

STUDY

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Monetary Dialogue, February 2020



Walking the Thin Line: Central Bank Communication

Compilation of papers



Policy Department for Economic, Scientific and Quality of Life Policies
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Walking the Thin Line: Central Bank Communication

Compilation of papers

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs.

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CONTENTS

Reaching a Wider Audience: Is the ECB Trending?

Authors: Daniel GROS and Angela CAPOLONGO

5

The ECB's Communication Strategy: Limits and Challenges After the Financial Crisis

Authors: Kerstin BERNOTH and Geraldine DANY-KNEDLIK

27

Communication During Unconventional Times: The ECB's Approach

Authors: Eddie GERBA and Corrado MACCHIARELLI

59



Reaching a Wider Audience: Is the ECB Trending?

Daniel GROS, Angela CAPOLONGO (CEPS)



Abstract

Central banks are increasingly recognising the importance of communicating with the wider public. We document that interest in monetary policy is intermittent, usually linked to major decisions and/or personnel changes. The ECB should not expect that every one of its decisions is noticed by the general public. The Monetary Dialogue fulfils the typical function of a representative democracy in which citizens delegate to their elected representatives the task of monitoring policy implementation by independent institutions.

This document was provided by Policy Department A at the request of the Committee on Economic and Monetary Affairs.

CONTENTS

LIST OF ABBREVIATIONS	10
EXECUTIVE SUMMARY	11
1. INTRODUCTION	12
2. WHEN IS THE ECB TRENDING?	14
2.1. A broad search interest	14
2.2. A more technical search interest	16
3. THE ROLE OF THE MONETARY DIALOGUE	19
4. CONCLUSIONS	20
REFERENCES	21
ANNEX	22
POTENTIAL QUESTIONS FOR MEPS	25

LIST OF ABBREVIATIONS

EEA	European Economic Association
ECB	European Central Bank
NCB	National Central Bank
MEP	Member of the European Parliament
ELB	Effective Lower Bound
EU	European Union
QE	Quantitative Easing

EXECUTIVE SUMMARY

- **Central banks traditionally focussed on communicating with the financial markets** because the most direct channel of transmission of monetary policy works via interest rates and financial market conditions in general.
- However, **the beliefs and expectations of the wider public also have important economic implications**. Central banks are thus also increasingly recognising the importance of communicating with a broader audience.
- Nevertheless, **the interest of the wider public for monetary policy is intermittent**, linked to major decisions points and/or personnel changes.
- **The ECB should thus not try to reach a wider audience with every decision on monetary policy**.
- Communication on 'high frequency' decisions can remain targeted at specialists in the media and financial markets. However, **low-frequency, strategic decisions can and should be communicated to the general public**.
- **It is difficult to judge how well the ECB communicates with the wider public**. The ECB reaches a much wider audience through social media channels than national central banks. But even with its 500 000 followers on Twitter, for example, the ECB can directly reach only a small elite.
- **Opinion polls show a drop in trust in the ECB in the wake of the financial crises; and more recently a strong increase**. However, this might have to do more with the recovery of the economy than with improved communication.
- **The Monetary Dialogue plays a key, and natural role** in representing the interests of the wider public, which is generally not interested in high frequency decisions.

1. INTRODUCTION

Clear and transparent communication is essential for a successful conduct of monetary policy. The reason lies in the crucial role of managing expectations for an effective transmission of monetary policy. Woodford, at the 2005 Jackson Hole conference, explained this peculiarity using a concrete example:

‘Central banking is not like steering an oil tanker, or even guiding a spacecraft, which follows a trajectory that depends on constantly changing factors, but that does *not* depend on the vehicle’s own expectations about where it is heading’.

The forward-looking nature of the decision-making actors makes steering expectations crucial for central banking.

In today’s highly uncertain economic environment, with central banks all over the world facing challenges in meeting their price stability targets (and with the feeling that the existing instruments have become less potent), communication itself has become the policy (Gros, 2018). In a longer view, one can observe a revolution in terms of central bank communication, going from the Sybil-like pronouncements of the Greenspan era to a more and more transparent and accountable way of communicating monetary policy strategy today. Central banks now try to be as open as possible and make masses of material available on their websites.

This trend towards openness finds support in an extensive literature, that was first surveyed by Blinder et al. (2008) and, more recently, by de Haan et al. (2019). Central banks use communication to affect expectations about future policy rates in particular, in order to have an impact on long-term interest rates (see Moessner et al., 2018). Moreover, they use communication to influence inflation expectations with the aim of anchoring them to the price stability target (see Svensson, 2006).

After the financial crisis, with policy rates hitting the effective lower bound (ELB), three important changes in terms of central banking communication have taken place.

The first one concerns the forward guidance of policy rates, that is used more and more by many central banks today to manage expectations about future short-term, and thus ultimately long-term interest rates. However, it is still debated in the literature which type of forward guidance (open-ended, state-contingent, time-dependent) should be used to avoid affecting credibility in a changing economic environment.

The second change concerned the communication of the size and duration of the asset purchase programme, which is important in influencing reaction in financial markets, mainly via two channels: the portfolio balance and signalling channels. Empirical studies find this communication has significant impact, but as to which channel is more effective is still an open question.

Finally, through forward guidance and asset purchase, central banks also aim at affecting inflation expectations, however, the extent to which they have affected short-term inflation expectations via these policy measures is unclear.

A big part of the central banking literature mainly focuses on communication with financial market participants. However, there also exists another actor playing an important role in the economy: the general public. As explained by de Guindos (2019), in a speech at the European Economic Association (EEA) annual congress, communication with the general public is two-way, as it is for financial markets participants. First, a central bank has a lot to learn from consumers, since, for example by looking at how consumers’ form their expectations, it is possible to gauge evidence in terms of credibility and economic monitoring. Second, central bankers need to reach out to the general public in order to manage their expectations of economic outcomes, but also for accountability reasons.

Communicating with the general public is one of the big open challenges included in the second wave of the modern central banks' 'communication revolution', as it is called by Haldane et al. (2020). They build a model showing that in a low-trust environment, there are potential advantages in engaging a broader audience, however, there could also be potential risks of lowering welfare. A possible solution could be to implement a communication including the '3 Es', that are Education, Engagement and Explanation. However, even if big steps ahead have been made in all these dimensions, many challenges remain, as Blinder (2018) also points out, by predicting that central banks may fail in the future to communicate to the general public.

Haldane et al. (2020) recognise, rightly, that some agents might choose 'rationally' to remain uninformed because the costs of acquiring and digesting information about monetary policy exceed the potential benefits. We would argue that this is indeed the case for the overwhelming majority of the wider public.

In this paper, we aim at adding to the few existing studies on central bank communication with the general public. By using Google Trends data, we provide new evidence on the interest of the general public in the monetary policy decisions of the ECB. In practice, we analyse how often certain terms appear in searches on Google: both broad keywords as 'ECB', but also more technical keywords related to monetary policy.

The ECB faces big challenges in communication to the general public, not only because of about twenty different languages in the euro area countries, but also because its decisions will appear to be technical for most laymen. Policymakers try to reach out to the general public by being more present on social media channels. The Twitter accounts of the ECB have around 500 000 followers. However, retweets of monetary policy decisions are fairly limited: ECB tweets of press conference transcripts received on average 13 retweets and 18 likes in the last year. The most popular tweet of the ECB seems to be its Season's Greetings with a picture of its Christmas tree.

NCBs might have an advantage in communicating with the general public because they are integrated into national public discussions and use the national language. Nevertheless, their popularity on social media, in terms of the number of followers on Twitter, is much lower than the ECB. The Deutsche Bundesbank and the Banque de France's twitter accounts have around 30 000 followers each, while Banca d'Italia and Banco de España have 11 000 followers each. These national central banks, which together account for over two thirds of the euro area thus have a much smaller following in total than the ECB.

The 500 000 followers of the ECB still represent only little over one tenth of 1 % of the euro area population, a very small elite. Haldane et al. (2020) estimate that most central bank communication is couched in such a language that only about 10 % of the population can be expected to be able to read and understand it. But even by this measure, the ECB would only seem to reach about 1 % of a potential target audience via social media (Twitter).

The Monetary Dialogue could play an important role in acting as a bridge between the ECB and the general public. On one hand, the briefing papers and the meetings with the panel of experts provide clarifications and fresh views on relevant economic topics. On the other hand, the meeting between the President of the ECB and the Members of European Parliament (MEPs) helps foster engaging discussions between monetary policy experts and MEPs on relevant economic topics.

This contribution is organised as follows. Section 2 provides an analysis of the evolution of general public interest in the ECB over time. Section 3 focuses on the role of the Monetary Dialogue. Section 4 concludes and provides some policy recommendations.

2. WHEN IS THE ECB TRENDING?

In this section, we investigate how the general public interest in the ECB evolves over time and across euro area countries. We focus on the four biggest euro area countries: Germany, France, Italy and Spain. The data used to perform the analysis are retrieved from Google Trends. This search analysis website allows us to study the frequency of the search of certain words in the different countries over time. In this way, we can achieve two objectives.

First, we can check if during the period when there is a specific press conference by the ECB, we observe some changes in search patterns, and, thus, try to understand if the ECB is able to reach out to the public. Second, we can analyse each specific country-case search to highlight the main differences and similarities across countries, both in terms of geographic searches and related queries.

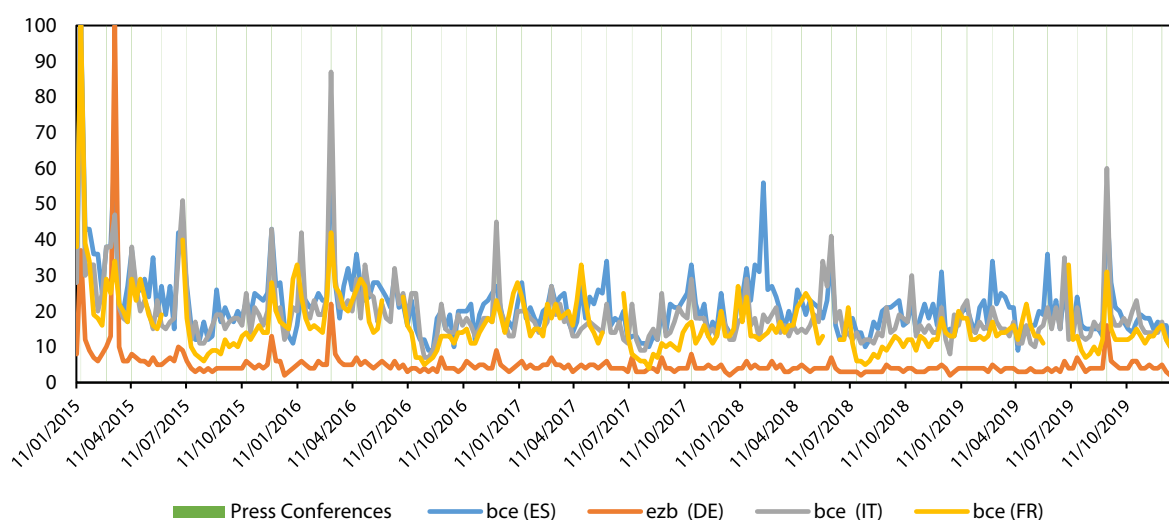
2.1. A broad search interest

The key result is that the interest in the ECB is highly variable with peaks that often, but not always coincide with major monetary policy decisions. This finding is confirmed for all four countries we looked at. Moreover, we also find that in many, but by all means not all, cases, the peaks coincide.

This coincidence of the peaks was particularly pronounced during early 2015, when major announcements concerning asset purchases were communicated and then implemented. Unfortunately, high frequency (weekly) data is not available for previous years. We would expect that similar spikes occurred earlier, especially during the crisis period.

Moreover, inspection of Figure 1 also shows that most spikes coincide with ECB press conferences (marked by vertical lines); showing that these events do stimulate interest among the wider public.

Figure 1: Interest over time in ‘ECB’ for Germany, France, Italy and Spain, and ECB Press Conferences

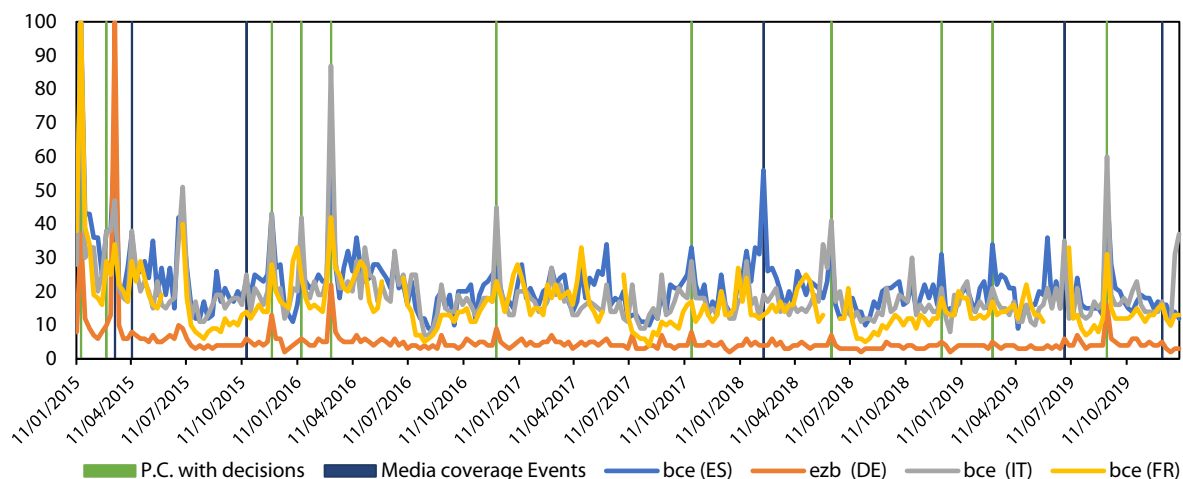


Note: For every country, we plot the search interest provided by Google Trends, over the past 5 years with weekly frequency (Jan2015-Jan2019). The search interest is relative to the highest point on the chart for the given region and time: 100 is the peak popularity for the term, 50 means that the term is half as popular and 0 means there was not enough data for this term. The 40 vertical lines represent the weeks when ECB press conferences took place. For France (yellow line), the data for June are omitted because there could be potential bias due to a similar acronym search in a different context.

Source: Google Trends, ECB website.

However, not all press conferences are associated with spikes in searches (and vice-versa, not all spikes are associated with press conferences). Figure 2 thus concentrates only on those press conferences with a significant decision (and press coverage). These events are marked by vertical lines below.

Figure 2: Interest over time of 'ECB' by countries, and ECB Press Conferences with decisions and Events with high media coverage



Note: For every country, we plot the search interest provided by Google Trends, over the past 5 years with weekly frequency (Jan2015-Jan2019). The search interest is relative to the highest point on the chart for the given region and time: 100 is the peak popularity for the term, 50 means that the term is half as popular and 0 means there was not enough data for this term. The vertical green lines represent the week when there was an ECB press conference with a decision, while the blue lines are identified as events related to the ECB that received high media coverage. For France (yellow line), the data for June are omitted because there could be potential bias due to a similar acronym search in a different context.

Source: Google Trends, ECB website, authors' search.

The press coverage events (outside decision weeks) have been identified as those weeks when no major press conference took place, but there was still a significant spike in interest for at least one country considered. Following this methodology, we can identify six events.

1. In March 2015, the inauguration of new ECB premises in Frankfurt triggered a large-scale protest in Frankfurt, so the biggest spike in interest is observed for Germany.
2. In May 2015, during a press conference where no major monetary policy decisions were taken, a protester disrupted the meeting by jumping on the stage and throwing confetti.
3. In October 2015, President Draghi unexpectedly signalled the intention to extend QE in the future.
4. In February 2018, the Eurogroup gave its support to the candidacy of Luis de Guindos for the position of ECB Vice-President, and we observe a spike in search interest for Spain.
5. In July 2019, the European Council considered Christine Lagarde to be the appropriate candidate for the ECB Presidency.
6. In December 2019, there was the first press conference by Lagarde as President.

That press conferences lead to a marked increase in public interest in the ECB can be seen in Table 1 below, which shows that, (for three of the four countries considered) the incidence of searches is higher, on average, during weeks with press conferences. The difference becomes much more marked if we only consider the major events of Figure 2, leading to the result presented in Panel B. During the weeks with major ECB events, searches are over twice as high as during the other weeks.

Table 1: Descriptive statistics for the search interest in the term ‘ECB’ considering the events in Figure 1 (Panel A) and Figure 2 (Panel B)

Panel A

	bce (ES)	ezb (DE)	bce (IT)	bce (FR)
Weeks of Press Conferences	29.9	7.5	29.1	13.7
Other weeks	20.1	4.7	17.4	15.1

Panel B

	bce (ES)	ezb (DE)	bce (IT)	bce (FR)
Weeks with events (PC with decisions and media coverage)	41.76	15.71	41.65	29.00
Other weeks	20.25	4.44	17.68	15.21

Note: For France, the data for June are omitted because there could be potential bias due to a similar acronym search in a different context.

Source: Google Trends, ECB website and authors’ computations.

The annex also shows the distribution of the searches across regions of these four countries. In France and Spain the searches are concentrated in the capitals. However, in Germany and Italy, searches for ‘ECB’ are concentrated in the financial centres, Frankfurt (also seat of the ECB) and Milan. A common trend in all four countries is that searches for ‘ECB’ are lower in poorer or more peripheral regions. This could be due to a lower interest in monetary policy in these regions or to the generally higher level of education of richer regions.

2.2. A more technical search interest

In this subsection, we focus on investigating the search interest in more technical words related to the goals of the ECB (inflation below but close to 2 %) and its policy instruments. This is done again for each of the four biggest euro area countries. The terms considered are: ‘inflation’, ‘negative rates’ and ‘assets purchase’. To be used in different countries, these terms are translated in the four official languages, using the official translation by the ECB on their website. For every country, we study: i) the evolution over time of the search interest, ii) the interest by region over the period considered; iii) the queries related to the search of those specified keywords.

Figure 3 shows the distribution over time of searches for these terms, for the four large euro area countries considered. Several conclusions emerge from a comparison across these three different keywords.

First of all, searches for inflation are almost always more frequent than those for the other two terms. Moreover, the searches for inflation are less 'spiky' than those for the ECB. There seems to be a more persistent, albeit still somewhat variable, interest in inflation than in what the ECB is doing. This phenomenon is most marked for Germany, confirming the *cliché* that Germans are more concerned about inflation.

Second, a comparison across countries shows that, not surprisingly, Germany is the only country in which negative rates play an important role, at least during the second half of 2019. The spikes in the searches for negative rates are not related to ECB decisions, but rather to announcements by banks of the imposition of negative rates on their clients. This is most evident in the single spike for Italy, where the announcement of one single, large bank led to the spike observed in the summer of 2019. In Spain, and even more in France, there seems to be little interest in negative rates.

