centers on financial institutions, covering banking operations (loans, interest rates, investments) and regulatory developments. Topic 2 focuses on macroeconomic conditions, market performance, currency fluctuations, and investor sentiment in response to growth data and forecasts, including employment and job market reports. Topic 3 instead emphasizes corporate financial performance, such as quarterly earnings, income, losses, and financial health (e.g., Wells Fargo earnings reports).

In addition, Topic 4 explores the intersection of politics and the Fed, covering topics like debt issues, trade wars (e.g., with China), Fed leadership nominations, and broader economic policies, often featured in national/political sections of these outlets. Topic 5 instead relates to market updates, focusing on stock price movements, factors influencing indices, and Fed decisions' impact on markets.

Importantly, Topic 6 captures monetary policy decisions and their effects on economic growth and inflation. Coverage includes market reactions and expectations. Topic 7 highlights bond market movements, focusing on yields and treasury rates in response to rate adjustments and economic updates. Finally, Topic 8 provides an aggregate view of stock and bond markets, often as "snapshot" articles offering

[13] The LDA can assign similar words to different topics, as similar words can be used in different contexts. We therefore did not opt for a mutually exclusive allocation of LDA terms.

[14] To label topics we used our judgment but also double checked this labeling with ChatGPT 4.0. GPT-4 has been shown by Hansen and Kazinnik (2023) to have the ability to correctly classify Fedspeak, in a level akin to human rationale. We provide details of the approach in the Appendix.

concise updates on short-term market trends and sentiment. In Table B.1 in Appendix we present examples of articles where each cluster is the dominant topic of the article.

We present the evolution of these topics on FOMC days in Figure 3.[15] While media focus on topics has varied over time, coverage has become more balanced across topics since 2012. This variation enables us to recompose historical narratives around monetary policy. In the late 1990s, stock market news dominated FOMC day coverage during the dot-com boom, with record highs in indices like the NASDAQ and S&P500 in 1999. Following the dot-com bubble burst in 2000-2001, the Fed's rate cuts to stimulate growth drew significant attention to monetary policy. The bond market also gained prominence, driven by low interest rates, the housing boom, securitization, and rising U.S. debt post-9/11.

During the Great Financial Crisis, monetary policy once again became a focal topic. Post-crisis, attention balanced across topics, with monetary policy, bond markets, and stock markets collectively capturing about half of media coverage. The shift from date-based forward guidance to state-dependent guidance in December 2012 further explains the spike in coverage of "Macroeconomic News" during that period.

FOMC days are unique for media coverage of the Fed, not only in intensity but also in content. Leading up to FOMC meetings, media focus evolves dynamically around this key monetary policy event. Five days before the meeting, no single topic dominates coverage. However, as the meeting approaches (D-1) and on the day itself, a clear dominant theme emerges—typically monetary policy (see Figures B.2 and B.3 in Appendix).

While this means that overall, media outlets speak more about monetary policy on these days, and that this topic dominates the narrative, this may not mean that outlets *all* talk about monetary policy, as it could just mean that one outlet is more particularly active. We turn to a measure of homogeneity and specialization of newspaper topics to articulate whether this is the case or not.

3.2 Diverse editorial focus on Fed-related news

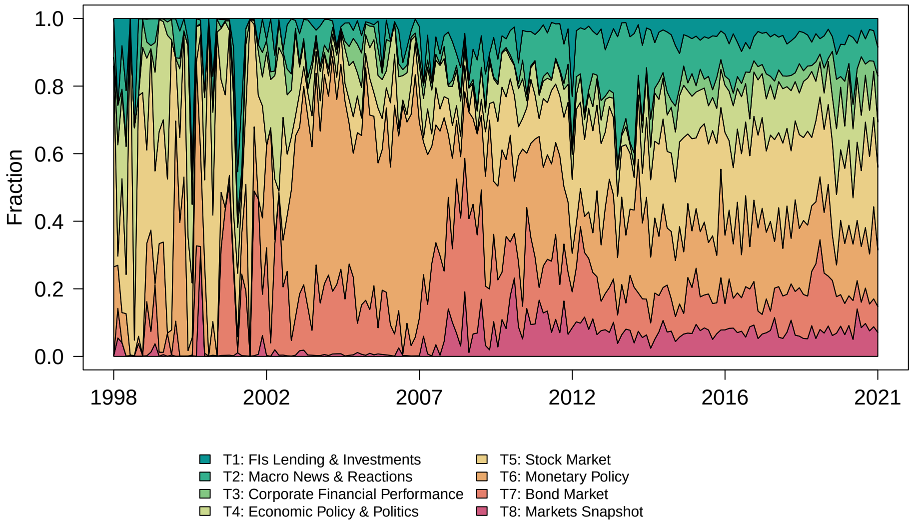
Based on Nimark and Pitschner (2019), we build the following measures of news focus:

$$d_{m,k} = \frac{p_{m,k} - p_k}{p_k}, \tag{1}$$

with $p_{m,k}$ the probability that media m reports on topic k, and $p_k = \frac{1}{M_t} \sum_{m=1}^{M}$

[15] See Table B.2 in Appendix for summary statistics.

Figure 3: Topic proportion on FOMC days



Notes: The chart represents the mean proportion of different topics on FOMC days. Topic shares are obtained through the LDA for a given article, then average on a given day over articles published that day.

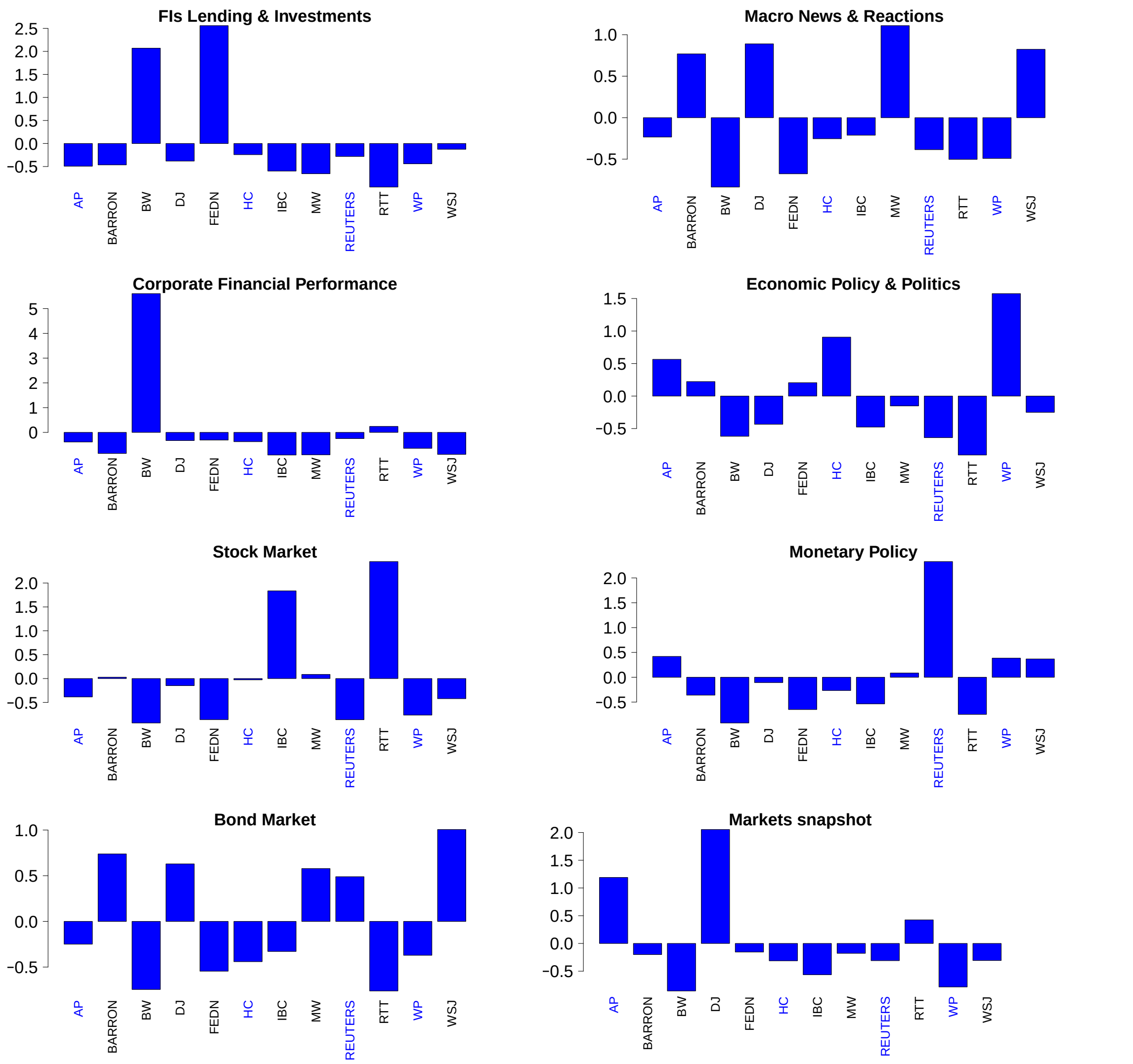
$p_{m,k}$, the corresponding average across all M_t media outlets active at time t. A positive deviation indicates that a media outlet devoted more coverage to a topic relative to the average outlet; i.e., that its editorial focus is on this subject. The measure of news focus enables us to distinguish whether media organizations tend to specialize, or *favor* a specific topic coverage of the Fed. We may expect for instance a difference in topic coverage between general interest and specialized outlets in Business/Finance, as highlighted in Table 1.

Figure 4 illustrates our measure of news focus, contrasting general-interest newspapers with business/finance-focused outlets. General-interest outlets like the *Washington Post*, *Houston Chronicle*, and *Associated Press* tend to focus on broad topics such as economic policy and politics, reflecting their general audience. They also cover monetary policy more than the average newspaper in our sample.

In contrast, specialized outlets like *US Fed News* primarily report on the Fed's activities, emphasizing financial institutions, regulatory measures, and market impacts. Their coverage aligns with their editorial focus on financial stability and institutional concerns, including governance topics like Fed chair nominations. Newswires such as *Dow Jones*, *Associated Press*, and *RTT* focus on quick, real-time market updates. Their emphasis on immediate snapshots aligns with their role in providing concise information to investors throughout the day.

Our measure not only reflects coverage scopes but also highlights the diversity of editorial focus, even among finance- or business-specialized outlets. For example, *Investor Business Daily* (IBC) and *RTT News* prioritize stock market news related

Figure 4: Topics' focus of the different media outlets



Notes: This figure presents topic focus by news outlet. AP: Associated Press, BW: Business Wire, DJ: Dow Jones, FEDN: Fed News, HC: Houston Chronicle, IBC: Investor Business Daily, MW: Market Watch, RTT: RTT News, WP: Washington Post, WSJ: Wall Street Journal. The blue color in the x-axis refers to general interest media. The black denotes specialized outlets.

to the Fed, while *Business Wire* and *RTT* focus on corporate news.

Although news outlets may cover multiple topics, they typically specialize in 2–3 closely related areas. For instance, monetary policy is covered by *Associated Press*, *Market Watch*, *Reuters*, and *WSJ*, though it is not the primary focus for all these outlets. Some, like *WSJ* and *Reuters*, also emphasize bond markets and macroeconomic news. Meanwhile, *RTT News* covers corporate news, stock market news, and market snapshots.

3.3 More homogeneous content coverage on key FOMC days

The previous measure provides insight into a news outlet's average focus. However, newspapers can deviate from their usual editorial scope when necessary, especially during major events. We now examine the homogeneity of news coverage across outlets to determine whether events like FOMC meetings influence news media focus. Specifically, do newspapers cover the same topics at certain times, and if so, when?

To do so, we use the measure of homogeneity of Nimark and Pitschner (2019):

$$H_t \equiv \frac{\sum_m \mathbf{1}(argmax_k F_{t,m,k} = argmax_k F_{t,k})}{M_t}, \tag{2}$$

with $\mathbf{1}$ an indicator function that takes the value 1 when the equality in parentheses holds. $F_{t,m,k}$ is the fraction of news coverage devoted to topic k by newspaper m on date t. $F_{t,k}$ is the total news devoted to topic k,

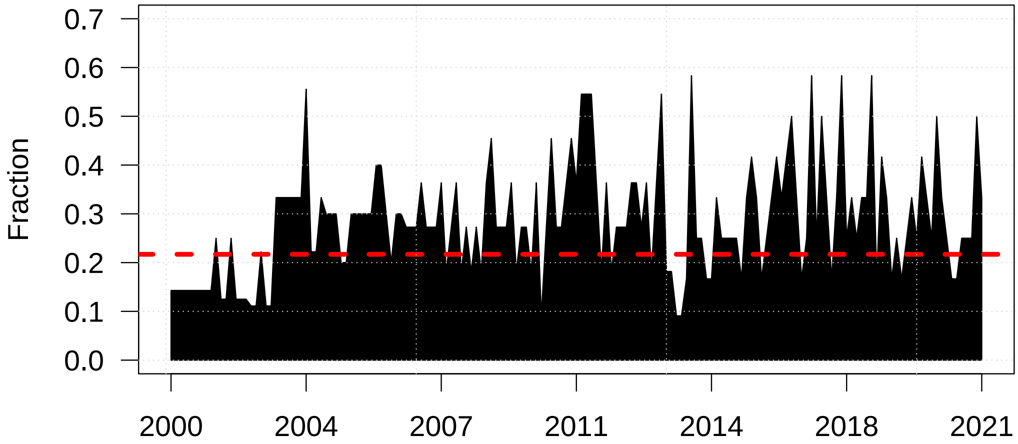
$$F_{t,k} = \frac{\sum_d \theta_{t,d,k}}{D_t}. \tag{3}$$

$\theta_{t,d,k}$ is the probability that article d belongs to topic k at time t. D_t is the number of articles released that day. M_t is the total number of newspapers available at date t.

