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Ideology and monetary policy. The role of political parties' stances in the European Central Bank's parliamentary hearings

Nicolò Fraccaroli [a,*,1], Alessandro Giovannini [b], Jean-François Jamet [b], Eric Persson [b]

[a] Brown University, USA
[b] European Central Bank, Germany

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ABSTRACT

We investigate the link between ideology and the sentiments of parliamentarians when they speak to the central bank they hold accountable. To this end, we collect textual data on the quarterly hearings of the ECB President before the European Parliament from 1999 to 2019. We apply sentiment analysis to more than 1900 speeches of individual Members of the European Parliament (MEPs) from 128 parties. We find robust evidence that MEPs' sentiments towards the ECB are correlated with the ideological stance predominantly on a pro-/anti-European dimension rather than on a left–right dimension.

1. Introduction

Is there a relationship between party ideology and politicians' sentiments towards independent central banks when debating monetary policy? According to partisan theory, left-wing governments would pressure for a more expansionary monetary policy aimed to boost employment at the costs of higher inflation, whereas right-wing politicians would favour lower inflation at the cost of higher unemployment (Hibbs, 1992; Goodman, 1992). Yet, one of the main theoretical reasons to grant independence to monetary policy was exactly to isolate it from ideologically-driven preferences (Aklin and Kern, 2020; De Haan and Eijffinger, 2016; 1996). According to this approach, if monetary policy was dependent on the government, the alternation of left-wing and right-wing executives would create a time-inconsistent policy which would generate higher unemployment and inflation in the long-run. If recent empirical findings suggest that monetary policy measures are unaffected by party ideology when the degree of central bank independence is strong enough (Giesenow and De Haan, 2019; Cahan et al., 2019; Belke and Potrafke, 2012), party ideology may still influence the attitudes of politicians towards the central bank.

Answering this question is relevant as party ideology can still matter for the process around the setting of monetary policy, even if the central bank is independent. Politicians may seek to influence the central bank by signalling their preferences over monetary

* Correspondence to: W.R. Rhodes Center for International Economics and Finance, Watson Institute, Brown University, 111 Thayer Street, Box 1970, Providence (RI), USA.

E-mail addresses: Nicolo_Fraccaroli@brown.edu (N. Fraccaroli), Alessandro.Giovannini@ecb.europa.eu (A. Giovannini), Jean-Francois.Jamet@ecb.europa.eu (J.-F. Jamet), Eric.Persson@ecb.europa.eu (E. Persson).

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policy (Havrilesky, 1988) and using the impact they can exert on its reputation, which central banks care about (McPhilemy and Moschella, 2019). In addition, they may use their attitudes towards the central bank as an ideological marker that differentiates them from competing parties and reflect the interest of their constituents (Grier, 1991). Through their ideological stances, parties reflect the cleavages in the constituencies they represent (Lipset and Rokkan, 1967). The lack of this representation in the debate over monetary policy could amplify the perception of democratic deficit and the populist sentiment against central banks (Tucker, 2018). This, in turn, may weaken the support for central bank independence, possibly leading to sub-optimal monetary policy decisions (Goodhart and Lastra, 2017).

The debates between central bankers and elected politicians during parliamentary hearings represent a good test to check for the role of ideologies when discussing central banking issues. These parliamentary hearings are a key accountability practice that is common to the majority of central banks (Bank for International Settlements, 2009). Central bank hearings enable representatives from different parties and ideological stances to interact with the monetary authority on a regular basis. Moreover, they allow to check for the ideology of all political groups, not just for the government's preferences.

In this paper we investigate the role of ideology in the attitude of politicians towards the central bank when holding it accountable. We focus on the quarterly hearings of the European Central Bank (ECB) before Members of the European Parliament (MEPs). To this end, we introduce a novel textual database that collects the universe of the transcripts of the hearings of the ECB before the European Parliament (EP) from January 1999 to January 2019. Using text analysis techniques on this data, we explore the relationship between ideology and parliamentarians' sentiments when discussing monetary policy with the central bank.

Existing research shows that, while ideology matters in the EP, the left–right divide is not the only relevant dimension affecting MEPs' preferences. Using data on voting in the EP from its first term in 1971 up until 2004, Hix et al. (2006, 2007) and Hix et al. (2009) show that MEPs tend to vote along these two ideological axes: left–right and pro-/anti-EU. More recent evidence confirms this result, but shows that since the euro crisis the pro-/anti-EU dimension has become the dominant one (Otjes and van der Veer, 2016; Blumenau and Lauderdale, 2018; Cheysson and Fraccaroli, 2019). This dimensionality is not only reflected in MEPs' voting behaviour: using Twitter data on the MEP candidates in the run-up to the 2014 European elections, Nulty et al. (2016) find that the emotional tone of communications reflects preferences along the EU dimension of political contestation.

The relation of the ECB and the EP is a case in point to study the interactions of politicians with independent central banks for three main reasons. First, the ECB is one of the most independent central banks in the world (De Haan, 1997). It has a measurable and narrow mandate of price stability which allows to control whether politicians' attitudes relate to the ECB's ability to fulfil its mandate or are driven by other ideological factors. Second, the EP is the only directly elected supranational assembly in the world (Hix and Høyland, 2013). For this reason, each MEP is member of a national party, political group and a national delegation, depending on the country where she is elected. This allows us to study ideology while controlling for different drivers of MEPs' sentiments including asymmetric economic shocks. Third, the presence of multiple parties in the EP allows us to assess the role of ideology (and of different ideological dimensions) with more precision than in works that looked at the ideology of the governments.

Using text analysis on more than 1,900 speeches by 210 MEPs from 128 parties in 28 countries, we are able to detect how MEPs' sentiments vary depending on their ideology when they interact with the central bank. We find that party ideology plays a role in discussing central banking issues. The tone of elected representatives when talking to the ECB is predominantly related to their stances on European integration. MEPs that are more supportive of European integration tend to adopt a more positive tone, whereas Eurosceptic MEPs use a more negative one. These results are similar when we measure ideology at party-level based on expert surveys or at MEP-level based on their voting behaviour. Moreover, in both cases the estimates are robust after controlling for a number of factors, including the occurrence of elections, changes in EU citizens' trust towards the ECB and support for the euro, and macroeconomic factors.

First and foremost, our evidence adds to the empirical literature on partisan behaviour over monetary policy. Recent evidence in this literature shows that, when central banks are highly independent, their policies are unaffected by the partisan preferences of incumbent governments (Giesenow and De Haan, 2019; Cahan et al., 2019; Belke and Potrafke, 2012). On the other hand, evidence is mixed when the focus shifts from government actual influence to government communication. Using data on newspaper articles and newswire reports, Ehrmann and Fratzscher (2011) find that, while on average euro area governments favour lower interest rates than the ECB, this relationship is stronger when left-wing politicians are in government. More recent evidence in Binder (2021) shows that government ideology plays a role in determining political pressures on central banks reported by the media. In particular, she finds that pressures are more likely to come from left-wing and nationalist governments. By looking at the position expressed by politicians from different parties, we show that party ideologies still matter when debating monetary policy. The advantage of our approach is to examine ideology in a setting, the hearing, that was exactly conceived to balance the independence of central banks. In this way, we are able to investigate the relationship between ideology and political sentiments for a number of politicians from different parties and countries that simultaneously interact with the central bank.

Our findings enrich the literature on the parliamentary hearings of central banks, which is relatively scant. Based on a survey conducted on MEPs, Collignon and Diessner (2016) show that the parliamentary hearings of the ECB were key in informing legislators on the policies of the central bank. Similarly to this paper, other works use text analysis to study the interactions between elected representatives and the Federal Reserve, the Bank of England and the ECB. Schonhardt-Bailey (2013) shows that members of the US Congress tend not to discuss technical aspects of monetary policy with the Federal Reserve, as they are constrained by electoral considerations. Bisbee et al. (2022) identify a gender bias in the congressional scrutiny over the Federal Reserve that emerges when the chair of the central bank is a woman. Sanders et al. (2018) explore the differences between various types of hearings in the UK, including those of the Bank of England, and between hearings in the House of Lords and the House of Commons. Ferrara et al. (2021) find that MEPs tend to lower their focus on price stability in their interactions with the ECB following higher rates

of unemployment. Fraccaroli et al. (2020) provide a comparative perspective, as they use text analysis to track the topics and sentiments in the hearings of the Bank of England, the ECB and the Federal Reserve. They find that while the hearings tend to focus on the central bank's objective, the sentiments become more negative when inflation diverts from the central bank aim. Against this background, our work is the first that uses the hearings to study how ideology influences the legislators' interactions with the central bank.

We also expand the dimensions of ideology in monetary policy. This literature has, so far, focused on a single dimension of ideology, namely the left–right divide (Giesenow and De Haan, 2019; Cahan et al., 2019; Hibbs, 1992; Alesina, 1988). While this divide has proved to be historically relevant (Gethin et al., 2022; Piketty, 2018), existing works in political science point to the emergence of new dimensions that might have superseded this traditional distinction in party politics (Ford and Jennings, 2020; Caughey et al., 2019; Norris, 2019; Kriesi et al., 2008; Inglehart, 2008). New political cleavages have potentially affected the relationship between politicians and independent central banks too. For example, recent works highlighted how populism – rather than the left–right divide – may affect the attitude of politicians towards independent central banks (Agur, 2018; Binder, 2021; Goodhart and Lastra, 2017).

From a broader methodological perspective, our paper also contributes to the scholarship that applies text mining to central banking (for a review see Bholat et al., 2015). Existing works analyse the text of central bank policy announcements and speeches (Lucca and Trebbi, 2009; Born et al., 2014; Tobback et al., 2017; Hansen et al., 2019; Ferrara, 2020; Moschella et al., 2020), the minutes of their meetings (Apel and Blix-Grimaldi, 2012; Hansen et al., 2017; Shapiro and Wilson, 2019), or of news and tweets related to central banks (Binder, 2021 and Bianchi et al., 2019 respectively). We provide evidence on a novel database of central bank text which has been largely left unexplored, i.e. the transcripts of central banks' parliamentary hearings.

The remainder of this paper is structured as follows. The next section provides a background on the functioning of the hearings and of party politics in the EP. Section 3 outlines the methodology we use to estimate the relationship between ideology and sentiments. Section 4 presents the empirical results while the last section concludes.

2. Background

In this section we provide background information on the novel database we use in this paper. In particular, we briefly describe the regular hearings of the ECB before the EP. We outline the textual data in more detail in Section 3.1 of this paper.

2.1. The monetary dialogues

While there are a number of tools to hold the ECB accountable, the parliamentary hearings are one of the most relevant practices (Fraccaroli et al., 2018). During these hearings, the president of the ECB appears before the Economic and Monetary Affairs Committee (ECON) of the EP. The hearings, which begun in January 1999, take place four times a year, generally on a quarterly basis (sometimes two hearings take place in the same quarter). The time period of our database covers three ECB presidencies, including those of Wim Duisenberg (1998–2003), Jean-Claude Trichet (2003–2011) and Mario Draghi (2011–2019). Moreover, it includes four parliamentary terms, from the fifth EP term (1999–2004) to the eighth (2014–2019).

Each hearing is chaired by an MEP who is elected as chair of the ECON Committee and begins with the introductory statement of the ECB President. After the statement, MEPs directly address the President in the Q&A session, which represents the core of the hearing. In this paper, we focus on the interventions of MEPs in the Q&A session as they are the most suited for capturing the policy position of the MEPs.[2]

The MEPs who are members of the ECON committee are appointed by their political groups. The composition of the MEPs who participate to the hearing, as well as that of the ECON committee, reflects the composition of the whole assembly.[3] This means that, while larger political groups speak first and dispose of more speaking time, all groups are represented and intervene in the dialogues.

To date, empirical evidence on the functioning of the Monetary Dialogues is scant. Based on a survey conducted with MEPs, Collignon and Diessner (2016) show that the ECB hearings play a significant role in informing and involving members of parliament and their constituencies. However, their work notes that the dialogues have little on the volatility of yield spreads in

[2] It should be noted that debates during the regular hearings are not the only way in which MEPs interact with the ECB. MEPs can also send written questions to the ECB, a channel that is often used (Fraccaroli et al., 2018; Proksch and Slapin, 2010) but has not been exploited so far to our knowledge for analysing MEPs' sentiment based on text analysis techniques. Written questions indeed appear less suited than hearings for analysing the sentiments of MEPs. Based on an analysis of oral and written parliamentary questions in eight different European parliaments, including the European Parliament, Rozenberg and Martin (2011) note that "oral questions appear to be more appropriate for political theatre and controversies" (page 396), suggesting that the text of speeches can bear a higher emotional content than that of written questions. Moreover, the same authors point out that "written [questions] can, and are typically, delegated: they are often drafted by parliamentary assistants and answers are always prepared by civil servants. By contrast, the very specificity of oral questions is that they engage politicians in person" (page 397). In addition, the content of written questions goes through a prior check by the Chair of ECON Committee, who decides on their admissibility before transmitting the question to the ECB (Pursuant of Rule 240 of the Rules of Procedure of the EP). This may influence the tone of MEP letters. Another limitation stems from the fact that written questions are not homogeneously distributed over time: for instance, the ECB replied to 152 written questions in 2015, compared to 62 in total during the five-year period between 2005 and 2009 (Fraccaroli et al., 2018). A further issue is that MEPs from different parties and political groups can co-sign the same letter. This creates the problem of assigning the same sentiment score to a group of MEPs rather than to an individual MEP. Finally, data on written questions are decentralised and hence more difficult to retrieve than the transcripts of hearings.