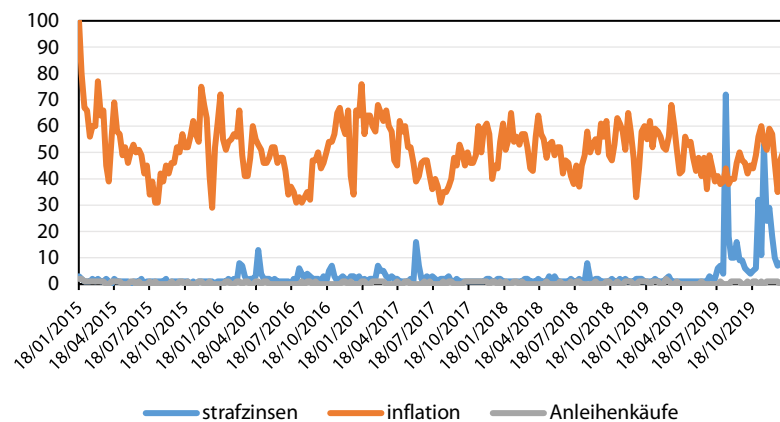
Finally, we find few searches for asset purchases throughout the entire 5-year period although this was a period of operation of the PSPP and there was a long drawn out period of deliberation on the end of the purchases (and their resumption more recently). This suggests that there is little interest in the general public about this specific monetary policy tool, despite the controversial discussions in the political sphere about this unconventional instrument.

We also analysed the regional distribution of these more technical searches and found that they are again concentrated in the financial centres and more generally in richer regions (results available upon request). The concentration is even more marked for these technical terms. For example, in one case (Italy) we found searches for negative rates only in the North.

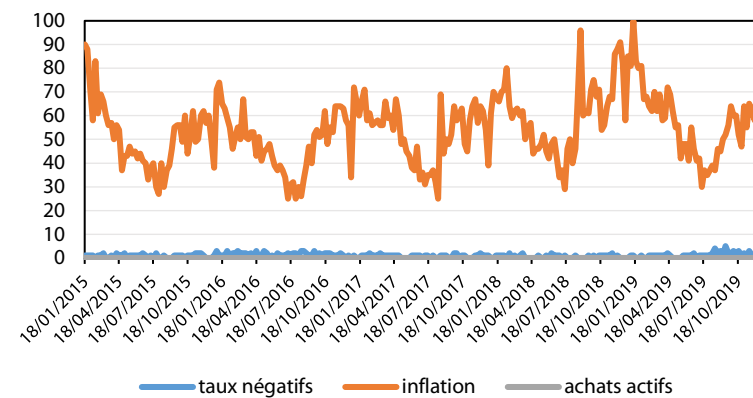
This uneven regional distribution confirms the general picture that interest in the ECB and its instruments is patchy and volatile.

Figure 3: Search interest over time by countries

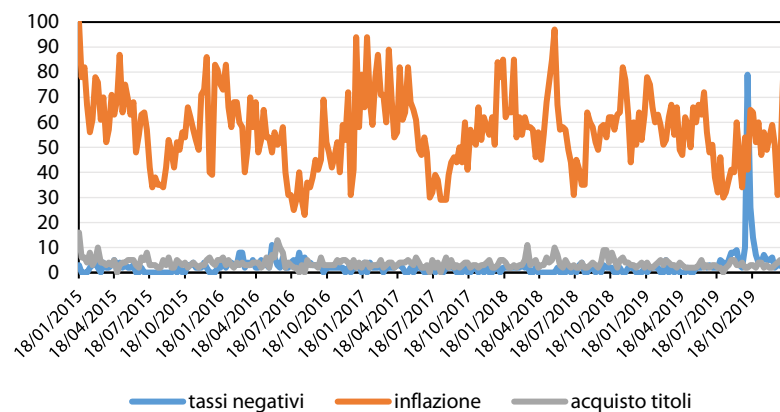
a) Germany



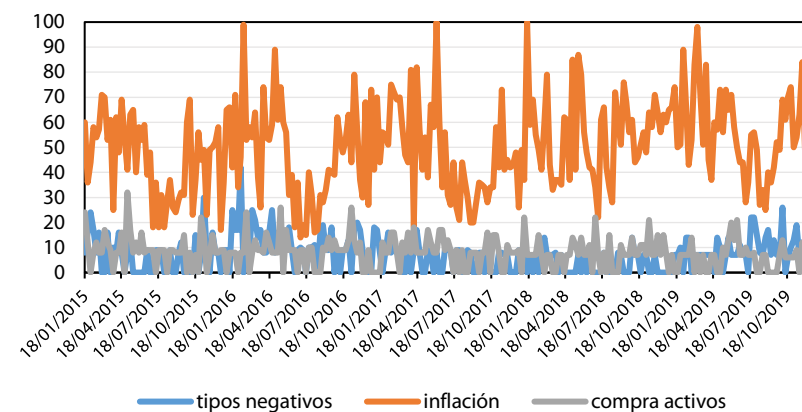
b) France



c) Italy



d) Spain



Source: Google Trends, ECB website.

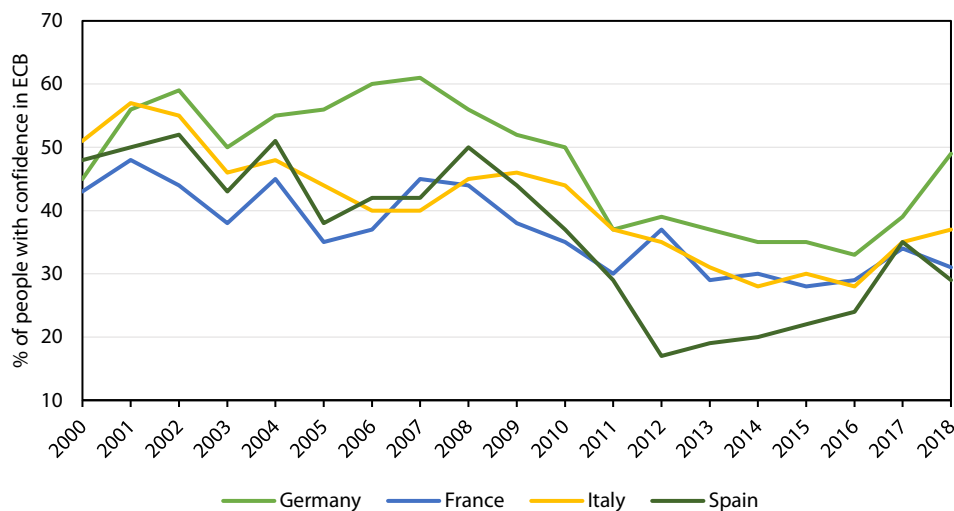
3. THE ROLE OF THE MONETARY DIALOGUE

The Monetary Dialogue between the European Parliament's Committee of Economic and Monetary Affairs and the ECB becomes crucial, in this framework, as an intermediary between the ECB and the general public. The Monetary Dialogues also performs, in the area of monetary policy, a more general function of a representative democracy. Most citizens are not interested in following policies on a daily basis; this is a task they delegate to their democratically elected representatives. These representatives in turn rely partially on experts to provide them with more in-depth information and advice. A study by Collignon et al. (2016) finds that the Monetary Dialogue is an important pillar for informing and engaging Members of parliament.

Haldane et al. (2020) find a self-defeating mechanism which can lead to a 'confidence trap'. If the public trusts an institution, it forgets about the variability which is unavoidable in any real world setting. Something similar seems to have afflicted the ECB as well. Trust in the ECB was high during the boom years preceding the financial crises. When the economy started to turn down, trust in the ECB declined (although most experts agree that the ECB was instrumental in preventing the crisis from spiralling out of control in 2012). Figure 4, below, illustrates this drop in trust in all countries, even those, like Germany, where the economy recovered very quickly.

Our period of observation covers only the years from 2015 (the data on trust is only available until 2018). Trust seems to have recovered more recently, but this does not seem to be connected in any way to the frequency of ECB searches. It would thus be difficult to argue that more communication efforts would have a large impact on trust in the ECB. The state of the economy is ultimately the key determinant of trust.

Figure 4: Evolution of confidence in the ECB over time



Note: The indicator measures the confidence of EU citizens in the ECB, as reported in the Eurobarometer survey, for the four biggest euro area countries. It is expressed in terms of the share of people declaring that they tend to trust the ECB.

Source: European Commission - Directorate-General for Communication (DG COMM).

4. CONCLUSIONS

The main conclusion that emerges from this short analysis of public interest is that the ECB should not expect the general public to show much interest in all of its actions or pronouncements. In the 5-year period for which the weekly data is available we counted less than 20 episodes with a spike in interest for the ECB. This means that there are only about 3-4 weeks each year during which the interest of the general public suddenly becomes strong, leading to a spike in searches for the ECB.

There seems to be little need for the ECB to increase its efforts to communicate routine or minor policy adjustments to the wider public. These efforts should be concentrated on the rare occasions when a major policy shift is happening. These considerations also apply to the overall review of monetary policy which is planned to take place soon. One should not expect the public to show much continuous interest in a long and technical process. However, an intensive communication effort would be justified (and would probably also work) if the review leads to major changes.

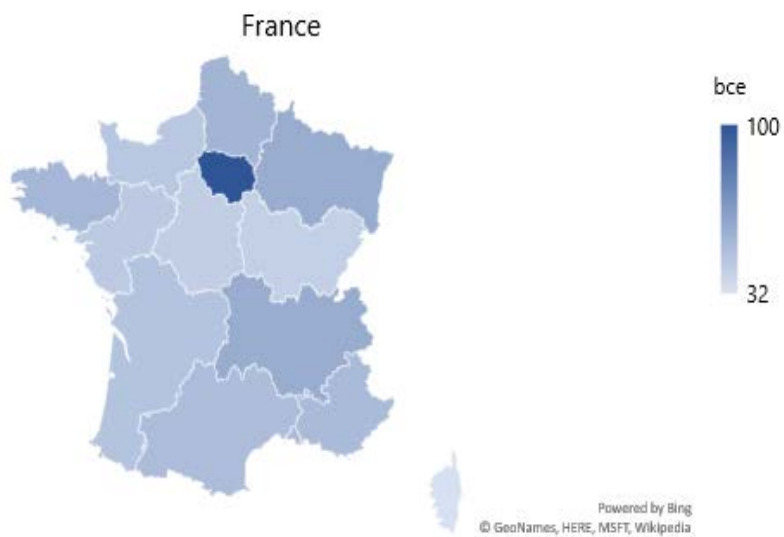
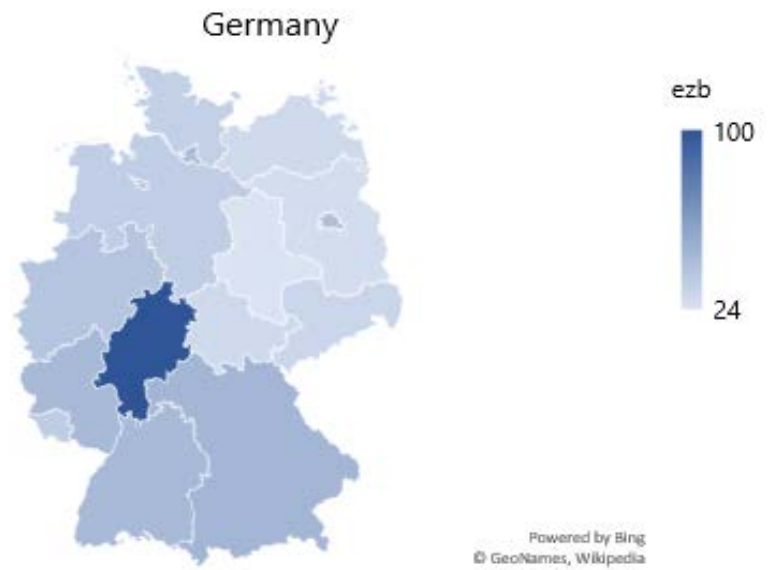
The limited and volatile interest of the general public in monetary policy should not surprise. Something similar applies to many policy domains and provides the ultimate justification of representative democracy. The Monetary Dialogue thus performs an essential function, even if its sessions do not attract much interest among the wider public.

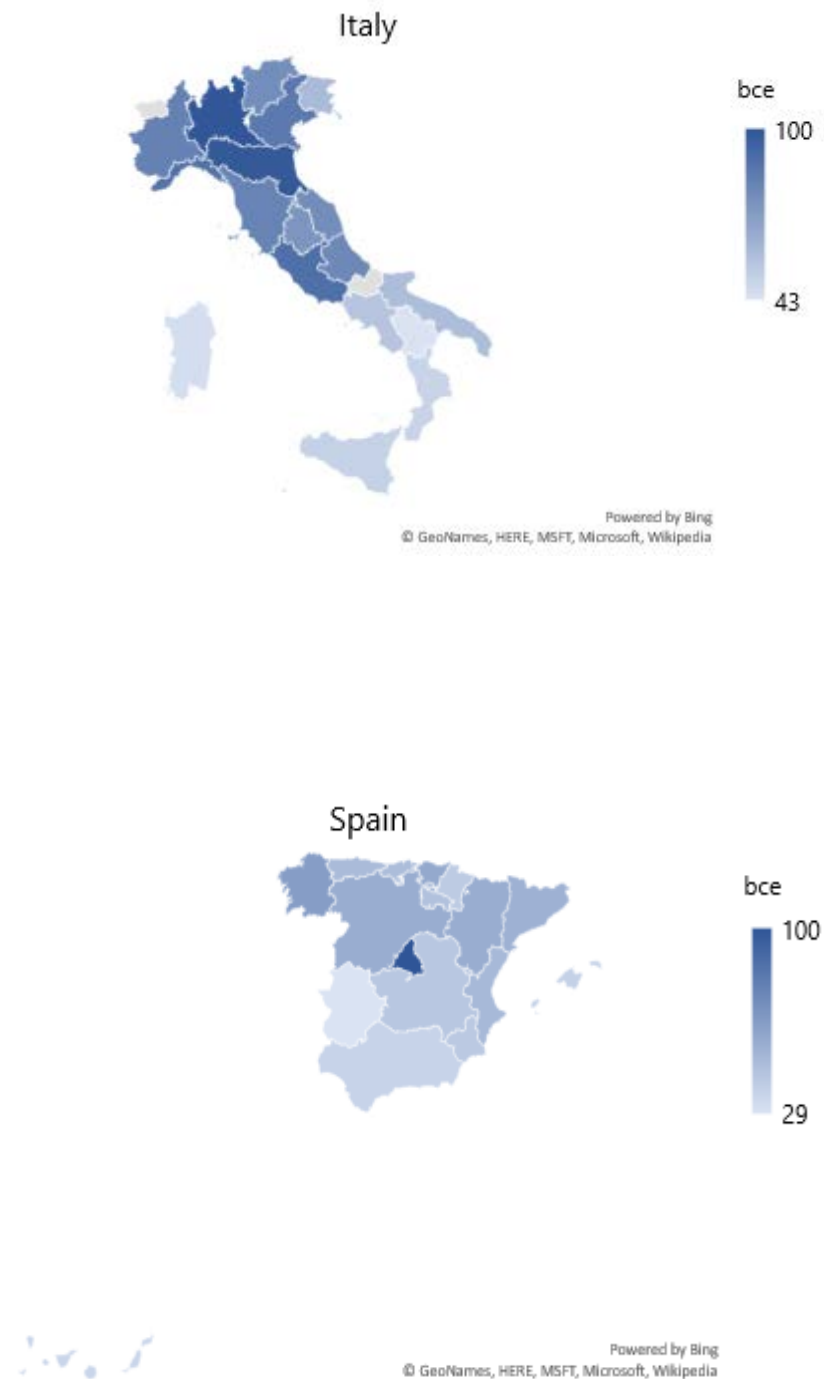
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ANNEX

Figure 5: Interest in 'ECB' by regions





Note: The figures report, for every country, gradient-colored regions based on the popularity of the term 'ECB' over the past 5 years (Jan2015-Jan2020). The geographical interest is computed on a scale from 0 to 100: 100 corresponds to the location with the most popularity as a fraction of total searches in that location, 50 indicates a location which is half as popular, and 0 indicates a location where there was not enough data for this term. A dark blue color is used for the location with the most popularity of the term, and then lighter shades of blue are used for location with a lower popularity of the term.

Source: Google Trends and authors' computations.

Table 2: Topics related to the search of 'ECB' by country

	Germany	France	Italy	Spain
Rising Related Topics	Quantitative Easing	Christine Lagarde - President of ECB	Power of attorney	Luis de Guindos – Spanish Politician

Note: The table shows the topics related to the search of the term 'ECB'. For every country, we report the first topic that at January 2020 shows the biggest increase in search frequency since the first time period (Jan. 2015).

Source: Google Trends.

POTENTIAL QUESTIONS FOR MEPS

- 1) Is the ECB planning to invest more in social media in the near future to try to extend its reach to the general public?
- 2) Could there be a danger of 'information overload' if the ECB tries to communicate too much?
- 3) In its monetary policy decisions, the ECB indirectly communicates a deep frustration with its inability to reach the inflation target of close to 2 %. At the same time, the ECB wants to project the image of a confident institution, fully in control. How can these two conflicting messages be reconciled?



The ECB's Communication Strategy: Limits and Challenges After the Financial Crisis

Kerstin BERNOTH and Geraldine DANY-KNEDLIK
(DIW Berlin)



Abstract

Given its central role in public accountability and in the formation of expectations, it is important to reflect on ways to improve the ECB's communication policy. Communication should not generally strive for maximum transparency. The optimum degree of transparency varies between different aspects of monetary policy and banking supervision. Although the ECB already communicates very openly with the public and achieves a very high level of transparency in all aspects, we see room for improvement in its communication strategy in several respects.

This document was provided by Policy Department A at the request of the Committee on Economic and Monetary Affairs.