Figure 5 reveals three key findings. First, due to their specialization, newspapers generally show low agreement on coverage, with average homogeneity at 20% (red dashed line). Second, homogeneity on FOMC days is typically higher than on regular days, except during certain periods. For example, in the early 2000s until 2004, homogeneity was particularly low, likely due to overlapping events like 9/11 and the dot-com bubble. A similar dip in homogeneity occurred driven by competing events: uneven economic recovery, leadership speculation, and starting discussions around tapering.

Third, some FOMC events generate more homogeneous coverage. Homogeneity peaks on specific dates but never reaches full agreement. Notable peaks include

Figure 5: Homogeneity in topics over time on FOMC days



Notes: This figure shows topic homogeneity over active news outlets, with at least 2 active outlets. The red line is the sample mean of homogeneity, across all days. The homogeneity measure is between 0 and 1, and can be understood as the fraction of newspapers for which the highest-probability topic is the same one that have the highest probability across all articles published on that day. A homogeneity of 0.7, for instance, means that 70% of newspapers devote the biggest shares of their articles to that most important topic.

the August 2004 FOMC (marking the first rate hike since the 2001 recession) and mid-2011 (following the end of QE2 and the shift in forward guidance), and around the taper tantrum in June 2013, which became the topic of focus.

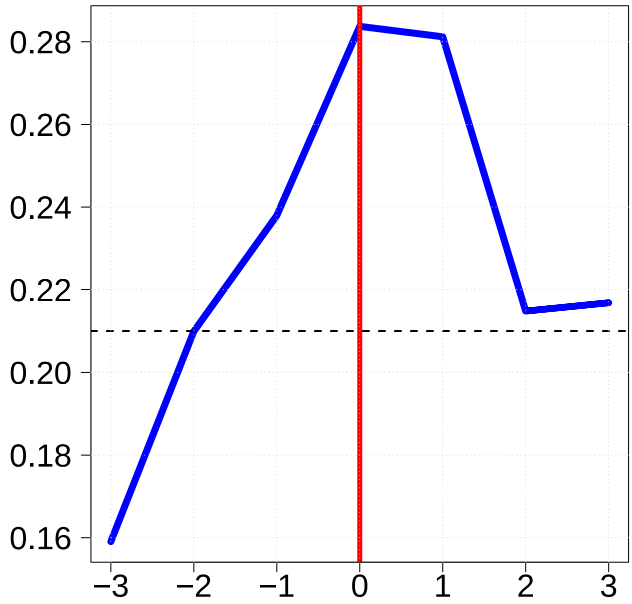
When examining FOMC days, we observe that homogeneity in coverage gradually builds up in the days leading to the meeting, peaking on the day itself. Homogeneity is about 10% higher than on regular days (where the average homogeneity is around 0.20), roughly one standard deviation higher, and then slowly reverts to the mean.[16]

Homogeneity is persistent, taking time to build and decline. The FOMC meeting day is also characterized by a dominant focus on monetary policy, stock markets, and bond markets (Figure 7). This increase in homogeneity means that multiple newspapers prioritize these topics simultaneously, rather than one outlet focusing exclusively on them.

So far, we have documented that events like FOMC days not only increase the intensity of coverage but also amplify the emphasis on specific topics, particularly monetary policy. By examining the editorial content, we observed that newspapers sometimes converge on the same topic. However, while they may agree on what is important to report, they may not necessarily agree on the tone of the report. To capture this variation, we measure the tone of each article, building a similar measure of homogeneity in tone.

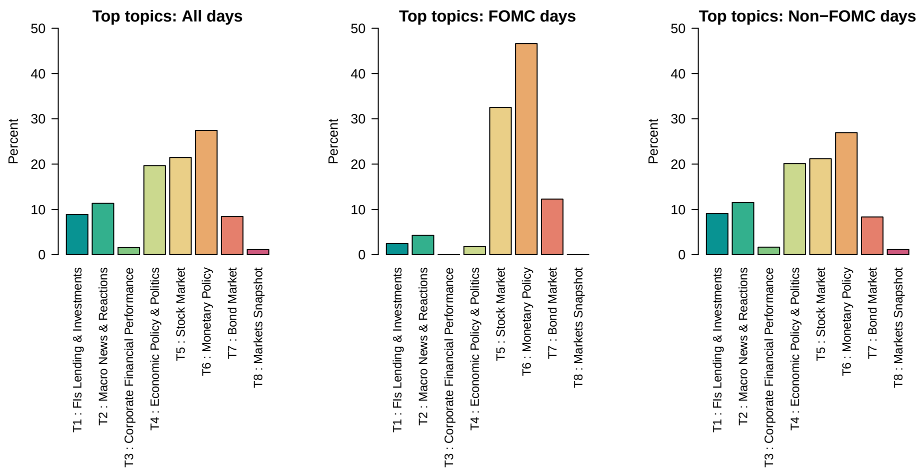
[16]This aligns with findings by Fisher et al. (2022), who documented a peak in attention around three days prior to an FOMC announcement.

Figure 6: Homogeneity around FOMC days



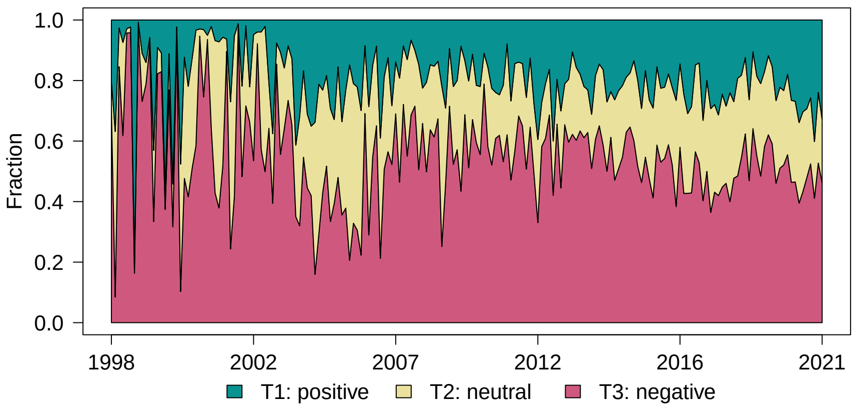
Notes: This figure shows topic homogeneity around FOMC days. The dashed line represent the average of homogeneity across all days in the sample. The red line is the day of the FOMC. The figure is based on the full sample 1998-2021.

Figure 7: Dominant topic on FOMC days vs other days



Notes: This chart shows the top topics across different subsamples. The bars represents the shares of each topics on these days. Shares are obtained from average proportions of topics on a given day (averaged across articles' topic shares). The dominant topic is the one with the highest share.

Figure 8: Negative, neutral and positive tone in Fed's news coverage on FOMC days



Notes: This chart represents the average proportion of each tone (negative, positive, neutral) across articles on a given day. As the tones' proportion is measured by article, we take the average across all articles.

3.4 Editorial stance on tone

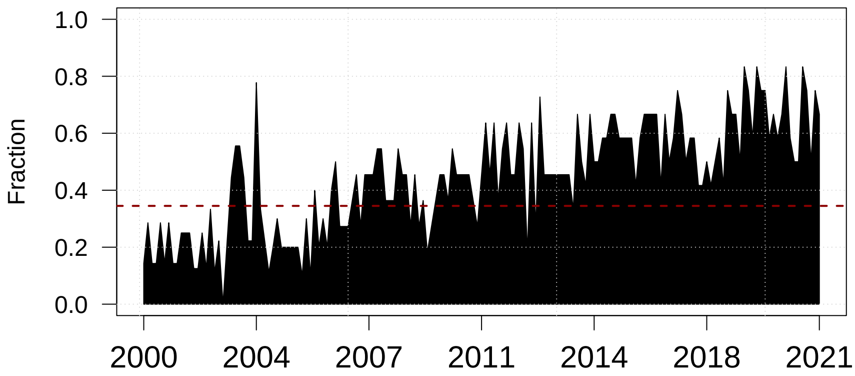
To measure the tone and account for finance-specific content of news coverage about the Fed, we use FinBERT, a pre-trained Natural Language Processing (NLP) introduced by Devlin (2018). It is pre-trained on financial communication text so as to enhance its ability to classify financial texts. Those financial texts are the Financial Phrase-Bank dataset, consisting of 4846 English sentences selected randomly from financial news and annotated by 16 subject matter experts with a background in finance and business. FinBERT has been shown to outperform traditional dictionary methods such as with the Loughran and McDonald (2011) dictionary (Hansen and Kazinnik (2023)).

Figure 8 shows that the tone of news outlets' articles covering the Fed tend to be negative. On average, an article is 52% negative rather than positive or neutral (see Table B.3 in Appendix). This is consistent with the findings of a general negative bias on the reporting of the economy in newspapers.[17]

We also observe that as the FOMC meeting is approaching, the neutrality of news decreases slightly (Figure B.6 in Appendix). On average, 4-5 days before the FOMC, articles are 10% more neutral. Newspapers seem to take a stance. But does that mean that all newspaper tend to agree on the tone of the narrative about the economy and the decision to come, or do they take polarized views? To investigate

[17] Harris and Sojourner (2024) emphasize a decoupling since 2018 of the tone of economic news from fundamentals. van Binsbergen et al. (2024), based on a study of 170 years of US newspapers, document a similar secular increase in media gloom, while, in fact, the frequency of recessions has fallen. Furthermore, Berger et al. (2011) find more negative coverage for the ECB in periods of high inflation and in relation with prior markets' expectations, suggesting a monitoring role of the media.

Figure 9: Homogeneity of tone on FOMC days



Notes: This figure shows tone homogeneity over active news outlets, with at least 2 active outlets. The red line is the sample mean of homogeneity, across all days. Similarly as for topic homogeneity, homogeneity of tone is defined as the fraction of news outlets for which the highest-share tone is the same one that carries the highest share across all articles published on that day.

this we build a measure of homogeneity of tone to grasp to which extent a common narrative (or not) gets built ahead of the FOMC. Let our measure of homogeneity of tone be:

$$HT_t \equiv \frac{\sum_m 1(argmax_k \Omega_{t,m,k} = argmax_k \Omega_{t,k})}{M_t}, \tag{4}$$

with 1 an indicator function that takes the value 1 when the equality in parentheses holds. $\Omega_{t,m,k}$ is the fraction of news coverage using tone k by newspaper m on date t. $\Omega_{t,k}$ is the total news portrayed with tone k,

$$\Omega_{t,k} = \frac{\sum_d \omega_{t,d,k}}{D_t}, \tag{5}$$

where $\Omega_{t,k}$ is each article's tone for a given newspaper d. D_t is the number of articles for that day, and M_t the total number of news outlets active at time t.

Figure 9 presents our measure of tone homogeneity across media outlets on FOMC days. The red line represents the mean homogeneity of tone for the full sample. Two key observations stand out: first, homogeneity of tone has increased over time, and second, it has consistently been higher than the sample mean (which includes all days) since 2008-2009. While homogeneity never reaches 100%, it occasionally approaches 80%. Notable waves of agreement on tone occurred before the 2004 hiking cycle, during the financial crisis, the taper tantrum, and the COVID-19 period, as well as in 2019 when inflation concerns intensified. When agreement occurs, the tone is typically negative, with neutral or positive tones being rare (see Figure B.7).

The upward trend in tone homogeneity, often negative, cannot be attributed to poor market performance, as the S&P500 has risen during this period (see Figure B.11 in Appendix). Looking through articles on days with most negative coverage, we noticed coverage of a weak economy or troubled financial markets, and not necessarily reflect criticism of the Fed. Conversely, tone homogeneity can be low during surprising events, as in the November 1, 2005 FOMC, where some outlets focused on the possibility of more hikes, while others, concerned about housing, highlighted the potential impact on borrowers.