[3] Pursuant of Rule 209 of the Rules of Procedure of the EP: https://www.europarl.europa.eu/doceo/document/RULES-9-2019-07-02_EN.pdf.

Table 1
Political groups and MEPs' speeches in the Monetary Dialogues, 1999–2019.

Political group	Number of questions & remarks	Percentage	Seats in the eight term
Christian-Democrats	635	31.80	216
Socialists	570	28.54	185
Liberals	248	12.42	69
Conservatives	166	8.31	77
Greens	112	5.61	52
Far Left	103	5.16	52
Far Right	70	3.51	36
Non-Attached	93	4.66	20

financial markets. Some studies (e.g., Claeys et al., 2014) have pointed to the ineffectiveness of the dialogues given the lack of focus of MEPs' interventions or the inability for MEPs to alter the ECB's actions. This critique was also openly made by a MEP to the ECB President in September 2016 during a regular hearing. As President Draghi noted at that time, the ECB draws "substantial and substantive benefit from this exchange [hearing]" and the regular hearings "are one of the contributors to our monetary policy decisions. There is no question about that". In line with this, a survey conducted among MEPs that regularly participate to the ECB hearings showed that only 30% of the respondents believed that the ECB does not take into consideration the views of the EP when taking decisions (Collignon and Diessner, 2016).

Moreover, recent analyses demonstrate that MEPs intervention are not unfocused. Fraccaroli et al. (2020) use text analysis to study the Monetary Dialogues alongside the hearings of the Bank of England and the Federal Reserve. They find that the hearings tend to focus on the statutory objective of the central bank. Moreover, they show that sentiments become more negative when inflation diverts from the central bank aim. However, their work analyses the discussions between both parliamentarians and the central bank. Our study differs as we focus on parliamentarians and on the drivers of their sentiments.

2.2. Party politics in the EP

Each MEP is affiliated to a national party which is member of a political group in the EP.[4] Moreover, MEPs represent the EU member state where they were elected during the European elections. By regulation, at least one quarter of the EU member states must be represented within each political group. This setting allows to study separately factors that are driven by party ideology and by nationality.

Political groups are relevant as they determine the allocation of speaking time to MEPs during the hearings.[5] The main political groups in terms of seats are the European People's Party (EPP) and the Socialists & Democrats (S&D). The first gathers centre-right Christian-Democrat parties, such as the German CDU/CSU or the Spanish People's party. The second groups together centre-left parties such as the Italian Democratic Party, the French Socialist Party and, before Brexit, the British Labour Party. The socialists represented the largest political group in parliament until 1999. Since then, the socialists are the second largest group, while the EPP has been the largest group ever since. A third major group is represented by the Alliance of Liberals and Democrats for Europe (ALDE), which is the group of the liberals and centrists. Before Brexit, the third largest group in terms of seats was however the group of the conservatives (named the European Conservatives and Reformists, ECR), which was mainly composed of MEPs from the British Tories and the Polish governing party Law and Justice. Smaller political groups include the radical left, the greens, and the far right.

The distribution of MEPs' questions and remarks in the Monetary Dialogues across political groups is presented in Table 1. In the fourth column of the table, we report the number of seats of each political group in the last parliamentary term of our database, i.e. the eight term from 2014 to 2019. As expected, the two largest political groups, the Christian-Democrats and the socialists are the ones that spoke the most. They are followed by the liberals, which have more speaking time than the conservatives due to the long history of their political group, whereas the group of the conservatives, larger by number of seats than the liberals, was established at a later stage, in 2009.

Fig. A.1 in the Appendix displays the distribution of speeches across European member states. Germany is the country with the highest number of speeches. This is not surprising as Germany is the country with the highest number of seats in the EP. The second most frequent country is France, followed by the United Kingdom and Spain. The countries with the lowest number of speeches in the sample are smaller member states, such as Croatia (to date, the last country to join the European Union, and hence the EP, in 2013), Estonia, Slovenia and Slovakia.

[4] In rare cases, parties or individual MEPs are not members of any political groups and result as non-attached 'NI'.

[5] Speaking time is regulated by Rule 171 of the Rules of Procedures of the EP. Rule 171 states that speaking time 'shall be allocated in accordance with the following criteria: (a) a first fraction of speaking time shall be divided equally among all the political groups; (b) a second fraction shall be divided among the political groups in proportion to the total number of their members; (c) the non-attached Members shall be allocated an overall speaking time based on the fractions allocated to each political group under points (a) and (b)'.

3. Methodology

3.1. Text analysis

Our aim is to estimate the impact of ideology on the tone used by MEPs towards the ECB. To this end, we need a quantitative indicator that captures MEPs' tone. We build such indicator using text analysis on the transcripts of the hearings.[6]

Our main database consists of the transcripts of the Monetary Dialogues from 1999 to 2019. The database covers more than 1,900 speeches of 210 MEPs affiliated to 128 national parties. While MEPs can speak to the ECB in any of the official languages of the EU, all the transcripts are translated in English by the official translators of the EP. This is not the case for a small subset of transcripts where the original language is kept. We translate this subset of non-English speeches using Google translate. De Vries et al. (2018) show that Google translate performs well in translating MEPs' speeches, especially for the purpose of bag-of-words model, as the one we implement in this paper. As a robustness test, we will provide estimates excluding of the baseline model this subset of transcripts and show that the main results are not affected (Table A.27 in the Appendix).

We divide the transcripts by speakers. Since we are interested in the tone of MEPs, we exclude from the sample the speeches of the ECB President. Moreover, we exclude the speeches of the chair since her/his task is to moderate the session regardless of her/his political stance. We pre-process the remaining text by excluding stopwords, numbers and by lowercasing each word. The last action enables us to match the terms in the text with the sentiment dictionary. Our final database consists of a set of speeches for each party p and hearing t, $I_{pt} \in \mathbb{C}$, where $\mathbb{C}$ represents the pre-processed corpus.

We compute sentiments based on the AFINN lexicon from Nielsen (2011) and Hansen et al. (2011).[7] The lexicon consists of a list of 2,477 English terms which are manually coded as negative (1,598 terms) or positive (879 terms) and assigned a score ranging from −5 (strongly negative) to 5 (strongly positive). One advantage of the AFINN lexicon is that it controls for negations (e.g. 'not good') by including them as bigrams in the list of negative terms. For each MEP's speech i in hearing t, we compute the following score:

$$Y_{ipct} = \frac{\sum_{i \in I_{pt}} (|Pos_{it}| - |Neg_{it}|)}{N_{it}} \tag{1}$$

Where Pos (Neg) is the product of the number of positive (negative) terms matched in speech i multiplied by the score assigned by the AFINN lexicon to each term. For example, if the negative term 'scandal', that has a score of −3, features three times in speech i and no other positive or negative term is present in the speech, speech i will be assigned a value of −9. N is the total number of terms contained in the speech. The numerator estimates net sentiments (Twedt and Rees, 2012), while the denominator weighs net sentiments by the total number of terms in each transcript. This weighting method prevents the length of each speech from inflating sentiments upward or downward due to a larger number of terms rather than due to the intensity of the tones. This sentiment ratio is similar to other approaches proposed in the literature (Shapiro et al., 2020, Fraccaroli et al., 2020, and Nyman et al., 2018).[8] We provide the list of the most frequently matched terms in our textual data in Section A.7 of the Appendix.

One limitation of this lexicon is that a number of terms that generally indicate a positive or negative sentiment, are neutral in the context of the hearing. For example, the term 'outstanding' has a very high positive score in the AFINN lexicon, but could be used neutrally in the hearing to refer to outstanding loans. We hence remove a few positive and negative terms that could have a neutral connotation in the context of the ECB hearings.[9] As we will show in Section 4, the estimates are not substantially affected by this adjustment (see in particular Table A.8 in the Appendix).

As a robustness check, we compute the same score using two other dictionaries created to compute sentiments. We first employ the dictionary of Hu and Liu (2004), which consists in two lists of positive (2,006 terms) and negative terms (4,791 terms). This dictionary differs from the AFINN lexicon in three main aspects. First, its terms are simply categorised as positive or negative, but are not assigned a score. For this reason, the positive and negative sentiment measures is based on the simple sum of positive and negative terms in each speech, without the application of any human-coded weighting. Second, while terms in the AFINN lexicon are manually rated, the lexicon of Hu and Liu (2004) is constructed on a feature of space of online movie reviews. In simple terms, the selection of positive and negative terms took place based on the association between the quantitative score assigned by the reviewer and the frequency of terms contained in the review. While this approach is likely to generate some noise in the terms that are selected, Shapiro et al. (2020) show that this dictionary performs as well as human coding in capturing sentiments in news, and has been already employed in Fraccaroli et al. (2020) to compute the sentiments in the hearings of the Bank of England, the ECB and the US Federal Reserve. A third difference is that the Hu and Liu (2004) lexicon does not control for negations of positive terms, such as 'not good'. This makes this lexicon more prone than the AFINN lexicon to wrongly classify some terms as positive when they are actually used to signal negative sentiments.

[6] For this analysis, we use multiple packages implemented on the software R. These packages we used are the following: `OECD` (Persson, 2019), `WDI` (Arel-Bundock, 2021), `tidyverse` (Wickham et al., 2019), `lubridate` (Grolemund and Wickham, 2011), `haven` (Wickham and Miller, 2020), `quanteda` (Benoit et al., 2018), `tidytext` (Silge and Robinson, 2016), `glue` (Hester, 2020), `eurostat` (Lahti et al., 2017), `digest` (Eddelbuettel et al., 2020), `countrycode` (Arel-Bundock et al., 2018), `scales` (Wickham and Seidel, 2020).

[7] Other works that use the AFINN lexicon are Lajevardi (2021), Rice and Zorn (2019), and King et al. (2017).

[8] Nyman et al. (2018) differs from the other two works since it does not use positive and negative sentiments, but rather subtracts matches of terms related to excitement to those related with anxiety to capture sentiments shifts in financial markets.

[9] We remove 'outstanding' and 'exuberant' from the list of positive terms. We remove 'crisis', 'crises', 'damage', 'loose', 'withdrawal' and 'question(s)' from the list of negative terms.

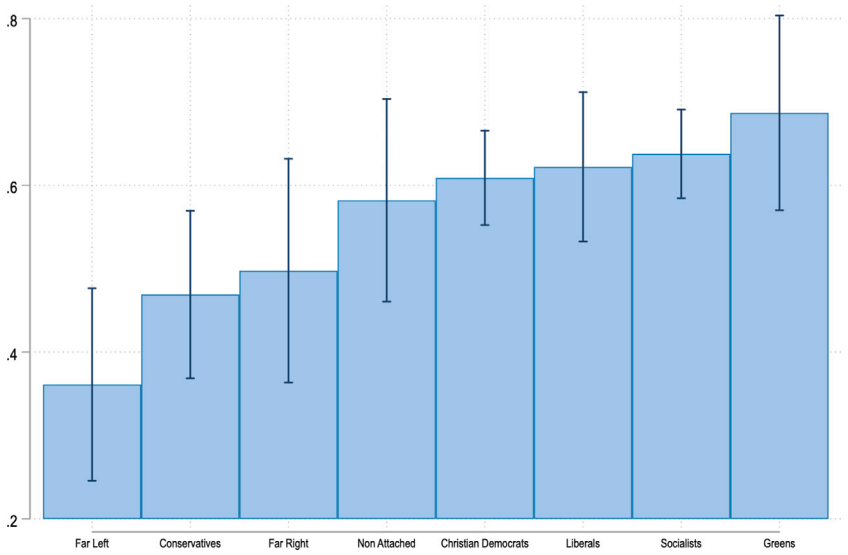

Fig. 1. Average Net Sentiment Score, by party family (1999–2019). *Source:* Authors' elaboration on transcript data. The values are computed using the AFINN lexicon and based on Eq. (1), the bars indicate the standard errors.

As a second, alternative, dictionary, we use the Lexicoder Sentiment Dictionary (LSD) (Young and Soroka, 2012). LSD contains 2,858 negative words and 1,709 positive. Like AFINN, LSD controls for negations by including negated entries such as 'not happy' or 'not sad'. In addition, LSD has been used to successfully compute sentiments for parliamentary debates (Proksch et al., 2018). It should be noted that a common limitation of these three dictionaries is that they are unable to capture complex linguistic expressions such as sarcasm, irony, jokes, or hyperbole.

Our baseline approach using the AFINN dictionary performs well in capturing correctly the sentiments of MEPs towards the ECB. In Section A.8 of the Appendix, we provide some examples of MEP's speeches selected from the last (positive speeches) and first (negative speeches) quantiles of the distribution of net sentiment scores, which we computed based on Eq. (1). The speeches with a high net sentiment score capture a positive stance of MEPs towards the ECB and its policy, as MEPs express support to the ECB President for the central bank's actions. MEPs say themselves to be 'grateful' to the ECB for its policies and to 'owe [the ECB President] a great deal'. Moreover, they consider the 'role played and action taken by the ECB in dealing with the crisis' to be 'crucial and outstanding', and 'endorse' the central bank's positions. Texts with a lower score capture a more critical stance towards the central bank and its actions. In those speeches, for example, MEPs criticise the ECB President for 'complaining in a rather irritated manner', criticise European and national institutions for perpetuating a 'crazy, scandalous situation' and the central bank for causing 'enormous economic damage'.

