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Dissent in Monetary Policy Decisions: Effects, Channels and Implications

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ABSTRACT

We investigate whether dissent in monetary policy committees affects asset prices. We exploit a feature of the ECB communication for identification: the revelation of dissent during press conferences is separated from policy decision announcements. Following a narrative approach, we compute a novel granular index of ECB dissent for each instrument and identify the dissent direction. Using tick data, we isolate asset price changes exactly when dissent is revealed. Dissent has a strong negative effect on stock prices, that operates specifically around status quo decisions. Dissent is a key driver of stock prices on these days, explaining one-third of their variation.

Keywords: Asset Prices, Disagreement, Monetary Policy Committee, Bad News, European Central Bank.

JEL classification: G14, E43, E52, D70.

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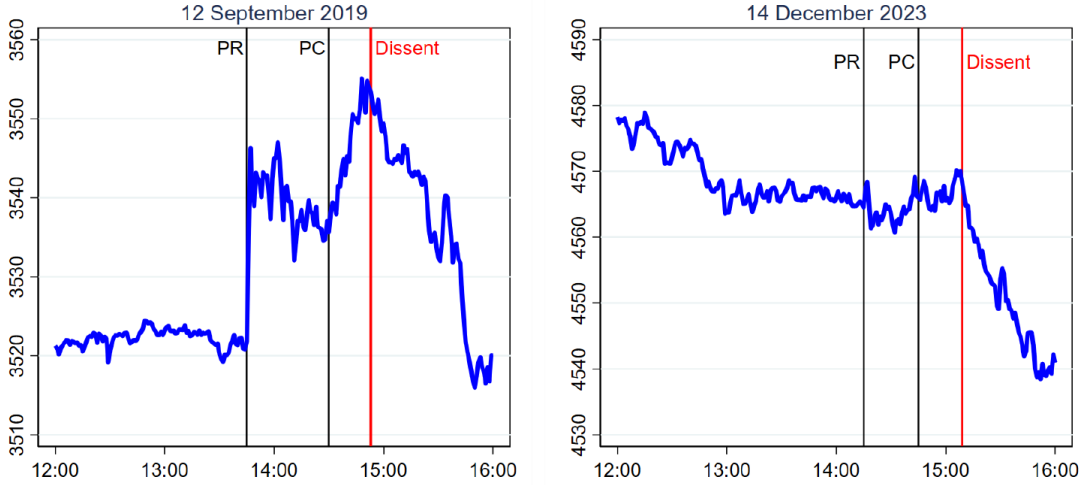
NON-TECHNICAL SUMMARY

Central banks around the world have moved away from single decision-makers toward committee-based monetary policymaking. The Federal Reserve, the Bank of England, and the European Central Bank all make policy decisions through committee deliberations. This shift reflects the belief that collective produces better outcomes than individual judgment, especially given the complexity and uncertainty inherent in economic policy design. However, when committee members disagree - as they inevitably do given different economic perspectives, regional interests, or policy preferences - should this disagreement be made public? Different central banks have taken varying approaches: the Fed and Bank of England publish detailed voting records, while the ECB keeps deliberations private, only revealing dissent during press conferences in response to journalists' questions.

The transparency debate has intensified over the recent years as central banks have taken on expanded roles. Proponents argue that revealing disagreement enhances democratic accountability, helps markets understand the range of policy views, and can signal future policy directions. Critics worry that publicizing internal divisions might undermine central bank credibility, confuse markets, or create unnecessary volatility. Despite the importance of this debate, empirical evidence on how financial markets respond to revealed disagreement is limited. Previous research focused mainly on the U.S., where policy decisions and voting records are released simultaneously, making it difficult to separate market reactions to the policy itself from reactions to dissent votes. The ECB's unique communication structure - where policy decisions are announced first and potential dissent is revealed later during press conferences - provides an ideal natural experiment to study this question.

In this paper, we build a novel database tracking instances of dissent within the ECB's Governing Council from 1999 to 2023. From the 258 ECB press conferences over this period, we identify 60 episodes where the ECB President revealed that some members disagreed with the policy decision. Using high-frequency financial data, we assess how stock prices, interest rates, and market volatility respond in the immediate aftermath of dissent revelation. For meetings since 2012, we identify the exact time when dissent was revealed using press conference recordings, allowing us to isolate market reactions to that news even more precisely.

Figure A. Eurostoxx50 price evolution over two Governing Council meeting days



Note: This figure shows the evolution from 12h00 to 16h00 (CET) of the Eurostoxx50 index for two ECB policy announcements: 12 September 2019 (left panel) and 14 December 2023 (right panel). Gray bars indicate when the press release (PR) is published, and the press conference (PC) begins. Red bars show when the ECB president revealed dissent on these two dates.

As suggested in Figure A, we provide robust evidence that stock prices react negatively to dissent. When the ECB President reveals that some committee members disagreed with a policy decision, European stock prices typically fall by about 0.2%. This effect is economically meaningful. An important finding is that this negative effect only occurs during "status quo" meetings - when the ECB decides not to change interest rates or other policies. When dissent occurs during meetings where policy actually changes, there is no effect on stock markets. This suggests investors are not concerned about disagreement when action is taken, but become disappointed when disagreement prevents desired policy changes. We also show that dissent is a major driver of stock prices on these days. During status quo meetings with dissent, disagreement among policymakers explains about one-third of daily stock price movements and three-quarters of movements during press conferences. This makes dissent one of the most important factors affecting markets on those days.

The study reveals three key insights. First, transparency may have costs - revealing disagreement can harm market sentiment, even when the disagreement does not change the actual policy decision. Second, markets care about the policy process, not just outcomes - investors react negatively to signs that policymakers cannot reach a consensus. Third, dissent affects how monetary policy works - the impact of policy changes on asset prices is altered when there is disagreement among policymakers.

These findings suggest central banks face a trade-off between transparency and market stability. While revealing internal debates can enhance democratic accountability and provide insights into future policy direction, it may also create unnecessary market volatility and disappointment, especially when disagreement prevents action.

Le désaccord dans les décisions de politique monétaire : effets, canaux et implications

RÉSUMÉ

Nous cherchons à savoir si le désaccord au sein des comités de politique monétaire affecte les prix d'actifs. Nous exploitons une caractéristique de la communication de la BCE pour l'identification: la révélation du désaccord au cours des conférences de presse est séparée des annonces de décisions de politique monétaire. En suivant une approche narrative, nous construisons un nouvel indicateur du désaccord au sein du Conseil des Gouverneurs de la BCE pour chaque instrument et identifions la direction de ce désaccord. À l'aide de données haute-fréquence, nous isolons les changements de prix des actifs exactement au moment où le désaccord est révélé. Ce désaccord a un effet négatif important sur les prix des actions, qui s'exerce spécifiquement autour des statu quo. Le désaccord est un facteur clé des prix des actions ces jours-là, expliquant un tiers de leur variation.

Mots-clés : prix d'actifs, comité de politique monétaire, banque centrale européenne, désaccord, mauvaises nouvelles.

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1 Introduction

The decision-making process in central banks, such as the Federal Reserve, Bank of England (BoE) or European Central Bank (ECB), relies on collective monetary policy committees.[1] These committees use different rules to aggregate their members' preferences (Riboni and Ruge-Murcia 2010).[2] Not all policy decisions are reached unanimously, and disagreement among policymakers is widely commented on policy announcement days. According to each central bank's communication strategy, dissent may be disclosed to the public explicitly, implicitly, or not at all. While the Federal Open Market Committee (FOMC) and BoE publish the vote outcome, the ECB is less transparent (Hansen, McMahon, and Prat 2018). The ECB President may reveal dissent during the press conference on Governing Council meeting days.

On these days, the policy decision is communicated in a press release, and 30 minutes later, the ECB President holds a press conference during which she provides an Introductory Statement followed by a questions and answers (Q&A) session with journalists. Ehrmann and Fratzscher (2009) and Hayo, Henseler, Rapp, and Zahner (2022) provide evidence that investors pay strong attention to this press conference. In the FOMC and BoE cases, the publication of votes is simultaneous to the release of the policy decision. In contrast, we exploit this particular setting of the ECB's communication framework to disentangle asset price responses to the policy decision from revealing dissent. This paper investigates how dissent within the ECB Governing Council affects investors' beliefs and decisions.

Madeira and Madeira (2019) document that US stock prices increase after unanimous FOMC votes but fall in response to dissenting votes. They find no effect on nominal interest rates, market risk or trading volumes. We build on their work and make progress along three dimensions. First, by focusing on the ECB, we are able to separately identify monetary policy news from dissent news. Second, we propose three explanations consistent with the reaction of stock prices to dissent and assess their prevalence. Third, we identify dissent shocks using asset price changes in a narrow window around the revelation of dissent to quantify the importance of this information.

As the ECB does not formally publish the outcome of its deliberations, one challenge is to identify meetings where dissent occurs. A methodological contribution of this paper is to build a granular index of ECB dissent based on a narrative approach. We extract this information from the Q&A session using the ECB President's responses to journalists' questions on whether the decision was unanimous or not.[3] We are able to disentangle dissent on the policy rate from dissent on unconventional measures. We classify whether there was dissent in the 258 ECB monetary policy meetings followed by a press conference from January 1999 to December 2023. Another aspect of this methodological contribution is to identify the direction of dissent (whether a member asks for a more restrictive or expansionary policy stance) through a narrative analysis of press articles from Reuters News and the Financial Times, published right after press conferences. We identify 60 episodes of dissent, representing 23% of ECB press conferences, with 33 about interest rates only,

[1] Blinder and Morgan (2005) and Rieder (2022) emphasize the benefits of monetary policy committees.
[2] See also Visser and Swank (2007), Hansen, McMahon, and Rivera (2014) and D'Acunto, Fuster, and Weber (2021).
[3] Journalists did not systematically ask the question, especially during the Wim Duisenberg term (1999-2003). The behavior of asset prices in these cases corresponds to the one of unanimous decisions, not dissent episodes.

23 about unconventional measures only and 4 about both. Among these 60 dissenting episodes, we identify 33 episodes of restrictive-dissents, 22 expansionary-dissents and 5 unknown.

We perform a high-frequency event-study analysis of the effect of dissent on asset prices over the press conference window. One concern, however, is that the press conference contains various events beyond the dissent revelation. This contrasts with the key assumption that there is only one event in the window, so that asset price changes can be attributed to that event. To circumvent this issue, we identify the exact time at which dissent is revealed using press conference recordings. Using tick data, we isolate asset price changes in a narrow window around the dissent news. Confounding factors can be plausibly ruled out because financial conditions are unlikely to change within the narrow window. This approach allows us to precisely isolate asset price responses to dissent, but only for the 104 press conferences since 2012 for which recordings are available.

Using our original index, we estimate the effects of ECB dissent over the press conference window on the full sample and find that it has a strong and significant negative effect on stock prices. This negative effect of dissent on Eurostoxx50 prices holds after controlling for monetary surprises and the various messages of press conferences. It is also robust to considering national stock price indices. As dissent may be endogenous to uncertainty or economic conditions, we control for these potential confounding factors. Importantly, this negative effect is confirmed over the 30-min narrow window for the 104 press conferences recorded.