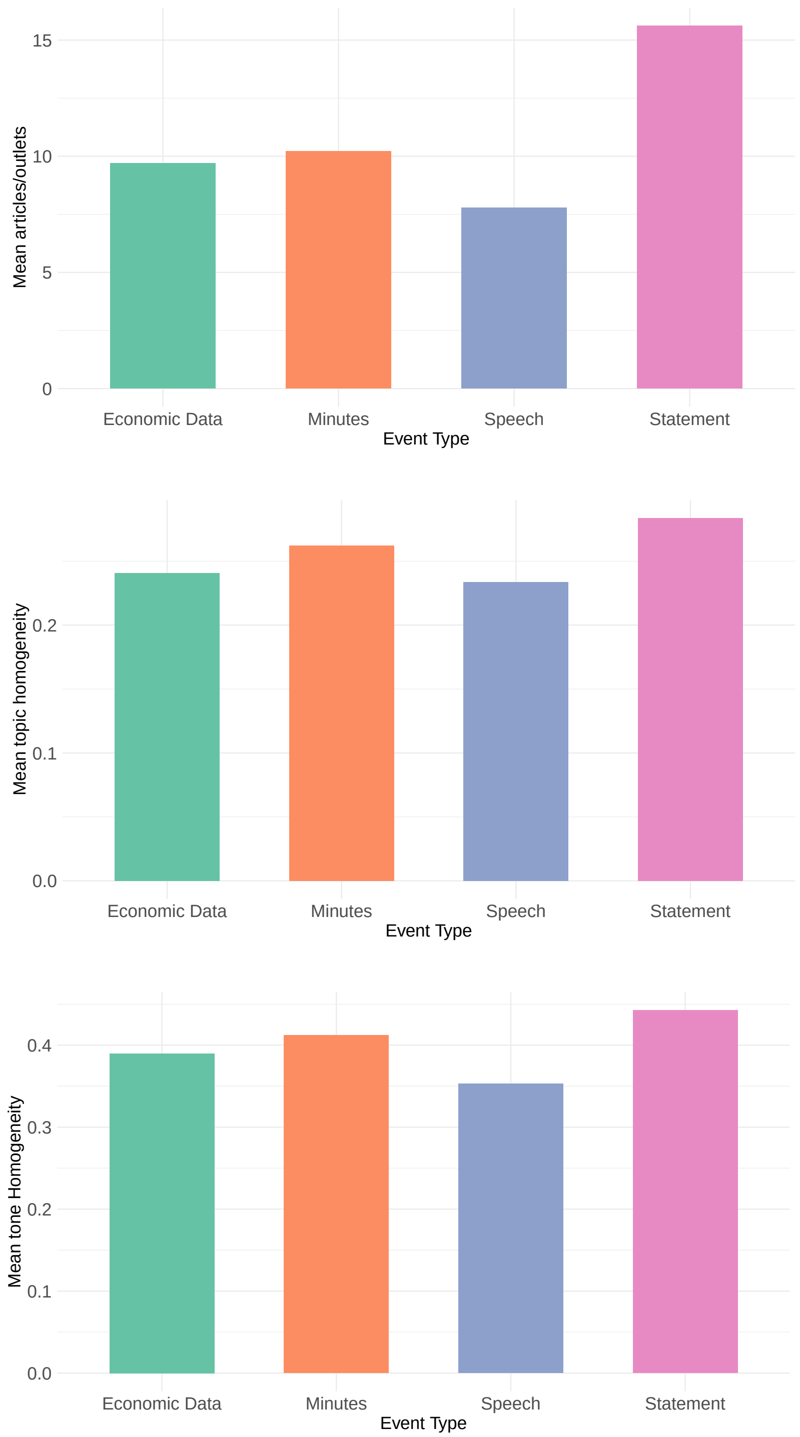
Zooming in around FOMC days, the peak of tone agreement seems to come after the meeting itself. Zooming in on the proportion of negative, neutral and positive news 5 days around the FOMC, we can identify a pattern where news media become less neutral, and take a position, on average more negative, therefore not reaching a consensus or agreement on the day of the FOMC, but after (Figures 9 and B.10 in Appendix). We confirm this finding by computing the probability of switching tone (Figure B.8 in Appendix). We observe that the probability of staying negative increases slightly before the FOMC meeting and of switching from negative to neutral decreases.

3.4.1 Coverage of FOMC meetings vs other events

Finally, we compare the reporting pattern across different communication events, FOMC monetary policy announcement (statement), the release of Fed Minutes, main macroeconomic data releases (Non-farm payroll, Unemployment rate, GDP, Industrial Production, and CPI) and speeches of members of the Board of Governors (including the Fed Chair). Figure 10 shows that FOMC statements stand out as the most reported on, as well as generating relatively more homogeneous coverage compared to other events.

In this section, we demonstrated that homogeneity in media coverage is time-varying, with notable increases surrounding key Fed events, especially in the lead-up to FOMC meetings. In the next section, we delve into how this coordinated media coverage may influence market movements beyond the content released by the Fed on FOMC days.

Figure 10: Mean coverage, homogeneity of topics and tone across events types



Notes: Economic data releases are the main releases (GDP, unemployment rate, non-farm payroll, CPI), speeches are those of the Board Members, including the Fed Chair. Each bar represents the average of our measures (homogeneity of topic, tone, or number of articles per news outlets) taken over the sample of each events (economic data release, minutes, speech, statement).

4 State-dependent media coordination and market reactions

Because medias act as an intermediary between agents and the state of the world, its selection of what is deemed newsworthy can play a crucial role in shaping how agents respond to information, thereby influencing their expectations. First, editorial choices shape the perceived importance of information: when news outlets deviate from their typical focus to highlight a specific event or data, they increase attention toward that issue ("saliency" of information). Second, coordinated reporting can foster consensus, making the information closer to common knowledge. This is especially important in strategic settings, where the perceived consensus can influence decisions. This then raise the question: do coordinated news impact markets differently, beyond the information they provide, by shaping its saliency or consensus around it?

4.1 Homogeneity of coverage

Here we investigate how media reporting about the Fed, in particular its time-varying coordination on topics, may influence market movements. We run the following regression:

$$\begin{aligned} |\Delta Y_{t-1,t}| = \alpha &+ \beta_1 H_{t-1}^{topic} + \beta_2 |MPS_t| + \beta_3 H_{t-1}^{topic} \cdot |MPS_t| \\ &+ \beta_4 \text{Articles/Newspapers}_t + \beta_5 \text{Articles/Newspapers}_t \cdot H_{t-1}^{topic} \\ &+ \beta_6 \text{OtherControls}_{i,t} + \epsilon_t, \end{aligned} \tag{6}$$

where t is any given day with Fed related news.[18] $|\Delta Y_{t-1,t}|$ is the absolute daily changes in the following financial assets: the yield of U.S Treasury bills and notes at maturity 3-month, 6-month, 1-year, 2-year, 3-year, 5-year and 10-year, the S&P500 (growth rate) and the VIX. H_t is our measure of topic homogeneity, lagged by one period to mitigate endogeneity concerns.[19] $|MPS_t|$ are the monetary policy surprises as in Bauer and Swanson (2023a), Bauer and Swanson (2023b), based on high frequency identification over a 30-minute window surrounding scheduled FOMC

[18] We use daily changes rather than intra-day due to lack of timestamps for all articles. Factiva does not provide the time stamp for all printed news, hence we would need to restrict our sample to online news. But focusing solely on newswires and online articles would exclude much of the printed press and undermine the concept of homogeneity of coverage.

[19] Dual causality between news and interest rate movements could arise: homogeneity on FOMC days could be high because journalists all explain why interest rates moved.

announcements.[20] Articles/Newspapers$_t$ is the number of articles per news outlet.

We control for the intensity of coverage, and its interaction with homogeneity. We want to distinguish between heightened market interest from the effect of homogeneity of coverage which may align market expectations with a dominant narrative, or may help distinguish a newsworthy information for a given level of coverage.

Other controls include calendar fixed effects, as well as the main macroeconomic releases, covering non-farm payrolls, unemployment rate, CPI, GDP, as well as varied indicators of housing starts, home sales, and confidence indicators (following Gilbert et al. (2017)).[21]

Table 3: Impact of topic homogeneity on asset prices

	Dependent variable:								
					$\lvert\Delta Y_{t,t-1}\rvert$				
	$\lvert\Delta$3M$\rvert$	$\lvert\Delta$6M$\rvert$	$\lvert\Delta$1Y$\rvert$	$\lvert\Delta$2Y$\rvert$	$\lvert\Delta$3Y$\rvert$	$\lvert\Delta$5Y$\rvert$	$\lvert\Delta$10Y$\rvert$	$\lvert\Delta$SP500$\rvert$	$\lvert\Delta$VIX$\rvert$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
H^{topic}_{t-1}	−0.004	−0.016***	−0.022***	−0.030***	−0.030***	−0.026***	−0.017**	−0.470**	0.120
	(0.007)	(0.006)	(0.006)	(0.007)	(0.008)	(0.008)	(0.008)	(0.184)	(0.246)
$\lvert$MPS$_t\rvert$	0.557***	0.736***	0.754***	0.774***	0.686***	0.613**	0.367*	14.772***	24.922***
	(0.189)	(0.207)	(0.201)	(0.226)	(0.223)	(0.259)	(0.196)	(3.371)	(6.553)
H^{topic}_{t-1} × $\lvert$MPS$_t\rvert$	−1.192	−1.724*	−1.791*	−0.650	−0.243	−0.501	−0.577	−43.395***	−85.752***
	(0.876)	(1.011)	(0.951)	(1.004)	(0.985)	(1.195)	(0.938)	(13.741)	(26.417)
Articles/Newspapers$_t$	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.0003	−0.011**	0.004
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.005)	(0.007)
H^{topic}_{t-1} × Articles/Newspapers$_t$	0.0004	0.001***	0.001***	0.002***	0.001**	0.001	0.0002	0.022	−0.015
	(0.0004)	(0.0004)	(0.0004)	(0.001)	(0.001)	(0.001)	(0.001)	(0.017)	(0.022)
Constant	0.012***	0.014***	0.021***	0.037***	0.042***	0.046***	0.043***	0.600***	0.513***
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.097)	(0.104)
Controls									
Lag1 $\lvert\Delta Y\rvert$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,737	4,737
R^2	0.303	0.244	0.178	0.148	0.120	0.074	0.053	0.192	0.170
Adjusted R^2	0.299	0.241	0.174	0.144	0.116	0.070	0.049	0.188	0.166

Note: We estimate the response of 3-, 6-month, 1-year up to 10-year U.S. Treasury yield changes, in absolute value, as well as S&P500 and the VIX, to topic homogeneity. We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

Table 3 presents our results. We find that an increase in homogeneity of topics

[20]They take the first principal component of the changes in Eurodollar future contracts at maturity 1 to 4 quarters. They then purge these shocks from the "Fed response to news" by orthogonalizing the surprises with respect to macroeconomic and financial data that pre-date the announcement.

[21]The full list is: GDP, PMI, Factory orders, Industrial production, ISM manufacturing, Construction Spending, Business inventories, Durable goods orders, Philadelphia Fed Business outlet, Leading index, capacity utilization, CPI, CPI excl. food and energy, PPI, PPI Excl. food and energy, GDP price deflator, Non-farm payroll, Unemployment rate, personal income, consumer credit, Trade balance, housing starts, New home sales, Conf. Board consumer confidence, University of Michigan Sentiment index. We get the release from Bloomberg.

leads, in absolute value, to lower changes in the yield curve and the S&P500. An increase in one standard deviation in homogeneity (about 0.10 unit[22]) is associated with a 16 to 30 bps decrease in absolute changes in Treasury yields, and about 4.7% for the S&P500. On a given day, this may mean markets react less strongly as a consensus builds through homogeneous news coverage.

In contrast, we a find positive and statistically significant interaction between homogeneity and intensity of coverage (as measured by the number of articles per news outlets), while intensity alone has a significant but negative effect on variations in the yield curve and S&P500. This may suggest that we need high coverage and high homogeneity for markets to react. In other words, the media's raised attention need to be coordinated on a specific topic, through a "saliency effect", to lead to larger absolute variation in yields.

With regard to monetary policy surprises, consistent with previous studies, we document a statistically significant effect of monetary policy surprises on short-term and long-term yields, as well as on stock market valuation and the VIX.[23] However, the sensitivity of these assets with respect to the MPS is reduced when interacted with our topic homogeneity measure, for the 6-month and 1-year Treasuries, S&P500, and the VIX. A potential rationale behind this result is the consensus building through homogeneous news, thereby smoothing adjustments and reducing uncertainty.

4.2 Which homogeneity matters?

Below, we consider whether the content of that homogeneity in coverage matters. We distinguish on the homogeneity type, whether on a specific topic, or on tone, to disentangle the channels that may be at work.

Homogeneity about a *specific* topic. We modify our baseline regression framework to account for whether the *specific content* of homogeneity matters:

$$\begin{aligned} |\Delta Y_{t-1,t}| = \alpha + \beta_1 H^{topic}_{t-1} + \beta_2 |MPS_t| + \beta_3 \mathbb{D}_{\text{Topic},t-1} + \beta_4 H^{topic}_{t-1} \cdot |MPS_t| \\ + \beta_5 H^{topic}_{t-1} \cdot \mathbb{D}_{\text{Topic},t-1} + \beta_6 \text{Controls}_{i,t} + \epsilon_t, \end{aligned} \tag{7}$$

where $\mathbb{D}_{\text{Topic},t-1}$ is a dummy equal to 1 if the dominant topic is Topic={monetary policy,

[22]Homogeneity ranges between 0 and 1 but never reaches 1. Therefore, we consider a more realistic increase, one of 0.10 unit, which is approximately one standard deviation.

[23]A 10bps monetary policy shock leads to an absolute variation in short-term yields of around 6-7 bps, with smaller effects around 3-6 bps on 5-year and 10-rate yields. The effect on the S&P500 growth rate is 1.47%, in range with Bauer and Swanson (2023b).

stock markets}, the two most dominant topics in news coverage in our sample.

Table 4 shows that the coefficient of interaction on homogeneity and the stocket market topic is positive and statistically significant. This seems to suggest that topic homogeneity's impact depend on the context, i.e., when there is information deemed newsworthy or surprising for markets. When the dummy for the stock market topic is equal to 1, an increase in homogeneity by 10% (i.e., about one standard deviation) leads to greater absolute variation of the yield curve: around 22 to 32 bps.[24]

Table 5 presents results when conditioning on the monetary policy topic. In contrast to the stock market topic, this topic does not bring new information. The rationale for this finding could be that since monetary policy is the dominant topic on most days (as seen in Figure 7), then covering this topic is not informational, but *deviating* from it is. In other words, talking about monetary policy leading to policy announcement days is *not news*, but talking about stock markets *is (or creates) news.*

Homogeneity in tone. Media may focus on the same topic, but take opposite views on the issue. Hence, we consider the following regression to investigate the role of homogeneity in tone:

$$\begin{aligned} |\Delta Y_{t-1,t}| = \alpha + \beta_1 H_{t-1}^{tone} + \beta_2 |MPS_t| + \beta_3 \mathbb{D}_{\text{Tone},t-1} + \beta_4 H_{t-1}^{tone} \cdot |MPS_t| \\ + \beta_5 H_{t-1} \cdot \mathbb{D}_{\text{Tone},t-1} + \beta_6 \text{Controls}_{i,t} + \epsilon_t, \end{aligned} \tag{8}$$

where $\mathbb{D}_{\text{Tone},t-1} = 1$ if the dominant tone is $Tone = \{negative, positive\}$.

