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ECB exchange rate communication

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Abstract

We revisit the debate on the effectiveness of central bank communication on exchange rates, contrasting a skeptical view, which holds that communication neither moves exchange rates nor influences them in the desired direction, with an optimistic view that it does. Using nearly 100 official ECB statements on exchange rates made during its monetary policy press conferences since 2002, we show that the ECB tends to mention the exchange rate when the real effective exchange rate deviates from its equilibrium value, whereas journalists' questions are mainly responsive to the nominal exchange rate. Studying the effects of these mentions, our findings by and large support the skeptical view: after controlling for monetary policy shocks, exchange rate communication has limited immediate effects on the euro exchange rate, which fade quickly. Effectiveness is particularly limited when interest rates are at their effective lower bound.

JEL Codes: E52, E58, F31, O24

Keywords: Central bank communication, exchange rates, high frequency identification, natural language processing

Non-technical summary

This paper revisits the longstanding debate about whether central bank communication effectively influences exchange rates, focusing on statements made by the European Central Bank (ECB). Central banks use communication as a key policy tool, not only to provide information about their actions and economic outlook but also to address developments in exchange rates and their implications for monetary policy.

In July 2022, for instance, ECB President Lagarde noted that higher inflationary pressures were "stemming from the depreciation of the euro exchange rate". This echoed her earlier statement in September 2020 where she emphasized that the Governing Council would "carefully assess incoming information, including developments in the exchange rate, with regard to its implications for the medium-term inflation outlook". Such statements on exchange rates have a long history. In some cases, concerns of policy-makers were made more explicit, perhaps signaling to markets a preferred direction. For example, in January 2005, then ECB President Trichet said: "As regards exchange rates, we confirm our position, expressed when the euro rose sharply, that such moves are unwelcome and undesirable for economic growth".

The paper contrasts two opposing views: the skeptical perspective, which argues that central bank communication has little to no impact on exchange rates, and the optimistic perspective, which contends that such communication can influence exchange rates in the desired direction.

In a first step, this paper studies the drivers behind the ECB's exchange rate mentions during monetary policy statements and the questions posed by journalists in the subsequent press conference Q&A sessions. The analysis reveals that the ECB is more likely to mention the exchange rate when the real effective exchange rate significantly diverges from its equilibrium value. In contrast, the study finds that the nominal exchange rate plays a larger role in prompting journalists' questions during the press conference Q&A.

In a second step, the paper evaluates the effects of these exchange rate mentions. It investigates whether statements about the exchange rate influence exchange rate movements and whether such movements align with the desired direction conveyed in the statements. Statements appear to have a limited and short-lived impact, with any effects fading within a week. The paper also identifies variations in the effectiveness of exchange rate communica-

tion over time. During the early years of the sample, exchange rate mentions were somewhat effective in moving exchange rates in the intended direction. However, once interest rates reached their effective lower bound (ELB), such communication became less effective.

By and large, the findings support the skeptical view: exchange rate communication has limited immediate effects on exchange rate movements after accounting for monetary policy shocks, and these effects fade quickly—especially so, but not exclusively, when interest rates are constrained by the ELB. These results align with recent literature highlighting the dominant role of monetary policy shocks as drivers of exchange rates.

1 Introduction

Communication has become a central policy tool for central banks. Typically, central bank statements provide information on central bank actions, assessments of the current and future economic outlook, the monetary policy reaction function, and potentially the expected policy path. As part of this, central banks occasionally address the exchange rate, often commenting on how exchange rate developments influence the economic outlook, the role of the exchange rate in monetary policy transmission, or how it factors into policymakers' assessments.

In July 2022, for instance, European Central Bank (ECB) President Lagarde noted that higher inflationary pressures were "stemming from the depreciation of the euro exchange rate". This echoed her earlier statement in September 2020 where she emphasized that the Governing Council would "carefully assess incoming information, including developments in the exchange rate, with regard to its implications for the medium-term inflation outlook". Such statements on exchange rates have a long history. In some cases, concerns of policymakers were made more explicit, perhaps signaling to markets a preferred direction. For example, in January 2005, then ECB President Trichet said: "As regards exchange rates, we confirm our position, expressed when the euro rose sharply, that such moves are unwelcome and undesirable for economic growth".[1]

Whether or not such statements move exchange rates at all, and in which way, remains an open empirical question. Two main views emerge. The skeptical view argues that, given the immense volume of transactions in global foreign exchange markets, statements about the exchange rate—and even direct interventions through currency purchases or sales—have minimal impact on exchange rates.[2] Furthermore, central banks committed to market-based currencies often emphasize that the exchange rate is not a policy objective, which likely diminishes the effect of their communications. For example, ECB officials frequently underscore that the euro's exchange rate is not a policy target.[3] In contrast, US officials

[1] Communication by central banks on exchange rates should not be confused with joint statements by Ministers and Governors of the Group of Seven (G7) advanced economies on exchange rates, which fall outside the scope of this paper. For a detailed study of such statements, see Fratzscher (2009).

[2] This view was prevalent among scholars and policymakers in the 1970s-1980s (see, e.g., Jurgensen et al. (1983), Sarno and Taylor (2001)).

[3] This was reiterated by President Lagarde in December 2022, when she stated "Conventional wisdom will tell you that we do not target any exchange rate" and furthermore noted that the ECB was "monitoring and ... very attentive to variation of exchange rates."

have repeated for most of the past 30 years that a strong dollar is in the US and the world's interests—for instance, on 14 April 2025, Treasury Secretary Bessent reiterated the line heard from his predecessors:"We have a strong dollar policy".[4] Finally, when major central banks communicate about the exchange rate, they typically use carefully crafted statements to avoid unsettling markets.[5]

In contrast, the optimistic view argues that central bank communication can effectively move exchange rates in the desired direction and reduce their volatility under certain conditions, as supported by a substantial body of empirical research.[6] Consistent with this view, the continued public expression of views on the exchange rate by policymakers highlights its potential (or perceived) usefulness as a policy tool.

We revisit this debate by analyzing the ECB's communication on the euro exchange rate since its early days. We identify nearly 100 statements on exchange rates between 2002 and mid-2023 from the 217 press conferences following monetary policy meetings of the ECB's Governing Council, the ECB's primary communication tool.

As a first step, we study the determinants of such statements, by investigating which factors lead the ECB to mention the exchange rate in its press conferences, and which factors trigger questions by journalists during the press conference. We also use a general-purpose language model emotions detector (Hartmann (2022)) to characterize the sentiment expressed in the statements and construct directional measures indicating whether the exchange rate is expected to appreciate, depreciate, or remain stable. Using these sentiment indicators, we analyze intra-day developments within a 2-hour time window around each press conference to assess whether statements trigger an immediate exchange rate reaction and movements in the expected direction. This analysis controls for monetary policy and central bank information shocks, following Jarociński and Karadi (2020), as well as the surprise component of major macroeconomic data releases and the underlying exchange rate trend. Additional analysis of exchange rate movements at lower frequencies enables us to

[4]Views on the matter in the current U.S. administration vary, however. The "strong-dollar policy" was first articulated by Treasury Secretary Robert E. Rubin, shortly after he took office on 11 January 1995 (Buiter and Rahbari (2011). In the United States and in Japan, exchange rate communication is not the responsibility of the central bank but of the US Treasury and Japan's Ministry of Finance, which are in charge of exchange rate policy and foreign exchange interventions in their respective jurisdictions (Henning (1994)).

[5]For example, see Henning (2007) for details on procedures for producing exchange rate statements followed in the euro area.

[6]This literature, reviewed in greater detail below, includes Fatum and M. Hutchison (2003), Jansen and De Haan (2005), Fratzscher (2006), Fratzscher (2008a), Fratzscher (2008b), Fratzscher (2009), Beine et al. (2009), Conrad and Lamla (2010), Mirkov et al. (2019), and Fratzscher et al. (2019).

test whether higher-frequency effects persist over one or several days—or are reversed.

Our analysis points to three main results. First, we find that the ECB is more likely to mention the exchange rate in the monetary policy statement that opens the press conference (formerly called the "introductory statement") when the real effective exchange rate diverges strongly from its equilibrium value. In contrast, we find that the nominal exchange rate plays a larger role in prompting journalists' questions during the press conference Q&A, with the likelihood of questions also increasing when the exchange rate has been discussed in speeches during the intermeeting period. This suggests that journalists respond more to relatively visible factors, whereas the ECB bases its exchange rate communication more on underlying fundamentals.

Second, in examining whether exchange rate mentions influence exchange rate movements (regardless of their direction), we find that monetary policy, rather than statements about the exchange rate, is the major driver of such movements. Monetary policy and central bank information shocks alone explain approximately 16% of the variation in exchange rate changes at high frequency during ECB press conferences. Mentions of the exchange rate add little explanatory power and are often not statistically significant.

Third, we find no strong association between the directional index—which characterizes the desired direction of the exchange rate movement expressed in the statements—and the actual exchange rate reaction. Exchange rate statements appear to be somewhat effective only when they convey a desire for an appreciation of the exchange rate. And when communication moves the exchange rate in the intended direction on impact, the effect fades quickly and is no longer statistically significant after the first week.

Last, our results differ over the sample period. During the first years, we find that exchange rate mentions are effective, insofar as the directional sentiment is associated with movements of the exchange rate in the desired direction. This is in line with the earlier literature, which has largely studied precisely this time period. However, once interest rates were at their effective lower bound (ELB), exchange rate mentions are no longer associated with a move of the exchange rate in the desired direction. Taken together, over the entire sample period, the latter effect dominates, leading to our finding of an ineffective exchange rate communication.

Our findings thus lend support to the skeptical view of the effectiveness of exchange rate communication. They are consistent with a recent literature that stresses the importance of

monetary policy shocks as powerful drivers of exchange rates (including, e.g., Kalemli-Özcan (2019), Gürkaynak et al. (2021), Karau (2023) and Jarociński (2024)). It is therefore crucial to control for monetary policy shocks in order to reduce risks of confounding the effect of exchange rate mentions.

Literature. Our paper contributes to three strands of literature. It builds on the long-standing empirical research on the effectiveness of actual and oral foreign exchange interventions, including Dominguez and Frankel (1993), Beine et al. (2002), Fatum and M. Hutchison (2003), Dominguez (2003), Kearns and Rigobon (2005), Jansen and De Haan (2005), Fratzscher (2006), Fratzscher (2008a), Fratzscher (2008b), Fratzscher (2009), Conrad and Lamla (2010), Mirkov et al. (2019), Fratzscher et al. (2019) and Pinzon-Puerto and Villamizar-Villegas (2025). A key strength of our paper is its provision of new evidence covering the past two decades—a markedly different environment compared to earlier studies, which typically analyzed data only up to the early 2000s. Our extended sample captures unprecedentedly large shocks—such as the global financial crisis, the COVID-19 pandemic, and Russia's invasion of Ukraine—as well as significant changes in the foreign exchange market, including the rise of electronic and high-frequency trading, which may have altered the effectiveness and transmission channels of central bank communication on exchange rates. Moreover, we employ state-of-the-art empirical methods, including the identification of economic shocks using high-frequency data and natural language processing techniques, to address earlier challenges related to endogeneity and potential biases from the human coding of exchange rate mentions. Our paper also contributes to the broader literature on central bank communication and its impact on financial markets, including, for example, Cochrane and Piazzesi (2002), Gürkaynak et al. (2005), Blinder et al. (2008), Nakamura and Steinsson (2018), and Blinder et al. (2024). Our distinctive contribution lies in providing comprehensive and updated evidence on the effects of exchange rate communication by one of the world's most prominent central banks. Finally, our paper contributes to the growing literature that applies natural language processing techniques to monetary and exchange rate economics, including Hansen et al. (2018), Gholampour and van Wincoop (2019), Bianchi et al. (2023), Ferrari Minesso et al. (2022), and Bertsch et al. (2024). Our contribution is the application of these techniques specifically to central bank communication on exchange rates.

Section 2 outlines the economic mechanisms that may drive the influence of central bank communication on exchange rates. Section 3 details the data used in the analysis. Section 4 presents the findings on the determinants of exchange rate mentions in the press conference, while Section 5 discusses the exchange rate reactions to these mentions. Finally, Section 6 concludes with implications for policy and future research.

2 Economic mechanisms

2.1 Theoretical channels

How does central bank communication work, and through which channels can it influence exchange rates?

Long-standing theory suggests that actual interventions—purchases or sales of currencies in foreign exchange markets—can influence exchange rates through the portfolio balance channel. Changes in the supply of domestic currency relative to foreign currency induce shifts in their relative prices, provided they are imperfect substitutes (Kouri (1976), Branson (1977), Driskill and McCafferty (1980), Branson and Henderson (1985)). More recently, Gabaix and Maggiori (2015) proposed a theory of exchange rate determination grounded in capital flows within imperfect financial markets, drawing inspiration from earlier portfolio balance models. In this framework, financiers play a central role, operating under financial constraints that limit their ability to take positions based on their risk-bearing capacities and existing balance sheet risks. In such models, actual foreign exchange interventions are effective because, as a form of capital flow, they alter the balance sheets of constrained financiers. In the absence of financial frictions, however, actual interventions would have no impact on the exchange rate.

In the case of central bank communication, the portfolio balance channel is irrelevant—it is effectively shut by construction. Instead, the more potent channel is signaling. Central bank communication can influence expectations in the foreign exchange market by signaling future monetary policy or potential actual interventions, thereby affecting today's exchange rate as a forward-looking variable (Mussa (1981)). A related insight is offered by Fanelli and Straub (2021), who, in a small open economy model where the central bank acts as a social planner, demonstrate that optimal foreign exchange interventions should be smooth in terms of the interest rate spread between domestic and foreign bond yields. Additionally, opti-

mal policy involves promises of future foreign exchange interventions even after the shocks have passed—a form of "foreign exchange forward guidance." This further underscores the importance of signaling as a key channel through which communication can influence the exchange rate.

However, if the role of communication extends beyond merely helping market participants anticipate future policy decisions, it may also enable central banks to influence the exchange market by providing new information about the current state or expected future trajectory of the economy (Cieslak and Schrimpf (2019), Jarociński and Karadi (2020), Jarociński (2022)). As a result, central bank communication may impact the exchange rate through a coordination channel. Statements on the exchange rate can serve as a coordination device, helping market participants align their views on a new equilibrium and thereby moving the exchange rate in a manner consistent with fundamentals (Sarno and Taylor (2001), Sarno and Taylor (2002), Amato et al. (2002)). This channel connects to the literature on the microstructure of exchange markets (Evans and Lyons (2002), Peiers (1997)), which highlights the role of information heterogeneity among different types of market participants and the process by which information is incorporated into asset prices.

2.2 Evidence and limitations

Whether or not central bank exchange rate communication is effective, and through which channels, is ultimately an empirical question.

There is broad agreement that actual purchases or sales of currencies can affect exchange rates in the short run—typically at the daily frequency—even when they are sterilized (see, e.g., Dominguez and Frankel (1993), Beine et al. (2002), Dominguez (2003), Kearns and Rigobon (2005), Fratzscher (2008a), Mirkov et al. (2019), Fratzscher et al. (2019)). For example, the seminal study by Dominguez and Frankel (1993) found statistically significant effects of interventions by the Federal Reserve and the Bundesbank on exchange rates through the portfolio balance channel during the mid-1980s. This evidence challenges the view that intervention policy is ineffective due to the depth and liquidity of foreign exchange markets. More recently, Fratzscher et al. (2019) provided further evidence of portfolio balance effects in a large panel of 33 countries over the period 1995 to 2011. Their finding that larger interventions lead to stronger impacts on exchange rates aligns with the standard mechanism of portfolio balance models, where larger interventions induce greater adjust-

ments in private sector portfolios, resulting in larger changes in exchange rates and risk premia. Pinzon-Puerto and Villamizar-Villegas (2025) consider an emerging market economy, Colombia, which issues foreign currency options under specific and publicly known conditions - which can be considered close to FX interventions. In this case, both settlement of the options and announcements of the policy have similar impacts, but the effects of communication are amplified in scenarios of leaning with the wind policies, high credibility, and increased foreign exchange volatility.

