European Central Bank Communication

Concepts, Crises, and Critique

Research Results from Theses in Economic Policy Journalism

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Introduction: On Monetary Storytellers and their Counterparts

Central Banks, Communication, and Journalism – an introduction

by Henrik Müller

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In the summer of 2021, Mervyn King, the former chief of the Bank of England, quipped that "price stability is when people stop talking about inflation." At the time, inflation rates had been low and stable for a long period of time: "memories of an inflationary past" had largely faded from public conscience and inflation was not "a talking point" anymore. Price stability appeared to be ensured, inflation expectations seemed well-anchored, tempting central bankers to direct their attention to other issues such as fighting climate change or alleviating social inequalities. In a letter to the editor of the Financial Times, King (2021) stressed that, even though the general public was not paying much attention to price developments anymore, monetary policy makers ought to. "It is when central banks stop talking about inflation that we should be concerned;" after all, he noted, at the time there were reasons to worry about inflationary pressures building up in advanced economies. But central bankers remained silent about them.

King's remarks point to a turn in the conduct of monetary policy over the past two decades: public communication has become a major instrument in the tool box that central bankers have at their disposal. Old-school monetary policy makers might have plainly dismissed the notion that talking was a key part of their job description at all. When Alan Greenspan, the Fed's legendary chairman between 1987 and 2006, was required to appear in public, such as at congressional hearings, he resorted to a sphinx-like appearance and crafted his remarks to be as imprecise and ambiguous as possible. The heads of the Bundesbank were low-key public servants who seldomly appeared in the media. Back then, central bankers communicated mainly through their actions: varying short-term interest rates or reserve requirements, not through words intended to influence, or even woo, the public. Speeches and interviews were rare and cautiously worded. The US Federal Reserve Bank only introduced regular press conferences in 2011, more than a decade after the European Central Bank (ECB) had started the practice.

Walk the talk – or just talk the talk?

It is for profound reasons that central banks the world over started communicating more actively: when, from the 1990s onwards, more and more monetary authorities became politically independent, difficult questions about their accountability and legitimacy arose. After all, in democratic systems it is the parliament's responsibility to decide on the redistribution of money. Since monetary policy inevitably involves some degree of redistribution of income and wealth, a democratic deficit emerged that central banks strove to mitigate by improving transparency. More intense public communication was meant to provide insights into their actions, motives and the trade-offs involved. This strategy also fit nicely into economic theory. Rational economic agents, the argument went, should not be misled by policy surprises, which were deemed to be a major cause of economic fluctuations. With maximum information about the authorities' assessments, goals and plans available, they were expected to make decisions that would ultimately lead to a self-stabilization of markets (which in turn would justify the light-touch regulation conducted before the financial crisis of 2008). If market participants knew the central bank's reaction function and the relevant data flowing into it, their expectations would align with the central bank's views and objectives, ensuring a smoothly running low-inflation economy.

The better a central bank was at explaining its stance, and the more credible it was, the softer its measures could be. Talk supplemented action. Simply by insinuating potential monetary policy maneuvers, markets could be nudged to the desired direction. Communication became all the more important as interest rates hit the lower bound in the 2010s; at the zero-per-cent floor, classic instruments, such as short-term policy rates, ceased to work. Asset purchase programs ("quantitative easing") were put in place to bring down long-term interest rates as well, confining large swaths of the bond market to very low or even negative yields. After central banks had engineered a downward shift in yields over the entire term structure, communication came to play an even bigger role. "Forward guidance" was designed to alter expectations and soothe investors' nerves by promising a continuously accommodating policy stance over the medium term. That is, communication was assigned a regular compartment in central banks' tool boxes. Talk supplanted action to the degree that they had run out of ammunition to pursue the bolstering the economy.

Today, central banking is not just about crafting liquidity provisions anymore. Rate setters have turned themselves into storytellers. In this respect, they have come to resemble journalists: both professions try to make sense of the world, and to influence others, by telling

narratives based on facts. The Bank of England, for instance, has established a process by which it collects narratives circulating among British business people, systematically subsuming individual narratives to collective ones. The results of this exercise are then used as an input to the Bank's economic assessment and also as a starting point for its communication strategy (Tuckett et al. 2020). Other central banks, too, devote plenty of effort to their communicative resources. But talk and persuasion are tricky and do not necessarily have the desired effects. For all the communication efforts, Andre et al. (2021) find a broad range of "inflation narratives" among US citizens and business people. The monetary narrative landscape is far from being dominated by a single monolithic story told by central bankers.

Communication and its Science

The primary channels central bankers use to reach the public and the markets are fore and foremost traditional media, particularly newspapers and news agencies. While a lot of effort is put into communicating directly via websites and social media, central banks still firmly rely on the transmission of their assessments and orientations through journalistic media. But, as independent media in a competitive market tend to add their own biases to central banks' messages, monetary storytellers are sometimes frustrated with the prevailing media narratives. Isabel Schnabel (2021), a member of the executive board of the European Central Bank (ECB), for instance, complained that German media were prone to stoking fear by conjuring "the spectre of inflation", thereby misleading the public. From a communication science perspective her argument is ambiguous at best. Journalists are supposed to give a correct account of reality; i.e. if dramatized reporting leads to the de-anchoring of inflation expectations, media coverage could detrimentally influence markets and prices and thus the conduct of monetary policy. That the media's influence on inflation expectations can be substantial is well documented (e.g. Larsen et al., 2021; Lamla & Lein 2014). However, in democracies journalism's role is not confined to the recounting of official bulletins and data in a timely, correct and impartial manner. Journalism, and economic policy journalism in particular, has an independent role to perform: as a watchdog that points out unsustainable developments early on and confronts official narratives with inconvenient facts and their potential consequences (Müller 2017).

To the extent that monetary policy today is about communication, it has become an issue for communication science. That's the common thread of the papers assembled in this volume: they look at monetary policy from a communication and mass media perspective.

Drawing from a range of theoretic frameworks and empirical methods they analyze central bank communication in ways that differ from the ones economists typically apply. There are content analyses of ECB press conferences during the financial crisis of 2007 to 2009 as well as during the quantitative easing period. There are interviews with financial journalists who were asked to compare the public relations strategies of the ECB and the Bundesbank respectively. There is a topic modelling exercise gauging the coverage of two former Bundesbank presidents, Axel Weber and Jens Weidmann, in German newspapers; and a paper that focusses on the differences in the coverage of former ECB president Mario Draghi in the French and German press, highlighting the fragmented trans-national media sphere that the ECB has to deal with.

This e-book is an experiment. All the contributions are written by alumni of our programs Wirtschaftspolitischer Journalismus (Economic Policy Journalism, BA) and Economics & Journalismus (MA). I felt that the results of their final theses were interesting enough to make them accessible to a wider academic readership. So, I invited the authors to extract the essence of their findings and convert them into English-language research papers. Supervised by Tobias Schmidt, Janis Beenen and Timo Halbe operated much of the project. Kerstin Trimble helped with proof-reading. With a final version in hand, I have the impression that it's been a worthwhile endeavor. Thanks to you all!

A brief post scriptum

Only months after Mervyn King's letter about central banks' peculiar silence on inflation had appeared in the Financial Times, real world developments proved him right. From October 2021 on, price indices shot up, pushing annual average consumer price inflation rates well above central banks' two-per cent targets on both sides of the Atlantic. At the time of writing, it is far from certain how the situation will play out, whether inflation will prove "transitory", as central bankers maintained over the second half of 2021, or whether it will get out of hand. A period of persistently elevated inflation rates may lie ahead, spelling trouble for wage earners and pensioners, but also for lofty valued financial markets, that have gotten used to lavish monetary conditions. The tasks of central bankers have undeniably become more complicated and conflict-prone than they have been for generations. Monetary policy, and the world economy in general, have entered a period of "radical uncertainty" (Kay & King 2020). More than ever, the professional skepticism of well-informed, independent economic journalists is required.

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I. Forward Guidance - A Framework of new Central Banking Instruments

A Review of the Literature

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Abstract

Central banks such as the Fed or the ECB undoubtedly make use of forward guidance. However, there are doubts about its effects, which can be attributed to several factors. To answer the question of the effects of forward guidance, I will analyse the existing literature with regard to the theoretical basis and empirical reactions to forward guidance.

In practice, central banks do not announce any unconditional commitments, but rather practice conditional forward guidance, which allows for consistent decisions over time. Central banks such as the ECB moved from their maxim of not committing to explain their reaction functions by switching "from low beams to high beams" (Weidmann 2019). Central banks do not use forward guidance, as the original idea or theoretical origin would suggest, in order to use inflation expectations as a policy tool.

The difficulty in determining the effects of forward guidance is that a comparison with a counterfactual scenario is impossible. Therefore, empirical studies focus on analyzing market reactions (ECB 2014).

Furthermore, it matters which type of forward guidance is assessed for its effects and how it is interpreted by markets and households. The insight process of this paper is guided by a synthesis of current monetary policy literature.

A conclusion on the practical effects cannot be drawn due to the abundance of sometimes conflicting empirical evidence on market reactions, the low number of studies on the effects on household expectations and the different framework conditions under which forward guidance can be exercised.

Whether and how forward guidance works can only be assessed by means of a circumstantial process. The mere fact that forward guidance has been and is being adapted many times speaks for its significance. Moreover, the view that forward guidance does indeed affect the expectations of market participants prevails in the literature.

Apart from market reactions, there is a considerable research deficit regarding the reception of forward guidance by households. Yet household expectations are essential for the state of the economy and they are the decisive authority when it comes to stimulating the economy. Despite the disagreements in the literature, forward guidance is one of the key instruments of central banks at the interest rate floor, along with quantitative easing.

Keywords: *Forward Guidance, European Central Bank, Federal Reserve, Bank of Japan, effective interest rate floor, inflation expectations, interest rate expectations, liquidity trap*

1. Introduction

From a historical perspective, real interest rates have been falling for centuries (Schmelzing 2020). There are various reasons for this: Schmelzing (2020) argues that falling real interest rates have been accompanied by increased fiscal activity, among other things. Schmelzing (2020) argues that supporters of the theory of secular stagnation must acknowledge that it has been a driver of declining real interest for centuries. The consequence for central banks is that "very low real rates can be expected to become a permanent and protracted monetary policy problem" (Schmelzing, 2020, p. 75).

Jorda and Taylor (2019) point out that factors outside the control of central banks are partly responsible for low interest rates. For example, the authors (2019) note that the natural rate of interest has been declining for more than three decades in all the countries they studied (USA, Germany, UK, Japan). This decline is due to the potential growth rate and latent factors. Variations in the interest rate are thus determined by factors that the central bank cannot control, such as the natural global interest rate and the natural domestic interest rate, which also contain a strongly global component (Jorda & Taylor 2019).

Yellen (2018) notes that while the reasons for the fall in the natural real interest rate are uncertain, they are likely to be structural and persistent.

The fact that the equilibrium real interest rate is falling is becoming a problem for central bankers. This is because they come up against the effective interest rate floor more frequently and need sustainable instruments to implement effective monetary policy. Kiley and Roberts (2017, p. 365f.) state that the effective interest rate floor at an equilibrium real interest rate of one percent is hit between 1/3 and 2/5 of the time if monetary policy follows a simple monetary rule.

Central banks use the method of forward guidance, along with quantitative easing, to accommodate monetary policy at the effective interest rate floor (Woodford 2012). As the downward trend in real interest rates seems to be persistent, and negative supply and demand shocks occur, as in the COVID-19 pandemic, this communication tool seems to be necessary to be able to react better to interest rate developments.

Forward guidance has so far been a marginal note in monetary policy textbooks, although the term is at least touched upon in more recent works. This can be explained by the fact that forward guidance is in some respects terra incognita. This paper therefore aims to generate a literature review that reveals a framework of forward guidance. I will focus on the

ECB's forward guidance in this paper, as there is a gap in research with regard to the concrete adaptation of forward guidance.

In the following, I will first illustrate the importance of expectations for central banks (Section 2). Subsequently, I will present taxonomic explanations of forward guidance (section 2). Afterwards, the I will bundle objectives and effects of forward guidance, with the primary interest being the ECB's forward guidance (section 2). Finally, I will present an overview of the framework of forward guidance as a conclusion (section 3).

2. Forward Guidance Framework

Expectations and their dimensions

Forward guidance is pure communication and can therefore only work through the expectations of market participants. And because expectations are gaining in importance in an era of low interest rates, the significance of forward guidance is increasing. For expectations are the nucleus of forward guidance. They are relevant for economies and monetary policy in many ways. They are influenced by monetary policy, interact with it and thus exert an influence on monetary policy. The importance of expectations for monetary policy is exemplified by the Phillips curve. The New Keynesian Phillips curve can be derived under assumptions such as markup pricing and the pricing behaviour of companies, which corresponds, for example, to the model according to Calvo (1983) (Knapp 2016, p. 42):

$$\pi t = \beta E \pi t{+}1 + \kappa y t + u t \ ^{[1]}$$

All Phillips curves have in common that they show a correlation between the variables that can be indirectly controlled by the central bank with its policy instruments. For example, aggregating demand through interest rate decisions, which affects its ultimate objective of price level stability. The expectations operator, or inflation expectations, underscores the relevance of inflation expectations for central bankers. Due to this first common feature, Phillips curves are also used as a constraint for the optimal design of (New Keynesian) monetary policy.

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[1] The realized inflation rate (πt) is determined by the expected inflation rate (Eπt+1), the output gap (yt) and a random inflation shock (ut).

Moreover, the (derivation of the) New Keynesian Phillips curve illustrates that inflation expectations affect corporations' price-setting behaviour if the Calvo fee prevents them from adjusting their prices in the future.

For the Eurozone, fluctuations in the inflation rate can be adequately represented by a simple Phillips curve consisting of inflation expectations, the output gap and an inflation shock (Ball & Mazumder 2020).

There is no universally valid explanation for the inflation process. In this context, a remark by Robert Solow can be cited that also underlines the influence of expectations in the inflation process (cited by Herger 2016, p. 193): "Why is our money ever less valuable? Perhaps it is simply that we have inflation because we expect inflation, and we except inflation because we've had it." If economic agents expect sharp price increases, they will make planned purchases early while prices are still low. Due to increased demand, prices rise (Bundesbank 2019). Under this notion, the inflation dynamic is an autopoiesis.

According to the ECB (2011), the expectations channel, the transmission of which consists in influencing longer-term expectations, especially in the private sector, has become "particularly important for the conduct of monetary policy in recent decades [...]" (p. 66). The effectiveness of influencing expectations depends essentially on the credibility of central bank communication (ECB 2011). This credibility determines the extent to which the ECB can steer inflation expectations, which are reflected, among other things, in wage and price-setting and have a decisive influence on the inflation rate (ECB 2011). It can also influence expectations about longer-term interest rates, which depend on market expectations about longer-term inflation and growth prospects that are usually not affected by changes in key interest rates (ECB 2011).

For monetary policy, this means, among other things, that it is essential "how well it succeeds in influencing future inflation expectations in the desired sense and in reacting appropriately to changes in inflation expectations" (Deutsche Bundesbank 2015, p. 52, translation mine). According to the Deutsche Bundesbank (2015), a distinction can be made between short-term and long-term inflation expectations. Although short-term inflation expectations cannot be kept constant, e.g. due to unexpected events and economic cycles, these short-term deviations should even out in the long term (Deutsche Bundesbank 2015, p. 53).

The Deutsche Bundesbank (2019) conducted a pilot study on the formation of expectations by private households to close data gaps. The Deutsche Bundesbank also notes that central

banks usually prefer inflation expectations to be close to the inflation objective so that the transmission mechanism via the interest rate functions without interference. Increased uncertainty in inflation expectations occurs among people who do not "primarily inform themselves about monetary policy via traditional media such as newspapers, television or radio news" (Deutsche Bundesbank 2019 p. 63).

In line with theory, the study (Deutsche Bundesbank 2019) shows that people with higher inflation expectations tend to save less and reduce their planned savings rate when interest rate expectations fall.

In view of the Fisher identity, reaching the effective interest rate floor brings (inflation) expectations into the focus of central bankers and researchers, because "only through them can real interest rates be influenced" (Deutsche Bundesbank, p. 64). Among other things, the focus is on an idea expressed by Krugman (1998) in the face of the liquidity trap in Japan:

> "Whatever the specifics of the situation, a liquidity trap is always the product of a credibility problem: the public believes that current monetary expansion will not be sustained. Structural factors can explain why an economy needs expected inflation; they can never imply that credibly sustained monetary expansion is ineffective." (p.166)

This hypothesis partly touches upon the discussion of higher target inflation rates in order to lower real interest rates through increased inflation expectations. This should stimulate demand as well as economic activity and drive up the inflation rate.

The core idea of Krugman's (1998) hypothesis is part of the concept of forward guidance. Similarly, Eggertson and Woodford (2003) argue that a central bank constrained by an interest rate floor can be successful through "skillful management of expectations regarding the future conduct of policy" (p. 67). The decisive factor here is that the public is not deceived, but that the management of expectations is based on credible promises on the part of the central bank (Eggertson & Woodford 2003). However, neither Krugman (1998) nor Eggertson and Woodford (2003) make it directly clear whether expectations management is aimed at the inflation rate or interest rate expectations. While Krugman had inflation expectations in mind and Eggertson and Woodford had interest rate expectations in mind, we do not need to make such a differentiation. It can be illustrated that inflation expectations and future interest rates cannot be considered separately, since inflation expectations are a function of the expected interest rate:

$$E(\pi t+1) = f(E(it+1))^2$$

If, as a result of a credible announcement by the central bank, economic agents expect a lower interest rate than originally assumed, they increase raise their inflation expectations due to the lower interest rates. This stimulates output and thus produces higher inflation. The recommendations to operate either via inflation expectations (Krugman 1998) or interest rate expectations (Reifschneider & Williams 2000) have in common that they both rely on a credible promise of future expansionary monetary policy (Jung, Teranishi & Watanabe 2005, p. 814).

Interest rate expectations

The Central banks can only control the short-term nominal or real interest rate by using its instruments. According to As the concept of superneutrality holds, the real interest rate is unaffected by nominal interest rates in the long run. However, for economically more significant decisions, such as planned investments, the long-term interest rate plays a greater role (Görgens et al. 2013). According to the expectations theory of the interest rate structure, this is composed of the geometric mean of expected future interest rates, subtracted by one (Görgens et al. 2013, p. 146). For risk-averse actors, there would be an additional risk premium (Görgens et al. 2013). With higher inflation expectations, the risk premium or inflation premium usually increases, as investors demand compensation for the loss of purchasing power. However, a steepening yield curve cannot be clearly attributed to increased inflation expectations or an expected restrictive central bank policy stance (Görgens et al. 2013). To date, there is no clear "monetary policy-interest rate structure-inflation relationship" (Görgens et al. 2013, p. 147). A central bank faced with the presence of the effective interest rate floor could try to influence the long-term interest rate by guiding market participants' expectations about future short-term interest rates. This also manifests the core idea of forward guidance.

Taxonomy

The taxonomic basis forms the definitional foundation to provide a clearer idea of the communication tool. The ECB (2014a) defines forward guidance in its Monthly Bulletin (April) as "conditional statements about the future path of policy rates" (p. 73). In contrast, the ECB (2017a) lists a different definition of forward guidance on its website and defines it

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[2] The expected inflation rate (E(πt+1)) is determined, among other things, by what interest rate is expected (f(E(it+1))) and vice versa.

in a broader interpretation as "the communication of future monetary policy intentions taking into account the inflation rate". With the more recent definition by the ECB, the interpretation of forward guidance is extended to different instruments. By the same definition, however, it limits the scope of application to the future key interest rate path and to the asset purchase programs (quantitative easing) (ECB 2017a). Praet (2013) calls forward guidance a "communication instrument by which central banks convey their monetary policy orientation going forward, conditional on their assessment of the economic outlook". Woodford (2013), on the other hand, links forward guidance to the future path of key interest rates. Hagedorn, Luo, Manskii and Mitman (2018) define forward guidance as a promise about the future level of interest rates. Campbell, Evans, Fisher and Justiniano (2012) understand forward guidance as public statements about central banks' intentions. The Gabler Banklexikon (n.d.) links forward guidance to the general future monetary policy stance. However, the question arises as to whether indications of the monetary policy stance of a central bank conducting interest rate policy are not to be equated with indications of the interest rate level.

Consequently, disparities exist regarding the definition and instruments of the central bank that can be the subject of forward guidance. However, the consensus in the literature is that forward guidance concerns the policy rate.

Using a broad interpretation of forward guidance, the ECB's officially stated start date of 4 July 2013 becomes inapplicable, since announcements of government bond purchases such as OMT could be considered forward guidance. The following formulation can be used as aggregate definitions:

- Sharp forward guidance: *communicative (explicit) indications on the future level of key interest rates*
- Fuzzy forward guidance: *communicative (explicit) indications on the future monetary policy stance and future measures*

According to the ECB (2014a, p. 76f.), forward guidance can be differentiated into four basic types:

1. Purely qualitative forward guidance: No time data, numbers or numerical conditions are integrated into forward guidance. Even non-numerical conditions are not quoted. Purely qualitative statements also include those that merely refer to the entirety of the monetary policy stance without explicitly citing a policy instrument.

2. Conditional qualitative forward guidance: Qualitative statements are made about the likely future path of the key interest rate, which are conditioned by macroeconomic variables. No figures, concrete time periods or numerical conditions are mentioned here, either.

3. Calendar-based forward guidance: An explicit duration or explicit end date or minimum date of the expected policy rate path is stated, including a non-numerical condition.

4. Outcome-based forward guidance: An explicit threshold of one or more macroeconomic variables associated with the policy rate path is stated.

Since purely qualitative forward guidance does not include a monetary policy instrument by definition, this classification is not applicable, as no distinction can be made here between sharp and fuzzy forward guidance. Going forward, I will not always explicitly distinguish between the narrow and broad interpretations, with the indication that interest rate-related forward guidance is also always part of more general forward guidance and that interest rate-related forward guidance reflects the consensus of the literature.

The measure of accuracy, or the measure of self-commitment, can also be used to assess whether it is Delphic or Odyssean Forward Guidance. This distinction was introduced by Campbell et al. (2012, p. 2):

1. Delphic: Expected reactions of the central bank are announced, which are probable due to existing forecasts and based on the central bank's objectives. In contrast to the Oracle of Delphi, central banks do not express themselves ambiguously in this process, but ideally in such a way that they mitigate uncertainties of market participants without imposing a self-commitment.

2. Odyssean[3]: A self-commitment is exercised; an absolute commitment is given. The monetary policymaker rigidly commits itself in advance to future actions. This evokes Odysseus, who had his ship's crew tie themselves to the ship's mast so as not to succumb to the sound of the sirens. This metaphor illustrates the

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[3] Odysseus, king of Ithaca in the Trojan War, was the mastermind behind the Trojan Horse ruse (Calomiris in Campbell et al. 2012). In this context, forward guidance could also function as a Trojan communication that fully convinces market participants of central bank views so that they abandon their own views (Calomiris in Campbell et al. 2012). This would run counter to Eggertson and Woodford's (2003) understanding of non-argumentative expectations management.

central bank's challenge not to deviate from the pre-communicated course when the usual reaction function for monetary policy objectives would dictate it. If it were to deviate, its reputation and credibility would be damaged.

The Odyssean forward guidance goes back to the work of Krugman (1998) and Eggertson & Woodford (2003). Their postulate was to keep interest rates lower for longer than the actual reaction function would suggest to pursue accommodation by lowering long-term interest rates (Moessner, Jansen & Haan 2017). Here, the problem of temporal inconsistency emerges, as the costs of higher inflation do not materialise until later. The central bank would have an incentive to break its word (Moessner et al. 2017). The central bank announces that it will generate a future inflationary high to boost the economy at the present moment. But once the benefits have worn off and the announcement also calls for implementation, the central bank will have an incentive "to take away the punch bowl before the promised party actually gets down" (Faust 2015, p. 8). Moessner et al. (2017) again divide Delphic forward guidance into the kind which is part of a central bank's inflation targeting strategy in the form of a regular policy rate forecast and the kind which is applied at the effective interest rate floor and can be separated into qualitative, calendar-based or conditional or outcome-based forward guidance. Moessner et al. (2017) refer to the latter as Aesopic forward guidance.

International adaptations

During the financial crisis and its economic consequences, central banks worldwide came to the effective lower limit of interest rates. They switched to using forward guidance to generate opportunities for action. The ECB is one of many central banks that have used and continue to use the communication tool of forward guidance (Contessi & Li 2013a). Central banks that have incorporated forward guidance into their strategy include, for example, the Reserve Bank of New Zealand, the Norges Bank, the Riksbank, the Bank of England, the Bank of Canada and the Bank of Japan (Contessi & Li 2013a). The Reserve Bank of New Zealand (since 1997), the Norges Bank (since 2005) and the Sveriges Bank (since 2007) published future policy rate forecasts as part of their inflation targeting strategy, i.e. applied non-Aesopian forward guidance (Moessner et al. 2017, p. 680).

The first non-Aesopian forward guidance was used by the Bank of Japan. The Bank of Japan postulated that it would maintain the zero-interest rate policy "until deflationary concerns are dispelled" (Bank of Japan 2000 after Contessi & Li 2013a). Contessi and Li (2013a) provide an overview, showing that central banks around the world applied different

types of forward guidance. For example, the Bank of Canada announced in April 2009 that interest rates were expected to remain flat until the second quarter of 2010 and linked this to its inflation target (Bank of Canada 2009 after Contessi & Li 2013a). Meanwhile, the Bank of England practised results-based forward guidance. It stated that it would maintain its monetary policy stance until an unemployment rate of 7 percent was reached (Bank of England after Contessi & Li 2013a). The Fed turned to the communication tool of forward guidance even before the financial crisis. It conducted purely qualitative forward guidance, for example by announcing that monetary policy accommodation would continue for a considerable period (FOMC after Contessi & Li 2013b). In a comparison between pre-crisis forward guidance and post-crisis forward guidance, Contessi and Li (2013b) show that post-crisis forward guidance was more specific in nature. For example, the Fed stated that it would keep the policy rate low if the unemployment rate remained above 6.5 per cent, the projected inflation rate did not exceed 2.5 per cent and inflation expectations remained firmly anchored (Moessner et al. 2017). Furthermore, the FOMC (2014) stated in a press release:

> "The Committee currently anticipates that, even after employment and inflation are near mandate-consistent levels, economic conditions may, for some time, warrant keeping the target federal funds rate below the Committee views as normal in the longer run."

According to Knapp (2016), this can be interpreted "as an intention to influence the expectations of economic actors" (p. 80). This forward guidance could be seen as a lower-for-longer approach. However, both Bernanke and Yellen negated that a deliberate overshooting of the inflation rate, as in the Odyssean approach, was intended (Moessner et al. 2017, p. 690). According to Moessner et al. (2017), views on whether forward guidance is of an Odyssean or Delphic nature differ widely in some cases.

3. Objectives and Effects

The ECB's Forward Guidance

A suitable tool to conduct a longer-term comparison of the effects and goals of the ECB's forward guidance is an analysis of its Annual Reports, in which the ECB takes stock and which presumably includes the most significant events and developments.

In its 2013 Annual Report, the ECB mentions forward guidance for the first time (ECB 2013). The reasons for implementation, also given in the Monthly Bulletin (2014a), can be summarised as supporting monetary accommodation by more closely tying in market expectations, which at the time of introduction counteracted the monetary policy stance (ECB 2013). Interest rates were also too volatile, which according to the ECB (2014a, p. 78) was due to "financial market conditions and the associated uncertainty". According to the ECB (2013), the design of the forward guidance contained three elements. Firstly, the forward guidance was based on the outlook for the inflation rate. Secondly, it was oriented towards economic and monetary variables. And thirdly, it was formulated with a qualitative concept of time. Following the forward guidance, there was a decrease in uncertainty about expected money market interest rates, which, however, reached a new temporary high in September (ECB 2013). A sustainable flattening of money market interest rate expectations was not achieved until the decisions in November (ECB 2013). In its annual report, it states that the forward guidance was able to cushion the risk of contagion from the USA regarding interest rate expectations and contributed to reducing the fragmentation of the financial markets (ECB 2013, p. 49).

In its 2014 Annual Report, the ECB states that it had stepped up its communication efforts because "the economy's response to monetary policy stimulus depends crucially on expectations" (p. 8). Among other things, it used the forward guidance from 2013 to communicate its reaction function while assessing the economic environment (ECB 2014b). Partly due to the forward guidance, government bond yields fell sharply (ECB 2014b). Furthermore, according to the ECB (2014b), forward guidance helped to ensure price stability.

According to the ECB (2015), inflation expectations were at an all-time low in 2015. Forward guidance therefore had the task of reducing the risk of de-anchoring inflation expectations while supporting aggregate demand (ECB 2015). In combination with other expansionary measures, forward guidance had a positive effect on the economy (ECB 2015, p. 45). In combination with quantitative easing, forward guidance also reduced maturity risk in the private sector (ECB 2015, p. 48).

With inflation expectations remaining low in the short and medium term, the ECB (2016) reaffirmed its forward guidance and linked it to the period of asset purchases (QE). In combination with other measures, this was intended to improve credit conditions, support the economic recovery and drive up the inflation rate (ECB 2016).

In the 2017 Annual Report, the ECB explains that it removed the possibility of a further rate cut from its forward guidance due to improved economic circumstances. In its report, it also mentions for the first time that forward guidance refers to both policy rates "and the dynamics of asset purchases". According to the ECB, this underlines that each instrument is "part of a set of interlocking measures to preserve the very expansionary financing conditions needed to drive inflation" (p. 46). Moreover, the ECB (2017b) notes that forward guidance has provided favourable financing conditions and economic stimulus. In its Annual Report, the ECB presents the results of its first conference on central bank communication and describes communication as a premise for the success of its monetary policy (p. 114). In this context, it concludes that "communication as an explicit monetary policy tool – e.g. in the form of forward guidance" (p.115) has proven effective and successful and will therefore continue to be part of its toolkit (ECB 2017b, p.115).

In the 2018 Annual Report, forward guidance is cited as a policy tool for monetary stimulus. Moreover, the ECB (2018) calls its linking of reinvestment of the asset purchase proceeds with interest rate-related forward guidance "the primary tool to adjust the monetary stance going forward" (p.30). According to the ECB (2018), this was also suitable for bringing the inflation rate closer to its target.

In the 2019 report, the ECB mentions that forward guidance served to anchor short- and medium-term interest rate expectations and that it reintegrated the possibility of a further rate cut, as long-term market-based inflation expectations stagnated at historically low levels (ECB 2019). Furthermore, weak inflationary pressures had necessitated monetary policy accommodation, which was implemented, among other things, through forward guidance (ECB 2019). In addition, persistent uncertainties and their consequences for inflation were the reason why calendar-based forward guidance was applied (ECB 2019).

Effects

The basic objective, at least in the theoretical origins of forward guidance, is based on the idea of keeping interest rates lower for longer in the presence of the effective interest rate floor to influence longer-term interest rates via expectations (Moessner et al. 2017) and "potentially supports aggregate demand by raising inflation expectations, thereby lowering real long-term rates relative to a Taylor Rule type baseline" (Yellen 2018). It should be noted here that the goal of keeping future interest rates low for longer must necessarily go hand in hand with higher inflation expectations, as these are two sides of the same coin. If

this relationship holds, then long-term interest rate expectations should not fall and inflation expectations should remain unaffected. Rajan (2013, p. 8), describes exactly this attempt by a central bank, stating that it wants to lower long-term interest rate expectations while at the same time not manipulate inflation expectations.

In contrast, forward guidance in Krugman's sense is also understood as an "announcement of inflationary monetary policy" (Knapp 2016, p. 13). Inflation expectations are thus seen directly as a policy instrument. Coibion, Gorodninchenko, Kumar du Pedemonte (2018) attest that inflation expectations would certainly be a potent policy instrument.

Regarding the general effect of forward guidance, there is a phenomenon in the literature called the forward guidance puzzle. This results from the fact that dynamic equilibrium models "appear to deliver unreasonably large responses of key macroeconomic variables to central bank announcements about future interest rates" (Del Negro, Giannoni & Patterson 2012, p. 3). Thus, the reaction to an interest rate cut is greater the further in the future it is announced (Bersson & Hürtgen, Paustian 2020). This paradoxical result arises from the fact that the announcement already lowers the real interest rate directly, because of increased inflation expectations, and accumulates until the time of the actual interest rate cut (Bersson et al. 2020). This result occurs under the assumption of rational expectations, whereas empirical studies have shown that households adjust their expectations gradually (Bersson et al. 2020, p. 2). According to Bersson et al. (2020), a more realistic model thus reduces the effects of forward guidance on macroeconomic variables such as the output gap and the inflation rate. Del Negro et al. (2012) demonstrate how the effects of forward guidance on output and inflation vary when future events are discounted more, "based on the fact that life is finite" (p. 52). With higher values for the mortality probability p, output and inflation react less strongly to the announcement of a later interest rate cut (Del Negro et al. 2012). In addition, there are various other approaches to solve the forward guidance puzzle, for example by considering the conditionality of forward guidance, restrictions imposed by interest rate floors or the assumption of imperfect markets (Moessner et al. 2017, p. 685).

Hagedorn, Luo, Manovskii and Mitman (2018) construct an empirical-quantitative model and show that the forward guidance puzzle disappears and the effects of forward guidance on output and employment are small. Moreover, in their model with incomplete markets, the effects on the real interest rate from forward guidance are small. According to Hagedorn et al. (2018), the impact channel of intertemporal substitution thus remains closed, which

is why they judge that "forward guidance does not appear to be an effective monetary policy tool, even in a liquidity trap" (S. 34).

