



# Informal central bank communication: The role of investor memories

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## ABSTRACT

Central bank informal communication became more frequent and acquired more mass media attention after the global financial crisis. Do investors remember past central bank communications when a new communication is released? Focusing on the United States, we show that abnormal stock returns increase as informal communications are repeated over time and within a short distance from each other.

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## 1. Introduction and literature

Policymakers performed many interventions to restore financial stability and repair the Great Financial Crisis's negative effects (Chortareas et al., 2013). Worldwide, monetary policy authorities launched conventional and, especially, unconventional actions (such as quantitative easing) whose effects have been analyzed by a substantial number of papers (see Bhattarai and Neely 2022, for a review). At the same time, central bank (CB) communication has intensified, gained more mass media attention, and captured the interest of academia (Blinder et al., 2008, 2017). An increasing number of papers (e.g., Lucca and Trebbi, 2009) analyzes the content of formal communication, while the number of papers dealing with the effects of informal communication (those outside formal monetary policy committees) is still limited (e.g., Ehrmann and Fratzscher, 2007). Informal communication has different forms, ranging from speeches outside Federal Open Market Committee (FOMC) meetings to unattributed communication (i.e., when the news has no information source or is not directly attributable to the FED, see Vissing-Jorgensen, 2020).

Focusing on informal communications in the form of FED chair speeches outside FOMC meetings between January 2008 and December 2015, we aim to show whether a more intense past communication in the same direction boosts or weakens the investors' response to new speeches and how the reaction changes depending on the distance between two consecutive

speeches. Our contribution is manifold. First, we do not only analyze whether investors react to informal CB communications, but we focus on the dynamic of investor reactions. To our knowledge, the only existing paper considering a dynamic approach is Ehrmann and Talmi (2020), but it focuses on formal policy announcements by the Bank of Canada, showing that new announcements similar to the previous ones tend to reduce market volatility. Second, we analyze informal communications that have larger freedom in terms of content, less scrutiny in advance, and more heterogeneity than formal announcements. Third, while Ehrmann and Talmi (2020) measure market reactions using government bond yields, we use stock market returns, which are less explored and predictable, since variation in interest rates and liquidity conditions may impact both the numerator and the denominator of a classic dividend discount model (Fiordelisi and Ricci, 2016). Finally, we consider firm cross-section heterogeneity, which has been analyzed by a relatively small number of papers since the fundamental study by Bernanke and Kuttner (2005).

## 2. Data and methods

We test the stock market reaction to informal CB communication as follows:

$$\begin{aligned} CAR[-1; +1] = & \alpha + \beta MTB + \gamma_1 Learning(1) \\ & + \gamma_2 Learning(1) \times MTB + \delta_1 Learning(2) \\ & + \delta_2 Learning(2) \times MTB + \theta Controls \\ & + \mu_i + \gamma_t + \varepsilon_{it} \end{aligned} \quad (1)$$

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**Table 1**

Variables.

Variables	Symbol	Description
Cash per share*	<i>Cashpershare</i>	Cash over the number of shares
Cumulated abnormal returns*	<i>CAR</i>	Cumulated abnormal returns for the event window $[-1; +1]$ for informal speeches multiplied by 100
Leverage*	<i>Leverage</i>	Log of the ratio between total debt and total assets
Market to book value*	<i>MTB</i>	Stock market capitalization over book value
Memory effect(1) <sup>+</sup>	<i>Learning1</i>	Number of informal expansionary speeches in the previous year
Memory effect(2) <sup>+</sup>	<i>Learning2</i>	Number of days between two expansionary speeches divided by 365
Price–earnings ratio*	<i>P/E</i>	Market price over earnings
Size*	<i>Size</i>	Log of total assets

Source of data: \*Eikon and<sup>(+)</sup> are our own estimations.

where CAR is the Cumulative Abnormal Return for all companies included in the S&P 500 index, calculated with a simple market model, and considering a short three-day event window  $(-1; +1)$ . A short event window, together with the “purdah” rule (US monetary policymakers cannot provide investors with information about monetary policy seven days before the scheduled interventions), makes us reasonably confident that there are no significant confounding effects. We do not use intraday trading data as some past papers do (Altavilla et al., 2019) since informal CB communication happens at unscheduled times and it is not always possible to know at what exact time each speech reached the media. All variables are described in Table 1.