Table 6 shows that, on average, homogeneity of tone, on any given day, tend to decrease the volatility of the yield curve, with similar magnitude as topic homogeneity. An increase in tone homogeneity by 0.1 unit decreases absolute changes in treasuries yield between 11 to 32bps, with somewhat larger impact on the long-end. In addition, on policy announcement days, it amplifies the sensitivity of long-term yields to monetary policy surprises, regardless of the tonality of the coverage, especially on longer-term rates. From Table 6, we see that the marginal effect of tone with the monetary policy surprises is positive, indicating that media coverage amplifies the effect of the surprise through the sentiment it conveys possibly on the policy decision. As the majority of the tone is negative (see Figure B.7 in Appendix), we also look at the marginal effect of the dominant tone being negative, finding none.

[24]We also modified the regression to account for the interaction between the MPS and the dominant topic. We find that the coefficient on the interaction between the MPS and the dummy on stock market topic is also significant, even after controling for the shock, and homogeneity. These results are available upon request.

Table 4: Impact of topic homogeneity and dominant topic (stock markets) on asset prices

	Dependent variable:								
					$\|\Delta Y_{t,t-1}\|$				
	$\|\Delta 3M\|$	$\|\Delta 6M\|$	$\|\Delta 1Y\|$	$\|\Delta 2Y\|$	$\|\Delta 3Y\|$	$\|\Delta 5Y\|$	$\|\Delta 10Y\|$	$\|\Delta SP500\|$	$\|\Delta VIX\|$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
H_{t-1}^{topic}	-0.002	-0.011^{***}	-0.016^{***}	-0.022^{***}	-0.022^{***}	-0.021^{***}	-0.015^{**}	-0.145	-0.353
	(0.005)	(0.004)	(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.188)	(2.336)
$\|MPS_t\|$	0.560^{***}	0.729^{***}	0.746^{***}	0.767^{***}	0.681^{***}	0.621^{**}	0.380^{**}	14.826^{***}	16.081
	(0.190)	(0.207)	(0.201)	(0.224)	(0.221)	(0.255)	(0.193)	(3.374)	(22.981)
$\mathbb{D}_{\text{StockMarket},t-1}$	-0.005^{***}	-0.007^{***}	-0.008^{***}	-0.012^{***}	-0.010^{***}	-0.010^{***}	-0.007^{**}	-0.148^{**}	-1.019
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.065)	(0.703)
$H_{t-1}^{topic} \times \|MPS_t\|$	-1.194	-1.658^{*}	-1.715^{*}	-0.562	-0.173	-0.510	-0.634	-42.876^{***}	98.448
	(0.865)	(1.002)	(0.942)	(1.004)	(0.981)	(1.180)	(0.915)	(13.467)	(129.547)
$H_{t-1}^{topic} \times \mathbb{D}_{\text{StockMarket},t-1}$	0.011	0.022^{***}	0.024^{***}	0.032^{***}	0.026^{***}	0.016^{*}	0.005	-0.305	-4.062
	(0.006)	(0.006)	(0.006)	(0.008)	(0.009)	(0.010)	(0.010)	(0.257)	(2.916)
Constant	0.011^{***}	0.013^{***}	0.020^{***}	0.035^{***}	0.040^{***}	0.045^{***}	0.050^{***}	0.539^{***}	17.092^{***}
	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.106)	(1.436)
Controls									
Lag1 $\|\Delta Y\|$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,737	4,737
R^2	0.303	0.245	0.179	0.150	0.122	0.078	0.057	0.104	0.316
Adjusted R^2	0.300	0.241	0.175	0.146	0.118	0.073	0.052	0.100	0.312

Note: We estimate the response of 3-, 6-month, 1-year up to 10-year U.S. Treasury yield changes, in absolute value, as well as S&P500 and the VIX, to topic homogeneity and a dummy on the dominant topic being "Stock Market". We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

Table 5: Impact of topic homogeneity and dominant topic (monetary policy) on asset prices

	Dependent variable:								
	$\lvert\Delta Y_{t,t-1}\rvert$								
	$\lvert\Delta$3M$\rvert$	$\lvert\Delta$6M$\rvert$	$\lvert\Delta$1Y$\rvert$	$\lvert\Delta$2Y$\rvert$	$\lvert\Delta$3Y$\rvert$	$\lvert\Delta$5Y$\rvert$	$\lvert\Delta$10Y$\rvert$	$\lvert\Delta$SP500$\rvert$	$\lvert\Delta$VIX$\rvert$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
H^{topic}_{t-1}	−0.001	−0.005	−0.008**	−0.013**	−0.017***	−0.020***	−0.017***	−0.205	0.104
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)	(0.006)	(0.187)	(0.239)
$\lvert \mathrm{MPS}_t\rvert$	0.552***	0.717***	0.729***	0.740***	0.658***	0.598**	0.365*	14.338***	25.149***
	(0.186)	(0.205)	(0.201)	(0.228)	(0.224)	(0.258)	(0.195)	(3.373)	(6.488)
$\mathbb{D}_{\mathrm{MonetaryPolicy},t-1}$	−0.002	−0.0003	0.002	0.004	0.002	0.001	−0.001	0.052	−0.004
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.078)	(0.099)
$H^{topic}_{t-1} \times \lvert \mathrm{MPS}_t\rvert$	−1.142	−1.585	−1.633*	−0.454	−0.084	−0.425	−0.562	−40.545***	−86.442***
	(0.857)	(0.992)	(0.937)	(1.019)	(0.992)	(1.187)	(0.922)	(13.563)	(25.882)
$H^{topic}_{t-1} \times \mathbb{D}_{\mathrm{MonetaryPolicy},t-1}$	0.003	−0.004	−0.009	−0.008	−0.002	0.006	0.005	−0.266	−0.383
	(0.008)	(0.007)	(0.007)	(0.010)	(0.011)	(0.012)	(0.011)	(0.293)	(0.395)
Constant	0.011***	0.012***	0.018***	0.032***	0.038***	0.044***	0.043***	0.543***	0.544***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.107)	(0.103)
Controls									
Lag1 $\lvert\Delta Y\rvert$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,737	4,737
R^2	0.303	0.244	0.177	0.147	0.120	0.074	0.053	0.095	0.170
Adjusted R^2	0.299	0.240	0.173	0.143	0.116	0.070	0.048	0.091	0.166

Note: We estimate the response of 3-, 6-month, 1-year up to 10-year U.S. Treasury yield changes, in absolute value, as well as S&P500 and the VIX, to, topic homogeneity and a dummy on the dominant topic being "Monetary Policy". We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

Is the deviation from "business as usual" matters in the case of tone? Contrarily to topics deviation, homogeneity of tone by itself matters, regardless of the direction of tone (see Table B.4 on positive tone in Appendix).

Table 6: Impact of tone homogeneity (negative tone) on asset prices

	Dependent variable:								
					$\lvert\Delta Y_{t,t-1}\rvert$				
	$\lvert\Delta 3M\rvert$	$\lvert\Delta 6M\rvert$	$\lvert\Delta 1Y\rvert$	$\lvert\Delta 2Y\rvert$	$\lvert\Delta 3Y\rvert$	$\lvert\Delta 5Y\rvert$	$\lvert\Delta 10Y\rvert$	$\lvert\Delta SP500\rvert$	$\lvert\Delta VIX\rvert$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
H^{tone}_{t-1}	0.001	-0.011^{*}	-0.019^{***}	-0.029^{***}	-0.032^{***}	-0.033^{***}	-0.021^{**}	-0.103	0.407
	(0.008)	(0.006)	(0.006)	(0.009)	(0.009)	(0.010)	(0.009)	(0.229)	(0.296)
$\lvert MPS_t\rvert$	0.464^{***}	0.517^{***}	0.583^{***}	0.457^{**}	0.277	0.088	-0.065	7.347^{***}	9.137
	(0.174)	(0.178)	(0.173)	(0.192)	(0.184)	(0.194)	(0.133)	(2.788)	(7.202)
$D_{negativetone,t-1}$	0.002	-0.001	-0.003	-0.005	-0.004	-0.002	0.0003	0.118	0.135
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.090)	(0.108)
$H^{tone}_{t-1} \times \lvert MPS_t\rvert$	-0.497	-0.400	-0.625	0.689	1.300^{**}	1.520^{***}	1.136^{**}	-3.310	-1.976
	(0.407)	(0.385)	(0.398)	(0.544)	(0.514)	(0.588)	(0.481)	(9.006)	(18.269)
$H^{tone}_{t-1} \times D_{negativetone}$	-0.008	0.005	0.009	0.012	0.014	0.011	0.006	-0.141	-0.209
	(0.009)	(0.006)	(0.007)	(0.010)	(0.010)	(0.011)	(0.010)	(0.281)	(0.352)
Constant	0.011^{***}	0.013^{***}	0.022^{***}	0.040^{***}	0.045^{***}	0.050^{***}	0.052^{***}	0.489^{***}	0.391^{***}
	(0.003)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)	(0.003)	(0.099)	(0.109)
Controls									
Lag1 $\lvert\Delta Y\rvert$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,737	4,737
R^2	0.303	0.242	0.178	0.152	0.126	0.082	0.056	0.094	0.169
Adjusted R^2	0.299	0.239	0.174	0.148	0.122	0.077	0.051	0.090	0.165

Note: We estimate the response of 3-, 6-month, 1-year up to 10-year U.S. Treasury yield changes, in absolute value, as well as S&P500 and the VIX, to tone homogeneity and a dummy equal to 1 if the dominant tone on a given day is negative. We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

4.3 Homogeneity's impact on expectations

We have shown that on average, homogeneity seems to decreases absolute changes in yields, but when that homogeneity is on the stock market topic rather than monetary policy, this creates "news", hence, variation in the yield curve. Does it impact expectations of future policy or risk perceptions, then translating in variation in risk premia?

We disentangle the effect between a risk premium and expectation hypothesis component, using the decomposition of Treasury yields (from 1-to 10-year maturity) by Adrian et al. (2013), and apply our regression framework in Equation 7. Tables 7 and 8 confirm that the way information is provided by news media indeed interacts through expectations, i.e., conveying news on short-term rates in the future, and not via the term premium. Table 7 shows that homogeneity has a negative and significant effect on expectations at different horizons, while its interaction with the stock market topic amplifies their absolute changes. Table 8 shows no significant effect when looking at the term premia component.

Table 7: Impact of topic homogeneity on expectation components of Treasury yields

	Dependent variable:					
	$\lvert\Delta \text{Expectations}_{t,t-1}\rvert$					
	$\lvert\Delta 1Y\rvert$	$\lvert\Delta 2Y\rvert$	$\lvert\Delta 3Y\rvert$	$\lvert\Delta 5Y\rvert$	$\lvert\Delta 7Y\rvert$	$\lvert\Delta 10Y\rvert$
	(1)	(2)	(3)	(4)	(5)	(6)
H_{t-1}^{topic}	−0.015***	−0.020***	−0.019***	−0.016***	−0.015***	−0.008
	(0.004)	(0.005)	(0.006)	(0.006)	(0.005)	(0.005)
$\lvert\text{MPS}_t\rvert$	0.768***	0.785***	0.682***	0.546*	0.378	0.323
	(0.203)	(0.235)	(0.250)	(0.304)	(0.289)	(0.240)
$\mathbb{D}_{\text{StockMarket},t-1}$	−0.007***	−0.011***	−0.010***	−0.008***	−0.008***	−0.004
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)
$H_{t-1}^{topic} \times \lvert\text{MPS}_t\rvert$	−1.880**	−0.811	−0.374	−0.456	−0.398	−0.856
	(0.834)	(1.032)	(1.108)	(1.395)	(1.304)	(1.106)
$H_{t-1}^{topic} \times \mathbb{D}_{\text{StockMarket},t-1}$	0.029***	0.040***	0.037***	0.029***	0.027***	0.016*
	(0.006)	(0.008)	(0.009)	(0.010)	(0.009)	(0.009)
Constant	0.006***	0.015***	0.017***	0.018***	0.018***	0.010***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Controls						
Lag1 $\lvert\Delta\text{Expectations}\rvert$	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	4,738	4,738	4,738	4,738
R^2	0.118	0.109	0.092	0.055	0.036	0.027
Adjusted R^2	0.114	0.105	0.087	0.050	0.031	0.022

Note: We estimate the response of the 1-year up to 10-year expectation component of U.S. Treasury yield changes, in absolute value to topic homogeneity and a dummy on the dominant topic being "Stock Market". We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

4.4 Liquidity measures: coordinated actions?

So far, we have shown that media can affect the expectation component of nominal rates. We further look at measures of liquidity for Treasuries (through bid-ask spread) to investigate whether the effects of the media coordinating on a story (topic) or stance (tone) may work through coordinating expectations, which may then increase liquidity. To investigate this, we estimate regressions 6 and 8, where the dependent variable is the absolute daily change in the bid-ask spread of Treasuries at different maturities.