Ehrmann, Gaballo, Hoffmann and Strasser (2019) conclude that calendar-based forward guidance reduces the reactivity of asset prices to news and reduces disparities between forecasters about future interest rates. In principle, according to Ehrmann et al. (2019), this is also the case with outcome-based forward guidance, albeit in a milder form, as outcome-based forward guidance still depends on macroeconomic variables. According to Ehrmann et al. (2019), qualitative forward guidance is inefficient at best and could even induce further uncertainty. A similar conclusion is reached by Wollmershäuser (2013), who examines the FOMC's forward guidance and sees qualitative forward guidance as ineffective. In contrast, he sees calendar-based forward guidance as useful in the sense that forward guidance could lower interest rate expectations.

Subramanian (2014) takes a negative view of the adaptation of forward guidance, as the Fed, for example, started to link forward guidance to real sector variables that were outside its control. Moreover, Subramanian (2014) doubts the forecasting ability of central banks and the effectiveness of the forward guidance based on it. The uncertainty surrounding the conditionality of forward guidance is also a risk to the reputation and credibility of the central bank (Subramanian 2014). He therefore concludes that forward guidance "is in retreat and it deserves to be buried" (Subramanian, p. 24).

Evidence on the effects of forward guidance, apart from financial market reactions, is scarce (Coibion, Georgarakos, Gorodnichenko & Weber 2020). Coibion et al. (2020) conducted a study on the effects of forward guidance on household expectations with more than 25.000 participants in the US. They found that household expectations respond to forward guidance if the time periods refer to the current year and the following year. For longer periods, forward guidance has no effect on the formation of expectations (Coibion et al. 2020). Similarly, Coibion et al. (2020) find that expectations about real interest rates are more strongly influenced when households are presented with current and future inflation rates than when they receive information about nominal interest rates. Moreover, Coibion et al. (2020) conclude that study participants revise their interest rate and inflation expectations in the same direction, dampening the effect of news on the real interest rate.

Campbell et al. (2019) find that the effectiveness of the Fed's forward guidance increased substantially when it was close to the effective interest rate floor. Campbell et al. (2019)

see as possible causes, for example, the increased attention paid to the Fed during the financial crisis and the associated extreme economic situations, and that it may "be easier to communicate when policy is constrained by the ELB" (p. 34).

The influence of forward guidance on expectations is determined by the perception of economic agents. They could form a more pessimistic expectations, since they assume that economic times will be get worse. This interpretation would be counterproductive for the central bank (Femia, Friedman & Sack 2013). On the other hand, forward guidance could be interpreted as a positive signal if economic agents see a permanently accommodative monetary policy stance as a sign of the central bank's efforts to stimulate the economy.

However, as Femia et al. (2013) show for the Fed's calendar-based forward guidance of August 2012, the presence of forward guidance can also be interpreted as a means to inform the reaction function of market participants. According to Faust (2015), Delphic forward guidance consists of informing the private sector that economic conditions will be worse than initially assumed. Odyssean forward guidance is perceived as a positive signal, in the sense that the central bank will celebrate a monetary policy "party", according to Faust (2015). In both cases, expected interest rates fall, albeit due to different drivers (Faust 2015).

Nevertheless, Andrade, Gaballo, Mengus and Mojon (2018) state that forward guidance that is interpreted negatively is called Delphic and forward guidance that is interpreted positively is called Odyssean forward guidance. Rather than using the concept of forward guidance for classification, they use its interpretation. Thus, a stronger effect of forward guidance could be generated by a smaller share of market participants forming pessimistic expectations (Andrade, Gaballo, Mengus & Mojon 2018). Moreover, Andrade et al. (2018) find that calendar-based forward guidance has generated a historical peak of uniformity in interest rate forecasts by professional forecasters over one- and two-year interest rate developments. An essential finding is also that forecasters' inflation and interest rate expectations were aligned prior to the introduction of calendar-based forward guidance (2009Q1 - 2011Q2), regardless of whether they were optimistic about the state of the economy or not (Andrade et al. 2018). For the more optimistic forecasters, inflation expectations were found to be negatively correlated with interest rate expectations after the introduction (Andrade et al. 2018).

"Forward guidance is unnecessary if it's purely a commitment tool," states Bassetto (2019, p. 24). However, Bassetto (2019) argues that this is true if the private sector and the central bank have the same information, so that actions speak louder than words.

In Japan, the country that brought the liquidity trap back onto the monetary policy stage, forward guidance was able to stabilise market expectations about future short-term interest rates, lower longer-term interest rates and help stabilise the financial system (Okina & Shiratsuka 2004). However, forward guidance could not dispel the deflationary expectations that prevailed in financial markets, which were signalled by low long-term interest rates, according to Okina and Shiratsuka (2004).

Moessner (2013) shows that the FOCM's forward guidance lowered real interest rates on US government bonds while leaving the break-even inflation rate unaffected, from which he concludes that inflation expectations remained firmly anchored. Bilbiie (2019) formulates a rule that represents the optimal forward guidance in a New Keynesian DSGE model. According to this rule, it must be announced that the forward guidance will continue to apply for a certain period after the interest rate floor no longer binds. The central bank expresses the obligation to follow a rule whose concrete time frame can only be identified ex-post (Bilbiie 2019, p. 312):

$$0.5 \ (LFD \times Disruption)$$

The duration of the liquidity trap (LFD) can be determined after termination. The disruption is the difference between the policy rate at the effective interest rate floor and the natural rate during the liquidity trap (Bilbiie 2019). Example parameters for the LFD = 2 years and the disruption (policy rate = 0 and natural rate = -2) would imply an optimal forward guidance of 2 years.

Campbell et al. (2012) find that the FOMC was able to influence longer-term interest rate expectations, which are normally beyond its control. In contrast, Kool and Thornton (2012) conclude that there is little evidence that forward guidance has improved the ability of market participants to predict future short-term interest rates. They find no evidence for an improvement in forecasting abilities regarding long-term interest rates (Kool & Thornton 2012).

Neugebauer, Fendel and Niederhagen (2017) examine the Fed's forward guidance from 2004 - 2016, finding that forward guidance lowers current yields and that forward guidance is likely to influence market expectations about future interest rates (Neugebauer et al. 2017). Moreover, they find that only calendar-based forward guidance has a noticeable

impact on various interest rates. This is counterintuitive, as outcome-based forward guidance is theoretically the least flexible (Neugebauer et al. 2017).

4. Conclusions

There is a lack of clarity in the monetary policy profession about what forward guidance essentially is. What is clear, however, is that forward guidance necessarily refers to the key interest rate path.

The fundamental problem with the theoretical origin of forward guidance is temporal inconsistency. Forward guidance in the form of a commitment is untrustworthy lacks credibility for market participants, since the current benefits are offset by the future costs of increased inflation. If market participants anticipate this, the central bank cannot influence expectations in its favour.

I cannot make a generally applicable judgement on the exact effects of forward guidance. As the taxonomic elaboration shows, there are various classifications of forward guidance. Finally, the standing of central banks among their addressees plays a role, as does the exact wording of the chosen formulation of forward guidance.

What emerges, however, is that the effects of forward guidance are significantly smaller than macroeconomic equilibrium models would imply. There are various approaches to solving the forward guidance puzzle, such as models with limited information capacities of the recipients.

Empirical evidence shows partly contradictory results on the effects of forward guidance. Some conclude that forward guidance has a negligible effect on real interest rates and is therefore ineffective. In contrast, other studies have found that real interest rates have moved downwards because of forward guidance, as intended by central banks.

Empirical evidence also shows that forward guidance becomes more effective the more binding it is. This can be seen both in the analysis of current forward guidance and in theoretical modelling. In practice, central banks do not commit to an unrevisable policy rate path. This fact also makes it impossible to make generally valid statements on the practised forward guidance. Therefore, we must consider a combination of many results on market reactions as circumstantial evidence in our assessment. This shows that there is more evidence for the effectiveness of forward guidance than for contrary assumptions.

Moreover, Odyssean forward guidance also masks the costs of potentially de-anchored inflation expectations. Once the central bank deviates from its inflation lens, its general commitment to pursuing an inflation targeting strategy could be questioned.

Even if a central bank had the necessary credibility necessary to temporarily neglect its inflation target, legal issues would arise. A central bank that is legally obliged to maintain price stability is likely to be reprimanded by the courts and the public for non-compliance.

One central bank that is legally required to focus on price level stability is the ECB. For it, the problems alluded to in the preceding paragraph would possibly arise. This is another reason why a detailed analysis of the ECB is of great interest. The paper "forward guidance at ECB press conferences" compares the framework and theoretical knowledge with the ECB's forward guidance and discusses divergences.

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II. The European Central Bank - To what extent is it guiding us into the future?

A Standardized Content Analysis

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Abstract

For a long time, the ECB remained silent on the future level of the key interest rate. This changed when it included forward guidance in its toolkit. This relatively new policy tool has so far been fraught with question marks. For this paper, I have analysed the ECB press conferences in the period from July 2013 regarding forward guidance. I examined the nature of forward guidance, how it has changed over the time horizon and what conclusions can be drawn from it. I conducted a standardised content analysis for this purpose, which shows that the ECB has made consistent use of forward guidance since its adaptation. It practised qualitative, calendar-based and also results-based forward guidance, always without making any commitment. The ECB never announced an unconditional lower-for-longer. Anyone who takes the view that forward guidance must be understood as an announcement of inflationary monetary policy will consequently come to the conclusion that the ECB does not practice forward guidance.

However, no clear conclusions about the intentions of the ECB's forward guidance can be drawn based on the mentioned indicators, which are theoretically related to forward guidance. The ECB does not mention the indicators "real interest rates" or "interest rate expectations" even once. Inflation expectations also often remain unmentioned.

The consequence for journalists is that their reporting should be solely based on press materials because the ECB's intentions are not overtly communicated in the press conferences, as shown by the lack of indicators.

1. Introduction

The financial and euro crisis and its consequences prompted the European Central Bank to take unconventional measures, which were the subject of lively debate. For example, the ECB broke with its maxim of not wanting to commit to the future key interest rate. In July 2013, then-President of the Central Bank Mario Draghi addressed the market participants, or rather the journalists present, for the first time with the instrument of forward guidance.

In addition, a growing interest in the ECB on the part of the public was reflected in constant discussions about the legitimacy and consequences of monetary policy expansion. These recently culminated in a decision by the Federal Constitutional Court. In it, the constitutional judges described the decisions of the European Court of Justice on government bond purchases by the ECB as an ultra vires act (Bundesverfassungsgericht 2020). Also, and precisely because of such decisions, central bank communication is considered an important instrument to justify monetary policy accommodation and to significantly influence the formation of expectations.

In view of the importance of monetary policy for economic policy, it is necessary, from the perspective of economic journalism, to perceive the ECB as an object of reporting and to inform the public about it. Journalists tend to pay particular attention to central bank communication, as the ECB specifically uses it to communicate with the public and directly addresses media representatives at press conferences. Journalists thus represent an important gateway in the transmission mechanism of central bank communication.

In this paper, I examine the ECB's press conferences with the aim of generating specific results concerning announcements of forward-looking central bank communication. In the first paper of the volume, "Forward Guidance: a Framework", I outlined the significance of expectations and presented a framework for forward guidance. This paper is based on this framework.

First, I will explain the ECB's communication strategy (section 1). In a next step, I will evaluate the literature on central bank communication to assess whether it is a policy instrument in its own right (section 2). I will then present the methodology of the standardised content analysis I used to examine the press conferences (section 3). Furthermore, I will present the results on forward guidance in the press conferences and interpret them (section 4). Finally, the results are used to assess how the ECB's forward guidance has changed over time and whether the central bank mentions indicators that are theoretically related to forward guidance (section 5).

2. Central Bank Communication

The ECB's communication strategy

In a democratic society, preserving central bank independence requires the exercise of accountability (ECB 2011). Most central banks today, including the ECB, believe that transparency is an important component of their operational framework (2011, p. 95). By increasing transparency, it aims to make its monetary policy more understandable, credible and effective (2011, p. 95). The ECB identifies several channels through which greater transparency can promote the effectiveness of its monetary policy (2011, p. 95):

1. Credibility: Credibility is enhanced when the ECB communicates its understanding of its mandate and the strategy for upholding it. The public can then decide whether they trust the ECB's communication. If the public does, inflation expectations are anchored.

2. Self-discipline: Increased transparency strengthens the incentive for self-discipline, as a critical public can scrutinise monetary policy measures, making the ECB more consistent in its decisions.

3. Orientation: By a transparent justification of decisions, the formation of expectations by market participants is more closely tied to monetary policy intentions. Expectations thus become more accurate and thus more efficient. If the markets understand the ECB's reaction function better, they can better calculate ECB decisions in the medium term. This enables an effective transmission mechanism through more accurate forecasts of future short-term interest rates and reduced uncertainty premia, thereby positively influencing consumption and investment decisions (p. 96).

The ECB (2011) states that effective communication requires addressing different audiences through different communication channels. Therefore, it has gone beyond the formal requirements of the Treaty on the Functioning of the European Union to maintain accountability and transparency.

Furthermore, the ECB (2011) calls communication "an essential tool for managing private sector expectations" (p. 99) and for enhancing monetary policy effectiveness. This is particularly important in times of heightened uncertainty. The ECB (2011, p. 99) concomitantly states that transparent communication was instrumental in anchoring inflation expectations, even during the financial crisis, citing its press conferences and Monthly Bulletins as two of its most important communication channels.

3. Central Bank Communication as an Instrument of Monetary Policy

"Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough." (Draghi 2012)

This whatever-it-takes moment, expressed during a speech at the Global Investment Conference, is characteristic of central bank communication, as many became aware of the importance of expectations management. ECB President Draghi's promise to do everything possible to save the euro decisively quelled speculation about the breakup of the eurozone. Woodford (2005) puts the importance of expectations management on par with management of the short-term interest rate, "[b]ecause the key decisionmakers in an economy are forward-looking" (p.2). According to Woodford (2005), increased transparency can reduce uncertainty and the central bank's objectives can be better achieved if expectations are in sync with them (p. 56).

Haan et al. (2007) describe that a central bank's ability to influence the economy is not only based on the current interest rate, but crucially on how much it can influence expectations about the future path of the interest rate. Haan et al. (2007) state that due to the increasing importance of expectations management, "communication has developed into a key instrument in the central bankers' toolbox in the recent years" (p. 2).

Gürkaynak et al. (2006) investigate whether numerical inflation targeting favours the anchoring of inflation expectations. They find no noticeable difference in the accuracy of short-term inflation expectations between (developed) countries with and without inflation targeting strategies. Furthermore, they investigated how sensitive long-term inflation premia were to economic news in the US, the UK and Sweden. The US represents the country without an inflation targeting regime. In the US, long-term inflation premia were sensitive to economic news and the same was true in the UK before the central bank became independent in 1997. Afterwards, inflation premia were not sensitive to economic news. The same is true in the case of Sweden for the entire investigation period, supporting the finding that credible, clear lenses help anchor long-term inflation expectations. Beechey et al. (2011) explain how communication strategies contribute to the anchoring of inflation expectations and ensure that actual inflation is less volatile as a result.

Transparency is closely linked to credibility, which "simply means matching deeds to words" (Lehtimäki & Palmu 2019, p. 6). This was the case for the ECB and the Fed despite increased uncertainty during the financial crisis. In their study, the communication variable was better able to explain the change in the main refinancing rate than Taylor variables

(Lehtimäki & Palmu 2019, p. 26). According to Lehtimäki and Palmu (2019, p. 6), various studies have ascertained the effectiveness of central bank communication on financial market expectations, stock prices and bond prices, at least in the short run. However, the exact effects of central bank communication vary depending on which communicator and which market is considered in the analysis (Lehtimäki & Palmu 2019).

Another period of high uncertainty was the euro crisis, along with the potentially self-fulfilling expectations regarding the solvency of peripheral sovereigns at that moment, which could be contained by Mario Draghi's whatever-it-takes speech (Saka, Fuertes & Kalotychou 2015). Altavilla, Giannone and Lenza (2014) examine the effects of the OMT announcement on the government bond yields of Germany, France, Spain and Italy. They conclude that the two-year bond yields of Spain and Italy fell by about 200 basis points, while the yields of Germany and France remained broadly the same (Altavilla et al. 2014. p. 15). The announcement alone was able to preserve financial market stability "without the ECB applying the instrument" (Fredebeul-Krein et al. 2014, p. 264). The announcement of the monetary policy instrument was the instrument itself.

Moreover, Draghi's words have become a byword among observers of monetary policy and a symbol of the irreversibility of the euro. The ex-ante real interest rate, which determines aggregate demand, is the most suitable indicator for assessing the effectiveness of monetary policy (Ambler & Rumler 2017). Ambler and Rumler (2017) examine how announcements by the ECB of unconventional measures (forward guidance, asset purchases and quantitative easing) affect ex-ante real interest rates. Thus, they conclude that the SMP and OMT announcements had a significant negative impact on real bond yields (Ambler & Rumler 2017) – on the one hand, through a reduction in nominal interest rates, on the other, through an increase in inflation expectations. In contrast, announcements of unconventional measures such as LFRG or the ABSPP, which were aimed at liquidity injections, have no clear effects on inflation expectations.

Krishnamurthy and Vissing-Jorgensen (2011) find evidence that the Fed's QE announcements led to significantly lower nominal interest rates. They identify several channels of action that explain this result. Accordingly, both QE programs (2008-09 and 2010-11) had an effect via the signal channel, which indicates that the interest rate will remain low for a longer period, and via the inflation channel, in which inflation expectations increased, as well as via various risk channels. In this context, it can be argued that announcements of

quantitative easing could be understood as implicit forward guidance through their signalling effect (announcement of inflationary policy). A central bank that pursues interest rate policy can raise interest rates or sell the bonds again despite a monetary base expansion, thus causing the monetary base to shrink again. For this reason, QE could not affect inflation expectations. However, if QE now symbolises implicit forward guidance, the central bank would convey to market participants that it is reaffirming its forward guidance with QE and will not counteract the effects of QE with a tighter interest rate. According to Kohn and Sack (2003, p.28), "statements and policy actions can serve as effective substitutes for one another, at least in the short run".

Haan et al. (2007) note that it is by no means clear that more information is always preferable, which means that optimal communication is not the same as maximal communication. Assuming rational expectations, agents should be able to understand and anticipate the systematicity in central bank decisions when given economic fundamentals. According to Faust and Svennson's (2001, p. 373) definition, transparency is determined by the extent to which market participants can infer the central bank's objectives and intentions from what they observe. Thus, transparency would not require any communication. Therefore, Haan et al. (2007, p. 3) name conditions under which central bank communication can nevertheless be important: non-rational expectations, asymmetric information and discretionary policy, whereby at least one condition must apply. For example, Haan et al. (2007) call the assumption that the public perfectly understands the ECB regardless of the modus operandi of communication unrealistic. Consequently, the central bank can influence the heuristics of the formation of expectations of economic subjects (Haan et al. 2007). Coibion et al. (2020) highlight two stylised facts that have emerged regarding central bank communication (p. 5):

1. Households and corporations are inattentive to policy and relatively uninformed about macroeconomic aggregates.
2. Regardless of this inattention, the expectations of economic agents can influence their decisions.

Furthermore, the communication channel is influenced by individual and systematic heuristics of households and likewise by communication intermediaries such as journalists who filter central bank communication (Dittrich & Wohlmann 2019, p. 210). The challenge and objective of a central bank is thus to break through the veil of inattention and ensure interference-free intermediation. This is because, according to Hartmann (2018), clear

communication helps support the anchoring of inflation expectations, reduce uncertainty and make the transmission mechanism more effective. The main channel for central bank communication by the ECB is the press conference after meetings of the Governing Council (Hartmann 2018).

Blinder et al. (2008, p. 3f.) trace the transformation from secretive to transparent, actively communicating central banks. The authors stated over a decade ago: "the view that monetary policy is, at least in part, about managing expectations is by now standard fare both in academia and in central banking circles. It is no exaggeration to call this a revolution in thinking" and that increased central bank communication is occurring worldwide. Furthermore, Blinder et al. (2008) acknowledge that communication is a powerful policy tool, with the functions of facilitating the achievement of macroeconomic target variables, improving predictability and influencing financial markets. Blinder et al. (2008) conclude that the empirics focus on communication consequences for financial markets. According to Binder et al. (2008), this should be changed and the focus should be on a broader public, as this is at least as important and as "[i]n the end, it is the general public that gives central banks their democratic legitimacy, and hence their independence" (p. 58).

4. Forward Guidance: A Pure Communication Tool

Since forward guidance is the explicit research object in the following empirical analysis of ECB communication, I will first provide a condensed framework. The detailed framework can be found in the paper "Forward Guidance: a framework".

There is some disagreement in the literature about what forward guidance entails. There is, however, a consensus that forward guidance represents explicit, communicative indications of future key interest rate paths.

In view of the Fisher identity, the achievement of the effective interest rate floor brings (inflation) expectations into the focus of central bankers and researchers, because "only through them can real interest rates be influenced" (Deutsche Bundesbank, p. 64). Among other things, the focus is on an idea expressed by Krugman (1998) in the face of the liquidity trap in Japan. The original genesis of forward guidance thus lies in a central bank's attempt to announce that it will keep its key interest rate at a low level for longer than is regularly acceptable. This would imply an overshooting of future inflation rates, which is

why economic agents form higher inflation expectations because of low interest rate expectations. The fall in the real interest rate is expected to then stimulate the economy. The recommendations to operate either via inflation expectations (Krugman 1998) or interest rate expectations (Reifschneider & Williams 2000) have in common that a credible promise of future expansionary monetary policy must be made (Jung, Teranishi & Watanabe 2005, p. 814).

In practice, the problem with forward guidance is an inherent credibility problem. This is because stimulating the economy is offset by the cost of higher inflation rates in the future, which, economic agents assume the central bank would not be willing to bear.

Studies on the effects of forward guidance are almost all limited to market reactions. A recent, comprehensive study on the reception of forward guidance by households comes from Coibion et al. (2020). They find that households view low interest rates as a signal of low inflation rates. Moreover, one-year forward guidance seems to reduce the variation of inflation expectations compared to a situation where households only receive information on the current interest rate level (Coibion et al. 2020). From this, Coibion et al. (2020) conclude that practical forward guidance should mention relatively short time periods and include macroeconomic variables about which households are well informed.

In the further course of the paper, central bank communication will be empirically examined. The press conferences are the most important communication channel, as interest rate decisions are announced and justified at this forum in a six-week cycle. Therefore, I will examine the press conferences and focus on the ECB's forward guidance, which was introduced comparatively late, with the following research questions: How has the intensity of use and the specification of forward guidance changed since its introduction? Are the indicators that can be linked to forward guidance mentioned?

5. Methodology

Standardized content analysis

The method I use in this paper is standardised content analysis for the press conferences of the ECB. This paper is based on the following definition, according to which content analysis is an "empirical method for the systematic, intersubjectively comprehensible descrip-

tion of content-related and formal characteristics of messages with the aim of an interpretative inference based on this to facts or social reality external to the message" (Rössler & Geise 2013, p. 269).

Quantitative content analyses aim at "frequencies and frequency distributions" (Waber 2009, p. 139). Qualitative content analyses aim at "meaning structures beyond frequencies" (Waber 2009, p.139). There is no scientific consensus to support a clear distinction between qualitative and quantitative approaches to analysis (Waber 2009). In principle, qualitative research is oriented towards small case numbers and proceeds in a hypothesis-generating or inductive manner (KU Eichstätt-Ingolstadt 2020). Quantitative research provides for the largest possible number of cases and usually proceeds in a hypothesis-testing or deductive manner (KU Eichstätt-Ingolstadt 2020). In addition, the object of knowledge tends to be less of a blank slate in qualitative research and all the more so in quantitative research (Voss 2018). These two research approaches are certainly separated by their characteristics, but in content analysis, they do not differ in their approach, at most in the motivation of the researcher and the disposition. To avoid an unnecessary sharp separation of these approaches, both are brought to the common denominator of standardisation. I ensured this, among other things, by creating a codebook and adhering to content-analytical quality criteria.

A content analysis only meets social science requirements if it is conducted in a systematic procedure, which is particularly evident in the fact that the content analysis "follows explicit rules" (Mayring 2010, p. 13). Therefore, I recorded the coding instructions in the codebook. For a practical implementation of standardised content analysis, certain framework conditions must be determined and geared towards the questions of interest, such as the variable of the selection unit (Rössler & Geise 2013). As a result, each press conference is a unit of selection. The unit of analysis denotes the "feature carrier of the content analysis" (Rössler & Geise 2013, p. 267) and thus defines which units of the press conference can be considered feature carriers. These include sentences that contain certain indicators or passages that can be coded.

Codebook

The central instrument of content analysis is the codebook, in which coding rules are defined, described and enriched with examples (Rössler & Geise 2013). Each codebook has a certain common structure, consisting of an introductory section and a main section

(Rössler & Geise 2013). Since the main part of the codebook essentially consists of categories, it is necessary to define them. Brosius et al. (2012) describe categories as "the exact definition of what is to be collected or measured" (p. 143). A finer division into subcategories can generate more precise and thus more valid results. Finally, the characteristic values must be defined, which involves scaling the categories or subcategories (Brosius et al. 2012). The characteristic values represent the states that the categories or subcategories can assume. I formed my categories partly deductively, for example by forming categories such as forward guidance, inflation expectations, interest rate expectations, but also consumption. In this way, I not only mapped the category (forward guidance) that represents my research focus, but also cast the indicators into categories that are theoretically related to forward guidance, such as inflation expectations or various monetary policy goals. To be able to examine the indicators more closely, I included the context in which they are mentioned as a characteristic. For example, inflation rates can be embedded in both a positive and a negative context, depending on whether the inflation rates correspond to the ECB's lens or not. The code to be selected for the respective unit of analysis thus depends on the association made with the mention of the indicators.

After converting the press conferences into a numerical relative, they were available as a series of numbers that narrowed down the object of investigation to our research interest (Brosius et al. 2012, p. 147). The notation of this process is recorded in a coding sheet, which is also part of the codebook (Brosius et al. 2012). The final codebook thus contains the required definitions, the concrete coding instructions, the descriptions, the examples and finally the coding sheet (Brosius et al. 2012). Since the coding instructions, descriptions and examples are all part of the category system, whose ultimate purpose is to answer the research questions, certain requirements are placed on the design of the categories.

Quality criteria of the categories

A central prerequisite for the validity of the empirical results is the completeness of the categories, meaning that the residual expression does not get used much (Brosius et al. 2012). The residual category should guarantee completeness by having an expression such as "not named" or the like, thus offering the coder a coding option in every case. However, the expressions should be so complete that the residual category is not used too intensively (Brosius et al. 2012). I was able to fulfil this criterion by specifying residual categories while also ensuring that I would not have to resort to them too often as I optimised the codebook.

In addition to completeness, the categories and expressions should have discriminatory power, both between and within the different categories (Brosius et al 2012). Brosius et al (2012) define discriminatory power as making "the individual expressions […] mutually exclusive" (p. 160). If a common subset exists, coding instructions can establish clear rules how to code an expression. The categories including expressions should therefore be complete, disjunctive and relevant. This list of requirements corresponds to the Holsti criteria, which represent the quality criteria of content analysis (Rössler and Geise 2013). As I optimised my categories, I was also able to test their discriminatory power by comparing the reliability of my coding runs over time. Since I attained a high level of agreement in my reliability tests, I concluded that my categories met the criterion of discriminatory power.

The codebook for the study is designed based on insights from my paper "Forward Guidance: a Framework". The categories designed are thus oriented towards the type of forward guidance and the indicators as well as their associations. However, the categories were partly created inductively, for example, as I incorporated the common structure of press conferences into the category system. This makes it possible to answer the research questions based on the press conferences that the ECB publishes on its website. One advantage of the low periodicity of the ECB's press conferences is that it is not necessary to sample the units to be analysed, since the entire population of the period of practice of forward guidance (in a narrow definition) can be analysed and representativeness is thus given by definition.

6. Results

First, I was able to identify certain phases of forward guidance in the ECB's press conferences. I was able to do this because I had established a clear definition of forward guidance and the phases were thus evident in retrospect. Since 4 July 2013, the ECB has used forward guidance almost continuously. Only on 3 December 2015 did it make no statement that could be classified as FG. This results in the following phases of forward guidance:

Qualitative forward guidance (4 July 2013 – 8 May 2014): In this phase, forward guidance was used in qualitative form, always with at least three macroeconomic justifications, consisting of low inflation, weak economy, subdued monetary or credit dynamics or the underutilisation of production capacities. Beyond that, no explicit forward guidance targets were mentioned.

Wording: "The Governing Council expects the key ECB interest rates to remain at present or lower levels for an extended period of time. This expectation is based on the overall subdued outlook for inflation extending into the medium term, given the broad-based weakness in the real economy and subdued monetary dynamics" - Press conference of 7 April 2013

Qualitative forward guidance (5 June 2014 – 22 October 2015): In the second phase, qualitative forward guidance was also applied, but the condition consisted only of the development of the inflation rate. After explicitly formulating forward guidance three times, by the end of this phase the ECB had only mentioned that it was confirming its forward guidance. In addition, it first mentioned at a press conference that it was practising forward guidance.

Wording: "Concerning our forward guidance, the key ECB interest rates will remain at present levels for an extended period of time in view of the current outlook for inflation." - Press conference of 5 June 2014

Implicit calendar-based forward guidance (10 March 2016 – 26 April 2018): In the third phase, implicit calendar-based forward guidance was used. The ECB linked its statement on the future key interest rate path to other expansionary measures (QE), which were clearly minimum-dated. In the first press conference of this phase, the ECB linked the forward guidance to the inflation rate; subsequently, no more conditions were mentioned.

Wording: "Finally, looking ahead, taking into account the current outlook for price stability, the Governing Council expects the key ECB interest rates to remain at present or lower

levels for an extended period of time, and well past the horizon of our net asset purchases."
- Press conference of 10 March 2016

Explicit calendar-based forward guidance (14 June 2018 – 25 July 2019): In the fourth phase, the ECB used explicit calendar-based forward guidance. The ECB no longer linked its forward guidance to other expansionary measures, but instead specified concrete, expected "minimum maturities". In addition, in this phase the ECB stated for the first time that it wanted to use its forward guidance to drive the inflation rate to its target value.

Wording: "Third, we decided to keep the key ECB interest rates unchanged and we 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 that the evolution of inflation remains aligned with our current expectations of a sustained adjustment path." - Press conference of 14 June 2018.

Outcome-based forward guidance (12 September 2019 – 16 July 2020): In the fifth phase, the ECB used outcome-based forward guidance. It no longer mentioned a maturity and tied its forward guidance only to the inflation rate. It did not cite an explicit threshold, but rather referred to the fact that key interest rates will remain at their current level until they saw an inflation rate that corresponded to their target.

Wording: "We now expect the key ECB interest rates to remain at their present or lower levels until we have seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2% within our projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics." - Press conference of 12 September 2019. The ECB thus used all types of forward guidance. It can also be observed that changes in key interest rates often coincided with an adjustment in FG. Both from the transition away from qualitative to calendar-based forward guidance and from the transition away from calendar-based to outcome-based forward guidance, the ECB lowered interest rates.

The fact that the ECB initially attached several conditions to its forward guidance, which it later refrained from, shows that it became less Delphic and may have intended to have fewer negative associations with FG. The academic consensus is that outcome-based FG, used by the ECB at the end of the investigation period, is the one with the strongest binding character. However, the ECB tied FG to its inflation target without specifying an explicit threshold. Therefore, the question arises as to the added value of FG when it announces to behave as it can be assumed to behave. If the inflation rate were to exceed the ECB's target, a rise in interest rates would be the logical consequence if the ECB remains committed to

the inflation objective. FG could also be interpreted to mean that the ECB would tolerate an increase in the inflation rate above its target, provided it considered the overshoot to be temporary and not persistent. However, this is not an obvious fact. Therefore, we must rather assume that in its current phase of FG, compared to calendar-based FG, the ECB became less self-binding and thus more Delphic. The ECB used interest rate decisions to adjust its forward guidance so that it could in turn underline its intentions and give credibility to its forward guidance. To reinforce its forward guidance, it may also have introduced the link to QE, on the one hand, to make its forward guidance more effective by emphasising its expansionary stance, on the other hand, to underpin the signalling effect of quantitative easing. Through this symbiosis, it could have explicitly intended to lower longer-term interest rates and raise inflation expectations. The ECB intended to increase inflation expectations through forward guidance, especially in 2015 and 2019. In 2015, it strengthened FG with QE. In 2019, it reintroduced the possibility of a rate cut to raise inflation expectations. When linking QE, it should be noted that QE does not per se have an impact on inflation expectations when a central bank conducts interest rate policy, provided that the central bank raises the interest rate and stops inflationary increases, especially since any purchased government bonds could be sold again, provided there is no threat of default. The symbiotic aspect of the two policy instruments thus illustrates the twin nature of FG and QE.