CONTENTS

LIST OF ABBREVIATIONS	32
EXECUTIVE SUMMARY	33
1. INTRODUCTION	34
2. CENTRAL BANK COMMUNICATION AND TRANSPARENCY	35
2.1. Why central bank communication matters	35
3. CENTRAL BANK TRANSPARENCY AND ITS LIMITS	36
3.1. Political transparency	36
3.2. Economic transparency	37
3.3. Procedural transparency	38
3.4. Policy transparency	38
3.5. Operational transparency	39
4. CHANGES TO ECB'S COMMUNICATION SINCE THE CRISIS	41
4.1. ECB's political transparency: new tasks	41
4.2. ECB's economic transparency: revealing and explaining more	43
4.3. ECB's procedural transparency: finally, we have minutes	44
4.4. ECB's policy transparency: short and clear in difficult times	44
4.4.1. Scheduled communication	44
4.4.2. Communication on new policy instruments	44
4.4.3. Unscheduled communication	45
5. EFFECTIVENESS OF ECB'S POLICY COMMUNICATION	46
5.1. Communication of policy decision: generally effective	46
5.2. Asset purchase programmes: announcing the quantity reduces uncertainty	47
5.3. Forward guidance	48
5.4. Speeches: diverging views cause uncertainty	48
6. CHALLENGES FOR THE ECB'S COMMUNICATION STRATEGY IN THE FUTURE	50
7. CONCLUSIONS	54
REFERENCES	55

LIST OF ABBREVIATIONS

APP	Asset Purchase Programme
BOJ	Bank of Japan
CBPP	Covered Bond Purchase Programme
CRD IV	Capital Requirements Directive IV
ECB	European Central Bank
FED	Federal Reserve System
FOMC	Federal Open Market Committee
GDP	Gross Domestic Product
GFC	Great Financial Crisis
HICP	Harmonised Index of Consumer Prices
IMF	International Monetary Fund
OMT	Outright Monetary Transactions
RBNZ	Reserve Bank of New Zealand
SMP	Securities Markets Programmes
SSM	Single Supervisory Mechanism
TFEU	Treaty on the Functioning of the European Union
TLTRO	Long-term Refinancing Operations

EXECUTIVE SUMMARY

- **Central bank communication should not generally strive for maximum transparency.** The optimum degree of transparency varies between different aspects of monetary policy. The reasons for a certain lack of transparency in central bank communication include legal constraints, uncertainties about the reliability of economic data and modelling results, as well that this information could pose a threat to financial stability.
- **Overall, the ECB communicates openly with the public and achieves a high level of transparency in all aspects.** However, in the course of the global financial crisis (GFC), central bank communication has become more important, as market participants have found it more difficult to predict monetary policy (re)actions.
- **The new Presidency and the ongoing strategy review present an opportunity** for the ECB to improve and refocus its monetary policy strategy in the light of changing economic and financial conditions and new challenges.
- **The new tasks that the ECB has taken in the last decade make it more difficult to delineate the ECB's mandate across these fields,** e.g. the separation of monetary and supervisory functions. Clarifying the interaction between its supervisory activities and monetary policy is essential.
- In light of persistently low inflation rates since 2009, **the ECB should also consider to reformulate its definition of price stability** by announcing a quantitative target range for inflation in addition to a point target.
- **The more open the ECB gets, the more important it becomes that it communicate clearly to the public that it is operating under considerable uncertainty,** so that deviations from monetary objectives can be properly assessed without a gradual loss in confidence.
- **Since the ECB has only recently taken up supervisory responsibilities, it has had little opportunity to build up a reputation in this field.** Against this background, transparency in the area of financial supervision is even more important. In order to increase accountability, the ECB should at some point consider publishing the minutes of the SSM Supervisory Board with appropriate time lag and redacting overly sensitive parts.
- To avoid unnecessary market volatility and uncertainty, **the information content of speeches by individual Governing Council members should, as far as possible, be aligned with the ECB's official position.** In addition, official statements by central bankers should refrain from using emotional formulations as far as possible in order to increase clarity and credibility,
- Faced with inflation, which has been most of the time below the inflation target since 2009, **the ECB is surprisingly reluctant to provide a detailed assessment explaining why the policy outcome is not as intended** despite increased policy efforts. More transparency in this respect is essential to maintain the ECB's credibility.

1. INTRODUCTION

Until the 1990s, central banks were typically closed institutions. They neither explained much about their objectives and strategies nor informed markets about the economic assessments underpinning monetary policy decisions. This kept communication with the public to a minimum. The main argument for this secrecy was to protect central banks from political pressure. This was felt to be important because of the so-called 'time inconsistency' problem in monetary policy: In recognition of the trade-off between short-term economic stimulus and long-term inflation in response to a monetary policy stimulus, policymakers have a stronger incentive to pursue an excessively expansionary monetary policy than central bankers with a clear mandate for price stability.¹ Under the assumption that politicians are more reluctant to take a stand and override the central bank when they are uncertain about the economic environment, a certain level of opacity can shield the central bank from excessive interference by politicians, helping it to maintain its independence while protecting the economy from excessive inflation.

However, the way central banks communicate with the public has changed significantly since the 1990s. Most central banks have become much more transparent. It is recognized that the benefits of clear and open communication with the public are greater than the aforementioned costs. Nowadays, central banks provide the public and the financial markets with all relevant information about their strategy, economic and financial assessments, monetary policy decisions, and procedures in a clear and timely manner. By and large, enhanced communication is intended to achieve two useful objectives. First, as most central banks have gained a high degree of independence from political or government authorities in recent decades, the demand for transparency has increased to combat public distrust and strengthen democratic accountability. Second, it is recognized that communication can be a powerful tool for managing expectations regarding inflation and interest rate developments as well as for reducing uncertainties and financial market volatilities, thus making monetary policy much more effective.

The question that arises with these developments is whether there is an optimal level of transparency and communication. Is more always better or are there also limits beyond which the risks of more transparency outweigh the benefits of more transparency? Since many central banks, including the European Central Bank (ECB), also have a supervisory function over the banking system, the question arises of whether the transparency framework for monetary policy also applies to banking supervision. In 2006, the Basel Committee on Banking Supervision first mentioned in its Core Principles that supervisors should follow transparent processes, which means that supervisors should also disclose their objectives and be held accountable through a transparent framework for the discharge of their duties. This briefing paper is intended to provide an answer to these questions. In addition, we examine the ECB's communication in terms of transparency and identify areas where we see room for improvement.

¹ See Walsh (2017) for a literature overview on the 'time inconsistency problem' in monetary policy.

2. CENTRAL BANK COMMUNICATION AND TRANSPARENCY

2.1. Why central bank communication matters

For economic decisions, longer-term interest rates play a much more important role than current short-term overnight rates. Therefore, monetary policy can influence the economy most effectively if the central bank successfully influences market expectations about the future path of interest rates. This becomes apparent if we look at the expectations hypothesis of the term structure of Interest rates, which suggests that the interest rate of a longer-term instrument (R_t) on the n^{th} trading day can be approximated by:

$$(1) \quad R_t = \alpha_n + (1/n)(r_t + r_{t+1}^e + r_{t+2}^e + \dots + r_{t+n-1}^e) + \varepsilon_{1,t},$$

where r_t is current short-term rate, r_{t+1}^e is the expected short-term interest rate of $n - 1$ days in the future, and α_n is the term premium, which is assumed to be stochastic (ε_t). Equation (1) implies that long-term interest rates depend on market expectations about short-term interest rates in the future. From a central bank perspective, the crucial question is how to form these expectations on the future path of short-term interest rates.

In a world where economic agents are rational and fully informed about the true underlying model of the economy and have perfect knowledge of the central bank's reaction function to which the central bank credibly commits, central bank communication would be redundant (Woodford, 2005). This is because the agents know exactly what the policy objective and intentions are and, therefore, can interpret incoming economic data correctly and derive future monetary policy measures. Obviously, the assumptions under which the central bank's communication plays no role are quite unrealistic.

In general, the importance of communication as a policy instrument can be derived from three main sources. First, there are changes in the underlying economic model, including the policy rules and/or the parameters of the model that actors have to learn about over time. Second, actors might not form their expectations in a rational manner and, finally, the central bank might have superior knowledge or capacity to process incoming economic data compared to the general public (asymmetric information). Under these more realistic conditions, the impact of monetary policy operates through the direct effect of changes in the current short-term interest rate and through the central bank's signals on future short-term rates. This idea can be captured by the following formula:

$$(2) \quad r_{t+n-1}^e = H_n(y_t, R_t, \dots, s_t) + \varepsilon_{2,t}.$$

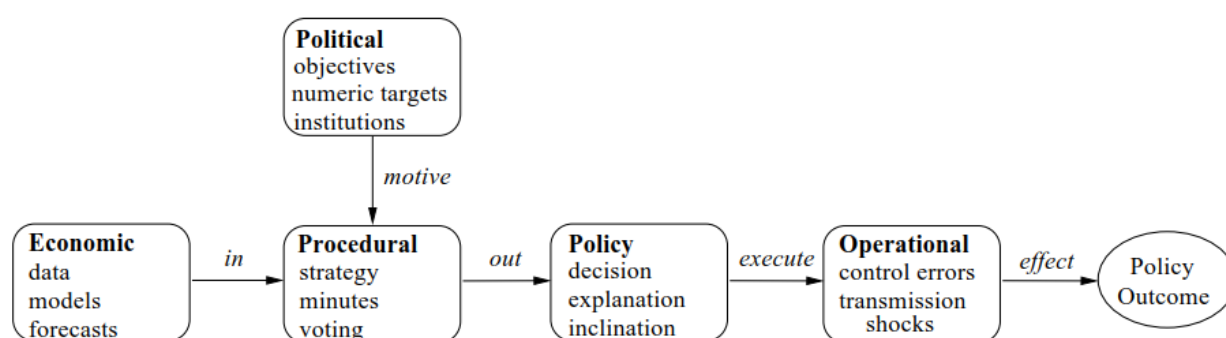
This states that the expected short-term interest rate depends on the observation of incoming economic data (y_t, R_t, \dots) and signals of the central bank (s_t). Thus, the impact of monetary policy operates through the direct effect of changes in the current short-term interest rate and through the central bank's signals on future short-term rates.

Central bank communication becomes even more important during deep recessions, as severe crises can make it difficult for market participants to predict monetary policy (re)actions (Coenen et al., 2017). Due to the high level of economic uncertainty, market participants may have difficulty in identifying the set of information on which economic decisions are based. Moreover, once conventional policy tools have reached their limits, e.g. the zero-lower bound, agents could lose confidence in the effectiveness of monetary policy, which could affect the public's ability to predict future policy actions. Finally, when new policy instruments are introduced, agents have limited knowledge of these unconventional tools and their effectiveness.

3. CENTRAL BANK TRANSPARENCY AND ITS LIMITS

The optimal degree of central bank communication very likely depends on what kind of information is published, so it is useful to distinguish between different aspects of transparency. Geraats (2002) provides a taxonomy for analysing the transparency of monetary policy, focusing on five distinct areas of transparency processes relating to different parts of the policymaking process, as shown in Figure 1. For each of these categories, we discuss in the following the limits and main challenges for effective central bank communication.

Figure 1: Categories of central bank transparency



Source: Geraats (2002).

3.1. Political transparency

Political transparency refers to clarity about policy objectives and the institutional framework. The publication of quantitative targets as well as a clear hierarchy of mandates and objectives increases transparency in this aspect.

Over the past decades, price stability has become increasingly viewed as the most important goal of monetary policy. The main argument is that price stability is the central contribution that monetary policy can make to achieve a favourable economic environment. However, central banks differ with respect to the priority setting of additional mandates, e.g. low unemployment and stable output growth. In case of a multiple mandate, the central bank has several co-equal objectives, e.g. price stability and support of the real economy. The main risk of having a multiple mandate is the potential conflict of interest. In the short run, a central bank could run an overly expansionary monetary policy to boost economic growth and employment without worrying about the long-run consequences for inflation. A clear hierarchical mandate avoids such a conflict and enhances transparency of a central bank's incentives. However, Mervyn King, the former Governor of the Bank of England, once said, it also bears the risk that central banks behave as 'inflation nutters' that focus solely on inflation control even in the short run and undertake policies that lead to large output fluctuations.

With the growing popularity of inflation targeting as a central bank strategy, a large number of central banks have announced a clear quantitative target for inflation. For the euro area, for instance, the Governing Council has defined that 'price stability shall be defined as an annual increase in the harmonised index of consumer prices (HICP) for the euro area of below, but close to 2 %'.¹² Even the Fed

¹² <https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html>

further clarified its mandate in January 2012 by announcing an inflation target of 2 % in the long-term. However, most central banks do not quantify targets for the output gap or unemployment, even when this is included in their mandate. There are good arguments why most central banks refrain from specifying their objective function in these aspects. As Cukierman (2009) argues, one important reason is that monetary policy decisions are usually made by committees and the different committee members usually place different weight on stabilising inflation versus output stability. This weight is also very likely to be time- and state-dependent. Another reason is statistical in nature. As Orphanides (2001) shows, measures of economic performance, such as the output gap, are very unreliable in real time and *ex-post* measurement errors are significant. This makes a trustworthy forecast of the output gap difficult, which would, however, be necessary for a consistent monetary policy decision along all potential target parameters. In addition, due to its inaccuracy, the output gap is not an appropriate measure by which the central bank could be held accountable. If quantitative targets for unemployment and/or economic growth cannot be set for the aforementioned reasons, a qualitative and clear communication of how mandates other than price stability are embedded in the monetary strategy is especially important and increases the political transparency. But, in light of the difficulties in further specifying additional mandates, it is unlikely that perfect political transparency can be achieved.

3.2. Economic transparency

Economic transparency focuses on the economic information used for political decision-making. In this context, an important aspect of a central bank's communication strategy is the scope and content of the forward-looking information it provides (Blinder et al., 2008). This set of information may include the central bank's assessment of future inflation and economic activity. With respect to its supervisory role, the central bank will release information about its supervisory model, including the criteria used to evaluate the riskiness of a bank, the indicators used, and the methodology followed for the supervisory review. Transparency about the supervisory model gives market participants a means of better understanding how the authority decides on individual cases, even when details of those cases cannot be disclosed. The purpose of providing all this information is to help the public and the markets understand central bank actions, to reduce financial market volatility, and to enhance the credibility of the central bank.

As highlighted by Cukierman (2009), one risk of a central bank being very open to the public in its economic and monetary assessment is that it may give the public a distorted impression of what it really knows. In particular, the rationalisation of decisions by econometric models may not fully reflect the information that led to a particular forecast or decision. In reality, central banks generally operate under considerable uncertainty regarding the structure of the economy, the measurement of economic variables, the consequences of their actions, and, to some extent, even their own internal forecasts. Central banks that produce forecasts of inflation and economic development must, therefore, emphasise that any forward-looking assessment depends on current information and is subject to change.

Thus, central banks walk a fine line between clarity and conciseness versus full openness about their own limitations and internal procedures. The feasibility constraints on economic transparency are nicely summarised by a quote by Olivier Blanchard (2006) p.1-2: *'There is little doubt that the theory of monetary policy has made tremendous strides over the last twenty years. In this sense, monetary policy is much closer to science than it was then. But it is still very far from science. Indeed, I worry that we have been lulled - or we have lulled ourselves - into a sense of complacency, which is not warranted. There are still many issues we do not understand, and these may come back to bite us with a vengeance in the future.'*

In summary, there will always be feasibility limits to economic transparency. The public should always be reminded of this to avoid having the central bank's information supplant the public's own assessment of the economic environment (Morris and Shin, 2002) and to prevent the central bank from losing credibility in the event of deviations from monetary policy objectives.

3.3. Procedural transparency

Procedural transparency provides openness about the way policy decisions are taken and communicated to the public. Typical communication channels of procedural transparency are the publication of meetings minutes or transcripts.

Central banks disagree over how much should be disclosed about the decision-making process itself, e.g. through the release of minutes summarising the main policy discussions and detailed voting records. The main argument in favour of full and timely disclosure of the views of each committee member is democratic accountability and that they enhance the public's understanding of the central bank's thinking. However, there are also several arguments against full disclosure of procedural processes. If the members of the Committee were to diverge strongly in their assessment of the current economic trend and the necessary monetary policy decisions, this could lead to uncertainty, as the public would doubt whether the monetary policy decision was the correct one. Furthermore, when committee members know that their positions and arguments become public shortly after Council meetings, this could lead to short-term political and personal career factors dominating their deliberations and voting behaviour instead of the public interest.

In a monetary union like the euro area, there are additional arguments for limiting procedural transparency. As pointed out by Issing (1999) and Gersbach and Hahn (2009), the majority of Governing Council members are the heads of the national central banks, who are appointed by national governments that are accountable to their national electorates. While the term of office of the six members of the Executive Board is limited in time, there is no limit on the reappointment of the heads of national central banks. The publication of attributed minutes or voting records may prompt each central banker to vote in the interest of their national government, with reappointment as an expected reward. Thus, the secrecy of the voting minutes shields national central bankers from the harmful influence of national governments, thereby encouraging behaviour that promotes the welfare of monetary union as a whole rather than national interests. As a result, monetary policy is less sensitive to regional shocks.

3.4. Policy transparency

Policy transparency includes the prompt announcement and explanation of policy adjustments, the political declaration and the indication of the likely direction of policy actions in the short- to medium-term (forward guidance).

Crowe and Meade (2008) find that almost all advanced economies have experienced a significant increase in policy transparency since the 1990s. Today's standard communication tools for policy transparency include pre-planned press releases on policy decisions, press conferences explaining policy decisions not just in the context of the current economic outlook but also in relation to central bank mandates, written reports and analyses providing even more detailed information on policy transmission and the effectiveness of policy instruments, as well as speeches by central bankers. In practice, the content and tone of policy statements announced in press conferences following a monetary policy meeting is particularly important for steering market expectations.

Since the global financial crisis, policy communication has become one of the central measures for monetary policy. The low interest rate environment and the subsequent introduction of

unconventional policy measures raised a variety of new aspects of policy communication. Generally, policy communication has become much more forward-looking and, thus, much more transparent compared to pre-crisis times.

However, the increased transparency of future monetary policy actions by central banks also implies that these announcements have to be clearly and carefully formulated to avoid increasing market uncertainty. With respect to the publication of the expected future path of interest rates (forward guidance), a misleading communication can reduce the credibility of the central bank. For example, if the central bank announces that it will keep interest rates low for an extended period of time, but the economic outlook improves unexpectedly and the central bank revises its policies. Moreover, forward looking guidance requires clear conditionality and must be formulated precisely, otherwise it can lead to market uncertainty. Another example is the so-called 'taper tantrum' in the United States, where volatility in the financial markets increased for several months after the Fed Chairman announced in May 2013 that the tapering of asset purchases could start in the following the next policy meetings. In particular, the statement included a fairly strong time-dependent guidance 'in the next few meetings' and a rather blurred state-dependent guidance that the purchases would be tapered when the labour markets were 'strong'. Despite the fact that the revival of asset purchase programs could generally cause uncertainty in the financial markets, the unclear outlook on this occasion may have increased market volatility.

In the context of banking supervision, an open communication about threats to financial stability or decisions on individual banks is also problematic. As argued by Cukierman (2009), it can be counterproductive and highly risky to publish signals about potential problems in parts of the financial system. Such disclosure may trigger a run on the banks or other unpredictable movements in the financial markets, forcing the monetary authority to take even more expansive steps to defend the financial system than it would have done in the absence of immediate openness. Banking supervision often involves sensitive and proprietary information. Early disclosure of information on the soundness of individual banks, especially when the picture is not yet complete and any necessary countermeasures have not yet been taken or planned, can be risky and counterproductive, endangering financial stability. To certain extent, the disclosure of bank-specific information may even be illegal.

In summary, although communication on monetary policy decisions has become much more transparent than in the past, there are conceptual and also legal obstacles to full policy transparency, especially with regard to banking supervision and unconventional monetary policy measures.

3.5. Operational transparency

Operational transparency refers to clarity about the implementation of monetary policy measures. It includes an evaluation of monetary policy outcomes and a discussion on the impact of (unexpected) macroeconomic disturbances on the monetary policy transmission mechanism. Similar to economic transparency, operational transparency requires openness about macroeconomic information. However, instead of publishing expected shocks e.g. through forecasts that help explain policy decisions, it focuses on communicating unexpected disturbances (forecast errors) that help explain policy outcomes.