Moreover, evidence suggests that oral interventions by major central banks can move exchange rates in the desired direction and reduce their volatility (Fatum and M. Hutchison (2003), Jansen and De Haan (2005), Fratzscher (2006), Fratzscher (2008b), Fratzscher (2008a), Beine et al. (2009)), both in the short term and over the medium to longer term (Fratzscher (2006), Fratzscher (2008b)). Additionally, Fratzscher (2009) shows that the Group of Seven (G7) key industrialized economies have been effective in moving G3 currencies in the desired direction at horizons of up to three months, though not beyond.

In terms of transmission channels, Fratzscher (2006) argues that actual and oral interventions have fundamentally different effects on exchange rate volatility. Communication primarily reduces both the historical volatility of spot rates and the implied volatility of option contracts, whereas actual interventions tend to increase both types of volatility. This difference may stem from how each type of intervention is conducted: actual interventions are often secret, creating uncertainty among market participants about their occurrence, magnitude, and whether they are part of a series. In contrast, communication provides a public and widely accessible signal, which may reduce information heterogeneity and, consequently, volatility. Supporting this view, Fratzscher (2008b) finds that the effectiveness of interventions depends on foreign exchange market conditions, particularly the level of market uncertainty and the positioning of participants, consistent with the coordination channel hypothesis. Furthermore, Fratzscher et al. (2019) show that oral interventions significantly increase the success rate of actual interventions during turbulent times. This highlights the credibility of central bank communication in volatile phases and underscores its connection to the signaling and coordination channels, which are key mechanisms through which communication can influence exchange rates.

The majority of these empirical studies focus on samples that include observations only up to the early 2000s. As a result, they do not address the past two decades, which have

been marked by major shocks—such as the global financial crisis, the euro debt crisis, the COVID-19 pandemic, and Russia's invasion of Ukraine alongside rising geopolitical tensions—that may have altered both the effectiveness and transmission channels of central bank communication on exchange rates. Additionally, many earlier studies relied on human coding of exchange rate statements to assess the direction desired by policymakers (e.g., appreciation, depreciation, neutral), a method potentially prone to unconscious bias or interprative challenges. In contrast, more recent work employs natural language processing methods to mitigate such biases, often focusing on actual interventions or monetary policy communication by central banks. For example, Naef (2024) uses machine learning and survey methods to study daily foreign exchange interventions by the Bank of England between 1987 and 1992, while Bertsch et al. (2024) apply advanced natural language processing techniques to analyze the textual content of speeches from 53 central banks and their impact on exchange rates. Similarly, an ECB blog post (Bouscasse et al. (2023)) uses text analysis to show that differences in policy tone between the ECB and the Fed influenced euro-dollar exchange rate changes during the period 2020–2023.

Earlier studies often relied on daily data, in contrast to the recent empirical macroeconomic literature, which emphasizes the importance of using high-frequency data to identify the effects of central bank monetary and information shocks (Cochrane and Piazzesi (2002), Gürkaynak et al. (2004), Nakamura and Steinsson (2018)). An early example of intra-daily data analysis is Dominguez (2003), which examines the effects of interventions by G3 central banks during the period 1987–1995. Additionally, Conrad and Lamla (2010) study the impact of the ECB's monetary policy communication during press conferences using high-frequency EUR-USD exchange rate data from 1999 to 2006, and more recently, Bricongne and Marolleau (2025) study the effect of monetary policy surprises in 11 countries on their on exchange rates. Finally, Ferrari Minesso et al. (2021) conduct a high-frequency analysis and show that the impact of monetary policy on the exchange rate has been increasing while policy rates were at their effective lower bound. Like our study, many papers in this literature address omitted variable bias by incorporating the news component of major macroeconomic data releases and monetary policy announcements. [7]

[7]For example, Karau (2023) demonstrates that the majority of short-term nominal exchange rate fluctuations among large economies can be attributed to changes in the relative stance of their monetary policies. Specifically, US monetary policy shocks relative to the euro area account for 74 percent of short-term fluctuations in the USD-EUR exchange rate—a share significantly larger than that of other variables.

3 Data

3.1 Exchange rates

In our analysis, we focus on the euro-dollar exchange rate. Daily rates are obtained from Refinitiv, while intraday movements on ECB press conference days are sourced from the euro area monetary policy event-study database (Altavilla et al., 2019). This database provides exchange rate movements corresponding to different segments of the ECB's communication on press conference days. We use the time window spanning the press conference, which is defined as the change from median quote from the window 14:15-14:25 before the press conference to the median quote in the window 15:40-15:50 after it. Our analysis begins in 2002, when high-frequency surprises become available, and extends through June 2023.

3.2 Exchange rate communication during the ECB's press conference

The press conference is the ECB's primary communication tool. From its inception, the ECB has announced its monetary policy decision via a press release, followed by a press conference. The press conference begins with a monetary policy statement (referred to as the "introductory statement" until June 2021) and is followed by a Q&A session with journalists and the ECB president and vice president. Initially held monthly, these press conferences have been conducted eight times per year since 2015. Over our sample period, we cover a total of 217 press conferences. All relevant newswires report about the press conference in real time, through headline news. Given that they are produced under high time pressure, these stick very closely to the text of the original. For our analysis, this has the advantage that we can be sure that i) markets learn about the content of the press conference in real time, and ii) at this point in time, they get to read the original content of the press conference, whereas journalistic interpretations of the text only arrive subsequently.

We therefore retrieve the text of press conferences from the ECB website, and search the text of the monetary policy statements and the Q&A session for mentions of the exchange rate. We look for the following keywords: "exchange rate", "appreciat*", "depreciat*", "dollar", "interven*", and subsequently check each hit whether it does indeed refer to the exchange rate. We classify each paragraph that contains at least one reference to the ex-

Figure 1: EURUSD exchange rate and FX communication during ECB press conferences.
Notes: The figure shows occurrences of exchange rate mentions in the introductory statement and the Q&A session over time together with the EURUSD exchange rate.

change rate as one "exchange rate mention". Figure 1 illustrates the evolution of these mentions in ECB press conferences alongside the EUR/USD exchange rate. The Appendix provides several examples of such exchange rate mentions, from the monetary policy statement as well as from the questions and answers.

Mentions of the exchange rate can be grouped into four broad categories (see Table 1 for an overview of the categories and the number of observations for each in the monetary policy statements). First, in the context of the quarterly macroeconomic projection exercises, ECB staff makes a technical assumption about the future path of the exchange rate.[8] Such mentions occasionally appear in the press conference—we identify seven instances (e.g., "On the basis of current assumptions for energy and exchange rate developments, annual inflation rates are expected to remain low in the coming months, owing in particular to energy price developments," 5 September 2013).

Second, the ECB emphasizes that it will monitor exchange rate developments going forward (e.g., "At the same time, the recent volatility in the exchange rate represents a source of uncertainty which requires monitoring with regard to its possible implications for the medium-term outlook for price stability," 7 September 2017). In our dataset, we identify 24 such instances. Third, the monetary policy statement addresses the impact of exchange rate movements on inflation and the broader economy (e.g., "The strengthening of the euro

[8]Bilateral exchange rates are assumed to remain unchanged over the projection horizon at the average levels prevailing in the ten working days ending on the cut-off date.

Table 1: Exchange rate mentions by topic, and number of observations in the monetary policy statements

Topic	Description	Count
Technical assumptions	Exchange rate is mentioned as a technical assumption in staff forecast	7
Monitoring of the exchange rate	Statements regarding the need to monitor the exchange rate due to its impact on the economy and inflation	24
Economic effect of exchange rate	Statements regarding the exchange rate's impact on the economy and inflation	61
Concerns about exchange rate	Statements express concerns about volatility or direction/level of the exchange rate	6

Notes: The table classifies mentions related to the exchange rate in the monetary policy statement into topics. Given the small number and repetitive nature of the mentions, a manual approach was most appropriate. To guide the classification, we first ran a hierarchical clustering on the textual similarity of the mentions, which offered a rough indication of possible groupings. The final classification, however, was based on manual revision, with each mention assigned to a topic according to the descriptions provided.

exchange rate is a new factor suggesting a potential for lower inflation rates," 4 July 2002). This category constitutes the majority of mentions, with 61 identified instances. Fourth, the ECB occasionally takes a position on exchange rate levels or volatility, often expressing concern (e.g., "With regard to exchange rates, we again particularly stress stability and remain concerned about excessive exchange rate moves," 5 February 2004, or "As regards exchange rates, we confirm our position, expressed when the euro rose sharply, that such moves are unwelcome and undesirable for economic growth," 13 January 2005). These instances are relatively rare, accounting for six mentions in our database: three expressing concern over recent moves and three where the President explicitly opposes the recent moves.

Figure 2 illustrates the different mentions over time alongside the euro-dollar exchange rate. The figure reveals distinct clustering of mentions. The first cluster occurs in the early 2000s, during a period of significant and sustained appreciation of the exchange rate. A second cluster emerges around 2015, when the exchange rate experienced a substantial depreciation. The third cluster appears in the aftermath of the pandemic, where exchange rate developments are discussed in the context of initially low and subsequently high inflation.

Questions from journalists during the Q&A session of the press conference often focus on the ECB's outlook for the exchange rate, its perspective on the transmission mechanism (i.e., how specific exchange rate movements impact the economy, particularly inflation), or its reaction function (i.e., how exchange rate movements are factored into monetary policy

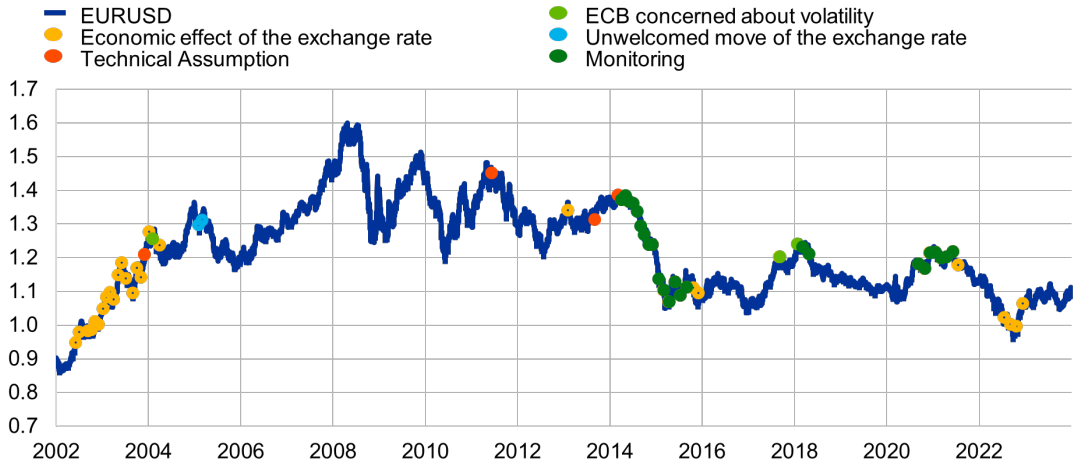


Figure 2: EURUSD exchange rate and FX communication in ECB monetary policy statements.

Notes: The figure shows the different exchange rate mentions over time alongside the euro-dollar exchange rate.

decisions). Occasionally, questions also aim to discern whether the ECB is comfortable with recent exchange rate developments or views them with concern.

The answers to such questions mostly refer to or reiterate earlier statements made by the ECB or by the G7. Usually, the ECB President emphasizes that the ECB monitors (but does not target) the exchange rate and refrains from commenting on the desirability of exchange rate movements.

Table 2 presents summary statistics on exchange rate mentions. The exchange rate is referenced in 167 out of 217 press conferences, accounting for over 75% of all cases. When mentioned in a press conference, we find an average of 4 references, though this varies significantly; in one instance, the exchange rate was mentioned 19 times. Mentions are far less frequent in the monetary policy statements, occurring in only 28% of press conferences, with an average of 1.6 mentions and a maximum of 3. In contrast, exchange rates are discussed more extensively during the Q&A sessions—nearly 50% of press conferences include at least one relevant question from journalists, and in two-thirds of all press conferences, at least one answer contains a reference to the exchange rate. Notably, there are instances where the ECB president mentions the exchange rate in an answer even when the journalist's question did not reference it.

Having collected the exchange rate mentions and classified their content, we next characterize the sentiment they convey. Constructing a sentiment index is challenging because the mentions are rarely explicit about the desired direction of the exchange rate. To address

Table 2: Summary statistics on exchange rate mentions

	Total	MPS	Questions	Answers
Number of events with mentions	167	60	107	144
% of events with mentions	77%	28%	49%	66%
Total number of mentions	682	98	240	346
Avg. number of mentions, if mentioned	4.1	1.6	2.2	2.4
Max. number of mentions in event	19	3	9	11

Notes: MPS stands for Monetary Policy Statement.

this, we employ a general-purpose language model emotions detector (Hartmann, 2022). This model, trained on English text from sources such as Twitter, Reddit, student self-reports, and TV dialogue, detects seven types of emotions: anger, disgust, fear, joy, neutral, sadness, and surprise.[9] Given an input text, the model outputs its emotional content by assigning a probability (between 0 and 1) to each of the seven emotions. The results are intuitive. For example, when the exchange rate is mentioned as a technical assumption in the context of projection exercises, the mention is primarily categorized as emotionally neutral. Similarly, discussions about the effect of the exchange rate on the economy are largely neutral. In contrast, mentions indicating that the ECB will monitor future exchange rate developments are associated with a relatively high share of fear, as are mentions where the ECB expresses concerns about specific exchange rate developments.

The sentiment of each mention is classified as positive (and assigned a value of 1) on the baseline index if the value for joy, a positive emotion, exceeds the time series average of that emotion across all mentions (0.14). It is classified as negative (and given a value of -1) if the sum of the probabilities of the four negative emotions exceeds the sample average of the sum of these negative emotions (0.32). mentions are classified as neutral (and assigned a value of 0) otherwise. As a robustness check, we employ an alternative index, where the thresholds are set at fixed values of 0.2 for joy and 0.4 for the sum of negative emotions, respectively. The latter thresholds are heuristic: taking the simple maximum across positive, neutral, and negative emotions would bias classifications toward neutral (as is common in central bank texts) or toward negative (since four emotions are aggregated against one). Our chosen thresholds strike a balance between these biases, and validation against the few mentions

[9]For related analyses in the area of central bank communication, see Alexopoulos et al. (2024); Barry et al. (2025); Curti and Kazinnik (2023); Gorodnichenko et al. (2023). The latter paper employs an emotion detector for voice, which is equivalent to our usage of an emotion detector for text. The other papers measure emotions in text as we do, but based on manually classified mentions that are then used to train a model, before applying this to the full set of mentions. Given the small number of mentions in our application, we need to rely on a pre-trained emotion detector.

expressing explicit fear or concern confirms they are correctly classified as negative. [10]

Finally, from these sentiment measures, we construct directional indices (a discrete and a continuous version) that indicate whether the exchange rate would be expected to appreciate or depreciate in response to a mention. We do so in three steps. First, for mentions indicating that an appreciation (depreciation) of the euro is dampening (stimulating) inflation, we classify the sentiment as positive (negative) if inflation during that period is above the ECB's inflation target of 2% and as negative (positive) otherwise. This is the case for 48 mentions. Note that for these cases, the direction can be directly inferred, so we do not use the emotion content.