The distribution of the net sentiment scores across party families provides interesting insights on how MEPs from different parties interact with the ECB. Fig. 1 plots the average sentiments of each party family over the time period 1999–2019.[10] Parties belonging to the far left report the lowest score in net sentiments, indicating a more negative tone, whereas green, socialist, liberal and Christian-Democrat parties report the highest scores. At a first glance, sentiments do not seem to differ across a left–right scale, since parties on the left (far left) and centre-left (socialists), as well as parties on the right (far right) and centre-right (conservatives and christian democrats), are located on opposite poles of the spectrum. The distribution of party families rather suggests that sentiments are associated with stances on European integration. Pro-European parties such as the greens, the socialists, the liberals and the Christian-Democrats tend to have higher net sentiments, whereas Eurosceptic parties such as the far left, the conservatives and the far right report lower scores. However, this evidence is suggestive and requires a more systematic analysis, which we introduce in the next section.

Fig. A.2 in the Appendix displays the distribution of the average net sentiment scores by country. This chart should be interpreted with caution as some countries are represented by a lower number of speeches compared to others. For example, smaller countries such as Croatia, Estonia, Slovenia, and Slovakia have less than three speeches each in the sample (see Fig. A.1 in the Appendix). This is however not the case for larger countries. In particular, it is interesting to notice that negative sentiments feature prominently among MEPs from Greece, Portugal and the United Kingdom. On the other hand, MEPs from Austria, Finland, Germany, the Netherlands, and Spain tend to display more positive sentiments on average in their speeches during the hearings. Finally, a third group of countries presents a relatively balanced score. This group includes Belgium, France, Italy, Poland and Sweden.

[10] For simplicity, we categorise parties by party family rather than by political group since the naming and composition of political groups vary over time.

3.2. Empirical strategy

In order to analyse the correlation between MEPs' ideology and sentiments, we estimate the following linear specification:

$$Y_{ipct} = \alpha + \beta EU\,stance_{pct} + \gamma LR_{pct} + \rho Govt_{pct} + \phi Elections_{ct} + \Omega'_{ct}\lambda + \Pi'_{ct}\xi + \mu_t + \psi_c + \epsilon_{pct} \quad (2)$$

Y is the difference between positive and negative terms featuring in speech i of an MEP from party p, country c, and during hearing t, as measured in Eq. (1).

Our coefficients of interest are β and γ, as they measure the correlation between sentiments and MEPs' ideological stances. The former measure the correlation between sentiments and the stance of an MEP's party on European integration, $EU\,stance$. The latter measures the correlation between sentiments and the position of the MEP's party on the economic left–right spectrum, LR. $EU\,stance$ is a continuous variable that takes values from 1 to 7, where higher values indicate a party stance in favour of European integration. LR is a continuous variable ranging from 0, which indicates an extreme left-wing position on economic issues, to 10, which indicates an extreme right position on economic issues; a value of 5 indicates a centrist position on economic matters.

Since MEP's tone towards the ECB could differ if their party is in government at the time of the hearing, we include a dummy, $Govt$ that equals 1 if an MEP's party is in government in country c during hearing t, and 0 otherwise. To control for the presence of elections we include a dummy, $Elections$, that equals one when the hearing takes place in the three months before an election in the country of the speaking MEP. In an alternative specification, we replace this variable with the distance in terms of days between the day of the hearing and the closest election day in each country.

Ω is a vector of country-level controls which includes a set of macroeconomic and financial variables. The rationale is to control for macroeconomic changes in the country of origin of the MEP which might affect her tone. In particular, we control for the distance of inflation from the ECB's inflation aim (more details in Section 3.3), unemployment and GDP. Furthermore, we include financial and fiscal indicators such as the share of private credit to GDP, yields on government bonds, government deficit and debt. Π is a vector that captures public perception of the ECB and the euro, and more specifically EU citizens' trust in the ECB and support for the euro in country c at time t.

We include time fixed effects, μ_t, and country fixed effects, ψ_c. By capturing hearing-specific unobserved factors, with μ_t, year fixed effects allow us to control for time-variant changes that potentially affected all MEPs. Country fixed effects are particularly relevant as an MEP's nationality could affect the way she interacts with the ECB regardless of her ideology, the macroeconomic conditions in her own country, or the period in which she is talking. For example, Ehrmann and Fratzscher (2011) show that politicians' preferences over the ECB's monetary policy differ depending on their national constituency. Moreover, country fixed effects capture unobservable time-invariant cross-country differences, such as culture or institutions, that may affect political attitudes towards independent central banks (de Jong, 2002; Heckelman and Wilson, 2021).

3.3. Political and economic data

In this section we describe the political and economic data used in our analysis. We summarise the set of variables used and their sources in Table A.2 in the Appendix.

3.3.1. Political data

We collect data on each MEP from the website of the EP. The website reports for each MEP the member state (where she was elected), national party and political group. We combine the text of each MEP at the time of the hearing with metadata on her country, party and political group membership.

Data on ideology are from the ParlGov database (Döring and Manow, 2020). The database combines data from different external sources. We use the variables *Pro-/Anti-EU* and *Economic Left/Right*, which are taken from the Chapel Hill Expert Survey for the years 1999–2019 (and correspond respectively to the variables *position* and *lrecon* in the survey's codebook). The first variable captures the overall orientation of a national party towards European integration, ranging from a value of 0 for 'strongly opposed' to a value of 10 for 'strongly in favour'. The second locates each party on a left–right scale ranging from 0 to 10, where low values indicate a left-wing stance and high values a right-wing stance on economic matters. We match data at party-level with MEPs' speeches based on their party membership at the time of each hearing.

While the database provides also a 'general' measure of left–right positions (denominated *lrgen*), we examine left–right positions on economic matters given the economic focus of the hearing. For robustness, we will test whether replacing *economic* left–right positions with *general* left–right positions yield different estimates (see Section 4.2.2). Henceforth, we will refer to the economic left–right variable as 'economic left–right' or simply 'left–right', whereas we will refer to the general left–right variable solely as 'general left–right'. We show and discuss the relationship between the variables *Pro-/Anti-EU* and *Economic Left/Right* in Section A.3 in the Appendix.

We merge our database with data on elections from the ParlGov database, which provides the date for each country of both national and European elections. We use the same data source to see whether a party is in government at a specific point in time.

Data on public perception are from the Eurobarometer survey. We collect data on two aspects of EU citizens' opinion: their trust in the ECB and support for the euro.[11] Using the same indicator, Ehrmann and Fratzscher (2011) find that when a country's trust

[11] For each year we compute the yearly average trust in the ECB and support for the euro. While this approach reduces the granularity of the data, it allows us to deal with the different frequency in the release of Eurobarometer survey data.

in the ECB is low, politicians from that country tend to be more critical towards the central bank's monetary policy. We control separately also for EU citizens' support of the euro. Although the degree of support for the common currency is inextricably linked to ECB's trust at the institutional level, public opinion on the matter diverges. Bergbauer et al. (2020) show that while support for the euro remained high even at the height of the crisis, trust in the ECB saw a steep decline.

3.3.2. Economic data

We collect macroeconomic, financial and fiscal quarterly data from Eurostat. Macroeconomic data include inflation, unemployment and GDP. Regarding inflation, we follow Fraccaroli et al. (2020) and construct a variable that measures the distance of inflation from the ECB's target of 2 percent. The variable is constructed as follows:

$$Distance_{ct} = |\pi_{ct} - \pi^*| \tag{3}$$

Where π is the inflation rate in country c at the time of hearing t, whereas π^* is a constant equal to 2 percent. We take the absolute values of this difference to reflect the nature of the ECB's mandate, which considers price instability both inflationary and deflationary deviations from 2 percent. In line with this, our measure captures deviations that are both inflationary (i.e. inflation increasing above 2 percent) and deflationary (i.e. inflation decreasing below 2 percent). In addition, as the two types of deviations could be perceived differently by MEPs, we interact this measure with a dummy that equals 1 when inflation is above 2 percent and 0 otherwise. One limitation of this measure is that it considers those values that are below but close to 2 percent as deviations from the mandate, despite the fact that the precise mandate of the ECB was an inflation rate that is below, but close to, 2 percent over the medium term until the review of the ECB's monetary policy strategy in 2021. However, it should be noted that those values are weighted as less important than larger deviations which in fact represent deviations from the actual mandate, partially addressing the issue.

Among the financial variables we control for credit gaps and for the yields on government bonds. Credit gaps measure the deviation of private credit-to-GDP ratio from its trend. Positive credit gaps, i.e. credit booms, are a proxy of financial instability as excessive credit growth are good predictors of financial crises (Borio and Lowe, 2002; Schularick and Taylor, 2012). Moreover, politicians are likely to observe changes in credit due to the electoral gains it might bring (Kern and Amri, 2021; Herrera et al., 2020). We measure credit gaps using the approach of Borio and Lowe (2002). This indicator was successfully used to predict financial crises (Martínez and Oda, 2021; Drehmann et al., 2011; Borio and Lowe, 2002) and has become a relevant indicator to guide decisions on macroprudential policies (Boh et al., 2017; ESRB, 2014). We take data on credit gaps from the Macroprudential Database provided in the ECB's Statistical Data Warehouse (SDW). The dataset measures credit gaps as the deviation of credit-to-GDP from its long-run trend by applying a Hodrick–Prescott (HP) filter to the ratio between total credit and GDP. Bond yields are monthly long-term interest rates on government bonds. Bond yields are relevant as they signal market uncertainty and are a particularly important proxy of fragility for euro area countries, as shown in De Grauwe and Ji (2013).

Fiscal data include public debt and deficit. These indicators may affect MEPs' sentiment since the fiscal constraints foreseen by European rules[12] may lead politicians to desire a more expansionary monetary policy. Evidence in Ehrmann and Fratzscher (2011) supports this view, suggesting that politicians from low debt and low deficit countries are less averse to the ECB's policy. An additional reason to control for fiscal variables is that the ECB played an active role in the economic adjustment programmes following the European sovereign debt crisis, which entailed a sharp fiscal consolidation.

4. Results

4.1. Main results

The results of the baseline model are displayed in Table 2.[13] In the first column we control for the correlation between the pro-/anti-EU and the economic left–right dimensions with the net sentiment scores. From column 2 onwards, we add progressively a series of regressors, including electoral, economic, financial, fiscal controls, as well as the two indicators of trust. In columns 6 and 7 we add country and time fixed effects to capture the unobserved heterogeneity which is not captured by the previous regressors.

The results display a strong positive and significant correlation between sentiments and the pro-/anti-EU dimension at the 1% level, whereas the coefficient for the left–right dimension is not significant. The positive coefficient of the pro-/anti-EU dimension indicates that a more pro-European stance is associated with more positive sentiments towards the ECB, whereas a more Eurosceptic stance is associated with more negative sentiments. The coefficient of the Pro-/Anti-EU dimension indicates that a standard deviation increase by one in a party's support for the EU results in an increase by 0.04 standard deviations in net sentiments in the speeches of MEPs from that party.[14]

In Table A.8 in the Appendix we replace the dependent variable with the original AFINN lexicon, which contains also those positive and negative terms that might have a neutral connotation in the context of the ECB hearings. In Table A.9 in the Appendix

[12] Fiscal policy in the euro area is constrained by the Stability and Growth Pact and the Maastricht criteria, which pose a ceiling to government debt and deficit.

[13] We run a Breusch–Pagan test to verify that the variance of the residuals in our model is homogeneous. The test does not reject the null hypothesis ($\chi^2 = 0.44$, p-value=0.51) and therefore accepts the alternative hypothesis that the variance is homogeneous.

[14] Figs. A.4 and A.5 in the Appendix plot the predicted values of average net sentiments against the Pro-/Anti-EU and Economic Left–Right dimension respectively.

Table 2
OLS estimates on AFINN as dependent variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.041***	0.039***	0.041***	0.040***	0.041***	0.047***	0.045***
	(0.006)	(0.007)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)
Economic Left–Right	−0.014	−0.014	−0.025**	−0.024**	−0.020*	−0.018	−0.015
	(0.009)	(0.009)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.022	0.023	0.025	0.030	0.031	0.080	0.213
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

we replace for robustness the election dummy among the controls with a variable that captures the number of days between an hearing and an election. In Table A.10 in the Appendix we interact the pro-/anti-EU variable with the economic left–right variable to test whether the relationship between political stances on the EU and sentiments is independent from stances on the economic left–right dimension. Under all three cases, our estimates are unaffected as pro-/anti-EU stances display a robust positive correlation with sentiments.

4.1.1. Party positions based on votes

As described in Section 3.3, the indicators of pro-/anti-EU and left–right stances used in our estimates are based on expert surveys. While these measures are widely used in the literature to capture party positions, a limitation arises when they are applied to parties in the EP. This limitation relates to the fact that, in some cases, the same party may assume different stances domestically and in the EP. A more general obstacle is that politicians' speeches can influence the judgement of experts in the survey. This risk of reverse causality is likely less pronounced when it comes to European politics. Given the prominence of national politics over European politics in a number of policy areas, domestic politics (e.g. through speeches in the national parliament) may be more relevant in influencing experts' opinion than European politics.