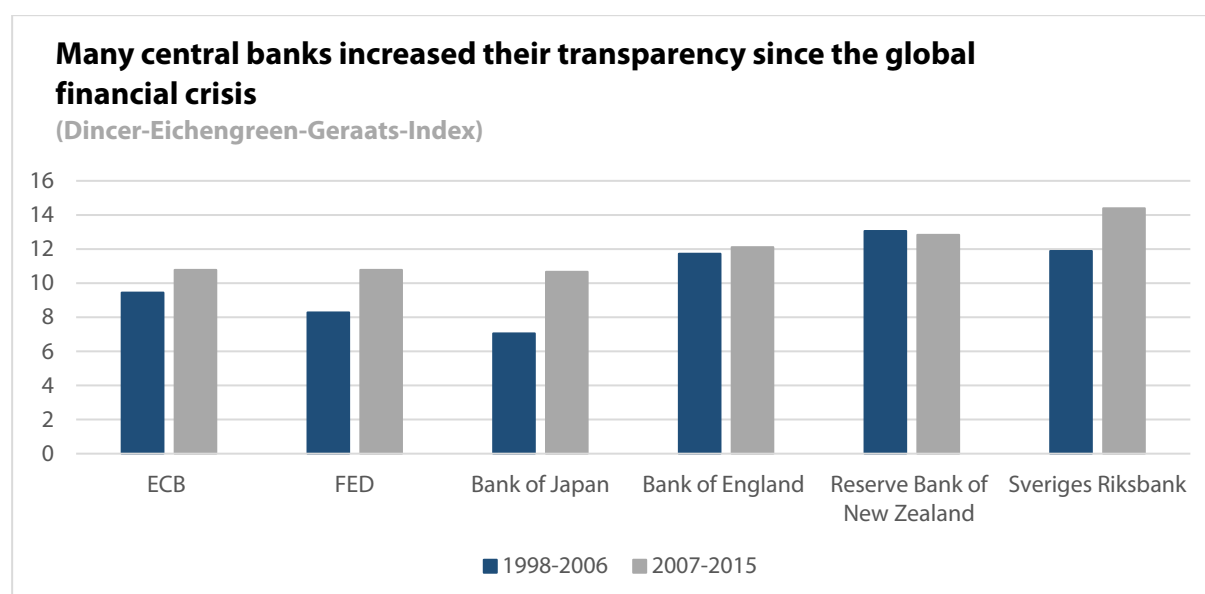
Operational transparency facilitates *ex post* accountability because it explains why policy outcomes may not be as intended. This is particularly important in a world with macroeconomic uncertainty and long, complex monetary transmission processes. By identifying shocks the central bank did not anticipate, the general public is still able to infer the central bank's intentions and a loss in credibility is avoided in case of deviations from target.

However, as Jensen (2002) points out, disclosure of control errors or unexpected transmission shocks could also have adverse effects. This is particularly true if the central bank discloses an unforeseen supply shock before the policy outcome has been realised. In this case, the public includes this new information in its expectations of inflation such that it influences the outcome of inflation and leads to higher inflation volatility. Therefore, the timing of communication of unexpected macroeconomic disturbances is critical.

4. CHANGES TO ECB'S COMMUNICATION SINCE THE CRISIS

In international comparison, the ECB covers a wide range of pre-scheduled communication tools and offers a high level of transparency on all five aspects discussed above (Table 1). In addition to the explicit statements of its objective and strategy on their website, the ECB informs the general public through the publication of press statements and the organisation of press conferences following policy decisions, the release of the ECB staff macroeconomic projections as well as publication of the Financial Stability Review and the Economic Bulletin (former Monthly Bulletin). In addition, regular reports like the staff projections provide further information on the ECB's assessment of the current economic outlook and serve as background information supporting the reasoning of the policy decision.

Figure 2: Changes in central bank transparency



Source: Dincer et al. (2019), own calculation.

Like many other central banks, the ECB has intensified its communication efforts since the global financial crisis. This has led to a gradual improvement of the ECB's transparency (Figure 2). Presenting a survey of 214 participants working in central banks, international institutions, and academia, Blinder et al. (2017) show that over 80 % of the participants think that their central bank communicates more with the public during and after the global financial crisis than before. 70 % of participants also think that this improved communication should be maintained or further intensified. Subsequently, we present major changes to the ECB's main communication instruments in the recent years.

4.1. ECB's political transparency: new tasks

When the Eurosystem was established in 1999, the Treaty on the Functioning of the European Union (TFEU) gave the ECB a relatively narrow mandate against which the behaviour of the central bank should be assessed: the objective of price stability shall take precedence over other objectives such as low unemployment and stable output growth. Only without prejudice to the objective of price stability, the Eurosystem shall also support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union.

In 1998, the Governing Council of the ECB announced its monetary strategy for fulfilling its mandate, which has only been adjusted once after the last 'Review of monetary policy strategy' in 2003. The official strategy today includes three main elements. First, it confirms its strict objective of price stability. Remarkable here is that considerations of output and unemployment stabilisation are, in contrast to the ECB's official mandate, not mentioned in the strategy. Second, it assigns a quantitative definition of price stability stating that 'price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below but close to 2 %.' And 'price stability is to be maintained over the medium term'³. Third, it introduces the 'two pillar framework' to evaluate the risks to price stability. This framework consists of an economic analysis to identify short to medium run risks to price stability and a second pillar containing a monetary analysis to assess medium- to long-term inflation developments.

Table 1: Communication tools of major central banks

	ECB	Fed	BoJ	RBNZ	Sveriges Riksbank
Speeches	Yes	Yes	Yes	Yes	Yes
Release of objectives	Yes	Yes	Yes	Yes	Yes
Quantitative inflation target	Yes	Yes	Yes	Yes	Yes
Explicit point target	Yes	Yes	Yes	Yes	Yes
Explicit target range	No	No	No	Yes	Yes (2017)
Press statement after a policy decision	Yes	Yes	Yes	Yes	Yes
Release of Minutes	Yes (2015)	Yes	Yes	Yes	Yes
Minutes include voting	No	Yes	Yes	NA	Yes
Minutes include individual voting	No	Yes	Yes	NA	Yes
Minutes include individual comments	No	No	No	NA	Yes
Forecast release	Yes	Yes	Yes	Yes	Yes
Frequency of forecast release	4 x per year	4 x per year	4 x per year (2014)	4 x per year	6 x per year

³ https://www.ecb.europa.eu/press/pr/date/1998/html/pr981013_1.en.html

Release of forecast range	Yes (2013)	Yes	Yes	No	Yes
Forecast horizon	3 years (2013)	2-3 years	2 years	2-3 years	3 years

Source: Respective central banks.

The ECB's political transparency has been challenged by the increasing number of additional responsibilities that the ECB has assumed since 2009. From the outset, the European Monetary Authority was responsible for monitoring and assessing the stability of the financial system, as well as for dealing with general financial shocks and easing the tensions in the euro area money market. However, after the ECB became the supreme banking supervisory authority in the euro area in 2014, through the Single Supervisory Mechanism (SSM), its responsibilities in this area increased significantly. So far, the ECB's role in banking supervision is declared to be: establishing common supervision, taking harmonised supervisory actions, as well as ensuring the consistency in the application of regulations and policies. In addition, the ECB became part of the so-called 'Troika', a decision-making group set up jointly with the European Commission and the International Monetary Fund (IMF) to negotiate the conditionality of Member States' bailout programs.

4.2. ECB's economic transparency: revealing and explaining more

As long as the information published does not conflict with its constitutional obligations, the ECB is very transparent in informing the public about its own economic assessment. Eight times a year, the ECB publishes its Economic Bulletin, which covers the main economic, financial, and monetary developments that form the basis for the Governing Council's monetary policy decisions. It publishes the Eurosystem's consolidated financial statement every week, which provides comprehensive information on monetary policy, foreign exchange operations, and investment activities. In addition, the ECB publishes quarterly its medium-term forecasts for inflation and its main expenditure components, as well as for a number of other important macroeconomic and fiscal variables. The ECB is highly transparent with regard to the organisational and procedural framework used for the macroeconomic projections prepared by its staff (ECB, 2016). The projections are based on a range of theoretical and empirical models as well as other tools combined with the judgement of economic experts.

Since the crisis, the ECB revised its standard communication instruments on their economic environment. In 2014, not only were the set of macroeconomic variables forecasted substantially enlarged, but also fan charts of point forecasts and confidence intervals of HICP and GDP were included. The explanatory text of the report was nearly doubled from around 3 000 words per report to 6 000 words. In 2015, the ECB started to publish country-specific forecasts in addition to euro area figures biannually. The revised version of the staff projections provides a much deeper basis for understanding the basis on which policy decision are taken by the Governing Council.

With respect to its supervisory function, economic transparency has also increased over time. Since the inception of the SSM, a new and fully harmonised statistical reporting system following International Financial Reporting Standards (IFRSs) for all significant and less significant financial institutions has been established. Its website contains documents specifying SSM governance and decision-making as well as a summary of its Supervisory Manual, statements by the Chair at the European Parliament, as

well as speeches by other representatives. Finally, since 2015, the ECB publishes an annual report covering its supervisory tasks.

4.3. ECB's procedural transparency: finally, we have minutes

The main communication instruments of procedural transparency is the release of minutes summarising the main policy discussions and, in some cases, detailed voting records. In contrast to many other central banks of advanced economies, the ECB did not publish any documentation of discussions at monetary policy meetings. This changed in 2015 when the ECB started to publish the 'accounts' (minutes) of the Governing Councils' meetings. In contrast to other central banks like the US Fed, these minutes contain neither voting results on policy decisions nor individual statements of the Governing Council members in the decision process.

4.4. ECB's policy transparency: short and clear in difficult times

4.4.1. Scheduled communication

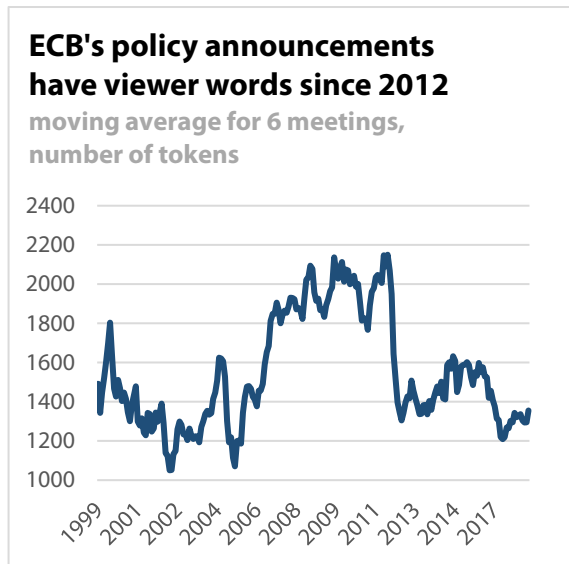
The main communication instruments to convey information and explanation about the monetary policy decisions takes place on the day of the decision-making and is publically prescheduled. It contains the release of a written press statement and a following press conference held by the President and the Vice-President on the early afternoon after each monetary policy meeting of the Governing Council.⁴ The press conference is accessibly broadcasted live on the ECB's website and a transcript of the full press conference is published shortly thereafter. The ECB has followed this framework from the outset and is exemplary for policy communication of other central banks. Recent imitators include the Fed, where the Chairwomen/men introduced a regular press conference in 2011.

Although the setup of policy communication has not changed, the content has. Text-based analysis shows that the introductory statements of the press conference have become somewhat shorter since 2007 (Figure 3). Moreover, statements have become more forward looking and include frequent references to core rather than overall inflation (Coenen et al., 2017).

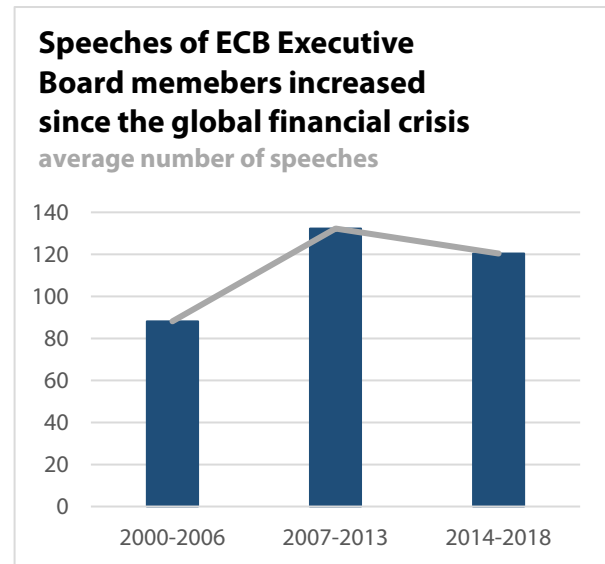
4.4.2. Communication on new policy instruments

The introduction of new unconventional policy measures has been particularly challenging for central bank communication, as most market participants have limited knowledge of these new instruments. In particular, the central bank must provide information on technical details like design and modalities, while simultaneously communicating the rational and economic impact of the instruments. The ECB's communication strategy on unconventional policy varies according to the different instruments. When most of the instruments were introduced, the ECB provided an intuition for the design, scope, and justification of the new measures in its press releases and during press conferences on the day of the decision. For some new instruments, the ECB also published technical annexes and further details on the precise modalities. Good examples include the asset purchasing program (APP) and the targeted long-term refinancing operations (TLTRO). In contrast, for the securities markets programmes (SMP) implemented in May 2010 and August 2011, neither the volume nor a detailed description of the modalities and data on purchases were published by the ECB. Immediately after the end of the second wave of the SMP, the ECB released purchased volumes by countries.

⁴ In 2015, the frequency of monetary policy decisions changed from four to six weeks. The communication on policy decisions changed accordingly.

Figure 3: Evolution of the number of words used in the ECB's introductory statement

Source: ECB, own calculation.

Figure 4: ECB Executive Board member speeches before, during and after the GFC

Source: ECB, own calculation.

4.4.3. Unscheduled communication

The ECB has also intensified the use of infrequent communication. The average number of speeches by Executive Board members per year increased from 88 before the crisis to 126 since 2007 (Figure 4). The looser format and infrequent timing allows central bank leaders to deliver targeted messages to the public when needed. Since the crisis, members of the Executive Board have increasingly used this more open and flexible way of communication. The most prominent example is the 'what-ever-it-takes' speech of Mario Draghi at the Global Investment Conference in London in July 2012.

5. EFFECTIVENESS OF ECB'S POLICY COMMUNICATION

There are two key issues in assessing the effectiveness of central bank communication. First, does central bank communication provide signals to market participants that steer their expectations in the intended direction and increase the predictability of the future path of interest rates? Second, does the news from the central bank reduce public uncertainty about the economic outlook?

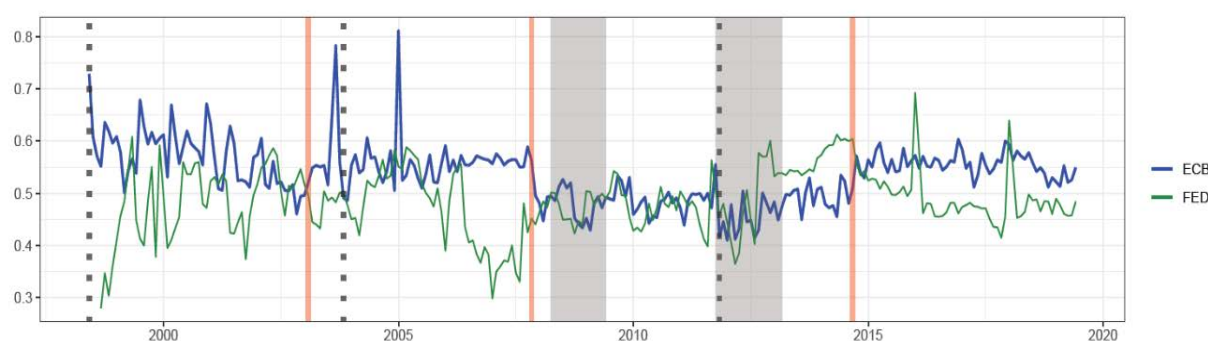
5.1. Communication of policy decision: generally effective

First, we turn to empirical evidence on regular communication tools that accompany the Governing Council's policy decisions. The bulk of empirical analyses in this line of literature carries out event studies to identify the new content of the information communicated by central bank, which makes it possible to measure the unanticipated part of the policy decision. In most papers, surprises are measured as the deviation between the announced policy decision and the expected decision of market participants using survey data on key interest rates or intraday tick data on policy rate futures around the time the policy is announced.

Overall, empirical evidence suggests that ECB announcements of monetary policy decisions have a significant impact on euro area interest rates at all maturities (Brand et al., 2006; Ehrmann and Fratzscher, 2003). A detailed analysis by Ehrmann and Fratzscher (2007a) distinguishes between the effectiveness of the ECB's press statements and press conferences, which takes place 45 minutes after the publication of the statement. They find that ECB press conferences often move interest rates more than the actual policy statement. Their findings suggest that press conferences are particularly effective in times of high macroeconomic uncertainty, when market participants actively seek advice from national institutions or central banks.

The tone and clarity of ECB policy statements determine its effectiveness (Coenen et al., 2017; Schmeling and Wagner, 2019). In line with the empirical evidence for the statements of the Federal Open Market Committee (FOMC) (Jansen, 2011) and the Bank of Canada (Ehrmann and Talmi, 2019), Coenen et al. (2017) note that ECB statements using more difficult language increase financial market volatility. Schmeling and Wagner (2019) construct a certain degree of tone for the ECB's introductory explanations by using natural language processing techniques and a financial dictionary developed by Loughran and McDonald (2011) to identify negative words. Announcements that are predominantly negative lead to persistently lower stock returns than positive statements.

Figure 5: Perceived dominance of Fed and ECB policy statements



Note: The dominance series for the ECB (blue line) and the Fed (green line). Vertical dotted lines indicate beginnings of ECB presidencies (Duisenberg: 1998, Trichet: 2003, Draghi: 2011). Red vertical lines indicate break dates in the ECBs series resulting from a break point test. The shaded areas mark euro area recession periods.