Table 8: Impact of topic homogeneity on the term premium components of Treasury yields

	Dependent variable:					
	$\lvert\Delta$Term Premium$_{t,t-1}\rvert$					
	$\lvert\Delta 1Y\rvert$	$\lvert\Delta 2Y\rvert$	$\lvert\Delta 3Y\rvert$	$\lvert\Delta 5Y\rvert$	$\lvert\Delta 7Y\rvert$	$\lvert\Delta 10Y\rvert$
	(1)	(2)	(3)	(4)	(5)	(6)
H^{topic}_{t-1}	−0.001	−0.002	−0.003	−0.005	−0.006	−0.008
	(0.002)	(0.003)	(0.003)	(0.004)	(0.005)	(0.006)
$\lvert MPS_t\rvert$	−0.052	−0.045	−0.010	0.068	0.088	0.058
	(0.054)	(0.081)	(0.093)	(0.118)	(0.136)	(0.153)
$\mathbb{D}_{\text{StockMarket},t-1}$	−0.001	−0.001	−0.001	−0.002	−0.003	−0.004
	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.003)
$H^{topic}_{t-1} \times \lvert MPS_t\rvert$	0.365	0.445	0.340	0.094	0.103	0.324
	(0.253)	(0.359)	(0.441)	(0.579)	(0.650)	(0.698)
$H^{topic}_{t-1} \times \mathbb{D}_{\text{StockMarket},t-1}$	−0.003	−0.005	−0.008	−0.009	−0.008	−0.007
	(0.004)	(0.005)	(0.006)	(0.008)	(0.009)	(0.010)
Constant	0.013***	0.019***	0.021***	0.025***	0.028***	0.031***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
Controls						
Lag1 $\lvert\Delta$Term Premium$\rvert$	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	4,738	4,738	4,738	4,738
R^2	0.057	0.054	0.056	0.069	0.077	0.080
Adjusted R^2	0.052	0.050	0.051	0.065	0.072	0.076

Note: We estimate the response of the 1-year up to 10-year term premium component of U.S. Treasury yield changes, in absolute value to topic homogeneity and a dummy on the dominant topic being "Stock Market". We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

Table 9: Impact topic homogeneity on Bid-ask spread

	Dependent variable:								
	$\lvert\Delta\text{Bid-ask}_{t,t-1}\rvert$								
	$\lvert\Delta 3M\rvert$	$\lvert\Delta 6M\rvert$	$\lvert\Delta 1Y\rvert$	$\lvert\Delta 2Y\rvert$	$\lvert\Delta 3Y\rvert$	$\lvert\Delta 5Y\rvert$	$\lvert\Delta 7Y\rvert$	$\lvert\Delta 10Y\rvert$	$\lvert\Delta 30Y\rvert$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
H^{topic}_{t-1}	−0.001	−0.002**	−0.001	−0.001***	−0.001**	−0.002***	0.0004	−0.001***	−0.0001
	(0.001)	(0.001)	(0.001)	(0.0002)	(0.0004)	(0.0003)	(0.0003)	(0.0002)	(0.0002)
$\lvert\text{MPS}_t\rvert$	0.021	0.035**	0.014	0.003	0.001	−0.0002	−0.010*	0.002	−0.001
	(0.023)	(0.015)	(0.018)	(0.003)	(0.005)	(0.004)	(0.006)	(0.002)	(0.002)
$H^{topic}_{t-1} \times \lvert\text{MPS}_t\rvert$	−0.020	−0.119*	0.017	0.005	0.008	0.026*	0.020	0.008	0.014
	(0.074)	(0.061)	(0.072)	(0.013)	(0.021)	(0.015)	(0.019)	(0.011)	(0.011)
Constant	0.004***	0.005***	0.004***	0.002***	0.002***	0.002***	0.002***	0.002***	0.001***
	(0.001)	(0.001)	(0.001)	(0.0002)	(0.0003)	(0.0001)	(0.0002)	(0.0001)	(0.0001)
Controls									
Lag1 $\lvert\Delta\text{Bid-ask}\rvert$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	3,385	4,738	4,504	4,738	3,111	4,738	4,738
R^2	0.464	0.385	0.403	0.811	0.656	0.383	0.154	0.557	0.334
Adjusted R^2	0.462	0.382	0.399	0.810	0.655	0.380	0.148	0.555	0.331

Note: We estimate the response of the change in 1-year up to 10-year bid-ask spread on U.S. Treasury yield, in absolute value to topic homogeneity. We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

Table 10: Impact of tone homogeneity on Bid-Ask spread

	Dependent variable:								
	$\lvert\Delta\text{Bid-ask}_{t,t-1}\rvert$								
	$\lvert\Delta 3M\rvert$	$\lvert\Delta 6M\rvert$	$\lvert\Delta 1Y\rvert$	$\lvert\Delta 2Y\rvert$	$\lvert\Delta 3Y\rvert$	$\lvert\Delta 5Y\rvert$	$\lvert\Delta 7Y\rvert$	$\lvert\Delta 10Y\rvert$	$\lvert\Delta 30Y\rvert$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
H^{tone}_{t-1}	−0.0004	−0.001***	−0.001*	−0.001***	−0.001***	−0.001***	0.0004***	−0.001***	−0.0002**
	(0.0004)	(0.0004)	(0.001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$\lvert\text{MPS}_t\rvert$	−0.003	0.007	−0.006	0.0002	−0.002	−0.010***	−0.001	0.001	−0.002
	(0.014)	(0.012)	(0.008)	(0.002)	(0.004)	(0.003)	(0.006)	(0.003)	(0.002)
$H^{tone}_{t-1} \times \lvert\text{MPS}_t\rvert$	0.075	0.017	0.071**	0.016	0.016	0.054***	−0.007	0.011	0.013*
	(0.049)	(0.036)	(0.035)	(0.010)	(0.012)	(0.014)	(0.011)	(0.009)	(0.007)
Constant	0.004***	0.005***	0.004***	0.002***	0.002***	0.002***	0.002***	0.002***	0.001***
	(0.001)	(0.001)	(0.001)	(0.0002)	(0.0003)	(0.0001)	(0.0002)	(0.0001)	(0.0001)
Controls									
Lag1 $\lvert\Delta\text{Bid-ask}\rvert$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	3,385	4,738	4,504	4,738	3,111	4,738	4,738
R^2	0.464	0.385	0.404	0.814	0.660	0.403	0.157	0.566	0.335
Adjusted R^2	0.461	0.382	0.400	0.813	0.659	0.400	0.151	0.564	0.332
Note:									*p<0.1; **p<0.05; ***p<0.01

Note: We estimate the response of the change in 1-year up to 10-year bid-ask spread on U.S. Treasury yield, in absolute value to tone homogeneity. We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.

Tables 9 and 10 show that both tone and topic homogeneity generally reduce variation in the bid-ask spread on any given day. This suggests an increase in liquidity, making it easier for buyers and sellers to find counterparts. It may imply that homogeneity in media coverage—whether in topics or tone—may reduce information asymmetry by ensuring that market participants have access to similar data and interpret events in comparable ways. When traders rely on a comparable analysis, their valuations align more closely, leading to a reduction in the bid-ask spread, which likely stems from reduced disagreement. A key rationale for our result is that media homogeneity aligns market participants' expectations, thereby coordinating their actions. However, this coordinating role appears to reverse on FOMC days for some maturities.

5 Conclusion

Because no agent has the resources to monitor all events potentially relevant for his decisions, they rely on news outlets, that monitor the world on his behalf. In this paper, we document the reporting behavior of such news providers relating to Fed coverage. We find it exhibits intuitive properties: while different outlets tend to emphasize different topics related to the Fed, news focus is time-varying and homogeneity of topic and tone builds up leading to FOMC meetings.

We investigate the information content of news articles and find that it is the intensity combined with homogeneity of coverage that affects U.S Treasury yield changes. On any given day, homogeneity by itself tends to reduce these variations.

We test whether this news selection function of media, being state-dependent, could be conveying information not only via the actual content of a news story, but via its reporting decision. We find that there is indeed information when homogeneous coverage deviates from its usual topic on FOMC days, translating in higher variation in U.S Treasury yields on those days.

References

Adrian, T., Crump, R. K., and Moench, E. (2013). Pricing the term structure with linear regressions. *Journal of Financial Economics*, 110(1):110–138.

Bauer, M. D. and Swanson, E. T. (2023a). An alternative explanation for the "fed information effect". *American Economic Review*, 113(3):664–700.

Bauer, M. D. and Swanson, E. T. (2023b). A reassessment of monetary policy surprises and high-frequency identification. *NBER Macroeconomics Annual*, 37(1):87–155.

Berger, H., Ehrmann, M., and Fratzscher, M. (2011). Monetary policy in the media. *Journal of Money, Credit and Banking*, 43(4):689–709.

Blei, D. M., Ng, A. Y., and Jordan, M. I. (2003). Latent dirichlet allocation. *Journal of machine Learning research*, 3(Jan):993–1022.

Chahrour, R., Nimark, K., and Pitschner, S. (2021). Sectoral media focus and aggregate fluctuations. *American Economic Review*, 111(12):3872–3922.

Cookson, J. A., Fox, C., Gil-Bazo, J., Imbet, J. F., and Schiller, C. (2023). Social media as a bank run catalyst. *Available at SSRN*, 4422754.

Devlin, J. (2018). Bert: Pre-training of deep bidirectional transformers for language understanding. *arXiv preprint arXiv:1810.04805*.

Dybowski, T. P. and Kempa, B. (2020). The european central bank's monetary pillar after the financial crisis. *Journal of Banking Finance*, 121:105965.

Ehrmann, M. and Hubert, P. (2023). Information acquisition ahead of monetary policy announcements. *ECB Working Paper*.

Fisher, A., Martineau, C., and Sheng, J. (2022). Macroeconomic attention and announcement risk premia. *The Review of Financial Studies*, 35(11):5057–5093.

Gambetti, L., Maffei-Faccioli, N., and Zoi, S. (2023). Bad news, good news: Coverage and response asymmetries.

Gentzkow, M. and Shapiro, J. M. (2010). What Drives Media Slant? Evidence From U.S. Daily Newspapers. *Econometrica*, 78(1):35–71.

Gilbert, T., Scotti, C., Strasser, G., and Vega, C. (2017). Is the intrinsic value of a macroeconomic news announcement related to its asset price impact? *Journal of Monetary Economics*, 92:78–95.

Hansen, A. L. and Kazinnik, S. (2023). Can chatgpt decipher fedspeak. *Available at SSRN*.

Hansen, S. and McMahon, M. (2016). Shocking language: Understanding the macroeconomic effects of central bank communication. *Journal of International Economics*, 99:S114–S133.

Harris, B. and Sojourner, A. (2024). Why are americans so displeased with the economy? *Brookings Institution.*

Hayo, B. and Neuenkirch, M. (2015). Self-monitoring or reliance on media reporting: How do financial market participants process central bank news? *Journal of Banking & Finance*, 59:27–37.

Larsen, V. H., Thorsrud, L. A., and Zhulanova, J. (2021). News-driven inflation expectations and information rigidities. *Journal of Monetary Economics*, 117:507–520.

Loughran, T. and McDonald, B. (2011). When is a liability not a liability? textual analysis, dictionaries, and 10-ks. *The Journal of finance*, 66(1):35–65.

Miller, G. A., Beckwith, R., Fellbaum, C., Gross, D., and Miller, K. J. (1990). Introduction to wordnet: An on-line lexical database. *International journal of lexicography*, 3(4):235–244.

Mullainathan, S. and Shleifer, A. (2005). The market for news. *American economic review*, 95(4):1031–1053.

Nimark, K. P. and Pitschner, S. (2019). News media and delegated information choice. *Journal of Economic Theory*, 181:160–196.

Pedersen, L. H. (2022). Game on: Social networks and markets. *Journal of Financial Economics*, 146(3):1097–1119.

Pinter, J. and Kočenda, E. (2023). Media treatment of monetary policy surprises and their impact on firms' and consumers' expectations. *Journal of Money, Credit and Banking.*

Schmanski, B., Scotti, C., Vega, C., and Benamar, H. (2023). Fed communication, news, twitter, and echo chambers. *FEDS Working Paper.*

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

van Binsbergen, J. H., Bryzgalova, S., Mukhopadhyay, M., and Sharma, V. (2024). (almost) 200 years of news-based economic sentiment. Technical report, National Bureau of Economic Research.

Appendices

Appendix A Sample statistics

A.1 Media coverage statistics

Table A.1: Articles counts per newspapers

Newspapers	All sample	Up to 2008	After 2008
AP	15683	1073	14610
BARRON	7283	74	7209
BW	4185	96	4089
DJ	212747	6487	206260
FEDN	5491	869	4622
HC	6197	3860	2337
IBC	5750	134	5616
MW	20892	120	20772
REUTERS	8143	2342	5801
RTT	17218	226	17218
WP	11268	661	11042
WSJ	37003	1073	36342

Notes: AP: Associated Press, BW: Business Wire, DJ: Dow Jones, FEDN: Fed News, HC: Houston Chronicle, IBC: Investor Business Daily, MW: Market Watch, RTT: RTT News, WP: Washington Post, WSJ: Wall Street Journal. Pre-2008 covers a sample 1998-31/12/2008. Post-2008 covers 01/01/2009 to 2021.