We put forward three explanations that are consistent with this negative effect on stock prices. While the policy decision allows investors to observe the mode of the distribution of policymakers' preferred monetary policy stance, dissent reveals whether the unobserved mean of this distribution differs from the mode. Dissent signals the underlying aggregation of individual preferred policy stances, for a given dispersion of views. A restrictive dissent reveals a more restrictive average stance within the committee, and vice-versa.[4] Thus, a more restrictive stance yields a stock price decrease. We label this the *stance* hypothesis. Dissent can also undermine the clarity of decisions by conveying a noisier signal to investors. It reveals that the dispersion of views across policymakers is larger than expected. Investors therefore internalize this larger dispersion as a signal on policymakers' uncertainty (about the state of the economy or policy preferences).[5] A higher uncertainty has a negative effect on stock prices. We label this the *uncertainty* hypothesis. Finally, dissent may reveal the difficulty for policymakers to reach a consensus and convey signals about the (in)ability to take a *change* decision. Dissenter(s) may be seen by investors as a blocking minority when there are *status quo* decisions. This "bad news" has a negative effect on stock prices. We label this the *disappointment* hypothesis.[6]

To disentangle these three hypotheses, we follow a sign-identification procedure (in the spirit of Cieslak and Schrimpf 2019 and Jarociński and Karadi 2020) based on the co-movement of asset prices in response to dissent. The *stance* hypothesis should move policy expectations and have directional effects. We leverage our identification of the direction of ECB dissent. Restrictive

[4]Dissent may signal shifts in the committee and potential turning points, helping investors to anticipate future policy decisions (Gerlach-Kristen 2004, Horvath, Smidkova, and Zapal 2012 and Riboni and Ruge-Murcia 2014).

[5]See Baker, Bloom, and Davis (2016), Carriero, Clark, and Marcellino (2018) and Bauer, Lakdawala, and Mueller (2022).

[6]Gul (1991) documents how disappointment affect individuals' decisions, while Braun, Nelson, and Sunier (1995), Veronesi (1999) and Soroka (2006) document asymmetric responses to good and bad news.

dissent should increase policy expectations, measured with 1-year Overnight Interest Swaps (OIS) rates, and expansionary dissent decrease them. In contrast, the uncertainty and disappointment hypotheses have unidirectional predictions. In the *uncertainty* hypothesis, any dissent should increase market-based uncertainty, measured with the VSTOXX. In the *disappointment* hypothesis, dissent should reduce stock prices but only for status quo decisions.

We find no effect of dissent on the VSTOXX and OIS rates (directional or not). In contrast, we document robust evidence that the negative effect of dissent on stock prices is entirely driven by dissent during status quo decisions. Importantly, unanimous status quo and dissent during change decisions have no effect. These findings support the disappointment hypothesis. An anecdotal illustration of this channel is the 2 August 2012 ECB meeting. On that day, there was a status quo decision, a restrictive dissent about unconventional policies and the largest drop in stock prices over our sample. The Reuters commentary following this meeting was "*It is quite disappointing (...) There is a lack of any action*". The interpretation is that investors were disappointed by dissenting voices that opposed to some support for the economy. This channel is consistent with the asymmetry in the response to good and bad news (Gennaioli, Shleifer, and Vishny 2015): during status quo decisions, unanimity has no effect on stock prices, but dissent has a negative effect.

To quantify the importance of dissent for stock price dynamics, we leverage our narrow window identification. Following a sign-identification approach, we construct a series of dissent disappointment shocks that combine dissent with a negative change in Eurostoxx50 prices in the narrow window. We show that dissent explains 37% of the press conference variation and 9% of the daily variation in stock prices. For status quo meetings, dissent explains 77% and 32% of the press conference and daily variation respectively. On these days, the dissent news is a major driver of stock prices.

As a consequence of our main result, we document that dissent alters the monetary policy transmission. We estimate heterogeneous effects of monetary policy shocks on stock prices according to their sign and to dissent. The negative effect of dissent magnifies the effect of restrictive monetary surprises but weaken the effect of easing ones suggesting an asymmetric role of dissent for the effectiveness of monetary policy.

We finally explore the potential heterogeneous effects of dissent using the granularity of our dissent index. We find that the negative effect on stock prices primarily comes from dissent about unconventional policies and from restrictive dissent. We also find that, in presence of supply shocks (Madeira, Madeira, and Monteiro 2023 document their key role for dissent), a subset of dissent – restrictive dissent about the policy rate – has a positive effect on OIS rates. This is consistent with the signaling effects of Riboni and Ruge-Murcia (2014). This additional evidence is however weak, possibly because of ECB language hints (*"vigilance"* – see Jansen and De Haan 2009) and the role of forward guidance in signaling future decisions over our sample. These results suggest that not all dissents are alike for investors. The skewness of the effect of dissent towards more restrictive opinions may relate to the importance of signaling central bank credibility (Backus and Driffill 1985, Cukierman and Meltzer 1986). Restrictive dissent may be given more weight by investors.

The contribution of this paper is twofold. First, we propose a novel granular index of ECB dissent. It encompasses all types of monetary decisions and informs both the *direction* of dissent and the *instrument* about which dissent occurred. We extend the work of Tillmann (2021) who computes a dissent index for interest rate decisions.[7] Second, this is the first paper to identify asset price changes in a high-frequency narrow window around dissent and to quantify their importance.

Related literature. This paper builds on the large literature on central bank communication (Blinder, Ehrmann, Fratzscher, De Haan, and Jansen 2008), but is more directly related to the potential side-effects of information released by central banks. Reeves and Sawicki (2007) show that asset price volatility increases when the BoE releases its minutes while Ehrmann, Gaballo, Hoffmann, and Strasser (2019) find that forward guidance can increase uncertainty.

Our paper relates to the literature about communicating disagreement in monetary policy committees (Sibert 2003, Vissing-Jørgensen 2019). Ehrmann and Fratzscher (2013) find that dispersion in the communication of committee members reduces the predictability of FOMC decisions, while Linta (2024) finds that dissent affects the credibility of forward guidance announcements. Ainsley (2020) documents that the publication of votes worsen the accuracy of inflation expectations, while Grebe and Tillmann (2025) show that dissent is associated with wider individual distribution of households' inflation expectations.

Our work also relates to the literature on the nature of dissent. Belden (1989), Havrilesky and Gildea (1991), Riboni and Ruge-Murcia (2008), and Harris, Levine, and Spencer (2011) suggest a key role for career backgrounds and preferences of committee members. Dissent may also be driven by strategic behavior (Meade and Stasavage 2008). The state of the economy matters as dissent in the FOMC increases with inflation (Thornton and Wheelock 2014, Tsang and Yang 2024) and the regional macroeconomic outlook influences the stance of FOMC members from regional Federal Reserve Banks (Meade and Sheets 2005, Chappell Jr, McGregor, and Vermilyea 2008, Bobrov, Kamdar, and Ulate 2025, and Fos and Xu 2025).

2 A granular index of ECB dissent

Although there is no formal statement about ECB votes, the information may be revealed by the ECB President in response to journalists' questions.[8] Using a narrative approach of all ECB press conferences, we exploit the ECB President's responses to journalists' questions on whether the decision was unanimous or not to compute a granular index of ECB dissent. When doing so, we disentangle the dissent on interest rate decisions from the dissent on unconventional measures. We then identify expansionary and restrictive dissents from financial press' related articles.

[7] Tillmann (2021) assesses the influence of dissent on the monetary policy transmission to long-term yields.

[8] Whether a formal vote happens at the ECB is unclear. Jean-Claude Trichet stated on 10 January 2008: *"we do not vote and have never voted"* whereas Mario Draghi stated, on 5 December 2013, *"In fact, we rarely vote"* suggesting that they may do so. The rotation scheme introduced in 2015 implies that only 21 members could vote at each meeting (see Ehrmann, Tietz, and Visser 2021 on the implications of the FOMC voting rotation).

2.1 Identifying dissent from Q&A

We construct a narrative indicator of dissent for the 258 ECB monetary policy meetings followed by a press conference from January 1999 to December 2023.[9] We classify that there was dissent when the ECB President states that the decision was *"not unanimous"* or *"at the majority"*.[10] The variable $Dissent_t$ is a dummy that equals 1 for meetings for which we explicitly identify dissent – related to either interest rate decisions or unconventional measures. Similarly, we compute a dummy variable ($Unanim_t$) that equals 1 when the ECB President explicitly says that the decision was unanimous. The following example, on 26 October 2017, illustrates how these variables are coded:

> Question: *"Was the Governing Council unanimous today in its decision?"*
> Mario Draghi: *"It was not unanimous. There were different viewpoints."*

The answer reveals dissenting views so $Dissent_t = 1$ and $Unanim_t = 0$. A key difference with Tillmann (2021) is that his index focuses on dissent about interest rates whereas we identify dissent for both conventional and unconventional policies. For instance, he coded as "Unanimous" the 4 August 2011 meeting because of the following excerpt *"the decision we took on monetary policy was unanimous"*, but we code this meeting as "Dissent" as Jean-Claude Trichet specified: *"let me be very precise: we were unanimous in our decision on the standard monetary policy measure. (...) We were not unanimous (...) regarding the bond purchase"*. We classify meetings from the investors' perspective: we identify dissent, regardless of the instrument, when there is no unanimity. We also code the information, systematically revealed by the ECB President, about the instrument for which a dissent is cast.

Among these 258 ECB meetings, we identify 60 episodes of dissent, amounting to 23% of these meetings (Appendix Table A1). Madeira and Madeira (2019) find that dissent occurs in 40% of FOMC meetings from 1994 to 2018, Tillmann (2021) identifies dissent in 28% of ECB meetings between 2005 and 2018, and Horvath, Rusnak, Smidkova, and Zapal (2014) find a dissent-to-votes share of 5% for the FOMC from 1987 to 2009, 13% for the BoE from 1997 to 2009, 8% for the Riksbank from 1999 to 2009, 15% for the Czech National Bank from 1998 to 2009, and 20% for the Hungarian National bank from 2005 to 2009. Dissent was limited to interest rate decisions before the Global Financial Crisis (GFC) by construction. Since then, dissent may relate to both policy rates and unconventional policies. Among the 60 dissent episodes, 33 were about interest rates only, 23 about unconventional measures only and 4 about both. Over a sample starting in January 2009, there are 20 episodes of interest rate dissent.