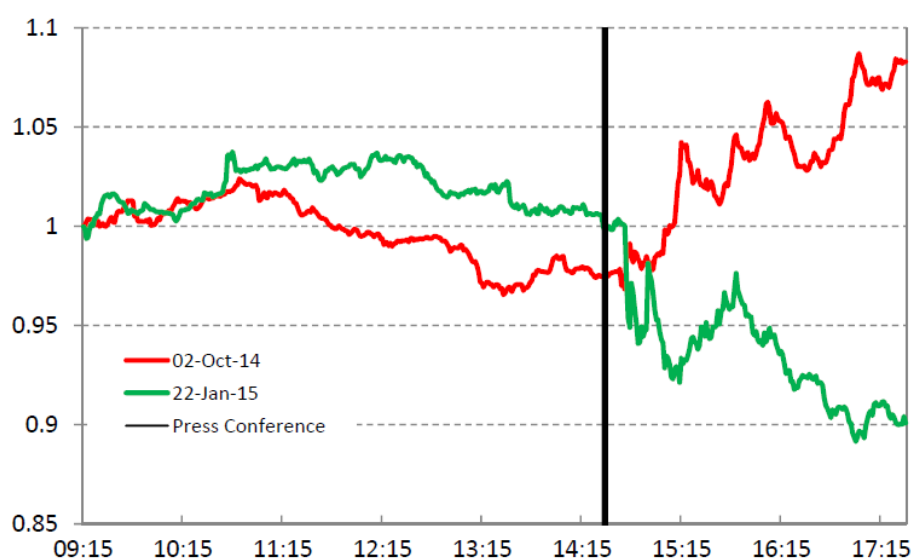
Source: Buechel et al. (2019).

Using natural language processing techniques, Buechel et al. (2019) estimate the degree of valence (pleasure/displeasure), excitement (calmness/excitement), and dominance (being in control of a situation) conveyed by the introductory statements of the ECB. The study shows that, firstly, there is an affective content of the ECB's introductory statement and that this content has changed over time depending not just on the economic situation, but also on the presidency of the ECB. In particular, the expression of dominance, i.e. how much the reader perceives control or loss of control, varies considerably over time (Figure 5). In this context, the degree of control conveyed has decreased during the great financial crisis (GFC), but has gradually increased again since Mario Draghi took office. In view of the fact that it is generally assumed that official statements of central bankers should avoid emotional formulations in order to increase clarity and credibility, this development is to be assessed positively.

At present, the scientific discourse on central bank communication raises the question of whether political announcements are perceived as monetary policy surprises or as information surprises. Imagine that the central bank announces a cut in the key interest rate and market participants perceive this as a monetary policy surprise (e.g. the extent of the decided cut in the key interest rate exceeds their expectations). The expected economic outlook of market participants would then improve. However, market participants may also interpret the cut in the key interest rate as a signal of deteriorating economic development. In this case, market participants revise their economic outlook downwards, although the central bank intended an expansionary stimulus. Recent empirical evidence suggests that, on average, the ECB's monetary policy announcements were at least partly perceived as information surprises (Altavilla et al., 2019; Jarociński and Karadi, 2020; Jung and Uhlig, 2019; Kim and Others, 2019). The existence of information shocks from policy announcements could reflect a deficit in central bank communication, in particular when explaining policy decisions and their implications. At the same time, the importance of clear and comprehensive reasoning that should accompany the announcement of decisions is stressed.

5.2. Asset purchase programmes: announcing the quantity reduces uncertainty

Since 2012, the ECB has introduced various asset purchase programmes (APP) with the intention to lower long-term yields. Overall, empirical evidence suggests that the announcements of APP programmes and SMPs have had a significant impact on the yields of government bonds, especially in the southern euro area countries (Altavilla et al., 2019; Altavilla et al., 2015; Andrade et al., 2016; Ghysels et al., 2016). The impact of the announcements of these new measures on financial market volatility depends on their clarity and information content. For example, the announcements of the outright monetary transactions programme (OMT) (6 September 2012), the public sector purchase programme (PSPP) (22 January 2015), as well as the asset-backed securities purchase programme (ABSPP) (5 June 2014) have reduced financial market volatility. In contrast, as Coenen et al. (2017) show, when the third covered bond purchase programme (CBPP) (2 October 2014) was announced, volatility on the equity markets increased (Figure 6). They find that these clear market reactions seem to be related to the clarity of the statement. The announcement of purchase programmes using more complicated language increases the volatility of the stock markets. They also show that statements that do not contain information about the extent of political intervention potentially increase uncertainty.

Figure 6: Stock market volatility at specific policy announcements

Note: The lines present intraday stock market volatility of VSTOXX for two different days when policy decisions were announced. The black vertical line marks the release hour of the statement.

Source: Coenen et al. (2017).

5.3. Forward guidance

Since the main refinancing rate reached its lower bound, the ECB increasingly used forward-looking terms in their statement and put much more emphasis on informing the public about its future path of monetary policy. For the US, the UK, and Germany, some empirical evidence suggests that forward guidance was able to manage expectations in the sense that it muted the responsiveness of bond yields to macroeconomic news (Feroli et al., 2016; Swanson and Williams, 2014a, 2014b). However, the effectiveness differs across different types of forward guidance (Box 1). In particular, forward guidance that is state-dependent or time-dependent for very long-horizons is almost entirely able to mute the bond yields responsiveness to macroeconomic news (Coenen et al., 2017; Femia et al., 2013). Moreover, empirical evidence also confirms the idea of Clouse et al. (2013) that, under an APP, forward guidance should be even more effective as a running APP might signal commitment to keep interest rates low for a longer period.

5.4. Speeches: diverging views cause uncertainty

Moreover, the ECB's strategy regarding looser and less frequent communication tools such as speeches and interviews has changed during the GFC. Before the crisis, the communication strategy regarding statements and speeches by individual members of the Governing Council was mostly collegial. The content of the individual speeches and interviews was mainly consistent with the political rationale of the joint statements of the Governing Council (Ehrmann and Fratzscher, 2007b). Since the crisis, the ECB's one-vote communication strategy has been severely challenged as members of the Governing Council have shown considerable disagreement on policy decisions (Blinder et al., 2017). The study by Tillmann and Walter (2019) shows that the disagreement between the ECB and the Bundesbank since 2008 has increased uncertainty about monetary policy. Although the publication of minutes may have cushioned the impact of public disagreements between euro area governors, a continuation of the different tones could undermine credibility and increase market uncertainty in the future.

Box 1: Types of forward guidance**Forward Guidance**

Generally, there are two forms of the communication about the future path of monetary policy, the so-called *forward guidance*.

Odyssean forward guidance

This form of forward guidance contains a commitment to a future conduct of monetary policy. Thereby, the central bank announces a state-contingent plan and follows this plan even if a change of economic developments would require a reconsideration of policies. Odyssean forward guidance is expected to be a powerful instrument of monetary policy.

Delphic forward guidance

When the central bank uses Delphic forward guidance, it communicates its predicted path of monetary policy actions that may be re-optimised if underlying conditions change. This form of forward guidance is expected to yield much smaller effects than its Odyssean counterpart.

In practice, it is hard to exactly distinguish whether central bank statements contain purely Odyssean or Delphic forward guidance. However, signals about the timing of future monetary policy might signal the central banks degree and particular condition with regard to commitment.

Open-Ended Forward Guidance

This is a form of forward guidance that attaches no condition to the expected future path of policy and is rather a Delphic form of forward guidance. Therefore, it should yield rather small effects. An example would be the following sentence: 'We expect the key ECB interest rates to remain at present or lower levels for an extended period of time.' (Statement from 21 January 2016).

Time-Dependent Forward Guidance

This form of forward guidance communicates the future path monetary policy actions conditional on a specific calendar time. An example would be the following sentence from the introductory statement of the ECB on 13 December 2018: 'We continue to expect them to remain at their present levels at least through the summer of 2019, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2 % over the medium term.'

State-Dependent Forward Guidance

State-dependent forward guidance conveys the prospect of future changes to monetary policy conditional on certain economic developments. This form is the closest to Odyssean forward guidance. For example, in its statement on 12 December 2012, the FOMC announced that 'the Committee ... currently anticipates that this exceptionally low range for the federal funds rate will be appropriate at least as long as the unemployment rate remains above 6-1/2 %...'

Source: Coenen et al. (2017), ECB, Federal Reserve.

6. CHALLENGES FOR THE ECB'S COMMUNICATION STRATEGY IN THE FUTURE

In the following, we will review the ECB's communication strategy along the five transparency aspects defined by Geraats (2002) and will assess in which category we see challenges and scope for improvement.

Political transparency

The TFEU assigns two main mandates to the ECB: the primary mandate of price stability and a subordinate mandate to support other economic policies, such as balanced growth and unemployment. The ECB has translated its abstract mandate into a much more concrete monetary policy strategy and advocates this strategy transparently. However, in some aspects, the current formulation of policy objectives in the ECB's strategy is rather unclear. Quantitative targets for employment rates or the output gap are lacking, but, as discussed in Section 3.1, there are good economic arguments why assigning a clear quantitative target to real economic variables is problematic and not advisable. In a monetary union, where Member States pursue their independent economic policies, the formulation of quantitative targets for output or unemployment may be even more problematic given the different preferences. Nevertheless, we see some scope for increasing policy transparency with regard to the ECB's objectives. Given the Eurosystem's subordinate mandate to also support the real economy, this should be adequately reflected in the ECB's strategy.

In addition, there is also room for improvement in the communication of the ECB's mandate for price stability. In the course of its last strategic review in 2003, the ECB changed the definition of its inflation target from 'below 2 %...' to '... below but close to 2 %'. This adjustment aimed to clarify the admissible target range below which the ECB would pursue its objective of price stability (Gali et al., 2004). In the past years, the ECB has consistently missed its inflation target, which has deteriorated the ECB's credibility and has started a public debate, whether long-run inflation expectations are de-anchored (Dany-Knedlik and Holtemöller, 2017; Nautz et al., 2017). Some doubts about its credibility could be due to the vague formulation of the target area. The central banks of Canada and New Zealand define their inflation target by means of a point target and permissible inflation bands, thus avoiding confusion about the size of the permissible deviations, while at the same time taking into account the uncertainty of inflation forecasts. *In its ongoing strategic review, the ECB should consider setting an explicit inflation target band in addition to the 2 % point target to clarify what deviations from the inflation target are permissible.*

In the course of the GFC and the crisis in the euro area, the ECB took over many other responsibilities in addition to its original mandates. In particular, the ECB's engagement regarding banking supervision has intensified substantially since 2014, when the ECB became the supreme banking supervisory authority in the euro area through the Single Supervisory Mechanism (SSM). In addition, the ECB became part of the so-called 'Troika', a decision-making group set up jointly with the European Commission and the IMF to negotiate the conditionality of member states' bailout programmes. The enlarged number of the ECB's tasks gives rise to several concerns. It is not entirely clear whether and, if so, how the ECB views the interaction between macro-prudential policy and monetary policy, particularly with regard to its monetary policy strategy. Moreover, it is not clear how these new responsibilities interact with the ECB's original primary mandate of price stability. This makes it difficult to formulate the entire and explicit set of objectives against which the public could assess the Eurosystem's performance, thus hindering democratic accountability. *Therefore, in view of its new tasks*

⁵ https://www.ecb.europa.eu/press/pr/date/1998/html/pr981013_1.en.html

and responsibilities, the ECB should clearly communicate its objectives and clarify the interactions between its supervisory functions and its primary mandate of price stability in order to return to the pre-crisis level of political transparency.

Economic transparency

As long as the information published does not conflict with its constitutional obligations, the ECB is very transparent in informing the public about its own economic assessments underlying its monetary policy decisions. *However, to avoid having the ECB's information supplant the public's own assessment of the economic environment, it is important that the ECB clearly communicates that the theoretical models used for its assessment represent reality always only approximately and that there always exist uncertainty with respect to measurement of economic variables and with monetary policy transmission. This would also prevent that the ECB loses credibility in the event of deviations from monetary policy objectives.*

With regard to the analysis underlying its banking supervision, the ECB's communication is less open and sometimes patchy. In line with the requirements set out in the CRD IV, the ECB, in its capacity as banking supervisor, publishes relevant information on the laws, regulations, administrative provisions, and guidelines. It also publishes information on general criteria and methodologies used in its supervisory review and assessment processes, as well as aggregate statistical data on key aspects of the implementation of its supervisory framework, including the number and type of supervisory measures taken and administrative sanctions imposed. Moreover, twice a year, the ECB publishes its Financial Stability Report to provide an overview of potential risks to financial stability in the euro area.

However, despite this wealth of information provided, the supervisory authority is relatively opaque when it comes to information on individual financial institutions. For instance, the proceedings of the SSM decision-making board are not published. So far, the ECB only delivers a summary of proceedings to the European Parliament of Supervisory Board meetings. There are good reasons for this secrecy. First, it could be very risky to publish in advance signals about potential problems in parts of the financial system, as such disclosure could trigger a run on the banks or other unpredictable movements in the financial markets. Second, there are also requirements of professional concealment, which is why the ECB must refuse to disclose information about specific banks. *Nevertheless, to increase accountability and transparency, the ECB should consider at some stage to release the minutes of the SSM Supervisory Board with appropriate time lag and redacting overly sensitive parts.*

Procedural transparency

In international comparisons, the ECB scores relatively low in terms of procedural transparency (Dincer et al., 2019). The main reason is that the ECB did not publish minutes until 2015, something the world's other major central banks have done since the 1990s. Since the ECB started publishing accounts of its monetary policy meetings, it has improved its procedural transparency slightly. Although these minutes contain useful information about the Governing Council's evaluations of the monetary policy options and the economic outlook, the minutes lack details about the actual discussions and the associated voting records of each Committee member. As such, the ECB's published minutes are less transparent than those of the Fed, the Bank of England, and the Bank of Japan. However, given the political structure of the European Monetary Union along with the composition and procedural design of the Governing Council, it is not advisable to reveal individual voting and/or transcripts for the reasons highlighted in Section 4.3.

As long as national governments appoint members of the Governing Council, the ECB should only publish anonymous voting results and minutes that do not specify the contributions of individual council members, thus protecting the independence of national central bankers from national political interests and incentives.

Policy transparency

Generally, the ECB's pre-planned press releases and conferences have made its policy decisions transparent. In the context of the low interest rate environment since the GFC, political communication, in general, and forward looking content, in particular, has become even more relevant to market participants. In response, the ECB has integrated forward guidance not just with respect to the expected path of interest rates but also the expected duration and depth of asset purchasing programs into the policy statements.

There seems to be a consensus that the rapid announcement of key rate decisions has positive macroeconomic effects in the sense that it reduces the variability of inflation and output. However, there is less consensus on whether transparency with regard to *unconventional* monetary policy measures, such as forward guidance and asset purchase programmes, is beneficial or – in the latter case – even illegal. Forward guidance appears to be a promising communication tool to steer market expectations as well as medium- to long-term yields. Empirical evidence shows that, in particular, forward guidance that attaches future policy actions to a specific state of the economic outlook and forward guidance that conditions future policy actions to specific calendar dates in the very long future are very effective. However, it also carries the risk of giving the impression that the central bank can overcome uncertainty regarding the economic environment and monetary policy transmission to which it is itself exposed. If communication about future monetary policy decisions is vague, the value of this information is negligible. If the communication is assertive and approaches an unconditional commitment, the central bank loses credibility when new data or a new assessment of the economic environment force it to revise its earlier communication and change its monetary policy stance. *Thus, it is essential that the ECB communicates clearly to the public that any forward looking assessment of expected policy decisions depends on current information and, therefore, is subject to change.*

The ECB's communication on APPs is partly opaque. For example, while the ECB has announced in the latter case the amount of bonds it will buy each month, it has refrained from announcing in advance exactly which bonds it will purchase. The explanation for this secrecy is that there are legal obstacles. Under Article 123(1) TFEU, direct monetary financing by the central bank is prohibited. For this reason, the European Monetary Authority has repeatedly clarified that there is a 'black-out' period between the issuance of a bond and the purchase by the ECB on the secondary market in order to allow an undistorted market price to settle and to maintain market discipline. Another example is the SMP, under which no information on the volume or on detailed modalities and data regarding purchase quantities were published until the program ended. In this case, the withholding of information was necessary to ensure functionality of the instrument and to prevent market participants from exploiting predictable trading strategies (Ghysels et al., 2016). In other cases, the ECB has simply not been very clear and transparent in its policy announcements at the cost of market volatility or reduced effectiveness (see Section 5.2). In particular, announcements of asset purchases programs that did not contain the size of the program have been less effective or have even increased market volatility.

In sum, the transparency of the ECB's monetary policy has increased in recent years. *The level of transparency with respect to the unconventional policy measures was overall adequate, taking into account that, in some cases, complete information could not be provided for either economic reasons and/or legal reasons.* It is increasingly evident that the clarity of the announcements is crucial for the effectiveness of the policy statements. In return, unclear or vague policy communication can induce market uncertainty. *Furthermore, it is also important that the information content of speeches by individual Governing Council members does not deviate too much from the ECB's official position, as this carries the risk of creating market uncertainties.*

Operational transparency

For the ECB, the Annual Report is its main communication tool for reporting to the public and assessing those policies currently implemented. In addition, the ECB meets on a regular basis with the Members of the European Parliament. Since 1999, the structure and content of the annual report has not changed substantially, covering the economic and financial markets development of the previous year, explaining monetary decisions, and providing information on some internal activities of the central bank. Although the reports and the associated public hearings before the European Parliament provide the basis for operational transparency, there is not a detailed assessment of the impact of monetary policy instruments and only little justification for the achievement of, or deviation from, monetary policy objectives. *However, an explicit assessment of monetary policy outcomes, including not just the effectiveness of the instruments used but also identifying a priori unexpected shocks, potentially enhances the credibility of the central bank.* For the ECB, this could be relevant at the current juncture, as inflation expectations remain at low levels despite its intensified policy efforts in recent years.

7. CONCLUSIONS

The new ECB Presidency and the ongoing strategy review is an opportunity for the ECB to improve and refocus its monetary policy strategy in the light of changing economic and financial conditions and new challenges. In this context, given its central role in public accountability and in the formation of expectations, it is also important to reflect on ways to improve the ECB's communication policy.

In general, we have worked out that central bank communication should not strive for maximum transparency. The optimum degree of transparency varies between different aspects of monetary policy. The reasons for a certain lack of transparency in central bank communication include legal constraints, uncertainties about the reliability of economic data and modelling results, as well that this information could pose a threat to financial stability.

Although the ECB already communicates very openly with the public and achieves a very high level of transparency in all aspects, including international comparisons, we see room for improvement in its communication strategy in several respects. First, the ECB should consider reformulating its definition of price stability. Given the uncertainty about future inflation developments and the imperfect controllability of inflation, an explicit announcement of an admissible target range for inflation in addition to a point target has the advantage of not giving the impression that monetary policy is capable of achieving the inflation target with a high degree of precision.

Second, since the GFC and the crisis in the euro area the ECB faces additional responsibilities. This new set of tasks make it more difficult to delineate the ECB's mandate across these fields, e.g. the separation of monetary and supervisory functions. Clarifying the interaction between its supervisory activities and monetary policy under the current mandate would preserve the pre-crisis level of political transparency.

Third, the more open the ECB gets, the more important it becomes that it communicate clearly to the public that it is operating under considerable uncertainty, so that deviations from monetary objectives can be properly assessed without a gradual loss in confidence.

Fourth, the ECB is relatively opaque with respect to its supervisory responsibilities. Since the ECB has only recently taken up this function, it has had little opportunity to build up a reputation in this field. Against this background, transparency in the area of financial supervision is even more important. In order to increase accountability, the ECB should at some point consider publishing the minutes of the SSM Supervisory Board with appropriate time lag and redacting overly sensitive parts.