Table A.2: Descriptive statistics on media coverage (articles/newspapers)

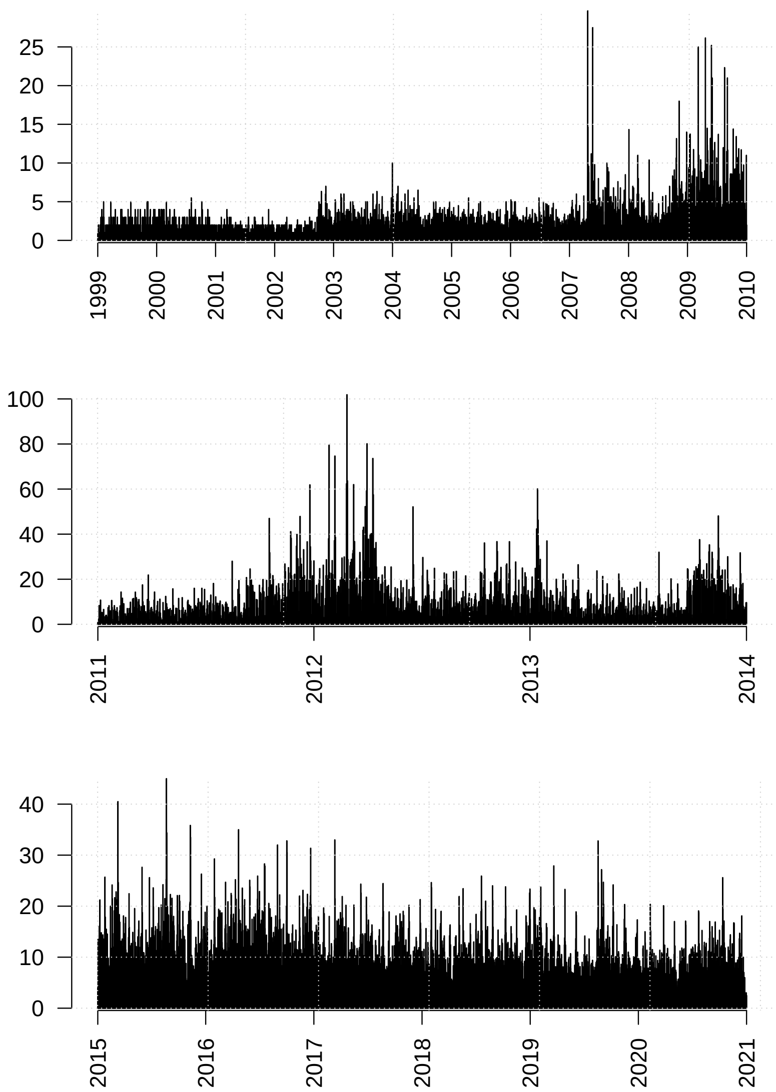
	Full Sample	Pre-2008	Post-2008
N	7,776	3,176	4,600
min	1	1	1
mean	6.012	1.931	8.830
median	3.250	1.600	7.333
q25	1.667	1	3.567
q75	8.600	2.333	11.833
q95	18.341	4	21.574
max	101.875	29.667	101.875
sd	6.684	1.359	7.404

Notes: Descriptive statistics on number of days in the sample (N), mean article per newspaper on a day (mean), and standard deviation (sd). We divide our sample into 2 (second and third column). Pre-2008 covers a sample 1998-31/12/2008. Post-2008 covers 01/01/2009 to 2021.

A.2 The time-varying media focus on the Fed

A.2.1 Coverage across all days

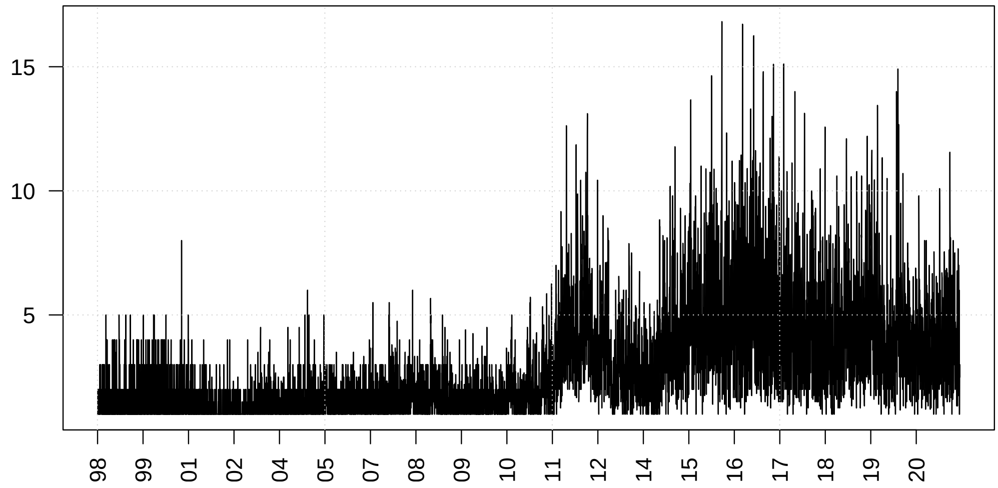
Figure A.1: Daily number articles/newspapers



Notes: This represents the daily ratio of articles for 12 newspapers out the 12 outlets, and across all days (including FOMC and non-FOMC days). This represents the mean numbers of articles per news outlets, where the mean is measured daily.

A.2.2 Comparison without Dow Jones

Figure A.2: Daily newspapers coverage (without DJ): ratio of articles/newspapers



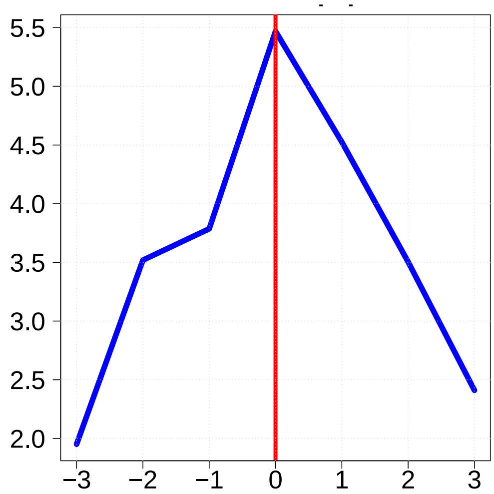
Notes: This represents the daily ratio of articles for 11 newspapers, on FOMC days exclusively. The sample here excludes all the articles from *Dow Jones*.

Table A.3: Descriptive statistics - articles per newspapers (without DJ)

	Ratio
N	7,585
min	1
mean	3.004
median	2
q25	1.333
q75	4
q95	7.571
max	16.818
sd	2.241

Notes: Descriptive statistics on number of days in the sample (N), mean article per newspaper on a day (mean), and standard deviation (sd). The sample is 1998-2021, with all news outlets except articles from *Dow Jones*.

Figure A.3: Daily newspapers coverage around FOMC days: ratio of articles/newspapers (without DJ)



Notes: This represents the daily ratio of articles for the 12 newspapers, on FOMC days exclusively. The sample covers all news outlets, except articles from the *Dow Jones*. The ratio is measured as the number of articles per newspapers, as an average measured each day.

Appendix B Topic modeling

B.1 Latent Dirichlet Allocation

The LDA quantifies topics and is parameterized by:

- A distribution over topics of a document
- A distribution over words that determine each topic

The probabilistic model of LDA considers that every document d of the D documents in the whole text can be assumed as a probabilistic mixture of T topics. The first output is:

$$\begin{pmatrix} \theta_1 \\ . \\ . \\ . \\ \theta_D \end{pmatrix} = \begin{pmatrix} p(t_1|d_1) & ... & p(t_T|d_1) \\ . & . & . \\ . & . & . \\ p(t_1|d_D) & ... & p(t_T|d_D) \end{pmatrix} \tag{9}$$

Each topic $t \in T$ itself is a probability distribution over a vocabulary (set of words in a document) of size V. For instance, in an article mainly dedicated to inflation, you will have a higher probability of finding words like “prices”, “CPI”,...

The word probability vectors of the topics can be represented in a matrix ϕ of dimensions $V \times T$:

$$\begin{pmatrix} \phi_1 & ... & \phi_T \end{pmatrix} = \begin{pmatrix} p(w_1|t_1) & ... & p(w_1|t_T) \\ . & & \\ . & & \\ p(w_v|t_1) & ... & p(w_v|t_T) \end{pmatrix} \tag{10}$$

The probabilities $p(w_1|t_1)$ describe how probable it is to observe word w from the vocabulary conditional on topic t. The ϕ vectors informs us about the content of each topic and permits us to decide how each topic can eventually be named, as the LDA does not produce concrete topic labels.

B.1.1 ChatGPT 4.0 prompt

Consider the following situation where we have a corpus of all news articles that mention Federal Reserve for several years and we identify eight topics or clusters with LDA approach. Now I would like to name the clusters based on the list of words with the highest probabability.

ChatGPT said: Naming clusters in topic modeling, especially with the Latent Dirichlet Allocation (LDA) approach, can be a challenging but insightful task. It involves interpreting the list of high-probability words from each topic and assigning a descriptive, meaningful label to it.

You said: Thank you. Now I would like to have your judgment on what is the topic behind these high-probability words, keeping in mind tat these are topics in news articles, like in Wall Street Journal, Dow Jones, Reuters and so on.

ChatGPT said: You're welcome! Let's break down the high-probability words you provide, keeping in mind that they come from news sources like the Wall Street Journal, Reuters, and Dow Jones. I'll interpret them based on the likely topic discussed in such news articles and provide a judgment for each. Please provide the actual list of high-probability words from the topics/clusters you've identified, and I'll analyze and offer my interpretation for each one.

You said:

Topic 1: bank, loan, company, financial, interest, business, asset, market, income, rate

ChatGPT said: ChatGPT Based on the high-probability words provided, this topic likely relates to Banking and Financial Markets, with a specific focus on aspects such as loans, companies, financial instruments, interest rates, assets, and capital. Here's a breakdown of the main themes suggested by the top words: Key Interpretations:

- "Bank" and "Loan": The prevalence of these terms suggests that the topic may be related to banking operations, particularly lending practices and the financial health of banks.
- "Company", "Business", and "Market": These words point to a broader economic and financial environment, focusing on corporate finance, business investments, and overall market conditions.
- "Interest" and "Rate": These words suggest a link to interest rate policies or financial instruments impacted by changes in rates, such as loans or investments.
- "Capital" and "Asset": These words might reflect discussions around capitalization of banks or companies, financial assets management, or investments.
- "Investment" and "Share": Indicate the involvement of equities, possibly pointing to market investments and shares of companies.
- "Income" and "Net": These words could suggest profitability or revenue-related discussions for banks, companies, or other financial institutions.

Possible Topic Label: Banking, Corporate Finance, and Market Investments This label captures the focus on financial institutions (banks), lending (loans), corporate activities (companies, business), and market-related investments (shares, assets, capital).

You said: Great! It confirms our initial label for this topic.

ChatGPT said: I'm glad it confirms your initial label! It sounds like you're on the right track with the topic interpretation. If you have more topics or need further analysis, feel free to share, and I'd be happy to help.

You said: Topic 2: market, rate, dollar, growth, economy, rise, investor, high, month, expect

ChatGPT said: Based on the high-probability words provided for Topic 1, this topic appears to focus on macroeconomic conditions, particularly the interplay between market performance, currency fluctuations, economic growth, and investor expectations. Let's break it down: Key Themes:

- "Market," "Stock," "Investor": These words suggest a focus on financial markets, stock performance, and investor sentiment.
- "Rate" and "Dollar": This points to a connection with interest rates and currency markets, especially the value of the US dollar.
- "Growth," "Economy," and "Economic": These words indicate a focus on the broader economic environment, likely related to GDP growth, economic reports, or key economic indicators.
- "Rise" and "Fall": This suggests fluctuations in markets, likely tied to economic trends or investor behavior.
- "Job" and "Report": Likely related to labor market data, employment reports, or key economic releases.
- "Expect" and "Month": Could reflect forward-looking perspectives, such as investor expectations or market forecasts over the coming months.

Possible Refined Label: Market Dynamics and Economic Growth Trends This label highlights the broader theme of financial market performance and economic conditions, with a particular focus on currency value (dollar), interest rates (rate), and investor behavior in response to economic growth or decline.

You said: Thank you!

ChatGPT said: You're welcome! I'm glad I could help. If you need further assistance with other topics or anything else, feel free to ask. Good luck with your project!