Second, for mentions that discuss a strengthening or weakening of the euro, but not in the context of inflation or price developments, we base our classification on the emotional content of the mentions. We count 13 such cases. In particular, we keep the sign of the sentiment measure for mentions that discuss a strengthening of the euro (as a positive discussion of a strengthening seems to suggest that an appreciation is desired, and a negative discussion suggests a disposition towards a depreciation). For mentions discussing a weakening of the euro, we reverse the sign of the sentiment measure. This means that positive mentions about a strengthening of the euro and negative mentions about a weakening are coded as +1, while positive mentions about a weakening of the euro and negative mentions about a strengthening are coded as -1. Neutral mentions remain unchanged.

Third, for the remaining mentions, which mention the exchange rate but do not make a reference to the direction of its movements, we directly use the sentiment measure (37 cases, of which 14 are neutral).

Based on this coding, if the exchange rate reacts in line with the expressed content, we would expect a positive relationship between the directional index and the exchange rate. It should appreciate in response to mentions with a directional index of +1 and depreciate in response to mentions with a directional index of -1. For instance, the sentence "looking further ahead, the euro exchange rate, which has strengthened since early this year, and the overall economic environment should contribute towards reducing inflationary pressure" is classified as indicating that an appreciation of the exchange rate is desirable. In contrast, the mention "as regards exchange rates, we confirm our position, expressed when the euro rose

[10] If the value for joy exceeds the threshold (whether the time series average or 0.2), and simultaneously, the sum of the probabilities of negative emotions exceeds the threshold (whether the sample average or 0.4), the mention is classified as neutral; however, these are rare cases in our dataset. Using sample-average thresholds, we observe two such cases, whereas none occur when applying the fixed thresholds (0.2 and 0.4).

sharply, that such moves are unwelcome and undesirable for economic growth" is classified as indicating that a depreciation is desirable.

Since a single press conference may include multiple mentions, we aggregate the directional sentiment across all mentions to construct it at the press conference level. We do so in two ways. First, we sum the discrete directional sentiment measure of each mention (for instance, if a press conference contains two positive, one neutral and one negative mention, the sentiment is given as $1 + 1 + 0 + (-1) = 1$). Second, we sum the underlying emotional probabilities, for a continuous measure. To make the positive and negative sentiment measures comparable, we standardize each series (both positive and negative) by dividing by its standard deviation. Subsequently, we sum the standardized probabilities (in the above example, if the standardized probability of joy for the two directionally positive mentions were 0.3 and 0.25 and the standardized sum of the probabilities of the negative emotions of the negative mention were 0.5, the sentiment is given as $0.3 + 0.25 + 0 + (-0.5) = 0.05$).[11]

Figure 3 presents the instances where we infer either a positive or a negative verbal intervention from the resulting directional indices, while Figure C.1a and Figure C.1b display the resulting indices based on the discrete and continuous measures, respectively.

3.3 Exchange rate communication in speeches

To assess whether the reaction to exchange rate mentions made during the ECB press conference is influenced by the intensity of related communication through speeches in the intermeeting period preceding the press conference, we also collect information about exchange rate communication in speeches delivered by the ECB president. As noted by Bertsch et al. (2024), speeches are a common channel for conveying exchange rate-related messages across many central banks. We abstain from including speeches by other members of the ECB's Executive Board, since policy-relevant communication about the exchange rate is usually seen to be in the hands of the President (compared to, for instance, more academic speeches about exchange rates).[12]

To extract policy-relevant mentions in speeches, keyword matches alone are not sufficient, as they tend to overstate the extent of exchange rate communication. In most cases,

[11] Note that for the continuous index, whenever we derive directional sentiment by reversing the sign of the sentiment index, we use the original sentiment-index value. For example: if the mention is positive about the depreciation of the euro, we take the value of joy but reverse its sign.

[12] The full database is available at: https://www.ecb.europa.eu/press/key/html/downloads.en.html.

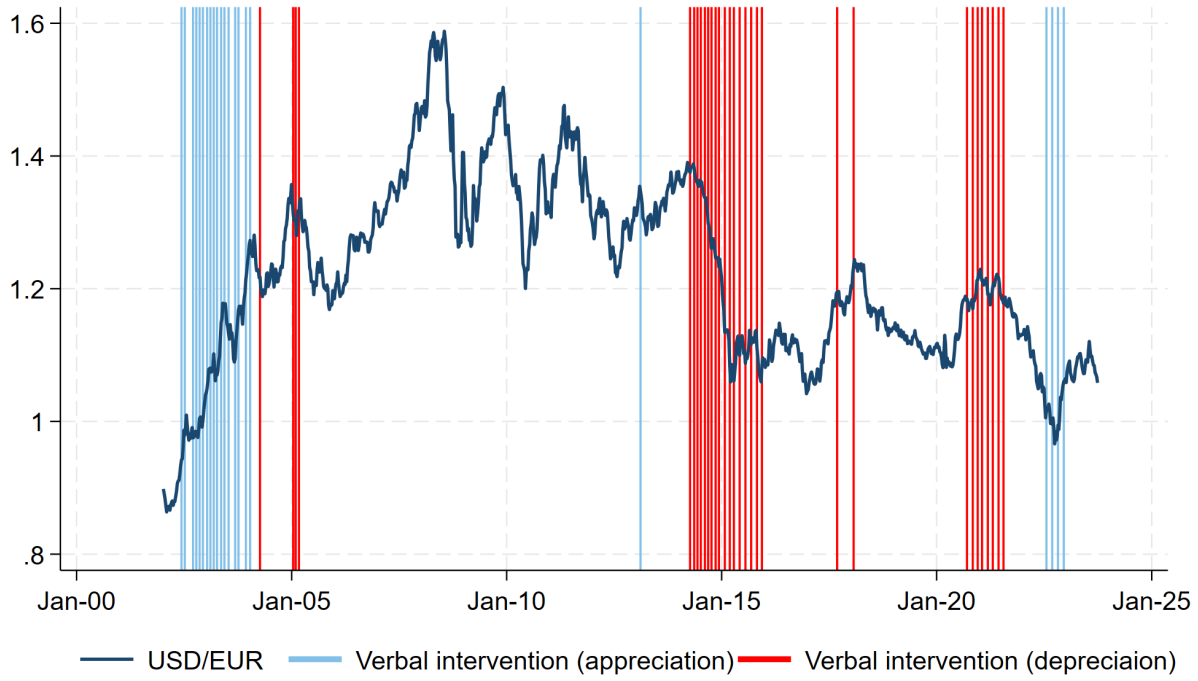


Figure 3: EURUSD exchange rate and desired direction of exchange rate move.
Notes: The figure shows the directional index over time alongside the euro-dollar exchange rate.

references to the exchange rate are not directly related to policy communication, often occurring in conference settings (e.g., discussions on the role of the exchange rate in a currency union) or in analyses of exchange rate pass-through to prices.

To isolate policy-relevant references, we implement a two-step filtering procedure. First, we identify candidate passages in intermeeting speeches using keyword patterns capturing references to exchange rates and expressions related to euro appreciation, depreciation, strength, or weakness.[13] Second, we evaluate each passage using a large language model to determine whether it refers to developments in the euro exchange rate. This step removes mentions unrelated to policy communication—such as academic or conference discussions—and retains only passages referring to euro exchange rate developments. We identify 58 speeches containing 68 relevant mentions of exchange rate developments. Figure 4 shows the evolution of these mentions in ECB President speeches alongside the EURUSD exchange rate.

[13]The keyword search relies on regular expressions capturing: *exchange rate(s)*; euro appreciation and depreciation (e.g., `euro appreciat*`, `euro depreciat*`, *appreciation of the euro*, *depreciation of the euro*); and expressions of euro strength or weakness (e.g., *stronger euro*, *lower euro*, `euro strength*`, `euro weak*`).

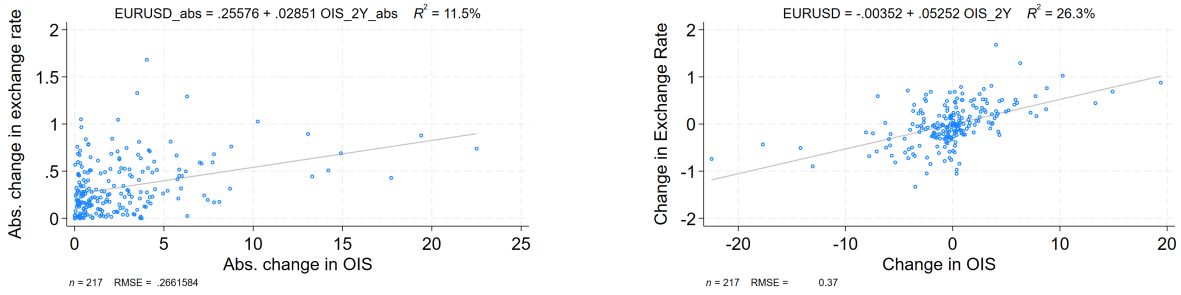
Figure 4: EURUSD exchange rate and FX communication in ECB President speeches.
Notes: The figure shows the number of exchange rate mentions in ECB President speeches over time together with the EURUSD exchange rate.

3.4 Monetary policy and macroeconomic surprises

An important variable to control for in our econometric analysis is the extent to which the monetary policy decision and its communication surprised markets, as this is known to have significant (and immediate) effects on the exchange rate (Bricongne and Marolleau, 2025; Conrad and Lamla, 2010; Ferrari Minesso et al., 2021). We measure monetary policy surprises using the reaction of the 2-year OIS rate over the entire press conference window, as provided by the ECB monetary policy event-study database (Altavilla et al., 2019). Figure 5a and Figure 5b show the absolute monetary policy surprise plotted against the absolute change in the exchange rate over the press conference window (left panel) and the monetary policy surprise plotted against the change in the exchange rate (right panel). The figure demonstrates a strong correlation. In the left panel, the absolute monetary policy surprise accounts for more than 11% of the variation in the absolute changes of the euro-dollar exchange rate, while in the right panel, the monetary policy surprise explains 25% of the variation of the exchange rate changes themselves.

Controlling for monetary policy surprises has important implications for the interpretation of our findings: It implies that we study the effects of exchange rate mentions on the actual exchange rate above and beyond their effect on monetary policy expectations.

Given the recent literature that differentiates between monetary policy shocks and central



(a) Absolute changes (b) Changes

Figure 5: Reaction of the exchange rate to monetary policy surprises.

Notes: The figures show the absolute monetary policy surprise plotted against the absolute change in the exchange rate over the press conference window (left panel) and the monetary policy surprise plotted against the change in the exchange rate (right panel).

bank information shocks by comparing stock market responses to those of interest rates (e.g., Jarociński and Karadi (2020)), we also differentiate these two types of surprises. We allow for a different effect of the change in the 2-year OIS rate if this change and the change in the Euro Stoxx 50 have the same sign, indicating the presence of an information shock component. We source the response of the Euro Stoxx 50 during the press conferencefrom the ECB monetary policy event-study database (Altavilla et al., 2019). Additionally, we account for macroeconomic data releases that could potentially move markets during the press conference. Following Balduzzi et al. (2001), we calculate the surprise component for each release by subtracting the median forecast recorded in the corresponding Bloomberg survey from the actual announcement and standardizing this difference by its standard deviation, i.e.,

$$S = \frac{\text{actual} - \text{median}}{\text{stdev}(\text{actual} - \text{median})}$$

The exact timestamps of announcements are available on Bloomberg, allowing us to focus exclusively on announcements that coincide (at least for several instances) with the press conference. We then test, using univariate regressions, whether these macroeconomic surprises have a statistically significant effect on the exchange rate. In these preliminary tests, we ensure that all news identified as important in earlier studies on the euro/dollar exchange rate by Anderson et al. (2003), Andersen et al. (2007), and Ehrmann and Fratzscher (2005) are included. Since most announcements occur in the morning hours of the reporting country and the ECB press conference takes place in the afternoon, we identify six relevant announcements, all of which pertain to the United States. These are: Initial Jobless Claims, Continuing Jobless Claims, Manufacturers' New Orders Total, Trade Balance of Goods and

Services, Durable Goods New Orders Industries, and the Producer Price Index.[14]

4 Determinants of exchange rate mentions in the ECB press conference

Our first analysis studies when the exchange rate is mentioned in the press conference. We do so by means of a probit analysis, i.e. we estimate the following regression:

$$M_t = \begin{cases} 1 & \text{if } M_t^* = \alpha + \beta X_t + \varepsilon_t > 0 \\ 0 & \text{otherwise} \end{cases}$$

Here M_t represents a dummy variable equal to one if the exchange rate is mentioned during the press conference on day t and X_t denotes a vector of potential determinants. We calculate heteroskedasticity-robust standard errors. Separately for the monetary policy statements and the questions posed by journalists, we analyze the extent to which these are responsive to: i) movements in the nominal exchange rate, ii) deviations of the real effective exchange rate from its equilibrium value, and iii) mentions of the exchange rate in intermeeting communication, to determine whether these affect the likelihood of the exchange rate being discussed during the press conference.

Table 3 provides results for the determinants of exchange rate mentions in the monetary policy statement, presenting marginal effects at the mean for continuous variables and at 0 for binary variables. The results indicate that the preceding trend in *nominal* exchange rates is not a significant factor: neither the standard deviation of the euro/dollar exchange rate since the previous press conference nor the absolute value of the exchange rate trend over the intermeeting period[15] appear to have any notable influence (see Table B.1). Also when we differentiate between upward and downward movements in the exchange rate trend, no discernible effect emerges. In contrast, deviations of the *real effective* exchange rate from its equilibrium do matter. We measure the equilibrium exchange rate using a monthly interpolation of the quarterly behavioral equilibrium exchange rate (BEER) developed by

[14]The corresponding Bloomberg tickers are INJCJC Index, INJCSP Index, TMNOCHNG Index, USTBTOT Index, DGNOCHNG Index, and FDIUFDYO Index.

[15]Measured as the difference between the median value of the 5 days before a given press conference and the median value of the 5 days after the previous press conference.

Ca' Zorzi et al. (2022).[16] It is not the absolute deviation that is significant (nor whether the deviation is large overall, or if there is a large over- or undervaluation), but rather the trend in this deviation.[17] Specifically, we find that the ECB is more likely to touch upon the exchange rate in its monetary policy statement, the more the real effective exchange deviation from its equilibrium value changes (Column 5). A one-standard-deviation change in the real effective exchange rate gap (relative to the previous month) is associated with a 7.2% increase in the likelihood of the exchange rate being mentioned in the monetary policy statement. When the movement in the real exchange rate gap is particularly strong, exceeding the 80th or falling below the 20th percentile, this probability rises to about 20% (Column 6). Column 7 indicates that the effect is predominantly observed when the gap becomes more positive or less negative.

Next, we analyze whether changes in the REER are more significant when they move away from or toward its equilibrium level. Column 8 differentiates between these directions, showing that movements in the real effective exchange rate *away* from the equilibrium are somewhat more strongly associated with mentions in the monetary policy statement, both in terms of economic magnitude and statistical significance.