Monetary Policy Objectives	Number of Mentions
Improve credit terms/financing conditions	57
Drive the inflation rate	48
Stimulate domestic demand	47
Stimulate the economy	30
Facilitate debt reduction	13
Anchor inflation expectations	6
Increase money supply	4
Other	4
Stimulate investment	2
Stimulate consumption	2
Increase inflation expectations	1

Table II-1: *Monetary policy objectives with reference to forward guidance*

Inflation expectations (short and long-term) were always included in the press conferences at the beginning of the investigation period, and according to the ECB, they were always anchored. From 2 October 2014 until 2019, inflation expectations were no longer regularly mentioned. However, from 2 October 2014 onwards, the ECB also started to mention that it explicitly wanted to anchor or increase inflation expectations with its monetary policy measures. In the period from 2 October 2014 to 3 December 2015, the ECB explicitly mentioned these objectives in more than half of its press conferences. Outside this period, it did not mention them again.

Indicators	Total	of which positive connotations	of which restrained connotations	of which negative connotations
Inflation	55	0	55	0
short-term inflation expectations	14	4	2	8
long-term inflation expectations	25	16	2	7
Consumer confidence	6	4	0	2
Economic expectations	38	21	12	5
Domestic demand	13	10	0	3
Foreign demand	50	28	14	8
Credit dynamics	63	28	20	15
Monetary dynamics	63	42	8	13
Uncertainty	52	0	40	12
Credit conditions	52	37	12	3
Employment	52	33	0	19
(Private) consumption	34	31	0	3
Investment	36	29	3	4
Capacity utilisation	15	4	0	11
Other	11	11	0	0
Total	**579**	**310**	**108**	**161**

Table II-2: *Indicators related to forward guidance*

During the investigation period, the ECB first mentioned on 22 January 2015 that inflation expectations were not fully anchored. In the following press conference, however, the ECB again reported the anchoring of long-term inflation expectations. On 16 July 2015, the ECB mentioned that (short-term) inflation expectations were not anchored. Thereafter, no inflation expectations were mentioned for more than four years.

On 25 July 2019, the ECB mentioned inflation expectations, but did not clearly indicate whether they were anchored or unanchored. From then on, the ECB mentioned inflation expectations again in every press conference. The mentions of inflation expectations either did not clearly indicate whether they were anchored or not, and if they could be identified, short- and long-term inflation expectations were not anchored. In the three press conferences (April-July 2020), short- and long-term inflation expectations were not anchored according to the ECB. Whenever the ECB mentioned market-based inflation expectations, it did not specify the type. Moreover, market-based inflation expectations were only mentioned at the end of the investigation period.

"Credit" and "money supply dynamics" (see Table II-2) were mentioned most frequently, as these are inevitable components in the monetary block of the press conference. This was followed by the inflation rate, which was also virtually always mentioned apart from cross-checks, forecasts and cross-check conclusions. Here, it already becomes clear that the ECB's always considered the inflation rate too low.

Other very frequently mentioned indicators were uncertainty, credit conditions and employment. "Behavioural connotation" in the context of uncertainty means that uncertainties are present. "Negative connotation" means that uncertainty has increased.

The indicators of consumption, investment activity and economic expectations were also frequently mentioned. The indicators of the real interest rate, the long-term interest rate and the interest rate expectations, congruent with the targets, were not mentioned.

In the cross-check of the economic and monetary bloc, it was emphasized 54 times that monetary policy accommodation was necessary to raise the inflation rate to its target value. Only at the press conferences at the beginning of the investigation period was it stated that the inflation rate was compatible with the target. At the others, it was too low, according to the ECB. Overall, the ECB mentioned significantly more indicators with positive connotations than negative and restrained ones.

In no phase did FG come close to a theoretically optimal forward guidance. No lower for longer in the sense of longer than normal was applied. The ECB always noted that it merely

"expected" the announced interest rate path. When it dispensed with this verb in the second phase of its FG, the ECB used qualitative FG, with the condition of the inflation rate. This clearly shows that at no time did the ECB announce an Odyssean (self-binding) FG. Moreover, the ECB always practised forward guidance with a relatively short time horizon. This is in line with findings that households only react to announcements with a maximum time horizon of about two years.

The press conferences did not always provide the necessary context for the respective phase changes in the use of FG, which would indicate the reasons for the change in the rate specification. One example is that the ECB did not indicate any reasons for the introduction of FG in its first press conference that featured it.

The fact that it did not mention the indicators real interest rate, long-term interest rate or interest rate expectations over the entire investigation period makes it clear that the ECB's intentions or intended channels of action cannot necessarily be concluded from the contents of the press conferences. However, this is put into perspective by the fact that at each press conference, the ECB stated objectives that can be theoretically related to FG. Regardless of whether they are actually intentionally related to FG, the ECB's goal was at least partially clear to the recipient of its communication. Regarding the transmission effects of forward guidance in particular, we must conclude that the objectives were not specific enough to be grasped and conveyed by intermediaries (who do not engage in extensive additional theoretical reading). In consequence, they did not reach the target recipient as intended.

We could hypothesise that the ECB did not mention the indicators because they may be those about which households are insufficiently informed, in contrast to, for example, credit conditions. Moreover, we could also speculate that the ECB does not mention the obvious indicators because it could no longer achieve the objectives of its forward guidance according to "Goodhart's Law" (Görgens et al. 2013, p. 190).

It could be argued that consumers do not tend to be direct recipients of unfiltered central bank communication, as private households are shrouded in a "veil of inattention". If this is the case, and consumers do not belong to the direct target group, a significant recipient could be the group of financial market participants whom the ECB primarily addresses. To verify or falsify this assumption, two further hypotheses would have to be investigated: 1. The ECB does not target the inflation expectations of private households. 2. Journalists have only rudimentary knowledge about the possible intentions of forward guidance, such as the theoretical foundations of the ECB.

The actual inflation rate is essentially determined by private consumption and thus by private inflation expectations. It would therefore not be unreasonable to assume that the ECB does not practise forward guidance, as is the case in monetary policy theory, because it does not reach households or perhaps does not want to reach them at all. Thus, as was the case at the beginning of the ECB's practice of forward guidance, forward guidance serves an overarching function to smooth the management of money market interest rates. This is also supported by the fact that there is an immense data gap regarding the effect of forward guidance on households, which neither researchers in monetary theory nor central banks are intrinsically very motivated to close.

We can answer the first research question by noting that the intensity of forward guidance is constant because it is an integral part of almost every press conference. The specification tended to become more binding, moving away from a purely Delphic version of forward guidance over time. It should be noted that the added value of results-based forward guidance is doubtful and by no means binding.

Regarding the second research question, some indicators related to forward guidance are mentioned, albeit not the ones that are primarily related to it. The monetary policy objectives, which could also function as indicators, do not clearly show the channel through which forward guidance is supposed to work, although some objectives, such as that of raising inflation expectations, are directly related to FG. The objectives associated with forward guidance have been, first and foremost, to improve financing conditions, to boost inflation and to stimulate demand. As these represent the general objectives of the accommodative stance, they cannot easily be related specifically to FG.

7. Conclusion

Actions speak even louder when they are spurred on by words. This is consistent with the results of my empirical analysis, which shows that forward guidance is firmly anchored in the ECB's repertoire. However, it cannot be said beyond doubt whether the ECB would continue to practise FG if it did not serve its purpose, fearing that omitting it might induce uncertainty. Or perhaps it justifies the adaptation of forward guidance in analogy with Pascal's proof of God: The probability that forward guidance will work is above 0 percent, so it would be more advisable to use it, even without knowing exactly whether and how it will work. Nevertheless, the ECB became less Delphic in its forward guidance and pursued

various goals with it. Forward guidance tended to converge towards a theoretically more effective forward guidance.

This empirical study confirms that there are discrepancies between the theory and practice of forward guidance. Therefore, I join Moessner et al. (2017) in their demand that theory should take greater account of practical implementation in its models.

Moreover, there is a need for research on how forward guidance is perceived by the general public and how households in the euro area react to it, similar to the study by Coibion et al. (2020). Central banks should work proactively to rectify these omissions.

Finally, we can conclude that the ECB will probably not practice binding forward guidance because it is not being trusted and/or may not be able to reach households. This would damage the ECB's credibility as a result of ineffectiveness. Price level targeting might be a substitute for Odyssean forward guidance. It would not test the ECB's credibility to the same extent as binding forward guidance, since it does not make any promises. In addition, the transmission mechanism of communication could function more smoothly since both intermediaries and the general public would need less prior knowledge and there would be less uncertainty about the ECB's intentions.

The press conferences reveal that the ECB has been struggling with too low inflation rates for years and never tires of indicating that monetary policy accommodation is necessary. However, it does not state why it has failed for years to adjust its target inflation rate. In the face of unanchored inflation anchors, the question arises whether the ECB has been transparent enough in trying to explain the reasons for its failure to market participants and a broad public. Of course, this would presuppose that it is itself aware of the causes. In addition, trying to explain these highly complex causes would induce uncertainty, since only specialist audiences would be able to understand them. Thus, we could hypothesise that if the target audience of the press conferences represents a broad public, the best possible practice is to indicate that the ECB continues to strive to pursue inflation convergence. But this hypothesis is also contradicted, for example, by the fact that there are indicators that the press conferences are mainly aimed at the financial markets.

Possible reasons why The ECB failed to do so include time inconsistency, legal issues, unanchored inflation expectations, public debate and the loss of flexibility of discretionary monetary policy.

Furthermore, the contents of the press conferences offer few clues about the recipients and their perceptions. For this, other methods of empirical communication research would

likely be better suited, such as surveys. The possible results would yield interesting implications. For either, the survey would show that forward guidance triggers the intended perceptions in recipients. In that case, the question would arise as to why the ECB does not strive for a more effective transmissions mechanism. Or, the survey would show that the intended perceptions did not materialize, which would challenge the position of forward guidance in the ECB's toolkit.

My analysis finds that monetary policy reporting should not based solely on press materials, as the ECB omits mention of forward guidance indicators, for example. This finding may provide a reason to examine shortcomings in central bank communication based on the divergence of public with non-public communication, Of course, there may be rational reasons for this divergence.

The transmission of central bank communication via economic journalism could not be addressed at all, although the analysis of this transmission mechanism might have enabled inferences about the effect of central bank communication and conclusions about recipients.

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III. Press conferences as a tool of the ECB's crisis communication during the financial crisis 2007-09

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Abstract

The question addressed in this paper is: *How did the ECB communicate during the financial crisis of 2007-09?* After all, a central bank communicates not only to try to steer financial markets, to manage crises and to inform about its policies, but also to avert crises from its own organisation. In the 2007-09 financial crisis, citizens' trust in the ECB declined, which is a problem for a central bank whose most powerful tool is people's expectations.

To answer this question, I conduct a qualitative content analysis to examine some selected press conferences for strategies used in crisis communication.

It emerges that the ECB under its then-president Jean-Claude Trichet did indeed use the "basics" such as communicating neutrally and having one person be the face of crisis communication in its press conferences during the financial crisis. But Trichet did less well in terms of comprehensibility and transparency. Precise explanations were more common than explanations everyone can understand. Explanations for everyone was left up to the press. In addition, the ECB pursued hardly any of the crisis communication strategies that theories would suggest (p. ex. Benoit 2013, Höbel and Hofmann 2014), for example, it did not blame others for the crisis, but preferred to say which measures to combat the crisis had already been started or implemented.

Overall, the communication style of ECB press conferences during the financial crisis can be described as factual, data-based, sober and precise. Emotions and recriminations had no place in it. This creates an image of a competent and solution-oriented central bank that cares about nothing but its mandate when it formulates monetary policy.

Keywords: *ECB, European Central Bank, ECB communication, central bank communication, crisis communication, financial crisis, content analysis, Jean-Claude Trichet*

1. Introduction

The European Central Bank (ECB) controls the monetary policy of the Eurozone and thus has great influence on the economic development of the Euro countries. It not only uses instruments such as key interest rates, but also tries to influence the expectations of market participants (cf. Scheller 2006, p. 84). So apart from the fact that the ECB itself wants to communicate, it is also legally obliged to be transparent because of its independence.

In contrast to a politician who might be willing to pursue monetary policy for the sake of short-term political gains, independent central bank governors are deemed to follow long-term objectives. Therefore, many countries have granted independence to their central banks. The ECB is also independent (cf. Treaty on the Functioning of the European Union (TFEU), Protocol No. 4, Article 282).

Central banks can be independent in various ways: political independence can include (for a complete list, see Chaudhuri 2018, 9) that the head of the central bank and the council are selected without the influence of the government, that the central bank can make its decisions without the consent of the government, and so on. There is also economic, financial and legal independence. In all these fields, the ECB is quite independent.

In return for this independence, the central bank must report and be accountable for its actions and decisions (cf. Chaudhuri 2018, 12), in meetings with the legislature and possibly the Ministry of Finance, and it has to be transparent to the public. That is, the ECB must communicate with the public.

The financial crisis of 2007-2009 not only shook the financial markets and the economy, but also damaged trust in the central bank - which made solid crisis communication necessary. For without the trust of the public in its work, a central bank is less able to influence expectations and thus less able to achieve its goal: namely, to ensure price stability, even when there are economic crises.

In this paper, I will try to answer the question of how the ECB, as an independent central bank, was using press conferences as an instrument of crisis communication during the financial crisis. I limit myself to the press conferences that the ECB holds after each monetary policy meeting of the Governing Council (i.e. every six weeks since 2015, before that

every four weeks)[4]. These press conferences not only serve to announce and explain the decisions of the day, but also to answer journalists' questions.

First, this paper will deal with the theoretical basis for the targeted analysis of the press conferences by looking at the function of central bank communication and the usefulness of press conferences from an organiser's point of view (section two). In this section, I will also explain what good crisis communication looks like according to research and give a brief overview of the financial crisis. Then will I explain the methodological procedure of my qualitative content analysis (section three). Finally, I will summarise and interpret the results of the analysis (section four).

2. Theory

Role of central bank communication

A central bank can increase its credibility and improve the predictability of its decisions through transparent communication (cf. Knütter and Mohr 2008, ECB 2007). For this reason, "central banks today attach more importance to direct communication with the public than it was previously the case" (ECB 2007, p. 67).

Transparency and communication also make monetary policy more effective, because targets such as inflation depend to a large extent on the expectations of market participants. The central bank can directly influence only short-term policy rates (and, to a limited extent, the money supply). To achieve price stability in the medium and long term, it must therefore manage expectations and anchor them to its inflation target (cf. ECB 2007, 68). This is why central bank communication is so important.

Communication can help even if it does not predict exactly how the central bank will behave. After all, the central bank still must react to economic conditions. But if the central bank succeeds in enabling market participants to understand its usual strategy and response, i.e. to make its monetary policy predictable, this "reduces the vulnerability of expectations to short-term shocks" (ECB 2007, p. 70).

Blinder et al. (2017, p. 730, emphasis in original, translations mine) go a step further and say: "Central bank *talk* can have substantial effects even without accompanying central

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[4]Transcripts of the press conferences can be obtained from https://www.ecb.europa.eu/press/calendars/mgcgc/html/index.en.html

bank *action*." But in most cases it is essential that the central bank actually acts - or at least can act when it becomes necessary (ibid., p. 731). Here, they refer to a paper published in 2008 by the same authors (plus Marcel Fratzscher). The most important way for the ECB to communicate with the public is through press conferences.

Press conferences as a communication tool

> "The press conference is an event at which companies, associations, political parties or other institutions inform about events that are of concern to them and the public." (Reus 2018, translations mine).

Reus (2018) describes press conferences as an "instrument of professional public rela-tions", with which the organiser can disseminate information that is important from their point of view - the organisers "also speculate [...] that their view of things, their weighting and their 'timing' will be reflected as uniformly as possible in the media", writes Reus.

Press conferences can be held for a very specific (even contrived) occasion or on a regular basis. The latter is the case for the ECB's press conferences, which always take place after the Governing Council's monetary policy meetings. The ECB press conferences consist of two parts: the President's "Introductory Statements" followed by an opportunity for jour-nalists to ask questions. The ECB Monthly Bulletin of April 2007 states:

> "The 'Introductory Statements' constitute [...] the main communication tool, as they convey the Governing Council's common position on the monetary policy stance in a timely manner." (ECB 2007, p. 75)

The ECB repeatedly uses the same expressions, which are keenly observed by journalists and financial market actors because they serve as code words in the ECB's communication. In the analysis of the press conferences, this must be taken into account. The Financial Times (Hume 2011) writes of a traffic light system consisting of the terms "monitor closely", "monitor very closely" and "exercise awareness"/"heightened awareness"/"strong vigilance". "Monitor closely" means that interest rates will remain at the same level for the time being. "Monitor very closely" signals that there might be an interest rate hike in two months and the other three terms mean that an interest rate hike next month is possible. The same traffic light system is also presented and explained in Geraats, Giavazzi and Wyplosz 2008 (p. 40). So it was also used at the time of the financial crisis I want to ana-lyse.

The 2007-2009 financial crisis - what happened

The financial crisis began with the bursting of the US housing bubble, caused by expansionary fiscal policy, low key interest rates, and a big capital inflow into the US economy (see Grossman 2016, p. 455, Göpfert no date and King 2017 for the entire paragraph)). Many housing loans had been given to people with little creditworthiness and then bundled together into so-called mortgage-backed securities (MBS), which were then traded between banks. When the housing bubble burst, many people were unable to repay their loans and the banks were left with bad loans hidden somewhere in the MBS. The crisis spread to Europe, where banks had bought a lot of these MBS and similar derivatives and made losses. Finally, in August 2007, the interbank market froze because banks no longer knew which other banks were still creditworthy. The central banks intervened. Then the crisis smouldered on for about a year. To cope with the crisis, the ECB raised key interest rates for fear of inflation; in September, the US government rescued two banks, but then let the investment bank Lehman Brothers go bankrupt. This led to panic on the markets. Governments and central banks set up rescue programs and calmed the situation. In Europe, however, the sovereign debt crisis followed directly. An overview of the most important dates and events can be found in Appendix A.1.

For the ECB, what was needed during this period was not only communication in a crisis, but also crisis communication.

Crisis communication

"Crisis communication is the part of crisis management that serves to influence soft factors [...] in order to prevent or manage corporate crises." (Lies, no date, translation mine)

Crisis management is (cf. Fiege no date, translations mine) a company's management efforts to avoid and survive "processes critical to survival" (ibid.). Soft factors (cf. Lies 2, no date) are defined as "images, moods, but also knowledge and the resulting behaviour (de-/motivation) as well as ways of acting (support/resistance)".

Crisis communication is thus summarised as communication (by a company, a party, a government, etc. - or a central bank) with the aim of influencing attitudes for the benefit of the organisation in order to manage or prevent crises of that organisation. Press conferences of the ECB in times of crisis fall under this category.

A crisis of the economy is not necessarily a crisis of the organisation. There can be financial crises that do not constitute crises for the ECB, in which case no crisis communication is

necessary. But since a central bank depends on people's trust (see "Function of central bank communication"), it is a problem for it if trust levels fall in the wake of a financial crisis - and then it must act to prevent an organisational crisis. This is exactly what happened to the ECB in the financial crisis of 2007-2009 (European Commission 2020):

And, for each of them, please tell me if you tend to trust it or tend not to trust it?
The European Central Bank
European Union (from 03/1999 to 11/2019)

■ Tend to trust ■ Tend not to trust ■ DK - Don't know
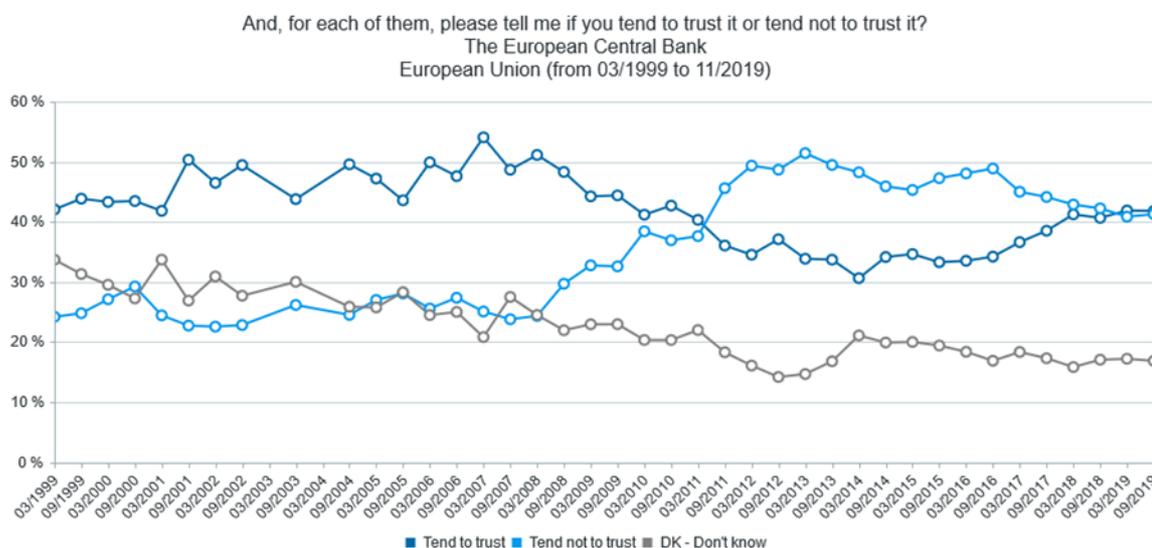
The graph shows what proportion of respondents to the Eurobarometer surveys said they tended to trust the ECB (dark blue), tended not to trust it (light blue) or did not know (grey). Trust decreased from March 2008 (and only increased again from 2014). A sharply rising proportion of respondents said they tended not to trust the ECB from March 2008 onwards. The share of those who said they could not judge it fell, which shows a polarisation. Against this background, the financial crisis can be seen as a crisis that could damage the ECB as an institution and for which crisis communication is therefore necessary.

According to Höbel and Hofmann (2014, p. 21, translations mine), the following core messages of crisis communication should always be included: "humanity, competence, promptness, reliability/ability to learn, empathy and sympathy" (rendered as a bullet list in the original). In this way, trust can be maintained and lost trust restored (cf. ibid., p. 231 ff.).

In addition to maintaining trust and credibility, good crisis communication is also important in order not to make the crisis worse: "A wrong communicative step can also have serious consequences on the markets," said the ECB's Head of Communications, Christine Graeff, in an interview (Hünninghaus 2017, translation mine).

According to the crisis communication guidelines of the German Federal Ministry of the Interior (2014, 15), the following basic principles of crisis communication must be observed:

- "Promptness (active and early)

- Truthfulness (factual, transparent and true)

- Comprehensibility (short, simple, uncomplicated, pictorial)

- Consistency (uniform, coordinated and continuous)".

Regarding comprehensibility, the guidelines also state that technical terms and abbreviations should be avoided (ibid., p. 37).

Consistency cannot be judged correctly by looking only at the press conferences, because it is about being consistent across all channels of crisis communication, that is: in press conferences, statements, interviews, on social media etc. This basic principle can therefore not be observed by a simple content analysis of the ECB's press conferences.

Höbel and Hofmann name six factors that "determine the success or failure of crisis communication" (Höbel and Hofmann 2014, p. 44; very similar "lessons learned" to the first three factors can also be found in Marsen 2020, p. 170 f.):

- *Time factor*: A quick reaction to a crisis is necessary to show that the crisis management is active and competent. Journalists and internet users are fast – in order to shape their first impression, you have to be just as fast (ibid., p. 44-45). The ECB press conferences with their then-four-week cycle are not necessarily the quickest way to do this. Short statements on the website are quicker.

- *Personnel factor*: An organisation needs a distribution of roles in the event of a crisis, staff must be trained and the decision on who is the face of crisis communication must be made early enough (Höbel and Hofmann 2014, p. 45-47). At ECB press conferences, which are of interest for this work, the president and the vice president speak.

- *Trust factor*: Maintaining and building trust is the primary goal of crisis communication (cf. ibid., p. 47). To achieve this "communication with all stakeholders must be targeted" (cf. ibid.). In the case of the ECB, these could be: banks, investors (large and small), fund managers, other central banks, journalists, "normal" citizens (in different countries): Germans who want to save money probably have different concerns than Greek pensioners) etc. Facts and figures are not enough because fear quickly takes hold of some target groups. Crisis communication must therefore "develop emphatic emotionalising messages [...] against diffuse fears" (ibid., p. 48).

○ In its Crisis Communication Guidelines (2014, p. 20), the German Federal Ministry of the Interior emphasises that open communication with the media as a stakeholder group must take place as soon as possible, because the media often bring the first crisis reports - and media reports decisively shape the perception and assessment of the crisis. Press conferences held every six weeks (or four weeks at the time of the financial crisis) are, as already mentioned, not suitable for a particularly rapid reaction, but they do allow the media to be informed comprehensively. The fact that the ECB press conferences are simultaneously livestreamed on YouTube[5] also makes it possible for interested ordinary citizens to listen in.

The other factors (complexity, cost, know-how) cannot be observed from the outside and are therefore not considered further in this paper.

William Benoit's Image Restoration (or Repair) Theory assumes that organisations want to save face or their image in and after crises, and lists four possible strategies for doing so (quoted from Marsen 2020, p. 167; cf. Benoit 2013, p. 217):

- *Denial*: The organisation is not to blame, the crisis did not even happen or someone else is to blame.

- *Reducing Offensiveness*: A focus on positive aspects of the organisation, e.g. quick actions to limit the consequences or strategies to ensure that the crisis does not happen again.

- *Evading responsibility*: It was an accident, one did not know any better, had good intentions or did not assess the situation correctly.

- *Mortification*: The organisation/person acting takes responsibility for their mistakes and apologises. This strategy is a subtype of the previous strategy in Benoit.

Research questions

A research question with sub-questions can be derived from the theory:

How does the ECB use press conferences for crisis communication?

- Are the basic principles of crisis communication observed?

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[5]The ECB's YouTube channel is called "European Central Bank" and can be found under this link: https://www.youtube.com/channel/UCXB8fM4VyQubRu3UVGhd3wA

- ◦ Promptness (active and early)

- ◦ Truthfulness (factual, transparent and true)

- ◦ Comprehensibility (short, simple, uncomplicated, pictorial, no technical terms and abbreviations)

- ◦ Consistency (uniform, coordinated and continuous)

- Are the (relevant) success factors according to Höbel and Hofmann (2014) taken into account?

  - ◦ Time factor: quick response?

  - ◦ Personnel factor: consistent spokespersons and roles?

  - ◦ Trust factor: targeted approach to all groups?

- What strategy(s) according to Benoit (2013) is the ECB pursuing?

  - ◦ Denial

  - ◦ Evading responsibility

  - ◦ Focus on damage control

  - ◦ Admission of guilt

3. Method

To answer the research question, I will use a qualitative content analysis according to Mayring (2015). The analysis is quantitative in its orientation, but with clear qualitative features. Since the success factors and core messages according to Höbel and Hofmann (2014) do not have any clearly defined characteristics from the outset, it makes sense in this case to also use qualitative approaches even with a (quantitative), metrics-oriented content analysis.

The structure of the codebook is based on Mayring's classic process model (Mayring 2015 for the entire chapter). This part of the paper will briefly summarise the individual steps.

First, the source material must be selected. Because it is to be about press conferences in the financial crisis, but I cannot analyse all press conferences from the beginning of 2007 to May 2009 (cf. Göpfert (no date)) in this paper, a random sample must be used. For this purpose, I made a deliberate selection of twelve press conferences from 2007-09: Around

the most important "crisis peaks", on the occasion of important ECB decisions, further-more, at the beginning and the end, because the need for crisis communication is highest at the crisis peaks and at the key decisions. From this point of view, this deliberate selection is preferable to a random selection. The press conferences which I analysed can be found in Appendix A.

Next, I described the situation in which the material was generated: They are minutes of the ECB press conferences after the monetary policy meetings. They consist of the Intro-ductory Statements followed by the journalists' questions and responses. The communica-tion is addressed to the journalists and (partly through them) to the market participants. These are the official transcripts of the press conferences. The names of the journalists asking questions are not mentioned.

Then I had to consider the question of the analysis: the direction of the analysis, in this case, is the type of communication. The aim is to analyse how the ECB communicated. According to Mayring, this is followed by the theoretical differentiation of the research question, which follows directly from the theory section and can be read in the research question section of this paper. Scaling structuring is a suitable analysis technique.

Subsequently, the process model was concretised:

First, I determined the units of analysis, which in this paper, is the individual press confer-ence; this is also the context unit and may be used to interpret individual sentences/words. The coding unit is a substantive part of a statement on the crises of interest in this work (i.e. not, for example, questions about Italy's less than rapidly reduced budget deficit, etc.), their causes or how to combat them, and can be a single word in purely formal terms.

Secondly, a theory-based definition of the structuring and assessment dimensions was re-quired: The research question with its sub-questions forms the structure of the codebook, the individual basic principles of crisis communication etc. only have to be transferred into categories that can be coded. As an example, the basic principle of "truthfulness": Accord-ing to theory, it consists of the components factual, transparent and true. I formed these components into categories as far as possible. "Factual" is described in the codebook as an argumentation based on data and arguments, not on emotions; I concretised "transparency" as transparency in relation to decision-making. The component "true" is more difficult: Truth can hardly be judged from the outside. Comparisons with information that has come to light since then could be used to approximate a "truth", but in macroeconomics, there often isn't one right answer. Since the question about this component cannot be answered

meaningfully; "true" did not get its own category. This is the way I went through all the sub-questions of my research question.

The third point in Mayring's process model is the determination of the characteristics and the composition of the category system: For each category, I determined the characteristics, for the example of "factual", these are: not relevant; unclear; yes; partly; no; not relevant/no.

The fourth step was the trial run with a sample of the material.

Step five was the formulation of definitions, anchor examples and coding rules, but in in practice this took place simultaneously.

The sixth step was to revise the category system and definitions if necessary. With these steps, I obtained a finished codebook (see Appendix B). Because the trial run showed that the ECB hardly uses any classical strategies according to Benoit, I extracted strategies specifically used by the ECB from the press conferences of the trial run and included them in the codebook.

Step seven was the coding of the material.

Lastly, step eight was the processing of the results.

Reliability and validity of the analysis

According to Mayring (2015, p. 124), "reliability in the narrow sense" is when the content analyst repeats her analysis or parts of it - without looking at the initial results. This is called intra-coder reliability (cf. ibid.) and was used in this work.

For this purpose, I randomly selected two press conferences to code them again: PK08 and PK10. I re-coded in a new table without looking at the first coding; then I copied the results into the table in Appendix III-3 and compared them.

The agreement is pleasingly high (between 0.75 and 1 on a scale of 0 to 1). Intra-coder reliability was therefore sufficiently high to proceed with the results of the analysis.

As far as validity is concerned, in this paper I used external criterion and construct validity (cf. ibid.). For the former, research results are used to check whether one's own results are plausible; for the latter, care is taken to ensure that the operationalisation makes sense from a theoretical perspective (cf. ibid.). The categories were developed from theory. In this respect, the criterion of construct validity was satisfied. I use the external criterion to determine the validity of the analysis. A study by Coenen et al. (2017, p. 10) shows that in

the Trichet era, between twelve and fifteen years of formal (school) education were necessary to understand the Introductory Statements. This shows that the ECB could not have been too concerned about simplicity and comprehensibility for the general population, and the results of the analysis in this paper (see below) fit this. Similarly, Picault and Renault (2017, p. 1) emphasise "the subtlety of central bank communication" by the ECB. Thus, it seems credible that the results of the analysis in this paper show that the ECB does not use the usual crisis communication strategies, e.g. refrains from blaming others, and instead communicates rather indirectly. Overall, the results are therefore sufficiently reliable and valid.

4. Evaluation and results

In this section, I will summarise the evaluation and results so that I could proceed in an orderly manner according to the sub-questions and avoid duplication. The coding of the general categories can be found in Appendix D. I colour-coded the tables so that patterns can be seen at a glance.

PK	factual	transparent	simple	pictorial	no technical terms	no abbreviations
PK01	yes	partly	partly	no	no	partly
PK02	yes	partly	partly	yes	partly	no
PK03	yes	partly	partly	yes	partly	partly
PK04	yes	no	no	no	yes	no
PK05	yes	yes	partly	yes	partly	no
PK06	yes	yes	partly	yes	no	no
PK07	yes	yes	partly	yes	no	partly
PK08	yes	yes	partly	yes	no	no
PK09	yes	yes	partly	yes	no	no
PK10	yes	partly	partly	yes	partly	no
PK11	yes	yes	partly	yes	no	partly
PK12	yes	yes	partly	yes	no	no

Table III-1: *Basic principles of crisis communication*

As already mentioned, the basic principle of truthfulness was only partially coded, namely with the categories "factual" and "transparent regarding decision-making". The ECB communicates in a very data-driven manner. Factuality is present throughout and transparency increased significantly after the freezing of the interbank market, when it became really important that markets and people could rely on the ECB. Nevertheless, Trichet made it clear that he never commits himself beforehand and that future decisions will be taken when the time comes.

For the basic principle of comprehensibility, "short" was not coded because it was impossible to count words, but brevity depends on the complexity of the question. This would be highly subjective and was therefore not done. The components "simple", "pictorial", "no abbreviations" and "no technical terms" were coded. It is striking that the ECB almost never dispenses with technical terms and abbreviations. The same formulas are always used as linguistic images, such as price stability as the ECB's only compass needle, but no larger metaphors. The press conferences are partly "simple" only because the structure is simple: first a brief summary of the decisions, then the whole decision is justified and backed up with figures, forecasts, etc., followed by questions. In this way, the beginning is understandable even for laypersons. Most of the press conferences, however, are difficult to understand for the general public because a lot of prior knowledge is presumed. Technical terms and an avoidance of many linguistic images, however, increase the precision of expression.