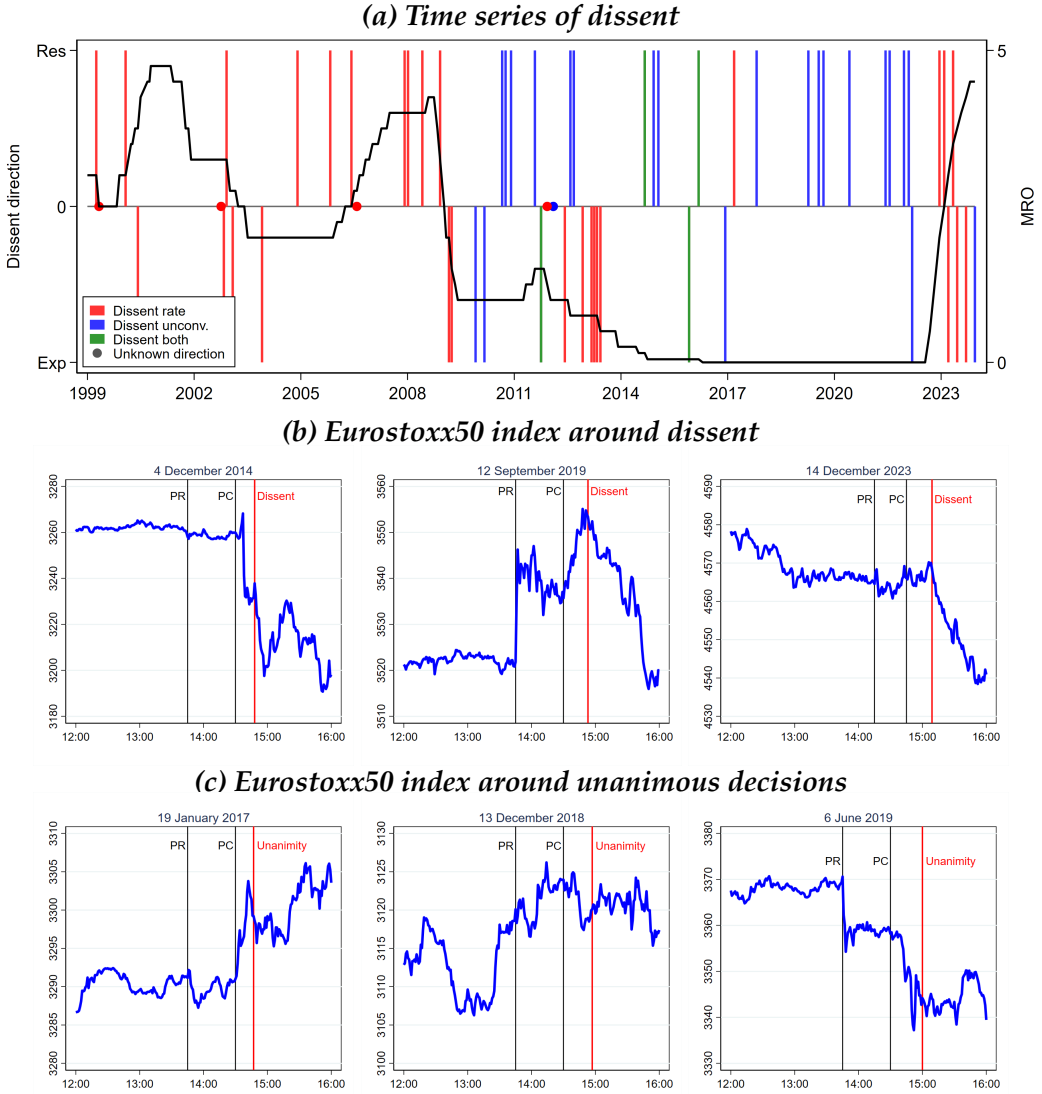
Figure 1 shows the time series of ECB dissent, and illustrates that it occurred throughout the sample. The share of meetings with dissent has increased after the GFC, from 13.5% over 1999-2007 to 29% over 2007-2023. Appendix Table A2 provides a breakdown of dissent across types of decisions and the distribution of dissent across months.[11] More than half of dissent occurs during

[9] The ECB held 301 monetary policy meetings but 42 were not followed by a press conference. We exclude them. Most (37) happened before 2001 when the Governing Council met twice a month but only the first meeting had a press conference. The other five meetings are August 2002, July 2003, August 2004, August 2005 and October 2008. We also drop the August 2007 meeting because the press release and Q&A happened at the same time.

[10] Based on credibility issues, the assumption is that there is *actual* dissent when the ECB President says so.

[11] The distribution across months is not uniform. 15 dissent episodes (over 60) occurred in December.

Figure 1: Dissent in the ECB Governing Council



Note: The figure shows in panel (a) the time series of dissent across ECB Governing Council meetings (left axis) and the main refinancing operations (MRO) rate (right axis, in %). The policy instrument concerned by the dissent is the interest rate (red), unconventional policies (blue), or both (green). Positive bars are restrictive dissent and , negative bars are expansionary dissent. In panels (b) and (c), the evolution from 12.00 to 16.00 of the Eurostoxx50 index is presented for six policy announcements. Gray bars indicate when the press release is published and the press conference begins. Red bars show when the ECB president reveals some dissent (panel b) or unanimity (panel c).

status quo meetings. Over the meetings with a change decision, half of dissent happens with easing decisions.

There is an important difference in how dissent can be expressed in ECB meetings compared to the Fed or BoE cases. Their formal voting process implies a proposed action. Since there is no formal vote procedure in the ECB Governing Council, members can express dissent about the current decision but also about future actions. Journalists are often interested in ongoing discussions about future options, and the ECB President can disclose dissenting voices concerning these potential future decisions. From the perspective of investors and ECB watchers, we believe

that the key information is the expressed dissent whether it relates to current or future decisions. In both cases, we code that there is dissent.[12]

Our classification relies on ECB President's responses to journalists' questions, so one limitation is that dissent may have occurred even if the question was not prompted -– which happens in one-third of press conferences and is coded with the dummy variable: $NotAsked_t$. The question is almost systematically asked after the mandate of President Duisenberg (that ended in 2003).[13] We provide evidence that the absence of the question cannot be interpreted as an obvious dissent: market movements when the question is not asked are similar to a unanimous decision and clearly different from when there is dissent (Appendix Table A3). The absence of the question likely reflects journalists' beliefs that the decision was unanimous.

Our index equals one when there is *at least* one dissenter. We measure the extensive margin of dissent, not its intensive margin – whether several members dissented. Similarly, the dissenter identity is usually not revealed. As not all members have similar influence, our dissent index does not capture this dimension of the intensive margin. If investors know in real-time the number and/or identity of dissenters, the econometrician's information set may not match that of investors. For instance, dissenters with little influence could bias our estimates downward.

2.2 Identifying the direction of dissent from press articles

We decompose our dissent index according to the direction of dissent — tighter or easier view(s). Unlike the publication of FOMC votes, the ECB President does not systemically provide information on the direction of dissent. It happens sometimes – see the example of the 6 June 2012 meeting (Appendix Section B). To document the direction of dissent, we resort to a narrative analysis of press articles from Reuters News and the Financial Times published on the current or next day after the policy announcement.

Journalists often provide additional details from official stances (from speeches or interviews) or informal discussions with policymakers during the intermeeting period (Ehrmann, Gnan, and Rieder 2023). For instance, at the 12 September 2019 meeting when the ECB decided to resume asset purchases after a nine-month pause, it was public knowledge that the German, Dutch and French governors opposed the decision and were known as restrictive-dissenters. Among the 60 dissent episodes, we are able to identify the direction of dissent for 55 of them. In 5 cases, we find no information in the Q&A and press articles. These 55 episodes are decomposed as follows: 33 for more restrictive actions and 22 for more expansionary ones (Figure 1 and Table A1).

[12] It notably occurred before the implementation of unconventional policies. On 4 December 2014, Mario Draghi mentioned an *"intended increase in the size of the balance sheet"* and a journalist asked *"if this new language is a unanimous decision"*. Mario Draghi replied: *"the decision was not unanimous"*.

[13] A potential limitation comes from President Duisenberg's language for signaling unanimity (see Appendix Section B). Our results hold when excluding his term. In contrast, Jean-Claude Trichet implemented a formal communication rule: *"We can decide by majority decision, we can decide by consensus, and we can decide unanimously"* (on 7 April 2011).

3 The financial market effects of dissent

3.1 Investors' reactions to revealing dissent

We carry a high-frequency event-study analysis on the 258 ECB press conferences between January 1999 and December 2023. Committee members may signal their disagreement about future likely policy decisions prior to a meeting. Anticipated dissent should be reflected in prices prior to policy announcements. By focusing on asset price changes in a tight window, we ensure that we capture the causal effect of (unexpected) dissent. We focus on the press conference (PC) window to isolate the effect of dissent from the effect of policy decisions in the press release (PR) window (Rosa and Verga 2008). We estimate the following equation:

$$\Delta Y_t^{\{PC,NW\}} = \beta_1 Dissent_t + \beta_2 Unanim_t + \beta_3 NotAsked_t + \beta_4 \mathbb{X}_t + \epsilon_t \quad (1)$$

where $Dissent_t$ is a dummy variable that equals 1 when there is dissent, $Unanim_t$ a dummy variable for unanimity, and $NotAsked_t$ a dummy variable when the question was not asked. The dependent variable Y_t is the intraday change over the press conference (PC) or a 30-min narrow window (NW) in Eurostoxx50 prices.[14] $\mathbb{X}_t$ is a vector of control variables that capture other information disclosed during the press conference, economic conditions and uncertainty. It includes changes in ECB inflation and output projections and dummy variables for announcements of asset purchases, liquidity operations and forward guidance.[15] We include changes in 1-year OIS rates during the PR window to control for (a delayed effect of) the policy announcement, and tone measures of the Introductory Statement and Q&A, as in Apel and Grimaldi (2014).[16] Finally, we control for the ex ante level of monetary policy uncertainty, using the short-term interest rate component of the ECB's Composite Indicator of Systemic Stress. We measure asset price changes using the same timeline and windows as Altavilla, Brugnolini, Gürkaynak, Motto, and Ragusa (2019) in the Euro Area Monetary Policy Database (EAMPD).[17]

Narrow window. Event-study estimates relies on the assumption that no other event occurs at the same time. Dissent, however, is not the only piece of information disclosed in the PC window. We control for potential confounding factors ($\mathbb{X}_t$) to limit this issue. A more powerful solution is to use a narrower window around the event. ECB press conferences have been recorded and are available online on YouTube since May 2012. We identify the exact time of the ECB President's dissent/unanimity revelation. We use tick-by-tick data to measure variations in the Eurostoxx50 index in the 30-min window around this revelation.[18] Figure 1 illustrates the evolution of Eurostoxx50 prices on meeting days when dissent (Panel b) or unanimity (Panel c) were revealed.[19] Although anecdotal, we observe that stock prices dropped after the dissent announce-

[14] We test alternative dependent variables – OIS rates at various maturities, sovereign yields, exchange rates and a stock price index for banks – in Appendix Table A5. Only stock prices react to dissent.

[15] Between 2010 and 2016, unconventional measures were announced in the press conference. Since March 2016, all measures are communicated and described in the press release. Some of asset price responses during the press conference could reflect these policy news. We control for this in Appendix Section D.

[16] Hubert and Labondance (2021) show that the tone of press conferences influences asset prices.

[17] We use data from Refinitiv as EAMPD does not include the VSTOXX. We use EAMPD in Appendix Table A6.

[18] Results are robust to using a 15-min window.

[19] Appendix Figures A1 and A2 show the evolution of 1-year OIS rates and the VSTOXX on these days.

Table 1: The financial market effects of revealing dissent

	Eurostoxx50 responses							
	Abs. val. $STOXX_{PC}$	PC $STOXX_{PC}$	PC + Cont. $STOXX_{PC}$	Narrow $STOXX_{NW}$	Turning $STOXX_{PC}$	$HICP_{IQR}$ $STOXX_{PC}$	Supply $STOXX_{PC}$	Placebo $STOXX_{PR}$
Dissent	0.191**	-0.230**	-0.204**	-0.175*	-0.209**	-0.208**	-0.248**	0.039
	[0.05]	[0.08]	[0.08]	[0.07]	[0.08]	[0.08]	[0.08]	[0.05]
Unanim	0.054	-0.042	-0.014	-0.096	-0.029	-0.007	-0.036	-0.033
	[0.04]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.04]
R^2	0.06	0.04	0.15	0.08	0.15	0.15	0.16	0.11
Obs	258	258	235	104	235	235	235	235
	Hypothesis testing							
	PC window + Controls				Narrow window			
	All $OIS1Y_{PC}$	All VSX_{PC}	Stquo $STOXX_{PC}$	Chg $STOXX_{PC}$	All $OIS1Y_{NW}$	All VSX_{NW}	Stquo $STOXX_{NW}$	Chg $STOXX_{NW}$
$Dissent_{Res}$	0.498				-0.161			
	[0.25]				[0.13]			
$Dissent_{Exp}$	0.311				0.176			
	[0.32]				[0.15]			
Dissent		-0.140	-0.338**	-0.059		-0.042	-0.370**	-0.027
		[0.09]	[0.10]	[0.14]		[0.09]	[0.12]	[0.11]
Unanim	0.011	-0.098	0.007	-0.016	0.025	0.009	-0.081	-0.182
	[0.14]	[0.06]	[0.06]	[0.13]	[0.09]	[0.08]	[0.09]	[0.12]
R^2	0.16	0.17	0.13	0.32	0.18	0.08	0.25	0.23
Obs	234	187	168	67	104	104	62	42

Note: Standard errors in brackets. * p<0.05, ** p<0.01. Parameters are estimated with OLS based on Equation (1). The dependent variables are the intraday change in Eurostoxx50 prices, 1-year OIS rates and the VSTOXX during the Press Conference (PC) window and during a narrow window around the dissent or the unanimity revelation by the ECB President. The Refinitiv tick data for VSTOXX is only available from May 2005, so the sample is shorter (187 observations). The Dissent, Unanimity, and NotAsked variables, are computed based on ECB President's answers. The vector of control variables $\mathbb{X}_t$ includes changes in ECB macroeconomic projections, changes in 1-year OIS rates during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the lagged value of the 3-month component of CISS. In Columns 5 to 7 of the top panel, we consider additional controls: turning points in ECB monetary cycles (defined as the period of 2 months before and after the first or last change in the policy rate for each cycle), the dispersion (IQR) of inflation rates in euro area countries, and whether the ECB expects supply shocks (based on the comovement of its inflation and output projections). In column 8, stock price changes are measured around the press release (PR) window. In the bottom panel, we differentiate restrictive and expansionary dissent and two subsamples for status quo and change decisions. The sample for narrow window changes starts in May 2012 (104 observations). Appendix Table A4 reports the coefficient for NotAsked meetings.

ment whereas there is no obvious pattern with unanimous decisions. We perform a systematic analysis on the 30-min window around the ECB President's revelation by estimating Equation (1) on the sample of 104 observations available for this exercise. When there is no hint about dissent or unanimity, we randomly select a time from a uniform distribution across Q&A times.