Fifth, to avoid unnecessary market volatility and uncertainty, the information content of speeches by individual Governing Council members should, as far as possible, be aligned with the ECB's official position. In addition, official statements by central bankers should refrain from using emotional formulations as far as possible in order to increase clarity and credibility,

Finally, the ECB should improve on its operational transparency with regard to one of its most important communication tools, the Annual Report. Faced with inflation, which has been most of the time below the inflation target since 2009, the ECB is surprisingly reluctant to provide a detailed assessment explaining why the policy outcome is not as intended despite increased policy efforts. More transparency in this respect is essential to maintain the ECB's credibility.

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Communication During Unconventional Times: The ECB's Approach

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Abstract

During the past five years, communication of the ECB has changed drastically, not least with the introduction of forward guidance. Against this backdrop, this note assesses how successful the central bank has been in influencing financial markets and expectations and discusses the challenges for future ECB communication.

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CONTENTS

LIST OF ABBREVIATIONS	64
EXECUTIVE SUMMARY	65
1. CENTRAL BANK COMMUNICATION DURING UNCONVENTIONAL TIMES	66
2. COMMUNICATION STRATEGY AND THE FINANCIAL MARKETS	67
2.1. The experience of the past five years	67
2.2. Insights from the recent academic literature	68
3. THE POLITICAL ECONOMY OF CENTRAL BANK COMMUNICATION	70
3.1. Communication as a way of enhancing central bank's transparency	70
3.2. Communication as a policy option for unconventional monetary policies enhancement and tapering	71
4. THE IMPACT OF ECB MONETARY POLICY EVENTS ON FINANCIAL MARKETS	75
4.1. Inflation expectations as a measure of long-term predictability of monetary policy?	78
5. CONCLUSIONS	82
REFERENCES	83
ANNEX	85

LIST OF ABBREVIATIONS

APP	Asset Purchase Programmes
BIS	Bank for International Settlements
ECB	European Central Bank
EONIA	Euro Overnight Index Average
ETF	Exchange Traded Funds
FOMC	Federal Open Market Committee
GDP	Gross Domestic Product
IMF	International Monetary Fund
LTRO	Long-Term Refinancing Operations
NCB	National Central Bank
OECD	Organisation for Economic Co-operation and Development
OIS	Overnight Indexed Swap
OMT	Outright Monetary Transactions
QE	Quantitative Easing
SMP	Security Market Program

EXECUTIVE SUMMARY

- **In terms of communication, the central bank must strike a delicate balance** between providing enough information to markets to remove some of the uncertainty regarding the policy effects, to guide the public through the operations that will be implemented, build time consistency, and attempt to boost confidence in its strategy such that expectations begin to align to the stated objective. However, the central bank also faces incentives to keep the information diffuse so to guard against the unintended effects of policies, avoid overstating their (final) success, keep some degree of discretion, and (re)-install authority on markets and project a sense of control.
- **Insights from financial markets over the past years have shown that markets have repeatedly questioned the operational success of the quantitative easing (QE) programmes.** Initially, they feared that the ECB would not be able to find sufficient bonds to fulfil its targets. When the extension of the initial program was announced in 2016, the fear was that the success of the unconventional measures would fail to materialise if businesses and consumers believed that the policy stance was ambiguous. Later the same year, serious concerns about the medium to long-term effects of QE were raised in relation to the market signalling by the ECB.
- **In September 2019, the ECB shifted its forward guidance on rates from a short-term calendar-based type to state contingency.** This was a welcomed strategy as it went beyond the usual date-based communication. The latter may generate ambiguity because people may speculate on the reason behind the choice of a specific date. Having said that, while forward guidance strongly indicates that more accommodation is on the way, it may also signal to the public that a long-term policy stance is in place to disguise a bad-shaped economy.
- **The literature sheds more light on the degree of success of the ECB's communication strategy during times of unconventional policy compared to the opinions and indirect signals from the financial market but leave a lot of questions unanswered.** In particular, it is not clear whether the existing communication approach reduces uncertainty or adds to the existing one, in particular in the medium-run spectrum of expectation anchoring.
- **Looking at the empirical evidence,** the ECB missed its target in no small degree, particularly over the period 2013-17. While the interaction between forward guidance and the purchase program seem to have had its grip over inflation expectations over the last couple of years, the association between inflation and inflation expectations remains weak. It is thus of paramount importance for the ECB to keep enhancing transparency and communication in order to avoid a setback.

1. CENTRAL BANK COMMUNICATION DURING UNCONVENTIONAL TIMES

Starting from May 2009, and in particular, March 2015, the European Central Bank (ECB) has engaged in several unconventional monetary operations that took monetary policy far away from the traditional interest rate territory. The central bank not only intervened in the interbank market; it has also significantly increased its balance sheet by purchasing assets in exchange for money from the financial sector. In this sense, the ECB engaged in price as well as quantity-based monetary policy. Such an approach pushed the euro area monetary policy into uncharted terrain, both strategically and in terms of communication. The number of operations that the ECB had to inform the public about slowly increased (at least in theory) and the effects of those had to be carefully transmitted.

On the one hand, ECB had all the incentives, so to say, to overplay these effects. On the other hand, however, the financial sector took the role of disciplining the central bank's actions, providing an effective pass-through to the new monetary policy impulses (i.e. financial institutions have a firm interest in the success of these policies since the ECB was relieving them of their balance sheet pressures and satisfying their demand for financing).

Another group that has actively monitored and evaluated the ECB's policies is academia, as testified by the sheer volume of papers on the ECB non-conventional policies. Using a variety of methods, both theoretical and empirical, the literature has attempted to pin down the partial and general equilibrium effects of these policies. One important reason why the effects are stated in relative terms is the quality and quantity of information coming from the ECB. The ECB has given access to its complete speech dataset, covering the period 1997-2019, only in October 2019, hoping 'to stimulate research on the impact of communication'. Thus, to date, the quality of the available results and conclusions is dependent on the previous communication path by the central bank. That is why communication is central not only for shaping expectations about the course of policy actions but equally for pinning down and measuring the effects of such implemented measures.

In the first part of this note, we summarise the views of the financial sector on the quality and quantity of information regarding the ECB's past measures. We then complement this information by reviewing the academic literature and examine how central bank communication has shaped their conclusions on the effects. In light of the above, the second part of the note assesses how successful the central bank has been in influencing financial markets and expectations and discusses what the challenges are for the future of ECB communication.

2. COMMUNICATION STRATEGY AND THE FINANCIAL MARKETS

Unlike monetary policy communication during conventional (pre-2008) times, the unconventional ECB approach presents several attributes.

- First, it was implemented during highly uncertain times and the succession of several adverse shocks; the policy effects of which are, therefore, uncertain, at least a priori.
- Second, there was a range of policies implemented at the same time, either as extensions of other policies, or focusing on entirely new instruments and markets' segments.
- Third, such policies were implemented at different points in time, making it challenging to disentangle short- and long-run effects of each policy.
- Fourth, while some of these unconventional policies were implemented in other countries, e.g. in the US and Japan, many of the ECB policies were implemented for the first time in modern monetary history, so there was not necessarily a past track record of effectiveness of some other policies explicitly designed to cope with the very Eurosystem structure (for instance, LTROs, OMTs).
- Fifth, the response of inflation expectations, which is commonly used as an indicator of the effectiveness of the monetary policy, have faltered during some periods because of the occurrence of other intervening factors (e.g. political risk, uncertainty).

All of these elements complicated the communication and evaluation of the policies implemented by the ECB.

In terms of communication, the central bank must strike a delicate balance between providing enough information – both quality and quantity – without limiting discretion. Providing a sufficient amount of information helps remove some of the uncertainty regarding the policy effects, guide the public through the measures implemented, build time consistency, and attempt to boost confidence. However, the central bank also faces incentives to keep the information diffuse so to guard against unintended effects of policies, avoid overstating their (final) success, keep some degree of discretion, and (re-)install authority on markets.

One can view the 2012 statement by the former ECB president Mario Draghi to 'do whatever it takes' as one such example, where he provided sufficient information about the direction of the forthcoming policy, without providing any details on the 'how', 'when' ('how long') and 'in what way' questions. Subsequent press conferences and releases provided gradual clarity on (some of) the strategy and operations, which formally marked the introduction of the Outright Monetary Transactions (OMTs). Very little (if no) display of the diversity of opinions within the ECB transpired and the case escalated to the European Court of Justice. This has also shaped the views of the financial industry regarding the central bank's monetary policy operations.

2.1. The experience of the past five years

In a previous note to the European Parliament, shortly after launching the first QE, we collected the first market reactions during the first three months of the programme (Gerba and Macchiarelli, 2015). Markets feared at that time that the ECB would not have been able to find sufficient bonds to fulfil its targets, which resulted in heightened volatility on the bond markets, and worries that suppliers of these bonds lacked the willingness to sell them. Although part of this fear was the result of the novelty of the operations and the general unsettling sentiment of underperformance of the euro area banking system (and the economy) at that time, an essential share of the story was the consequence of the limited early

communication of the program provided by the ECB. Although the ECB provided an overall overview of the asset purchase allocation across the different asset classes and national central banks (NCBs), details regarding the Eurosystem's expected balance sheet exposure, the state of bond supply in the wake of ECB demand (i.e. market willingness to sell bonds), and the specificities regarding the intended market effects were not clearly communicated. One year later, in Gerba and Macchiarelli (2016a), we again showed that, faced with the likelihood of an extension of the QE programme, the success of the unconventional measures was at risk if businesses and consumers were to believe that the policy stance was ambiguous. Later the same year, in Gerba and Macchiarelli (2016b), we again concluded that 'the medium to long-term effects of European QE depends on the quality of market signalling by the ECB and the extent to which markets will react to it going forward'. In other words, the success of the programme depended – and still depends – on how the ECB communicates and interacts with the market. From the start, several concerns have been raised about the limited information and the intensity of communication provided by the ECB to the markets and the public.

While forward guidance officially started in July 2013, only in September 2019 the ECB shifted its forward guidance on rates from a short-term calendar-based type to state contingency. The latter now rests on an inflation target that relates to the state of the economy rather than to a specific (short-term determined) date. Gaballo (2016, 2019) argues that this is a first positive move to reducing ambiguity surrounding policy signalling but is still far away from providing clarity of the long-term path of the economy. According to Coenen et al. (2017) and Andrade et al. (2019), the previous date-based communication could generate ambiguity because people speculate on the reason behind the choice of a specific date.

The question of whether the ECB is in charge of the economic performance, i.e. it steers markets, or *vice versa* follows markets (expectations) and sets its policies in reaction to it, is a difficult one. In reality, these two dimensions are so much intertwined so that the latter becomes a 'hen-egg' question. The aim of the communication should be to reduce uncertainties about the policy actions and intended effects in a varying and uncertain environment.

2.2. Insights from the recent academic literature

Amid these challenges, much of the recent literature has focused on examining the impact of policy communication on uncertainty. Along these lines, Ramos and Morron-Salmeroni (2019) developed an index to measure the sentiment of the ECB's statements. Their index shows a strong correlation with euro area economic activity indicators. Between late 2017 and 2019, it signalled a significant deterioration in the sentiment, mainly related to the worsening of the economic outlook. Precisely this outlook, the authors argue, is the reason for the U-turn in forthcoming policy, from a monetary policy adjustment to further stimulus. Hence, they perceive policy communication as highly responsive and adaptive to short-term economic performance indicators, which ultimately would make any long-term commitment difficult. Likewise, Pesci (2016) build an index of central bank communication about future interest rate policy using media coverage and the occurrences of predefined hawkish (more inflation-oriented), dovish (less inflation-oriented) and neutral expressions. He finds that this measure is correlated with future changes in the interest rates and filters out information conveyed by past interest rate decisions.

Nevertheless, the existing measures can at best provide information about the co-movement between the ECB communication and expectations but are not capable of pinning down the causality or the channels through which communication shapes expectations. Neither of these measures can explain how sensible the ECB's communication approach can be for the longer-horizon when so many structural breaks in the ECB's strategy have taken place. It should be recalled that the ECB went from a

firm stance of no need for QE in 2010 to an urgent need for QE in late 2014, from a need to taper off in late 2017 to the second round of QE in mid-2019, coupled with state-contingent forward guidance. The question is perhaps whether such a discontinuous approach reduces uncertainty or adds to the existing one, in particular in the medium-run spectrum of expectation anchoring.

A promising strand of literature has capitalised on the recent advancements in large data processing through machine learning and linguistics to understand the impact of specific language constructions on expectations. Such a more direct (albeit narrow) way to evaluate central bank communication takes the discussion away from the subjective inference of information transmission from policy to outcomes and weighing of opinions. Ernst and Merola (2018), for instance, developed an automated text-mining algorithm using a Bank for International Settlements (BIS) collection of speeches given by central bank senior executives. They construct indicators to compare goals and strategies across several central banks: the Federal Reserve, the European Central Bank, the Bank of England and the Reserve Bank of Australia, from the late 1990s up to 2016. Their study suggests that communication can be complementary or a substitute for monetary policy. If communication is a more effective way to manage expectations, central banks might need to rely less on the conventional policy rate.

Along the same lines, Piceault and Reneault (2017) developed a field-specific dictionary instead of using ECB press conferences to measure the stance of the ECB monetary policy and the state of the euro area economy. Their approach helps explain future ECB monetary decisions when considering it in the context of an augmented Taylor rule. Schmeling and Wagner (2019) investigated whether the way in which the ECB communicates monetary policy actions is also reflected in asset prices such as stocks. They confirm that if the ECB's word choice tends to be 'positive', stock prices would tend to rise, while prices of derivatives used to hedge risks would fall. The authors were also able to show that a more optimistic tone can be an indicator of more favourable economic developments. This would imply that investment decisions are responsive to ECB's communication and not the other way around. Although this literature finds that asset prices react to central bank announcements in the desired direction, it is not explored whether the relation between investment decisions and ECB policy announcements is bidirectional or mutually reinforcing.

Ultimately these affirmative results rely on the assumption that ECB policy is *exogenous* to market perceptions and general market conditions, which is not necessarily apparent in the turbulent times of the past ten years.

3. THE POLITICAL ECONOMY OF CENTRAL BANK COMMUNICATION

During the crisis, central bank communication became more critical, particularly as the ECB intensified its efforts at transparency and coherence. At the time, the monetary policy stance had been determined by a combination of three types of interventions: negative interest rates, asset purchases and (targeted) longer-term refinancing operations. Since 2013, the ECB forward guidance has become an instrument of monetary policy itself (Table 1; Camba-Mendez and Mongelli, 2018), albeit – as reminded previously – the latter has been formally introduced as a ‘flexible’ and state-contingent instrument only in September 2019. One way through which programs such as the Asset Purchase Program (APP) affect financial markets is the *signaling* channel, which is: through bond purchases the ECB intends to convince markets that it has a commitment to a loose interest rate stance. However, it may not be enough to declare that the policy stays temporarily loose; in that sense ‘forward guidance’ and the APP have been mutually reinforcing each other (Lane, 2019; Macchiarelli et al., forthcoming).

However, ‘communication is not precommitment’ (Blinder et al., 2008), and there are many more dimensions to it, as we will discuss in the following section.

Intimately connected to this discussion is the concept of ‘accountability’, particularly concerning the ECB’s Monetary Dialogue with the European Parliament. While related, communication and accountability are clearly different concepts: accountability refers to the idea for an independent central bank to be accountable to democratic institutions and to the general public for its actions to retain legitimacy in the pursuit of its mandate. Communication, on the other hand, is a concept that is closely related to, yet distinct from, accountability. It can be defined as the extent to which central banks disclose information related to the policymakers, thus, becoming more transparent.

3.1. Communication as a way of enhancing central bank’s transparency

Comparing the ECB with the US Federal Reserve, the latter is understood to be instrument and goal independent, with its independent revenue and a structure written by Congress, and subject to change at any time. The Fed has dramatically enhanced communication and increased its transparency in recent years. Following the Federal Open Market Committee (FOMC) meetings, the Chair of the Board of Governors holds a press conference to clarify monetary policy communications, with greater transparency being provided with the announcement of a specific numerical target for the inflation rate.

The ECB is patterned after the Federal Reserve, reflecting the federal nature of monetary policy in the Eurosystem (see Macchiarelli, et al., forthcoming). In this sense, the central banks from each country (National Central Banks, NCBs) play similar roles as Fed banks.¹ Differently from the Fed though, the NCBs control their budgets and the budget of the ECB; monetary policy is further centralised, but its operations are decentralised through the Eurosystem. In terms of independence, the ECB is among the most independent central banks in the world since the members of the Executive Board have long term mandates of eight years, and the ECB determines its own budget. The ECB is, however, less goal independent, because of its commitment to price stability in medium-term; its charter further cannot be changed by legislation, only by a revision of the 1992 Maastricht Treaty.

¹ The rate-setting of the ECB comprises the ECB’s Executive Board, made of the President, Vice-President and four other members all having eight-year, nonrenewable terms, plus the Governing Council, representing the Executive Board, plus the nineteen Governors of the national central banks.

What about the ECB's Governing Council meetings? Those are monthly meetings in the presence of the nineteen NCBs representatives and six Executive Board members. The ECB announces the target levels and answers questions from the media after these sessions in which decisions are made by consensus. Since 2015, 'accounts' of these meetings have been released by the ECB. Those accounts identify the central bank general updates on financial and economic conditions in the euro area and provide a summary of the discussion, however, without attributing personal statements or voting with respect to individual members' (monetary policy) decisions.²

Differently from the ECB, the Federal Reserve also issues a press release following each FOMC meeting, but does not hold a news conference. The press release contains information about the announced change in the federal funds rate target, if any, and it provides an overview of the prevailing economic conditions. The FOMC members' votes have been included in the publication since March 2002. If a member dissents from the policy actions voted, the member shall be named and the policy measures he/she indicated shall be noted.

Eichengreen (2019) recently pointed out that the main issue today for the Eurosystem is how to handle disagreement within the ECB, particularly as the Fed, the Bank of England, the Bank of Japan and the Sveriges Riksbank, among others, already do release individual members' votes. While announcing individual Executive Board votes has the main advantage of signalling the future monetary policy stance, the peculiarity of the ECB's Governing Council, which is numerically dominated by nationally appointed central bank governors, weighs against increased transparency. This is a radicated discussion since the times of Duisenberg (2002) who argued that even anonymously mentioning dissenting opinions 'could lead to undue pressure on national central bank governors to deviate from a euro area perspective', particularly as the individual representative may be under pressure by their national governments.

Communication also extends to the outlook for the economy. The central bank's economic outlook provides a guiding principle for future policy moves. The ECB initially resisted publishing forecasts, but began including them in its Monthly Bulletin from December 2000, albeit individual independent forecasts for specific measures are not published, such as the euro area output gap. The Federal Reserve publishes instead two types of information about its economic outlook. In its report to Congress, it publishes the range and central tendency of the current and subsequent year's forecasts of Board members and district banks' presidents regarding output, inflation, and unemployment. The press release issued by the FOMC since February 2000 includes a risk balance statement that indicates how the Committee assesses the economic risks in the foreseeable future, be it increased inflationary pressures or economic weakness.