Regarding the basic principle of promptness, the codebook states that active communication can be assumed in a self-scheduled press conference. The component "early" was coded via "quick reaction" of the success factors.

The time factor requires the communicator to react quickly to the crisis. Where there is a concrete crisis peak, the time between this peak and the press conference is three to six days in the quickest case, in the next best case it is already more than two weeks, the other reactions take up to 233 days. This is anything but a quick reaction. As Höbel and Hofmann (2014) put it: Journalists and internet users are fast - if you want to shape the first impression, you have to be just as fast (p. 44-45). However, regular press conferences are only partially suitable for this purpose and the ECB has other communication instruments at its disposal.

PK	quick reaction	spokes-person	addressing journalists	addressing financial markets	addressing EU citizens	addressing affected parties
PK01	not relevant	Trichet; Papademos	yes	partly	no	not relevant
PK02	unclear	Trichet; Papademos	yes	yes	no	not relevant/no
PK03	unclear	Trichet; Papademos	yes	yes	no	not relevant/no
PK04	3 to 6	Trichet	yes	yes	no	no
PK05	27	Trichet; Papademos	yes	yes	no	yes
PK06	not relevant	Trichet; Papademos	yes	yes	yes	not relevant
PK07	not relevant	Trichet; Papademos	yes	yes	no	not relevant
PK08	17	Trichet; Papademos	yes	yes	yes	no
PK09	51	Trichet; Papademos	yes	yes	yes	no
PK10	79 (Lehman)	Trichet; Papademos; Quaden (Belgian central bank)	yes	yes	no	no
PK11	121 (Lehman)	Trichet; Papademos	yes	partly	partly	partly
PK12	233 (Lehman)	Trichet; Papademos (his words are in the protocol)	yes	partly	partly	no

Table III-2: *Success factors of crisis communication*

The personnel factor demands clear responsibilities and a face for crisis communication. Trichet and Papademos are both present at almost every press conference. Only PK04, which was a press briefing outside of the regular schedule of press conferences, falls out of the scheme, as does PK10, when the press conference was held in Belgium at the Belgian central bank and the Belgian central bank governor was also present. The personnel factor was considered by the ECB in the way that the theory provides for.

The trust factor is about the fact that an organisation has to address all target groups directly in order to build trust. Simply stating facts and figures is not enough. Here, we can see that almost only journalists and financial market players are addressed. EU citizens have to be content with the occasional assurance that the ECB will guarantee price stability. Together with the findings from the analysis of the basic principle of comprehensibility, it emerges that the ECB's press conferences address a specialist audience and that the press has to translate for ordinary citizens. It is also noticeable that the ECB rarely mentions affected persons or, more generally, countries, events, etc. by name, at least where they do not directly influence the impact of monetary policy.

PK	Fin-ger-point-ing	Denial	Deny-ing re-spon-sibility	acci-dent	not enough knowledge	bad judge-ment	crisis is not bad	ac-tions to com-bat the crisis	new strate-gies	apol-ogy
PK01	not rele-vant	not rele-vant	not rele-vant	not rele-vant	not rele-vant	not rele-vant	not rele-vant	not rele-vant	not rele-vant	not rele-vant
PK02	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no
PK03	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/no	not rele-vant/ no	not rele-vant/ no
PK04	no	no	no	no	no	no	no	no	no	no
PK05	no	no	no	no	partly	no	no	yes	no	no
PK06	no	no	no	no	no	no	partly	no	no	no
PK07	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no	not rele-vant/ no
PK08	no	no	no	no	no	no	no	yes	no	no
PK09	no	no	no	no	no	no	no	yes	partly	no
PK10	no	no	no	no	no	no	no	yes	no	no
PK11	no	no	no	no	no	no	no	yes	no	no
PK12	no	no	no	no	no	no	no	yes	no	no

Table III-3: *Classic strategies*

Trichet hardly uses the classical strategies. He denies nothing, but does not call the events by their names. He does not deny responsibility, on the contrary, he acknowledges the ECB's responsibility, but directed towards the future - for solving the problem. Neither does he apologise - because that would mean that the ECB is to blame for the crisis. The question of guilt is consistently excluded. For damage control, Trichet only uses references to actions taken to combat the crisis. All this is meant to underpin and strengthen the credibility of the ECB, for the most important thing is to fulfil its mandate of ensuring price stability. Against this background, it is no longer so surprising that the ECB behaves differently than a company (for which this model was built) would probably have.

Strategies that are specific to the ECB were also coded and worked out in the trial run.

PK	keeping an eye on the problem	having seen the problem early on	not talking about the problem	having done what was right	the future is unpredictable and projections are just projections	the crisis is a short-term problem, not a medium-term one	never pre-commit
PK01	Yes	not relevant	not relevant	not relevant	yes	not relevant	Yes
PK02	Yes	not relevant/no	partly	not relevant/no	yes	not relevant/no	Yes
PK03	Yes	not relevant/no	yes	not relevant/no	no	not relevant/no	Yes
PK04	Yes	yes	no	no	no	no	Yes
PK05	Yes	no	no	yes	yes	no	partly
PK06	Yes	no	no	yes	no	no	Yes
PK07	Yes	yes	not relevant/no	yes	yes	partly	Yes
PK08	Yes	yes	partly	yes	partly	no	yes
PK09	Yes	no	no	yes	yes	no	yes
PK10	Yes	yes	no	yes	yes	no	yes
PK11	Yes	partly	no	yes	no	no	yes
PK12	Yes	yes	no	yes	no	no	yes

 Table III-4: *ECB-specific strategies*

The statements "wanting to keep an eye on the situation" and "never pre-committing to anything" are clearly almost always used. They are not empty phrases, they show atten-tiveness and vigilance or the impossibility to foresee the future and the necessity to make decisions only at the pertinent moment, but they are very general. The strategy of high-lighting unpredictability of the future and the uncertainties of projections fits in. "Having seen the problems early on" is a way of defending against criticism, as is saying you have acted correctly. They complement the classical strategies to fight a crisis and occurred mainly in the later course of the crisis. Not mentioning the crisis or assessing it as a problem of the short term, not the (monetary policy relevant) medium term, was rarely used.

5. Conclusion

To conclude, let us return to the research question: How does the ECB use press confer-ences for crisis communication? Press conferences are of limited use for a quick response. Other communication channels such as press releases, statements and the website are more important for this. However, the press conferences after the monetary policy meetings are fixed communication dates. Not to use them for crisis communication would be nonsensi-cal, because crisis communication in the external perception includes all communication in a crisis.

The press conferences are mainly used to explain complex issues to an expert audience of journalists and financial market players. The communication is factual and at least partially transparent about decision-making. Their comprehensibility is rather low; knowledge of technical terms and abbreviations are presumed. Nevertheless, at the beginning of the In-troductory Statements, the decisions and their justifications are summarised briefly and understandably. The spokespersons remain the same, so everyone knows who is responsi-ble for what.

The ECB avoids almost all the strategies of Benoit's Image Repair Theory, except for the reference to actions already taken to combat the crisis (part of the strategy "damage con-trol"). It emphasises its own responsibility, but this is a forward-looking responsibility, and consequently avoids the question of guilt. Communication is factual, data- and analysis-based, unagitated and rather indirect.

The ECB's communication is not as the theory would recommend, but it is consistent and makes sense. The factual, data- and analysis-based, unagitated communication supports

credibility, but comprehensibility for people without economic training leaves much to be desired – who, after all, are also supposed to place their trust in the ECB.

But as the ECB's Instagram channel[6] (short information for a rather younger target group) suggests, a lot has happened between the financial crisis of 2007-2009 and today. This comparison, however, is a topic for another paper.

Some components of the sub-questions to the research question could not be fully opera-tionalised, for example the basic principle of truthfulness. One aspect of this is whether the content of communication is "true" - which could only have been approximated with great effort and further methods. This incomplete operationalisation must always be taken into account.

Intra-coder reliability is the most useful measure of reliability for a single coder, but it is unrealistic to have no recollection of one's own previous coding at all. In this work, I tried to counteract this problem somewhat by spacing the codings out by a few days, in addition to the usual procedure of writing down the new codings in a table in which the original codings are not visible. On the one hand, this is not a satisfactory solution to the problem of possibly remembering one's own codes - on the other hand, there is no better solution, so this problem should be taken into account when looking at the results.

In addition, there is the possibility that in the main coding, I may have had my previous codes in mind and subconsciously reproduced previously made coding decisions, instead of adhering only to the codebook. This cannot be completely avoided either, but frequent consultation of the codebook should counteract this effect in this work.

In the category "pictorial", the opposite has happened, so to speak: A very frequently used linguistic image (price stability as a "needle in our compass") caused me to code many press conferences as "yes" as per the codebook, although this image is more of a phrase than actually serving as an illustration. Nevertheless, the category "pictorial" was always coded according to the codebook in order to preserve the correct procedure. I took this explanation for the many linguistic images into account in the interpretation.

It must be borne in mind that it is not visible from the outside which events the ECB considers to be an internal crisis within its own organisation and which it does not - after all, whether the ECB engages in crisis communication or not depends on this distinction, and

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[6]The channel's name is @europeancentralbank.

this is therefore important for the study of crisis communication. However, this distinction is not apparent to the audience at the press conferences either - only the ECB's communi-cation influences them. Strictly speaking, this work can only consider the ECB's crisis communication at press conferences that is visible from the outside, but on the other hand, this is justified because the people to whom the ECB's communication is directed cannot make this distinction, either. The results of this paper are certainly interesting even with this limitation.

The sample size is not particularly large with n=12, so the significance of all the results is limited. On the other hand, I deliberately selected the most important press conferences for crisis communication, namely the ones at crisis peaks. Therefore, a study of twelve press conferences is justifiable.

This work could only take a small glimpse into the big world of central bank communica-tion because only a relatively small analysis was possible within the scope of this work. Some interesting questions were not considered: Do press conferences make monetary pol-icy more predictable? And do the announcements match the actions actually taken? This would have required other methods besides content analysis. A larger-scale study could examine the ECB's entire crisis communication or compared the ECB's press conferences with those of other central banks.

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IV. How the European Central Bank and Bundesbank Differ in Communicating Expansionary Monetary Policy in their Press Relations

A qualitative analysis of guided interviews with German financial journalists

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Abstract

This paper investigates how the European Central Bank and the Deutsche Bundesbank conduct their controversy on expansive monetary policy through their press relations. This dispute over direction has characterized monetary policy in the euro area since the outbreak of the financial and euro crisis. For assess this issue, I conducted guided interviews with German financial journalists who cover both organizations and are thus recipients of their press communication. Then I used a qualitative content analysis to investigate the transcripts of the interviews. With this design, this work has an exploratory character. This is necessary because the academic literature only addresses the controversy over expansionary monetary policy as well as central bank PR in general. How this dispute plays out in public relations and press relations has not yet been researched.

A central finding of this paper is that the ECB and the Bundesbank use similar communication tools to convince relevant reference groups of their views. Nevertheless, there are important differences. The press offices communicate their views on monetary policy with different kinds of arguments. The ECB is less likely to engage in a public conflict. It tries to ensure that press relations contribute to a smooth implementation of monetary policy. The Bundesbank uses the controversy over expansionary monetary policy to distinguish itself as a critic of the ECB. It pushes the controversy towards the media more strongly than the ECB, for example by making provocative statements. In this way, the Bundesbank places itself in the role of guardian of stability-oriented monetary policy, despite having less power in the Eurosystem.

Both strategies of press relations vary vis-à-vis individual media and journalists. Press offices prefer some editorial offices over others. Moreover, it is difficult to make broad and permanent generalisations about the PR of an organisation. This work shows that the public

communication also depends on the preferences of the presidents of the ECB and the Bundesbank. A change at the top can mean a change in public relations and press relations.

1. Introduction

Not even 24 hours had passed since the ECB Governing Council's decision when Jens Weidmann critized it in an interview with tabloid newspaper Bild. With a new package to further ease monetary policy in the eurozone, the Governing Council had "[...] overshot the mark [...]" (Deutsche Bundesbank, 2019a, translations mine), the Bundesbank President said. The day before, on 13 September 2019, the Governing Council, led by ECB President Mario Draghi, had decided to buy government bonds again (ecb.eu, 2019). The ECB Governing Council had first adopted bond purchase programs about ten years earlier (Deutsche Bundesbank, 2016, p. 93). During the financial and euro crises, as well as in the following years, further, sometimes more voluminous, programs were adopted (ibid., p. 93) – often to the displeasure of the Bundesbank.

The time-honoured organisation, which stands for a steady commitment to rules, accompanied the easing of monetary policy with criticism. Often, this happened publicly. In contrast, the ECB has to develop a monetary policy for 19 Euro countries and is constantly fighting crises. It regularly defended itself publicly against the Bundesbank. One example is a press conference in 2012, when the ECB Governing Council had just decided to buy unlimited bonds of individual euro countries in an emergency.

> "When Draghi was asked if the decision had been unanimous, he smiled wryly and said there had been one dissenting vote: 'I'll leave it to you to speculate who that was.' Everyone knew he meant Bundesbank President Jens Weidmann." (Handelsblatt, 2019, translation mine)

It is remarkable that the ECB President makes a secret vote virtually public. And it is equally remarkable that the ECB and the Bundesbank have been engaged in a public dispute for years. They are supposed to pursue a common objective in the European System of Central Banks. Instead, a dispute over direction developed, which was also fought via the media. Depending on the tendency, the ECB or the Bundesbank is likely to benefit from the reporting.

Contact between the organisations and media representatives is established by the respective press office. How does this communication work? To be more precise: How do the ECB and the Bundesbank deal with their controversy on expansive monetary policy through their press relations? This relevant aspect of central bank communication has received little academic attention so far. This paper intends to help fill the research gap. The

study shows which objectives the ECB and the Bundesbank pursue with their press relations, what has changed since the crisis years and what arguments they use in the debate. For this purpose, I conducted guided interviews. In these, German financial journalists who report on the ECB and the Bundesbank recounted how they perceive the communication. The paper is structured as follows: First, I will provide an overview of literature that classifies economic fundamentals and central bank PR (section 2). I will explain the methodology (section 3). Then I will elaborate on the key findings of the study (section 4). Finally, I will draw some conclusions (section 5).

2. One Mission, Two Convictions

Economic basics

The theoretical classification of the work of the ECB and the Bundesbank does not suggest any public controversy. By design, both organisations work together. The ECB is the central institution of the European Monetary Union (Gischer et al., 2012, p. 45). The guiding principle for the ECB and its decision-making bodies is a stability-oriented monetary policy (ibid., 2012, p. 341). It is important that it acts as an independent organisation (Ribhegge, 2007, pp. 130-131).

The Bundesbank was responsible for monetary policy in Germany until 1999 (Gischer et al., 2012, p. 51). Since then, the Bundesbank has been part of the Eurosystem (ibid. p. 51). According to the Bundesbank Act, the Bundesbank has to help fulfil the objective of price stability (Gesetz über die Deutsche Bundesbank, § 3). The Bundesbank participates in monetary policy in the Governing Council (Manger-Nestler, 2008, p. 231). Decisions of the Governing Council must be implemented by the national central banks. Therefore, the Bundesbank is mainly entrusted with operational tasks (Gischer et al., 2012, p. 52).

For a further theoretical foundation, the New Institutional Economics (NIE) is useful, as it helps understand the interests of central banks. Theurl (2001) speaks of "[...] institutional complexes [...]" (p. 48, translation mine) in monetary unions. The institutions are rules for monetary, economic and political action in the currency area (ibid., p. 48). The decision-making bodies of the monetary union represent these institutions as organisations (ibid., p. 48). According to this view, the ECB and the Bundesbank are personified institutions in the Eurosystem. This role results in functions and interests that may be reflected in communication. According to Leschke (2001), successful central banks design and disseminate

monetary policy concepts (p. 339). Moreover, central banks must fulfil their function to reduce complexity and transaction costs (Frambach, 2010, p. 649). For this, individuals must be able to count on the fact that a rule applies. For the institution to function accordingly, it needs social acceptance (ibid., p. 649). Trust and credibility are linked to this objective. Monetary policy impulses must be credible to have the desired effect (Leschke, 2001, p. 341). In addition, the longevity of an institution contributes to its stability (Erlei et al., 2016, p. 494).

The research interest is based on a conflict between the ECB and the Bundesbank. Despite uniform objectives in theory, differences can be observed. Ehrig (2016) sees the origin of the disputes in the consequences of the crisis of 2008 (p. 17). Since then, there have been different convictions about monetary easing by the ECB (ibid., p. 17). The Bundesbank has always been critical of bond purchase programs. This began with measured government bond purchases in 2010, which led to the resignation of Bundesbank President Axel Weber (Schönwitz, 2013, p. 243). In 2012, his successor Weidmann voted against the OMT program in the Governing Council (Dijsselbloem, 2018, p. 92). In 2015, he voted against another program - the APP (Winkler, 2015, p. 178). He also did not consider a new APP necessary in 2019 (Deutsche Bundesbank, 2019b).

Thus, the conflict is always about whether and how to implement expansive monetary policy. The literature explains the opinions of the ECB and the Bundesbank in various ways. Five aspects seem to be relevant. First, the question of whether government bond purchases are necessary to achieve the objective of price level stability is crucial (Winkler, 2015, p. 178). Second, a different interpretation of the mandate is conceivable. The question is whether bond purchases are legitimate (ibid., p. 178). Thirdly, national interests may play a role. The Bundesbank and the Germans care more about safeguarding the value of money than actors from other states (cf. Ribhegge, 2007, p. 115 & Flachmeyer & Paul, 2018, p. 500). Fourthly, the path dependency of institutions can be important. In the crisis years, the central bank model changed from the traditional German to a Southern European character (Schnabl, 2012, p. 90). Fifth, controversies can depend on people. Central bank governors have become the focus of public attention in recent years (Thiele, 2019, p. 15). In this context, the literature attributes different attitudes to Draghi and Weidmann (cf. Heinrich 2019, p. 67 & Brown, 2018, p. 130). It is unclear so far what is reflected in the press relations.

The theoretical basics of PR

Access to the media is a prerequisite for access to the public (Röttger et al., 2014, p. 81). Press and media relations are the classic functions of PR (Szyszka & Christoph, 2015, p. 795). One objective of PR is always to influence public opinion in the organisation's favour (Röttger et al., 2014, p.78). In research, the relatively undisputed, central function of PR is to legitimise an organisation (Hoffjann, 2015, p. 20). If an organisation is recognised as legitimate, it can more easily assert its interests (ibid., p. 19). Linked to this is the intermediate objective of "trust". If there is trust, this legitimises an organisation - a lack of trust has the opposite effect (ibid., p. 164). Trust is supposed to solve a similar problem in PR theory as it does in NIE. It is crucial in social situations where there is incomplete knowledge about future actions of other actors (Röttger et al., p. 151). If organisations such as the ECB and the Bundesbank want to build trust with PR, journalists are significant. This is because the media have a decisive influence on the perception of organisations (Löffelholz et al., 2013, p. 182).

To achieve these overarching objectives, PR has various options. There is a choice between self-control and context control. In self-control, PR influences its own organisation internally (Röttger et al., 2014, p. 143). Context control aims to influence expectations, opinions and attitudes of stakeholders (Preusse et al., 2013, p. 136). In addition, PR departments must decide between one-way and two-way communication. One-way communication measures have the character of an announcement (Herkenhoff, 2015, p. 876). Two-way communication is dialogue-oriented (ibid., p. 876). In addition, there is the aspect of transparency as one of the most frequent demands in the context of PR (Szyszka, 2015, p. 223). Hoffjann (2015) calls transparency the functional equivalent of trust (p. 171). PR departments usually try to create functional transparency (Röttger et al., 2014, p. 121). This paper will explore how this theoretical framework is reflected in press relations.

Some papers provide practical insights into PR of central banks. The public relations of central banks in democratic systems have changed: Since the 1990s, central banks have made increased efforts to explain monetary policy to the general public (Sparsam & Pahl, 2018, p. 348). The uncertainty in the wake of the financial and sovereign debt crises has reinforced this effect (Benedikt, 2015, p. 471). In crises, it is important for the long-term credibility of a central bank to explain its monetary policy (ibid., p. 471).

The usual communication channels of central banks are reports, minutes of meetings, speeches, interviews, press conferences and press releases (ibid., p. 471). The US Federal

Reserve has increasingly used communication tools in recent years, for example by introducing quarterly press conferences in 2011 (Binder, 2017, p. 192). The Swedish Riksbank increased the frequency of its press conferences in 2007 and henceforth provided information after every monetary policy meeting (Ehrmann & Fratzscher, 2007, p. 5). In November 2017, the Bank of England launched a quarterly inflation report for a less specialised audience (Haldane & McMahon, 2018, p. 580). The ECB works with reports, interviews, speeches and press conferences (Conrad & Lamla, 2007, p. 34).

Press conferences are considered a significant element of central bank PR. Coverage of the ECB is often a reaction to communications from the organisation, especially press conferences (Berger et al., 2006, p.4). The idea is that more information will ensure more favourable coverage (ibid., p. 6). Regarding the Fed, Binder (2017) assumes that press conferences have a major effect (p. 206).

The literature attaches special importance to the institutions' leading representatives. The chairman in the USA and the central bank president in Europe have an important representative function vis-à-vis the public (Sparsam & Pahl, 2018, p. 348). Neuenkirch (2013) shows in his paper on agency coverage of the Fed that speeches by the chairman are more likely to be covered than speeches by other Fed members (p. 2). Regarding the Eurosystem, there are comparable differences between the ECB president and other representatives in the Governing Council (Berger et al., 2006, p. 21). Regarding the Fed, Ehrmann and Fratzscher (2012) conclude that more active and consistent communication significantly influences the predictability of monetary policy decisions (ibid., p. 223).

In some works, the aspect of "transparency" is also important. Drexler (2007) concludes that the ECB equates communication with transparency (p. 96). The independence of the central bank makes transparency towards the public necessary (Weber, 2012, p. 827). In a paper on the Bank of England, Seelajaroen et al. (2019) describe: Increased transparency in communication reduces disagreement among market participants about the future interest rate (p. 369).

The literature provides an idea of the economic and communicative dimensions of central bank work. However, none of the works provides an insight into the concrete press and public relations work regarding the dispute between the ECB and the Bundesbank. Specifically, the following questions need to be answered: How are the institutional interests of the ECB and the Bundesbank reflected in press relations? What are the objectives of press

relations? What arguments do the ECB and the Bundesbank use to communicate their differences? How has the interaction of the ECB's and Bundesbank's PR departments with journalists developed in recent years? What characterises the ECB's and the Bundesbank's PR, and specifically in its function of press relations and in dealing with journalists? And on a higher level: How do the ECB and the Bundesbank deal with their controversy on expansive monetary policy through their press relations?

3. How to Successfully Explore Hidden Communication

To understand how the ECB and the Bundesbank organise their press relations, it was useful to talk to observers, including financial journalists who cover monetary policy. The ECB and the Bundesbank address this target group. Thus, these journalists can provide a direct insight into central bank PR. The interviews are supposed to have an exploratory character. This is interesting after reviewing the literature, as insights into the processes and topics of this communication between journalists and central banks are rare - especially about the conflict between the ECB and the Bundesbank.

To do justice to this interest, I used the research methodology of the guided interview, which I evaluated with a qualitative content analysis. This is an established research design (cf. Klammer, 2005, p. 219). A qualitative approach was chosen because the depth of content is more significant than the number of interviewees (ibid., p. 229). Interviewees were asked to respond in detail so that the facts under investigation could interpreted (ibid., p. 229). Lamnek (2010) describes further advantages: Qualitative interviews can be recorded (p. 301). They are undistorted-authentic, intersubjectively comprehensible and reproducible (ibid., p. 301).

I used a semi-standardised guided interview, which combines the theoretical and the empirical part (Meyen et al., 2019, p. 85). For this purpose, I analysed the problems in the communication of the ECB and the Bundesbank, pointed out important aspects and compiled these in an interview guide (cf. Mayring, 2002, p. 67). The guideline in this paper is therefore based on the considerations of the second section. Semi-standardised means that guiding questions are defined in advance (Möhring & Schlütz, 2019, p. 5). However, "the order and formulation are then up to the interviewers, who can thus adapt to the given situation" (ibid., p. 5, translations mine). This procedure has the advantage that spontaneity is possible, but the conversations are comparable (ibid., p. 5). I based the style of the interview on the guidelines of Klammer (2005) and Lamnek (2010).

I constructed the guideline for the interview in three steps (cf. Meyen et al., 2019, p. 86). First, I narrowed down the relevant topics, then developed the main questions and sub-questions, and finally determined the order (ibid., p. 86). In line with the requirements of Meyen et al., the questions are short, specific and not ambiguous (2019, p. 89). Furthermore, I formulated the questions in an open-ended way. Open questions can bring out previously unconsidered aspects (Brosius et al., 2016, p. 87) and limit predetermination (Lamnek, 2010, p. 322). In addition, open-ended questions generate larger amounts of text for evaluation (Klammer, 2005, p. 225). The interviews began with an icebreaker question to get the respondents talking (Klammer, 2005, p. 224). The concrete guideline can be found in the appendix.

To examine the interviews, I used qualitative content analysis (Klammer, 2005, p. 249). The basis for the analysis was the text record in which the guided interviews were documented (Fürst et al, 2016, p. 210). I therefore transcribed the interviews (Meyen et al., 2019, p. 169). I did this in the form of a literary transcription according to Höld (2007, p. 660). Following the procedure suggested by Mayring (2015, p. 72), I reduced the transcripts to the most important text passages.

To gain insights that serve my research intention, a joint analysis of all interview transcripts was necessary. In a qualitative approach, the texts must be evaluated with a category system (Brunner & Mayring, 2007, p. 673). I systematised the collected transcripts by assigning text components to certain categories (ibid., p. 673). These categories are a definition of what is to be analysed (Brosius et al., 2016, p. 153). The category scheme should cover all aspects of the underlying topic so that the research question can be answered (ibid., p. 159). It is also important that each category has its own meaning (Früh, 2015, p. 83). I derived the category system deductively and inductively. This means that I initially derived the categories from the described state of research (cf. Fürst et al., 2016, p. 217). It was possible to add to the categories from the statements made in the interviews (ibid., p. 217). This combination is suitable to compensate for the weaknesses of the individual procedures (Klammer, 2005, p. 261). The theory-based categories for this work result from the main aspects of the research:

- Objectives of the ECB's and the Bundesbank's press relations

- Explanation of the monetary policy differences

- Development of press relations and their importance

- Manner of the exchange between the ECB or Bundesbank and journalists

The selection of interviewees is crucial for the implementation of the research design. In qualitative surveys, the representativeness of the participants plays a subordinate role (Lamnek, 2010, p. 350). According to Lamnek (2010), it is more about typologies (p. 351). This means: The objective is "[...] to find out a set of the relevant patterns of action in a social situation that is as accurate as possible" (ibid., p. 351, translation mine). Accordingly, I selected typical persons for the survey who correspond to theoretical preliminary considerations (ibid., p. 351). Mayer (2013) further defines that clear and retrievable knowledge in a certain field makes a good interviewee (p. 41). These guidelines result in three criteria for interviewees:

- works for a German medium

- is in charge of reporting on the ECB and the Bundesbank

- maintains professional contact with representatives and press offices of both organisations

This results in a field of seven participants from different media companies who represent daily publications as well as weekly and monthly media for a larger spectrum of impressions. It can be assumed that the media represented are relevant recipients of central bank communication because of their circulation or reach.

I labelled the interview partners with numbers because they all insisted on remaining anonymous. The journalists provide insights into partly confidential communication and did not want this publication to restrict their work. This anonymisation is in the spirit of the research interest because it allowed interviewees to talk about all aspects relevant to them "as honestly as [...] possible" (Möhring & Schlütz, 2019, p. 99). The literature allows for anonymisation to protect respondents (cf. Vicari, 2016, p. 299). I conducted the interviews in German and translated them into English for this paper. The original quotes can be found in the appendix.

4. How Journalists Experience the ECB and the Bundesbank

In almost all the guided interviews, interviewees talked about media- or person-specific communication by the press offices of the ECB and the Bundesbank. One example is the statement by interviewee 3: "I think that from the Bundesbank's point of view, electronic

media do not play a major role. They concentrate even more on specialist media [...]." Such statements cannot be classified in the existing category system. So far, I only had the four categories presented in section three. Following inductive category formation according to Früh (2015, p. 151), I thus had to add one category. I therefore bundled assessments such as the above-mentioned one into the fifth category "media and person-specific press relations". Due to the exploratory nature of the methodology, there is a number of statements outside the existing categories. To make this allocation intersubjectively comprehensible, I provided a precise delimitation in the evaluation instructions in the appendix.

The research interest is based on the assumption of a directional dispute between the ECB and the Bundesbank. All interviewees confirmed the controversy on loose monetary policy. All interviewees also agreed that the conflict has become less evident since the dispute in autumn 2019. In 2020, the interviewees' felt that the differences were less evident, for which they named similar reasons. Interviewee 1 mentioned the ruling of the German Federal Constitutional Court in May 2020, requiring the Bundesbank to better explain why the ECB pursues a responsible monetary policy. Both organisations have an interest in smoothly solving this conflict, since it endangers their independence. In addition, there is the COVID-19 crisis. In this situation, both institutions agree "[...] that you have to go in there with a lot of money to keep the economy going as best you can", according to interviewee 2. As a third reason for easing tensions, several interviewees mentioned the replacement of Mario Draghi as head of the ECB. Antagonism has subsided a bit since the arrival of Ms Lagarde, interviewee 6 said.

Nevertheless, most interviewees agreed that the monetary policy differences still exist. Taking this as the starting point, the press relations of the ECB and the Bundesbank can now be depicted using the category system.

Objectives of the ECB's and the Bundesbank's press relations

All interviewees described intentions that, in accordance with the theoretical preliminary considerations, aim at credibility and trust. According to the theory, these values enable the core function of PR - legitimacy - to be fulfilled. These values are also of importance in the NIE. However, there is a difference in some of the intermediate objectives mentioned.

Regarding the ECB, six interviewees described patterns of action that correspond to the criteria of functional transparency (cf. Röttger et al., 2014, p. 121). According to Hoffjann

(2015), transparency is the functional equivalent of the objective of trust (p. 171). Functional transparency is designed to leverage this equivalence without creating disadvantages through too much openness (Röttger et al., 2014, p. 121). Journalists confirm this trade-off at the ECB. "The ECB is actually quite transparent overall [...]", interviewee 5 said, referring to press conferences and published minutes of meetings. Nevertheless, Draghi communicated in such a way that "[...] it was never very clear how decisions were actually made". Interviewee 6 said: "Well, I don't have the impression that they are hiding anything." However, in press communication they use an "[...] ECB-speak [...]" that mainly expert observers understand. In this way, the ECB avoids giving away too much content to the public. Interviewee 3 described transparency at the ECB as "[...] very pronounced". Nevertheless, he added: "Of course, they might also say: 'We don't want to say anything about this.' " Interviewee 1 had a similar view: "Communication not only has the task of conveying information, but also of preventing [...] information." Interviewee 2 called this grey transparency.

Several respondents described how the ECB wants to create consistency in communication. Ehrmann and Fratzscher (2012) concluded about the Fed that more consistent communication positively influences the predictability of monetary policy (p. 223). The ECB apparently also wants to achieve this for its monetary policy. Interviewee 2 said that efforts were made to recapture the directional dispute with the Bundesbank in terms of communication. He went on to say: "And then they also insisted that it had also been reported exaggeratedly in parts by the media." According to interviewee 7, the ECB does not like to see contradictions with the national central banks. For example, when the Austrian central bank chief made a statement that deviated from the consensus, there was a counterstatement: "When in doubt, they issue a denial and expose the other person." Interviewee 1 added: "And the ECB in particular, of course, tried for years to whitewash the conflict in the Council [...]."

Several interviewees perceived that the ECB's press work tries to explain the organisation's actions. Interviewee 3 described this as an intuition to explain decisions. From interviewee 5's point of view, it is an ECB concern to communicate "[...] how monetary policy works, why what is done [...]". As Berger et al. (2006) pointed out, more information can make for more favourable reporting (p. 6). Interviewee 6 stated that an objective of ECB PR is to defend decisions and "[...] make it clear why they are doing it". Interviewee 2 described this as promoting their own position.

In addition to objectives more in line with PR theory, some interviewees attributed a strictly monetary policy intention to ECB's communication. According to this view, press relations should act as part of the monetary policy toolkit. The literature shows that this function of central bank communication is possible, a typical example being the concept of forward guidance (cf. Dittrich & Wohlmann, 2019, p. 195). Some of the interviewees confirmed this approach. According to interviewee 4, communication under Draghi was about strictly enforcing the ECB's policy. According to interviewee 5, regarding the capital market, it is about managing expectations. Interviewee 7 said that the press is "an important transmission belt" for the ECB.

Regarding the Bundesbank, some interviewees found it more difficult to figure out the objectives of its press communication. They often referred to the Bundesbank's lesser power compared to the ECB. Interview partner 1 therefore said, for example, that the ECB is "[...] under much more pressure to justify itself". Interviewee 3 concluded that the Bundesbank's press work is often not targeted. Ultimately, all interviewees described intentions that they recognise in the Bundesbank's press relations. As with the ECB, the strategy is to build trust and credibility.