The upper panel of Table 1 reports estimates of Equation (1). In Column 1, the dependent variable is in absolute value. The positive coefficient highlights an excess reaction of stock prices to dissent. With changes in stock prices as the dependent variable, we find a significant negative response of Eurostoxx50 prices to the ECB dissent (around -0.2%) without (Column 2) and with (Column 3) the vector of controls $\mathbb{X}_t$. In contrast, unanimity has no effect. Stock price response reaction is also negative and significant over the narrow window around the exact time of the dissent revelation (Column 4). We include additional controls as dissent is likely to be endogenous to turning points in monetary cycles, dispersion in inflation rates across euro area countries, and the presence of supply shocks (as they induce a tradeoff between inflation and output stabilization,

potentially exacerbating differences in policymakers' preferences compared to demand shocks).[20] We find that the effect of dissent is robust to these factors (Columns 5 to 7). Finally, we perform a placebo test and find no effect of dissent on stock prices in the press release (PR) window. At this point, dissent has not yet been revealed and should not trigger a stock price reaction.

This main result is robust to national stock price indices, subsample analysis and additional controls for confounding factors.[21] These estimates provide solid evidence of a causal negative effect of dissent on Eurostoxx50 prices.

3.2 Exploring the transmission channels of dissent

The negative effect of dissent on stock prices is consistent with three different interpretations that we label the *stance*, *uncertainty* and *disappointment* hypotheses. These three hypotheses can be tested by assessing the responses of different asset prices. Table 2 summarizes the zero and sign restrictions we use to identify the information content of dissent.

Table 2: Identifying the content of dissent

	D_{Res}/D_{Exp}	Unidirectional Dissent	
	Stance	Uncertainty	Disappointment
STOXX	$-/+$	$-$	$-$
OIS1Y	$+/-$		
VSX		$+$	
STOXX | Change			0
STOXX | Status quo			$-$

Note: This table presents the expected responses of three asset prices used to identify the information content of dissent. Three hypotheses – stance, uncertainty and disappointment – can be differentiated by examining the variations in 1-year OIS, VSTOXX, and Eurostoxx50, and the subsamples of change and status quo decisions. +, - and 0 denote a positive, negative and zero response to dissent (or to restrictive or expansionary dissent).

The first hypothesis is that dissent provides information on the distance between the observed mode of the distribution of policymakers' preferred decision and the unobserved mean of policymakers' preferences. Dissent reveals how the average preferred stance differ from the policy decision. A direct consequence is that dissent would help predict future decisions (Gerlach-Kristen 2004, Horvath et al. 2012, Riboni and Ruge-Murcia 2014). To test the *stance* hypothesis, we estimate the response of 1-year OIS rates as an indicator of expected future policy changes. Restrictive dissent is expected to increase OIS rates and expansionary dissent should decrease them, so the effect of dissent is directional.

Second, dissent among policymakers could undermine the clarity of decisions by providing noisier signals. It reveals a larger dispersion of the distribution of views than expected, thus creating uncertainty. In contrast, unanimous decisions and collegial communications may strengthen policy announcements (Issing 1999, Ehrmann and Fratzscher 2013). It is widely documented that uncertainty increases stock price volatility (Bloom 2009, Bauer et al. 2022). To test the *uncertainty* hypothesis, we estimate the response of market-based uncertainty, measured by stock market

[20] We measure supply shocks based on the negative comovement in ECB inflation and output growth projections.
[21] See Appendix Tables A7, A8 and A9.

volatility (VSTOXX), to dissent. We expect the VSTOXX to respond positively to dissent (whether restrictive or expansionary), so the effect is unidirectional.

The third hypothesis is that, without moving policy expectations, dissent causes investors' disappointment – a phenomenon similar to negative investor sentiment. The financial press regularly emphasizes that investors are disappointed by monetary policy decisions.[22] This happens when investors consider that an action should have been taken (Caballero and Simsek 2022 analyze the implications of when the Fed and investors disagree). Investors could also consider that a change decision is not enough, but we provide evidence that stock prices do not react to dissent during change decisions. The 4 December 2014 meeting is a relevant example of this hypothesis. According to Reuters News, *"investors were hoping for more substance on sovereign bond purchases"*. Dissent in that meeting was clear: *"the head of Germany's Bundesbank opposed a decision (...) of bolstering the ECB's balance sheet of assets (...) Many in the market were frustrated that Draghi was not already able to go further. (...) Draghi lacks the crucial German support for launching full-blown quantitative easing"*. Revealing dissent is a "bad news" that highlights the inability to take *change* decisions as dissenters are seen as the blocking factor in status quo decisions. Baker and Wurgler (2007) and Tetlock (2007) show that negative investor sentiment causes stock price decreases. To test the *disappointment* hypothesis, we estimate the response of stock prices to dissent, for change and status quo decisions. We expect the negative effect to occur only during status quo decisions (regardless of whether dissent is restrictive or expansionary) and not during unanimous ones.

The bottom panel of Table 1 shows estimates for these tests, with Equation (1) estimated for OIS rates, the VSTOXX and Eurostoxx50 prices, over the PC and narrow windows. For stock prices, we consider the subsamples of change and status quo decisions separately. The main result, in both PC and narrow windows, is that the effect on stock prices is entirely driven by meetings with status quo decisions. Neither dissent during change decisions nor unanimous status quo has an effect. The effect of dissent on OIS rates, at various maturities, and VSTOXX is also not significant. These results hold with the EAMPD database and German and French stock indices.[23] Evidence tends to reject the *stance* and *uncertainty* hypotheses, and favors the *disappointment* hypothesis.

4 A quantification of the effects of dissent

Does dissent matter for stock price dynamics? We document how much of stock price variations is driven by dissent. Using tick-by-tick data, we construct high-frequency dissent shocks similar in spirit to monetary surprises (Kuttner 2001), oil shocks (Känzig 2021) or carbon price shocks (Känzig 2023).

First, we isolate 30-min changes in Eurostoxx prices around the dissent revelation. Second, we follow a sign-identification approach, as in Jarociński and Karadi (2020), and identify dissent disappointment shocks as episodes with (i) dissent and (ii) negative responses of Eurostoxx50 prices. The exact time of the dissent revelation being only available since May 2012, we work with a sample of 32 dissent episodes (over 104 ECB meetings). More than 2/3 are associated with negative Eurostoxx50 responses and constitute dissent disappointment shocks. When Eurostoxx50

[22] Altavilla et al. (2019) highlight this issue for the December 2015 ECB meeting.
[23] See Appendix Table A10.

responses are positive, the magnitude is twice smaller (0.23% compared to -0.45%). Appendix Figure A3 plots these dissent shocks.

Table 3: The share of the variance of STOXX50 explained by dissent

Monetary surprises			
	PR	PC	Daily
$OIS1Y_{PR}$	0.15	0.01	0.05
$JK20_{MP}$	0.31	0.31	0.21
$JK20_{CBI}$	0.04	0.36	0.17
Dissent shocks			
	PC	(PR+PC)	Daily
All dissents	0.37	0.15	0.09
Dissent | Status quo decision	0.77	0.77	0.32
Dissent | Change decision	0.06	0.01	0.02

Note: This table shows the R^2 of regressions of changes in Eurostoxx50 explained by a standard measure of monetary surprises (changes in 1-year OIS rates during the Press Release window), the pure monetary policy shocks and central bank information shocks of Jarociński and Karadi (2020) (from their median decomposition), and our measure of dissent disappointment shocks. Regressions for dissent are performed over different subsamples (status quo or change decisions). Eurostoxx50 price variations are measured over four different windows: the Press release window (PR), the Press conference window (PC), the Monetary Event window (ME, that encompasses both PR and PC windows), and a daily window. The sample of dissent shocks is limited to the 104 ECB meetings with narrow window measures.

We quantify the share of stock price changes on ECB meeting days that is explained by dissent. Table 3 shows the R^2, the share of the variance explained, of regressions of Eurostoxx50 price changes on dissent shocks, over several windows. For comparison, we report the contribution of monetary surprises – and their decomposition between pure monetary policy and central bank information shocks – to stock prices. The contribution of monetary surprises and information effects to stock price changes during the PC window is around 35% (and around 20% for daily changes). Over the PC window, dissent explains 37% of Eurostoxx changes. However, dissent that happened with a status quo decision explains 77% of stock price variations over the PC window and 32% of daily Eurostoxx changes. Dissent on status quo meetings is one of the main drivers of stock price changes on these days. This information appears crucial for investors' decisions.

5 Does dissent alter the transmission of monetary policy?

An important corollary of the negative effect of dissent is that it could affect the transmission of monetary policy. We explore this issue using the monetary policy shocks of Jarociński and Karadi (2020) purged of information effects. We estimate the effect of monetary shocks on changes in Eurostoxx50 prices in the press conference window in the most standard way in Column (1) of Table 4 as a benchmark. The effect of monetary policy on stock prices is negative, as expected. A tightening monetary shock of 10 bp reduces stock prices by 1%.