Furthermore, the frequency with which the exchange rate is mentioned in intermeeting speeches by the ECB president appears to correlate with the number of mentions included in the monetary policy statements (Column 9).

The results differ significantly for the questions posed by journalists, as shown in Table 4. In this case, we always control for whether the exchange rate was mentioned in the monetary policy statement. This proves to be a key determinant—journalists are more likely to ask about the exchange rate if it is already referenced in the statement. Specifically, when the exchange rate is mentioned in the monetary policy statement, the likelihood of journalists raising questions about it increases by approximately 15%.

As for the other determinants, results differ markedly from those studied in Table 3. First, while real exchange rate disequilibria determine whether the ECB chooses to address the exchange rate, it is the *nominal* exchange rate that plays a greater role in prompting questions from journalists. Large movements in the nominal exchange rate trigger more

[16] Among the alternative equilibrium measures proposed by Ca' Zorzi et al. (2022), we chose the BEER to explicitly account for economic fundamentals. See Appendix D for details.

[17] As with the nominal exchange rate, we measure the trend as the difference between the median value of the 5 days before a given press conference and the median value of the 5 days after the previous press conference.

questions, particularly when the exchange rate appreciates. In contrast, the real effective exchange rate appears to be less relevant. Finally, there is also a higher probability of questions being asked when the exchange rate has been discussed more frequently in inter-meeting speeches by the President. This suggests that journalists are more responsive to relatively visible factors, such as movements in the nominal exchange rate and prior communications, whereas the ECB's exchange rate communication is more grounded in underlying fundamentals, such as the extent to which the real effective exchange rate diverges from its equilibrium value.[18]

[18] Table B.2 replicates the table without controlling for whether the exchange rate was mentioned in the monetary policy statement, and the results remain robust. Table B.3 and Table B.4 present analogous specifications where the dependent variable indicates whether the exchange rate was mentioned in the answers, controlling for mentions in the monetary policy statement in the former and additionally in the questions in the latter. The results display similar dynamics and suggest that mentions in the answers are often correlated with those in the questions.

Table 3: Determinants of exchange rate mentions—monetary policy statement

	(1) IS mention	(2) IS mention	(3) IS mention	(4) IS mention	(5) IS mention	(6) IS mention	(7) IS mention	(8) IS mention	(9) IS mention
Nominal exchange rate trend (abs. change) (std.)	0.029								
	(0.029)								
Nominal exchange rate trend | > 0 (std.)		0.030							
		(0.033)							
Nominal exchange rate trend | < 0 (std.)		-0.026							
		(0.032)							
REER deviation from equil. (abs.) (std.)			0.028						
			(0.031)						
REER from top/bottom 20 pctile				0.102					
				(0.089)					
Δ REER deviation from equil. (abs.) (std.)					0.072**				
					(0.030)				
Δ REER from top/bottom 20 pctile						0.204***			
						(0.063)			
Δ REER deviation from equil. | > 0 (std.)							0.092***		
							(0.032)		
Δ REER deviation from equil. | < 0 (std.)							-0.047		
							(0.032)		
Δ REER towards REER equil. (std.)								0.060*	
								(0.033)	
Δ REER against REER equil. (std.)								0.078**	
								(0.034)	
PS									0.481***
									(0.141)
Observations	217	217	217	217	217	217	217	217	217

Notes: The table reports probit estimates where the dependent variable is indicated in the respective column. Robust standard errors are reported in parentheses. The reported coefficients are the marginal effects at the mean for continuous variables and at 0 for binary variables. Nominal exchange rate trend is defined as the absolute change of the difference in the median level of the nominal exchange rate five days before the press conference minus the median level of the nominal exchange rate five days after the previous press conference. We measure the deviation from equilibrium exchange rate based on the behavioral equilibrium exchange rate (BEER) developed by Ca' Zorzi et al. (2022). REER changes are sampled at the monthly frequency. PS refers to the number of mentions in speeches by the ECB President mentioning the exchange rate, delivered in the preceding intermeeting period. MPS refers to the monetary policy statement.

Table 4: Determinants of exchange rate mentions— questions by journalists

	(1) Q. mention	(2) Q. mention	(3) Q. mention	(4) Q. mention	(5) Q. mention	(6) Q. mention	(7) Q. mention	(8) Q. mention	(9) Q. mention	(10) Q. mention
Is mentioned, IS	0.148**	0.139*	0.140*	0.159**	0.140*	0.151**	0.141*	0.133*	0.156**	0.093
	(0.075)	(0.076)	(0.076)	(0.075)	(0.075)	(0.076)	(0.077)	(0.077)	(0.077)	(0.084)
Nominal exchange rate trend (abs. change) (std.)		0.071**								
		(0.036)								
Nominal exchange rate trend | > 0 (std.)			0.114***							
			(0.043)							
Nominal exchange rate trend | < 0 (std.)			-0.017							
			(0.039)							
REER deviation from equil. (abs.) (std.)				-0.061*						
				(0.036)						
REER from top/bottom 20 pctile					0.133					
					(0.111)					
Δ REER deviation from equil. (abs.) (std.)						-0.008				
						(0.034)				
Δ REER from top/bottom 20 pctile							0.036			
							(0.089)			
Δ REER deviation from equil. | > 0 (std.)								0.057		
								(0.040)		
Δ REER deviation from equil. | < 0 (std.)								0.061		
								(0.039)		
Δ REER towards REER equil. (std.)									0.008	
									(0.038)	
Δ REER against REER equil. (std.)									-0.031	
									(0.037)	
PS										0.059*
										(0.035)
Observations	217	217	217	217	217	217	217	217	217	217

Notes: The table reports probit estimates where the dependent variable is indicated in the respective column. Robust standard errors are reported in parentheses. The reported coefficients are the marginal effects at the mean for continuous variables and at 0 for binary variables. Nominal exchange rate trend is defined as the absolute change of the difference in the median level of the nominal exchange rate five days before the press conference minus the median level of the nominal exchange rate five days after the previous press conference. We measure the deviation from equilibrium exchange rate based on the behavioral equilibrium exchange rate (BEER) developed by Ca' Zorzi et al. (2022). REER changes are sampled at the monthly frequency. PS refers to the number of mentions in speeches by the ECB President mentioning the exchange rate, delivered in the preceding intermeeting period. MPS is a dummy variable equal to 1 when there were mentions regarding the exchange rate in the monetary policy statement.

5 Exchange rate reactions to mentions in the ECB press conference

We approach the study of exchange rate reactions to mentions in the press conference from multiple angles. We begin with a high-frequency analysis to assess the immediate effects during the press conference. First, we examine whether mentions trigger movements in the exchange rate regardless of their direction by analyzing absolute changes in the exchange rate. Next, we test for directional effects, i.e., whether the exchange rate reacts in line with expectations based on the content of the exchange rate mention, as indicated by our directional measures. Finally, we extend the analysis to lower-frequency exchange rate movements, testing whether effects persist over one or several days. Throughout, we adopt the standard assumption in the announcement effect literature that exchange rate mentions or their content are causal for exchange rate movements. This assumption is more credible for shorter time windows, where fewer confounding factors are likely to influence the exchange rate. However, lower-frequency analysis remains important to determine whether higher-frequency effects persist or are reversed over time.

To strengthen the identification assumption, it is crucial to account for potential confounding factors. In our high-frequency analysis, the most apparent confounding factor is the portion of the ECB's communication during the press conference that is unrelated to the exchange rate. Additionally, it is important to control for macroeconomic data releases occurring during the press conference. The selection of relevant macroeconomic announcements and the measurement of their surprise components are described in Section 3.4. Regarding the content of the press conference, we control for both monetary policy shocks and potential central bank information shocks by using the reaction of the 2-year OIS rate and the Euro Stoxx 50 over the entire press conference window (see Section 3.4). For the lower-frequency analysis, it is equally important to control for changes in the interest rate differential relative to the United States.

5.1 High-frequency effects

5.1.1 Effects on absolute changes in the exchange rate

To analyze whether exchange rate mentions move the exchange rate, regardless of their direction, we estimate the following equation:

$$\begin{aligned} |\Delta x_t| = \alpha + \beta M_t + \gamma_{OIS}|\Delta OIS_t| \times (1 - I_t) + \gamma_{Info}|\Delta OIS_t| \times I_t \\ + \gamma_{News}|News_t| + \gamma_{Trend}|\Delta x_{t-1,t-5}| + \varepsilon_t \end{aligned} \tag{5.1}$$

Here, Δx_t represents the change in the (log) exchange rate over the press conference window on day t, M_t captures different variants of our mentions variable (potentially including more than one), and ΔOIS_t denotes the change in the OIS rates, also measured over the press conference window on day t. I is a dummy variable that takes the value of 1 if the high-frequency changes in the OIS rate and the Euro Stoxx 50 have the same sign, indicating the presence of an information shock component. In turn, $1 - I$ takes the value of 1 when the high-frequency changes in the OIS rate and the Euro Stoxx 50 have opposite signs, indicating a pure monetary policy shock.[19] Finally, $News_t$ represents the surprise component of macroeconomic announcements, and $\Delta x_{t-1,t-5}$ controls for the trend in the exchange rate over the previous 5 days. We calculate heteroskedasticity-robust standard errors in this regression and estimate Equation (5.1) only for observations on press conference days.

Table 5 presents the corresponding results. The different columns show outcomes using various measures of exchange rate mentions. Across all specifications, a key determinant is the monetary policy shock, which is consistently estimated to be statistically significant at the 1% level. As shown in column 1, monetary policy and information shocks together explain approximately 15% of the variation in the change in the exchange rate. The monetary policy shock exerts a clear and significant impact, while the information shock tends to have a relatively smaller average effect. This is consistent with prior research (see Jarociński (2022)), which suggests that information shocks generally transmit more slowly to the economy. This pattern remains robust across all subsequent tests and represents one of our key findings: a major (and possibly the primary) driver of exchange rate movements in response

[19] We adopt the concept of "poor man's" central bank information shocks from Jarociński and Karadi (2020).

to central bank actions and communication is monetary policy, not statements about the exchange rate.

Table 5: Estimated high-frequency impact of exchange rate mentions on absolute exchange rate changes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
| MP shock|	0.038***	0.041***	0.040***	0.039***	0.039***	0.042***	0.041***
	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
| Info. shock|	0.008	0.013**	0.012**	0.013**	0.013**	0.013**	0.013**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Mentions, IS		0.044**				0.050**	0.036
		(0.020)				(0.021)	(0.024)
Mentions, questions			-0.008			-0.023*	
			(0.010)			(0.013)	
Mentions, answers				0.003		0.011	
				(0.011)		(0.014)	
Mentions, total					0.001		
					(0.005)		
IS mentions × PS							0.008
							(0.013)
PS							-0.005
							(0.027)
Constant	0.264***	0.265***	0.296***	0.281***	0.281***	0.269***	0.268***
	(0.021)	(0.034)	(0.036)	(0.039)	(0.038)	(0.039)	(0.036)
Observations	217	217	217	217	217	217	217
Macro and FX Contr.	YES	YES	YES	YES	YES	YES	YES
Adj. R2	0.154	0.185	0.170	0.168	0.168	0.188	0.179

Notes: The table reports estimates of Equation (5.1). MPS stands for Monetary Policy Statement. PS refers to the number of mentions in speeches by the ECB President mentioning the exchange rate since the previous Governing Council meeting. Macro controls refer to controls for (absolute) macroeconomic surprises; FX controls refer to a control for the (absolute) change in exchange rate in the 5 days prior to the event. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Indeed, when examining the various proxies for exchange rate mentions, we observe little improvement in explanatory power (as measured by the adjusted R-squared) and find only a few statistically significant variables. One of these is the number of times the exchange rate is mentioned in the monetary policy statement. For each additional mention, the exchange rate moves by approximately 0.04 percentage points. The estimated coefficient is comparable, though slightly larger, when we also control for exchange rate mentions during the Questions and Answers session (see column (6)).

Finally, we test the extent to which the market reaction depends on the ECB's earlier exchange rate communication, using the number of speeches by the ECB president that mention the exchange rate and are delivered in the intermeeting period. Additionally, we interact this variable with the number of mentions in the monetary policy statement. The

interaction term is found not to be statistically significant.

When we use a binary variable that measures whether the exchange rate is mentioned, instead of the number of mentions discussed above (see Appendix Table B.5), we obtain similar results. However, the number of mentions during the intermeeting period is somewhat negatively correlated with the magnitude of the exchange rate reaction during the press conference in this case, suggesting that intermeeting communication may have already conveyed part of the information, with markets having priced some of it in advance.

5.1.2 Effects on the change in the exchange rate

To analyze how the exchange rate itself responds, we employ the directional measure described in Section 3.2. We estimate similar regressions with two key differences: first, we remove the absolute signs, and second, we focus solely on the resulting sentiment from mentions in the monetary policy statement, as these appear to be the only ones that significantly influence the exchange rate. This yields:

$$\begin{aligned}\Delta x_t = \alpha + \beta M_t + \gamma_{OIS}\Delta OIS_t \times (1 - I_t) + \gamma_{Info}\Delta OIS_t \times I_t \\ + \gamma_{News} News_t + \gamma_{Trend}\Delta x_{t-1,t-5} + \varepsilon_t\end{aligned} \tag{5.2}$$

All variables are defined as above, with the only difference that the different variants of exchange rate mentions M_t are directional. Table 6 reports the results. The first observation is, once again, the significant role of monetary policy news. Both monetary policy and central bank information shocks account for a large portion of the variation in the exchange rate, in line with the existing evidence on the high frequency response of the exchange rate to monetary policy (Bricongne and Marolleau, 2025; Conrad and Lamla, 2010; Ferrari Minesso et al., 2021). When monetary policy tightens, the exchange rate appreciates, which aligns with theoretical predictions. Additionally, we observe a smaller reaction to a central bank information shock. While the expected sign of the exchange rate reaction is less clear, a positive sign is consistent with the interpretation of a monetary policy shock—a surprise tightening of monetary policy accompanied by rising stock prices also tends to appreciate the exchange rate, albeit to a lesser degree (see also Jarociński (2022)).

In contrast to the significant effects driven by monetary policy, the impact of exchange rate communication is limited. Columns 2 and 3 of Table 6 show no strong overall associ-

ation between the directional sentiment index and the exchange rate. When distinguishing between cases where the index signals a desire for appreciation versus depreciation, the results indicate that only the former is associated with exchange rate movements in the desired direction. In other words, verbal interventions appear effective only when they convey a desire for an appreciation in the exchange rate. Table B.6 replicates this analysis, restricting the sample to the cases where there is at least one mention of the exchange rate, and the results remain consistent. Table B.7 investigates whether intermeeting communications transmit some of the intervention's information.