Several interviewees said that the Bundesbank wants to explain itself and its work. Interviewee 4 referred to Bundesbank President Weidmann: "Weidmann was [...] always someone who tried [...] to explain the policy [...]". Three other interviewees also stated that the Bundesbank wants to explain its work. This reflects Holtmann's (2004) concept of gaining credibility through explanation (p. 44).

The term transparency also comes up in relation to the Bundesbank. Interviewee 4 said that the organisation is "[...] striving to make transparent what the Bundesbank does [...], what its significance is and why it does it." Interviewee 2 also attributed transparency to the Bundesbank, for example, because it communicates its own voting behaviour in the ECB Governing Council to journalists. Only interviewee 3 contradicted his colleagues.

Other interviewees felt that the Bundesbank's press relations aim at preserving the organisation's tradition. The ECB was modelled after the example of the Bundesbank, interviewee 7 pointed out: Therefore, the Bundesbank, also as part of the ESCB, sees itself as something special. The purpose of communication is to make clear that the Bundesbank protects the pure spirit and tradition of monetary policy and works to ensure that the ECB also upholds it, interviewee 7 said. Interviewee 3 also described the Bundesbank's press department as a guardian of tradition. Despite the massive loss of importance since the start of monetary

union, it still carries itself like an organisation with immense influence in Europe in its press work, interviewee 3 said. According to interviewee 5, the Bundesbank's main concern is to "[...] maintain its image [...]". The literature shows why preserving tradition through communication can be useful. The longer an institution exists, the more it contributes to stability and trust. Individuals adapt better to the institutional framework. It becomes increasingly costly to change it (Erlei et al., 2016, p. 494).

Explanation of the monetary policy differences

How do the ECB and the Bundesbank explain their differences on monetary policy to journalists? The guided interviews show that both organisations partly use different types of arguments. Nevertheless, there are commonalities.

One aspect that both sides address is the mandate of monetary policy. With this, the interviewees confirmed an aspect of the conflict that is also comprehensively depicted in the scientific literature. Accordingly, it is disputed which instruments the mandate allows (Flachmeyer & Paul, 2018, p. 506). What is certain is that all measures are meant to help keep the inflation rate at the inflation target. During the period of this study the target was an inflation rate just below two per cent (Neyer, 2020, p. 22). Right now the inflation target of the ECB is exactly two per cent.

Several interviewees reported that this aspect is crucial in the ECB's press relations. Interviewee 3 said: "Well, the ECB always justifies everything with price stability, anyway." From his point of view, every action is adjusted to fit the mandate. Interviewee 4 confirmed that the ECB always argues that it is acting within its mandate. It rejects accusations that its loose monetary policy is used to finance states illicitly. Interviewee 6 also reported that the ECB tries to link every decision to the objective of price stability. Interviewee 7 saw it similarly. Only interviewee 2 described statements by the ECB that go further. Asked about communication on differences, he said: "The ECB says quite clearly: 'It is about saving the euro and nothing else is the goal, the big goal.' "

In its press communication, the Bundesbank suggests that loose monetary policy can violate the mandate. According to interviewee 1, the Bundesbank warns that "[...] monetary policy cannot take over fiscal policy tasks". In doing so, the organisation points out that no government financing should be pursued. Interviewee 2 said that the Bundesbank always insists on the rules of the Eurozone. Interviewee 4 pointed out that the Bundesbank never says that the ECB exceeds its mandate, but merely warns of the danger. Interviewee 5 confirmed that the Bundesbank invokes the mandate.

Closely related to the question of which instruments are within the ECB's mandate is another question: What is necessary to achieve the price target? According to several interviewees, the ECB and the Bundesbank communicate extensively on this aspect, as well. Interviewee 6 said that the ECB justifies expansionary monetary policy as necessary. Behind this, he saw a fear of deflation. Interviewee 5 described a similar perception. If the inflation rate is low, the ECB "[...] calls the monetary policy totally justified [...]." Interviewee 7 also saw an argumentation based on too low inflation and the danger of deflation. He pointedly formulated: "They argue quite technocratically, like someone who cleans the pipes in the bathroom. Clogged? We have to clean them."

The Bundesbank argues the opposite to journalists. The Bundesbank rejected the bond purchases decided in 2019 because "[...] the danger of deflation had been averted [...]", according to interviewee 1. Interviewee 2 added: In the period before the COVID-19 pandemic, the Bundesbank had communicated that in terms of monetary policy, it was time to "[...] return to normality [...]". Interviewee 3 went further. Regarding expansive monetary policy, the Bundesbank represents fear of inflation. Interviewee 6 also confirmed this view of the Bundesbank.

The theoretical overview suggested that national interests can be an argumentative level in monetary policy dispute. Some journalists noted that the Bundesbank communicates at this level. All national central banks are expected to make European decisions, interviewee 2 said. But he also added: In fact, the Bundesbank prominently represents the interests of its own country. Interviewee 1 said that during the crisis years, the Bundesbank always pushed for structural reforms in Southern European countries instead of expansionary monetary policy. In their communication, interviewee 6 experienced the Bundesbank alluding to national interests: "The other countries, well, maybe that comes subliminally from the Bundesbank, the other countries should just see to it that they don't get into too much debt and shouldn't trust the ECB to bail them out again and again." Some interviewees justified the Bundesbank's focus on German interests with the German public as the target group for communication. Weidmann, in particular, addresses the Germans, interviewee 1 observed.

Does the ECB also communicate about German interests? The interviewees had different impressions. Interviewee 6 stated: "Of course, the ECB would never let any national interests play a role." Similarly, interviewee 1 described: "And of course, the ECB has always argued on a pan-European basis […].' " Interviewee 5 went even further, stating that the

ECB had given up communicating with Germany in the dispute over direction. Interviewee 7 confirmed that the ECB does not publicly comment on German interests.

The ECB's pan-European approach reflects the standardisation strategy of internationally active PRs (Hoffjann, 2015, p. 38). Whether this applies to the ECB unambiguously is doubtful, however, given the contradictory statements by interviewees. Germany plays a "special role", said interviewee 2, which is why ECB representatives address widespread concerns about monetary policy in Germany in speeches or interviews. Interviewee 1 also recognised such effort, describing a rather pan-European communication.

Another possible reason for the dispute over direction is the conflict between leaders of both organisations. Almost all interviewees picked up on this aspect. The head of the Bundesbank, Weidmann, often showed "[...] personal scepticism [...]" when it came to majority decisions in the ECB Governing Council, said interviewee 6. Interviewee 7 called Weidmann a "leader type". He also used this description for Draghi. Interviewee 6 thought that was another reason for the conflict between the two. Interviewee 1 added that Draghi was an "enormous irritant for Weidmann". The interviewees disagreed on the extent to which this personal conflict was verbalised in press communication.

The communication of both organisations is "[...] very tailored to the respective presidents", said interviewee 2. This was particularly evident with Draghi and Weidmann. "Draghi was more of a bulldozer in terms of communication" who steamrolled over Weidmann's positions, interviewee 2 said. Interviewee 6 pointed out that the ECB position on monetary policy issues under Draghi was always his own. According to interviewee 4, this continues in press communication: The focus at the ECB is on the president. Interviewee 5 referred to Weidmann's public statements which, in his view, indicate a broken relationship with Draghi. These assessments show that the dispute over monetary policy direction in public communication was at least partly a dispute between people.

However, several interviewees pointed out that it is not the PR departments of both organisations that have condensed the dispute to Draghi and Weidmann. Rather, it was editorial departments that attributed the differences over monetary policy to the two actors. Interviewee 3 explained that media have hung the conflict on the people: "The reason is that this matter is so super complex and difficult that average citizens, when they only hear about it, immediately switch off anyway or don't even open the newspaper." He said that personalised stories can be conveyed better. Interviewee 2 also found that conflicts can be better explained through people from a media perspective. Scholars have already found

such a media-motivated focus on the top position of a central bank (cf. Sparsam & Pahl, 2018, p. 348; Neuenkirch, 2013, p. 2; Berger et al., 2006, p. 21).

As a fifth justification for the conflict about expansionary monetary policy, literature cites the path dependency of institutions. At least for the Bundesbank, its history seems to be relevant for its communication on current decisions. For the Bundesbank, path dependence means preserving its rule-based notion of central bank work (cf. Ehrig, 2016, pp. 6-7). The organisation refers to its tradition in its press relations. Interviewee 3 summed up the attitude he experienced from the Bundesbank's point of view: "We basically brought our ideas into the euro and of course with that we also very much honed and modelled the eurozone as it is." Therefore, he said, they are not happy if others have no problem with buying bonds. Interviewee 1 also saw the Bundesbank's argumentation on expansionary monetary policy as "[...] coming from the Bundesbank tradition [...]".

Development of press relations and their importance

During the financial and euro crisis as well as in the following years, the press relations of the ECB and the Bundesbank developed differently in the view of most interviewees. According to the survey, the Bundesbank expanded its communication with the media earlier than the ECB. The literature base suggests that PR has become more important for central banks in recent years. Surprisingly, several interviewees did not describe such a trend during Draghi's tenure.

Some journalists reported that the ECB's communication with them became less frequent. Since the founding of the ECB, there has been a monthly press conference, said interviewee 3, adding: "Draghi limited this because he didn't have the same rapport with the press and didn't really want to do it." Since then, the press conference has been taking place every six weeks, as Interviewee 2 confirmed. The change in rhythm was accompanied by a change in the rotation of monetary policy meetings. Every four weeks was too frequent, Draghi said in 2014, referring to the high expectations this placed on monetary policy (Deutsche Bundesbank, 2014). But papers document the importance of press conferences for the status of central bank reporting (Binder, 2017, p. 207) and the reduction of uncertainty (Ehrmann & Fratzscher, 2007, p. 6). Interviewee 3 stated: Draghi also hardly used other formats such as background talks. The press office had built up a "[...] protective wall [...]".

Other interviewees saw no reduction in press relations under Draghi, but at least stagnation. Interviewee 5 said that communication has been kept at a low level. Interviewee 6 shared this impression.

Not many journalists described a trend under Draghi, as the literature suggests. They often referred only to individual aspects of communication. Interviewee 5, for example, said that under Draghi "[...] the language of the ECB has become much clearer and more explicit". In the view of interviewee 7, the ECB's press relations have already become more professional since 2014. He experienced the criticism of the ECB's monetary policy at the beginning of the crisis years as a communicative "invasion". In the meantime, press relations have become more proactive and explanatory. Interviewee 2 also saw an opening towards more transparency during Draghi's term in office. The organisation has started to publish minutes of meetings. The number of background talks has increased. Furthermore, he noted that when there was disagreement on monetary policy, the ECB's communication always became more intensive. Draghi also communicated more offensively. He even made fun of Weidmann at a press conference during the dispute with the Bundesbank. "Things like that had not happened before," summarised interviewee 2.

Almost all interviewees experienced a comprehensive increase in the importance of press relations for the ECB with Christine Lagarde taking office in autumn 2019. "The change [...] was a real gamechanger in terms of communication," commented interviewee 1. In his experience, the ECB explains itself more and gives more interviews. Interviewee 4 confirmed a change under Lagarde. There are weekly calls in which ECB experts present decisions or papers to journalists. Interviewee 5 had the impression that Lagarde communicates more in the direction of the population. Interviewee 6 mentioned an innovation around the press conferences of the ECB Executive Board, which are followed by a background discussion with Philip Lane, a member of the ECB Executive Board. With him, "[...] the ECB has added another layer [...] ". Lane discusses details of the press conference, interviewee 6 said. He explained this with Lagarde's limited experience in monetary policy.

At the Bundesbank, some respondents described a different development, saying that the organisation intensified its press communication earlier. This rather reflects what the theoretical introduction suggests.

Several interviewees described that the Bundesbank's communication has become more offensive during the monetary policy differences. According to interviewee 3, Weidmann

has communicated his criticism via the media, although "[...] the unwritten law in the Governing Council is that unity is conveyed to the outside world and disagreements are to be avoided." Interviewee 5 had a similar impression: From the time Draghi took office, the Bundesbank had spoken out much more publicly and emphasised its own position: "Well, I mean [...] that the Bundesbank [...] used to speak as part of the Eurosystem. In this period, when there was this strong conflict, it spoke as the Bundesbank." Interviewee 7 also mentioned the public criticism of Bundesbank representatives as a breach of taboo. He mentioned concrete developments that prove more intensive press work. For example, the Bundesbank has begun to leak information to journalists. The idea was to "[...] strengthen the mood against the ECB". Interviewee 4 added that the Bundesbank has increasingly offered background talks for journalists in the years up to 2020. Interviewee 2 confirmed this development, saying that this was mainly due to Weidmann. Communication seems to be important to him.

Not all interviewees confirmed that the Bundesbank has intensified its press relations. Interviewee 1 spoke of consistency. He saw only one outlier in communication, which cannot be justified by the monetary policy debate. Interviewee 1 spoke of the "[...] time when Weidmann sought to succeed Draghi." During this time, communication had become more active. Interviewee 2 agreed.

Interviewee 6 agreed with the basic thesis of continuous Bundesbank press relations. Nevertheless, he observed periods in which press work has changed in the short term. In his view, these adjustments are related to the monetary policy debate. By this he means, for example, sceptical side comments on the necessity of ECB decisions in phases of tension. Interviewee 3 added that the Bundesbank acted more proactively at the height of the crisis, holding background talks and calls.

Most of the interviewees agreed press relations have become more important for the Bundesbank due to its opposition role against the ECB. The Bundesbank needs the media stage to be an effective opposition, said interviewee 7. In any case, the Bundesbank needs the coverage, said interviewee 6. Interviewee 3 agreed, as criticism conveyed via the media "[...] definitely has an effect on the ECB". The Bundesbank must make its position clear somewhere, said interviewee 2.

Not all interviewees agreed with the increased importance of press relations due to the Bundesbank's critical role. Interviewee 5 doubted the effect. Interviewee 1 took a similar view, saying that the Bundesbank does not need permanent reporting, even if it is directed

at Germany. The population knows that "[...] the Bundesbank [...] and the ECB are not exactly one heart and soul."

Manner of the exchange between the ECB or Bundesbank and journalists

It is relevant how the ECB and the Bundesbank organise their communication with journalists in their day-to-day dealings. Both sides use similar tools. Nevertheless, differences emerge in detail.

Background talks are crucial in communication for both organisations. This was confirmed by almost all interviewees. Interviewee 2 described this as a "[...] very popular means of conveying one's own position". During the background talks, monetary policy lines are an important topic, said interviewee 3. Interviewee 7 reported that these formats usually take place with the press officers of the inviting organisation. Interviewee 5 also saw background talks as a "main tool" of press relations. At the Bundesbank, Weidmann takes part personally. Interviewee 4 agreed. Weidmann had at least "[...] invited to background rounds again and again before the pandemic and also explained his position again and again". Draghi did not seek this informal exchange with journalists, interviewee 4 said.

The basic idea of background conversations can be understood based on the literature. These conversations are an example for external context control (Seidenglanz & Hoffjann, 2018, p. 32). Ultimately, background rounds are about influencing journalists' attitudes and expectations.

Most journalists get feedback on their reporting from the ECB and the Bundesbank. Interviewee 2 explained: "Well, they react, in particular, if they have the impression that one or more media have not understood their position [...]." In such cases, the ECB and the Bundesbank offer further talks to explain positions. The type of reporting is monitored very closely at both institutions, added interviewee 3. If an organisation does not like his reporting, he is asked whether he could present the facts differently. The Bundesbank, however, does not react that often, interviewee 3 said. Interviewee 6 said about both organisations: "If they are not satisfied, they may complain sometimes." Interviewee 7 experienced "[...] calls where someone from one bank or the other bank [...] complained loudly [...]". He had experienced these calls mainly at times of particular conflict.

The experiences suggest that the ECB and the Bundesbank engage in two-way communication according to the model of asymmetric communication. As Röttger et al. (2014) describe, asymmetric communication is designed not only inform, but also convince (p. 45). Feedback from the recipients of the information is considered in the PR (ibid., p. 45).

Several interviewees reported that the ECB and the Bundesbank approached them with offers for editorial contributions. Interviewee 7 said that the press office sometimes offers interviews with Weidmann. Interviewee 6 reported interview offers when the ECB or Bundesbank want to set a topic - especially in times of conflict. Interviewee 2 also experienced editorial offers "[...] when one of the two institutions is of the opinion that it needs to promote its positions a bit more." What the ECB and the Bundesbank value in public relations are opportunities to address reference groups directly - via interviews and speeches, as interviewees 2, 4 and 5 described it.

An explicit feature of the exchange with the ECB is that it describes the positive consequences of its actions, as interviewee 1 and others described. He said that the ECB wants to show that it is all about the Eurozone and that "[...] the Germans should have a genuine interest in things going well in Europe". Interviewee 4 stated as an argument communicated by the ECB that monetary policy is having an effect. Interviewee 3 added that the ECB wants to "[...] make its decisions come across [...] as something positive, something right". Critical approaches are "[...] first clouded [...]". Such actions correspond to the basic idea of context control (cf. Hoffjann, 2015, p. 158).

Although the ECB has reduced the frequency of its press conferences, they remain an important tool . Interviewee 2 called the press conferences the "[...] most important instrument of the ECB [...]". Even before the press conference, his colleagues experience an increased activity of the press office. Interviewee 6 reported: Before the press conferences, an ECB representative might call and inquire about possible questions. At the height of the dispute, he received calls after the press conferences, interviewee 2 reported. Then the press office explained its organisation's position again. Press conferences apparently play a lesser role in the Bundesbank's strategy. Only two interviewees briefly mentioned them.

In both organisations, the interviewees experienced actions to adapt to the needs of the media. Several interviewees considered Isabel Schnabel to be important for ECB communication from 2020 onwards. She helps in communication, especially via interviews, as the face of the ECB in Germany, said interviewee 5. At the Bundesbank, some describe adaptation in the form of quick responses to inquiries - in line with the needs of the media.

To further determine whether PR adapts to the media, it makes sense to look at the topics and timing of reporting (cf. Hoffjann, 2015, p. 83). The interviewees diverge strongly on this point. Several of them reported that they align their work with the content agenda of the central banks. Two other interviewees described it the opposite way. Other interviewees

reported that topics and timing arise from the interaction between the editorial office and the press office.

Media and person-specific press relations

The press work of both the ECB and the Bundesbank obviously also depends on media-specific and personal preferences. This also applies to the communication of the two organisations' dispute over direction.

Several journalists reported that the ECB and the Bundesbank select which media they communicate with and how. Interviewee 2 described this based on interviews. Regarding the ECB, he had the impression that critical newspapers are given interviews. Three interviewees reported that the ECB press office speaks to them individually. The ECB communicates strongly in the direction of media "[...] that are closer to the Bundesbank. So, namely the FAZ and the Börsen-Zeitung," interviewee 5 said. At the ECB, they concentrate on the big papers, said interviewee 4, listing Börsen-Zeitung, Handelsblatt, FAZ and Spiegel. According to him, there is a circle of about twelve journalists who are particularly close to the ECB, which becomes clear at the press conferences. "The same colleagues are called again and again." In his view, this circle mainly consists of Bloomberg, Reuters, the New York Times and the Wall Street Journal. Interviewee 3 called the media selection at the ECB "clique formation". There are certain circles of journalists who have closer ties to the organisation than others, interviewee 3 said, adding that, in his view, electronic media are less of a focus for the ECB. They prefer print media, "[...] because, of course, they feel that they can convey arguments much better there". Long, written articles seem more useful for the ECB to present complex issues than television reports - at least this was the impression of interviewee 3.

A media-specific approach can also be seen at the Bundesbank. "They concentrate more on the specialist media [...]," said interviewee 3. Interviewee 4 described a prioritisation of individual media. Interviewee 5 shared this opinion: "I think that the Bundesbank definitely has a few media that it values. Then they give them some information."

Other statements suggest that the ECB and the Bundesbank also differentiate between journalists in their press communication. Interviewee 1 described it like this: On the part of the Bundesbank, contact with him is arrogant, on the part of the ECB, the contact is collegial. He explained this with his personal relationship with the staff there. Interviewee 3 reported similar resentment. He also cited personal relationship as a factor for different communication. Interviewee 6 also observed that the ECB explicitly deals with individual journalists

- especially when they report on controversial topics. A colleague was invited after a critical article on Draghi, interviewee 6 said: "And if I'm not mistaken, she was later also hired by the ECB. It is often the case [...] that people who write about the ECB also get a job offer."

5. Conclusion

So how do the ECB and the Bundesbank deal with their controversy on expansionary monetary policy in their press relations? The ECB and the Bundesbank basically strive for trust and credibility with their press relations. This work confirms the assumptions made by the theory on new institutional economics and public relations. Regarding the ECB, the respondents stated this more clearly. They also described a link with monetary policy implementation: Press communication is meant to contribute to achieving monetary policy objectives. For example, from the journalists' point of view, ECB communicators strive for consistency in their external presentation.

The Bundesbank's quest for trust and credibility is less about implementing monetary policy and more about getting the public to associate these attributions with its own position. In addition, respondents recognised an intention to preserve the Bundesbank's monetary policy tradition. This is understandable as this aspect sets the Bundesbank apart amongst the group of national central banks.

There are several levels to the argumentation on the monetary policy conflict. It was quite uncontroversial among the interviewees that both organisations argue with the mandate of monetary policy. The closely related question of the necessity of expansionary monetary policy also is part of the press communication of the ECB and the Bundesbank. The Bundesbank, in particular, communicates on other levels. Some interviewees described that the Bundesbank refers to national interests and its monetary policy tradition in the controversy. The ECB, according to the rather consistent impression, does not discuss these aspects in front of the public. The organisation gears its arguments more strictly towards its set of rules, possibly in order not to expose itself to any further attacks. The ECB must remain within the framework of its statutes. One interviewee, for example, did not experience this pressure at the Bundesbank. The guided interviews suggest that the conflict depends on the leaders of both organisations. The personal attitudes of Draghi and Weidmann were and are part of the press communication. The extent to which this is exaggerated by media reporting is almost impossible to trace.

IV. How the European Central Bank and Bundesbank Differ in Communicating Expansionary Monetary Policy in their Press Relations

The only clear evidence of the expected expansion of press relations during the monetary policy dispute can be found at the Bundesbank. For some years now, it has been considered more active and sometimes more aggressive by some journalists. Contrary to the trend at comparable central banks, the ECB under Draghi's leadership has reduced its press communication or at least let it stagnate. This was confirmed by the interviewees, with few exceptions. It is only under Christine Lagarde that the ECB is reinforcing its offers for the press and the general public.

These developments seem to be related to the preferences of the respective presidents of the ECB and the Bundesbank. The respondents see Weidmann and Lagarde as having a significantly greater interest in public communication than Draghi. In the case of the Bundesbank, there is the obvious need for media presence to be an effective counter-voice in the Eurosystem.

Both organisations use PR activities to influence expectations, opinions and attitudes (Preusse et al., 2013, p. 136). Background talks are a primary means to achieve this in direct contact with journalists. In addition, there are offers for interviews and guest contributions to approach the public more directly. In the case of the ECB, in particular, the interviewees emphasised that it describes the consequences of its actions in positive terms. After all, for its policy to be effective, it needs social acceptance (Frambach, 2010, p. 649).

The ECB and the Bundesbank communicate in a two-way manner. The organisations do not only want to inform, but convince. To do this, they track the media response to their PR. If press offices have the impression that messages are not getting through, they follow up - in other words, they optimise their PR (cf. Röttger et al., 2014, p. 45).

What remains unclear is how topics and timing of the reporting come about. Are the PR or the editorial offices dominant? The inconsistent responses only allow us to speculate. A more in-depth investigation could provide clarity. This would be possible, for example, with an input-output analysis.

There is probably no uniform strategy for all media, neither at the ECB nor at the Bundesbank. Even with controversial aspects such as the expansionary monetary policy, the press offices prioritise whom they address. Especially leading media in Germany such as Handelsblatt, Spiegel, Welt or Süddeutsche Zeitung are addressed individually, according to the interviewees. In addition, personal conflicts between press offices and journalists seem to limit the communication.

In summary, the ECB's and the Bundesbank's press work on expansionary monetary policy differs. Both organisations use similar communication tools. But the two press offices communicate their views on monetary policy with different types of arguments. The ECB is less likely to engage in a public conflict. It tries to ensure that press relations contribute to the smooth implementation of its monetary policy. Press relations are meant to explain, create certainty of expectations and convey loyalty to the mandate. The Bundesbank uses the controversy to distinguish itself as a critic of the ECB. At the outbreak and in the decisive phases of the conflict, it expanded its press communication. The Bundesbank pushes the directional dispute towards the media more strongly than the ECB, for example through provocative statements. In this way, the Bundesbank creates reasons to report on it (cf. Hoffjann, 2015, p. 159). This endeavour is possibly due to its position in the Eurosystem, in which it is only an implementing organisation (Gischer et al., 2012, 52). With its PR, the Bundesbank places itself in the role of guardian of stability-oriented monetary policy in the Eurosystem and continues its tradition as an independent central bank. The ECB has less need to push itself into the public eye. It is already assured of attention due to its abundance of power.

However, two qualifying statements are necessary. Press relations with individual media or journalists can vary in their characteristics. Moreover, it is difficult to make broad and permanent generalisations about the PR of an organisation. After all, the communication strategies of the ECB and the Bundesbank probably depend on the preferences of their respective presidents.

Press communication in the Eurozone is likely to remain an interesting area for interdisciplinary research in the coming years. With the era of Christine Lagarde as ECB president, a change in communication strategy is on the horizon. She obviously wants to make the ECB more open and more accessible to a broad public. It remains to be seen whether this aspiration will lead to a sustainable change in public relations. Equally noteworthy is the communicative role of the Bundesbank in the long-term future. The question is whether it will maintain its oppositional role or act more as part of the Eurosystem.

To obtain a holistic picture of press communication, a further step would be advisable. It would make sense to elicit the perspective of the central banks' side. One approach would therefore be to conduct guided interviews with staff from the press offices at the ECB and the Bundesbank. These interviews would require critical reflection, as the interviewees would presumably have an interest in presenting their work as positively as possible.

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V. Weber and Weidmann – Bundesbank Presidents in the German Press

A Topic Analysis

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Abstract

This paper deals with the coverage of Bundesbank Presidents Axel Weber and Jens Weidmann in the German press. For this purpose, I used two quantitative content analyses to examine all articles on Weber and Weidmann during their terms as German Federal Bank presidents in the German newspapers Süddeutsche Zeitung, Welt and Handelsblatt. I conducted the analyses with the help of the Latent Dirichlet Allocation Method according to Blei et al. (2003).

The analyses mainly identified topics in the reporting that dealt with the respective Bundesbank President as a person. These topics addressed not only their personalities or their assumption of office, but also focussed on speculation about a possible ECB presidency or other career options after their term of office. Monetary policy topics only played an important role if they dealt with personal conflicts. In Weidmann's case, articles on the conflict between him and ECB President Draghi over the ECB's bond purchase programs made up the bulk of the coverage. I did not identify such a topic in Weber's case. The only monetary policy topic merely included sober statements by Weber on ECB monetary policy. It made up only a small part of the coverage. From this, I conclude that the coverage of Weber and Weidmann contributed only slightly to an efficient communication of the ECB's monetary policy.

Another central finding of the analyses is that reporting changed during the financial and euro crisis. The intensity of reporting was significantly higher during the crisis. New topics emerged during the crisis, such as the bank bailout, which replaced established topics. The analysis also shows that reporting after the euro crisis more strongly supported calls for an end to the bond purchase programs.

1. Introduction

"In the interest of the euro's stability, the Bundesbank must, also in the new environment, fulfil its obligation to the public as a guardian and admonisher of stability policy" (Deutsche Bundesbank, 1999, translation mine). This is how the Deutsche Bundesbank defined its future monetary policy role as part of the European System of Central Banks (ESCB) in 1999. This role can be attributed to the president of the Bundesbank as the highest German central banker. He is the Bundesbank's only representative on the Governing Council of the European Central Bank (ECB) and thus the only one who can co-determine European monetary policy (Art. 10 para. 1, Statute of the ESCB).

To reach the public in this role, the president of the Bundesbank depends on the media. Studies show, for example, that the public primarily receives its information about monetary policy issues from the mass media. (cf. Hayo & Neuenkirch 2015; Lamla & Maag 2012). Conversely, the president of the Bundesbank is highly relevant for the German media. As the most important German representative, he helps shape European monetary policy, one of the most important factors for economic stability in Europe.

It is therefore all the more astonishing that research has not yet examined the reporting on Bundesbank presidents. Previous studies on the portrayal of central bankers in the media have focused primarily on the presidents of the US Federal Reserve (Fed) (cf. Binder, 2017; Neuenkirchen, 2013).

My investigation aims to help fill this gap. Specifically, it aims to show how the German press has reported on Bundesbank Presidents Axel Weber and Jens Weidmann. Between the two, Weber and Weidmann have led the Bundesbank for most of the time since European monetary integration.

As the opening quote on the role of the Bundesbank already shows, good communica-tion is an important part of efficient monetary policy for central banks. Scholars have also al¬ready dealt intensively with efficient central bank communication (cf. Drexler, 2007; Be¬nedikt, 2015; Dittrich & Wohlmann, 2019). With this paper, I therefore also want to clarify how the reporting on Bundesbank presidents contributes to the efficient communication of ECB monetary policy.

To this end, I will explain the significance and function of the Bundesbank president and summarise previous research findings on the reporting of central bankers. From this, I will formulate the specific research questions (section 2). I will then explain the analysis of

reporting using the Latent Dirichlet Allocation Method (section 3) and present the results of my analyses (section 4). Finally, I will summarise the most important findings, address the limitations of my research and give an outlook on possible future research approaches (section 5).

2. Central Bankers in the Media

As chairman of the Executive Board of the Bundesbank, the Bundesbank president is the highest official of Germany's central bank. Like all chairmen of the European national banks, he finds himself in a dual role: On the one hand, as part of the Executive Board of the Bundesbank, he must implement the ECB's monetary policy in Germany. On the other hand, he co-determines the ECB's monetary policy itself, for as president of one of the national central banks, he is a member of the ECB Governing Council. The Governing Council takes all decisions necessary for the ECB to fulfil its tasks and defines the ECB's monetary policy (Görgens et al., 2013, p. 98). The Bundesbank president is also a member of various international bodies, on whichwhere he represents German interests.

This paper deals with the reporting on Bundesbank Presidents Axel Weber and Jens Weidmann. Weber served as president of the Bundesbank from April 2004 to April 2011. Weidmann succeeded him and is still in office as of 2021. Both terms were dominated by the financial and euro crises. In terms of monetary policy, the focus in these crises was on the ECB's government bond purchase programs. On 10 May 2010, the ECB Governing Council decided on a first purchase program called the Security Markets Program (SMP) (Heilemann & Kaufhold, 2020, p. 332). Further programs followed, which the ECB continued after the euro crisis (Trautmann & Feldbrügge, 2016, p. 93).

Both Weber and Weidmann positioned themselves against the government bond purchase programs and thus took the opposite position of ECB President Jean-Claude Trichet and his successor Mario Draghi. Only a few days after the SMP decision, Weber criticised the program in an interview with the Börsen Zeitung (Freiberger, 2010). Weidmann also said in his inaugural speech in 2011: "In monetary policy, we must move away from crisis-related special measures and ensure a clear separation of the responsibilities of monetary and fiscal policy" (Weidmann, 2011, p. 4, translation mine). The conflict between Weidmann and ECB President Draghi reached its climax in September 2012: Draghi indirectly announced that Weidmann was the only one who had voted against the OMT program (Jost & Ettel, 2012). Many observers saw this as a deliberate affront against

Weidmann, as the voting results of the ECB Governing Council are actually secret (Jost & Ettel, 2012).

Due to the market uncertaintiesturbulences on the markets, the importance of central bank communication increased during the crises (Benedikt, 2015, p. 471). Many central banks - including the ECB in July 2013 - introduced a systematic communication tool: forward guidance (see also the two related papers in this volume).

Since then, at the latest, research has also focused intensively on the importance of central bank communication has intensified. On the one hand, this is important because independent central banks such as the ECB have to account for their objectives and measures (Benedikt, 2015, p. 469), on the other hand, because it increases the efficiency of monetary policy (Gischer et al., 2012, p. 350). This is because "active forward-looking communication prepares the markets for possible changes in short-term interest rates and thus makes the actual interest rate decision less surprising. This mitigates overreactions and communication has a stabilising effect" (Hüning, 2016, p. 55, translation mine).

Like with any communication, the success of central bank communication depends on various actors. One of these actors is the media (Dittrich & Wohlmann, 2019, p. 204), which are of great im¬portance for successful central bank communication. For example, a study by Hayo and Neuenkirch (2015) shows that financial market actors rely more on media reports on central bank policy than on their own observations. Lamla and Maag (2012) also show that households rely on the mass media for information on inflation. Thus, it can be assumed that most recipients do not absorb the central bank's information directly, but indirectly via the media.

So far, research has mainly focused on the effect of central bank communication on financial markets (cf. Ehrmann and Fratzscher, 2007). However, some studies also analyse the portrayal of central banks and central bankers in the media. Neuenkirchen (2013) analysed agency coverage of speeches by members of the Fed. He showed that media report on speeches by the Fed President significantly more often than on speeches by other members of the Federal Open Market Committee (FOMC) (Neuenkirchen, 2013, p. 19). He also found that the media reported more frequently on speeches by Ben Bernanke as designated Fed President than on speeches by other FOMC members (Neuenkirchen, 2013, p. 16).