To overcome these limitations, we use data from Cheysson and Fraccaroli (2019), who estimate the position of each individual MEP on the main dimensions of voting. MEPs' scores for each dimension are obtained by running a principal component analysis on a matrix that contains information on each vote cast by each MEP in the EP plenaries from 2004 to 2019. Based on this analysis, the authors show that the two main dimensions of voting are associated with a pro-/anti-EU divide and a left–right divide, in line with previous findings (Kreppel and Tsebelis, 1999; Hix et al., 2006; McElroy and Benoit, 2007; Hix et al., 2019). These measures differ from the ideological indicators we used in Table 2, as they are based on the actual voting behaviour of MEPs, and not on the opinion of experts on party positions.

We merge the text-based indicators of MEPs in the hearings with data on their voting behaviour. We then replace the CHES's indicators with the scores based on MEPs voting on the pro-/anti-EU and left–right dimensions. Results are presented in Table 3. The number of observations is lower compared to other regressions since voting data start in 2004. The results based on the voting dimensions are in line with the ones of the baseline model. The pro-/anti-EU dimension of voting is positively and significantly correlated with sentiments at the 1% level, whereas the coefficient for the left–right dimension of voting is not significant. This result indicates that MEPs with a higher (lower) pro-European stance in their voting behaviour tend to assume a more positive (negative) tone when they interact with the ECB.

4.1.2. Alternative sentiment dictionaries

We replace the dependent variable with sentiment scores computed using the lexicon of Hu and Liu (2004) and the LSD lexicon. We present the estimates in the Appendix in Tables A.6 and A.7 respectively. In both cases, the results are very similar to the ones of the previous table. The Pro-/Anti-EU dimension is positively correlated with net sentiments and this relationship is significant at the 1 percent level under all specifications. In turn, the left–right dimension displays no significant correlation with the MEPs' sentiments towards the ECB.

This evidence supports the view that party ideology plays an important role in determining sentiments, but not in the way theorised by the literature so far. Differences on the left–right scale are not significantly associated with the tone used by MEPs towards the ECB. This might reflect the decrease in the relevance of the traditional left–right dimension in the European policy space, as highlighted in recent works (Cheysson and Fraccaroli, 2019; Nulty et al., 2016; Braghiroli, 2015).

4.2. Robustness checks

4.2.1. Endogeneity concerns

Endogeneity is a common concern related to regression models. The main potential problems are biases that derive from reverse causality and omitted variables. From a theoretical perspective, reverse causality is not plausibly biasing the results. The reason is

Table 3
OLS estimates on AFINN as dependent variable and Party Stances based on Votes.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pro-/Anti-EU Voting Dim.	0.096***	0.107***	0.106***	0.104***	0.101***	0.114***	0.117***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Left–Right Voting Dim.	0.008	0.002	0.002	0.001	0.002	−0.006	−0.007
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	1,146	1,062	1,062	1,062	1,058	1,058	1,058
R-squared	0.009	0.022	0.024	0.024	0.029	0.077	0.164
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

Notes: Robust standard errors in parentheses.
Variables are standardised.
*p<.05; **p<.01; ***p<.001.

that it is unlikely that the sentiments expressed by an individual MEP in the ECB's hearing (dependent variable) cause a change in the overall party stance on support for the EU (independent variable). The opposite is more likely to happen: the change in party positions can affect the ways MEPs from that party interact with the central bank.

Nevertheless, it is more difficult to control for biases introduced by unobserved confounding factors. In particular, the occurrence of the euro crisis may bias the current results. This is because the crisis had a simultaneous impact on both economic and political variables. On the one hand, sentiments may have been affected by the general worsening of economic conditions in Europe, such as rising unemployment, sluggish growth and drop in the supply of credit. On the other hand, the crisis has influenced the support of MEPs towards European integration, which became a more contentious dimension of conflict in the EP in the years of the recession (Cheysson and Fraccaroli, 2019; Chopin et al., 2019; Blumenau and Lauderdale, 2018; Otjes and van der Veer, 2016). This is also reflected in our data: during the euro crisis we witness a simultaneous decrease in both net sentiments and support for the EU. Average sentiments changed from 0.65 in the years before the crisis (1999–2009) to 0.51 during and after the crisis (2010–2019), while the average support for the EU changed from 7.44 before the crisis to 6.82 during and after the crisis.

While we acknowledge that we cannot fully eliminate this bias, we attempt to mitigate it by controlling for the impact of the crisis on economic conditions and trust in the EU in our model. As an additional cross-check, we control for the interaction between each ideological dimension and the crisis. To this end, we create a dummy variable that captures the period from the crisis onwards. This variable, which we denominate $Crisis$, equals one during the years of the euro crisis, from 2010 on, and zero otherwise. If the crisis period was the only driver of the results, its coefficient would absorb the significance of pro-/anti-EU stances.

A second problem related to the crisis is that it hit euro area countries asymmetrically. Yields on government bonds in Portugal, Ireland, Italy, Greece and Spain rose substantially in 2010, increasing the costs of servicing debt and forcing them to implement harsh austerity policies, while the same did not happen in Northern countries, such as Germany and the Netherlands (Frieden and Walter, 2017; Copelovitch et al., 2016; Blyth, 2013; Skidelsky and Fraccaroli, 2017). For this reason, the results on the European dimension might be driven by these specific countries in the years of the crisis. As we described in the previous section, we control for a number of country-specific economic variables that the crisis affected with different intensity across countries, such as public debt, government bonds or unemployment. In addition, we control for country and year fixed effects, to account for unobservable factors that are specific to a certain member state or point in time. By doing so, we reduce the bias that generates from the potential omission of confounding factors.

To account for this issue we generate a second dummy variable, *Crisis countries*. This variable is constructed in the same way of $Crisis$, but is equal to one only for Portugal, Ireland, Italy, Greece and Spain from 2010 onwards, and to zero for all the other countries. We then interact this dummy with the two variables for ideology. To avoid collinearity, we do not control for year fixed effects when including the first dummy and for year and country fixed effect when including the second. While in the previous model we controlled for macroeconomic factors that were affected by the crisis (such as government bonds yields and unemployment) and year fixed effects, these two separate dummy variables allow us to examine the impact of the crisis with more precision, as they capture potential unobservable factors related to the crisis which are not included among our regressors.

The results are displayed in Tables A.11 and A.12 in the Appendix. Table A.11 shows the coefficients of the European and left–right dimensions when interacted with the time-based crisis dummy, whereas Table A.12 replaces the year-based crisis dummy variable with the *Crisis countries* dummy variable. The results of the two models are very similar to those of the baseline model. While the coefficient of the European dimension tends to be higher when it is interacted with the crisis, it is positive and significant both before and after the crisis. This means that the correlation between the pro-/anti-EU dimension and sentiments is robust and is not driven by the occurrence of the euro crisis. On the other hand, in both cases the left–right dimension is significantly correlated with sentiments only from the start of the euro crisis onwards. The negative coefficient suggests that more right-wing stances are correlated with more negative sentiments. However, under all specifications, the coefficient of the left–right-crisis interaction is

smaller and less significant than the one of the interaction between the pro-/anti-EU dimension and the crisis. This indicates that while both dimensions gained more relevance during the crisis, probably as a result of higher polarisation (as described, among others, in Funke et al., 2016), the pro-/anti-EU dimension shows a stronger association with MEPs' sentiments both before and during the crisis.

4.2.2. Alternative party positions

A second concern regards the choice of the economic left–right divide as contending dimension to pro-/anti-European stances. In particular, the variable included in the model captures party stances on the left–right spectrum which are related to economic matters. While we selected this variable because of the economic nature of the hearings, MEPs' sentiments could be led by their general stances on the left–right axis, which go beyond their ideological differences on economic matters. This distinction is particularly relevant as in recent years far right parties shifted to more left-wing positions on economic policies, while maintaining a right-wing stance on other policy issues (Hopkin, 2020; Harteveld, 2016; Ivaldi, 2015). To account for this problem we compare pro-/anti-EU stances with party positions on the general left–right dimension, rather than on the economic left–right dimension that we have considered thus far. We replace the variable capturing party positions on the economic left–right spectrum with a variable capturing party positions on a general left–right dimension. To this end, we use the general left–right variable from the CHES database (called *lrgen*), which captures general positions on the left–right spectrum that go beyond the economic sphere.

However, the distinction between general and economic left–right stances might not be sufficient. Recent works highlight that politics has given increasingly more prominence to a dimension based on values, rather than left–right differences. This new cleavage divides parties that support green–alternative–liberal values from those that embody nationalist–traditionalist–authoritarian ones, as argued by Hooghe and Marks, 2018. The same could apply to our case. Authoritarian and nationalist politicians could assume a more negative tone towards the ECB, as its independence reduces their ability to influence monetary policy domestically. In line with this, Binder (2021) finds that nationalist politicians are more likely to exert political pressures on central banks, while Agur (2018) identifies a negative relationship between nationalism and central bank independence. To control for this possibility, we replace the left–right dimension with a variable that captures this dimension. The variable *Galtan* from the CHES database captures positions across the two poles of green–alternative–liberal versus nationalist–traditionalist–authoritarian values. More precisely, the variable opposes parties that 'favour expanded personal freedoms, for example, abortion rights, divorce, and same-sex marriage' against those that 'reject these ideas in favour of order, tradition, and stability, believing that the government should be a firm moral authority on social and cultural issues' (CHES, 2019). Higher values of the Galtan variable indicate a more nationalist–traditionalist–authoritarian stance, while lower values indicate a more green–alternative–liberal position.

A third alternative hypothesis is that the new dimension divides populist and non-populist parties in their interactions with the central bank. According to Goodhart and Lastra (2017) and Agur (2018), populist parties contributed to the erosion of public support towards central bank independence. For this reason, we expect MEPs from populist parties to display more negative sentiments towards the ECB. To test this hypothesis, we create a party-level dummy variable that equals one when a party is populist and zero when it is not. We identify populist parties based on the PopuList database (Rooduijn et al., 2019), which covers all European parties that existed since 1989 and categorises each party as populist or non-populist (recent examples of previous research that use this database are Giorgi and Cancela, 2019 and de Bolle and Zettelmeyer, 2019).[15] Parties are defined as populist following the definition of Mudde (2004), that is "parties that endorse the set of ideas that society is ultimately separated into two homogeneous and antagonistic groups, "the pure people" versus "the corrupt elite", and which argues that politics should be an expression of the volonté générale (general will) of the people" (Mudde, 2004, page 543). Following the merge with the PopuList database, we identify twenty-one parties in our database are categorised as populist. The full list of populist parties that participated to the hearings of the ECB is available in Table A.16 in the Appendix.

We separately test these three hypotheses by replacing the economic left–right variable with the variables capturing the (1) general left–right, (2) Galtan and (3) populist dimensions. Results are presented in Tables A.13–A.15 respectively. Also in this case, the pro-/anti-EU dimension is positively and significantly correlated with MEPs' sentiments. Similarly to economic left–right, the variables general left–right variable (Table A.13), Galtan and Populism all display coefficients that are negative (even if this result for Galtan is less stable in Columns 1 and 2 of Table A.14) and not significant. These results provide further support to the initial result, for which the pro-/anti-EU dimension is the main ideological divide that determine MEPs' sentiments towards the ECB.

4.2.3. Government–opposition

A potential confounding bias arises as pro-European stances may be related with support for the European Commission. While the Christian-Democrats, the socialists and the liberals have very strong pro-European stances, they are also the main political groups that have supported the European Commission – where they are also represented by commissioners affiliated to their parties – in the years of our sample. It could be argued that the high scores for the European dimension are simply reflecting the pro-governmental position of the two main political groups and not necessarily a pro-European ideological stance. This is a common limitation related to the identification of the dimensionality of the EP (see for example Hix et al., 2006).

[15] The database is accessible at the following link (last accessed on September 2021): https://popu-list.org.

We test whether this is the case by interacting the European and the economic left–right dimensions with a dummy variable that we call *EUGovt*. *EUGovt* equals one when an MEP belongs to a political group that supports the European Commission at the time of the hearing, and zero otherwise. The classification of political groups in this dummy is reported in Table A.17 in the Appendix.

We show the results in Table A.18. The estimates are robust to the inclusion of the interaction term with the support for the European Commission dummy. Stances on European integration are positively and significantly correlated with sentiments regardless of whether the MEP is member of a political group that supports the Commission.

A similar issue relates to the fact that parties that are in government in their member states are also represented at European level in the European Council. The European Council is a collegiate body that comprises the head of governments of the EU member states and participates to the appointment of the president of the Commission and of the ECB. To account for this issue, we provide a second robustness test, where we interact the European and the economic left–right dimensions with the dummy variable *Govt*. The variable *Govt* equals one when a party is in government at the time of the hearing and zero otherwise. While in the previous specifications we have already included the variable *Govt* as a control, we now interact it with the main variable of interests.

Table A.19 displays the results of this second test. Similarly to the previous case, the Pro-/Anti-EU dimension is unaffected, as it displays a positive and significant correlation with sentiments under all specifications. The government dummy displays a positive coefficient under all specifications, indicating that parties that are in government tend to have positive sentiments on average. However, this relationship is not significant once we include the set of controls.