We estimate the effect of tightening (Column 2) and easing monetary shocks (Column 3) when there is dissent or unanimity. We repeat these estimations on the subsample of status quo decisions (Columns 4 to 8). The effect of tightening monetary shocks on stock prices is stronger (i.e., more negative) with dissent than unanimity. In contrast, the effect of easing monetary shocks is

Table 4: Monetary policy transmission with dissent

	All decisions			Status quo decisions				
	(1) Linear	(2) Tight.	(3) Easing	(4) Linear	(5) Tight.	(6) Easing	(7) Tight.	(8) Easing
	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{ME}$	$STOXX_{ME}$
MPS_t	-0.097**			-0.132**				
	[0.01]			[0.01]				
$Pos.\ MPS_t$ | Dissent		-0.089**			-0.119**		-0.157**	
		[0.02]			[0.02]		[0.02]	
$Pos.\ MPS_t$ | Unanim		-0.036			-0.019		-0.050	
		[0.02]			[0.04]		[0.04]	
$Neg.\ MPS_t$ | Dissent			0.072			-0.004		-0.034
			[0.04]			[0.06]		[0.06]
$Neg.\ MPS_t$ | Unanim			0.076**			0.136**		0.121**
			[0.02]			[0.04]		[0.04]
R^2	0.30	0.15	0.26	0.36	0.21	0.36	0.35	0.37
Obs	242	129	113	182	96	86	96	86
Diff *p-val*	.	0.04	0.93	.	0.02	0.03	0.01	0.02

Note: Standard errors in brackets. * p<0.05, ** p<0.01. Parameters are estimated with OLS over the full sample (Columns 1 to 3) and the subsample of status quo decisions (Columns 4 to 8) based on the following equation: $\Delta Y_t = \alpha + \beta MPS_t + \epsilon_t$ for Column 1. The dependent variable is the intraday change in Eurostoxx50 prices during the Press Conference (PC) window in Columns 1 to 6 and in the monetary event (ME) window (Press release + Press conference) in Columns 7 and 8. The MPS_t variable is the pure monetary policy shock series of Jarociński and Karadi (2020) from their median decomposition. We decompose MPS_t between positive (tightening shocks) and negative (easing shocks) values, and when there is Dissent or Unanimity. We also include in the specification monetary shocks when the question is not asked. The Dissent, Unanimity, and Not Asked variables are identified through the ECB President answers in the press conference.

smaller (i.e., less positive) and even not significant with dissent than unanimity.[24] ECB dissent magnifies the effect of tightening monetary policy and weakens the effect of easing decisions. We document that dissent alters the monetary policy transmission, suggesting an asymmetric role for the effectiveness of monetary policy.

6 Not all dissents are alike

We explore the potential heterogeneous effects of dissent on stock prices, OIS rates, and the VSTOXX, according to status quo or change decisions, supply or demand shocks, whether dissent is new or repeated, restrictive or expansionary, and related to the policy rate or unconventional policies. Appendix Table A12 reports estimates for stock prices. As previously highlighted, dissent has no effect during change decisions – a key result for understanding the information content of dissent. We find that the effect of dissent does not depend on the nature of macroeconomic shocks or whether it is repeated. Although always negative, the effect of dissent in status quo meetings seems primarily driven by restrictive dissent and dissent on unconventional policies.

Appendix Tables A13 and A14 report estimates for OIS rates and the VSTOXX respectively. OIS rates increase significantly when dissent is associated with supply shocks. This effect seems driven by restrictive dissent and dissent about interest rates. This result is consistent with the *stance* hypothesis, as restrictive dissent signals future policy tightening. This evidence is, however, weak – possibly due to the role of forward guidance announcements in signaling future policy after 2013 (Hubert and Labondance 2018). Finally, VSTOXX responses are never significant, definitively rejecting the *uncertainty* hypothesis.

[24] This result is robust to controlling for PC information flows and the economic environment (Appendix Table A11).

These results suggest that not all dissents are alike. The negative effect of dissent on stock prices, during status quo decisions, appears to stem from restrictive dissent. This suggests that investors are mainly disappointed by restrictive dissenting voices that oppose and block support for the economy. In this case, the dissent news – i.e., the lack of monetary support – could act as a negative demand shock reducing future cash-flows and thus stock prices.

7 Conclusion

We construct a granular index of dissent based on ECB President's responses to journalists during press conferences. Using intraday data around the press conference or the exact time of the dissent revelation, we identify the causal effect of dissent on asset prices and find that stock prices respond negatively to dissent.

Dissent around change decisions is neutral and the negative effect is entirely driven by dissent during status quo decisions, likely through a disappointment channel. On these days, dissent explains one-third of stock price variations. We also provide evidence of an asymmetric role of dissent for monetary policy transmission.

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APPENDIX
For online publication

A Some descriptive statistics

Preamble: We prefer using the term "restrictive" than "hawkish" to name the direction of dissent. "Hawkish-dissent" characterizes the preferences of an individual. "Restrictive-dissent" refers to a vote (from a hawk or dove) in a restrictive direction. We do not seek to qualify individuals but votes. See Eijffinger, Mahieu, and Raes (2018) for an analysis of policymakers' preferences based on their votes.

Table A1: ECB dissent breakdown

ECB policy meetings with a press conference	
Total	**258**
Dissent	**60**
Restrictive	33
Expansionary	22
Unknown	5
Interest rate only	33
Unconventional only	23
Both	4
No Dissent	**198**
Unanimity	108
Not Asked	90

Note: The Dissent, No Dissent, Unanimity, and Not Asked variables, as well as the decomposition relating to the policy instrument, are identified through the ECB President answers in the press conference. The direction of dissent is identified through a narrative analysis of press articles from the Financial Times and Reuters following the press conference. The 5 meetings for which the direction of dissent is unknown are 6 May 1999, 10 October 2002, 3 August 2006, 8 December 2011 and 9 February 2012. The 4 meetings during which dissent was about both interest rate and unconventional decisions are 6 October 2011, 4 September 2014, 3 December 2015, and 10 March 2016.

Table A2: Descriptive statistics

Characteristics of policy decisions							
	Total	Status quo	Change	Expan.	Res.	$\Delta Rate$	$\Delta Unconv.$
All meetings	258	186	72	40	32	48	32
Dissent	60	31	29	15	14	21	14
%	23.3	16.7	40.3	37.5	43.8	43.8	43.8

Breakdown of dissent by months													
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All meetings	258	22	17	26	24	17	26	25	11	23	26	16	25
Dissent	60	2	5	7	4	3	8	2	3	5	4	2	15
Unanimity	108	11	7	10	8	9	11	11	6	11	12	9	3
Not Asked	90	9	5	9	12	5	7	12	2	7	10	5	7

Note: This table shows, in the upper panel, the occurrences of Dissent according to the characteristics of the policy decision. Because there can be interest rate and unconventional decisions in the same meeting, the sum of last two columns (Δ Rate and Δ Unconv.) is higher than the number of change decisions. In the bottom panel, we decompose the dissent, unanimity and not asked events by months.

B Examples of ECB President's answers

Dissent is identified from the ECB President answers during the Q&A. When the decision is *"not unanimous"*, *"at the majority"* or *"by consensus"*, it indicates dissent. The following excerpts illustrate how the index is constructed. These indices will be made available on the authors' webpages and updated regularly.

5 November 2009

Question: *"My first question is: was the decision today to keep interest rates on hold unanimous?"*

Jean-Claude Trichet: *"On the first question, in the decision we took today we were unanimous"*.

$Dissent_t = 0$ and $Unanim_t = 1$.

6 June 2012

Question: *"You said that the decision today was not unanimous. Were there some members on the Council asking to lower the main interest rate?"*

Mario Draghi: *"A few members would have preferred to have a rate cut today"*.

$Dissent_t = 1$ and $Unanim_t = 0$.

4 December 2014

Question: *"My second question is, you mentioned in the introductory statement an intended increase in the size of the balance sheet. That is stronger than you had last month when you said, an expectation, and I am just wondering if this new language is a unanimous decision by the Governing Council"*.

Mario Draghi: *"The second question is, yes indeed, intended is different from expected. It's not simply an expectation; it's an intention, but it's not yet a target. So it's something in between. It's something in between. There was a vast majority of the members of the Governing Council, but the decision was not unanimous"*.

$Dissent_t = 1$ and $Unanim_t = 0$.

19 January 2017

Mario Draghi: [...] *"The discussion was unanimous"*.

$Dissent_t = 0$ and $Unanim_t = 1$.

13 December 2018

Mario Draghi: *"Yes, the decision was unanimous, which is quite important, and it was unanimous"*.

$Dissent_t = 0$ and $Unanim_t = 1$.

6 June 2019

Mario Draghi: *"The decision today was unanimous"*.

$Dissent_t = 0$ and $Unanim_t = 1$.

12 September 2019

Question: *"My first question would be about the dynamic in the room because going into the meeting we've seen quite a vocal opposition, especially to the restarting of the QE, so probably me and the others here would like to know how much support each of the instruments that were eventually adopted got and whether, how much support was there for it?"*.

Mario Draghi: *"there was more diversity of views on APP, but then in the end the consensus was so broad, there was no need to take a vote"*.

$Dissent_t = 1$ and $Unanim_t = 0$.

14 December 2023

Christine Lagarde: *"Let me just tell you how I regard the decision that we made on PEPP and that was shared by a very, very large majority of the governors. Everybody was fine with stopping the reinvestments at the end of 2024. Some would have liked a slightly different tapering, starting a little earlier, starting later"*.

$Dissent_t = 1$ and $Unanim_t = 0$.

4 November 1999 - Wim Duisenberg's fluctuating language

Question: *"Whether the Council was entirely in agreement (...) or there was some disagreement?"*

Duisenberg: *"The decision was a decision taken by consensus."*

Question: The journalist then asked whether it meant *"that no one objected?"*

Duisenberg: Wim Duisenberg answered *"It does"* suggesting the decision was unanimous.

$Dissent_t = 0$ and $Unanim_t = 1$.

C Meetings when the dissent question is not asked

One potential limit of the classification procedure is that it relies on the fact that a journalist asked whether there was dissent or not during the Q&A session. Some dissent might have happened during meetings when the question was not prompted. Among the 258 policy meetings studied, the question was not asked in 90 press conferences, so around one third of them. For those meetings when the question was not asked, we assume that journalists thought that the decision was taken unanimously, the news being when there is dissent. Our assumption is that journalists do not ask the question if it is obvious to them that no dissent has occurred. However, one could argue the exact opposite and that journalists do not ask the question because it was obvious to them that there was dissent. In order to shed light on this assumption, we provide in Table A3 some descriptive statistics associated with the different types of meetings.

We document that the way financial markets react during the press conference when the question is not asked is very similar to when the question is asked and the ECB President reveals that the decision was unanimous. In other words, while there is a clear difference between meetings with dissent and meetings with no dissent, there is no difference between meetings when the decision is unanimous and meetings when the question is not asked. This goes against the idea that journalists do not ask the question when they think there is dissent and supports our assumption that the decision was unanimous when the question was not asked. In our empirical analysis, we further control that our results are not driven by these Not Asked events.

Table A3: Decomposing events

ECB policy meetings with a press conference		$STOXX_{PC}$ Mean	$STOXX_{PC}$ SD
Dissent	60	-0.23	0.75
No Dissent	198	-0.03	0.52
Unanimity	108	-0.04	0.58
Not Asked	90	-0.01	0.45
Testing differences across cases			
		Diff	*pval Diff=0*
Dissent vs. No Dissent		-0.20	0.02
Dissent vs. Unanimity		-0.19	0.07
Dissent vs. NotAsked		-0.22	0.03
Unanimity vs. NotAsked		-0.03	0.66

Note: This table shows descriptive statistics for changes in Eurostoxx50 prices during the press conference window for Dissent and No Dissent meetings, and the decomposition of the latter between Unanimity and when the question is Not Asked by journalists. The bottom panel shows the difference in the sample mean of STOXX50 changes across these events and the p-values of the test that this difference is null.