Ben Bernanke was also the focus of Binder's (2017) research. She looked at the occasions on which the American media reported on the then-Fed president. In the study period from 2007 to 2011, the most coverage occurred on the day Bernanke announced he would run

for a second term. The second most coverage was on the day of his re-election in Congress, the third most when he was named Time magazine's Person of the Year in 2009. Only then come days when monetary policy decisions were announced. In general, Binder notes that reports on Bernanke were often about him as a person or about policy disagreements. Moreover, the American media often reported on Bernanke in connection with an actual or possible recession. (Binder, 2017, pp. 197-198)

With regard to the ECB, studies have so far focused mainly on the portrayal of its monetary policy in the media and less on the portrayal of individual central bankers (cf. Berger et al., 2011 and Velthuis, 2015).

This paper therefore aims to provide insights into the reporting of Bundesbank presidents and thus help close the mentioned research gap. Specifically, it aims to answer these questions: How did the intensity of reporting develop over time? Which topics can be identified in the reporting? How did the composition of the topics in the reporting change over time? How did the topics in the coverage differ between Weber and Weidmann? Did the coverage of Weber and Weidmann contribute to an effective communication of the ECB's monetary policy?

3. Methodology: Two LDA Analyses

Data

To examine the coverage of the two Bundesbank presidents, I conducted two Quantitative Topic Analyses, one on Weber and one on Weidmann. Since it would be too extensive to look at all German print media, I narrowed down the research material further. So my investigation focused on the reporting in German daily newspapers. Specifically, I examined the reporting in the Süddeutsche Zeitung (centre-left), the Welt (centre-right) and the Handelsblatt (business).

I defined the investigation period as Weber's and Weidmann's respective terms of office. To include coverage prior to taking office, the investigation period begins in the month in which it became known that Weber or Weidmann were to take office as Bundesbank president. In Weber's case, I also looked at reporting up to one month after the end of his term of office to include retrospective articles on him. The investigation period for my analysis of Weber thus runs from 1 April 2004 to 31 May 2011. For Weidmann, I analysed the coverage from 1 February 2011 to 31 March 2020.

Procedure

I used the programming language R to carry out my analyses. In a first step, I filtered all articles in the investigation period using search words. In my analysis, I wanted to look at all articles that dealt with the Bundesbank Presidents Weber and Weidmann. I first limited the material to all articles in which the words "Weber" or "Weidmann" appear at least twice. The names should occur at least twice to exclude articles that mention Weber or Weidmann only in passing. However, filtering purely based on surnames is not sufficient, since it does not exclude articles on the Gerry Weber corporation or German CSU politician Manfred Weber, for example. To ensure that the articles refer to the Bundesbank presidents, I additionally filtered for all articles in which the word "Bundesbank" appears at least once. The filtering resulted in a corpus of 886 articles for the analysis on Weber. For Weidmann, there were 927 articles.

I chose the Latent Dirichlet Allocation (LDA) according to Blei et al. (2003) as the exact method for my quantitative content analysis. This is suitable because I analysed many media contributions due to the long investigation period. The LDA analysis works according to the topic modelling approach (cf. Mohr and Bogdanov, 2013), according to which a topic is a certain group of co-occurring words that occur together. They do so more often when there is a contextual connection between the wordsthem.

LDA is the most widely used method for determining such topics in texts. It analyses analysis all texts of a corpus and thus determines different topics. These topics are a probability distribution of all words in the corpus. Every word occurs in every topic, but with a different frequency. There are therefore words that are more typical (more likely) for a particular topic than others. If we look at these words, the topic can often be interpreted as what human coders would also interpret as a "topic", that is, coherent in terms of content. (Mohr & Bogdanov, 2013, p. 547)

The LDA forms two probability distributions: On the one hand, how likely it is that a word belongs to a topic? On the other hand, how likely it is that a text deals with a certain topic (Mohr & Bogdanov, 2013, p. 547)? Importantly, both probability distributions are determined during analysis and are not fixed a priori (DiMaggio et al., 2013, pp. 590-591). To interpret the LDA, researchers look at the Top Words and the Top Texts of a topic. Top Words are the words that occur most frequently in the topic. Top Texts are the texts that are most representative of a topic.

The literature also points out the disadvantages of LDA. Puschmann and Scheffler (2016) note that LDA does not recognise all topics that a human coder would recognise (p. 12). In addition, human coders' text comprehension is significantly deeper (Puschmann & Scheffler, 2016, p. 12). However, since this study aims to identify rather broad topics over long periods of time, I consider this these disadvantages acceptable.

Boyd and Crawford (2012) point out that it is important for the analysis to be comprehensible (p. 668). Therefore, in the following I will describe the exact procedure for carrying out the analysis. I will also provide the LDA code in R in the appendix.

For the analysis, I used the Tosca package (Koppers et al., 2020), which in turn draws on the tm package (Feinerer & Hornik, 2019) and the lda package (Chang, 2015).

In preparation for the LDA, I tokenised the articles. In this step, all texts are first separated into their individual words. In addition, all punctuation marks and numbers are removed, and all upper-case letters are replaced by lower case letters. Finally, stop words are re¬moved. These are words such as "sie", "aber", "und" or "weil", which occur frequently in the German language but do not offer any added value in terms of content. In this study, I used the stop word list of the Snowball Stemmer Project (Snowball Stemmer Project, 2016) and expanded it with the terms "fuer" and "dass".

As a final step before implementation, I had to determine the exact parameters of the LDA. A crucial parameter is the number of topics K.[7] There are mathematical-statistical approaches to determine the optimal K (Jacobi et al., 2016, p. 94). However, the problem is that a statistically meaningful K can yield topics that cannot be interpreted by the researcher (Jacobi et al., 2016, p. 95). Therefore, Chang et al. (2009) have developed two methods to determine a well-interpretable K. Since these procedures are very complex, I have not used them for this study. Instead, I determined the optimal K for each of the two analyses myself.

To do this, I carried out several LDAs with different Ks and looked which K was the best for interpreting the results. A K is easy to interpret if a meaningful and distinct heading was found for as many topics as possible. The analysis for Weber resulted in an optimal K=14. For Weidmann, the optimal number of topics is 18. The difference can be explained by the longer investigation period in the analysis for Weidmann.

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[7] The other parameters of the LDA are the standard parameters of the R package Tosca: alpha = 1/K. beta = 1/K, number of iterations = 200, burn-in = 70. For a detailed discussion of the choice of parameters, please refer to Binkley et al. (2014).

4. Results: Bundesbank presidents in the German press

I interpreted the topics identified by the two LDA analyses by looking at the Top Words and Top Texts. Table V-1 shows the identified topics and their share in the coverage.

Identified topics in the LDA on Weber			
Topic	**Designation**	**Percentage**	**Category**
AW-1	German Government	5.27	Other Economic Policies
AW-2	Succession of Ackermann	13.23	Weber as a Person
AW-3	ECB Monetary Policy	8.59	Monetary Policy
AW-4	Bank Bailout	4.81	Banks and Financial Markets
AW-5	Int. Currency Policy	3.21	Other Economic Policies
AW-6	Economic Situation	9.55	Economic Situation
AW-7	Supervisory Reform	6.44	Banks and Financial Markets
AW-8	Change of President	9.09	Weber as a Person
AW-9	Sarrazin	3.65	Staff
AW-10	Succession of Trichet	9.2	Weber as Person
AW-11	Bundesbank Board	6.11	Staff
AW-12	Public Debt	8.72	Other Economic Policies
AW-13	Unclear	4.49	-
AW-14	Banking Regulation	7.66	Banks and Financial Markets
Identified Topics in the LDA on Weidmann			
Topic	**Designation**	**Percentage**	**Category**
JW-1	Unclear 1	10.98	-
JW-2	Merkel	5.45	Weidmann as a Person
JW-3	Euro Crisis	5.98	Other Economic Policies
JW-4	Int. Currency Policy	6.99	Other Economic Policies
JW-5	Economic Situation	5.51	Economic Situation
JW-6	Conflict Bond Purchases	14.26	Monetary Policy
JW-7	ECB Governing Council	3.19	Monetary Policy
JW-8	Unclear 2	2.89	-
JW-9	End Bond Purchases	7.37	Monetary Policy
JW-10	Bond Purchases in Court	2.34	Monetary Policy
JW-11	Wage Policy	2.47	Other Economic Policies
JW-12	Succession of Draghi	6.19	Weidmann as a Person
JW-13	Banks	3.52	Banks and Financial Markets
JW-14	Personality	6.01	Weidmann as a Person
JW-15	Lagarde	2.65	Staff
JW-16	Cash Abolition	3.52	Banks and Financial Markets
JW-17	Bundesbank Profit	3.97	Other Economic Policies
JW-18	Unclear 3	6.72	-

Table V-1: *Identified Topics*

A headline can be found for almost all topics. In the analysis on Weber, one topic is ambiguous with a share of only 4.5 percent. In the analysis on Weidmann, there are three ambiguous topics with a share of about 20 percent. The occurrence of such "leftover topics" is normal in LDA analysis. In their analysis, for example, Müller et al. (2018) work with one "leftover topic" that makes up 15 percent of the corpus (p. 571).

The interpretation of the analysis results provides the following answers to the research questions raised in section 2:

How did the intensity of reporting develop over time?

To answer this question, I looked at the distribution of articles in the corpus over the investigation period. Figure V-1 shows the number of articles per quarter over time. When Weber took office in the second quarter of 2004, media interest was high, with 55 articles per quarter. It then dropped and fluctuated slightly at a low level in the following years. There was a slight increase at the end of 2008, when the financial crisis was at its peak. Afterwards, the number of articles in the quarter decreased again.
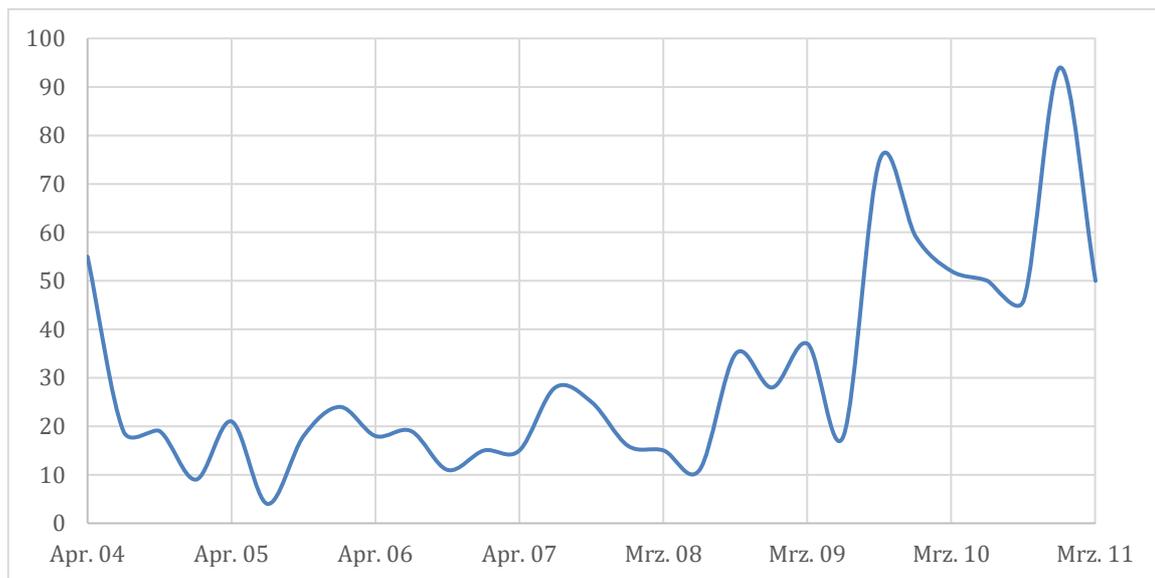
Figure V-1: *Intensity of the coverage on Weber per quarter.*

The number of articles on Weber rose very sharply in the fourth quarter of 2009, namely to 75 articles per quarter. This period marks the beginning of the euro crisis. In the following, the amount of coverage dropped slightly, but remained at a high level. There was a renewed increase in the first quarter of 2011, when Weber announced his resignation. In this quarter, the reporting was most extensive with 94 articles.

Figure V-2 shows the number of articles on Weidmann per quarter over time. In the first quarter of 2011, before Weidmann's tenure, there were just under 30 articles. Then, when

he took office, the intensity of reporting increased before dropping again at the beginning of 2012.

With 83 articles, the third quarter of 2012 was the one with the greatest media interest in the investigation period. During this quarter, the ECB Governing Council decided on the controversial OMT program. Another peak occurred in the second quarter of 2013 with 60 articles. In this quarter, Weidmann testified before the Federal Constitutional Court on the bond purchase programs.

From 2015, the number of articles per quarter fell below 20 for the first time. The intensity of reporting remained at this level until the end of the investigation period. Only in the first and third quarters of 2018 and in the second quarter of 2019 was the number of articles slightly higher than 20 again.
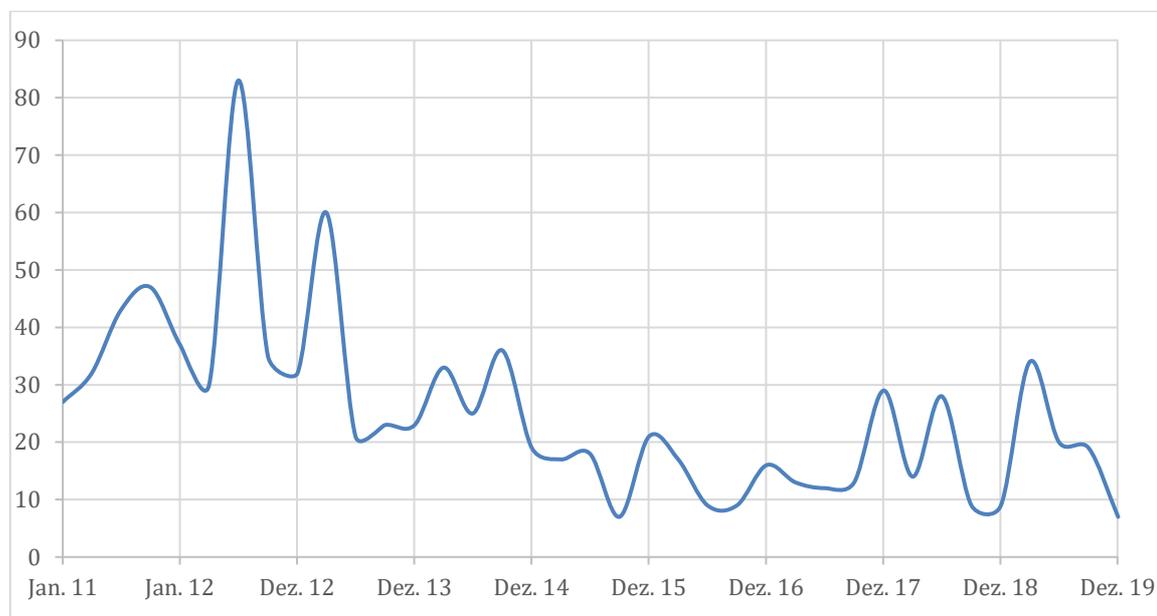
Figure V-2: *Intensity of the coverage on Weidmann per quarter.*

In summary, my analyses show that media coverage on the Bundesbank presidents was more intense during the financial and euro crises. In addition, they show that media interest was slightly higher when they took office.

Which topics can be identified in the reporting?

As already shown in Table V-1, I have assigned the identified topics to individual categories. Figure V-3 shows the share of each category in the coverage of Weber and Weidmann.

In Weber's case, the category Weber as a Person was the largest with 32 percent. For Weidmann, too, the corresponding category took up a large part of the coverage with 18

percent. Thus, the reporting focused strongly on topics dealing with Weber or Weidmann as a person.
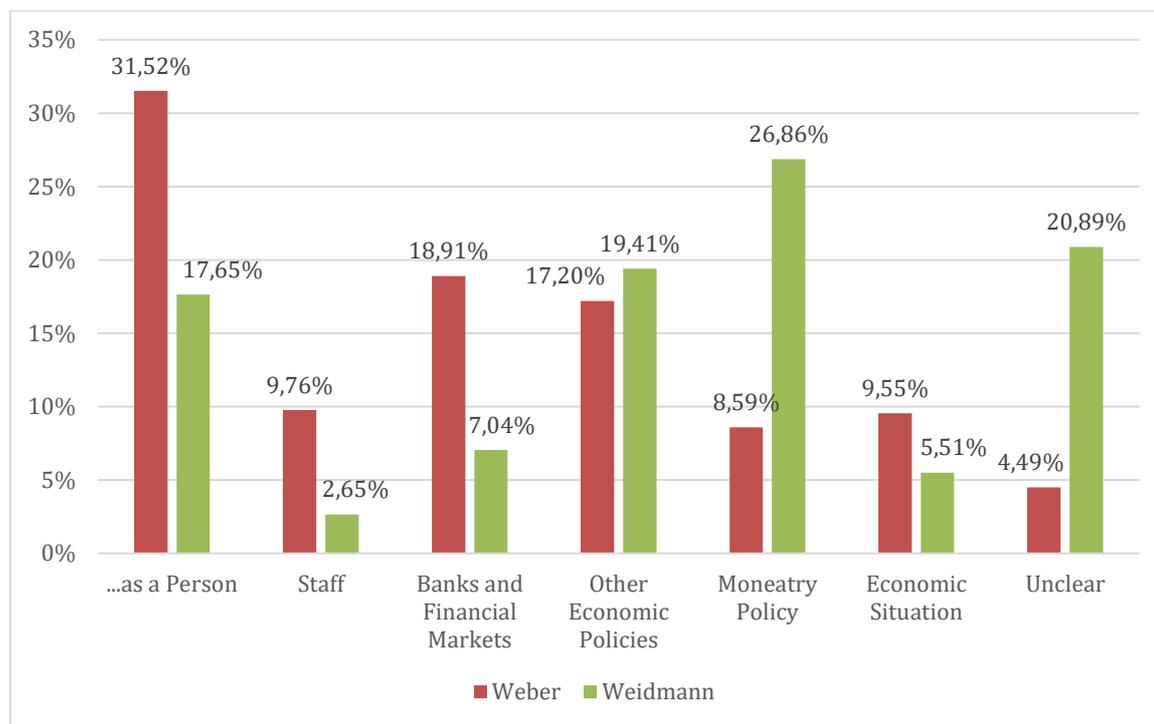
Figure V-3: *Shares of topic categories in the reporting on Weber and Weidmann in percent.*

A closer look at the topics in this category shows that they were not about events such as an appointment or a resignation. Both Weber and Weidmann have a topic on speculation about a future ECB presidency (AW-10, JW-12). Weber also has a topic on his chances of succeeding Josef Ackermann as head of Deutsche Bank (AW-2). This fits with Binder's (2017) finding that Fed Chairman Bernanke received the most coverage on the occasion of events such as his appointment as "Person of the Year". In contrast to Binder (2017), Weidmann's re-election did not play a prominent role in the press. I could not identify a separate topic on this. The reason may be that the Bundesbank president can simply be appointed for a second term. He does not have to be elected by parliament like the Fed president.

My analysis results show differences in the share of the category Monetary Policy. While Weber's share was only 9 percent, Weidmann's share was 34 percent. The topics of the categories differed greatly between Weber and Weidmann in terms of content: While Weber's topics were mainly sober statements on ECB monetary policy (AW-3), Weidmann's topics mainly dealt with the conflict over the purchase of government bonds (JW-6, JW-9,

JW-10). This supports Velthuis' (2015) finding that monetary policy topics are only relevant for journalists if they fit into typical journalistic frames such as personal conflicts.

It is interesting that I did not identify a corresponding topic in the reporting on Weber. The reason for this could be that the conflict only arose at the end of Weber's term in office and therefore played a minor role over the entire investigation period.

How did the composition of topics in the reporting change over time?

To answer research question 3, it is worth looking at the proportion of topics over time. Figure V-4 shows the share of selected topics in the coverage of Weber per quarter over time. At the beginning of Weber's term in office, three topics dominated the coverage: AW-6, AW-3 and AW-1. In the first quarter of 2007, for example, their combined share was 52 percent. However, their share then declined sharply until the end of the investigation period. In the last quarter of the period, they accounted for only 8 percent of the coverage.
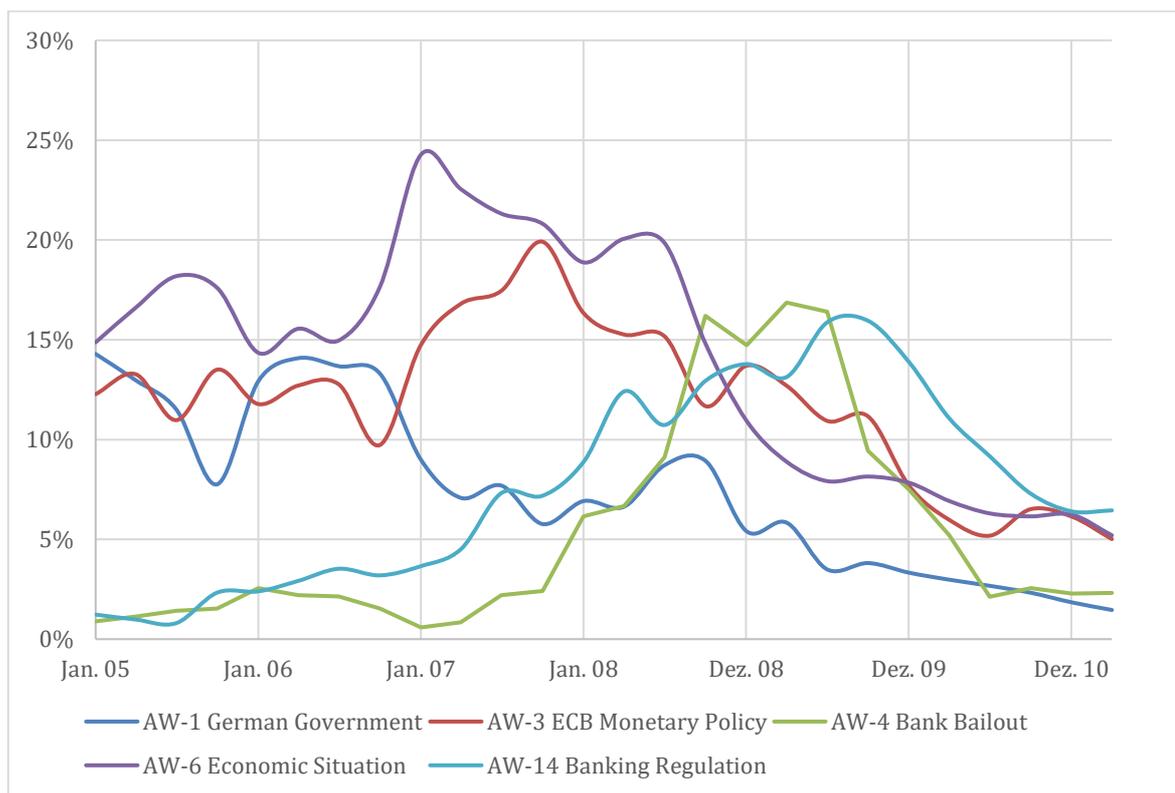
Figure V-4: *Shares of selected topics in Weber coverage per quarter over time as a four-quarter moving averag*e.

From the second quarter of 2007, two new dominant topics emerged, AW-4 and AW-14. While their share was previously very low, these two topics accounted for 29 percent of the coverage in the fourth quarter of 2008. The timing of the change in the dominant topics correlates with the beginning of the financial crisis. In terms of content, the two new topics also match the important issues of the financial crisis. After the fourth quarter of 2009, the

share of these new topics decreased again. This is also consistent with the content, since in 2009 the financial crisis turned into the euro crisis. So, before the financial crisis, journalists routinely dealt with Weber's assessments of the economic situation, monetary policy or recurring conflicts with the federal government. With the onset of the financial crisis, Weber's views on bank rescue or bank regulation became a reporting interest.
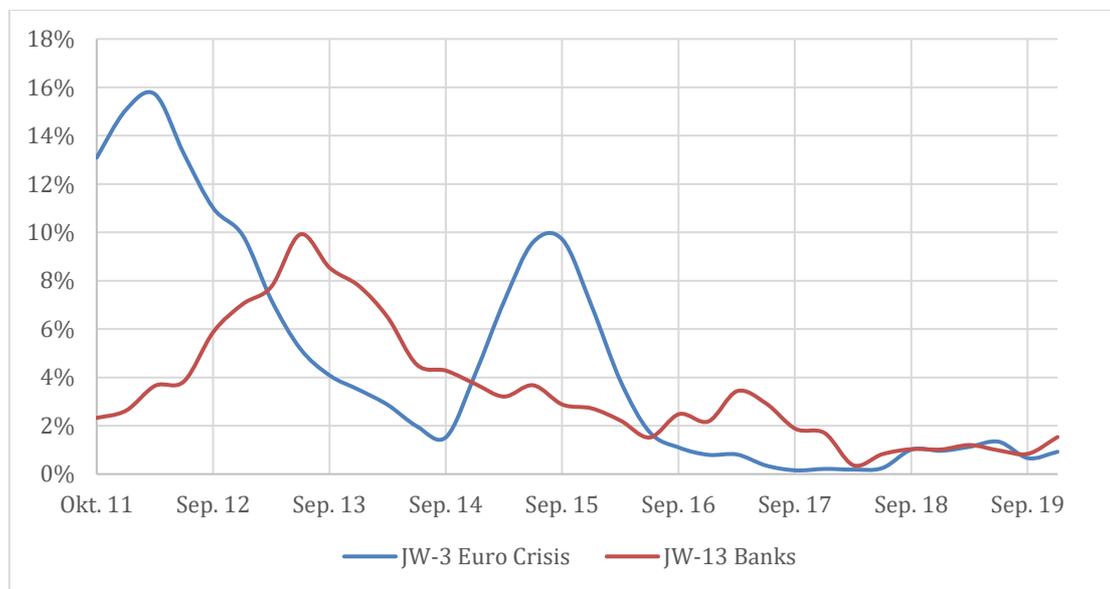
Figure V-5: *Shares of selected topics in Weidmann coverage per quarter over time as a four-quarter moving average.*

Figure V-5 shows the share of the topics JW-3 and JW-13 in the reporting on Weidmann per quarter over time. Here, we see that Topic JW-3 dominated the coverage of Weidmann from the time he took office. This is appropriate in terms of content, since Weidmann's term of office began during the euro crisis. In the first years of Weidmann's term of office, another crisis topic became more prominent with JW-13, dealing, for example, with banks that had been hit by the euro crisis.

The share of the JW-3 theme declined sharply in 2013, the year the euro crisis dissipated. With the strengthening of the crisis in 2015, the share of the topic increased again briefly. The share of both crisis topics then dropped and remained at a low level until the end of the investigation period.

Figure V-6 shows the share of the topics JW-6 and JW-9 in the reporting on Weidmann per quarter over time. Throughout the entire investigation period, topics on the ECB's bond purchase programs account for a significant share of Weidmann's reporting. At the beginning, the topic JW-6 dominated. It neutrally deals with the conflict over the ECB's mandate for the programs. From the middle of 2013, the topic JW-9 increasingly appeared in the reporting. It covers a possible end to the purchase programs due to the improved economic

situation. From the fourth quarter of 2016, the share of Topic JW-9 at times even significantly exceeded Topic JW-6. After the euro crisis, the reporting thus more strongly supported Weidmann's call to end the purchase programs.
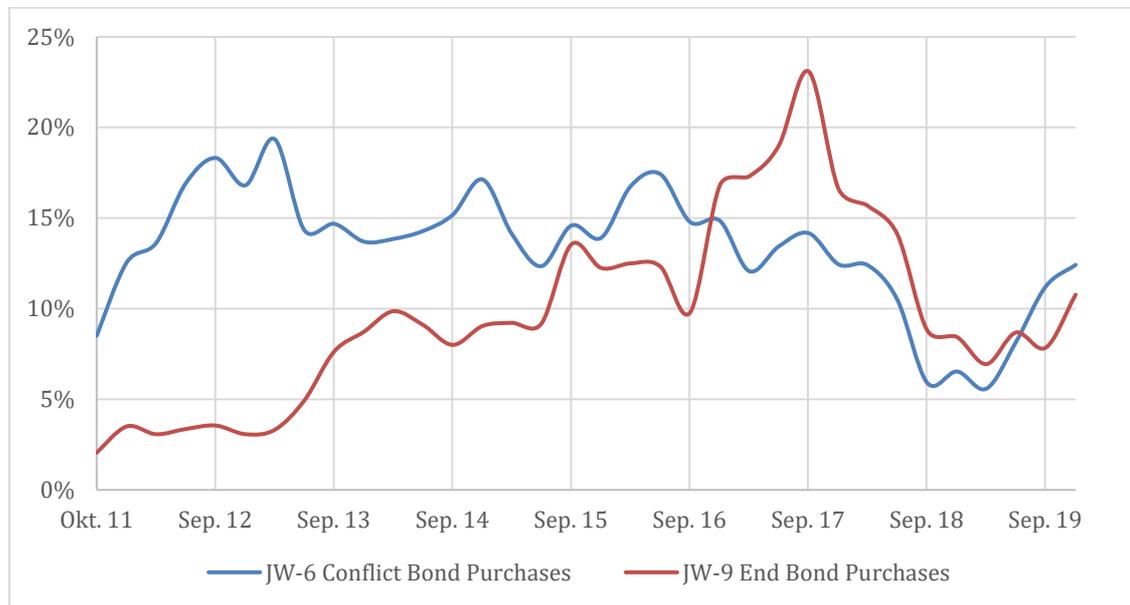
Figure V-6: *Shares of selected topics in Weidmann coverage per quarter over time as a four-quarter moving average.*

A succession topic emerged in the reporting on both Bundesbank presidents about two years before the end of the current ECB president's term of office. This topic dealt with the respective Bundesbank president's chances of becoming ECB president. As the top central banker of the largest EU state, the Bundesbank president seems to be a natural candidate for the ECB presidency in the view of the press.

How did the topics differ in the reporting between Weber and Weidmann?

There are many similarities between the results of the analyses of the reporting on Weber and Weidmann. For example, the topics can be assigned to the same categories. In both cases, for example, topics revolving around Weber or Weidmann as a person were strong. For both Weber and Weidmann, I could identify topics that dealt with international monetary policy and the economic situation. Both also had a topic on the succession of the current ECB president.

Some topics, which only appeared in the reporting on one of the two Bundesbank presidents, refer to specific events during their respective term of office. Topic AW-9, for example, dealt with the Sarrazin affair. The Sarrazin affair ended during Weidmann's term in office. Conversely, Topic JW-16 dealt with the abolition of cash, which was not relevant during Weber's term of office.

Despite many similarities, there is one clear difference. In Weidmann's case, the press reported much more extensively on monetary policy, specifically on the conflict over the purchase of government bonds. In Weber's case, I could not identify a separate topic. The share of monetary policy topics was low.

Did the coverage of Weber and Weidmann contribute to effective communication of ECB monetary policy?

To answer this question, I checked for topics that explained monetary policy decisions and clarified the ECB's long-term monetary policy stance. In Weber's case, the only monetary policy topic AW-3 fulfils this requirement. However, it only accounted for just under 9 percent of the reporting. Topic AW-6 comprised Weber's statements on current and future economic developments. Therefore, it too contributes to the ECB's effective central bank communication. For as Benedikt (2015) notes, one part of central bank communication is also the "publication of cyclical and monetary projections" (p. 469). All other identified topics on Weber did not contribute to an efficient communication of ECB monetary policy.

In the press reports on Weidmann, I also identified JW-5 as a topic on the economic situation that supports efficient communication of monetary policy. In contrast to Weber, the monetary policy topics made up a large part of Weidmann's reporting. However, since they mainly dealt with the conflict over the bond purchase programs, it is questionable whether they also contributed to an efficient communication of ECB monetary policy. Because of the different views of the ECB Council members, the ECB's monetary policy course was not clearly communicated on these topics.

Whether different opinions of the members of a central bank's decision-making committee should be communicated is controversial. Former Fed Chairman Ben Bernanke (2004) stated: "[T]he willingness of FOMC members to present their individual perspectives in speeches and other public forums provides the public with useful information about the diversity of views and the balance of opinion on the Committee." Ehrmann and Fratzscher (2012) come to a different conclusion. They found that the communication of different views by FOMC members explains on average one-third to one-half of the market's forecast errors in Fed monetary policy decisions. According to the findings of this study, the monetary policy topics in the coverage of Weidmann did not tend to contribute to effective communication of ECB monetary policy.

Overall, the reporting on the Bundesbank presidents contributed only slightly to effective communication of the ECB's monetary policy.

5. Conclusion

My analyses provide several key findings. One is that topics dealing with the respective Bundesbank president as a person were strong in the reporting. The topics were, for example, about their personality or their assumption of office. I also identified a topic for both Weber and Weidmann that dealt with speculation about a possible ECB presidency. This topic appeared in each case from just under two years before the end of the term of office of the current ECB president. The analysis on Weber also identified a strong topic that dealt with his chances of becoming the head of Deutsche Bank.

Another finding of my analysis is that monetary policy topics only played an important role in the reporting on the Bundesbank presidents when they dealt with personal conflicts. Thus, in Weidmann's case, monetary policy topics made up the bulk of the coverage. In terms of content, however, they mainly dealt with the conflict between Weidmann and ECB President Draghi over the bond purchase programs and the dispute before the Federal Constitutional Court.