4.2.4. Political groups

A final concern relates to the composition of the sample, which might affect our results. Given the allocation of speaking time, a considerable size of our sample is populated by MEPs from the two largest groups, the Christian-Democrats (EPP) and the socialists (S&Ds), which also have highly pro-European stances. Moreover, larger political groups in the EP are more cohesive, which might reflect also a more cohesive behaviour in addressing the ECB (Hix et al., 2005). A specular concern is that the outlier positions of far right parties as strongly anti-European might drive the results. We test whether this is the case by estimating the baseline model first by excluding the two largest political groups and then by excluding far right parties. For the second case, we exclude in particular parties that were members of the nationalist and Eurosceptic groups UEN, ENF, EFD and EFDD political groups. These include parties such as Le Pen's National Front/Ressemblement National and the United Kingdom Independence Party.

Results for the sample without EPP and S&D and for the full sample without far right Eurosceptics are displayed in Tables A.20 and A.21 respectively. While the number observations decreases significantly in the first test, both the sign and the significance of the coefficient for the European dimension remain unchanged, indicating that the tones of the two major groups do not distort the results. The same applies to the second test, suggesting that the extreme values of far right Eurosceptics do not condition the correlation between ideology and tone.

4.2.5. Disentangling sentiments from economic considerations

While our measure of text-based indicator perform well in describing the sentiments in the hearings, it could potentially capture different typologies of sentiments. In particular, sentiments could reflect an MEP's perception of the economic outlook, and not necessarily a positive or negative sentiment towards the ECB. In other words, party stances might be correlated with the propensity to assess economic conditions in a positive or negative way. We therefore need to disentangle sentiments from such propensity, in order to distinguish between sentiments and positive/negative descriptions of the economic outlook.

Our model and the robustness checks presented so far partially address this issue. For instance, we noticed that sentiments are correlated with pro-/anti-EU positions regardless of the occurrence of a crisis. Moreover, we found no difference between parties that are in government and those that are in opposition. This is particularly relevant as parties in government may have an interest to describe a positive economic outlook, whereas the opposition has the incentive to do the opposite. This dynamic is further controlled by including among the regressors a dummy that equals one when a party is in government in its own member state. Nevertheless, these tests focus on party positions, and hence do not capture aspects that are related to MEPs' speeches.

We apply two methods in order to disentangle sentiments from economic considerations. First, following Fraccaroli et al. (2020), we create a text-based indicator that captures hawkish and dovish stances in MEPs' speeches. Hawkish and dovish stances are helpful to disentangle sentiments from economic considerations as they reflect the speakers' perspective of the economic conditions. More hawkish stances are generally more likely when the economy is expanding, whereas dovish stances tend to be associated with sluggish growth. We use the index of Apel and Blix-Grimaldi (2012), which is based on two dictionaries able to capture hawkish and dovish stances on monetary policy. These measures proved useful to predict future policy rate decisions when applied to the minutes of the monetary policy meetings of the Swedish central bank (Apel and Blix-Grimaldi, 2012). To this end, we remove from the sentiment dictionaries those terms that also feature in the hawkish and dovish dictionaries. Then, we apply the dictionaries to the transcripts and obtain two scores capturing the degree of hawkish and dovish sentiments of each speech. From these scores, we compute an hawkish–dovish ratio, based on the difference between the hawkish and dovish score divided by the number of total

words in the speech, similarly to the sentiment ratio.[16]

The second approach relies on topic analysis. The aim of this method is to capture the co-movement of sentiments together with the focus in the speech on some specific economic topics. To this end, we create three dictionaries that capture the focus of the speech on (1) price stability, (2) financial stability and (3) unemployment, based on the terms selected by Fraccaroli et al. (2020) to capture these topics in the hearings of the ECB, Bank of England and Federal Reserve. The lists of key terms used for each dictionary is provided in Section A.20 of Appendix. We first compute the share of terms related to each topic in each speech, by dividing the number of matched terms by the total number of terms in the speech. Formally, for each topic $s \in \{PriceStability, FinancialStability, Employment\}$ in speech i during hearing t, we compute the following:

$$Focus_{its} = \frac{Topic_{its}}{T_{it}} \tag{4}$$

Where $Topic_{its}$ is the number of terms of topic s matched with the terms in speech i, and T_{it} is the number of terms contained in speech i. We then include the three topics as regressors. In this way, if sentiments are strongly dependent on MEPs' perception of the economic outlook, we would observe a strong correlation between the topic variables and the sentiment indicator.

Tables A.22 and A.23 display respectively the results of the baseline model with the inclusion of the hawkish–dovish ratio and the topic-based indicators among the regressors. The inclusion of these controls does not alter the main results: pro-/anti-EU stances remain significantly correlated with sentiments, in line with previous results. In line with previous estimates, the left–right dimension shows no correlation with the sentiment indicator. These results indicate that the relationship between sentiments and pro-/anti-EU stances is not driven by perceptions of the economic outlook.

The limitation of this approach however is that, while it captures the relationship between changes in topics and sentiments, it does not control for the co-occurrence of sentiments and topics in the same speech. To account for this issue, we create a new dependent variable for each topic s, that is given by the product between $Focus_{its}$ and the sentiment score computed at speech-level (as in Eq. (1)). By construction, if a speech has a sentiment score equal to zero, this new variable will equal zero regardless of the focus on a certain topic. The same happens if the topic score equals zero. On the other hand, when both indicators are different from zero, if the sentiment score is negative (positive), the topic–sentiment score will also be negative (positive).

The aim of this exercise is to understand whether the significant correlation between pro-/anti-EU stances and sentiments is driven by the interaction of sentiments with a specific topic, rather than by sentiments overall. If this is the case, we would expect the pro-/anti-EU variable to display a degree of correlation with the dependent variable that is similar to the sentiment indicator of the baseline model. To test this, we estimate the baseline model by replacing the dependent variable with the product of the sentiment score and the topic score for each topic s, including price stability, financial stability and employment. Results for price stability, financial stability and employment are displayed in Tables A.24–A.26 respectively. The estimates show that the pro-/anti-EU and left–right dimensions are not correlated with any of the topic–sentiment dependent variables. This indicates that the strong positive correlation between European stances and sentiments is not driven by any specific economic topic. This result, combined with the results of Table A.23, dissipates the concern that our sentiment indicator may capture descriptions of the economic outlook rather than actual sentiments.

5. Conclusions

This paper offers a new perspective on previous evidence which examined the link between ideology and central banking. Previous works focused on the role of government ideology in influencing central banks. However, as central banks have become more independent in a number of countries, governments' partisan preferences are no longer able to influence monetary policy. On the other hand, central banks' parliamentary hearings increasingly gained relevance as a necessary tool to balance their independence and hold them accountable. Yet, to the best of our knowledge, there has been no empirical assessment of the relationship between ideology and parliamentarians' sentiments in monetary policy hearings. In this paper, we have presented the first results in this direction. Based on the case of the ECB's parliamentary hearings, we show that ideology matters for politicians' sentiments when discussing monetary policy with the central bank during the hearings.

We find that the main ideological dimension in these interactions is not the left–right divide, as predicted by partisan theory. Our estimates show that party positions on the pro-/anti-EU dimension are the most important political predictors of MEPs' sentiments towards the ECB, whereas the role of the traditional left–right divide is weaker and only materialises in connection to the crisis. Other ideological dimensions are not significantly correlated with sentiments.

Future research may seek to further interpret those results. For instance, the role of the pro-/anti-EU cleavage may reflect the mere extrapolation to monetary policy hearings of a cleavage that has played a broader structuring role in European and EP politics (as suggested in Cheysson and Fraccaroli, 2019). In this context, the relevance of the traditional left–right dimension has decreased in the European policy space. On the other hand, there may be a more prominent and specific role for attitudes towards the ECB as a marker of the pro-/anti-EU conflict, reflecting a persistent divide on the delegation of monetary policy to an independent central bank at European level.

Related to this point, our understanding of the substantive size of the correlation between party stances and sentiments would benefit from a broader comparative analysis. Is the link between ideology and sentiments stronger when MEPs speak to the ECB

[16] This measure could also be defined as 'net hawkishness', as suggested by Apel and Blix-Grimaldi (2012), since the score for hawkish terms is at the numerator.

compared to other EU institutions? Do Eurosceptic politicians display a similar degree of negative sentiments when they speak to other EU institutions? And, if not, what drives these differences? While these questions go beyond the scope of this paper, our work provides a good benchmark for such a comparative analysis.

Moreover, future research could explore whether – and if so how – the ECB responds to the sentiments expressed by MEPs in hearings. In particular, does the ECB engage with ideological pressure in the hearings or does it ignore it? This is relevant to understand the extent to which parliamentarians' ideology may have an influence on the ECB in view of its relationship with the sentiments of parliamentarians, in spite of the ECB's independence.

Future investigations may also look into the role of ideology in shaping other aspects of the parliamentarians' relationship with the central banks. For instance, further works could analyse the role of party ideology in shaping the focus of the debate with central bank representatives. The dictionaries used in this work to capture the focus on certain topics could be helpful in this regard. Finally, in the robustness section our results provide the first indicative evidence that MEPs' voting behaviour is linked with the way MEPs speak to the ECB. In particular, we have shown that a pro-EU voting behaviour is associated with more positive sentiments when speaking to the ECB. This relationship could be further investigated.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix

A.1. Distribution of MEPs' speeches by country

See Fig. A.1.

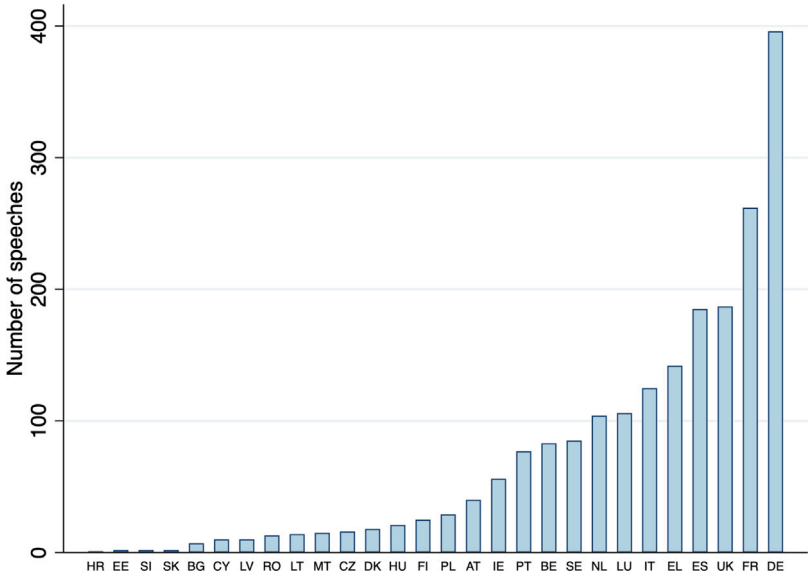

Fig. A.1. Number of speeches, by country (1999–2019).
Source: Authors' elaboration on transcript data.

A.2. MEPs' net sentiments, by country

See Fig. A.2.

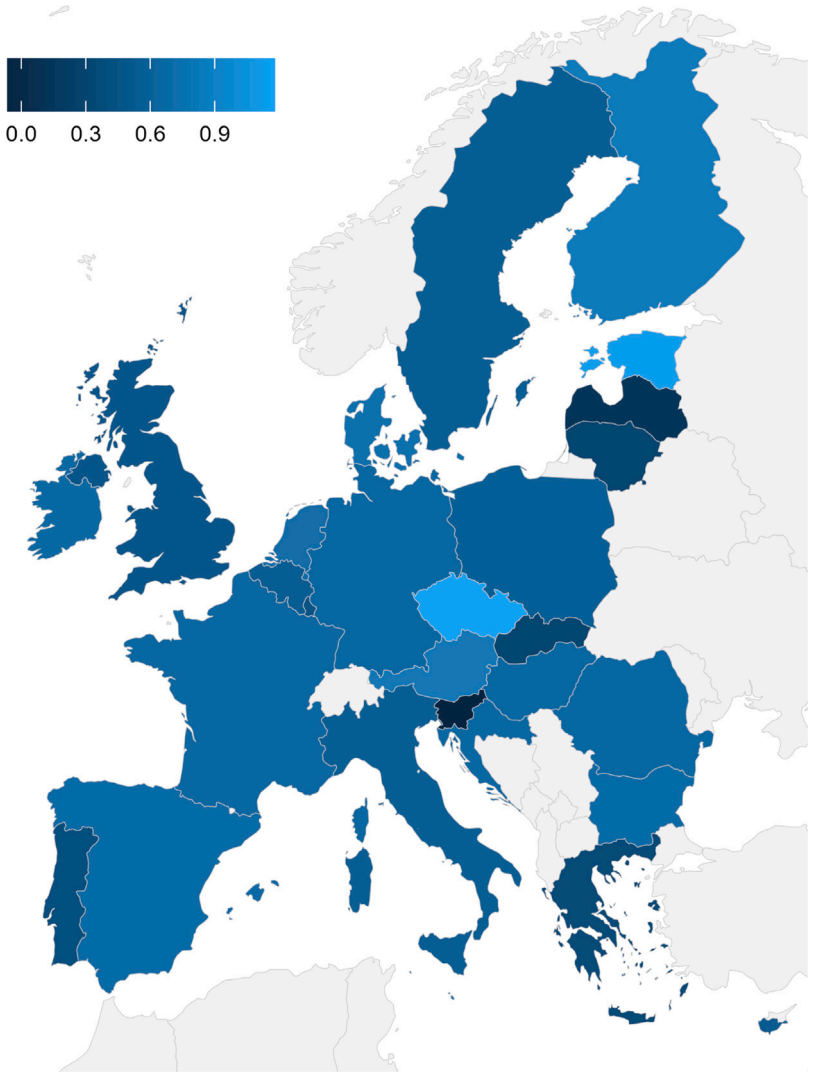

Fig. A.2. Average Net Sentiment Score using AFINN, by country (1999–2019). *Source:* Authors' elaboration on transcript data. The values are computed at speech-level using the AFINN lexicon and based on Eq. (1), and then aggregated depending on the country of the MEP. Darker shades indicate more negative sentiments (lower score), as reported in the legend.