Table 6: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes

	(1)	(2)	(3)	(4)	(5)
MP shock	0.071***	0.070***	0.071***	0.070***	0.071***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Info. shock	0.023***	0.024***	0.023***	0.025***	0.024***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Directional sentiment (discrete)		0.032			
		(0.044)			
Directional sentiment (cont.)			0.012		
			(0.023)		
DS (discrete), positive				0.099**	
				(0.048)	
DS (discrete), negative				-0.031	
				(0.068)	
DS (cont.), positive					0.055***
					(0.021)
DS (cont.), negative					-0.024
					(0.030)
Constant	-0.020	-0.018	-0.017	-0.039	-0.041
	(0.025)	(0.025)	(0.025)	(0.027)	(0.027)
Observations	217	217	217	217	217
Macro and FX controls	YES	YES	YES	YES	YES
Adj. R2	0.309	0.309	0.308	0.317	0.321

Notes: The table reports estimates of Equation (5.2) at meeting frequency. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

5.2 Low-frequency effects

Finally, we analyze the longer-term impact of the directional sentiment index on the exchange rate. For that purpose, we turn to estimations at weekly frequency. We obtain local projections à la Jordà (2005), estimating the following model equation:

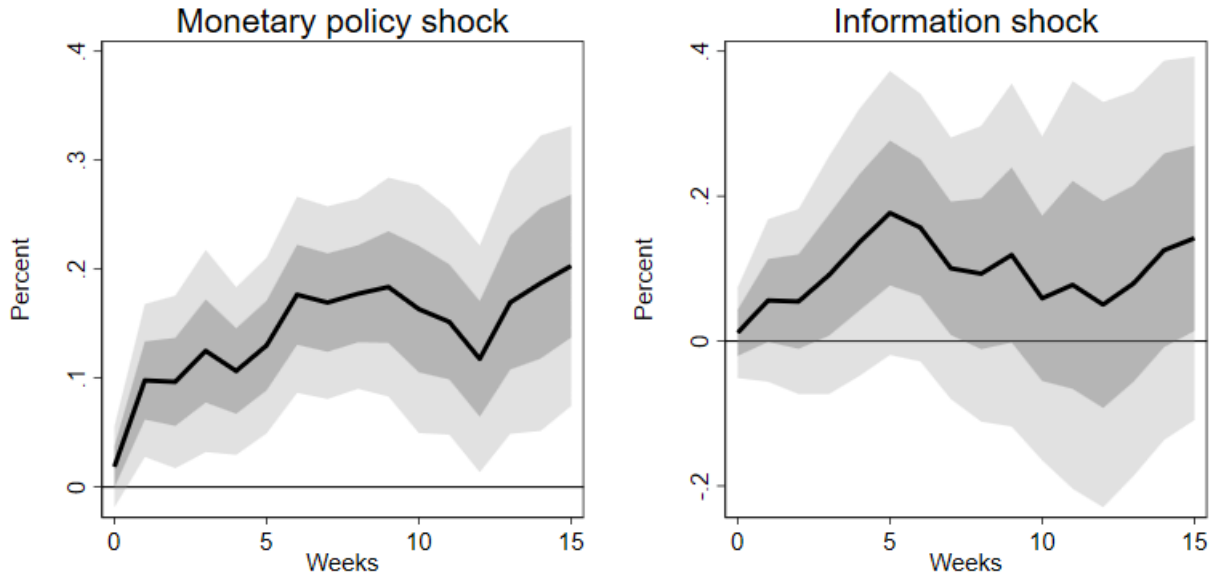


Figure 6: Longer-term impact of monetary policy and information shocks on the EURUSD exchange rate

Notes: The figure shows local projection estimates obtained from Equation (5.3), where monetary policy and information shocks are constructed following the poor man identification in Jarociński and Karadi (2020). The light (dark) shaded area represents the 90% (68%) confidence interval.

$$y_{t+k} = \alpha + \beta^k S_t + \sum_{j=1}^{p} \gamma_{j,h} y_{t-j} + \Gamma' X_t + \epsilon_t \tag{5.3}$$

Here, y_{t+k} represents the log of the exchange rate, and X_t is a set of control variables that includes the euro area, German bund, and US 2-year OIS rates; the (log of) euro area and US stock market indices (proxied by the euro area and US S&P indices); euro area and US term spreads, defined as the 10-year minus 3-month government bond yield (using German Bund yields for the euro area); and four lags of these variables. Additionally, the contemporary monetary policy shock and information shocks, measured as described in the previous section, are included. p, which denotes the number of lags of the dependent variable included, is set to 4. S_t represents the sentiment index, which, as in the previous section, can be either discrete or continuous and can separately include positive and negative instances.

Figure 6 presents the impulse-response estimates for pure monetary policy shocks (left panel) and information shocks (right panel). The effects on the exchange rate are large, statistically significant and persistent, consistent with the patterns suggested by the high-frequency results. As in Jarociński and Karadi (2020), the euro appreciates against the US dollar to a similar extent after a positive ECB interest rate surprise of either kind. However,

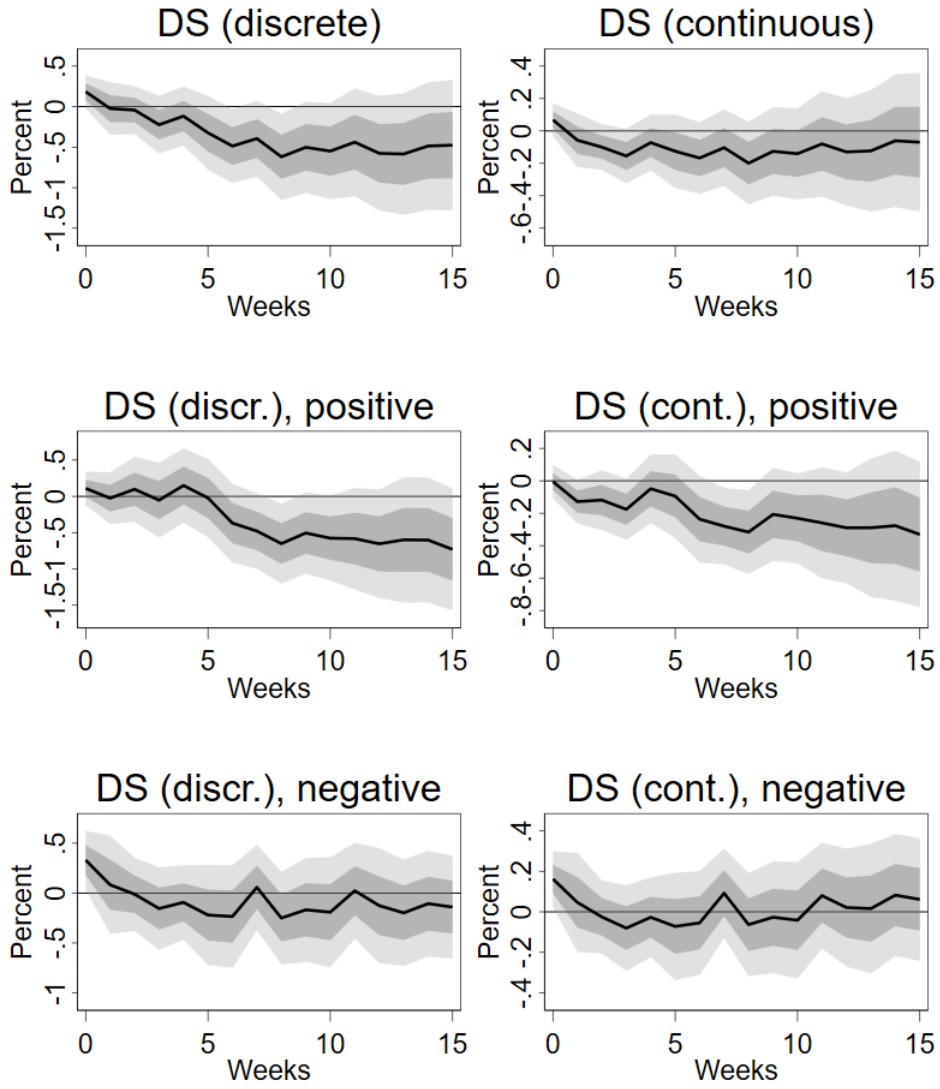


Figure 7: Longer-term impact of exchange rate communication index on the EURUSD exchange rate.

Notes: The figure shows local projection estimates obtained from Equation (5.3). A positive value for the directional sentiment (DS) index refers to a desired appreciation; and an increase in the dependent variable to an appreciation of the euro. The light (dark) shaded area represents the 90% (68%) confidence interval.

also in line with the same paper, the effect of an information surprise takes slightly longer to become statistically significant.

Finally, Figure 7 displays the impulse-response estimates for the exchange rate communication. Successful verbal interventions should result in positive coefficients in each panel, as they would lead to an appreciation when the directional sentiment is positive and a depreciation when the directional sentiment is negative. On impact, the shock does move the exchange rate in the intended direction, but the effect dissipates quickly. Beyond the

first week, the coefficients lose statistical significance. An exception occurs when examining the effect using the continuous index in cases of positive verbal interventions. As demonstrated in Figure D.4, the results remain largely unchanged when excluding observations individually.

5.3 Time variation and the effective lower bound

It is somewhat puzzling that our results indicate broadly ineffective exchange rate communication, whereas earlier literature has generally reached the opposite conclusion. One possible explanation for this discrepancy could be the differing sample periods analyzed. The earlier literature primarily focused on the initial years of the ECB, whereas our sample period is considerably longer. Notably, our sample also includes the period when policy rates were constrained by the Effective Lower Bound (ELB). During that time, monetary policy news had a stronger impact on the exchange rate (Ferrari Minesso et al., 2021), which suggests that the effect of exchange rate communication may also differ during such periods.

To address this question, we repeat the earlier high-frequency analysis, separating the effects of the various variables of interest between the periods when policy rates were at the ELB and off the ELB, respectively. This is achieved by introducing a dummy variable that equals one during the ELB period (i.e., from June 2014 to August 2022) and interacting this dummy variable with the variables of interest.

Table 7 presents the corresponding results. We begin by confirming the findings of Ferrari Minesso et al. (2021), which show that monetary policy has significantly stronger effects on the exchange rate during the ELB period. Specifically, the coefficients for both the pure monetary policy shock and the information shock increase threefold in magnitude. Interestingly, we observe the opposite result for exchange rate mentions. While the coefficient is significantly positive outside the ELB period, indicating that communication influences the exchange rate in the desired direction, the interaction term is significantly negative, suggesting that this effectiveness is diminished during the ELB period. Although the sum of the two coefficients is negative, which would imply a counterintuitive result, it is crucial to highlight that that sum is not statistically significantly different from zero. In column (4) of Table 7, we include long-term bond yields and their interaction with the ELB dummy as additional control variables. The rationale for this inclusion is that these yields may have responded to unconventional monetary policy measures, such as forward guidance

Table 7: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, role of the ELB period.

	(1)	(2)	(3)	(4)	(5)	(6)
MP shock	0.070***	0.059***	0.058***	0.042***	0.125***	0.075***
	(0.011)	(0.008)	(0.008)	(0.012)	(0.015)	(0.017)
Info. shock	0.024***	0.019**	0.021***	0.004	0.041***	-0.001
	(0.007)	(0.008)	(0.007)	(0.014)	(0.015)	(0.013)
DE10Y				0.036*		0.062***
				(0.022)		(0.012)
MP shock × ELB		0.124***	0.131***	0.079		
		(0.043)	(0.043)	(0.056)		
Info shock × ELB		0.073***	0.052*	-0.002		
		(0.025)	(0.031)	(0.045)		
10y yield shock × ELB				0.016		
				(0.031)		
MP shock × EA2y GovBond yield					-0.021***	-0.001
					(0.004)	(0.005)
Info shock × EA2y GovBond yield					-0.009	0.014*
					(0.008)	(0.007)
Rate × DE10yshock						-0.034***
						(0.008)
Directional sentiment (discrete)	0.032		0.090**	0.094**	-0.044	-0.033
	(0.044)		(0.042)	(0.044)	(0.057)	(0.047)
Directional (discrete) × ELB			-0.180**	-0.167**		
			(0.086)	(0.080)		
ELB		-0.097*	-0.135**	-0.103		
		(0.056)	(0.067)	(0.069)		
Directional (discrete) × rate					0.054**	0.051**
					(0.026)	(0.023)
EA2y GovBond yield					0.019	0.019
					(0.015)	(0.014)
Constant	-0.018	0.001	-0.013	-0.021	-0.081**	-0.074**
	(0.025)	(0.025)	(0.025)	(0.025)	(0.036)	(0.033)
Observations	217	217	217	217	217	217
Macro and FX controls	YES	YES	YES	YES	YES	YES
Adj. R2	0.309	0.396	0.412	0.447	0.402	0.496

Notes: The table reports estimates of Equation (5.2) at meeting frequency, including a dummy variable that is equal to one when policy rates were constrained at the ELB and the interaction of this dummy with the other variables of interest. "DE10Y" refers to the 10 year German Bund high-frequency reaction to the press conference event. "EA2y GovBond yield" and "Rate" refer to the 2 year Euro Area government bond yield (lagged by one day). A positive value for the directional sentiment index refers to a desired appreciation. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

and QE, during the ELB period, potentially influencing the exchange rate. However, the corresponding coefficients are not statistically significant, and the inclusion of these variables does not alter our findings.[20]

[20] A repetition of the low-frequency results (see Figure D.5) reveals that, over the entire sample period, there is no persistent effect, whether during or outside the ELB period.

5.4 Additional robustness checks

To assess the sensitivity of the results to the construction of the index, Table B.8 presents robustness checks for Table 6, using the index based on alternative thresholds in its construction, and shows very similar results. Table B.9 replicates the results from Table 7 using the continuous index, while Table B.10 and Table B.11 employ the index constructed with the alternative thresholds. Overall, the results also remain robust.

An additional concern is that the individual variables controlling for monetary policy shocks at specific horizons may fail to capture interest rate surprises affecting the entire yield curve. To address this issue, we follow Meisenzahl et al. (2025) and extract the first four principal components from changes in OIS rates across a broad range of maturities: 1 week, 1 month, 3 months, and 1 to 10 years. A challenge in our data is that OIS series at some maturities are only available from later dates, with the 3-year maturity starting in 2003 and maturities above that only becoming available in 2011. To address this limitation, we complement the OIS data with the reaction of German government bond yields during the press conference, which is (for the time periods where our samples overlap) strongly correlated with the response observed in OIS rates. The predicted values of the first four components, which together explain approximately 96.7% of the variation across the 13 maturities, are then included as control variables. Tables B.12 and B.13 present the results and show that the estimates remain qualitatively unchanged, confirming that our results are robust to these additional controls.

Therefore, these results suggest that exchange rate communication may have been somewhat effective in the early years of the ECB, as indicated by previous literature. However, its effectiveness appears to have diminished during the ELB period, to the extent that, over the entire sample period, there is no evidence that the ECB can influence the exchange rate in the desired direction through its communication.

6 Conclusion

In this paper, we revisit the effectiveness of central bank communication on exchange rates, using the ECB and the euro as a case study. By and large, our findings support the skeptical view: exchange rate communication has limited immediate effects on exchange rate movements after controlling for monetary policy shocks, and these effects fade quickly—

especially so, but not exclusively, when interest rates are constrained by the ELB. These results align with recent literature highlighting the dominant role of monetary policy shocks as drivers of exchange rates.

These findings carry implications for policy and future research. From a policy perspective, central banks should temper expectations about the ability of direct exchange rate communication to influence market outcomes, particularly in the presence of more prominent monetary policy signals, to which markets appear to respond more strongly. Future research could examine whether these findings are consistent across other central banks and currencies or under varying market conditions, such as periods of heightened volatility or financial stress. Investigating the role of alternative communication channels, such as social media, could also provide further insights into the evolving dynamics of central bank communication and its influence on exchange rates. Lastly, this paper has studied the direct effects of exchange rate mentions. A promising area of research is also to study potential indirect effects, for instance if the central bank can trigger a subsequent discussion on exchange rates in markets and the media, thereby shaping the public discourse.