Table A4: The financial market effects of revealing dissent

	Baseline - Eurostoxx50 responses							
	Abs. val. $STOXX_{PC}$	PC $STOXX_{PC}$	PC + Cont. $STOXX_{PC}$	Narrow $STOXX_{NW}$	Turning $STOXX_{PC}$	$HICP_{IQR}$ $STOXX_{PC}$	Supply $STOXX_{PC}$	Placebo $STOXX_{PR}$
Dissent	0.191**	-0.230**	-0.204**	-0.175*	-0.209**	-0.208**	-0.248**	0.039
	[0.05]	[0.08]	[0.08]	[0.07]	[0.08]	[0.08]	[0.08]	[0.05]
Unanim	0.054	-0.042	-0.014	-0.096	-0.029	-0.007	-0.036	-0.033
	[0.04]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.04]
NotAsked	-0.064	-0.010	-0.034	0.026	-0.037	-0.038	-0.054	-0.041
	[0.04]	[0.06]	[0.07]	[0.08]	[0.07]	[0.07]	[0.07]	[0.04]
R^2	0.06	0.04	0.15	0.08	0.15	0.15	0.16	0.11
Obs	258	258	235	104	235	235	235	235
	Hypothesis testing							
	PC window + Controls				Narrow window			
	All $OIS1Y_{PC}$	All VSX_{PC}	Stquo $STOXX_{PC}$	Chg $STOXX_{PC}$	All $OIS1Y_{NW}$	All VSX_{NW}	Stquo $STOXX_{NW}$	Chg $STOXX_{NW}$
$Dissent_{Res}$	0.498				-0.161			
	[0.25]				[0.13]			
$Dissent_{Exp}$	0.311				0.176			
	[0.32]				[0.15]			
Dissent		-0.140	-0.338**	-0.059		-0.042	-0.370**	-0.027
		[0.09]	[0.10]	[0.14]		[0.09]	[0.12]	[0.11]
Unanim	0.011	-0.098	0.007	-0.016	0.025	0.009	-0.081	-0.182
	[0.14]	[0.06]	[0.06]	[0.13]	[0.09]	[0.08]	[0.09]	[0.12]
NotAsked	-0.018	-0.060	-0.049	-0.068	-0.163	-0.058	-0.062	0.014
	[0.17]	[0.10]	[0.07]	[0.22]	[0.11]	[0.10]	[0.11]	[0.16]
R^2	0.16	0.17	0.13	0.32	0.18	0.08	0.25	0.23
Obs	234	187	168	67	104	104	62	42

Note: Standard errors in brackets. * p<0.05, ** p<0.01. Parameters are estimated with OLS based on Equation (1). The dependent variables are the intraday change in Eurostoxx50 prices, 1-year OIS rates and the VSTOXX during the Press Conference (PC) window and during a narrow window around the dissent or the unanimity revelation by the ECB President. The Refinitiv tick data for VSTOXX is only available from May 2005, so the sample is shorter (187 observations). The Dissent, Unanimity, and NotAsked variables, are computed based on ECB President's answers. The vector of control variables $\mathbb{X}_t$ includes changes in ECB macroeconomic projections, changes in 1-year OIS rates during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the lagged value of the 3-month component of CISS. In Columns 5 to 7 of the top panel, we consider additional controls: turning points in ECB monetary cycles (defined as the period of 2 months before and after the first or last change in the policy rate for each cycle), the dispersion (IQR) of inflation rates in euro area countries, and whether the ECB expects supply shocks (based on the comovement of its inflation and output projections). In column 8, stock price changes are measured around the press release (PR) window. In the bottom panel, we differentiate restrictive and expansionary dissent and two subsamples for status quo and change decisions. The sample for narrow window changes starts in May 2012 (104 observations).

D Sensitivity analysis

Table A5: The effect of dissent on various dependent variables

	$OIS3M_{PC}$	$OIS1Y_{PC}$	$OIS10Y_{PC}$	$SX7E_{PC}$	$DE2Y_{PC}$	$DE10Y_{PC}$	$IT2Y_{PC}$	$IT10Y_{PC}$	$IT\text{-}DE_{PC}$	$EURUSD_{PC}$
Dissent	-0.271	0.379	-0.339	-0.329*	0.906	0.475	0.852	1.084	0.090	0.027
	[0.24]	[0.41]	[0.44]	[0.14]	[0.52]	[0.39]	[0.71]	[0.72]	[0.37]	[0.05]
Unanim	-0.026	-0.324	-0.545	-0.129	-0.556	-0.237	-0.038	0.009	0.280	-0.077
	[0.17]	[0.30]	[0.36]	[0.10]	[0.37]	[0.28]	[0.51]	[0.52]	[0.27]	[0.04]
NotAsked	0.139	-0.054	-0.544	-0.069	-0.287	-0.223	-0.495	-0.292	0.020	0.011
	[0.21]	[0.35]	[0.50]	[0.12]	[0.45]	[0.33]	[0.61]	[0.62]	[0.32]	[0.05]
R^2	0.26	0.39	0.42	0.10	0.37	0.23	0.18	0.08	0.03	0.18
Obs	233	233	113	233	233	233	231	231	230	233

Note: Standard errors in brackets. * $p < 0.05$, ** $p < 0.01$. Parameters are estimated with OLS based on Equation (1). The dependent variables are the intraday change in OIS rates at 3-month, 1- and 10-year horizons, the Eurostoxx index for the banking sector (SX7E), 2- and 10-year German and Italian sovereign rates, the spread between 10-year Italian and German sovereign rates and the EUR/USD exchange rate during the Press Conference (PC) window. The vector of control variables $\mathbb{X}_t$ includes variations in ECB macroeconomic projections, changes in the 1-year OIS rate during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the CISS.

Table A6: The financial market effects of revealing dissent using EAMPD data

	Abs. val. $STOXX_{PC}$	PC $STOXX_{PC}$	PC + Cont. $STOXX_{PC}$	Narrow $STOXX_{NW}$	Turning $STOXX_{PC}$	$HICP_{IQR}$ $STOXX_{PC}$	Supply $STOXX_{PC}$	Placebo $STOXX_{PR}$
Dissent	0.186**	-0.223**	-0.201*	-0.175*	-0.206**	-0.205*	-0.246**	0.039
	[0.06]	[0.08]	[0.08]	[0.07]	[0.08]	[0.08]	[0.08]	[0.05]
Unanim	0.049	-0.047	-0.018	-0.096	-0.034	-0.010	-0.040	-0.034
	[0.04]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.04]
NotAsked	-0.059	-0.009	-0.035	0.026	-0.039	-0.040	-0.055	-0.041
	[0.04]	[0.06]	[0.07]	[0.08]	[0.07]	[0.07]	[0.07]	[0.04]
R^2	0.05	0.04	0.14	0.08	0.15	0.15	0.16	0.11
Obs	257	257	234	104	234	234	234	234

Note: Standard errors in brackets. * $p<0.05$, ** $p<0.01$. Parameters are estimated with OLS based on Equation (1). The dependent variables are the intraday change in Eurostoxx50 prices index during the Press Conference (PC) window using the EAMPD database from Altavilla et al. (2019). The Dissent, Unanimity, and NotAsked variables, are computed based on ECB President's answers. The vector of control variables $\mathbb{X}_t$ includes changes in ECB macroeconomic projections, changes in 1-year OIS rates during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the lagged value of the 3-month component of CISS. The sample for narrow window changes starts in May 2012 (104 observations).

Table A7: Evidence based on national stock price indices

	PC DAX_{PC}	PC + Cont. DAX_{PC}	Narrow DAX_{NW}	PC CAC_{PC}	PC + Cont. CAC_{PC}	Narrow CAC_{NW}
Dissent	-0.218**	-0.187**	-0.168*	-0.235**	-0.197*	-0.167*
	[0.07]	[0.07]	[0.07]	[0.07]	[0.08]	[0.07]
Unanim	-0.040	-0.006	-0.053	-0.041	-0.019	-0.100
	[0.05]	[0.05]	[0.06]	[0.06]	[0.06]	[0.06]
NotAsked	-0.038	-0.043	0.010	-0.025	-0.042	0.032
	[0.06]	[0.06]	[0.07]	[0.06]	[0.07]	[0.07]
R^2	0.04	0.17	0.07	0.04	0.14	0.09
Obs	258	235	104	255	233	104

Note: Standard errors in brackets. * $p<0.05$, ** $p<0.01$. Parameters are estimated with OLS based on Equation (1). The dependent variables are the intraday change in German (DAX30) and French (CAC40) stock price indices during the Press Conference (PC) window and during a narrow window around the dissent or the unanimity revelation by the ECB President. The Dissent, Unanimity, and NotAsked variables, are computed based on ECB President's answers. The vector of control variables $\mathbb{X}_t$ includes changes in ECB macroeconomic projections, changes in 1-year OIS rates during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the lagged value of the 3-month component of CISS. The sample for narrow window changes starts in May 2012 (104 observations).

Table A8: Subsample analysis of the effect of dissent on stock prices

	Duisenberg $STOXX_{PC}$	Post Duisenberg $STOXX_{PC}$	Post GFC $STOXX_{PC}$	Excl. COVID $STOXX_{PC}$
Dissent	-0.401	-0.199*	-0.204*	-0.252**
	[0.19]	[0.09]	[0.10]	[0.11]
Unanim	-0.200	-0.001	0.026	-0.024
	[0.22]	[0.06]	[0.06]	[0.05]
NotAsked	-0.241**	-0.030	0.000	-0.038
	[0.09]	[0.07]	[0.10]	[0.06]
R^2	0.38	0.15	0.16	0.11
Obs	31	204	162	204

Note: Standard errors in brackets. * $p < 0.05$, ** $p < 0.01$. Parameters are estimated with OLS based on Equation (1) on subsamples during and after President Duisenberg Presidency (ending in November 2003), after the outburst of the subprime crisis (after July 2007) and excluding the COVID period (before February 2020). The dependent variable is the intraday change in Eurostoxx50 prices during the Press Conference (PC) window. The vector of control variables $\mathbb{X}_t$ includes variations in ECB macroeconomic projections, changes in the 1-year OIS rate during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the CISS.

We control that these results are robust to different subsamples and the evolution of the ECB communication strategy (Table A8). First, President Duisenberg did not communicate as consistently as his successors. We estimate Equation (1) for the 31 press conferences of his presidency. The coefficient associated with dissent remains negative but is not significant. We also show that the main result holds when focusing on the period after the GFC or that excludes the COVID years.

Table A9: Robustness analysis of the effect of dissent on stock prices

	(1) Norm 1SD	(2) Change	(3) Turning Points	(4) IntermOIS1Y	(5) $\Delta VSTOXX$	(6) Premia Shock	(7) Tight/Ease$_{MP}$
	STOXX$_{PC,SD}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$
Dissent	-0.348**	-0.231**	-0.209**	-0.204**	-0.264**	-0.193*	-0.250**
	[0.15]	[0.10]	[0.09]	[0.09]	[0.09]	[0.09]	[0.11]
Unanim	-0.024	-0.031	-0.029	-0.014	-0.025	-0.014	-0.038
	[0.09]	[0.06]	[0.06]	[0.05]	[0.05]	[0.05]	[0.07]
NotAsked	-0.057	-0.041	-0.037	-0.034	-0.045	-0.034	-0.057
	[0.09]	[0.06]	[0.05]	[0.05]	[0.05]	[0.05]	[0.07]
R^2	0.15	0.15	0.15	0.15	0.23	0.15	0.15
Obs	235	235	235	235	235	234	234
	(8) VSTOXX	(9) CISS	(10) IM18_IT	(11) EPU_Euro	(12) IT-DE	(13) HICP$_{IQR}$	(14) Placebo
	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PC}$	STOXX$_{PR}$
Dissent	-0.204**	-0.206**	-0.249**	-0.239**	-0.197*	-0.208**	0.039
	[0.08]	[0.08]	[0.09]	[0.08]	[0.08]	[0.08]	[0.05]
Unanim	-0.011	-0.015	-0.015	-0.021	-0.011	-0.007	-0.033
	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.04]
NotAsked	-0.033	-0.029	-0.046	-0.033	-0.041	-0.038	-0.041
	[0.07]	[0.07]	[0.07]	[0.07]	[0.07]	[0.07]	[0.04]
R^2	0.15	0.15	0.11	0.14	0.15	0.15	0.11
Obs	235	235	201	228	235	235	235

Note: Standard errors in brackets. * p < 0.05, ** p < 0.01. Parameters are estimated with OLS based on Equation (1). The dependent variable is the intraday change in Eurostoxx50 prices during the Press Conference (PC) window. The vector of control variables $\mathbb{X}_t$ includes variations in ECB macroeconomic projections, changes in the 1-year OIS rate during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the CISS. The robustness of the baseline result is tested to: normalized Eurostoxx50 variations (1), a discrete variable quantifying whether there was a change decision (2), turning points (3), change in market expectations using 1-year OIS rates between 2 meetings (4), VSTOXX daily variation (5), risk premia shock à la Kearns, Schrimpf, and Xia (2023) (6), splitting positive (tight) and negative (ease) variations in 1-year OIS rates in the PC window (7). In the bottom panel, the following controls are successively tested: VSTOXX (8), the overall CISS (9), short-term interest rate uncertainty in periphery countries (as measured by Istrefi and Mouabbi (2018), and taking Italy as a proxy, IM18-IT) (10), economic policy uncertainty (EPU) measured with the European index proposed by Baker et al. (2016) (11), sovereign spreads between Italy and Germany using 10-year nominal interest rates (12), inflation dispersion as measured using the interquartile range (IQR) of inflation in euro area countries (13). Column (14) is a placebo test on stock price changes in the press release (PR) window when dissent has not yet been revealed.