A.3. Pro-/anti-EU and economic left–right party stances

Fig. A.3 plots the ideological positions of the MEPs in our sample on the variables *Pro-/Anti-EU* (y-axis) and *Economic Left/Right* (x-axis). Higher values of the pro-/anti-EU variable describe a more pro-European stance, whereas higher values on the left–right variable account for a more right-wing stance. Each dot corresponds to an MEP. Since MEPs' positions are at national party-level, when two or more MEPs are members of the same party in the same year, their position on the chart overlap. This can be visualised by the shade of the dots in the plot: the darker the dot in the figure, the higher the number of MEPs located in that position.

Fig. A.3 shows that MEPs are divided across the two dimensions. A first division distinguishes parties on the left, such as the far left, the greens and the socialists, from parties on the right, such as the Christian-Democrats, the conservatives and far right MEPs at the other extreme. The liberals occupy a relatively centrist position between the socialists and the Christian-Democrats. Some far right MEPs are located in a more centrist position than their centre-right peers from Christian-Democrat and Conservative parties. This result is explained by the recent shift of far right parties towards more left-wing leaning positions on economic issues, while keeping far right stances on other policy topics, such as civil rights (Hopkin, 2020; Harteveld, 2016; Ivaldi, 2015). The pro-/anti-EU dimension describes the second divide. The socialists, liberals and Christian-Democrats have very similar positions (i.e. comparable

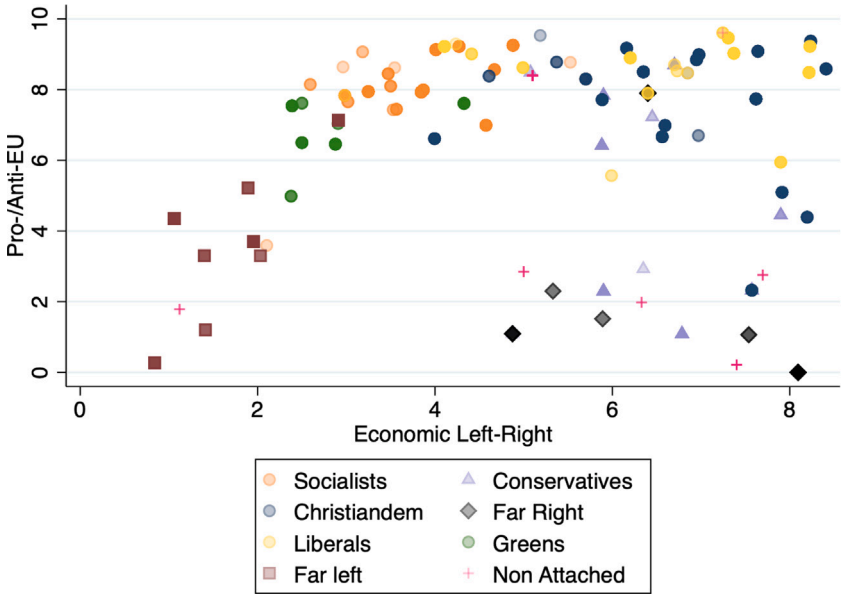

Fig. A.3. Pro-/Anti-EU and Economic Left–Right dimensions of the MEPs participating to the ECB's hearings, by political group (1999–2019). *Source:* Authors' elaboration on transcript data and CHES data. Each dot is the score of an MEP/speaker that feature in a certain hearing on the pro-/anti-EU and left–right scales as defined in the CHES database, which assigns scores at national party level. Each dot is coloured according to the MEP's political group. Since the scores on each dimension are assigned at party-level, dots related to MEPs from the same party in the same point in time overlap. Due to this overlap, some dots are darker than others, indicating that there is a larger number of MEPs in that same position of the chart.

scores), as they all assume a pro-European stance. The greens and the conservatives occupy a less supportive position relatively to these three groups, whereas the more anti-EU positions belong to parties from the far left and the far right groups.

While providing a description of parties' ideological locations, the chart is informative also on the non-monotonic relationship between the two dimensions. In particular, it shows that more extremist parties on the left–right spectrum tend to be also more Eurosceptic. Some works account for this difference by examining the non-linear effect of the left–right dimension (e.g. Nulty et al., 2016).[17] However, the literature on MEPs' voting behaviour has found these variables to be orthogonal (Hix et al., 2006; 2007; 2009; 2001).[18] Due to their orthogonality, these variables should be examined as separate.[19]

Another element that emerges from the chart is that parties in their degree of cohesiveness. We can examine this with more precision by looking at the standard deviation of each variable across different political groups, that is reported, together with the political group mean, in Table A.1 in Appendix. The greens are the most cohesive group on the European dimension, with a standard deviation of 0.68, followed by the socialists (0.70) and the liberals (0.75). The least cohesive group on this dimension is the far right, that displays a standard deviation (3.53) even higher than the group of non-attached MEPs (3.17). Concerning the left–right dimension, we find the highest degree of cohesiveness in the socialists (0.56) and the conservatives (0.62). The liberals and the far right occupy the opposite pole, as they display higher within-group heterogeneity.

A.4. Predicted values

See Figs. A.4 and A.5

[17] In practice, this would mean to control simultaneously for values on the left–right and squared values of the left–right.

[18] Most of this literature relies on scaling methods built to identify latent determinants of voting that are independent from one another. In this sense, the variables identified in these works generally correspond to left–right and pro-/anti-EU stances, which are therefore orthogonal from one another. In our database the correlation between the two variables is relatively low: −23 percent.

[19] In support of this claim, we regress sentiments on the interaction between pro-/anti-EU stances and economic left–right stances. The results, displayed in Table A.10 in the Appendix, show that sentiments are correlated with the Pro-/Anti-EU dimension alone.

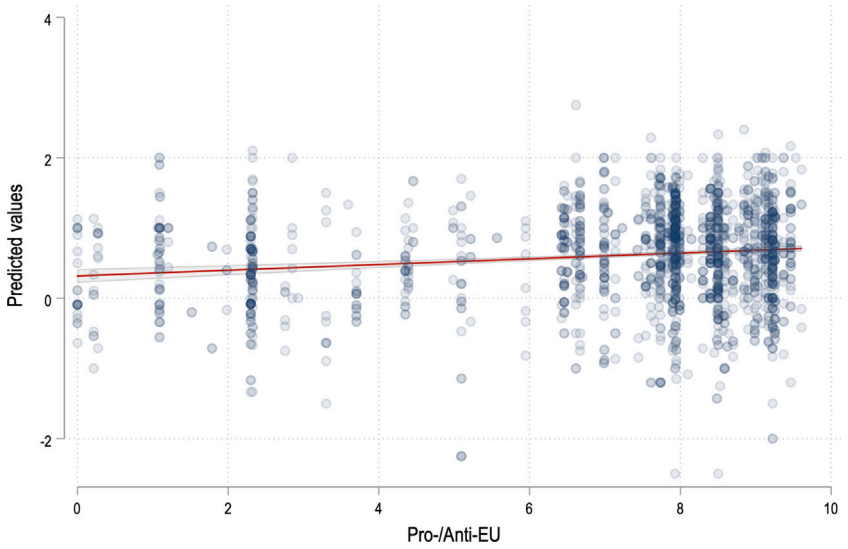

Fig. A.4. Predicted values: AFINN Net Sentiment Score and Pro-/Anti-EU dimension. *Source:* Authors' elaboration on transcript data. The solid line indicates the fitted values from the linear regression of the AFINN Net Sentiment Score on Pro-/Anti-EU stances. The shaded area represents the 95% confidence interval of the predicted mean.

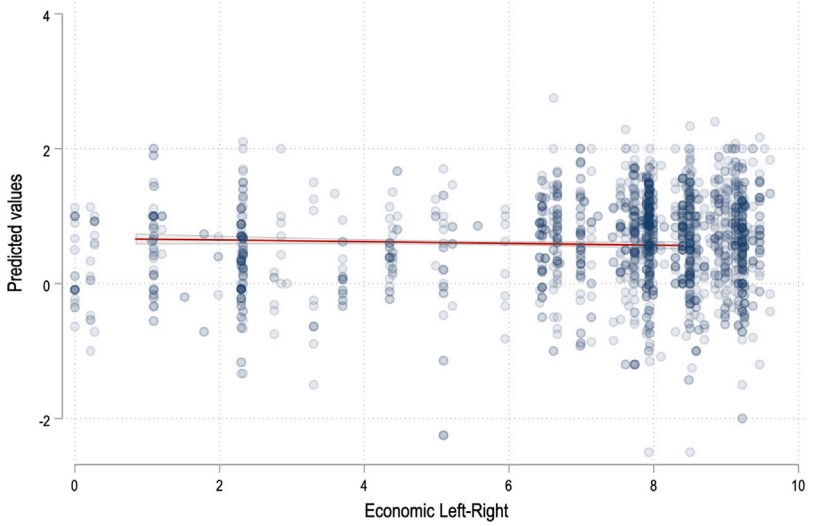

Fig. A.5. Predicted values: AFINN Net Sentiment Score and Economic Left–Right dimension. *Source:* Authors' elaboration on transcript data. The solid line indicates the fitted values from the linear regression of the AFINN Net Sentiment Score on Economic Left–Right stances. The shaded area represents the 95% confidence interval of the predicted mean.

A.5. Political group cohesiveness

See Table A.1

Table A.1
Political groups cohesiveness.

Political group	Dimensions	Mean	Standard deviation
Christian-Democrats	Pro-/Anti-EU	7.60	1.74
	Economic Left–Right	6.81	0.91
Socialists	Pro-/Anti-EU	8.26	0.70
	Economic Left–Right	3.98	0.56
Liberals	Pro-/Anti-EU	8.88	0.75
	Economic Left–Right	6.34	1.60
Conservatives	Pro-/Anti-EU	3.52	2.66
	Economic Left–Right	6.36	0.62
Greens	Pro-/Anti-EU	6.91	0.68
	Economic Left–Right	2.95	0.68
Far Left	Pro-/Anti-EU	3.97	1.99
	Economic Left–Right	1.71	0.68
Far Right	Pro-/Anti-EU	2.88	3.53
	Economic Left–Right	6.10	1.18
Non-Attached	Pro-/Anti-EU	6.34	3.17
	Economic Left–Right	5.38	1.29

A.6. Variables

See Tables A.2 and A.3.

A.7. Most frequent terms matched

Tables A.4 and A.5 report respectively the twenty most frequent positive and negative terms and their frequency. The first column reports the score assigned by the AFINN lexicon. The second column reports the term, while the third reports the number of times that term featured in the text data. For brevity, we display terms that report a score that is higher than 2 or lower than −2 according to the scale of the AFINN lexicon. By doing so, we select the terms that have a particularly strong positive or negative valence. Terms are sorted by their score (Column 1) and frequency (Column 3). Some of the terms listed, such as 'crisis', were removed from the sentiment dictionary given their ambiguity in the context of the hearings. No term with a negative score of −5 was detected, the lowest score being −4. Only one positive term with a score of 5 was detected: the term 'outstanding', which features 16 times in the hearings. As a robustness test, we removed this term from the lexicon in a separate specification, given its potential ambiguous use (e.g. 'outstanding loans').

A.8. Examples of MEPs' sentences

For each MEP's speech we report the MEP's full name, national party, European political group, Member State and date of the hearing.

A.8.1. Positive sentiments

Otmar Karas (Austrian People's Party, PPE, Austria — 27 April 2004). *Mr Trichet, Madam Chairman, I, too, would like to begin by thanking Mr Trichet personally for his cooperation with Parliament and for the way in which this dialogue has been enhanced. I regard the enhanced dialogue with the European Central Bank and, generally speaking, dialogue on economic and monetary policy in the European Union as a basic requirement if there is to be greater public understanding and hence greater confidence. That is expressed best by getting to grips with these issues in conversation with Parliament. We serve each other's purposes, and I am grateful to you for taking this approach. My group is also grateful to the European Central Bank for the priorities it has set, for the contents of the report and for the steady hand with which it fashions an independent monetary and stability policy. Your conclusions overlap with our own, and we endorse what you have to say. I have two questions to put to you. The first is this: to what extent will monetary integration and enlargement, about which you have spoken, have an effect on the European Union's stability and on any cyclical upturn? Is it possible to put figures on that? If it is, it will be important to quote those figures to the public. Now for my second; you were at the G-7 meeting in Washington. What do you see as its main results? What effects will the new US interest rate policy have on Europe, especially on its exports?*

Sylvie Goulard (Democratic Movement, ALDE, France - 4 October 2011). *Mr President, I have also done what Mr Gauzes has done; I have let the members of my group have their say. Simply, on behalf of the Group of the Alliance of Liberals and Democrats for Europe, I would like to say thank you, especially for two things. The first is that you are one of the few to have spoken out consistently on the area you were responsible for as a whole. We appreciate that, because those who think on a broad scale instead of focusing on their own narrow interests are few and far between. Secondly, you have had some extremely kind words to say to the Commission and to Parliament, for which*

Table A.2
Variables used and sources.