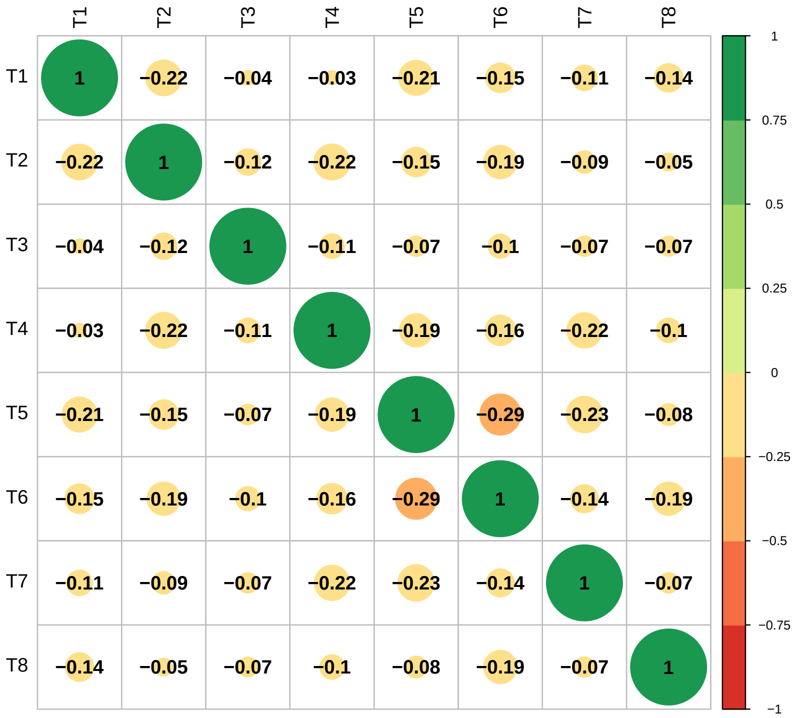
B.1.2 Examples of articles with respective topics

Topic	Proportion	Newspaper	Date	Example of Article
1	0.99	US Fed News	2014/09/09	"Thank you for inviting me to testify about the Securities and Exchange Commission's (SEC or Commission) ongoing implementation of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act or Act) to reduce systemic risks..."
2	0.99	Dow Jones	2013/08/02	"The FOMC flagged concerns about a lack of inflation this week – and rightly so by today's data. Average hourly earnings unexpectedly fell 0.1% in July..."
		Dow Jones	2013/08/02	"While the headline payrolls number was lower than expected, the unemployment rate also declined, 'and that's the number the Federal Reserve is watching,' notes Nomura's Jens Nordvig..."
3	0.99	Business Wire	2018/04/13	"Wells Fargo 1Q Net Charge-Offs $741M > Wells Fargo 1Q Net Interest Income $9.7B Wells Fargo 1Q Net Interest Margin 2.84% Wells Fargo 1Q Noninterest Income $12.24B..."
4	0.99	Washington Post	2019/05/03	"Here are eight things that the Moore imbroglio reveals about the present political moment: Trump prizes loyalty and ideological fealty over more traditional qualifications..."
		Washington Post	2019/07/14	"Who do you think printed the money to bail this country out? [...] 'China?' 'No,' the farmer says. 'United States. The Federal Reserve.' Gillibrand starts to gently point out that China purchased our debt."
5	0.88	Houston Chronicle	2001/01/03	"Analysts like George Ball, chairman of Houston-based Sanders Morris Harris, say the results don't necessarily spell a recession. 'In all likelihood we've seen the worst but not the end,' Ball said..."
6	0.99	Washington Post	2019/05/01	"Fed leaders have repeatedly said they will be patient on any rate hikes, and they are not forecasting increases or decreases this year..."
	0.94	Wall Street Journal	2019/03/28	"Long-term bond yields have dropped below short-term interest rates, causing the yield curve to invert – a predictor of recession. Futures markets now think the Fed could cut rates by the end of the year..."
7	0.5	Dow Jones	2019/08/23	"In the midst of the U.K.'s Brexit saga, Kleinwort Hambros remains largely focused on U.S. equities despite the yield-curve inversion..."
8	0.5	Dow Jones	2017/12/28	"Markets at a glance: Stocks edged higher, with the Dow Jones Industrial Average setting a fresh record. Government bonds weakened in thin trading..."

Table B.1: Table with Newspaper, Date, and Proportion for Topics

B.2 Summary statistics on topics

Figure B.1: Topics correlogram



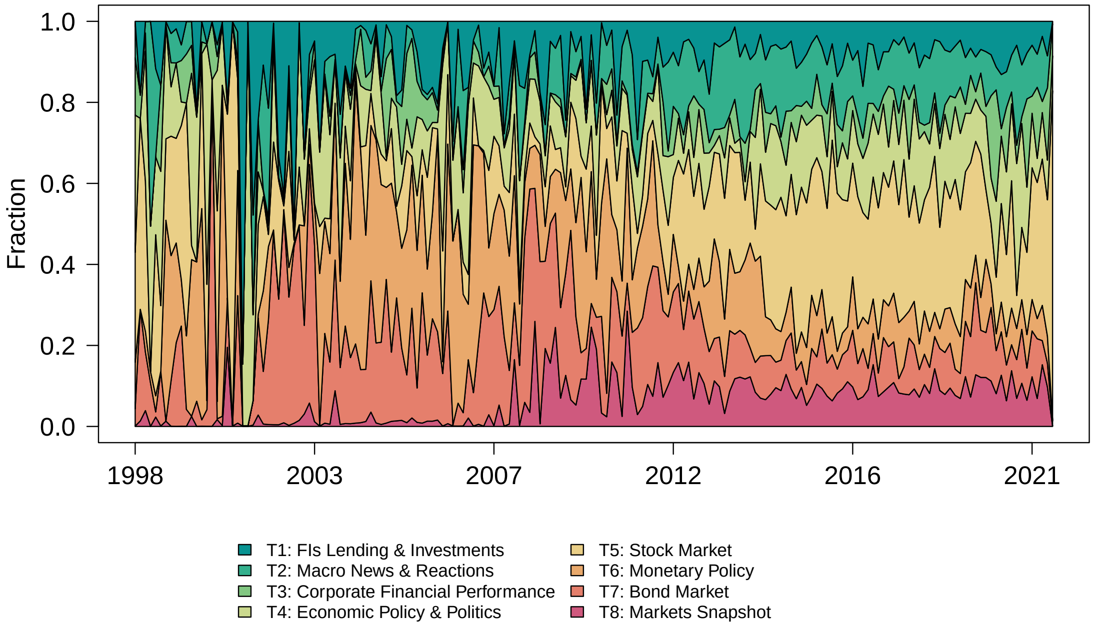
Notes: This chart represents the correlation between our topics' share. The bigger the circle, the higher the correlation between topics.

Table B.2: Descriptive statistics - topics distribution

	T1: FIs Lending & Investments	T2: Macro News & Reactions	T3: Corporate Financial Performance	T4: Economic Policy & Politics	T5: Stock Market	T6: Monetary Policy	T7: Bond Market	T8: Markets snapshot
N	351,860	351,860	351,860	351,860	351,860	351,860	351,860	351,860
min	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
mean	10.038	16.019	3.847	14.431	20.028	16.001	11.769	7.868
median	0.094	0.569	0.067	0.161	0.662	0.117	0.125	0.116
q25	0.044	0.062	0.036	0.056	0.060	0.042	0.048	0.051
q75	5.771	22.637	0.214	16.750	32.080	14.243	11.061	5.740
q95	74.232	78.777	15.446	79.389	91.795	96.016	75.174	48.183
max	99.988	99.855	99.987	99.979	99.913	99.978	99.918	99.974
sd	23.164	25.909	14.726	25.667	30.316	29.572	23.725	18.127

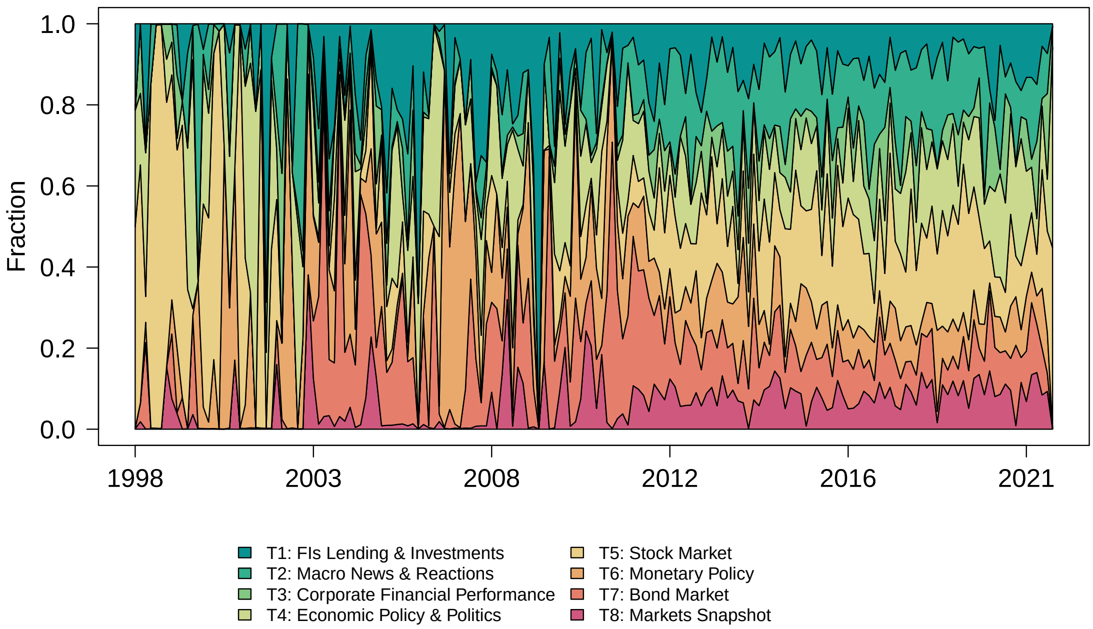
Notes: Descriptive statistics on topic shares across all newspapers and all days. N is the total number of articles in our sample. The mean is the mean share of each topic, and sd the standard deviation.

Figure B.2: Topic proportion at D-1 FOMC



Notes: The chart represents the mean proportion of different topics 1 day before the FOMC. Topic shares are obtained through the LDA for a given article, then we take the average on a given day over articles published that day.

Figure B.3: Topic proportion at D-5 FOMC



Notes: The chart represents the mean proportion of different topics 5 days before the FOMC. Topic shares are obtained through the LDA for a given article, then we take the average on a given day over articles published that day.

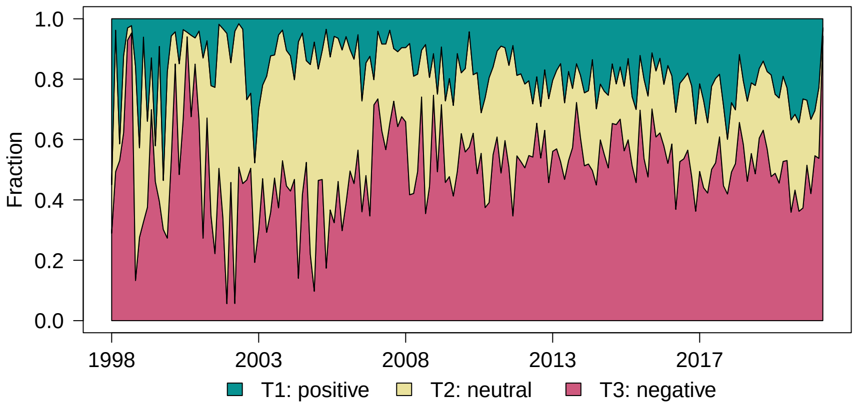
B.3 Tone analysis

Table B.3: Descriptive statistics - tone distribution

	T1: positive	T2: neutral	T3: negative
N	351,860	351,860	351,860
min	0.586	0.846	0.634
mean	20.590	26.953	52.457
median	6.584	5.970	57.728
q25	2.542	2.458	10.119
q75	25.495	52.416	92.248
q95	88.611	92.171	96.836
max	96.163	95.693	97.716
sd	27.650	33.421	37.607

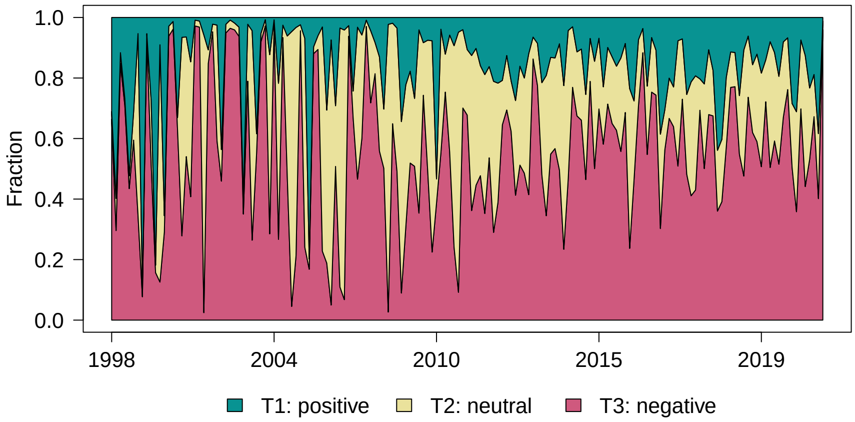
Notes: Descriptive statistics on tone shares across all newspapers and all days. N is the total number of articles in our sample. The mean is the mean share of each tone across all articles, all newspapers and days, and sd the standard deviation.

Figure B.4: Evolution of shares of negative, neutral and positive news coverage on D-1 FOMC



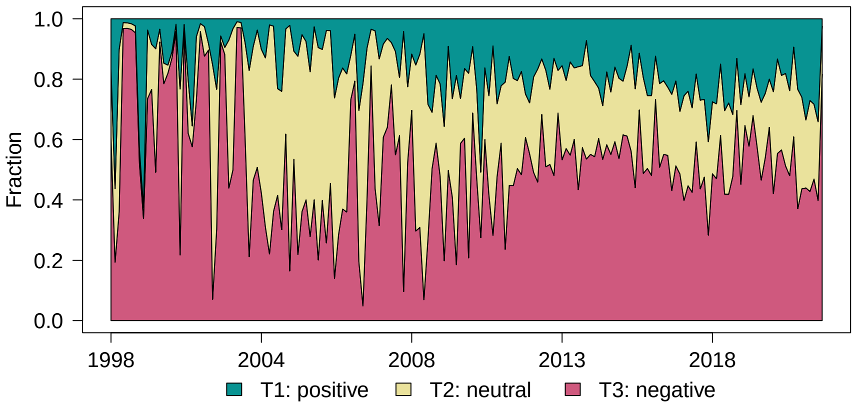
Notes: The chart represents the mean proportion of the 3 tone components (negative, neutral, positive) 1 day before the FOMC. Tone shares are obtained through the FinBert sentiment analysis on a given article, then we take the average on a given day over articles published that day.