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Appendix

A Examples of exchange rate mentions

A.1 Examples from the monetary policy statement

The following are examples of exchange rate mentions in the monetary policy statements, along with the scores from the discrete directional sentiment index described in Section 3.2. A positive score indicates support for appreciation, a negative score indicates support for depreciation, and a score of 0 indicates a neutral mention.

04 July 2002 (Score: +1): "Overall, the strengthening of the euro exchange rate is a new factor suggesting a potential for lower inflation rates. However, other factors – in particular monetary developments and wage trends – do not indicate a moderation in price pressures. Monetary policy therefore needs to remain vigilant as regards the key factors determining the outlook for price stability over the medium term."

05 February 2004 (Score: -1): "On the basis of our economic and monetary analysis, we have concluded that there are no fundamental changes to the medium-term outlook for price stability. Accordingly, the current stance of monetary policy remains appropriate and the key European Central Bank interest rates have been kept unchanged at their low levels. Inflationary risks should be contained by somewhat more favourable import price developments, while the economic recovery in the euro area should proceed in line with our expectations. We will continue to monitor carefully all developments that could affect our assessment of risks to price stability over the medium term. With regard to exchange rates, we again particularly stress stability and remain concerned about excessive exchange rate moves."

01 April 2004 (Score: -1): "Looking beyond these short-term fluctuations, we expect price developments to remain in line with price stability. Given the anticipated gradual pace of the economic recovery, wage developments should remain moderate. The latest data on wage growth in the fourth quarter of 2003 lend support to this view. Moreover, the past appreciation of the euro exchange rate will continue to alleviate import price pressures and dampen the inflationary impact of higher oil and commodity prices, which are also related to strong demand at the global level."

13 January 2005 (Score: -1): "Downside risks to the economic outlook stemming from oil price developments have diminished somewhat over recent weeks. As regards ex-

change rates, we confirm our position, expressed when the euro rose sharply, that such moves are unwelcome and undesirable for economic growth."

07 February 2013 (Score: +1): "Risks to the outlook for price developments continue to be seen as broadly balanced over the medium term, with upside risks relating to higher administered prices and indirect taxes, as well as higher oil prices, and downside risks stemming from weaker economic activity and, more recently, the appreciation of the euro exchange rate."

05 September 2013 (Score: 0): "According to Eurostat's flash estimate, as expected, euro area annual HICP inflation was 1.3% in August 2013, down from 1.6% in June and July. On the basis of current assumptions for energy and exchange rate developments, annual inflation rates are expected to remain low in the coming months, owing in particular to energy price developments. Taking the appropriate medium-term perspective, underlying price pressures are expected to remain subdued, reflecting the broad-based weakness in aggregate demand and the modest pace of the recovery. Medium to long-term inflation expectations continue to be firmly anchored in line with price stability."

07 September 2017 (Score: -2): "The incoming information, including our new staff projections, confirms a broadly unchanged medium-term outlook for euro area economic growth and inflation. The economic expansion, which accelerated more than expected in the first half of 2017, continues to be solid and broad-based across countries and sectors. At the same time, the recent volatility in the exchange rate represents a source of uncertainty which requires monitoring with regard to its possible implications for the medium-term outlook for price stability. This assessment is also broadly reflected in the September 2017 European Central Bank staff macroeconomic projections for the euro area, which foresee annual HICP inflation at 1.5% in 2017, 1.2% in 2018 and 1.5% in 2019. Compared with the June 2017 Eurosystem staff macroeconomic projections, the outlook for headline HICP inflation has been revised down slightly, mainly reflecting the recent appreciation of the euro exchange rate."

10 September 2020 (Score: -2): "According to Eurostat's flash estimate, euro area annual HICP inflation decreased to -0.2% in August, from 0.4% in July. On the basis of current and futures prices for oil and taking into account the temporary reduction in the German VAT rate, headline inflation is likely to remain negative over the coming months before turning positive again in early 2021. Moreover, in the near term price pressures

will remain subdued owing to weak demand, lower wage pressures and the appreciation of the euro exchange rate, despite some upward price pressures related to supply constraints. Over the medium term, a recovery in demand, supported by accommodative monetary and fiscal policies, will put upward pressure on inflation. Market-based indicators of longer-term inflation expectations have returned to their pre-pandemic levels, but still remain very subdued, while survey-based measures remain at low levels. The monetary policy measures that we have taken since early March are providing crucial support to underpin the recovery of the euro area economy and to safeguard medium-term price stability. In particular, they support liquidity and funding conditions in the economy, help to sustain the flow of credit to households and firms, and contribute to maintaining favourable financing conditions for all sectors and jurisdictions. At the same time, in the current environment of elevated uncertainty, the Governing Council will carefully assess incoming information, including developments in the exchange rate, with regard to its implications for the medium-term inflation outlook. It continues to stand ready to adjust all of its instruments, as appropriate, to ensure that inflation moves towards its aim in a sustained manner, in line with its commitment to symmetry."

21 July 2022 (Score: +1): "We expect inflation to remain undesirably high for some time, owing to continued pressures from energy and food prices and pipeline pressures in the pricing chain. Higher inflationary pressures are also stemming from the depreciation of the euro exchange rate. But looking further ahead, in the absence of new disruptions, energy costs should stabilise and supply bottlenecks should ease, which, together with the ongoing policy normalisation, should support the return of inflation to our target."

A.2 Examples from the Q&A of the press conference

06 June 2002: *Question:* "President Duisenberg, we have seen the euro appreciate some 7 or 8% against the dollar over the past couple of months. Is it your belief that there is still potential for the euro to appreciate, and are the euro's levels anywhere near a point where it might dampen the prospects for growth especially in the economies where early signs of recovery are seen?"

Duisenberg: "First of all, the euro has appreciated vis-à-vis the dollar, but what is more important is to look at the overall effective appreciation of the euro which is decidedly less than simply the nominal appreciation vis-à-vis the dollar, and that is where the effects come

from. In no way do we believe that at the present time the exchange rate is any impediment to the further growth and recovery of our exports."

07 April 2005: *Question:* "Mr Trichet, we all know that central bankers are famously cautious when talking about currency exchange rates and exchange rate targets. A couple of weeks ago your colleague on the ECB Council, Axel Weber, I dare say "let it slip" that the Bundesbank has hedged the euro/dollar at around 1.46-1.47 for 2005. And he kind of put it into perspective and said "well, as cautious central bankers we've got to do that, even if we do not expect the euro/dollar to go that way". How cautious is the ECB on that score?"

Trichet: "I will let Axel tell you what he has to say on the Bundesbank's strategy. I have absolutely no comment on that. As you know, we did not change our own Governing Council position, the ECB position, which is very simple, has been reiterated many times and was crystallised when we observed sharp moves upwards. I have nothing to add to that. But it is our clear-cut position. It is absolutely unchanged."

12 January 2012: *Question:* "What is your view of the recent decline in the euro/dollar exchange rate? Is it more likely to stimulate the economy or raise inflationary expectations?"

Draghi: "With regard to the exchange rate, as you know, I never comment on exchange rates, but I would say that we should keep to the G7 Communiqué of 8 August 2011, in which we reaffirmed our shared interest in a strong and stable international financial system and our support for market-determined exchange rates. Excess volatility and disorderly movements in exchange rates have adverse implications for economic and financial stability. We will consult closely with regard to actions in exchange rates, and we will cooperate as appropriate."

06 March 2014: *Question:* "I want to come back to two particular questions. First, coming back to the foreign exchange argument, it is not your mandate and you have made that absolutely clear, but you have gone to the extent of working out the impact of the 2012 trough in the euro on inflation, and inflation is your mandate. Should we, therefore, in some way be viewing the exchange rate as part of the reaction function? I want to know exactly how we should be looking at the exchange rate."

Draghi: "In answer to the first question, I can only reiterate that the exchange rate is not a policy target, but certainly I have here another number. The cumulative appreciation of the exchange rate between the euro and the dollar since the trough of 2012 has been around 9%. In effective terms the euro has strengthened by 8% since then. Now, as a

rule of thumb, each 10% permanent effective exchange rate appreciation lowers inflation by around 40 to 50 basis points. So we can say that between 2012 and today about 0.4 or 0.5 percentage points of inflation was taken out of current inflation because of the exchange rate appreciation. Having said that, we have to be cautious, because there was a previous depreciation of the euro. That is why it is hard to take the exchange rate as a policy target and even harder to take it as a policy instrument. But it is certainly a factor that is affecting in a significant way – together with the price of energy and of food for that matter – our low rate of inflation."

09 March 2017: *Question:* "The second question is again about the currency manipulations discussion. Because the G20 meeting will be held next week in Baden-Baden in Germany, what kind of discussion are you expecting? Are you expecting any changes of G20 commitments or consensus in terms of exchange rate or banking regulations?"

Draghi: "On the second question, well, I think it's important to reiterate the commitments that were undertaken by our leaders and by our finance ministers. Let me just read; the last one was on July 24, 2016 by the G20 finance ministers and central bank governors in Chengdu, "We reiterate that excessive volatility and disorderly movements in exchange rates can have adverse implications for economic and financial stability. We will consult closely on exchange markets. We reaffirm our previous exchange rate commitments including that we will refrain from competitive devaluations and we will not target our exchange rates for competitive purposes. Now, a statement like this – or statements to this extent – have been the pillar of the stability that has accompanied world growth in the last 20 years and longer. So it's very important that these commitments or commitments of this type are being reaffirmed."

26 April 2018: *Question:* "The euro is considerably stronger than it was a year ago. In previous speeches you've mentioned that the volatility of the exchange rate is something that you're watching quite closely. It now seems to have stabilised around 1.22. Is this still something that concerns you?"

Draghi: "Now, on your first question you're right; the exchange rate stabilised and recent volatility is less. So it was not discussed."

10 September 2020: *Question:* "I guess I had a follow up on the exchange rate question. You were quite clear that the ECB is looking at it closely, but I wondered if you could say anything about whether the development so far has been basically benign or if

it's something that is worrying most members."

Lagarde: "As I said, the European Central Bank does not target the exchange rate. Our mandate is price stability and to that end, we have a medium-term inflation aim which we try to pursue using all the monetary policy tools that are available. It is clear that we are currently observing through the analysis that we do, we are observing negative pressure on the price level. That is partly attributable – largely attributable actually – to the appreciation of the euro. While we don't target at any level, and I have not, do not and will not comment on any level, we are also monitoring carefully the appreciation of our currency in relation to its impact on our inflation medium-term level."

B Tables

Table B.1: Determinants of exchange rate mentions—Monetary policy statements—Additional variables

	(1) IS mention	(2) IS mention	(3) IS mention	(4) IS mention	(5) IS mention
Std EURUSD since previous meeting (std.)	-0.007				
	(0.029)				
Avg. impl. vol. of FX since prev. meeting (1 month matur.) (std.)		-0.037			
		(0.028)			
Previous day implied vol. of FX (1 month matur.) (std.)			-0.028		
			(0.027)		
Δ avg. impl. vol. of FX since prev. meeting (1 month matur.) (std.)				0.008	
				(0.028)	
Nominal exchange rate trend (abs. change) (std.)					0.029
					(0.029)
Observations	217	217	217	217	217

Notes: The table reports probit estimates where the dependent variable is indicated in the respective column. Robust standard errors are reported in parentheses. The reported coefficients are the marginal effects at the mean for continuous variables and at 0 for binary variables. Nominal exchange rate trend is defined as the absolute change of the difference in the median level of the nominal exchange rate five days before the press conference minus the median level of the nominal exchange rate five days after the previous press conference.

Table B.2: Determinants of exchange rate mentions— questions by journalists

	(1) Q. mention	(2) Q. mention	(3) Q. mention	(4) Q. mention	(5) Q. mention	(6) Q. mention	(7) Q. mention	(8) Q. mention	(9) Q. mention
Nominal exchange rate trend (abs. change) (std.)	0.076**								
	(0.035)								
Nominal exchange rate trend | > 0 (std.)		0.120***							
		(0.042)							
Nominal exchange rate trend | < 0 (std.)		-0.022							
		(0.039)							
REER deviation from equil. (abs.) (std.)			-0.056						
			(0.036)						
REER from top/bottom 20 pctile				0.150					
				(0.110)					
Δ REER deviation from equil. (abs.) (std.)					0.003				
					(0.034)				
Δ REER from top/bottom 20 pctile						0.070			
						(0.088)			
Δ REER deviation from equil. | > 0 (std.)							0.068*		
							(0.039)		
Δ REER deviation from equil. | < 0 (std.)							0.055		
							(0.038)		
Δ REER towards REER equil. (std.)								0.018	
								(0.038)	
Δ REER against REER equil. (std.)								-0.018	
								(0.037)	
PS									0.079**
									(0.034)
Observations	217	217	217	217	217	217	217	217	217

Notes: The table reports probit estimates where the dependent variable is indicated in the respective column. Robust standard errors are reported in parentheses. The reported coefficients are the marginal effects at the mean for continuous variables and at 0 for binary variables. Nominal exchange rate trend is defined as the absolute change of the difference in the median level of the nominal exchange rate five days before the press conference minus the median level of the nominal exchange rate five days after the previous press conference. We measure the deviation from equilibrium exchange rate based on the behavioral equilibrium exchange rate (BEER) developed by Ca' Zorzi et al. (2022). REER changes are sampled at the monthly frequency. PS refers to the number of speeches by the ECB President mentioning the exchange rate, delivered in the preceding intermeeting period. MPS is a dummy variable equal to 1 when there were mentions regarding the exchange rate in the monetary policy statement.

Table B.3: Determinants of exchange rate mentions— Answers to questions by journalists

	(1) A. mention	(2) A. mention	(3) A. mention	(4) A. mention	(5) A. mention	(6) A. mention	(7) A. mention	(8) A. mention	(9) A. mention	(10) A. mention
Is mentioned, IS	0.214**	0.204**	0.203**	0.236***	0.213**	0.198**	0.192**	0.205**	0.198**	0.171*
	(0.084)	(0.084)	(0.084)	(0.085)	(0.084)	(0.085)	(0.086)	(0.085)	(0.084)	(0.090)
Nominal exchange rate trend (abs. change) (std.)		0.069*								
		(0.037)								
Nominal exchange rate trend $\| > 0$ (std.)			0.082*							
			(0.044)							
Nominal exchange rate trend $\| < 0$ (std.)			-0.047							
			(0.039)							
REER deviation from equil. (abs.) (std.)				-0.090**						
				(0.035)						
REER from top/bottom 20 pctile					0.036					
					(0.111)					
Δ REER deviation from equil. (abs.) (std.)						0.044				
						(0.035)				
Δ REER from top/bottom 20 pctile							0.204**			
							(0.102)			
Δ REER deviation from equil. $\| > 0$ (std.)								0.024		
								(0.040)		
Δ REER deviation from equil. $\| < 0$ (std.)								-0.058		
								(0.039)		
Δ REER towards REER equil. (std.)									0.044	
									(0.039)	
Δ REER against REER equil. (std.)									0.039	
									(0.040)	
PS										0.048
										(0.034)
Observations	217	217	217	217	217	217	217	217	217	217

Notes: The table reports probit estimates where the dependent variable is indicated in the respective column. Robust standard errors are reported in parentheses. The reported coefficients are the marginal effects at the mean for continuous variables and at 0 for binary variables. Nominal exchange rate trend is defined as the absolute change of the difference in the median level of the nominal exchange rate five days before the press conference minus the median level of the nominal exchange rate five days after the previous press conference. We measure the deviation from equilibrium exchange rate based on the behavioral equilibrium exchange rate (BEER) developed by Ca' Zorzi et al. (2022). REER changes are sampled at the monthly frequency. PS refers to the number of speeches by the ECB President mentioning the exchange rate, delivered in the preceding intermeeting period. MPS is a dummy variable equal to 1 when there were mentions regarding the exchange rate in the monetary policy statement.