Variable	Description	Source
Textual data	Text of the hearings and various scores	European Parliament
Pro-/Anti-EU	Party position on European integration, 0–10	ParlGov/CHES
Economic Left–Right	Party position on economic left–right, 0–10	ParlGov/CHES
General Left–Right	Party position on left–right, 0–10	ParlGov/CHES
GAL-TAN	Party position on liberty–authority, 0–10	ParlGov/CHES
Populism	Dummy equal to 1 if party is populist, 0 otherwise	PopuList
Elections 1	Dummy equal to 1 if hearing takes place three months before an election in country c	Various sources
Elections 2	N. of days from the hearing day to the election day in country c	Various sources
In Government	Dummy equal to 1 if MEP's party is in government, 0 otherwise	ParlGov
Inflation	HICP inflation rate (%), monthly	Eurostat
Unemployment	Unemployment rate (%), quarterly	Eurostat
GDP	GDP, quarterly	Eurostat
Credit Gaps	Deviations of private credit-to-GDP from its trend	European Central Bank SDW
Yields	Long-term interest rates on govt. bonds, quarterly	Eurostat
Deficit	Government deficit, quarterly	Eurostat
Debt	Government debt, quarterly	Eurostat
Trust_ECB	Share of citizens that declare to trust the ECB (%)	Eurobarometer
Euro_support	Share of citizens that declare to support the euro (%)	Eurobarometer
EU_voting	MEPs' positions on Pro-/Anti-EU based on voting	Cheysson and Fraccaroli (2019)
LR_voting	MEPs' positions on left–right based on voting	Cheysson and Fraccaroli (2019)

Table A.3
Sample Mean and Standard Deviation for each variable.

Variable	Mean	Standard deviation
AFINN_average	0.595	0.678
Pro-/Anti-EU	7.173	2.420
Economic Left–Right	5.390	1.807
General Left–Right	5.405	1.960
GAL-TAN	4.952	2.321
Populism	0.124	0.330
Elections 1	0.055	0.229
Elections 2	759.148	454.373
In Government	0.761	0.426
Inflation	1.885	1.511
Unemployment	9.056	5.016
GDP	1.864	3.068
Credit Gaps	7.133	13.179
Yields	3.932	2.223
Deficit	−2.787	4.570
Debt	73.169	36.231
Trust_ECB	0.427	0.135
Euro_support	0.629	0.166
EU_voting	0.212	23.774
LR_voting	−3.611	24.388

Table A.4
Most frequent positive terms matched in AFINN dictionary.

Score	Term	Frequency
+5	outstanding	16
+4	win	10
	winner	4
	wonderful	4
	fantastic	2
	fun	2
	winning	2
	brilliant	1
	exuberant	1
	miracle	1
	overjoyed	1
	rejoiced	1
+3	good	258
	great	122
	greater	102
	best	74
	happy	46
	successful	39
	pleased	31
	nice	27
	grateful	25
	pleasure	17
	excellent	16
	perfectly	16
	glad	13
	popular	12
	wealth	12
	delighted	10
	devoted	8
	greatest	8
	praise	8
	exciting	7
	impressive	7

Table A.5
Most frequent negative terms matched in AFINN dictionary.

Score	Term	Frequency
−3	crisis	368
	bad	55
	worried	44
	lost	25
	worse	24
	worst	23
	loss	19
	warning	17
	panic	14
	badly	13
	worry	13
	warnings	12
	damage	11
	losing	10
	disastrous	9
	loose	8
	withdrawal	7
	charged	6
	criminal	6
	illegal	6
	scandal	6
−4	catastrophic	5
	fraud	2
	fraudulent	2
	hell	1

we are grateful, but I would like say that, with regard to the two issues we had to deal with together; I have only been here for two and a half years, like Mr Balz; not only did you have you some kind words to say but you also had the goodness to remind other interlocutors, who had in general been somewhat less attentive, of the importance of democratic legitimacy. Hence my recommendation: have a bit of a rest,

because we owe you a great deal, we really do owe you a great deal, and we have, on occasion been rather concerned to see you looking so tired. More importantly, however, do not go too far away! Stay in European affairs, not to explain to others what Parliament is trying to be but to explain to them that it is important that the people of Europe are involved in decisions and that they feel fully involved in the shared adventure as citizens of Europe. A huge thank you and, wherever you go, God speed! You also have the good taste, I believe, to have roots in a constituency that is dear to me and where the fresh air will very quickly do you good.

Gall Pelcz (Fidesz, PPE, Hungary — 16 December 2013) *We have touched on a large number of topics today. I would like to ask one question. We are all of the same mind when we say that the role played and action taken by the ECB in dealing with the crisis was crucial and outstanding. Mr Draghi, on December 10 there was a conference in Rome at which you stated that maintaining price stability would remain the task of the ECB in the medium term. You also expressed the idea that in the near future or even now we would have more opportunities than in the preceding preventive period. Would you tell us in detail what opportunities you had in mind and what instruments you were thinking of which the ECB might yet bring to bear?*

A.8.2. Negative sentiments

Beatrix von Storch (Alternative for Germany, EFDD, Germany — 29 May 2017). *Mr Draghi, at the start of the year you answered a question put by my colleagues Valli and Szanyi on dealing with the requirements under the Target2 system. On 18 January you answered as follows: "If a country were to leave the euro system, its national central bank's claims on all liabilities to the ECB would need to be settled in full". In this answer, you referred without being asked to the hypothetical scenario of an exit from the eurozone. An exit from the eurozone is of course the worst case. And if we are talking what would happen if, then perhaps we should rather talk about more immediate scenarios than a country leaving the euro. This is why I am rather surprised at the answer you gave in the Dutch Parliament at the beginning of the month. You were asked what would happen if a member of the eurozone has to restructure its debt, i.e. not an exit from the euro, but merely debt restructuring. And your answer on that occasion was: "We do not want to speculate on the probability of things that have no chance of happening". And then you complained in a rather irritated manner: "Why are you asking me that?" Now, this is exactly the question I am putting to you here, also with reference to the answer you gave my colleague who is sitting on my left at the beginning of January, when you replied to a hypothetical scenario, in fact the hypothetical worst-case scenario. What would happen if a member of the eurozone becomes insolvent and is forced to restructure their debt, particularly in view of the many billions of state bonds that figure in the ECB's books?*

Armonia Bordes (Workers' Struggle, GUE/NGL, France — 20 March 2000). *I can see the use of the Central Bank for industrialists, big companies and the employers in Europe. That is only a minuscule percentage of the European population but for wage earners the policy of your institution contributes to increasing unemployment. We have a monetary policy which exclusively takes into account the interests of the main industrialist and banking groups. You must know that these people fire people or scrap jobs even when their profits would be enough to absorb unemployment. European and national institutions only perpetuate this crazy, scandalous situation. We are the richest countries in the world yet there are 18 million unemployed and 50 or 60 million poor. So my question is, don't you think by continuing in this way you will end up by provoking the anger of people who work, who underlie the whole economy and are being forced to work under the threat of unemployment and poverty?*

Notis Marias (Independent Greeks, ECR, Greece — 24 September 2018). *Mr President, a few days ago, European Central Bank economists published a study entitled 'Learning about fiscal multipliers during the European sovereign debt crisis'. I have here a copy of the study, which states in so many words that the harsh budgetary austerity policy decided by the Eurogroup and the troika, in particular spending cuts in MoU countries such as Greece, proved disastrous owing to miscalculation of the fiscal multiplier. In fact, the consequences were dire. The countries concerned were plunged into an even bigger crisis, as evidenced in Greece by spiralling unemployment, thousands forced into poverty, pay and pension cuts, etc. The European Central Bank economists have now acknowledged their error regarding the multiplier, the IMF having drawn attention to it as early as 2015. I myself issued frequent warnings to you in the chamber that the continued spending cuts imposed by the troika were a mistake, simply driving the country still further into recession. In view of this and of the decisive role played by the ECB in formulating and monitoring these programmes, the question facing us, now that the true extent of the error and its calamitous consequences is out in the open, is the following: Is the European Central Bank is willing to compensate Greece for the enormous economic damage it has sustained? As you know, Mr President, the Greek people have been reduced to poverty and their economy is in tatters.*

Notis Marias (Independent Greeks, ECR, Greece — 24 September 2018).[20] *Mr President, now that you in the European Central Bank have reviewed the situation in the light of the above economic study, may I assume that you will consider the payment of damages to Greece, should it emerge that mistakes were indeed made by the troika? I realise that you find yourself in a very difficult situation and that it is not easy for the ECB to reply. No matter, we can come back to this in the future. My second question relates to pensions in Greece. Following your visit to Greece in September as part of the troika, from which it emerged that pension cuts were unnecessary, the question is whether you nevertheless intend to insist on this measure, although the current economic situation in Greece clearly does not warrant pension reductions.*

A.9. Results with alternative sentiment dictionaries

See Tables A.6 and A.7.

[20] During the hearing of 24 September 2018, MEP Notis Marias spoke twice. While MEPs generally speak only once per hearing, sometimes they speak twice, especially if they did not use all of their speaking time in their first question.

Table A.6
OLS estimates on sentiments computed with the Hu and Liu (2004) lexicon as dependent variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.031***	0.029***	0.032***	0.031***	0.031***	0.031***	0.032***
	(0.004)	(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
Economic Left–Right	−0.005	−0.004	−0.007	−0.007	−0.007	−0.008	−0.005
	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.036	0.034	0.034	0.040	0.042	0.086	0.221
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	No	No	No	Yes	Yes	Yes
Financial Controls	No	No	No	No	Yes	Yes	Yes
Fiscal Controls	No	No	No	No	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

Table A.7
OLS estimates on sentiments computed with the LSD lexicon as dependent variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.027***	0.024***	0.031***	0.030***	0.027***	0.030***	0.030***
	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)	(0.008)	(0.008)
Economic Left–Right	0.002	0.003	−0.002	−0.008	−0.005	−0.003	−0.001
	(0.007)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.010)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.013	0.013	0.021	0.026	0.035	0.050	0.131
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.10. Results with the unadjusted AFINN lexicon

See Table A.8.

Table A.8
OLS estimates on the unadjusted AFINN lexicon as dependent variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.042***	0.041***	0.041***	0.041***	0.041***	0.042***	0.035***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Economic Left–Right	−0.006	−0.009	−0.009	−0.009	−0.009	−0.011	−0.007
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.022	0.020	0.020	0.020	0.020	0.064	0.169
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.11. Results replacing the election variable

See Table A.9.

Table A.9
OLS estimates on AFINN as dependent variable and alternative control for election proximity.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.041***	0.039***	0.041***	0.040***	0.041***	0.047***	0.046***
	(0.006)	(0.007)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)
Economic Left–Right	−0.014	−0.014	−0.025**	−0.024**	−0.020*	−0.017	−0.015
	(0.009)	(0.009)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.022	0.023	0.026	0.030	0.031	0.080	0.212
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.12. Results of the interaction between pro-/anti-EU and economic left–right

See Table A.10.

Table A.10
OLS estimates on AFINN as dependent variable and with ideology interacted with crisis dummy.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.068***	0.072***	0.081***	0.102***	0.102***	0.073**	0.068**
	(0.020)	(0.021)	(0.024)	(0.028)	(0.029)	(0.033)	(0.032)
Economic Left–Right	0.016	0.023	0.025	0.051	0.052	0.013	0.013
	(0.022)	(0.023)	(0.029)	(0.033)	(0.034)	(0.038)	(0.039)
Pro-/Anti-EU ×Economic Left–Right	−0.005	−0.006*	−0.007*	−0.011**	−0.011**	−0.005	−0.004
	(0.003)	(0.003)	(0.004)	(0.005)	(0.005)	(0.006)	(0.006)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.024	0.024	0.027	0.034	0.035	0.081	0.213
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.13. Results controlling for the crisis

See Tables A.11 and A.12.