For Weber, on the other hand, a corresponding topic could not be identified. Monetary policy topics made up only a small part of the reporting. This is also the only major difference in the reporting on Weidmann. Otherwise, topics on the economic situation, on banking and financial markets, on other economic policy and on personal issues could be identified in the reporting on both Bundesbank presidents.

Overall, the analysis of the identified topics shows that the coverage of Weber and Weid¬mann contributed only slightly to an effective communication of the ECB's monetary policy. The share of topics explaining the ECB's monetary policy decisions and clearly illustrating the ECB's long-term monetary policy course was low.

The analyses also show that there was a change in reporting during the financial and euro crises. The intensity of reporting was higher in times of crisis. In addition, new topics emerged during the crisis that replaced established topics. With the onset of the crises, the press also took up Weber's and Weidmann's views on topics such as bank regulation or the Greek bailout. It can also be seen that after the euro crisis, demands for an end to the bond purchase programs were more strongly supported in the reporting.

Like any scientific research, my study is subject to certain limitations. For example, I only examined articles from three national daily newspapers. Coverage in weekly magazines or

local newspapers was not included in the findings. For future research, it would be interesting to examine the coverage in online media. For as Binder (2017) notes, these report significantly more extensively on central banks (pp. 201-203).

As a quantitative computer-based method of analysis, LDA also has its limitations. Topics that only appear briefly cannot be captured by it at all. In addition, it cannot be ruled out that the analysis incorrectly identifies a topic in an article due to related words that do not actually refer to the content at hand. For example, according to the analysis results, the topic Ackermann succession is present to a small extent in Weber's reporting during the investigation period. This makes no sense, however, since Ackermann's succession was only discussed in the last years of the investigation period. Presumably, the analysis also assigned articles to the topic that dealt with Deutsche Bank and Ackermann elsewhere. Moreover, one problem with LDA analysis is that it is not reproducible and slightly different results emerge when it is carried out again over the same corpus.

The LDA analysis also only provides a rather rough view of the coverage, which results in very broad topics. This was sufficient to answer the research questions of this paper. However, the results of the analyses can be the basis for future work. A qualitative analysis of the typical articles on the individual topics would be interesting. For example, it would be possible to work out more precisely how the press portrayed the conflict between Weidmann and Draghi on the bond purchase program.

Since Weidmann's term in office has not yet ended, a further analysis later would also be interesting. For example, it could be investigated whether new topics emerged in the reporting on Weidmann during the COVID-19 crisis. Since Weidmann has spoken out in favour of the PEPP purchase program, it would also be interesting to find out whether this monetary policy measure received less coverage in the absence of a personal conflict.

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VI. Covering Draghi: Analysing the Media Coverage of Former ECB President. A German-French Comparison

A Topic Analysis

by Tobias Schmidt

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Abstract

The aim of this paper is to better understand the media coverage of former ECB President Mario Draghi in France and Germany. It therefore examines the corresponding print media coverage in three leading daily newspapers from Germany (Süddeutsche Zeitung, Handelsblatt, Die Welt) and France (Le Figaro, Le Monde, Les Échos), respectively. The study corpus comprises over 2,000 articles from eight years, each of which contains the word "Draghi" at least three times. By means of an LDA-based topic analysis (Blei, et al., 2003), eight latent main topics can be identified per country, revealing the agenda-setting on both sides of the River Rhine. Most strikingly, in Germany a "saver" topic is popular, which focuses on the effects of monetary policy on German savers. In France, there is a "Germany" topic that focuses on German criticism of ECB policy. Furthermore, there are indications that the analysed articles are shaped by the respective prevailing economic ideologies: In the German press, the argumentation appears more ordoliberal, in the French press, more Keynesian.

Keywords: *European Central Bank, monetary policy, press, media coverage, topic analysis, Latent Dirichlet Allocation, quantitative content analysis*

1. Introduction

The former president of the European Central Bank (ECB), Mario Draghi, excited the media landscape in Europe as probably few central bank presidents before him. He took office in the midst of the European debt crisis, at a time when the eurozone threatened to collapse. Under his leadership, the ECB introduced zero and negative interest rates. It implemented an instrument that allows for the de facto unlimited purchase of sovereign debt with maturities of up to three years (the OMT program). It even had to justify its monetary policy decisions several times before national and international courts. At the same time, since his famous speech at the Global Investment Conference "British Business Embassy" in 2012, Mario Draghi has been hyped, until today, as the "game changer" of the European debt crisis.

Since then, the name Mario Draghi has repeatedly been used in the press to personify the ECB as a whole: Irrespective of his objective room for manoeuvre, quality newspapers and tabloids reproduced the narrative of an ECB president who single-handedly saved the euro with three simple words ("whatever it takes"). In the media, he has since been regarded as the "hero who saved the eurozone", as the "harasser of taxpayers" or as "the most powerful man in Europe" on several occasions. It is striking how the competencies attributed to Draghi diverged from his (official) sphere of competence.

However, a look at the daily newspapers of other European countries shows that many of the views disseminated in Germany were not shared in other countries. Especially French economic reporting seems to differ considerably from the German coverage. The reasons for this are said to be grounded primarily in the differences in economic policy traditions that prevail on both sides of the River Rhine. Since the foundation of European Economic and Monetary Union (EMU) in 1992, France has been repeatedly brought up as the economic ideological counter-position to the German understanding of European monetary policy (Flachmeyer & Paul, 2018). Accordingly, many studies were able to prove differences in media framing and agenda setting between the two neighbouring countries (Hubé et al., 2015; Ojala & Harjuniemi, 2016; Müller et al., 2018).

These findings are of great importance, because the significance of media coverage goes far beyond its purely informative character. As several research papers have demonstrated, there is a clear link between the economy and the press that covers it. Economic coverage directly or indirectly affects factors such as uncertainty (Müller, et al., 2018), GDP growth (Grossarth-Maticek & Mayr, 2008), inflation forecasts (Lamla & Maag, 2012), financial

markets (Tetlock, 2007; Engelberg & Parsons, 2011; Yadav et al., 2019), bond spreads (Gregori & Sacchi, 2019) or car sales (Dewenter, et al., 2016). Especially with respect to monetary policy issues, the public informs itself primarily through mass media (Hayo & Neuenkirch, 2015; Lamla & Maag, 2012). Following Bonfadelli (2004), Lischka (2015) states that there is a clear reciprocal relationship between social reality (formed under the influence of media coverage) and "objective reality". Thus, there is reason to believe that the newspaper articles covering Mario Draghi had an impact on how French and German citizens perceived the economy.

It is all the more remarkable that the coverage of Mario Draghi has not yet been systematically researched. This paper aims to make a first contribution to this. Therefore, I will first explain the motivation for a comparison between German and French reporting. I will show to what extent the agenda setting of wide-reach media serve and reinforce nationally diverging patterns of interpretation (section 2). I will then describe the procedure of my research (section 3) and present the results of the conducted topic analysis (section 4). Finally, I will provide a summary of the main findings (section 5).

2. Theoretical background and literature review

Both France and Germany enjoy a leading role within the European Union. Since "Brexit" they have been the two largest economies in the EU, accounting for more than 40 percent of Europe's combined economic output (World Bank national accounts data, 2021). Both countries are members of the G20, G7 and the OECD. They are among the six founding countries of the EU and since the signing of the Elysée Treaty on 22 January 1963, Germany and France have enjoyed close friendly relations.

Nevertheless, it is ordoliberal Germany and Keynesian France that stand for the competing economic dogmas in the EU like no other two nations (Ojala & Harjuniemi, 2016).[8] A lot of research has proven the differences in the way Germany and France assess and pursue economic policy in general (Brunnermeier et al., 2018; Crespy & Schmidt, 2014; Hubé, 2004), especially with regard to the monetary policy of a central bank. While for German economists, the unconditional fight against inflationary tendencies has been the top priority

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[8] For a detailed analysis of the economic history of the two countries, see Hagemann (2005), Maes (2004), Caesar (2004), Brunnermeier et al. (2018), among others.

in the post-war era, French voices have been constantly calling for the ECB's mandate to be expanded to include a comprehensive economic policy (Caesar, 2004).[9]

This conflict between ordoliberal Germans and Keynesian French became particularly evident with the outbreak of the global financial crisis in 2008 (Esch & AWJ., 2014). German economists warned of "collateral damage of the ECB strategy", of a "silent establishment of a liability union"[10] and of delayed filings of insolvency (Illing, 2013). In turn, calls for Keynesian (anti-cyclical) measures became increasingly loud in many European countries, especially in France. As Ojala and Harjuniemi (2016) put it, the whole economic policy debate on the euro crisis was characterised by a battle of interpretation between austerity-oriented ordoliberals and their "Keynesian opponents". The media coverage at that time shows this very impressively. For example, Ojala and Harjuniemi (2016) point out that the German and French media see the causes of the crisis quite differently: While in France, 33% of all identified "blame-frames" can be attributed to a Keynesian view (such as the (mis)construction of the EMU), in Germany it is just 14%. Conversely, ordoliberal interpretations (e.g. lack of competitiveness of the southern states) are much more widespread there (59%) than in France (42%). Kaiser & Kleinen-von Königslöw (2019) provide evidence that during the financial crisis, economically right-wing frames were more present in Germany than left-wing ones. Crespy and Schmidt (2014) find that "whereas Sarkozy repeatedly talked of solidarity, Merkel insisted only on stability" (p. 13). Moreover, they show that the German and French media – following the respective heads of state – spread ordoliberal or Keynesian views in the press. Thus, it is not surprising that the media narratives about who is to blame for the euro crisis differed in the two countries (Müller, et al., 2018).

With these findings in mind, it seems likely that public opinion on Mario Draghi in Germany and France was affected by the media coverage during his tenure. As communication studies teach us, media are the most important source for citizens to inform themselves about the general economic situation of their country (Blinder & Krueger, 2004). Hayo and

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[9] In September 2017, Emanuel Macron proposed the establishment of a European finance minister (Ministère de l'Europe et des affaires étrangères, 2017). Unsurprisingly, this proposal was ostentatiously ignored by the German government. (Neue Züricher Zeitung, 2018; Tagesspiegel, 2017).
[10] On 21 May 2018, 154 German professors of economics issued a joint letter warning that the European Monetary and Banking Union should not be "further expanded into a liability union". The initiators of the so-called "Atlas Initiative" were Dirk Meyer, Thomas Mayer, Gunther Schnabl and Roland Vaubel. (Atlas-Initiative, 2018).

Neuenkirch (2015) provide evidence that financial market actors rely more on media reports on central bank policy than on their own observations. Therefore, the choice of topics in the press – the agenda – is of great relevance. The more extensive the coverage on a chosen topic, the more significant it appears (Wanta, et al., 2004). Thus, journalists have a great influence on how society perceives certain (economic) topics and assesses their relevance (Russell Neuman, et al., 2014).

The so-called first-level agenda-setting approach follows the assumption that under certain circumstances "the news media do tell people what to think about" (Wanta, et al., 2004). Thus, it was journalists' morning decisions that had the French or German public debating on an interest rate cut, a press conference by Mario Draghi or debt relief for Greece. The perceived relevance of a topic is determined by whether it makes it into the media.

Whereas this first level determines what a public sphere debates, the so-called second-level agenda setting influences how they think (Wanta et al., 2004). This is mostly shaped by the simple fact that a press article emphasises certain aspects of a topic while omitting others. It is easy to argue that, say, the recurrent calculation of the economic costs of EU crisis policy for German savers and taxpayers had an impact on how the German public evaluated the ECB, especially in comparison to neighbouring countries where such calculations were not made.

Based on these findings, I expected to find clear differences in the French and German media regarding agenda setting and the sentiment towards Mario Draghi. Moreover, since the agenda-setting of a national media system has at least some power to influence the real economy (section 1), I stated that the media reporting on Mario Draghi played a much more important role for political discourses and European stability than research assumes. Specifically, my research question was:

Are there differences in the media discourse on former ECB President Mario Draghi between the German and French media in terms of agenda setting – and if so, what are they?

3. Method

To answer the research questions, a quantitative content analysis was applied. More precisely, I compared the Draghi-related media coverage in Germany and France in the period from 2011-2019 (Draghi's term in office). I expected that most Franco-German differences in the evaluation of ECB policy, and therefore of Mario Draghi, could be found in the

differences in French and German latent media topics. To my knowledge, this is the first analysis of this kind.

Data

I investigated the print media coverage in three leading daily newspapers in Germany and France, respectively. For Germany, these were Süddeutsche Zeitung, Handelsblatt and Die Welt. For France, Le Figaro, Le Monde and Les Échos served as references. These daily newspapers are among the most popular in their countries. In Germany, Süddeutsche, Welt and Handelsblatt are the second, fourth and fifth largest daily newspapers in terms of circulation. (IVW, 2020). Le Figaro, Le Monde and Les Échos are the first, second and fifth most purchased daily newspapers in France. (ACPM, 2019).

Besides their popularity, these newspapers were chosen because of their assumed political orientation. For each country, I selected both a right-wing conservative (Welt, Le Figaro) and a left-wing liberal paper (Süddeutsche, Le Monde). Since one thesis in this paper is that in France, across all media, the view of Mario Draghi's term in office tends to be Keynesian ("left-wing") and in Germany ordoliberal ("right-wing"), this approach is particularly critical. In addition, I added one purely economic daily newspaper to the corpus, respectively (Handelsblatt, Les Échos).

The newspaper archive for the examined media was accessible via the LexisNexis platform. The period of investigation covers Mario Draghi's entire term of office between 1 November 2011 and 28 October 2019.

Procedure

In a first step, I developed a precise search term in order to further limit the corpus. Thanks to the uniqueness of the name "Draghi" in public discourse, the restriction to the surname was completely sufficient to obtain all relevant newspaper articles. Of course, the corpus created in this way was still too imprecise to allow a valid analysis. Therefore, based on the quality parameters recall and precision developed by Stryker et al. (2006), the composition of the corpus was iteratively refined.

The resulting search term was "3x Draghi AND NOT 3x Lagarde", which delivers all articles which contain

- at least three times the word "Draghi" and
- a maximum of three times the word "Lagarde"[11]

The corresponding recall value is 53, the precision value is 84. The resulting total corpus contains 1,452 German-language and 690 French-language articles. By searching for at least three mentions of the word Draghi, I wished to identify only articles in which Draghi is in the centre of interest and exclude all articles which only mention the former ECB president in the larger context of general monetary policy, e.g. all news articles about debt, LIBRA (today DIEM) or Bitcoin.

German media	Süddeutsche 469	Handelsblatt 623	Welt 360	Total 1,452
French media	Le Monde 207	Les Échos 280	Le Figaro 203	Total 690
Total				2,142

Table VI-1: *Composition of the corpus*

The further analysis is based on the Latent Dirichlet Allocation (LDA) according to Blei et al. (2003). It is one of the leading topic modelling methods that enables the evaluation of large amounts of data with the help of computer-based linguistics and mathematical techniques. The aim of LDA is to discover recurring, latent structures in large amounts of text (Puschmann & Scheffler, 2016; Jacobi & Welbers, 2016). Based on frequencies and word correlations, it generates content-based, selective word lists, each of which can be interpreted as a distinct topic. If there were indeed differences between the German and French Draghi coverage, LDA should detect them in terms of different topic constellations. The interpretation of these topics then makes it possible to identify (latent) thematic focal points in the German and French press.

In this context, the terms "top words" and "top text" become relevant. The term "top words" refers to those words in a text corpus that occur frequently together within that corpus. They are particularly representative of the topic they form. For example, as the following

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[11] Towards the end of Draghi's term, more and more articles appeared about his successor Lagarde. These are typically articles which focus on Lagarde instead of Draghi (who is mostly only mentioned in passing). Therefore, the search term was limited to articles in which Lagarde does not play a major role.

section will show, one German topic contains the top words fed, usa, dollar, trump, notenbanken, geldpolitik, and yellen. This indicates that the US monetary policy and the dollar were an important part of Draghi-related news articles in Germany. "Top texts" are then those articles within the corresponding corpus which are particularly representative of a particular topic. Thus, the LDA is a promising method for gathering necessary information, reducing its complexity and enabling plausible and statistically validated interpretations (DiMaggio & Blei, 2013). I carried out the LDA separately for both corpora.

The number of topics which the LDA shall extract has to be set in advance by the researcher. That is, when the researcher expects to find 12 different latent topics in the media coverage, he or she has to preset the corresponding value – the parameter k – to 12. In the literature, there is no generally prevailing method for determining an optimal value of k. In general, a high number of topics is associated with a more detailed result (Jacobi, et al., 2016). This might be desirable, but – above a certain size – it is disadvantageous for the interpretability of the individual topics. On the other hand, a k-value that is too low can lead to actually unrelated terms being wrongly assigned to the same topic. This also complicates the interpretation and can lead to false conclusions.

In order to determine an adequate k-value, I carried out several LDAs, each with a different k-value. I then looked to see for which value the results seemed most coherent. The parameter was considered appropriate if it allowed a meaningful and distinctive labelling for as many topics as possible. It turned out that for both the French and the German reports, k=8 provides the best results. The revealed topics are displayed in more detail in Figure VI-3 (next section) and the Tables VI.1 and VI.2 in the Appendix. [12]

All steps from data pre-processing (tokenization, removing punctuation and stop-words, etc.) to the final text analysis were performed using the open-source data analysis software R (R. Core Team, 2013) and the R-package tosca (Koppers, et al., 2018). This package was specially developed for quantitative content analysis based on LDA. It has already been used successfully in similar research projects (Müller et al., 2018; von Nordheim et al., 2019).

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[12] The results for the values of *k*=8 to *k*=12 are shown in Table VI.3, Appendix.

4. Results

Figures VI-1 and VI-2 give an impression of how the popularity of Draghi articles has developed over his term in office in Germany and France. Both graphs show the absolute number of texts published in a month as well as smoothed values (red curve). It becomes clear that the interest in Mario Draghi on both sides of the River Rhine was at its highest one year after he took office and has since gradually returned to its initial level.
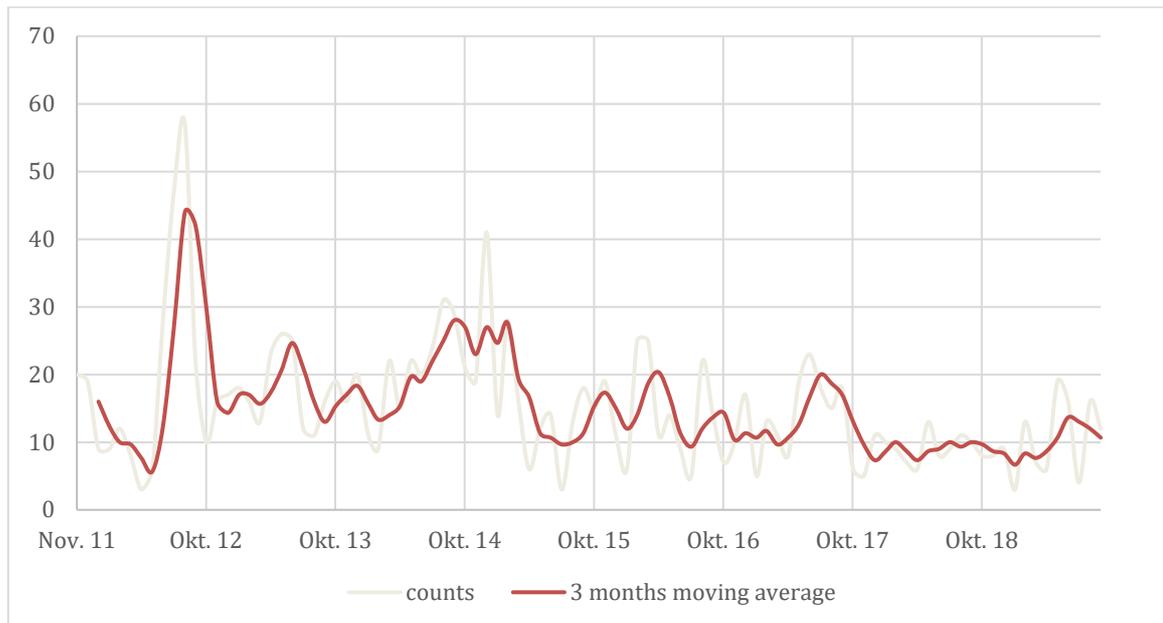
Figure VI-1: *Amount of Draghi reports over time in Germany per month*
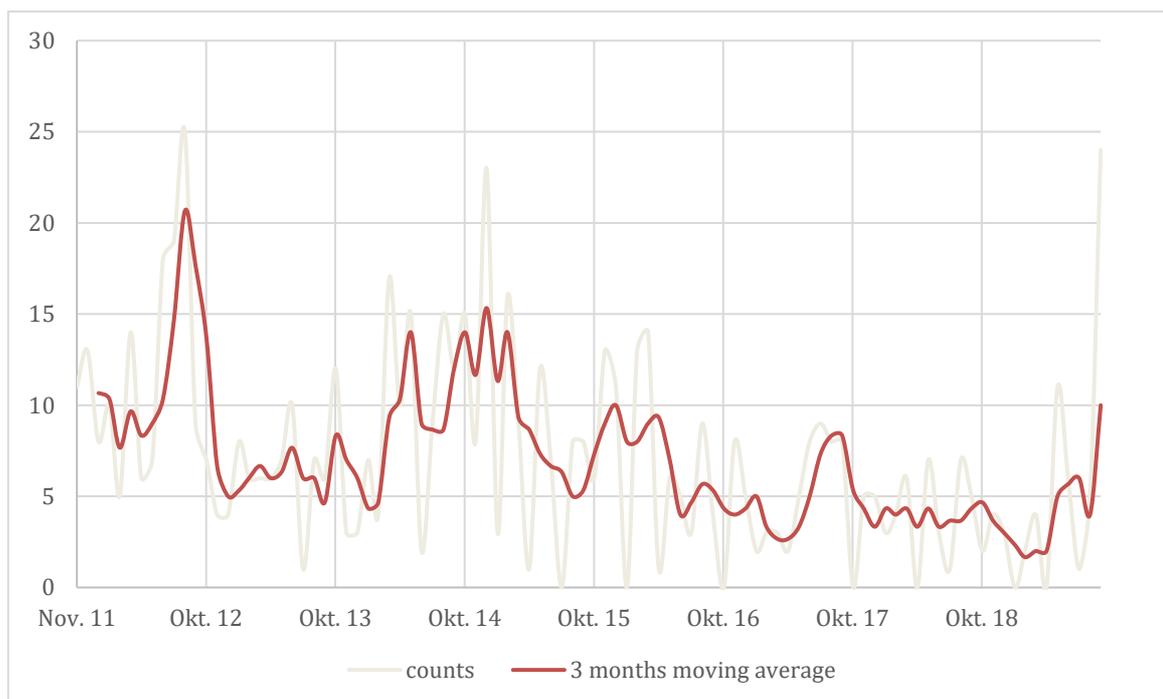
Figure VI-2: *Amount of Draghi reports over time in France per month*

This peak is due to the ECB press conference in July 2012, when Draghi proclaimed that the ECB would do "whatever it takes to preserve the Euro" (European Central Bank, 2012). Also noticeable are the peaks at the turn of the year 2014/2015 (Europe experienced (monthly) deflation for the first time in history) and in France at the end of Draghi's term. When comparing the latent media topics revealed by LDA, the differences (and similarities) between German and French reporting become even clearer.

As **Fehler! Verweisquelle konnte nicht gefunden werden.**VI-3 shows, French and German agenda setting have a lot in common. Both countries were interested – and created interest – in Greece and other EU countries that have been hit harder by the financial crisis than themselves. In addition, I found the stock market, the ECB's purchase programs, the ECB staff and the ECB's interest rate policy as recurring aspects of Draghi coverage in both countries. Moreover, in both countries, there was one topic which addressed a possible end of ECB bond purchase programs– either suggesting that such an end is near or had just been postponed ("once again").

In addition, German journalists regularly mentioned the situation in the US, resp. the current dollar exchange rate and the domestic policy in a Draghi context. As the LDA reveals, French journalists, in contrast, like to point at Germany. For more detail about this topic, see below. The remaining French topic is very difficult to label and is therefore interpreted as a "residual" topic.

The course histories frequencies of all topics can be found below or in the Appendix (Figures VI.4 and VI.5).
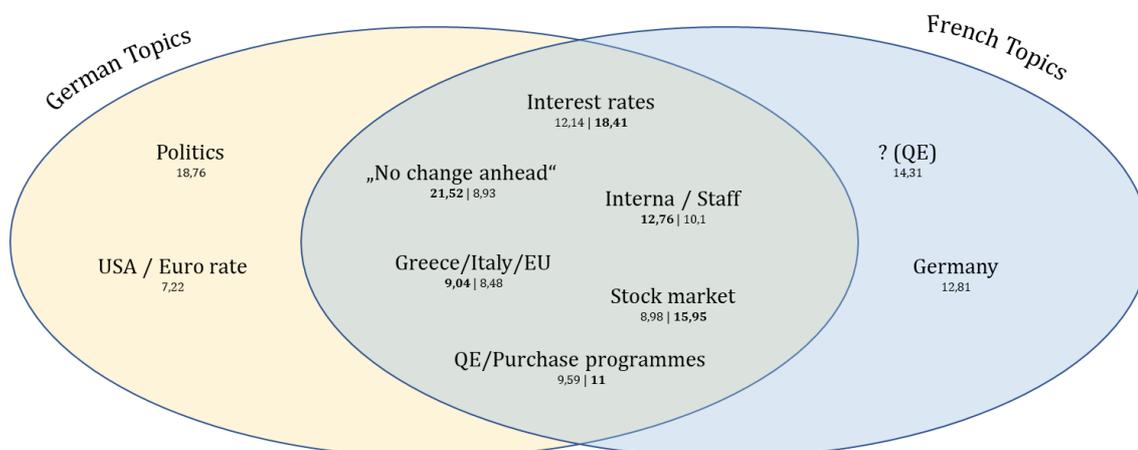
Figure VI-3: *German and French latent topics. The popularity of each topic in Germany (left) and France (right) is indicated below each topic*

German topics

The German topic Tg2[13] ("Interest Rates"), which deals with the ECB's interest rate decisions, is particularly interesting. Many of the typical Tg2 texts point to the concerns of savers in Germany, who hardly or no longer receive any interest on traditional savings accounts. The following headlines of news articles related to this topic illustrate this:[14]

- Draghi threatens penalty fee for hoarding [Süddeutsche Zeitung, 7 May 2013]
- Troubled savers [Süddeutsche Zeitung, 27 November 2013]
- States profit, savers lose [Süddeutsche Zeitung, 6 August 2018]

A frequency analysis of the terms "sparer" (savers), "deflation" and "strafzinsen" (penalty interest) within the topic yields even deeper insights. It shows that some of the peaks have a thematically clearly identifiable cause (Figure VI-4).
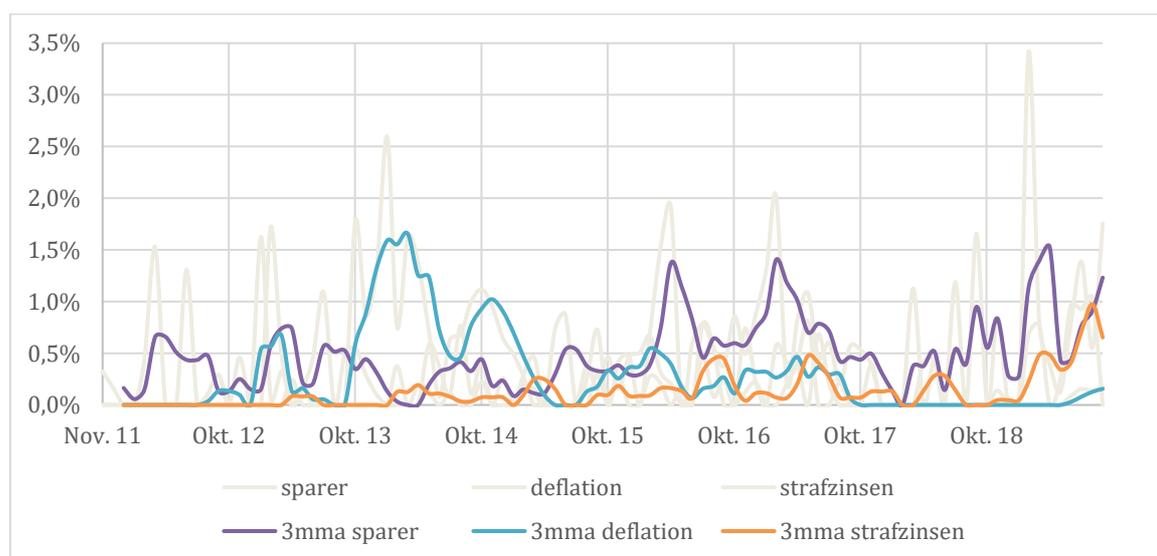
Figure VI-4: *Prominence of the terms "sparer", "deflation" and "strafzinsen" in Tg2 as a share of all words, indicated by the respective three-month moving average (3mma).*

The peak at the beginning of 2014 is particularly striking. This was the time when more and more economists and journalists begun to warn of impending deflation in the Eurozone. The word "sparer" gained in importance in 2016 when the ECB lowered the key interest rate to zero for the first time. That is – two years after the introduction of negative

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[13] The topics were named Tg1-Tg8 for the German corpus and Tf1-Tf8 for the French corpus
[14] I translated the headlines into English for better understanding

interest rates –, another zero limit had now been reached, by which savers (or rather journalists) felt much more affected. Until then, the negative interest rates for deposits placed by the ECB had received little attention. They only became popular in the media when the first banks began to pass them on to customers (purple curve). In the French media, there was no such focus on savers. On the contrary: In France, the German obsession with German savers was much more of an issue. For example, Le Figaro reported on 29 March 2016 on "The anger of German savers towards the ECB's generosity".

A study of the top texts further reveals that the general (German) desire for a "return to normal monetary policy" appears as a separate, and besides the most popular, latent topic in German media reports. The texts summarized under the German topic Tg3 either describe that Draghi might finally change "his" strategy, or that he has exactly not done that. Journalists also frequently write about the (positive) inflation trend, usually followed by the claim that the ECB must now reverse measures. The following headlines of the corresponding top texts make this clear:

- End of bond purchases? [Welt, 14 June 2018]
- Draghi hints at a turnaround [Handelsblatt, 9 June 2017]
- When will the exit begin? [Handelsblatt, 18 October 2016]
- The end of the money flood is near [Welt, 10 October 2016]
- The end of monetary policy excesses is approaching [Welt, 9 March 2018]

As Figure VI-5 shows, the topic was somewhat more popular in the second half of Draghi's term than in the first. Given the accumulated spending on government bonds and the historically low interest rates in the euro area, this is hardly surprising.
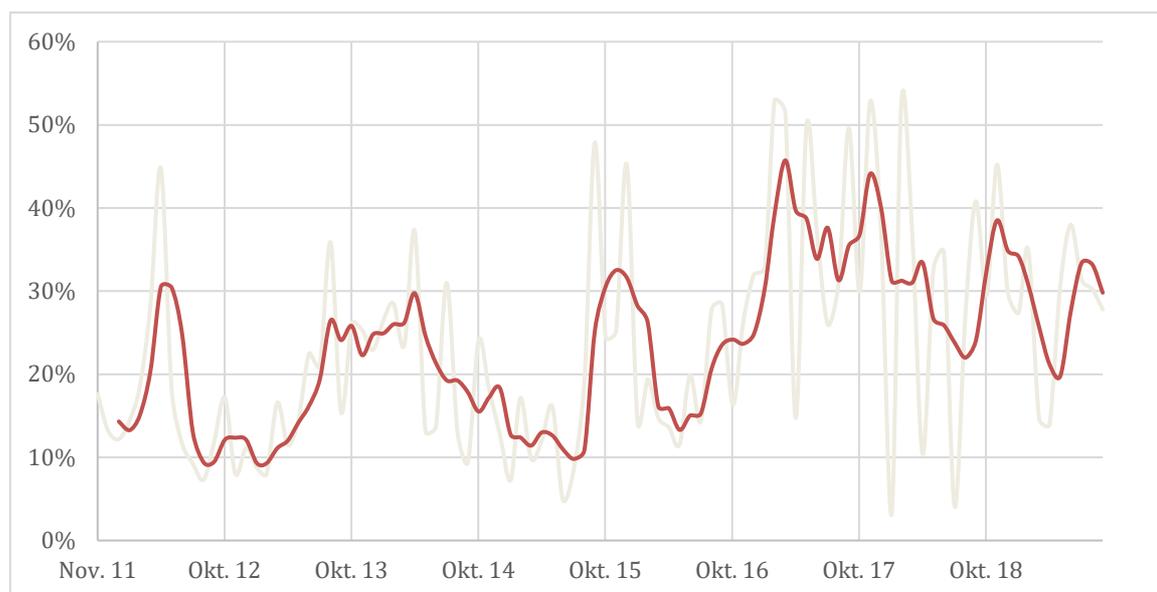
Figure VI-5: *Prominence of Topic Tg3 over time as a three-quarter moving average. The percentage values indicate the share of words that were assigned to this Topic.*

French topics

Topic 3 from the French corpus is the equivalent to the German topic Tg3. The top texts reveal that this topic deals with a possible "change of course", as well. The following headlines make this clear.