Additional robustness tests are presented in Table A9. We normalize the variations in Eurostoxx50 prices during the PC window to estimate whether dissent triggers abnormal changes in the variables. The negative effect for stock prices remains significant. Dissent might be more likely when there is a policy change decision. We therefore control for policy change decisions. Although dissent happens all along our sample (see Figure 1), it could also be that the effects of dissent are related to turning points in ECB monetary cycles (when the policy stance switches from a tightening cycles to an easing one, or vice versa). We also control for changes in policy expectations during the intermeeting period, measured by change in 1-year OIS rates. In addition, we explore the role of uncertainty or risk premia shocks that may affect stock prices. We use the daily change in VSTOXX to isolate contemporaneous change in financial stress and follow Kearns et al. (2023) to estimate risk premium shocks. Although we control for 1-year OIS rate changes in the PR window in Equation (1), it could be that the influence of this factor is asymmetric and only positive surprises are significant. We estimate specifications in which we include separately two variables capturing these positive and negative values for both monetary surprises and news flows. The main result holds in all these specifications.

We further control for different factors for reasons that are not explicitly revealed to the public. The literature has investigated the determinants of central bankers' dissent. Dissenting votes may indicate disagreement about the current (Belden (1989); Harris et al. (2011); Thornton and Wheelock (2014)) and/or future policy stance (Gerlach-Kristen (2004); Horvath et al. (2012); Neuenkirch 2013; Riboni and Ruge-Murcia (2014)). Dissent about the policy stance might reflect policymak-

ers' diverging views about the central bank reaction function, but also diverging views about the future state of the economy. In the ECB case, individual forecasts are not observed, so we cannot test this link explicitly. However, economic and financial uncertainty could explain disagreement about the state of the economy (see Firrell and Reinold (2020)) and policymakers could also be influenced by the region they represent (Chappell Jr et al. (2008)). We therefore run different specifications that include *ex ante* (the day before the policy meeting) measures of the economic and financial uncertainty, sovereign spreads, and inflation dispersion among euro area countries. The different measures of uncertainty considered are the VSTOXX, the overall CISS, short-term interest rate uncertainty in periphery countries, as measured by Istrefi and Mouabbi (2018) (taking Italy as a proxy, IM18-IT), economic policy uncertainty (EPU) measured with the European index proposed by Baker et al. (2016), and macroeconomic uncertainty measured by the Scotti (2016) index. We also explore whether dissent is related to sovereign spreads since the euro area sovereign debt crisis coincides with several episodes of dissent among ECB Governing Council members (see Figure 1) and higher sovereign risk is shown to have a negative impact on stock markets and to increase their volatility – see Jeanneret (2017). We consider the spread between Italian and German 10-year nominal interest rates. Sovereign spreads are not only an indicator of financial stress, but also of heterogeneous financial conditions among euro area countries – see Bobrov et al. (2025) on the impact of local conditions on FOMC votes. A way to control for the heterogeneity among euro area members is to include measures of inflation dispersion across euro area countries (the interquartile range). Finally, we perform a placebo test and we find no effect of dissent on stock prices in the press release (PR) window when dissent has not yet been revealed.

Table A10: Robustness tests for hypothesis testing

	EAMPD							
	All $OIS1Y_{PC}$	All $OIS3M_{PC}$	All $OIS2Y_{PC}$	All $OIS5Y_{PC}$	All $ITDE_{PC}$	All $TERM_{PC}$	Stquo $STOX_{PC}$	Chg $STOX_{PC}$
$Dissent_{Res}$	0.461	-0.463	0.663	-0.535				
	[0.55]	[0.32]	[0.64]	[0.61]				
$Dissent_{Exp}$	0.219	0.060	0.659	-0.195				
	[0.70]	[0.41]	[0.82]	[0.77]				
Dissent					0.090	-0.431	-0.348**	-0.060
					[0.37]	[0.38]	[0.10]	[0.14]
Unanim	-0.322	-0.028	-0.510	-0.800*	0.280	0.319	0.002	-0.018
	[0.30]	[0.18]	[0.35]	[0.39]	[0.27]	[0.27]	[0.06]	[0.13]
NotAsked	-0.051	0.131	-0.255	-0.330	0.020	0.064	-0.049	-0.077
	[0.35]	[0.21]	[0.41]	[0.53]	[0.32]	[0.32]	[0.07]	[0.22]
R^2	0.39	0.26	0.36	0.50	0.03	0.22	0.12	0.32
Obs	233	233	233	112	230	233	167	67
	Own HF data							
	Stquo DAX_{PC}	Chg DAX_{PC}	Stquo CAC_{PC}	Chg CAC_{PC}	Stquo DAX_{NW}	Chg DAX_{NW}	Stquo CAC_{NW}	Chg CAC_{NW}
Dissent	-0.283**	-0.076	-0.336**	-0.035	-0.341**	-0.022	-0.352**	-0.032
	[0.09]	[0.13]	[0.09]	[0.14]	[0.11]	[0.10]	[0.12]	[0.10]
Unanim	0.008	0.007	-0.002	-0.012	-0.029	-0.124	-0.089	-0.185
	[0.06]	[0.12]	[0.06]	[0.12]	[0.08]	[0.11]	[0.08]	[0.11]
NotAsked	-0.066	0.016	-0.058	-0.060	-0.049	0.038	-0.031	-0.017
	[0.06]	[0.21]	[0.07]	[0.22]	[0.10]	[0.15]	[0.10]	[0.15]
R^2	0.12	0.35	0.12	0.33	0.24	0.27	0.24	0.24
Obs	168	67	166	67	62	42	62	42

Note: Standard errors in brackets. * $p<0.05$, ** $p<0.01$. Parameters are estimated with OLS based on Equation (1). The dependent variables are the intraday change in 1-year OIS rates, the VSTOXX, and the Eurostoxx50 index during the Press Conference (PC) window using the EAMPD database from Altavilla et al. (2019) and German (DAX30) and French (CAC40) stock price indices during the Press Conference (PC) window and during a narrow window around the dissent or the unanimity revelation by the ECB President. The Dissent, Unanimity, and NotAsked variables, are computed based on ECB President's answers. The vector of control variables $\mathbb{X}_t$ includes changes in ECB macroeconomic projections, changes in 1-year OIS rates during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the lagged value of the 3-month component of CISS. The sample for narrow window changes starts in May 2012 (104 observations). Equation (1) is estimated on all observations in Columns 1 to 4, and on subsamples for status quo or change decisions in Columns 5 to 12. The effect of dissent on DAX30 and CAC40 stock prices over the narrow window during change decisions is not reported as it is not significant, as in Columns 6, 8 and 10 over the press conference window.

Table A11: Monetary policy transmission with dissent - Adding controls

	All decisions			Status quo decisions				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Linear	Tight.	Easing	Linear	Tight.	Easing	Tight.	Easing
	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	$STOXX_{PC}$	STOXX	STOXX
MPS_t	-0.101**			-0.138**				
	[0.01]			[0.01]				
$Pos.\ MPS_t$ | Dissent		-0.097**			-0.140**		-0.155**	
		[0.02]			[0.03]		[0.02]	
$Pos.\ MPS_t$ | Unanim		-0.047*			-0.035		-0.051	
		[0.02]			[0.04]		[0.04]	
$Neg.\ MPS_t$ | Dissent			0.054			-0.003		-0.027
			[0.04]			[0.06]		[0.06]
$Neg.\ MPS_t$ | Unanim			0.081**			0.135**		0.122**
			[0.02]			[0.04]		[0.04]
R^2	0.32	0.26	0.34	0.38	0.30	0.44	0.39	0.45
Obs	241	128	113	181	95	86	95	86

Note: Standard errors in brackets. * p<0.05, ** p<0.01. Parameters are estimated with OLS over the full sample (Columns 1 to 3) and the subsample of status quo decisions (Columns 4 to 8) based on the following equation: $\Delta Y_t = \alpha + \beta MPS_t + \epsilon_t$ for Column 1. The dependent variable is the intraday change in Eurostoxx50 prices during the Press Conference (PC) window in Columns 1 to 6 and in the monetary event (ME) window (Press release + Press conference) in Columns 7 and 8. The MPS_t variable is the pure monetary policy shock series of Jarociński and Karadi (2020) from their median decomposition. We decompose MPS_t between positive (tightening shocks) and negative (easing shocks) values, and when there is Dissent or Unanimity. We also include in the specification monetary shocks when the question is not asked. The Dissent, Unanimity, and Not Asked variables are identified through the ECB President answers in the press conference. We include following controls in the specification tested in this table: a composite measure of euro area 10-year sovereign rates, the level of the VSTOXX prior to the ECB meeting, the tone of the press conference and a dummy for the publication of ECB macroeconomic projections.

Table A12: Not all dissents are alike - Eurostoxx responses

	Stquo $STOX_{PC}$	Chg $STOX_{PC}$	Demand $STOX_{PC}$	Supply $STOX_{PC}$	New $STOX_{PC}$	Repeated $STOX_{PC}$	Stquo $STOX_{PC}$	Stquo $STOX_{PC}$	Stquo $STOX_{NW}$	Stquo $STOX_{NW}$
Dissent	-0.338**	-0.059	0.023	0.025	-0.312**	-0.483**				
	[0.10]	[0.14]	[0.20]	[0.16]	[0.11]	[0.14]				
$Dissent_{Res}$							-0.548**		-0.484**	
							[0.13]		[0.16]	
$Dissent_{Exp}$							-0.167		-0.221	
							[0.15]		[0.18]	
$Dissent_{Rate}$								-0.126		-0.239
								[0.13]		[0.16]
$Dissent_{Unconv}$								-0.521**		-0.505**
								[0.13]		[0.16]
Unanim	0.007	-0.016	-0.347*	0.147	0.028	-0.081	0.011	0.006	-0.085	-0.090
	[0.06]	[0.13]	[0.14]	[0.16]	[0.07]	[0.09]	[0.06]	[0.06]	[0.09]	[0.09]
NotAsked	-0.049	-0.068	-0.120	0.040	-0.085	0.248	-0.056	-0.048	-0.077	-0.079
	[0.07]	[0.22]	[0.23]	[0.20]	[0.07]	[0.13]	[0.07]	[0.07]	[0.11]	[0.11]
R^2	0.13	0.32	0.56	0.45	0.12	0.54	0.17	0.15	0.27	0.27
Obs	168	67	34	33	138	30	168	168	62	62

Note: Standard errors in brackets. * p<0.05, ** p<0.01. Parameters are estimated with OLS based on Equation (1). The dependent variable is the intraday change in Eurostoxx50 prices during the Press Conference (PC) window and a narrow window around the dissent or the unanimity revelation by the ECB President. The Dissent, Unanimity, and Not Asked variables as well as the decomposition relating to the policy instrument, are identified through the ECB President answers in the press conference. The direction of dissent is identified through a narrative analysis of press articles from the Financial Times and Reuters following the press conference. The vector of control variables $\mathbb{X}_t$ includes variations in ECB macroeconomic projections, changes in the 1-year OIS rate during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the CISS. Supply and demand shocks are measured based on the comovement in inflation and output ECB projections. Dissent is considered repeated if there was dissent in the previous meeting.