Table A.11
OLS estimates on AFINN as dependent variable and with ideology interacted with crisis dummy.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS
Pro-/Anti-EU	0.033***	0.034***	0.034***	0.030***	0.031***	0.037***
	(0.008)	(0.008)	(0.010)	(0.011)	(0.011)	(0.012)
Pro-/Anti-EU ×Crisis	0.041***	0.040***	0.045***	0.049***	0.051***	0.054***
	(0.008)	(0.008)	(0.011)	(0.011)	(0.011)	(0.011)
Economic Left–Right	0.002	−0.001	−0.009	−0.008	−0.005	0.001
	(0.010)	(0.011)	(0.013)	(0.014)	(0.014)	(0.015)
Economic Left–Right ×Crisis	−0.031***	−0.026**	−0.043***	−0.039***	−0.035**	−0.036**
	(0.011)	(0.011)	(0.014)	(0.014)	(0.015)	(0.015)
Observations	1,846	1,757	1,478	1,308	1,295	1,295
R-squared	0.032	0.028	0.031	0.032	0.033	0.084
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes
Country FE	No	No	No	No	No	Yes
Time FE	No	No	No	No	No	No

Table A.12
OLS estimates on AFINN as dependent variable and with ideology interacted with crisis-countries dummy variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Pro-/Anti-EU	0.039***	0.041***	0.047***	0.034***	0.035***
	(0.008)	(0.009)	(0.011)	(0.013)	(0.013)
Pro-/Anti-EU ×Crisis Countries	0.041***	0.038***	0.038***	0.045***	0.047***
	(0.007)	(0.008)	(0.010)	(0.010)	(0.010)
Economic Left–Right	0.001	−0.004	−0.015	−0.009	−0.004
	(0.011)	(0.012)	(0.014)	(0.016)	(0.017)
Economic Left–Right ×Crisis Countries	−0.025**	−0.019*	−0.035***	−0.033***	−0.029**
	(0.011)	(0.011)	(0.012)	(0.013)	(0.013)
Observations	1,846	1,757	1,478	1,308	1,295
R-squared	0.032	0.028	0.036	0.031	0.033
Electoral Controls	No	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes
Trust Controls	No	No	No	No	Yes
Country FE	No	No	No	No	No
Time FE	No	No	No	No	No

A.14. Results with general left–right dimension

See Table A.13.

Table A.13
OLS estimates on AFINN as dependent variable and Left–Right General dimension.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.039***	0.037***	0.035***	0.036***	0.038***	0.044***	0.043***
	(0.007)	(0.007)	(0.008)	(0.009)	(0.009)	(0.010)	(0.009)
Left–Right (General)	−0.011	−0.013	−0.021**	−0.017	−0.013	−0.012	−0.008
	(0.008)	(0.009)	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.022	0.023	0.024	0.028	0.030	0.079	0.212
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.15. Results with GAL-TAN

See Table A.14

Table A.14
OLS estimates on AFINN as dependent variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.042***	0.039***	0.036***	0.035***	0.038***	0.044***	0.043***
	(0.007)	(0.007)	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)
GAL-TAN	0.003	0.000	−0.004	−0.006	−0.005	−0.006	−0.003
	(0.007)	(0.008)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.021	0.021	0.021	0.026	0.029	0.078	0.211
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.16. Results with populism

See Table A.15

Table A.15
OLS estimates on AFINN as dependent variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.023***	0.028***	0.022*	0.032**	0.032**	0.034***	0.036***
	(0.008)	(0.008)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)
Populist	−0.207***	−0.145**	−0.183**	−0.085	−0.090	−0.118	−0.087
	(0.067)	(0.066)	(0.077)	(0.084)	(0.085)	(0.087)	(0.087)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.029	0.026	0.029	0.030	0.032	0.081	0.213
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.17. List of populist parties

See Table A.16.

Table A.16
List of Populist Parties represented in the hearings, by country.

Country	Party Name
Austria	Freedom Party of Austria
Liste Dr. Martin	
Belgium	Lijst Dedecker
Bulgaria	Citizens for European Development of Bulgaria
Czech Republic	Action of Dissatisfied Citizens
Finland	Finns Party (formerly known as 'True Finns')
France	National Front
	National Rally
Germany	The Left
	Alternative for Germany
Greece	Independent Greeks
	Coalition of the Radical Left
	Popular Orthodox Rally
Hungary	FIDESZ - Hungarian Civic Alliance
Ireland	Sinn Féin
Italy	Forza Italia
	The People of Freedom
	Five Star Movement
	(Northern) League
Spain	Podemos
United Kingdom	United Kingdom Independence Party

Note: The list includes the name of each party that appears in the ECON hearings and that is categorised as 'populist' in the PopuList database (Rooduijn et al., 2019). Therefore, if a populist party is not present in the list, it means that no MEP from that party spoke at the ECON hearing during the period under analysis.

A.18. Results on european dimensions interacted with EU government–opposition dummy

See Tables A.17–A.19

Table A.17
Classification of Political Groups supporting the European Commission.

Commission	Legislative term	Coalition
Prodi	1999–2004	Christian-Democrats, Socialists, Liberals, Greens, Non-attached
Barroso I	2004–2009	Christian-Democrats, Socialists, Liberals, Nationalists of AEN
Barroso II	2009–2014	Christian-Democrats, Socialists, Liberals
Juncker	2014–2019	Christian-Democrats, Socialists, Liberals, Non-attached

Table A.18
OLS estimates on AFINN as dependent variable and Policy Dimensions interacted with EU Government–Opposition dummy.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.054***	0.052***	0.047***	0.055***	0.055***	0.055***	0.064***
	(0.009)	(0.009)	(0.011)	(0.011)	(0.011)	(0.013)	(0.014)
Pro-/Anti-EU ×EUGovt	−0.026	−0.035**	−0.040	−0.036	−0.034	−0.027	−0.022
	(0.016)	(0.016)	(0.024)	(0.026)	(0.026)	(0.034)	(0.034)
Economic Left–Right	0.005	0.001	−0.015	−0.012	−0.011	−0.024	−0.023
	(0.013)	(0.014)	(0.016)	(0.016)	(0.016)	(0.017)	(0.018)
Economic Left–Right ×EUGovt	−0.029*	−0.024	−0.015	−0.012	−0.010	0.016	0.023
	(0.018)	(0.018)	(0.020)	(0.022)	(0.022)	(0.024)	(0.025)
EUGovt	0.297*	0.366**	0.401*	0.273	0.245	−0.085	−0.079
	(0.163)	(0.166)	(0.212)	(0.227)	(0.235)	(0.312)	(0.301)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.025	0.026	0.027	0.032	0.033	0.081	0.217
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

Table A.19
OLS estimates on AFINN as dependent variable and Policy Dimensions interacted with Domestic Government–Opposition dummy.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.064***	0.061***	0.051***	0.054***	0.054***	0.062***	0.062***
	(0.012)	(0.013)	(0.014)	(0.016)	(0.016)	(0.017)	(0.018)
Pro-/Anti-EU ×Govt	−0.031**	−0.032**	−0.013	−0.022	−0.020	−0.021	−0.024
	(0.014)	(0.015)	(0.018)	(0.020)	(0.020)	(0.021)	(0.022)
Economic Left–Right	0.026	0.021	0.023	0.005	0.004	0.030	0.044
	(0.030)	(0.031)	(0.033)	(0.035)	(0.035)	(0.037)	(0.038)
Economic Left–Right ×Govt	−0.046	−0.037	−0.054	−0.031	−0.027	−0.055	−0.068
	(0.031)	(0.033)	(0.036)	(0.037)	(0.038)	(0.041)	(0.042)
Govt	0.412*	0.368	0.341	0.272	0.238	0.418	0.529*
	(0.234)	(0.247)	(0.261)	(0.273)	(0.275)	(0.293)	(0.298)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.028	0.026	0.027	0.031	0.032	0.083	0.216
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.19. Results on subsamples of political groups

See Tables A.20 and A.21

Table A.20
OLS estimates on AFINN as dependent variable excluding the Christian-Democrats and the Socialists.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pro/Anti-EU	0.043***	0.045***	0.045***	0.045***	0.045***	0.044***	0.043***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.010)	(0.011)
Left–Right	0.001	−0.006	−0.006	−0.006	−0.006	−0.006	−0.004
	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)	(0.014)	(0.015)
Observations	721	688	688	688	688	688	688
R-squared	0.039	0.051	0.051	0.051	0.051	0.105	0.152
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Year FE	No	No	No	No	No	No	Yes

Notes: Robust standard errors in parentheses.
*p<.05; **p<.01; ***p<.001.

Table A.21
OLS estimates on AFINN as dependent variable excluding Eurosceptic groups.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pro/Anti-EU	0.038***	0.035***	0.035***	0.035***	0.035***	0.031***	0.025***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)
Left–Right	−0.009	−0.012	−0.012	−0.012	−0.012	−0.013	−0.009
	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Observations	1,660	1,579	1,579	1,579	1,579	1,579	1,579
R-squared	0.015	0.015	0.015	0.015	0.015	0.059	0.080
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Year FE	No	No	No	No	No	No	Yes

Notes: In these estimates we drop the following political groups: UEN, EFD, EFDD, and ENF.
Robust standard errors in parentheses.
*p<.05; **p<.01; ***p<.001.

A.20. Text bags for topic analysis

Price stability:

price(s), inflate, inflation, inflationary, HICP, CPI, deflation, deflator, deflationary, deflate, hyperinflation, hyperinflationary.

Employment:

employ(-ee/-er), (un)employment, underemployment, firing, fixed-term, full-time, part-time, inactivity, job(s), jobless, labo(u)r, labo(u)r force, labo(u)r market, self-employed, temporary, vacancy(-ies), work(er), workers, working, working (age/time), works.

Financial stability:

financial (in)stability, bank (in)stability, (financial) crisis, financial stress, financial risk, systemic risk, contagion, financial shocks, bubble, financial imbalance, misalignment, credit growth, banks, insurers, hedge funds, investment funds, financial markets, securities markets, leverage, capital, derivatives, off-balance sheet exposures, special purpose vehicles, off-balance sheet vehicles, payment systems, settlement systems, central securities depositories, non-performing loans, npls, non-performing exposures, foreign currency loans, correlated exposures.

Table A.22
OLS estimates on AFINN as dependent variable and including the hawkish–dovish ratio as regressors.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pro-/Anti-EU	0.039***	0.037***	0.037***	0.035***	0.033***	0.040***	0.039***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
Left–Right	−0.012	−0.013	−0.013	−0.008	−0.004	−0.006	−0.002
	(0.008)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)
Observations	1,846	1,757	1,755	1,552	1,539	1,539	1,539
R-squared	0.023	0.023	0.024	0.028	0.031	0.080	0.192
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

Table A.23
OLS estimates on AFINN as dependent variable and including topic indicators as regressors.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pro-/Anti-EU	0.038***	0.036***	0.036***	0.034***	0.032***	0.039***	0.039***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
Left–Right	−0.014*	−0.016*	−0.016*	−0.011	−0.008	−0.008	−0.004
	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Price stability terms	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Financial stability terms	0.002*	0.001	0.001	0.002*	0.002*	0.002	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Employment terms	−0.001	−0.001*	−0.002*	−0.002**	−0.002**	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	1,846	1,757	1,755	1,552	1,539	1,539	1,539
R-squared	0.026	0.026	0.027	0.033	0.035	0.083	0.196
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.20.1. Topic–sentiments as dependent variables

See Tables A.24–A.26

Table A.24
OLS estimates on AFINN × Price Stability topic as dependent variable.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.340	0.192	−0.506	−0.770*	−0.729*	−0.653*	−0.607
	(0.286)	(0.314)	(0.390)	(0.428)	(0.429)	(0.368)	(0.441)
Economic Left–Right	−0.224	−0.384	−0.551	−0.618	−0.301	−0.221	−0.398
	(0.497)	(0.492)	(0.561)	(0.611)	(0.593)	(0.618)	(0.585)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.001	0.009	0.020	0.027	0.030	0.053	0.136
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

Table A.25
OLS estimates on AFINN × Financial Stability topic as dependent variable.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pro-/Anti-EU	−0.022	0.009	−0.113	−0.076	−0.062	0.082	−0.120
	(0.163)	(0.183)	(0.246)	(0.274)	(0.280)	(0.273)	(0.279)
Economic Left–Right	0.111	−0.031	−0.099	−0.185	−0.145	−0.258	−0.430
	(0.241)	(0.263)	(0.309)	(0.322)	(0.345)	(0.360)	(0.349)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.000	0.014	0.019	0.019	0.020	0.039	0.126
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

Table A.26
OLS estimates on AFINN × Employment topic as dependent variable.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pro-/Anti-EU	0.013	−0.061	−0.053	0.031	0.035	−0.026	−0.008
	(0.241)	(0.268)	(0.388)	(0.415)	(0.412)	(0.413)	(0.448)
Economic Left–Right	−0.329	−0.366	−0.470	−0.247	−0.175	−0.045	0.143
	(0.319)	(0.331)	(0.385)	(0.409)	(0.487)	(0.523)	(0.592)
Observations	1,846	1,757	1,478	1,308	1,295	1,295	1,295
R-squared	0.001	0.004	0.006	0.010	0.012	0.032	0.106
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

A.21. Baseline model excluding the hearings translated with google translate

See Table A.27.

Table A.27
OLS estimates on AFINN as dependent variable excluding the hearings translated with Google Translate.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Pro-/Anti-EU	0.043***	0.041***	0.042***	0.042***	0.042***	0.042***	0.039***
	(0.007)	(0.007)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Economic Left–Right	−0.016*	−0.014	−0.025**	−0.021*	−0.017	−0.013	−0.015
	(0.009)	(0.009)	(0.010)	(0.011)	(0.012)	(0.012)	(0.012)
Observations	1,618	1,529	1,293	1,123	1,110	1,110	1,110
R-squared	0.028	0.027	0.032	0.043	0.046	0.101	0.222
Electoral Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Economic Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal Controls	No	No	No	Yes	Yes	Yes	Yes
Trust Controls	No	No	No	No	Yes	Yes	Yes
Country FE	No	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	No	No	Yes

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