Unlike past studies, we do not rely on financial newswire reports (Ehrmann and Fratzscher, 2007), newspaper articles (Lucca and Trebbi, 2009), or FOMC statements (Ehrmann and Talmi, 2020). We collect the text of each speech made by the incumbent FED chair from the Fed’s website.<sup>1</sup> between January 2008 and December 2015 and focus on monetary policy content. For each speech, we identify sentences containing direct or indirect indications of future decisions and differentiate expansionary and restrictive statements according to the tone. We adopt human coding rather than automatized content analysis (Fiordelisi et al., 2019) to pick up subtle nuances in the complex language used by CBs (Ehrmann and Talmi, 2020). First, each author independently identified dovish and hawkish sentences to reduce the chance of misclassification. In the second step, we discussed and compared our results, and classified a speech as expansionary or restrictive according to the number of dovish or hawkish sentences. In final, we validated our classification using a Delphic approach, involving a panel of about 20 colleagues and practitioners to assess the overall expansionary or restrictive tone of each speech, which confirmed our classification. Since the number of expansionary speeches is overwhelming (we find 17 expansionary speeches and only one with a restrictive tone), we only focus on this type of communication.

To capture memory effects potentially related to informal communication, we build two “learning” variables. The first one (*Learning1*) is related to the number of expansionary speeches in the past 12 months and helps us understand whether there is a boosting or a softening effect due to past similar speeches. The second one (*Learning2*) measures the time distance between the latest and the earlier expansionary speech.

Table 2 reports descriptive statistics for variables used in the empirical analysis. The mean and median of abnormal stock market reactions to informal speeches are negative. Control variables (*Controls*) show a strong cross-section heterogeneity for all firm variables.

**Table 2**

Descriptive statistics.

Variables	Obs.	Mean	Median	St. Dev.
<i>CAR[-1;+1]</i>	5,511	-0.1365	-0.0584	3.9915
<i>P/E</i>	5,511	22.8690	16.8000	26.9725
<i>MTB</i>	5,511	3.1798	2.3800	4.5110
<i>Leverage</i>	5,511	0.2529	0.2309	0.1833
<i>Size</i>	5,511	16.4307	16.4307	1.4638
<i>Cashpershare</i>	5,511	4.8477	3.8750	4.1600
<i>Learning(1)</i>	5,511	2.7597	2.0000	1.1001
<i>Learning(2)</i>	5,511	0.7241	0.4921	0.6692

The table reports descriptive statistics for all variables used in the empirical analysis. *CAR[-1;+1]*, *Learning1*, and *Learning2* are estimated around the date of monetary speeches (17 speeches for companies listed in the S&P 500).

**Table 3**

The effect of informal speeches.

	A	B	C
<i>Learning(1)</i>	0.4620*** (0.1146)		0.3482*** (0.1264)
<i>Learning(2)</i>		-0.7252*** (0.1856)	-0.3596* (0.2021)
<i>MTB</i>	0.0468* (0.0268)	-0.0014 (0.0209)	0.0715 (0.0452)
<i>Learning(1) × MTB</i>	-0.0165* (0.0100)		-0.0222* (0.0126)
<i>Learning(2) × MTB</i>		0.0154 (0.0204)	-0.0146 (0.0258)
<i>P/E</i>	-0.0003 (0.0025)	-0.0003 (0.0025)	-0.0002 (0.0025)
<i>Leverage</i>	-0.5574 (0.9388)	-0.5365 (0.9402)	-0.5052 (0.9375)
<i>Size</i>	-0.3463 (0.2878)	-0.3170 (0.2867)	-0.3252 (0.2877)
<i>Cashpershare</i>	-0.0253 (0.0351)	-0.0243 (0.0352)	-0.0238 (0.0351)
<i>Constant</i>	5.0489 (4.5178)	6.0415 (4.5003)	5.2112 (4.5160)
Observations	5,511	5,511	5,511
Year-FE	Yes	Yes	Yes
Firm-FE	Yes	Yes	Yes

This table reports the results for model (1). Robust standard errors are in parentheses. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels.