3.2. Communication as a policy option for unconventional monetary policies enhancement and tapering

The ECB has consistently expressed concerns over its medium-term inflation objective in recent years, explicitly illustrating how QE had the sole purpose of achieving the central bank's stated objective. This highlights the possibility of prolonged monetary easing whenever inflation remains subdued, as in the current environment (see also Gerba and Macchiarelli, 2016; Reza et al., 2015). It thus remains important to discuss or even define a lower limit on monetary policy, notably after former President Draghi

² The Governing Council is organized on a basis of rotation to remain at a manageable size as new countries join. The last country to access the euro area, Lithuania, has increased the number of countries to 19, and in 2015, this prompted a new voting system. Countries are divided into groups according to the size of their economies and their financial sectors: the country's governors ranked first to fifth share four votes; the other fourteen countries share eleven voting rights. The Governors' voting rights change based on a system of monthly rotation.

announced an open round of purchases in connection with the APP at the end of last October. The last decision to launch a fresh round of open-ended purchases remains however exceptional, albeit technical limits practically exist, particularly concerning the existing purchases, such as those made under the Security Market Program (SMP), thus restricting the scope for further ECB purchases for the future in some countries (Gerba and Macchiarelli, 2015; 2016).

There is no doubt that narrow inflation targeting failed to deliver stability of the economic and financial system as a whole. In a sluggish growth and negative interest rate environment such as the current, the recourse to more creative solutions in the use of monetary policy may be exacerbated, e.g. 'helicopter money', having the ECB buying equities/ETFs, or lifting the inflation target (see Macchiarelli et al., 2019). The key problem is the long-term consequences of allowing the ECB yet again to follow rather than steer the economy (see also Blinder, 2010); such as the loss of the independence of the central bank and its political implications. We have contended in the past that the risk of the ECB merely pouring liquidity into the system may be reduced. This would imply, in turn, a more flexible approach on the euro area fiscal rules. In fact, as governments' budget constraints are relaxed through the Eurosystem purchases, the use of the fiscal stimulus (coupled with reforms in the market segments that need them) should not be understated nor stigmatised (see also recently Blanchard, 2019).

Table 1: ECB monetary policy instruments used as non-standard measures

	Conventional Instruments 2/	Unconventional Instruments	
	"Credit easing"	"Market support" 3/	"Quantitative easing" 4/
A. Reverse lending operations ("Repos"): 1/			
Refinancing Operations			
MPOs (Aug 2007 onward)	X		
MROs at FRFA (Aug 2007 onward)	X		
LTROs (3 months) at FRFA (Aug 2007 onward)	X		
LTROs (6 months) at FRFA (March 2008 onward)	X		
Supplementary LTROs at 1-year	X		
Very-long LTROs at 3-years (Nov11&Dec12)	X		
TLTROs (June 2014 and max maturity Sep.2018)	X		
TLTRO II: Targeted LTROs (June 2016-March 2017)	X		
B. Ad-hoc non-standard operations:			
Forex Repos and Swaps (2008-9)	X		
Various ad-hoc fine-tunings as needed.	X		
C. Outright operations:			
Purchases of private sector securities			
CBPP1 (July 2009)		X	
CBPP2 (November 2011)		X	
CBPP3 (Sep. 2014)		X	
Selective purchases of public sector securities			
SMP (2010-12) 5/		X	
OMT ("contingent balance sheet policy")		X	
Large scale purchases of private sector securities			
ABSPP (June + Sep.2014)		X	X
CSPP (March 2016)		X	X
Large scale purchases of public sector securities			
APP/PSPP (January 2015)		X	X
Expanded APP (March 2016)		X	X
D. Enhanced communication: 6/			
Forward Guidance (July 2013)			
Commitment active use NSMs (April 2014)			
Signal of Balance Sheet expansion (Nov. 2014)			

Source: Camba-Mendez and Mongelli (2018).

Upon achieving the underlying objective, the ECB will be facing the usual problem of relaxing or extending the extraordinary measures. In Table 1 from Camba-Mendez and Mongelli (2019), the (non-)standard monetary policy operations between the period 2010-2017 are listed based on their stated purpose. Those are distinguished amongst:

- *Credit-easing* (A+B), which are largely bank-based measures; these were adopted since the early stage of the crisis because of the bank-centric structure of the euro area financial market. The measures are defined as ‘standard’ in that they explored the flexibility of the existing monetary policy framework.
- *Market support* and *quantitative easing* (C), which are largely market-based measures. The measures are defined as ‘non-standard’ in that they entail outright asset purchases through the Eurosystem, the asset-type or maturity of which (in the case of bonds) were not normally part of the standard open-market operation.

From this list, it can be observed that all the crisis-based measures needed to be unwound at some point, which has led the ECB to take a number of other follow-up measures. It follows that the ECB’s withdrawal strategy from an ultra-accommodative monetary policy stimulus becomes particularly relevant, through communication (this is the case unless some of the non-standard measures, particularly, bond purchases will be ‘normalised’ as part of the central bank’s *new standard* operations). Communication, mainly through forward guidance (D), thus became a monetary policy itself because of the necessity of unwinding – in particular – market-based operations.

In July 2013, the ECB began to use forward guidance when the ECB’s Governing Council announced that the interest rates were expected to remain low over a long time period. Since then, the ECB has been adapting its forward guidance in several respects to articulate monetary policy and clarify the purpose of the Governing Council interventions with regard to the future planned course of the ECB’s main interest rates and the scope of its asset purchase programme, so much so that forward guidance has become state-contingent since September 2019. This means that while forward guidance represents a valuable tool to ensure the consistency of monetary policy over the longer horizon in the euro area, it still does not limit discretion and thus central bank’s independence, as the future path of policy rates remains conditional on fulfilling the ECB’s medium-run inflation objective (see Macchiarelli et al., 2019). Forward guidance has thus become an important instrument for ensuring monetary policy consistency, particularly as purchasing assets sent out a strong signal that policy will remain accommodative for an extended period.

As discussed in the previous section, the empirical evidence supports the view that forward guidance can already help to influence long-term interest rates in standard times. For example, Woodford (2012) shows how using the language of ‘extended period of time’ in the statements by the Federal Reserve and the Bank of Canada on conditional forward guidance lowered expectations of future interest rates, as measured by the rates of the Overnight Index Swap (OIS). Equally, Campbell et al. (2012) looking at standard monetary policy episodes for the US, found that 90 per cent of the variance in the projected federal funding rate four quarters ahead could be attributed to factors not linked to surprises in the timing of policy target changes. Evidence exists that forward guidance is less successful if it does not indicate a deviation from the ‘standard’ stance of the central bank; see for instance Ugai (2007) and Ito and Mishkin (2006) for Japan. Ito and Mishkin argued, in particular, that the Bank of Japan managed market expectations quite poorly over the period 1998 to 2003, compromising any success prospects for QE or for raising the inflation target.

The risk of exiting unconventional monetary policy is another reason for correct communication, particularly as not signalling properly may risk undoing some of the benefits of the monetary policy

stimulus through increases in risk premia or flight-away 'to quality' (IMF, 2013). It is therefore vital that the central bank demonstrates credibility and communication skills to persuade investors that it is adhering to its objective(s) (Belke, 2017; Born, Ehrmann and Fratzscher, 2014).

The danger about the disruptive nature of exiting unconventional monetary policies may thus require additional communication efforts from the central bank. As a result, communication has *de facto* become an integral part of the monetary policy toolkit: particularly as the credibility of policy objectives requires transparency and intelligibility of monetary policy, and credibility itself rests on keeping inflation expectations anchored. Put it differently, a well established and recognised exit strategy strengthens monetary policy efficiency as it reassures markets about the future stance regarding the economy/financial stability and inflation (Belke, 2017). Hence, communication becomes necessary, albeit not sufficient alone.

4. THE IMPACT OF ECB MONETARY POLICY EVENTS ON FINANCIAL MARKETS

The ECB has followed its monetary policy decisions with a statement and press conference at each meeting since its creation in 1999. Since 2015, these meetings have reduced frequency, allowing more time to be spread between decisions and having ample flexibility for the monetary policy pass-through so as to achieve the ECB's medium-term goal (Carney, 2019; see Table 2).

In Figure 1 and 2 we look at the response of different asset classes, exchange rates, and stock prices, as the result of monetary events defined as the sum of press conferences and press releases, based on a novel Euro Area Monetary Policy Event-Study Database proposed by Altavilla et al. (2019). As underlined by the authors (*ibid.*), some of these events have already been analysed using the merged media communiqué and press conferences (for example, Andrade and Ferroni, 2016) and separate windows, but they do not include QE surprises in the study.³

Table 2: Frequency of policy decisions and press conferences in the euro area

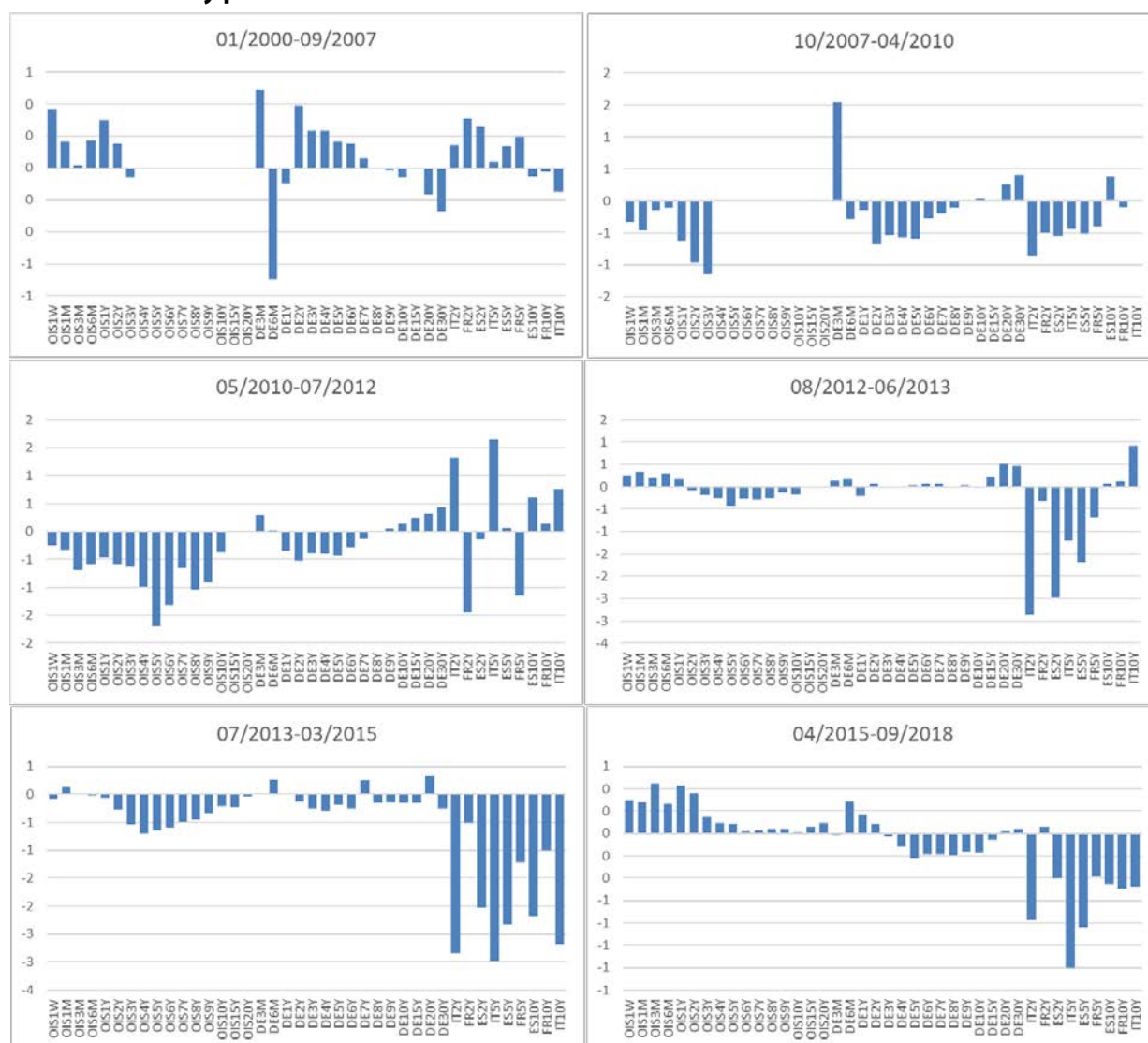
Year	No. of <i>Policy decisions</i> released at 13:45	No. of <i>Press Conferences</i> starting at 14:30	No. of <i>Rate Changes</i>
1999	23	9	2
2000	24	13	6
2001	24	11	4
2002	12	11	1
2003	12	11	2
2004	12	11	0
2005	12	11	1
2006	12	12	5
2007	12	11	2
2008	13	12	4
2009	12	12	4
2010	12	12	0
2011	12	12	4
2012	12	12	1
2013	12	12	2
2014	12	12	2
2015	8	8	0
2016	8	8	1
2017	8	8	0
2018	6	6	0

Source: Altavilla et al. 2019.

³ As discussed previously, the literature assumes a lot about information processing and interpretation approaches used by financial markets following central bank announcements. Most of these assumptions are extrapolated from earlier insights on communication during normal times, or at times been based on information processing algorithms. But they do not take into account the recent economic changes such as expectations de-anchoring, high uncertainty regarding economic performance, ambiguity in policy stance. They are difficult circumstances to include in models and toolkits, but necessary in order to gain an accurate picture of the links in the complete chain: news about economic conditions – policy announcements – information processing – policy actions – reactions (in markets and economy) – economic adjustments in an environment of heightened uncertainty and for the longer horizon.

We split those available responses by subperiods, such as 01/2000-09/2007, 10/2007-04/2010, 05/2010-07/2012, 08/2012-06/2013, 07/2013-03/2015, 04/2015-09/2018, broadly corresponding to the period pre-crisis, the financial crisis, the sovereign debt crisis, the post-OMT-announcement, the introduction of forward guidance, and finally, the QE announcement and implementation.

Figure 1: Response of different asset classes to monetary policy events (1999-2018) divided by periods

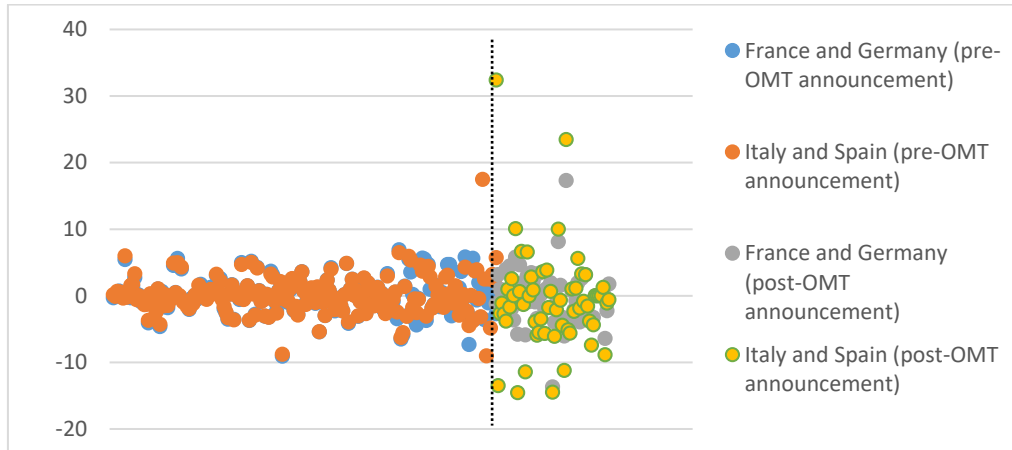


Source: Authors' calculations based on Altavilla et al. (2019) Euro Area Monetary Policy Event-Study. The asset classes considered are overnight index swaps (OIS) from maturity of 1 week (OIS1W) to 20 years (OIS20Y), the ECB reference yields, German bonds, from 3 months (DE3M) to 30-year maturity (DE30Y), Italian, French and Spanish bond at the 2, 4 and 10-year maturity.

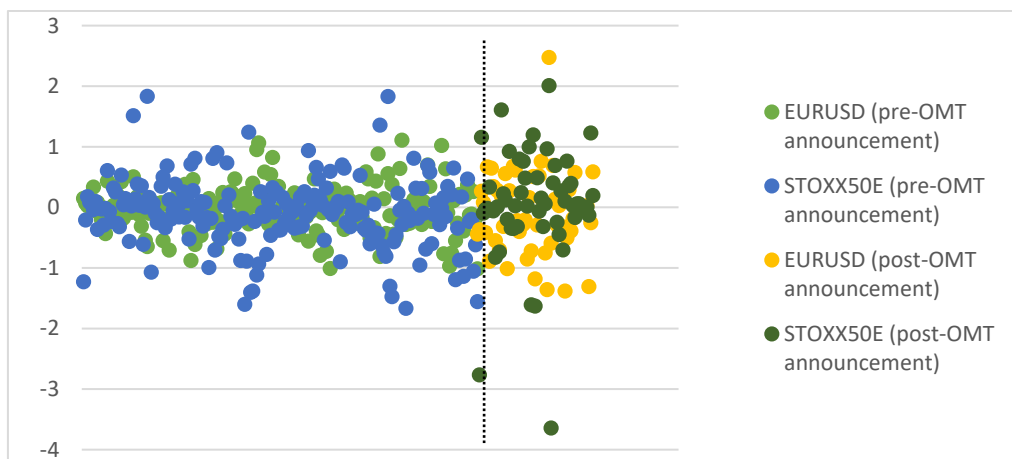
Figure 2 also looks at the response of the 10-year government spread of (the average of) Spain plus Italy and (the average of) Germany plus France countries to all monetary policy events; see Altavilla et al. (2019). From a visual inspection, it appears that financial market response has increased after the July-2012 OMT announcement, particularly in countries such as Italy and Spain, possibly meaning that financial markets have become more attentive to monetary policy communication.

Figure 2: Response of long term government bonds, STOXX50E and EUR/USD to monetary policy events (1999-2018) over time

a) 10-year government yields for selected euro area countries



b) STOXX50E and Euro/USD Spot Exchange Rate



Source: Authors' calculations based on Altavilla et al. (2019) Euro Area Monetary Policy Event-Study Database.