Table B.4: Determinants of exchange rate mentions— Answers to questions by journalists (2)

	(1) A. mention	(2) A. mention	(3) A. mention	(4) A. mention	(5) A. mention	(6) A. mention	(7) A. mention	(8) A. mention	(9) A. mention	(10) A. mention
Is mentioned, IS	0.149**	0.172*	0.172*	0.203**	0.150**	0.159*	0.133*	0.171*	0.158*	0.152
	(0.074)	(0.088)	(0.088)	(0.092)	(0.074)	(0.089)	(0.076)	(0.089)	(0.089)	(0.093)
Is mentioned, questions	0.392***	0.453***	0.453***	0.454***	0.393***	0.464***	0.400***	0.485***	0.465***	0.456***
	(0.041)	(0.072)	(0.073)	(0.072)	(0.041)	(0.071)	(0.041)	(0.076)	(0.071)	(0.071)
Nominal exchange rate trend (abs. change) (std.)		0.042								
		(0.039)								
Nominal exchange rate trend $\mid > 0$ (std.)			0.043							
			(0.044)							
Nominal exchange rate trend $\mid < 0$ (std.)			-0.038							
			(0.043)							
REER deviation from equil. (abs.) (std.)				-0.074**						
				(0.034)						
REER from top/bottom 20 pctile					-0.026					
					(0.086)					
Δ REER deviation from equil. (abs.) (std.)						0.050				
						(0.035)				
Δ REER from top/bottom 20 pctile							0.173*			
							(0.094)			
Δ REER deviation from equil. $\mid > 0$ (std.)								-0.001		
								(0.039)		
Δ REER deviation from equil. $\mid < 0$ (std.)								-0.078*		
								(0.041)		
Δ REER towards REER equil. (std.)									0.044	
									(0.041)	
Δ REER against REER equil. (std.)									0.052	
									(0.038)	
PS										0.027
										(0.040)
Observations	217	217	217	217	217	217	217	217	217	217

Notes: The table reports probit estimates where the dependent variable is indicated in the respective column. Robust standard errors are reported in parentheses. The reported coefficients are the marginal effects at the mean for continuous variables and at 0 for binary variables. Nominal exchange rate trend is defined as the absolute change of the difference in the median level of the nominal exchange rate five days before the press conference minus the median level of the nominal exchange rate five days after the previous press conference. We measure the deviation from equilibrium exchange rate based on the behavioral equilibrium exchange rate (BEER) developed by Ca' Zorzi et al. (2022). REER changes are sampled at the monthly frequency. PS refers to the number of speeches by the ECB President mentioning the exchange rate, delivered in the preceding intermeeting period. MPS is a dummy variable equal to 1 when there were mentions regarding the exchange rate in the monetary policy statement.

Table B.5: Estimated high-frequency impact of exchange rate mentions (binary variable) on absolute exchange rate changes

	(1)	(2)	(3)	(4)	(5)	(6)
| MP shock|	0.040***	0.039***	0.039***	0.040***	0.041***	0.040***
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)
| Info. shock|	0.013**	0.012**	0.012**	0.013**	0.012**	0.013**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Is mentioned, IS	0.076*				0.077*	0.037
	(0.042)				(0.042)	(0.047)
Is mentioned, questions		-0.016			-0.035	
		(0.035)			(0.038)	
Is mentioned, answers			0.019		0.022	
			(0.039)		(0.042)	
Is mentioned, total				-0.022		
				(0.045)		
Is mentioned, IS × Is mentioned, intermeeting speeches						0.237**
						(0.112)
Is mentioned, intermeeting speeches						-0.151*
						(0.084)
Constant	0.263***	0.295***	0.274***	0.304***	0.267***	0.264***
	(0.035)	(0.038)	(0.043)	(0.051)	(0.045)	(0.035)
Observations	217	217	217	217	217	217
Macro and FX Controls	YES	YES	YES	YES	YES	YES
Adj. R2	0.183	0.169	0.169	0.169	0.178	0.186

Notes: The table reports estimates of Equation (5.1). MPS stands for Monetary Policy Statement. "Is mentioned, Intermeeting speeches" refers to the number of speeches by the ECB President mentioning the exchange rate, delivered in the preceding intermeeting period. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.6: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, conditional on mentions

	(1)	(2)	(3)	(4)	(5)
MP shock	0.113**	0.112**	0.113**	0.109**	0.116***
	(0.044)	(0.044)	(0.044)	(0.043)	(0.041)
Info. shock	-0.007	-0.001	-0.003	-0.002	-0.010
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Directional sentiment (discrete)		0.022			
		(0.047)			
Directional sentiment (cont.)			0.010		
			(0.024)		
DS (discrete), positive				0.122*	
				(0.069)	
DS (discrete), negative				-0.086	
				(0.114)	
DS (cont.), positive					0.073***
					(0.021)
DS (cont.), negative					-0.060
					(0.043)
Constant	-0.057	-0.051	-0.050	-0.176	-0.204**
	(0.056)	(0.054)	(0.056)	(0.109)	(0.083)
Observations	60	60	60	60	60
Macro and FX controls	YES	YES	YES	YES	YES
Adj. R2	0.246	0.235	0.234	0.255	0.297

Notes: The table reports estimates of Equation (5.2) at meeting frequency on a restricted sample including only meetings where the exchange rate is mentioned. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.7: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, conditional on mentions

	(1)	(2)
MP shock	0.070***	0.071***
	(0.011)	(0.011)
Info. shock	0.026***	0.026***
	(0.006)	(0.006)
PS	-0.079**	-0.027
	(0.037)	(0.035)
DS (discrete), positive	0.065	
	(0.057)	
DS (discrete), negative	-0.034	
	(0.093)	
DS (discr.), $> 0\times$ PS)	0.052***	
	(0.017)	
DS (discr.), $< 0\times$ PS)	-0.034	
	(0.039)	
DS (cont.), positive		0.038
		(0.025)
DS (cont.), negative		-0.038
		(0.040)
DS (cont.), $> 0\times$ PS)		0.022**
		(0.009)
DS (cont.), $< 0\times$ PS)		0.003
		(0.018)
Constant	-0.028	-0.036
	(0.028)	(0.027)
Observations	217	217
Macro and FX controls	YES	YES
Adj. R2	0.323	0.324

Notes: The table reports estimates of Equation (5.2) at meeting frequency. PS refers to the number of mentions in speeches by the ECB President mentioning the exchange rate, delivered in the preceding intermeeting period. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.8: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes

	(1)	(2)	(3)	(4)	(5)
MP shock	0.071***	0.070***	0.071***	0.070***	0.071***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Info. shock	0.023***	0.024***	0.023***	0.025***	0.024***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Directional sentiment (discrete robust)		0.036			
		(0.043)			
Directional sentiment (cont. robust)			0.012		
			(0.022)		
DS (discrete robust), positive				0.108**	
				(0.046)	
DS (discrete robust), negative				-0.028	
				(0.063)	
DS (cont. robust), positive					0.055***
					(0.021)
DS (cont. robust), negative					-0.020
					(0.028)
Constant	-0.020	-0.017	-0.017	-0.040	-0.039
	(0.025)	(0.025)	(0.025)	(0.027)	(0.027)
Observations	217	217	217	217	217
Macro and FX controls	YES	YES	YES	YES	YES
Adj. R2	0.309	0.310	0.308	0.320	0.321

Notes: The table reports estimates of Equation (5.2) at meeting frequency. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.9: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, ELB vs outside ELB

	(1)	(2)	(3)	(4)	(5)
MP shock	0.071***	0.059***	0.043***	0.126***	0.076***
	(0.011)	(0.008)	(0.012)	(0.015)	(0.017)
Info. shock	0.023***	0.021***	0.003	0.042***	-0.001
	(0.007)	(0.007)	(0.014)	(0.015)	(0.014)
DE10Y			0.036*		0.061***
			(0.022)		(0.012)
MP shock x ELB		0.129***	0.077		
		(0.043)	(0.055)		
Info shock x ELB		0.059**	0.003		
		(0.025)	(0.043)		
10y yield shock x ELB			0.016		
			(0.031)		
MP shock x EA2y GovBond yield				-0.020***	-0.001
				(0.004)	(0.005)
Info shock x EA2y GovBond yield				-0.009	0.013*
				(0.008)	(0.008)
Rate x DE10yshock					-0.034***
					(0.008)
Directional sentiment (cont.)	0.012	0.041**	0.042**	-0.028	-0.022
	(0.023)	(0.020)	(0.021)	(0.028)	(0.023)
Directional (continuous) x ELB		-0.091**	-0.086**		
		(0.040)	(0.036)		
ELB		-0.143**	-0.114*		
		(0.063)	(0.065)		
Directional (continuous) x rate				0.030**	0.028**
				(0.014)	(0.012)
EA2y GovBond yield				0.022	0.023
				(0.014)	(0.014)
Constant	-0.017	-0.006	-0.014	-0.082**	-0.076**
	(0.025)	(0.025)	(0.025)	(0.035)	(0.033)
Observations	217	217	217	217	217
Macro and FX controls	YES	YES	YES	YES	YES
Adj. R2	0.308	0.413	0.448	0.402	0.494

Notes: The table reports estimates of Equation (5.2) at meeting frequency, including a dummy variable that is equal to one when policy rates were constrained at the ELB and the interaction of this dummy with the other variables of interest. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. "DE10Y" refers to the 10 year German Bund high-frequency reaction to the press conference event. "EA2y GovBond yield" and "Rate" refer to the 2 year Euro Area government bond yield (lagged by one day). Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.10: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, ELB vs outside ELB

	(1)	(2)	(3)	(4)	(5)	(6)
MP shock	0.070***	0.059***	0.058***	0.042***	0.125***	0.075***
	(0.011)	(0.008)	(0.008)	(0.012)	(0.015)	(0.017)
Info. shock	0.024***	0.019**	0.022***	0.004	0.042***	-0.001
	(0.007)	(0.008)	(0.007)	(0.014)	(0.015)	(0.013)
DE10Y				0.036*		0.062***
				(0.022)		(0.012)
MP shock x ELB		0.124***	0.131***	0.079		
		(0.043)	(0.043)	(0.056)		
Info shock x ELB		0.073***	0.051*	-0.002		
		(0.025)	(0.030)	(0.045)		
10y yield shock x ELB				0.016		
				(0.031)		
MP shock x EA2y GovBond yield					-0.021***	-0.001
					(0.004)	(0.005)
Info shock x EA2y GovBond yield					-0.009	0.014*
					(0.008)	(0.007)
Rate x DE10yshock						-0.034***
						(0.008)
Directional sentiment (discrete robust)	0.036		0.103**	0.107**	-0.039	-0.027
	(0.043)		(0.040)	(0.042)	(0.053)	(0.044)
Directional (discrete robust) x ELB			-0.191**	-0.177**		
			(0.080)	(0.074)		
ELB		-0.097*	-0.133**	-0.101		
		(0.056)	(0.066)	(0.068)		
Directional (discrete robust) x rate					0.057**	0.053**
					(0.025)	(0.022)
EA2y GovBond yield					0.018	0.017
					(0.015)	(0.014)
Constant	-0.017	0.001	-0.015	-0.023	-0.081**	-0.074**
	(0.025)	(0.025)	(0.025)	(0.025)	(0.036)	(0.033)
Observations	217	217	217	217	217	217
Macro and FX controls	YES	YES	YES	YES	YES	YES
Adj. R2	0.310	0.396	0.418	0.452	0.406	0.499

Notes: The table reports estimates of Equation (5.2) at meeting frequency, including a dummy variable that is equal to one when policy rates were constrained at the ELB and the interaction of this dummy with the other variables of interest. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. "DE10Y" refers to the 10 year German Bund high-frequency reaction to the press conference event. "EA2y GovBond yield" and "Rate" refer to the 2 year Euro Area government bond yield (lagged by one day). Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.11: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, ELB vs outside ELB

	(1)	(2)	(3)	(4)	(5)
MP shock	0.071***	0.059***	0.043***	0.126***	0.076***
	(0.011)	(0.008)	(0.012)	(0.015)	(0.017)
Info. shock	0.023***	0.021***	0.003	0.042***	-0.000
	(0.007)	(0.007)	(0.014)	(0.015)	(0.014)
DE10Y			0.036*		0.061***
			(0.022)		(0.012)
MP shock x ELB		0.129***	0.077		
		(0.043)	(0.055)		
Info shock x ELB		0.059**	0.003		
		(0.025)	(0.044)		
10y yield shock x ELB			0.016		
			(0.031)		
MP shock x EA2y GovBond yield				-0.020***	-0.001
				(0.004)	(0.005)
Info shock x EA2y GovBond yield				-0.009	0.013*
				(0.008)	(0.007)
Rate x DE10yshock					-0.034***
					(0.008)
Directional sentiment (cont. robust)	0.012	0.044**	0.046**	-0.026	-0.020
	(0.022)	(0.019)	(0.020)	(0.026)	(0.021)
Directional (continuous robust) x ELB		-0.092**	-0.087**		
		(0.036)	(0.034)		
ELB		-0.141**	-0.112*		
		(0.062)	(0.064)		
Directional (continuous robust) x rate				0.031**	0.028**
				(0.013)	(0.011)
EA2y GovBond yield				0.022	0.022
				(0.014)	(0.014)
Constant	-0.017	-0.007	-0.014	-0.082**	-0.075**
	(0.025)	(0.025)	(0.025)	(0.035)	(0.032)
Observations	217	217	217	217	217
Macro and FX controls	YES	YES	YES	YES	YES
Adj. R2	0.308	0.416	0.450	0.404	0.495

Notes: The table reports estimates of Equation (5.2) at meeting frequency, including a dummy variable that is equal to one when policy rates were constrained at the ELB and the interaction of this dummy with the other variables of interest. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. "DE10Y" refers to the 10 year German Bund high-frequency reaction to the press conference event. "EA2y GovBond yield" and "Rate" refer to the 2 year Euro Area government bond yield (lagged by one day). Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.12: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, role of the ELB period.