Figure B.5: Evolution of shares of negative, neutral and positive news coverage on D-3 FOMC



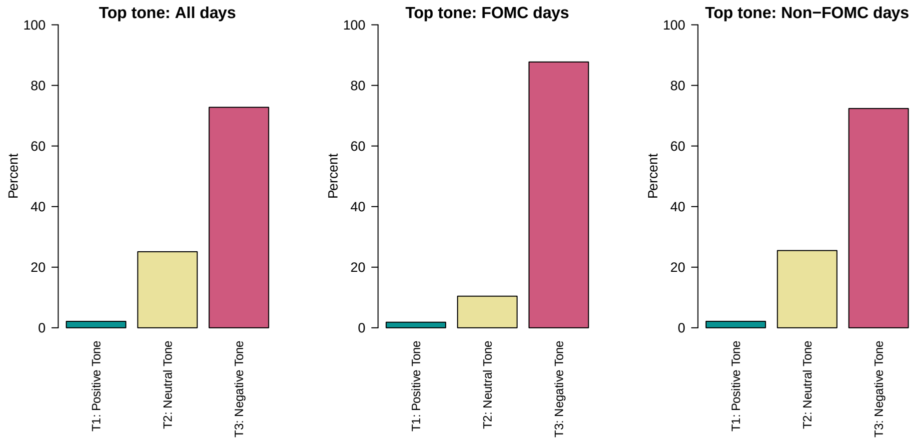
Notes: The chart represents the mean proportion of the 3 tone components (negative, neutral, positive) 3 days before the FOMC. Tone shares are obtained through the FinBert sentiment analysis on a given article, then we take the average on a given day over articles published that day.

Figure B.6: Evolution of shares of negative, neutral and positive news coverage on D-5 FOMC



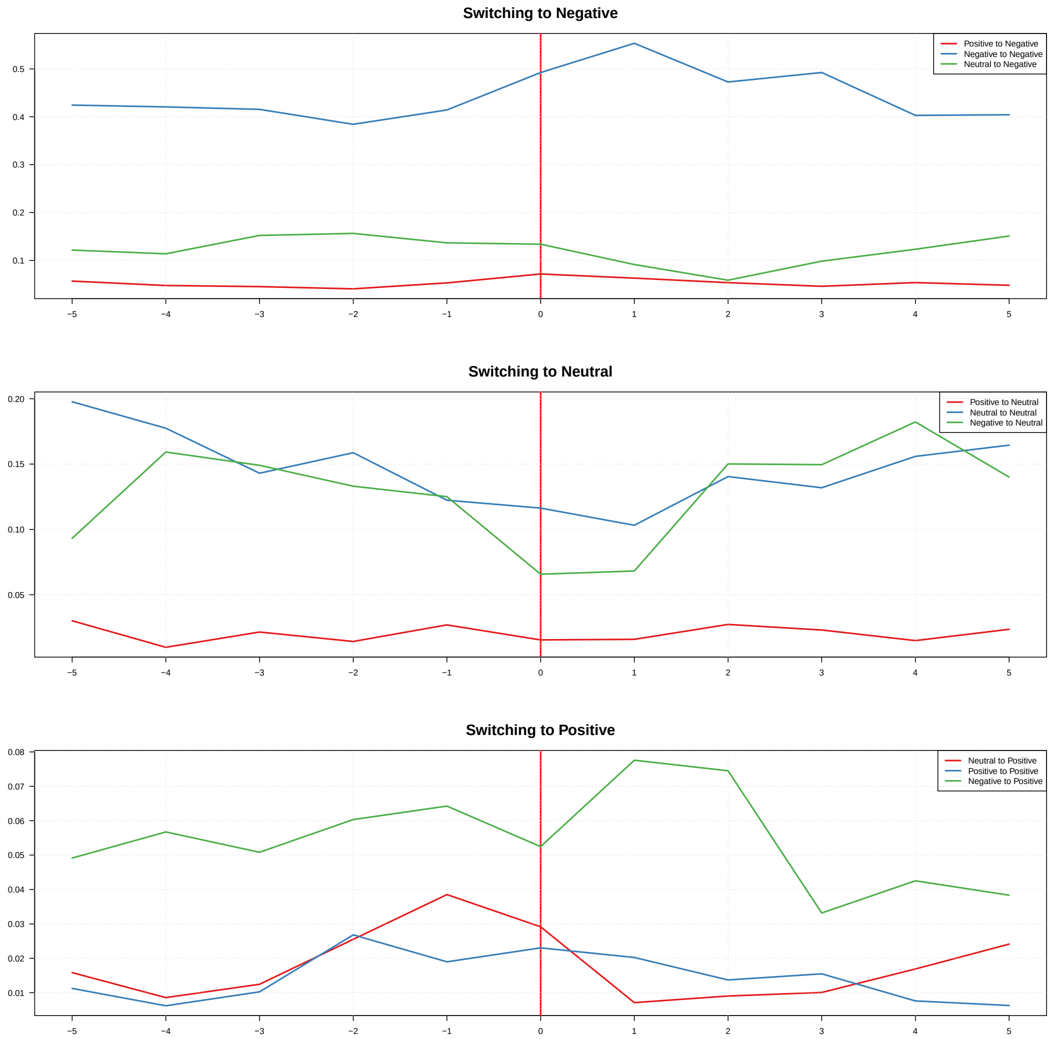
Notes: The chart represents the mean proportion of the 3 tone components (negative, neutral, positive) 5 days before the FOMC. Tone shares are obtained through the FinBert sentiment analysis on a given article, then we take the average on a given day over articles published that day.

Figure B.7: Dominant tone across samples



Notes: Top tones are obtained from average proportion of each tone on a given day (average across articles' tone shares). Each bar represents the average share of each tone (negative, positive, neutral) for each type of days (FOMC, non-FOMC, all days). The top or diminant tone is the one with highest share for each category of days.

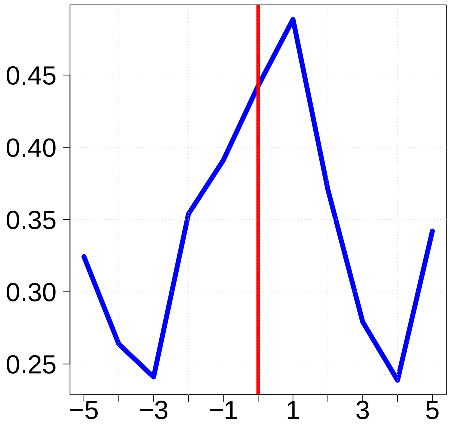
Figure B.8: Probability of articles switching tone



Notes: The chart represents the probability for a given article to switch tone. It is measured as the ratio of articles that switch from one tone to another in a given day (e.g., for each newspapers, we measure the mean dominating tone. We build a dummy for a switch from neutral to negative equal 1 if from one day to another, the dominant tone for the newspapers goes to negative, being neutral the day before. We repeat that for all newspapers active that day. Then the dummy for switching is defined as $D_{NeutoNeg} = \sum_{k=1}^{M} \frac{\mathbf{1}_{NeutoNeg}}{M_t}$, where M_t is the number of active newspapers that day. The same follows for the other probabilities.

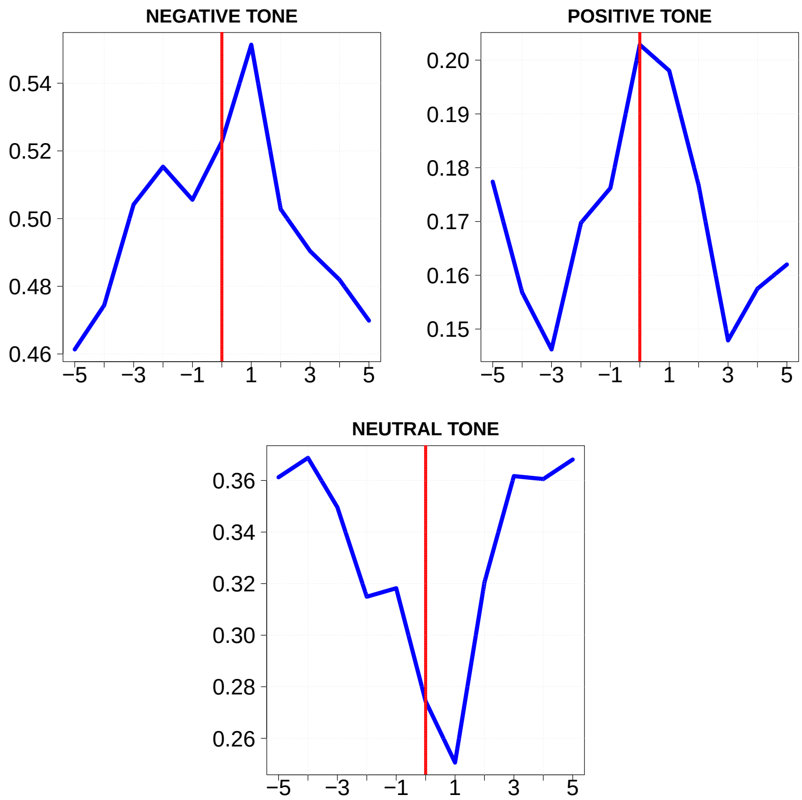
B.4 Tone Homogeneity measures

Figure B.9: Homogeneity of tone around FOMC meetings



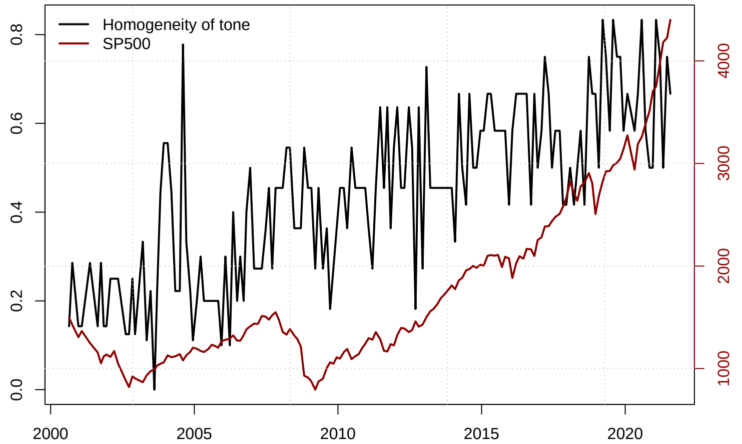
Notes: This chart shows the dynamics of homogeneity of tone within 5 days of the FOMC meeting. The red line represents the FOMC meeting.

Figure B.10: Probability distribution of tone across FOMC days



Notes: This charts shows the proportion of each tone (negative, positive, neutral) in a given day. We measure the tone by article, from which we then take the daily average. The red line is the FOMC announcement day.

Figure B.11: Evolution of homogeneity and stock market performance



Notes: This chart plots the S&P500 (right axis, index in points) over time, alone with our homogeneity measure.

Table B.4: Impact of homogeneity of tone (positive tone) on asset prices

	Dependent variable:								
					$\|\Delta Y_{t,t-1}\|$				
	$|\Delta$3M$|$	$|\Delta$6M$|$	$|\Delta$1Y$|$	$|\Delta$2Y$|$	$|\Delta$3Y$|$	$|\Delta$5Y$|$	$|\Delta$10Y$|$	$\|\Delta$SP500$\|$	$\|\Delta$VIX$\|$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
H^{tone}_{t-1}	−0.004	−0.006**	−0.012***	−0.021***	−0.022***	−0.024***	−0.015***	−0.171*	0.284**
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.099)	(0.143)
$\|MPS_t\|$	0.467***	0.518***	0.578***	0.449**	0.268	0.083	−0.065	7.449***	9.231
	(0.173)	(0.178)	(0.173)	(0.193)	(0.185)	(0.194)	(0.132)	(2.801)	(7.250)
$D_{positivetone,t-1}$	0.009	−0.002	−0.008*	−0.015**	−0.019**	−0.019*	−0.015	−0.181	−0.471
	(0.008)	(0.003)	(0.004)	(0.007)	(0.009)	(0.010)	(0.010)	(0.177)	(0.369)
$H^{tone}_{t-1} \times \|MPS_t\|$	−0.506	−0.403	−0.613	0.710	1.320**	1.533***	1.137**	−3.712	−2.173
	(0.407)	(0.385)	(0.399)	(0.544)	(0.516)	(0.587)	(0.481)	(9.007)	(18.355)
$H^{tone}_{t-1} \times D_{positivetone,t-1}$	−0.030	0.0002	0.022	0.044	0.059*	0.067	0.058	−0.105	1.943
	(0.030)	(0.014)	(0.017)	(0.027)	(0.036)	(0.043)	(0.043)	(0.726)	(1.764)
Constant	0.012***	0.012***	0.020***	0.037***	0.043***	0.048***	0.044***	0.559***	0.467***
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.098)	(0.103)
Controls									
Lag1 $\|\Delta Y\|$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Calendar day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Articles/Newspapers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data release	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,738	4,738	4,738	4,738	4,738	4,738	4,738	4,737	4,737
R^2	0.303	0.242	0.178	0.152	0.127	0.082	0.056	0.094	0.168
Adjusted R^2	0.299	0.238	0.174	0.148	0.123	0.078	0.052	0.089	0.164

Note: We estimate the response of 3-, 6-month, 1-year up to 10-year U.S. Treasury yield changes, in absolute value, as well as S&P500 and the VIX, to tone homogeneity and a dummy equal to 1 if the dominant tone on a given day is positive. We use a sample from 1998 to 2021. The dependent variable is the daily change in absolute terms. Statistical significance: *p<0.1; **p<0.05; ***p<0.01.