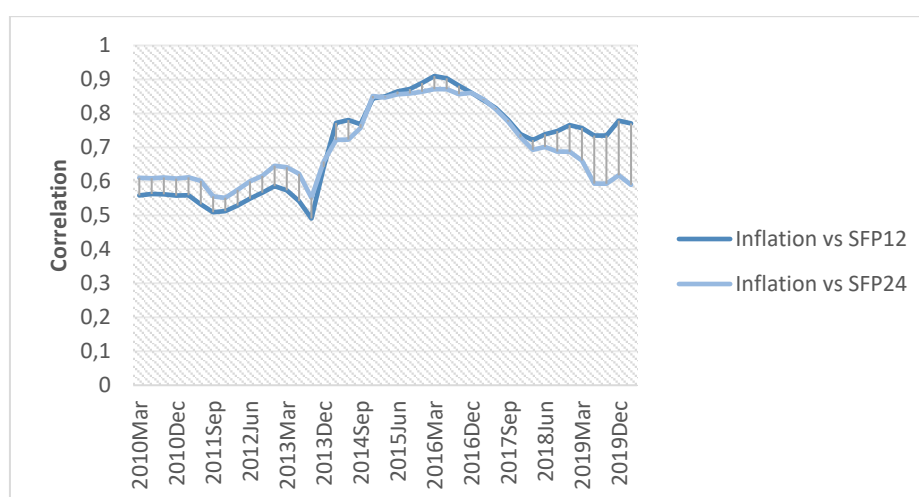
We visually analyse the response to monetary policy events over time and across different asset classes, in particular, overnight index swaps (OIS) starting from 1-week maturity (OIS1W) to 20 years (OIS20Y), the ECB reference yields from 3 months (DE3M) to 30-year maturity (DE30Y), Italian, French and Spanish bond at the 2-, 4- and 10-year maturity. Crucially when looking at measures such as OMT, forward guidance and QE one should be mindful that the financial market response likely prices-in any previous announcement, so much so that the ECB's forward guidance incorporates the effect of the OMT announcement and so on. In this sense, the figure above is only descriptive. While the effect is sizeable if one cuts these responses post-OMT-announcement, forward guidance and QE for the OIS for several countries at different maturities (Figure 1) the response seems sizeable for government bonds at long maturities across the board. This increased sensitivity of financial markets to monetary policy events may be the effect of increased transparency over time; see Altavilla et al. (2019).

4.1. Inflation expectations as a measure of long-term predictability of monetary policy?

Looking at inflationary ECB estimates, the ECB has repeatedly predicted a faster – somehow more positive – return of inflation to close to 2% (Macchiarelli et al., 2019). The evidence suggests that the association between (core) inflation and longer-term expectations, based on the Survey of Professional Forecasters, has weakened, possibly signifying that participants have not been necessarily ‘extrapolative’ when forming their inflation expectations (Lane, 2019; Figure 3). This calls for a reflection on the real-side effectiveness of the measures adopted by the ECB to date.

Research from Lane (2019) and Hubert and Labondance (2018) suggests the overall effectiveness of the ECB's forward guidance since 2013. Nevertheless, the ECB still faces challenges regarding whether its non-conventional policies have been successful in managing expectations. Inflation, for now, remained stubbornly below the ECB's goals despite its staff projections. This was primarily the result of several economic factors, including political risk and uncertainty, that resulted in lower than expected inflation expectations at the three-year horizon. It also reflected, to some extent, the way the ECB's inflation target can be kept ‘credible’ as such (De Grauwe and Ji, 2019).

Figure 3: Time-varying correlation between headline inflation and Survey of Professional Forecasters at the 12-month (12-month lag) and 24-month horizon (24-month lag)



Source: Authors' calculations based on data from the ECB Statistical Data Warehouse.

In the following, we use a straightforward heuristics model to give indication about the state of inflation expectations. Following De Grauwe (2011), we assume the economy uses simple rules (heuristics) to forecast future inflation. Within this framework, we specify a learning mechanism in which the economy continuously tries to correct for their forecasting mistakes by switching from one rule to the other. The market forecast for inflation is obtained as a weighted average of two forecasts (see Annex), namely

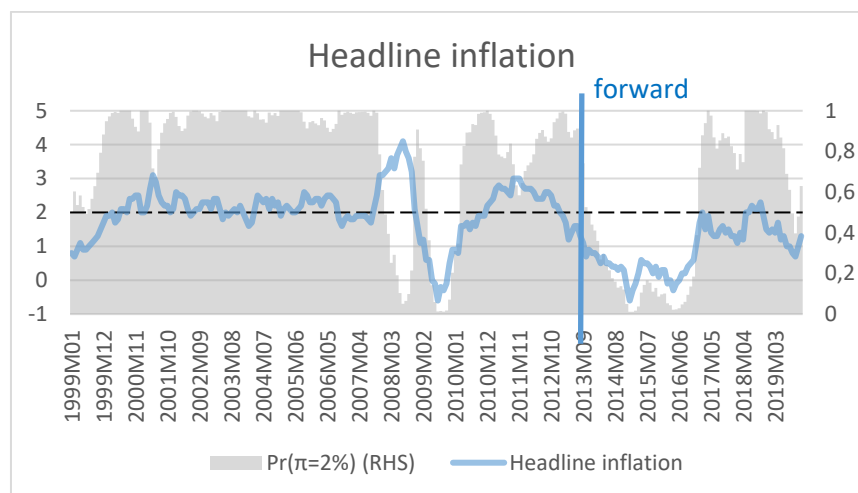
- The central bank's announced inflation objective $\tilde{E}_{t+1}^f = \pi^*$, which is here assumed to be fully credible;
- An extrapolative rule, which assumes the most straightforward possible rule of thumb, by extrapolating the inflation's last available observation into the future, i.e. $\tilde{E}_{t+1}^e = \pi_{t-1}$.

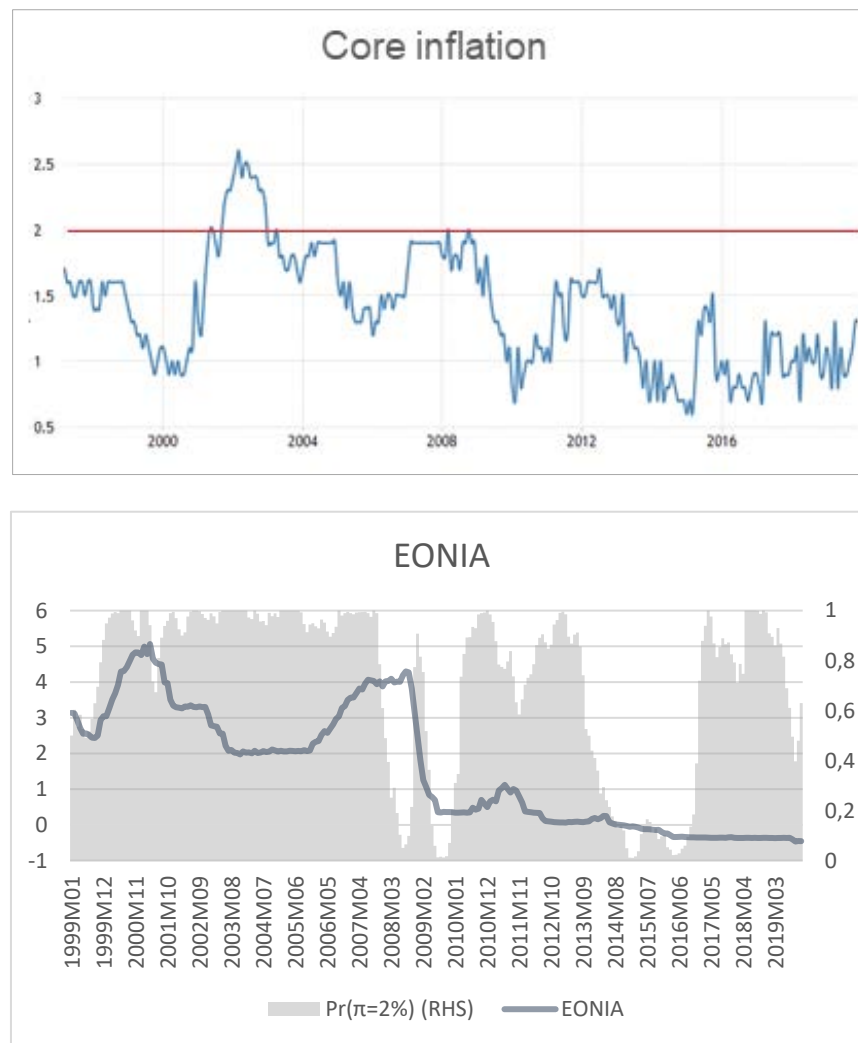
The real-time historical probability to use one rule or the other is calculated based on the mean squared forecasting error of each rule, based on discrete choice theory. While this exercise says nothing about the probability of future inflation, it indicates the *ex-post* inflation forecast and how it significantly deviates from 2%, based on historical headline inflation figures.

We display the probability of using the ECB stated 2% objective as one of the forecasting rules, against a simple rule-of-thumb which extrapolates inflation's last available observation. We plot this result against the path of the EONIA and inflation (Figure 4), both available at the monthly frequency, the euro area output gap (Figure 5), which is available at an annual frequency, and the Survey of Professional Forecasters inflation, at quarterly frequencies. The output gap is displayed in the form of a swathe chart, capturing the uncertainty of the output gap estimates across the OECD and the IMF. From Figure 4, the risk of inflation undershooting seemed to be particularly high between 2013-2017. While inflation is currently still below 2 per cent, there are signs that the Euro Area might be set for a gradual recovery.

Looking at the history of 2% inflation, however, the ECB missed its target in no small degree because of the developments in the output gap (which in turn may be capturing inflation expectations). While the interaction between forward guidance and the purchase program seem to have had its grip over inflation expectations over the last couple of years, the association between inflation and inflation expectations remains weak. It is thus of paramount importance for the ECB to keep enhancing transparency and communication in order to avoid a setback. While the prolonged monetary policy accommodation is necessary to revive demand and help financial markets normalise, it also sends the signal that a long-term policy stance is in place to disguise a bad-shaped economy. Thus, a policy designed to foster optimism may risk producing excessive pessimism. This is why communication and more transparency remain more crucial than ever.

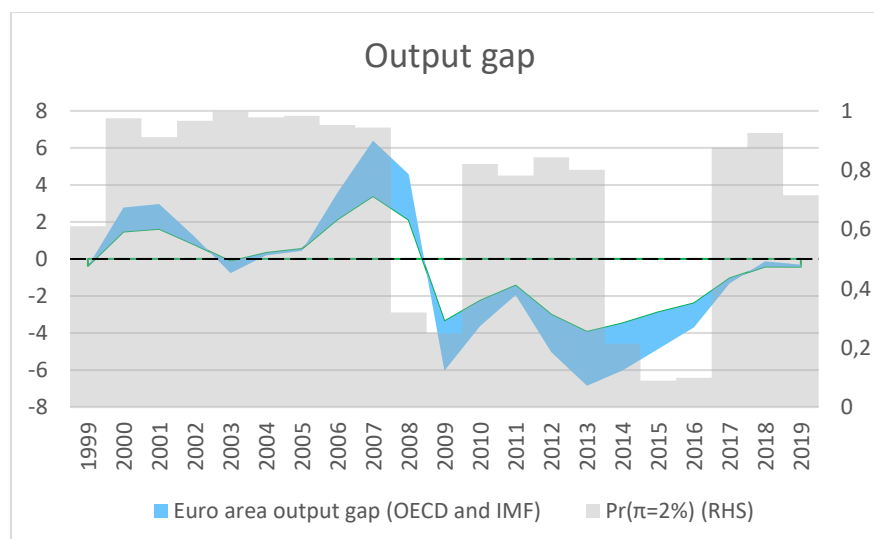
Figure 4: Inflation, core-inflation and the EONIA in the euro area

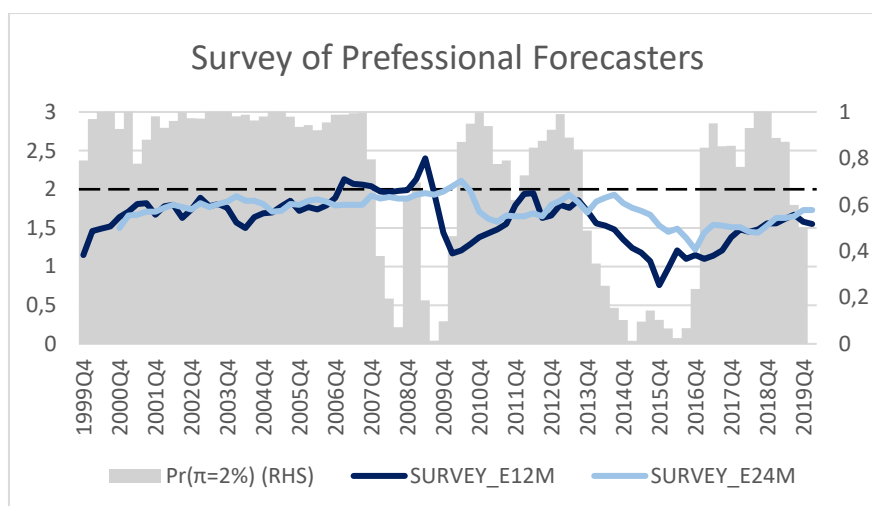




Source: Authors' calculations based on data from the ECB Statistical Data Warehouse, and Eurostat.

Figure 5: Output gap and inflation expectations in the euro area





Source: Authors' calculations based on data from the ECB Statistical Data Warehouse and the IMF World Economic Outlook.

5. CONCLUSIONS

The ECB's unconventional policy has substantially differed from the conventional pre-2008 framework in several ways: first, it was implemented during highly uncertain times and the succession of several adverse shocks; second, a range of simultaneous or successive policies have been implemented in a relatively short time; third, some of these policies were utterly novel to modern monetary history, and being specific to the euro area; fourth, the response of inflation expectations, which is commonly the indicator of the effectiveness of the monetary policy, has weakened over time.

As a result, understanding the context in which central bank communication has been conducted during these unconventional times is crucial, as any attempt to evaluate the communication strategy needs to be viewed in light of this. This note attempts to do exactly this through the lens of financial markets, academic research, as well as considering the governance, political and legitimacy aspects involved therein.

While the determination contained in 'whatever it takes' was a definite success, both in terms of calming the markets and (re-)installing authority over euro area interest rates and bond yields, significant shortcomings have persisted in how the ECB has communicated the details of the announced policy measures. In particular, the ECB has avoided providing answers to 'how', 'when' ('how long') and 'in what way' questions in order to avoid dynamic commitment. Moreover, the central bank has been reluctant in generating public debate and allow a diversity of opinions regarding the effects of the measures it has implemented and its' communication strategy. Also, the quantity of releases and press conferences has declined over time.

The introduction of forward guidance has been the ultimate test. Our analysis shows that during the early years, the strategy did not at all manage to align expectations with the target. The two were diverging up until 2017. Only recently, in September 2019 did the ECB shift its forward guidance to state contingency.

In times of high uncertainty, it is not evident what the *optimal* balance is in the supply of information, both in terms of frequency and quality. One would expect that sufficient information should be provided such that inflation expectations are (re)anchored and volatility in inflation reduced. To achieve that, the central bank needs to be transparent and allow an open debate about the undertaken measures. However, central banks may dislike such debates because it may signal a potential for loss of authority and leadership. Then again, transparency and openness signal self-confidence and maturity. For a central bank as young as the ECB, this is not easy. The safest strategy may be to 'walk in the middle' between the two extremes. However, the issue remains if this is close enough to the *optimal* and convincing enough to align expectations and generate the economic boost that is long craved for in the euro area.

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ANNEX

For the sake of the exercise in Figure 4, the forecasts for inflation $\tilde{E}_t \pi_{t+1}$ are governed by a fitness learning selection mechanism.⁴ In this setup, we forecast inflation using two alternative forecasting rules. In particular, the steady-state value of the output gap (fundamentalist rule) against extrapolation of inflation's past trend (extrapolative rule).

As explained in De Grauwe (2011), in an environment where the central bank explicitly announces its inflation target, inflation fundamentalists are assumed to base their expectations on the central bank's target, π^* . Instead, inflation extrapolators behave exactly as output extrapolators do: by extrapolating inflation past trend into the future.

The forecast thus share features of a 'boundedly' rational model, in the sense that the economy learns from its mistakes. Market forecasts of inflation are obtained as a weighted average of each respective forecasting rules, as:

$$\tilde{E}_t \pi_{t+1} = \alpha_{f,t} \tilde{E}_t^f \pi_{t+1} + \alpha_{e,t} \tilde{E}_t^e \pi_{t+1},$$

where the fundamentalist rule is generally defined as

$$\tilde{E}_t^f \pi_{t+1} = \pi^*,$$

and the extrapolative rule follows

$$\tilde{E}_t^e \pi_{t+1} = \pi_{t-1}.$$

We base our forecasting rule mechanism on a dynamic predictor selection, in line with discrete choice theory. This mechanism allows switching between the two forecasting rules by computing the mean square forecasting error (MSFE) or utility of the two rules and increase (decrease) the relative weight of one rule against the other in each period. Under the formalisation that the utilities of the two alternative rules have a deterministic and a random component - assuming the latter to be logistically distributed (see Anderson, De Palma, and Thisse, 1992) – weights can be defined based on each period utility ($U_{\cdot,t}$, see also De Grauwe, 2011) as:

$$\alpha_{f,t}^\pi = \frac{\exp(\gamma U_{f,t}^\pi)}{\exp(\gamma U_{f,t}^\pi) + \exp(\gamma U_{e,t}^\pi)}$$

and

$$1 - \alpha_{f,t}^\pi = \frac{\exp(\gamma U_{e,t}^\pi)}{\exp(\gamma U_{f,t}^\pi) + \exp(\gamma U_{e,t}^\pi)},$$

where γ represents the "intensity of choice". The utility attached to each rule's performance is calculated as

$$U_{f,t}^\pi = - \sum_{k=0}^{\infty} w_k [\pi_{t-k-1} - \tilde{E}_{t-k-2}^f \pi_{t-k-1}]^2,$$

and

$$U_{e,t}^\pi = - \sum_{k=0}^{\infty} w_k [\pi_{t-k-1} - \tilde{E}_{t-k-2}^e \pi_{t-k-1}]^2$$

where w_k are geometrically declining weights, allowing to take into account the degree of forgetfulness in the model (see De Grauwe, 2011).

⁴ For sake of brevity, we refrain to report the whole details, which are, anyway, provided in De Grauwe (2011).

While quite simple, this model may give an indication of the ex post probability of hitting the 2% target, under the assumption of full central bank's credibility.

In the Table below we further report the results for different parameters of the 'intensity of choice', γ , which determines the pace at which the economy is able to switch among forecasting rules. We do so against the first and second moment of the Survey of Professional Forecasters expectations at the 12- and 24-month horizon.

	Model-consistent expectations				Survey of Professional Forecasters	
	Inflation expectations ($\gamma = .25$)	Inflation expectations ($\gamma = .5$)	Inflation expectations ($\gamma = .75$)	Inflation expectations ($\gamma = 1$)	SPF 12-month	SPF 24-month
Mean	1.9	1.8	1.8	1.7	1.6	1.7
Median	2.0	2.0	2.0	2.0	1.6	1.8
Max	2.8	3.3	3.6	3.8	2.4	2.1
Min	0.7	0.0	-0.3	-0.3	0.8	1.2
Std. Dev.	0.3	0.5	0.7	0.7	0.3	0.2

PE 642.377
IP/A/ECON/2020-10

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