Table A13: Not all dissents are alike - OIS1Y responses

	Stquo OIS_{PC}	Chg OIS_{PC}	Demand OIS_{PC}	Supply OIS_{PC}	New OIS_{PC}	Repeated OIS_{PC}	Supply OIS_{PC}	Supply OIS_{PC}	Supply OIS_{NW}	Supply OIS_{NW}
Dissent	0.232	0.460	0.675	1.199*	0.369	0.382				
	[0.20]	[0.41]	[0.67]	[0.43]	[0.22]	[0.40]				
$Dissent_{Res}$							1.629*		-0.193	
							[0.58]		[0.19]	
$Dissent_{Exp}$							1.097		0.066	
							[0.74]		[0.20]	
$Dissent_{Rate}$								1.288*		0.038
								[0.54]		[0.22]
$Dissent_{Unconv}$								0.928		-0.182
								[1.03]		[0.23]
Unanim	-0.002	0.122	0.313	0.195	0.116	-0.350	0.271	0.196	0.239	0.257
	[0.13]	[0.37]	[0.48]	[0.44]	[0.15]	[0.29]	[0.41]	[0.44]	[0.20]	[0.21]
NotAsked	-0.057	-0.211	-0.062	-0.023	-0.079	0.274	-0.144	-0.006	0.741*	0.748*
	[0.14]	[0.66]	[0.79]	[0.61]	[0.17]	[0.51]	[0.57]	[0.62]	[0.23]	[0.24]
R^2	0.17	0.23	0.52	0.66	0.14	0.37	0.73	0.66	0.97	0.97
Obs	167	67	34	32	179	55	32	32	16	16

Note: Standard errors in brackets. * $p<0.05$, ** $p<0.01$. Parameters are estimated with OLS based on Equation (1). The dependent variable is the intraday change in 1-year OIS rates during the Press Conference (PC) window and a narrow window around the dissent or the unanimity revelation by the ECB President. The Dissent, Unanimity, and Not Asked variables as well as the decomposition relating to the policy instrument, are identified through the ECB President answers in the press conference. The direction of dissent is identified through a narrative analysis of press articles from the Financial Times and Reuters following the press conference. The vector of control variables $\mathbb{X}_t$ includes variations in ECB macroeconomic projections, changes in the 1-year OIS rate during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the CISS. Supply and demand shocks are measured based on the comovement in inflation and output ECB projections. Dissent is considered repeated if there was dissent in the previous meeting.

Table A14: Not all dissents are alike - VSTOXX responses

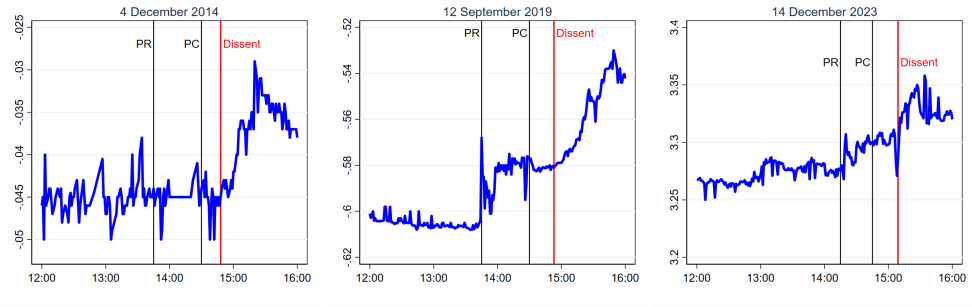
	Stquo VSX_{PC}	Chg VSX_{PC}	Demand VSX_{PC}	Supply VSX_{PC}	New VSX_{PC}	Repeated VSX_{PC}	All VSX_{PC}	All VSX_{PC}	All VSX_{NW}	All VSX_{NW}
Dissent	-0.074	-0.237	-0.279	-0.403	-0.113	-0.051				
	[0.10]	[0.16]	[0.25]	[0.23]	[0.10]	[0.19]				
$Dissent_{Res}$							-0.124		-0.103	
							[0.11]		[0.11]	
$Dissent_{Exp}$							-0.198		0.048	
							[0.15]		[0.14]	
$Dissent_{Rate}$								-0.061		0.122
								[0.12]		[0.12]
$Dissent_{Unconv}$								-0.155		-0.181
								[0.12]		[0.11]
Unanim	-0.088	-0.111	0.283	-0.426	-0.115	0.003	-0.096	-0.098	0.005	0.002
	[0.06]	[0.15]	[0.19]	[0.20]	[0.07]	[0.13]	[0.06]	[0.06]	[0.08]	[0.08]
NotAsked	-0.029	-0.061	-0.712	-0.683	-0.015	-0.419	-0.058	-0.063	-0.067	-0.073
	[0.09]	[0.26]	[0.43]	[0.44]	[0.10]	[0.31]	[0.10]	[0.10]	[0.10]	[0.09]
R^2	0.08	0.34	0.60	0.69	0.12	0.38	0.17	0.16	0.08	0.11
Obs	126	61	27	26	138	49	187	187	104	104

Note: Standard errors in brackets. * p<0.05, ** p<0.01. Parameters are estimated with OLS based on Equation (1). The dependent variable is the intraday change in the VSTOXX during the Press Conference (PC) window and a narrow window around the dissent or the unanimity revelation by the ECB President. The Dissent, Unanimity, and Not Asked variables as well as the decomposition relating to the policy instrument, are identified through the ECB President answers in the press conference. The direction of dissent is identified through a narrative analysis of press articles from the Financial Times and Reuters following the press conference. The vector of control variables $\mathbb{X}_t$ includes variations in ECB macroeconomic projections, changes in the 1-year OIS rate during the PR window, a categorical variable for the direction of the change in unconventional policy measures, tone measures for both the Introductory Statement and the Q&A, and the CISS. Supply and demand shocks are measured based on the comovement in inflation and output ECB projections. Dissent is considered repeated if there was dissent in the previous meeting.

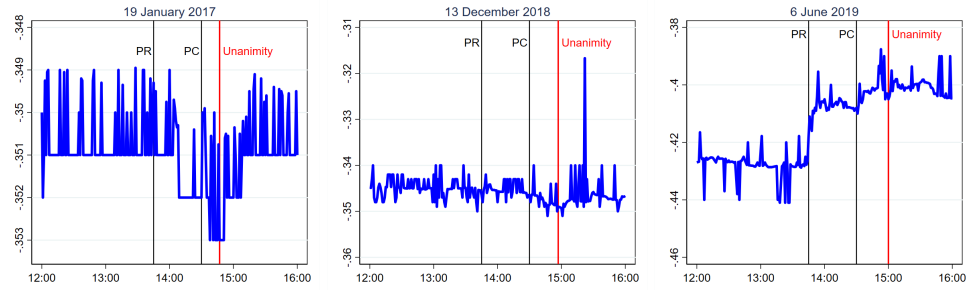
E Additional figures

Figure A1: Dynamics of 1-year OIS rates on ECB meeting days

(a) 1-year OIS rates around dissent



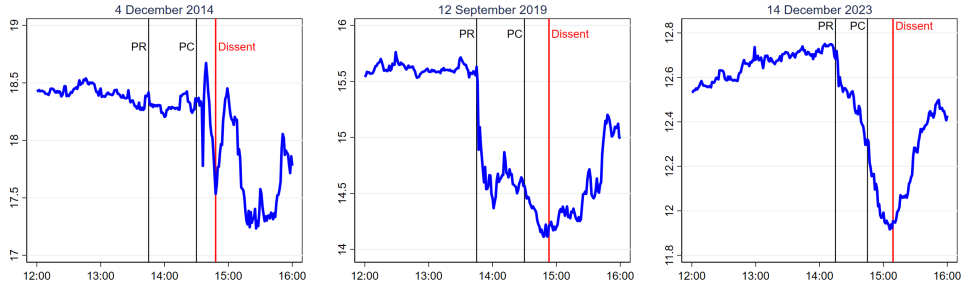
(b) 1-year OIS rates around unanimity



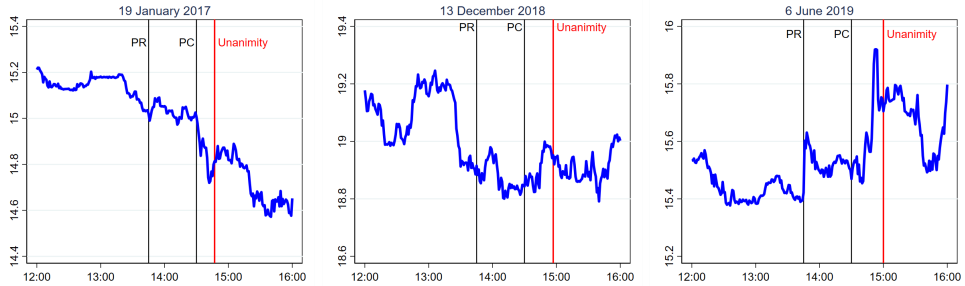
Note: The figure shows 1-Year OIS rates tick data for six ECB policy announcement days together with gray bars indicating the exact moment when the press release is published and when the press conference begins. Red bars show when the ECB president reveals whether there was dissent (panel (a)) or unanimity (panel (b)) among ECB Governing Council members.

Figure A2: Dynamics of VSTOXX index on ECB meeting days

(a) VSTOXX index around dissent

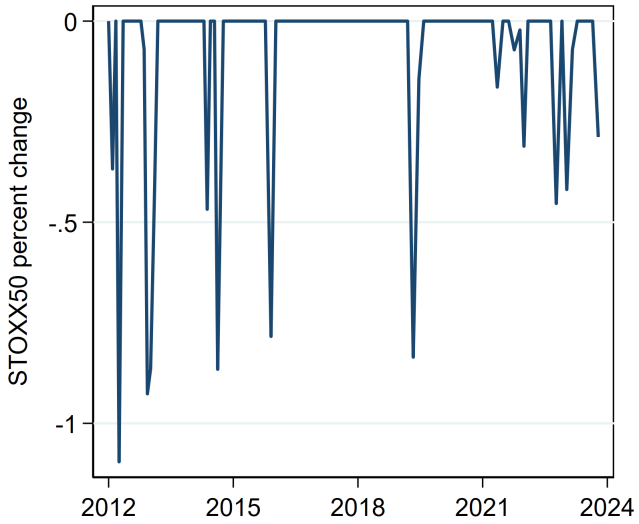


(b) VSTOXX index around unanimity



Note: The figure shows VSTOXX tick data for six ECB policy announcement days together with gray bars indicating the exact moment when the press release is published and when the press conference begins. Red bars show when the ECB president reveals whether there was dissent (panel (a)) or unanimity (panel (b)) among ECB Governing Council members.

Figure A3: Dissent disappointment shock



Note: This figure shows the dissent disappointment shocks series, identified through a high-frequency sign-restriction approach. Dissent disappointment shocks are quantified as the negative reactions of the Eurostoxx50 consecutive to a dissent announcement during a narrow window around the exact moment of the dissent revelation.

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