### 3. Main results

Table 3 shows results from our baseline model investigating market reaction to informal CB communication with expansionary content.

The *Learning1* coefficient is positive and statistically significant at least at the 1% confidence level, suggesting that past communication with the same expansionary tone is favorably perceived

<sup>1</sup> <https://www.federalreserve.gov/newsevents/speeches.htm>

**Table 4**  
Informal speeches' effects on financial companies.

	A	B	C
<i>Learning</i> (1)	0.3572 (0.2694)		1.0214*** (0.2885)
<i>Learning</i> (2)		1.2054*** (0.3837)	2.2045*** (0.4025)
<i>MTB</i>	0.0920 (0.0738)	−0.0239 (0.0614)	0.1496 (0.1124)
<i>Learning</i> (1)× <i>MTB</i>	−0.0377* (0.0209)		−0.0509** (0.0228)
<i>Learning</i> (2)× <i>MTB</i>		0.0095 (0.0557)	−0.0661 (0.0675)
<i>P/E</i>	−0.0044 (0.0038)	−0.0046 (0.0039)	−0.0044 (0.0038)
<i>Leverage</i>	−2.6085 (2.0442)	−2.7182 (1.9772)	−2.6512 (2.0088)
<i>Size</i>	0.4328 (0.5573)	0.3089 (0.5434)	0.3415 (0.5495)
<i>Cashpershare</i>	−0.0275 (0.0583)	−0.0327 (0.0585)	−0.0303 (0.0569)
<i>Constant</i>	−4.5752 (9.5488)	−3.9816 (9.3136)	−7.2644 (9.4383)
Observations	1,039	1,039	1,039
Year-FE	Yes	Yes	Yes
Firm-FE	Yes	Yes	Yes

This table reports results for model (1), all expansionary monetary policy speeches between January 2008 and December 2015 using a sample composed only of financial companies. Robust standard errors are in parentheses. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

by investors and boosts the reaction to new informal communication. The effect is also economically meaningful since each additional speech given in the previous 365 days increases CARs by 0.35% (up to 0.46%). Our results suggest that stock returns increase as the number of informal communications increases over the last 12 months (*boosting effect*): in a period characterized by instability, investors need information, and repeated communications are shown to be able to restore stability and confidence.

The *Learning*2 coefficient is negative and statistically significant at the 10% confidence level or less, suggesting that the further the previous expansionary speech is, the lower the reaction is. Our results suggest that stock returns increase as the CB communications find confirmation in another speech at a short time distance (*reinforcement effect*). This confirms our results for the *Learning*1 coefficient: in a period characterized by instability, repeated communications restore stability and confidence.

When we jointly consider both *Learning*1 and *Learning*2, results remain substantially confirmed.

Our sample (at the firm level) enables us to exploit firm cross-section heterogeneity. First, we show that the boosting effect is smaller for firms with a greater market-to-book value ratio (the *Learning*1 × *MTB* coefficient is negative): investors do not react

uniformly for all firms but are more prudent for firms whose market value is greater than the book value. Second, we restrict our sample to financial firms that are directly interested in CB communications with monetary content (Table 4). The boosting effect is confirmed but not the reinforcement effect: investors in financial companies like to receive more communications but not at a short distance. Thus, in the case of financial companies, communications with monetary content should be released often and at regular time intervals: communications repeated within a short distance are interpreted by investors as signs of economic instability (*Excusatio non petita, accusatio manifesta*<sup>2</sup>).

#### 4. Conclusions

CB communication increased in frequency, mass media attention, and reference to the future path of monetary policy. Do investors have a memory of past “similar” speeches? Focusing on the US, we show that investors generally like to receive more monetary policy informal speeches with an expansionary tone. In the case of nonfinancial corporations, investors also like to receive such communications at a short distance from each other, but this is not the case for investors in financial corporations.

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<sup>2</sup> “He who excuses himself, accuses himself”.