	(1)	(2)	(3)	(4)	(5)
ECB Rates for PC 1	0.083***	0.083***	0.083***	0.084***	0.083***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
ECB Rates for PC 2	-0.017	-0.018	-0.018	-0.020	-0.020
	(0.019)	(0.019)	(0.019)	(0.018)	(0.018)
ECB Rates for PC 3	-0.011	-0.007	-0.009	-0.004	-0.007
	(0.031)	(0.030)	(0.030)	(0.030)	(0.030)
ECB Rates for PC 4	0.058	0.058	0.056	0.053	0.050
	(0.040)	(0.040)	(0.040)	(0.038)	(0.039)
Directional sentiment (discrete)		0.056			
		(0.042)			
Directional sentiment (cont.)			0.019		
			(0.022)		
DS (discrete), positive				0.131***	
				(0.049)	
DS (discrete), negative				-0.014	
				(0.059)	
DS (cont.), positive					0.061***
					(0.022)
DS (cont.), negative					-0.016
					(0.026)
Constant	-0.010	-0.008	-0.008	-0.033	-0.031
	(0.024)	(0.024)	(0.025)	(0.026)	(0.026)
Observations	217	217	217	217	217
Macro and FX controls	YES	YES	YES	YES	YES
Adj. R2	0.334	0.341	0.335	0.353	0.349

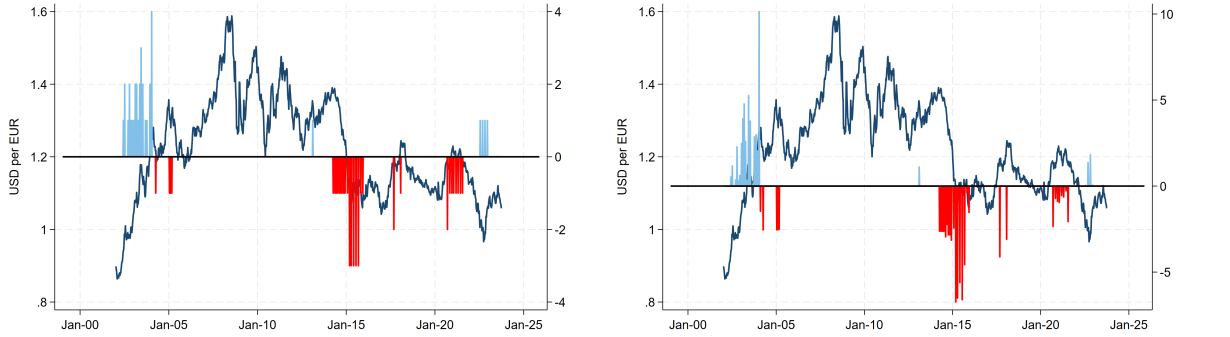
Notes: The table reports estimates of Equation (5.2) at meeting frequency. A positive value for the directional sentiment index refers to a desired appreciation. Macro controls refer to controls for macroeconomic surprises; FX controls refer to a control for the change in exchange rate in the 5 days prior to the event. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table B.13: Estimated high-frequency impact of exchange rate mentions on the direction of exchange rate changes, role of the ELB period.

	(1)	(2)	(3)
ECB Rates for PC 1	0.083***	0.083***	0.083***
	(0.008)	(0.008)	(0.008)
ECB Rates for PC 2	-0.018	-0.018	-0.018
	(0.019)	(0.019)	(0.019)
ECB Rates for PC 3	-0.007	-0.008	-0.008
	(0.030)	(0.030)	(0.030)
ECB Rates for PC 4	0.058	0.053	0.055
	(0.040)	(0.038)	(0.038)
Directional sentiment (discrete)	0.056	0.105**	-0.008
	(0.042)	(0.047)	(0.054)
Directional (discrete) x ELB		-0.140	
		(0.085)	
ELB		-0.075	
		(0.069)	
Directional (discrete) x rate			0.048*
			(0.026)
EA2y GovBond yield			0.013
			(0.015)
Constant	-0.008	-0.006	-0.046
	(0.024)	(0.025)	(0.036)
Observations	217	217	217
Macro and FX controls	YES	YES	YES
Adj. R2	0.341	0.351	0.352

Notes: The table reports estimates of Equation (5.2) at meeting frequency, including a dummy variable that is equal to one when policy rates were constrained at the ELB and the interaction of this dummy with the other variables of interest. "EA2y GovBond yield" and "Rate" refer to the 2 year Euro Area government bond yield (lagged by one day). A positive value for the directional sentiment index refers to a desired appreciation. Robust standard errors are reported in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

C Figures



(a) Discrete index (b) Continuous index

Figure C.1: EURUSD exchange rate and desired direction of exchange rate move.

Notes: The figure shows the directional index over time alongside the euro-dollar exchange rate based on the discrete index (left panel) and the continuous index (right panel).

D Real equilibrium exchange rate data

We utilize data from the Behavioral Equilibrium Exchange Rate (BEER) concept Ca' Zorzi et al. (2022) to calculate the difference between the Real Effective Exchange Rate (REER) and the Equilibrium Effective Exchange Rate. Among the various equilibrium measures proposed by Ca' Zorzi et al. (2022), we have selected the BEER approach to explicitly incorporate economic fundamentals. The equilibrium exchange rate is estimated using a monthly interpolation of the quarterly BEER.

Figure D.2 illustrates the comparison between the REER, the equilibrium REER, and the resulting deviation for the euro. Additionally, Figure D.3 presents a comparison of the REER and the nominal exchange rate trends for the euro for reference.

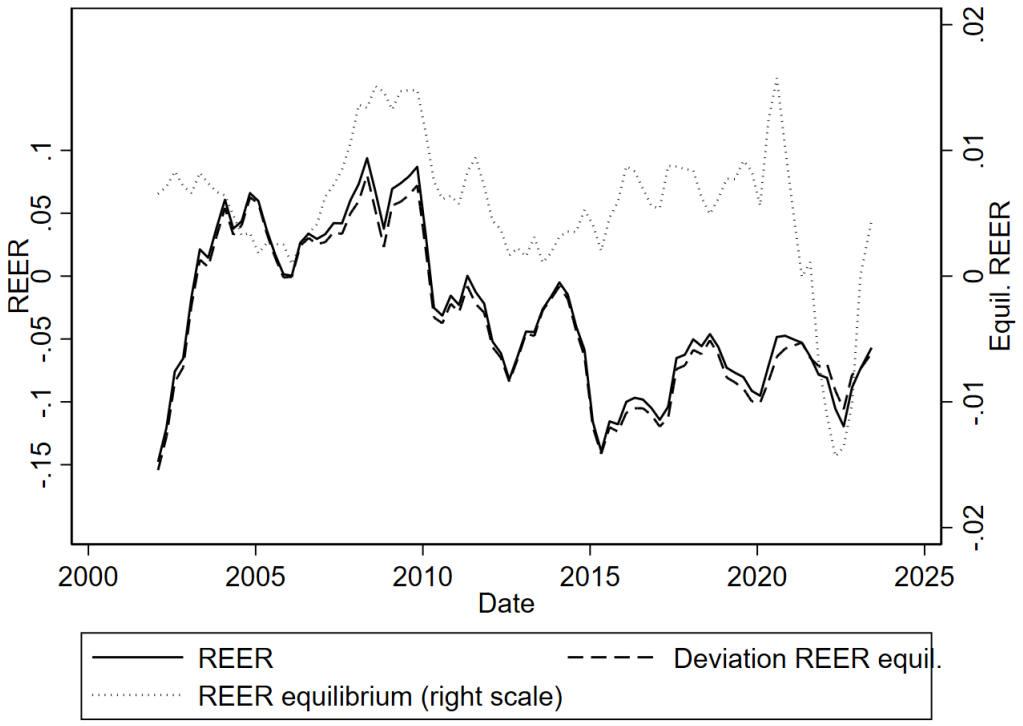


Figure D.2: Comparison between REER and BEER for the euro exchange rate.
Notes: The figure illustrates the comparison between the REER, the equilibrium REER, and the resulting deviation for the euro.

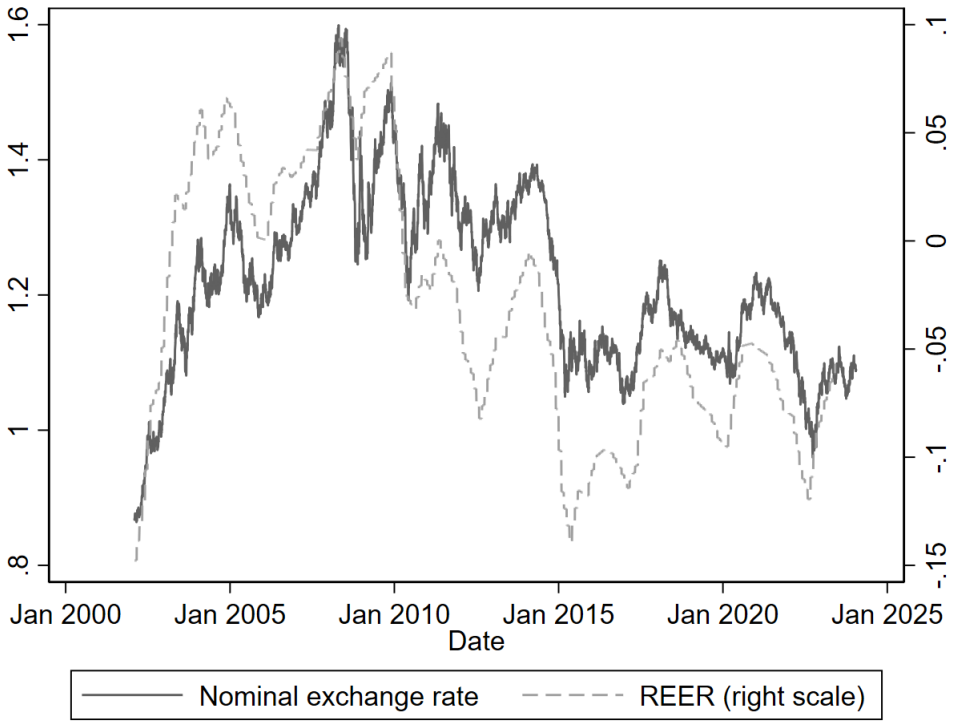


Figure D.3: Comparison between REER and nominal effective exchange rate for the euro.

Notes: The figure presents a comparison of the REER and the nominal exchange rate trends for the euro.

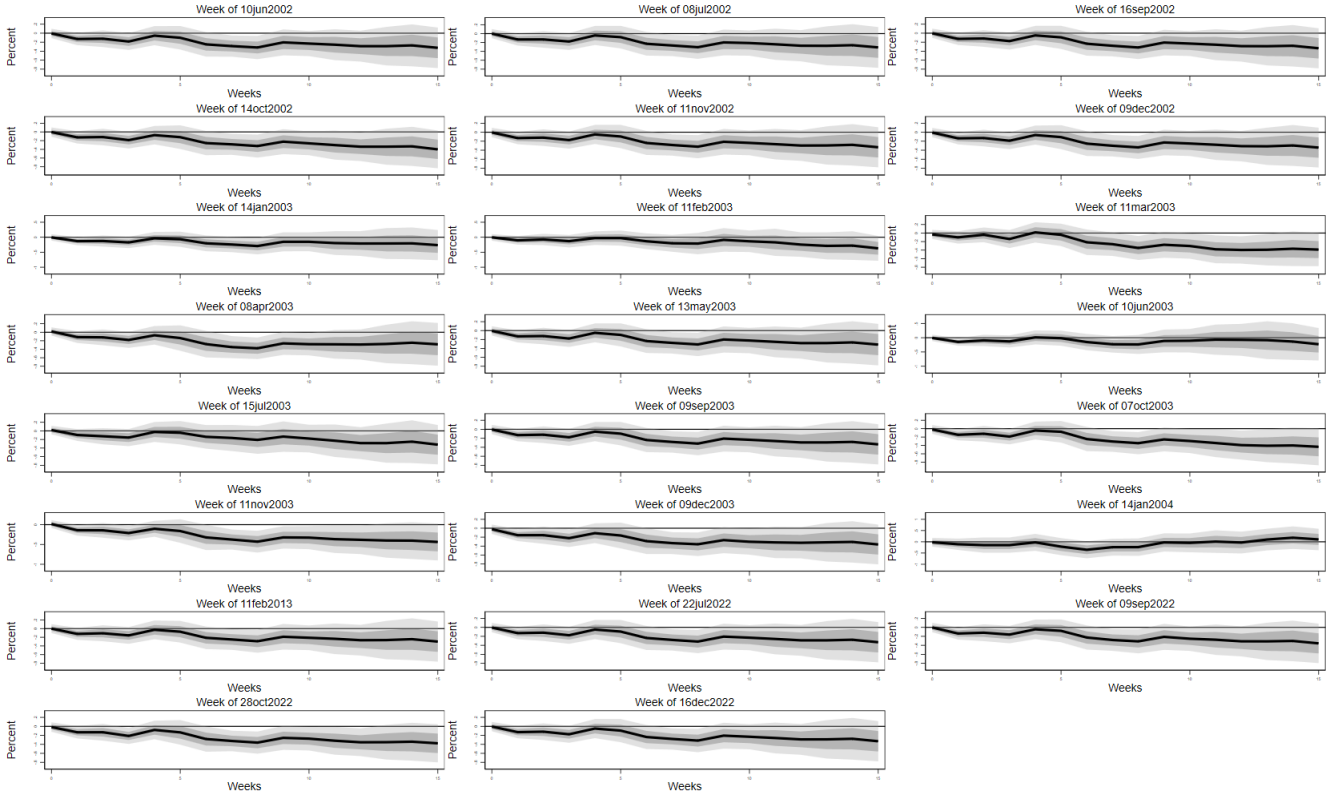


Figure D.4: Effect of a positive sentiment index shock on the exchange rate excluding one event at a time.

Notes: The figure shows local projection estimates obtained from Equation (5.3). A positive value for the directional sentiment (DS) index refers to a desired appreciation; and an increase in the dependent variable to an appreciation of the euro.

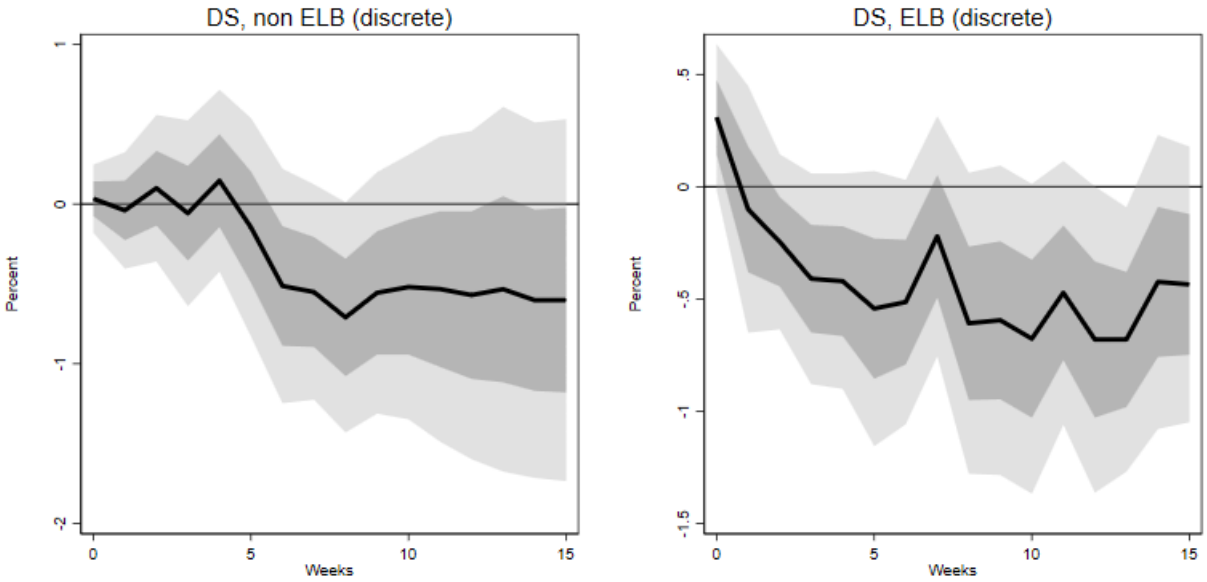


Figure D.5: Long-term EUR/USD effects of directional sentiment in ELB vs. Non-ELB periods.

Notes: The figure shows local projection estimates obtained from a version of Equation (5.3), where a . A positive value for the directional sentiment (DS) index refers to a desired appreciation; and an increase in the dependent variable to an appreciation of the euro. The light (dark) shaded area represents the 90% (68%) confidence interval.

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