- A strong euro disrupts the normalization scenario for ECB policy [Les Échos, 6 September 2017]

- The European Central Bank confirms its money shift [Les Échos, 27 July 2018]

- Markets are looking for signs of an end to QE [Les Échos, 25 April 2018]

- The ECB is ending its massive debt buybacks – but at gunpoint [Les Échos, 14 December 2018]

Like the German topic Tg3, Tf3 is most popular in the second half of Draghi's term of office.
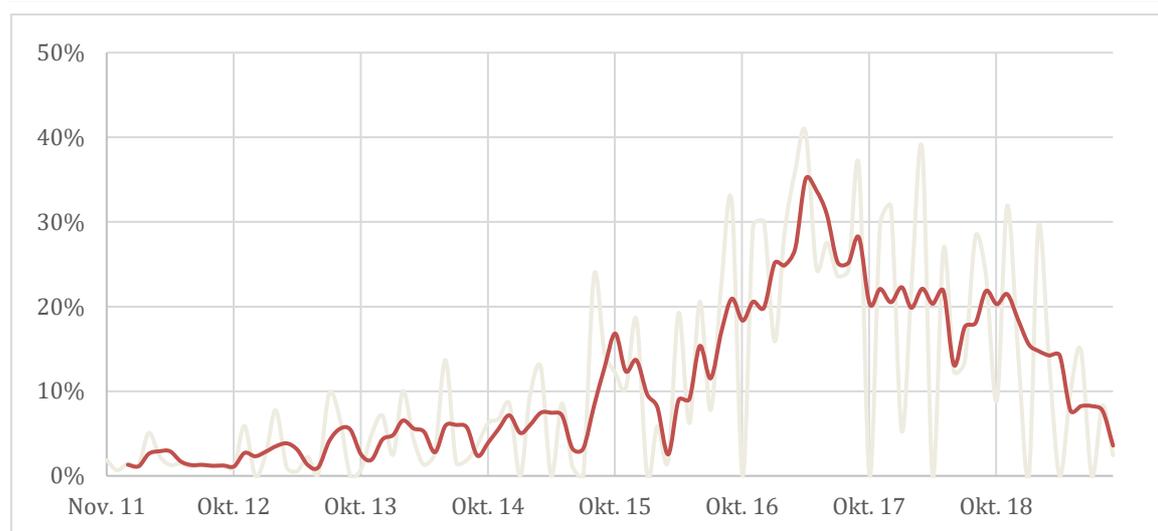
Figure VI-6: *Prominence of Topic Tf3 over time as a three-quarter moving average. The percentage values indicate the share of words that were assigned to this Topic*

As Figure VI-6 illustrates, the attention regarding a possible change in strategy evolved similarly as in Germany. It can be seen, however, that the French articles did not go beyond a mere description of the implemented or postponed easing measures. They appear much more factual than the corresponding German coverage, which featured a clear call for a return to normal monetary policy.

The French topic Tf5 is also worth mentioning. It is one of the most consistent topics in the French corpus in the sense that it can also be found for k=10, k=12 and k=20. This topic is a result of the pronounced French interest in what happens next door in Germany. Words like "Merkel", "Bundesbank", "stability", "Schäuble" and " Weidmann" in this topic indicate that German politics and the German point of view regarding monetary policy is of great interest to French journalists. As the top texts reveal, the predominant narrative within this topic is the Germans' criticism of "Draghi's" policy decisions.

- Germany remains suspicious of Draghi [Le Monde, 24 January 2015]
- Battle between Berlin and the ECB over public debt purchases [Le Monde, 14 January 2015]
- How the ECB is trying to win German support for QE [Les Échos, 16 January 2015]
- The Bundesbank is taking ECB policy to the Constitutional Court in Karlsruhe [Le Monde, 28 April 2013]

As a French journalist put it in 2019: "Instead of the hero who saved the euro zone, he is portrayed in public opinion [in Germany] as the butcher of small German savers" (Les

Échos, 23 October 2019, translation mine). This topic (among others) gives the impression that the French media reported more benevolently about Draghi than the German media did. This rough assessment should be examined further (qualitatively) in future work.

As Figure VI-7 shows, the Germany topic is most popular in 2012. This is not surprising, as at this time, the contrasts between the German and the ECB's understanding of appropriate action were more apparent than ever. Interestingly, there is no corresponding topic in Germany that would show a keen German interest in what happens west of the River Rhine.
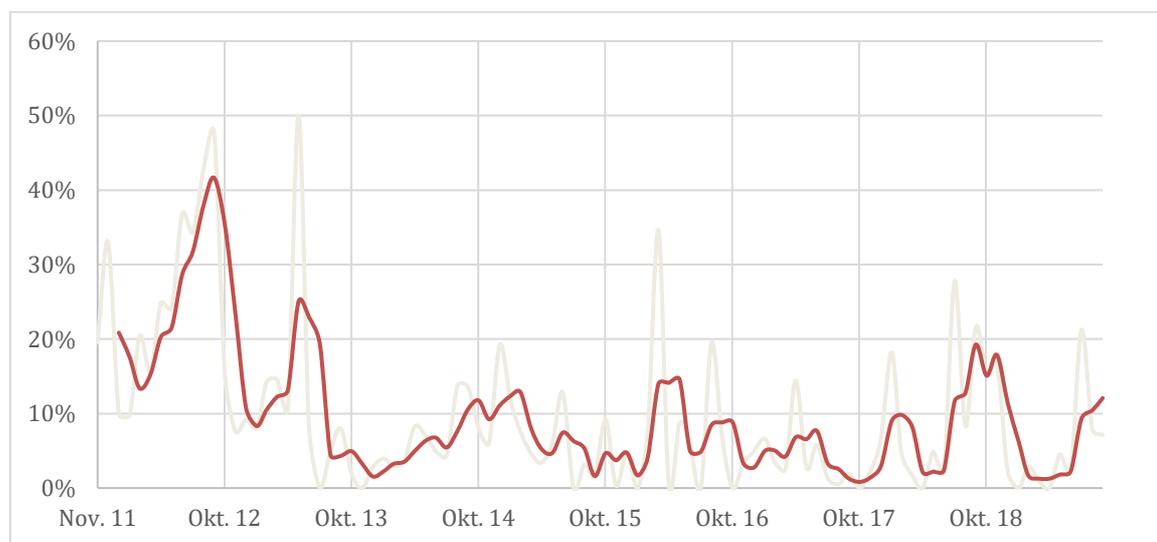
Figure VI-7: *Prominence of Topic Tf5 over time as a three-quarter moving average. The percentage values indicate the share of words that were assigned to this Topic*

The economic ideology that is prevalent in the examined newspaper articles in Germany and France cannot be fully identified. But tendencies are discernible. A simple frequency analysis of some of the terms used by Kaiser and Kleinen von Königslöw (2019) suggests that views that are more "left-wing" are (relatively) less popular in Germany than in France (See Figure VI-8 and VI-9).

For this analysis, I searched for the frequency of the terms "stabilität" and "wettbewerbsfähigkeit" as well as for the word patterns "spar" and "haft" in the German corpus in order to estimate the popularity of ordoliberal buzzwords. For the French corpus I used the French equivalents. In order to estimate the prevalence of tendentially Keynesian buzzwords, I searched for the terms "helfen", "hilfe" and "fiskalunion" as well as for the word patterns "solidar" and "unterstütz" in the German corpus – for the French corpus I

used the French equivalents. Even if this cannot be seen as conclusive evidence, the agreement with the results of Ojala and Harjuniemi (2016) and Kaiser und Kleinen von Königslöw (2019) cannot be completely dismissed.
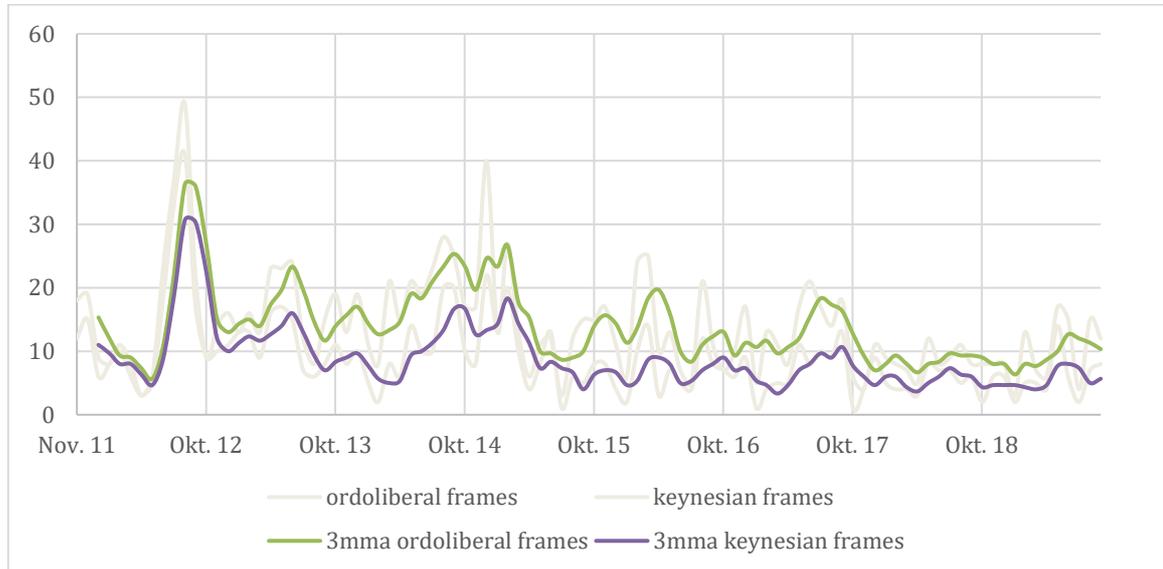
Figure VI-8: *Economic ideology Germany – choice of words and patterns as a share of all words, indicated by the respective three-month moving average (3mma). Ordoliberal search patterns: stabili* OR wettbewerbsfaehig* OR spar* OR haft* OR disziplin* | Keynesian search patterns: solidar* OR helfen OR hilf* OR unterstuetz* OR fiskalunion*
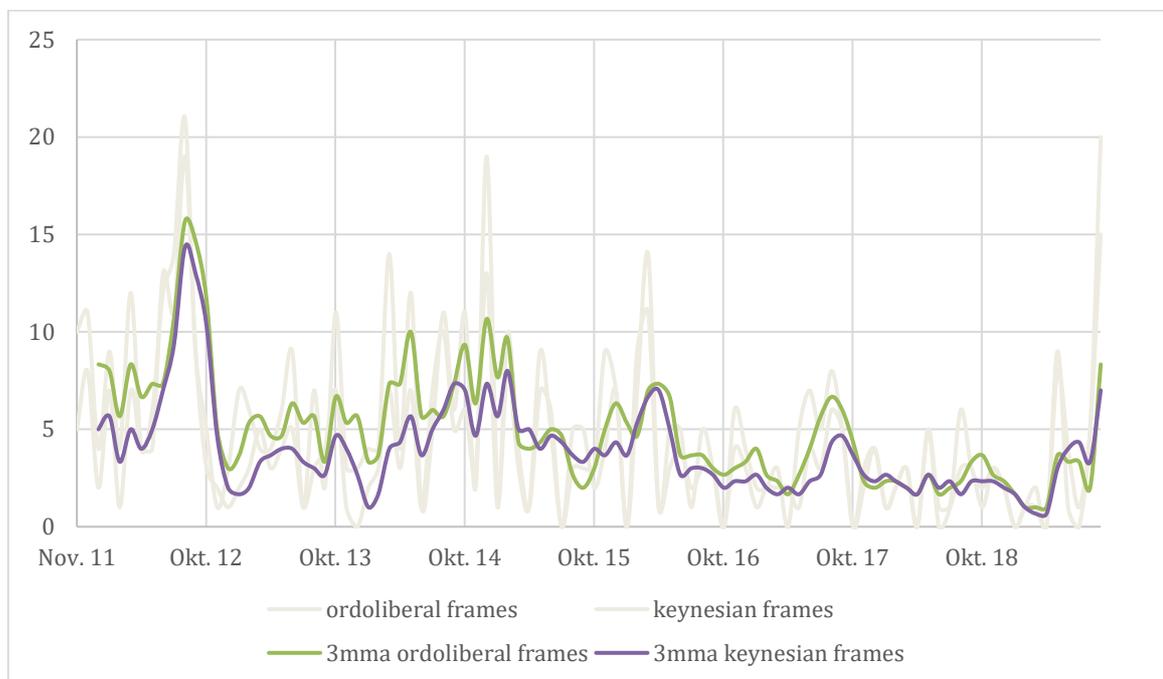
Figure VI-9: *Economic ideology Frane – choice of words and patterns as a share of all words, indicated by the respective three-month moving average (3mma). Ordoliberal search patterns: stabili* OR compétitivi* OR épargn* OR discipline* OR économis* OR responsabil* | Keynesian search patterns: solidar* OR aide* OR assist* OR sout* OR union budgétaire*

5. Conclusion

In this paper, I explored the question of how the German and French media views of former ECB President Mario Draghi differed during his tenure. As I have shown, the European media as a whole held divergent views of the European economy at the time of the financial crisis. Müller et al. (2018) were able to find differences in nationally common blame narratives, Ojala and Harjuniemi (2016) and Kaiser and Kleinen von Königslöw (2019) demonstrate that European countries differed on the basis of their economic ideological framing, and Hubé et al. (2015) show that the ECB president was mentioned significantly more often in the French press than in the German press.

Using an LDA-based topic analysis according to Blei et al. (2003), I was able to identify eight dominant topics per country, which are similar in many aspects. Both countries focus on the stock market, the euro exchange rate, the ECB staff, the interest rate policy and Greece, for example, but differ greatly on other points. Most importantly, in Germany one topic is dominant, according to which Draghi is bullying German savers, while in France, there is one topic according to which it is the Germans who are bullying Mario Draghi. The results confirm the assumption that the respective agenda setting was shaped by the prevailing differences in economic ideologies and traditions on both sides of the River Rhine. It seems likely that in the German press, the arguments were more ordoliberal, in the French press, more Keynesian. This assumption could not be proved clearly due to limitations of this type of macro content analysis and should be further examined in future research.

As explained, agenda-setting has the potential to create a social interpretative framework. It impacts the perception of a country's economy – and its development (Wu et al., 2002; Shiller, 2017, 2019; Lischka, 2015). Thus, since my analysis reveals diverging Draghi agendas in Germany and France, it is reasonable to assume that these differences probably had an impact on how the respective citizens consumed, saved, invested (and voted[15]).

This conclusion attaches high importance to the coverage of Mario Draghi. Therefore, it is important to put these results in the right perspective. Even if the ECB is a "very hermetic institution with little information leaking out about its internal decision-making

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[15] According to the news agency "Dow Jones", Wolfgang Schäuble is said to have accused Draghi that "his" policy is partly responsible for the strengthening of the former euro-sceptical AfD in Germany. (FAZ, "Schäuble: Geldpolitik mitverantwortlich für Erfolge der AfD", 9 April 2016).

processes" (Tokarski, 2016), it is pretty obvious that Draghi himself is not the one to lower the interest rates or to "flood the market with money". Even in his function as ECB president, Draghi never had the sole authority to "turn off the tap for the Greeks" (Focus, 5 February 2015, translation mine), to "turn the tap back on" (Badische Zeitung, 16 July 2015, translation mine) or to "expropriate" the Germans (Bild, 13 September 2019, translation mine). All monetary policy decisions are made within the Governing Council of the ECB, and mostly, they are made unanimously. However, the media consistently rebuked Mario Draghi instead of the institution he was working for.

- Draghi's aberration. (Handelsblatt, 6 October 2014)
- "Mario Draghi is doing the right thing." (Die Welt, 16 September 2014)
- Mario Draghi keeps ECB interest rates up and strengthens the euro. (Le Figaro, 6 February 2014)
- The chloroform of Dr Draghi. (Le Figaro, 3 December 2015)

Communication studies describe this effect as "personalisation". Hubé et al. (2015) confirm "that the focus of news coverage has shifted from parties and organizations to candidates and leaders" (p. 87). Bennett (2016) emphasises that journalists often focus on people rather than on power structures and institutions. And Van Aelst et al. (2012, 2016) found such "personalised" articles especially in the period of the euro crisis. Such media focus on central bank presidents is evident in the coverage of both the ECB and the Fed (Neuenkirch, 2014; Berger, et al., 2011). Hence, I argue that by covering Draghi, the media was also covering the ECB policy. This is an important takeaway for further quantitative research that aims to analyse the link between newspaper coverage of central banks and the effects of forward guidance or the level of trust in the institution.

One limitation of this work lies in the LDA procedure. Puschmann and Scheffler (2016) point out that the LDA does not recognise all topics that a human coder would recognise. They also state that general text comprehension of human coders is significantly deeper. For further discussion of the advantages and disadvantages of the LDA, see among others Jacobi et al. (2016) and Stryker et al. (2006).

Moreover, one of the basic problems of LDA analysis is that it cannot be easily reproduced. Even with an identical corpus and identical analysis parameters, LDA produces slightly different results in each run. This is clearly detrimental to the reliability of the method. To solve this problem, Rieger et. al. (2020) developed the prototype LDA approach. For this method, several topic models are calculated (usually 100), which are all based on the same

parameter constellation. A "prototype" is then the LDA that has the smallest mean deviation from all other 99 LDAs that were calculated on the respective corpus. This approach significantly increases the reliability of the results. The prototype LDA is thus a promising method that could prove beneficial in future studies.

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Appendix

Appendix II

Appendix II.1: Codebook

Subject of investigation: The ECB's press conferences

Study period: 04.07.13 - 16.07.20

Research questions:

1. How has the specification of forward guidance changed over the period?
2. Which indicators were mentioned in the context of the Forward Guidance (directly and indirectly)? → What conclusions about the effects and goals of the forward guidance can be drawn from the communication?
3. What other conclusions can be drawn about central bank communication during the period under review?

Coding rules (supplement to coding instructions):

4. Only interest rate-related forward guidance is coded in order to generate a clear picture of the unambiguous forward guidance.
5. Both direct and indirect indicators are coded only once to make the coding results more reliable and to simplify the evaluation
6. In particular, no (numerical) forecasts (e.g. forecast inflation rates or forecast economic growth) are coded in order to reduce complexity.
7. No indicators are coded that are clearly related to monetary policy measures that do not include forward guidance.
8. Furthermore, no indicators are coded that are part of the PF, which are addressed to fiscal or national policy.

Formal categories (short name)	Coding instructions
Press Conference ID (ID)	JJ_Number
Speaker (Red)	
Date (Dat)	DD.MM.YYY
Total text length (TLG)	
Text Length Economic Block (TLÖ)	
Text length Monetary block (TLM)	
Text length Fiscal Block (TFK)	

Category ID	Category name	Expressions	Coding instructions
A	Interest rate decisions	1 Deposit interest 11 Sinks 12 Constant 13 Increase 2 HRF 21 Sinks 22 constant 23 Increase 3 SRF 31 Sinks 32 constant 33 increase 4 Interest rate constancy	If there is no change in interest rates, expression 4 is coded. Otherwise, the individual interest rates are coded with the direction of change and the strength of the interest rate decision in basis points is given in brackets.

Coding example A: *The Governing Council has decided to leave the key interest rates unchanged* →

Category ID	Category name	Expressions	Coding instructions
B	Forward Guidance	0 none 1 Qualitative 2 calendar based 3 results-based 4 not identifiable	According to the definitional distinction, the type is coded. In the case of a specific minimum duration, also in combination with other measures, 3 is coded.

Coding example B: *The key interest rates are not increased until an inflation rate of 1.9 percent has been achieved* →

Category ID	Category name	Expressions	Coding instructions
C	Conditions of the Forward Guidance	0 None 1 Inflation rate 2 Economy/Output 3 Employment 4 Monetary dynamics 5 Underutilisation 6 Other	Are there macroeconomic conditions to which the FG is oriented? Max. 3 conditions

Coding example C: *The expected policy rate path results from a subdued development of inflation and weak growth → 1 and 2*

Category ID	Category name	Expressions	Coding instructions

D	Duration of the Forward Guidance	0 indefinite period
		1 specific period
		  11 quarters
		  12 Year
		  13 linked to expansionary measures
		    131 quarters
		    132 year
		    133 Period not identifiable
		2 Not identifiable
			In a qualitative FG, an indeterminate period is coded. If linked to another measure, it is determined whether there is a minimum period of interest.

Coding example D: *Key interest rates will remain at the same level until the end of this year →11 (unless announced at the beginning of the year)*

Category ID	Category name	Expressions	Coding instructions
E	Objectives of the Forward Guidance mentioned	0 not named 1 Inflation 2 Output 3 Inflation expectations 4 Accommodation 5 Underutilisation 6 Credit dynamics 7 Other	ECB objectives explicitly mentioned in the PF in connection with "B" are coded.

Coding example E: *Key interest rates will remain at comparable levels for an extended period of time to ensure convergence of the inflation rate →*

Category ID	Category name	Expressions	Coding instructions
F	Objectives of monetary policy measures (which include FG)	1 Drive inflation 2 Stimulate the economy 3 Stimulate consumption 4 Increase inflation expectations 5 Reduce long-term interest rate 6 Lower real interest rate 7 Stimulate domestic demand 8 Stimulate foreign demand 9 Improve credit conditions 10 Stimulate investment 11 Facilitate debt reduction 12 Increase money supply 13 Other	The objectives or intended/hoped-for effects that are explicitly stated as such are coded. Each characteristic is coded a maximum of once. Credit terms = financing terms.

Coding example F: *All our monetary policy measures (FG included) are designed to improve financing conditions →10 code*

Category ID	Category name	Expression	Coding instructions

H	Forward guidance indicators	1 Inflation
		   11 too low
		   12 target compatible
		   13 too high
		2 (Short-term) inflation expectations
		   21 anchored
		   22 de-anchored
		   23 not identifiable
		3 Long-term inflation expectations
		   31 anchored
		   32 de-anchored
		   33 not identifiable
			Indicators are coded that are mentioned in the PF and can be placed in a theoretical context with FG. Each indicator is coded only once. There is no maximum

		4 Private expectations	number of indicators to be coded. The indicator that is explicitly mentioned is coded. Uncertainty is coded when uncertainty is directly mentioned, but also when events are mentioned such as "geopolitical risks, protectionism, financial market volatility".
		41 Consumer confidence	
		411 positive	
		412 negative	
		413 behave	
		42 Economic expectations	
		421 positive	
		422 negative	
		423 behave	
		5 Interest rate expectations	
		51 positive	
		52 negative	
		6 Real interest rate	
		61 positive	
		62 negative	
		7 Domestic demand	
		71 positive	
		72 negative	
		73 restrained	
		8 Foreign demand	
		81 positive	
		82 negative	
		83 behave	
		9 Credit dynamics	
		91 positive	
		92 negative	
		93 behave	
		10 Monetary dynamics	
		101 positive	
		102 negative	
		103 behave	
		20 Uncertainty(ies)	
		201 increased	
		202 sunk	

		203 present	
		30 Credibility/Trust	
		301 to ECB	
		302 on financial markets	
		40 Credit conditions	
		401 positive	
		402 negative	
		403 behave	
		50 Employment	
		501 positive	
		502 negative	
		503 behave	
		60 (Private) consumption	
		601 positive	
		602 negative	
		603 behave	
		70 Investments	
		701 positive	
		702 negative	
		703 behave	
		80 Other	
		801 positive	
		802 negative	
		803 behave	

Coding example H: *The economy is currently driven by consumption and investment*
→*601 and 701*

Category ID	Category name	Expression	Coding instructions

I	Conclusion of the cross-check	1 Inflation rate
		  11 too high
		  12 too low
		   13 target compatible
		2 Accommodation
		  21 necessary
		  22 not necessary
		  23 not identifiable
		3 Output
		  31 too high
		  32 too low
		  33 behave
		4 Other
			At the end of the monetary block, the aforementioned remarks are summarised. This conclusion is coded in this category. If the goal of driving inflation is mentioned, 13 can be coded.

Coding example I: *Further comprehensive accommodation will be necessary to induce a target-compatible inflation rate. → 21 and 11*

Category ID	Category name	Expression	Coding instructions
M1	Act. Value inflation	(in percent)	
M2	Inflation balance	1 Target compatible 2 rather target compatible 3 indifferent 4 rather non-target compatible 5 non-target compatible 6 not identifiable	Value range 1: 1.9 +- 0.1 PP 2: from 1.6 3: from 1.3 4: from 1 5: under 1

Coding example M2: *The HICP inflation rate is 1.5% according to the latest surveys. →*
3

Category ID	Category name	Expression	Coding instructions
N1	Act. Value Real GDP	0 not given (annualised in per-cent)	Annualised real GDP growth is reported
N2	Economic balance sheet	1 good 2 rather good 3 indifferent 4 rather poor 5 bad 6 not identifiable	1: from 2 2: from 1.5 3: from 0.8 4: from 0 5: under 0

Coding example: *Real GDP growth was 0.2 per cent last quarter* →

Category ID	Category name	Expression	Coding instructions
P	Résumés on national policy	1 good 2 rather good 3 neutral 4 rather poor 5 bad 6 Other	Are demands already being enforced? With what success? How are government deficits and debt ratios developing? Are monetary policy measures addressed to encourage fiscal policy to act?

Coding example: *The debt-to-GDP ratio has decreased over the past year, but reform efforts need to be significantly intensified* →

Codierbogen

ID	Red	Dat	TLG	TLÖ	TLM	TFK	A	A	A	B	C	C	C	C	D	E	F	F	F	F	F	F	F	H	H	H	H	H	H	H	H	H	H	H	H	H	H	I	I	I	M1	M2	N1	N2	P
13_1	Draghi	04.07.13	1136	396	311	162	4	-	-	1	1	2	4	0	0	0	7							11	92	423	21	203	31	103								13	-	-	1,6	2	-1,2	5	2
13_2	Draghi	01.08.13	1086	376	286	135	4	-	-	1	1	2	4	0	0	0	1	9	2	7				11	21	411	423	502	203	31	103	92	402					13	-	-	1,6	2		-	3
13_3	Draghi	05.09.13	1301	561	247	123	4	-	-	1	1	2	4	0	0	0	1	9	2	7				11	21	411	81	502	203	31	103	92						13	-	-	1,3	3	1,2	3	2
13_4	Draghi	02.10.13	1120	425	257	108	4	-	-	1	1	2	4	0	0	0	1	9	2	7				11	21	411	502	203	72	31	103	92						13	-	-	1,1	4	1,2	3	2
13_5	Draghi	07.11.13	1470	447	373	186	21(25)	31(25)	12	1	1	2	4	0	0	0	2	7	9					11	31	421	81	502	203	103	92	403						12	13	-	0,7	5	1,2	3	3
13_6	Draghi	05.12.13	1306	550	303	130	4	-	-	1	1	2	4	0	0	0	2	7	9					11	31	411	502	203	102	92								12	13	-	0,9	5	0,3	3	2
14_1	Draghi	09.01.14	1164	420	313	119	4			1	1	2	4	0	0	0	2	7	9					11	31	81	502	203	102	92								12	13	-	0,8	5	0,3	3	3
14_2	Draghi	06.02.14	1151	368	338	112	4	-	-	1	1	2	4	0	0	0	2	7	9					11	31	203	401	81	502	102	92							12	13	-	0,7	5		-	3
14_3	Draghi	06.03.14	1408	549	292	242	4	-	-	1	1	2	4	5	0	0	7	9						31	411	11	81	203	102	92								12	13	-	0,8	5	1,2	3	2
14_4	Draghi	03.04.14	1098	430	243	100	4	-	-	1	1	2	4	5	0	0	7	9						11	31	71	401	81	502	203	102	92						12	13	-	0,5	5	0,8	3	2
14_5	Draghi	08.05.14	1261	388	385	163	4	-	-	1	1	2	4	5	0	0	7	9						11	31	421	403	502	203	102	92							12	13	-	0,7	5	0,8	3	3
14_6	Draghi	05.06.14	1977	575	168	313	21(10)	31(35)	11(10)	1	1	0	0	0	0	0	9	1	7					11	31	403	502	802	203	102	92							21	4	-	0,5	5	0,8	3	2
14_7	Draghi	03.07.14	1199	405	215	135	4	-	-	1	1	0	0	0	0	0	1	7						11	31	403	81	502	802	402	203	102	92					12	13		0,5	5	0,8	3	2
14_8	Draghi	07.08.14	1257	415	309	131	4	-	-	1	1	0	0	0	0	0	1	7						11	31	423	403	502	802	92	203	102						12	13		0,4	5	0,8	3	3
14_9	Draghi	04.09.14	1375	525	200	185	21(10)	31(10)	11(10)	-1	-1	0	0	0	0	0	1	7						11	31	423	81	502	802	702	203	602	102	92				21	4		0,3	5	0,8	3	3
14_10	Draghi	02.10.14	1169	356	195	210	4	-	-	-1	-1	0	0	0	0	0	42	1	7					11	81	423	81	502	802	102	92	402						21	4		0,3	5	0,8	3	4
14_11	Draghi	06.11.14	1277	418	247	218	4	-	-	-1	-1	0	0	0	0	0	9	42	1	7				11	422	81	502	802	203	103	92	402						21	4		0,4	5	0,4	4	3
14_12	Draghi	04.12.14	1351	613	188	162	4	-	-	-1	-1	0	0	0	0	0	42	1	7	9				423	81	502	802	203	103	92								12	21		0,3	5	0,8	3	3
15_1	Draghi	22.01.15	1586	367	265	158	4	-	-	-1	-1	0	0	0	0	0	13	7	2	9	1			11	22	32	403	81	502	802	103	92						21	12		-0,2	5	0,8	3	3
15_2	Draghi	05.03.15	1409	593	205	231	4	-	-	-1	-1	0	0	0	0	0	9	13	12	2	1	7		11	421	31	81	101	92									21	13		-0,3	5	1,2	3	3
15_3	Draghi	15.04.15	1206	385	224	223	4	-	-	-1	-1	0	0	0	0	0	2	9	12	1	13			601	71	701	81	101	92	401								21	13		-0,1	5	1,2	3	3
15_4	Draghi	03.06.15	1329	550	196	253	4	-	-	-1	-1	0	0	0	0	0	9	41	2	12	1	42	7	601	423	701	81	101	93									21	32	13	0,3	5	1,6	2	2
15_5	Draghi	16.07.15	1301	400	283	172	4	-	-	-1	-1	0	0	0	0	0	9	2	12	1	42	7		201	11	22	601	701	81	101	403	93						21	32	13	0,2	5	1,6	2	3
15_6	Draghi	03.09.15	1383	593	201	181	4	-	-	-1	-1	0	0	0	0	0	7	9						11	203	421	82	601	701	101	93							21	12		0,2	5	1,2	3	3
15_7	Draghi	22.10.15	1222	423	265	193	4	-	-	-1	-1	0	0	0	0	0	7	9						71	201	11	81	421	601	701	101	93	403					21	12		-0,1	5	1,6	2	3
15_8	Draghi	03.12.15	1465	498	187	198	22	32	11(10)	0	0	0	0	0	0	0	1	42	9	2	7	13		201	601	703	83	421	101	93	403							21	13		0,1	5	1,2	3	3
16_1	Draghi	21.01.16	1251	426	322	199	4	-	-	1	0	0	0	0	0	0	7	9	1					201	11	601	82	421	701	101	93	401						21	12		0,3	5	1,2	3	3
16_2	Draghi	10.03.16	1587	466	233	218	21(5)	31(5)	11(10)	2	1	0	0	0	132	0	9	2	1	7				71	82	423	201	101	93									21	13		-0,2	5	1,2	3	4
16_3	Draghi	21.04.16	1163	318	266	207	4	-	-	2	0	0	0	0	132	0	9	2	1	7				203	71	82	701	501	601	93	401							21	13		0	5	1,2	3	3
16_4	Draghi	02.06.16	1333	484	215	277	4	-	-	2	0	0	0	0	131	0	2	1	9	7				71	82	701	601	501	11	101	93	401						21	13		-0,1	5	2	1	4
16_5	Draghi	21.07.16	1266	335	291	290	4	-	-	2	0	0	0	0	131	0	7	9	2					203	71	83	401	701	601	501	101	93						21	13		0,1	5	2,4	1	4
16_6	Draghi	08.09.16	1243	449	172	267	4	-	-	2	0	0	0	0	131	0	9	2	1	7				203	401	701	601	501	82	101	93							21	13		0,2	5	1,2	3	5
16_7	Draghi	20.10.16	1137	314	221	268	4	-	-	2	0	0	0	0	131	0	9	1	7	2				203	401	701	601	501	83	101	93							21	13		0,4	5	1,2	3	5
16_8	Draghi	08.12.16	1340	414	163	242	4	-	-	2	0	0	0	0	132	0	7	11	2	1	9			421	401	701	601	501	101	93								21	13		0,6	5	1,2	3	5
17_1	Draghi	19.01.17	1141	297	211	195	4	-	-	2	0	0	0	0	132	0	9	1	7	11				11	421	401	701	601	501	81	101	93						21	13		1,1	4	1,2	3	4
17_2	Draghi	08.03.17	1131	448	174	119	4	-	-	2	0	0	0	0	131	0	9	1	2	7	11			11	421	401	701	501	601	81	101	91						21	13		2	1	1,6	2	3
17_3	Draghi	27.04.17	972	337	185	98	4	-	-	2	0	0	0	0	131	0	9	1	11	7				11	401	701	501	601	81	101	91							21	13		1,5	3	2	1	3
17_4	Draghi	08.06.17	1079	475	159	101	4	-	-	2	0	0	0	0	131	0	9	1	11	7				11	421	401	701	501	601	81	101	91						21	13		1,4	3	2,4	1	3
17_5	Draghi	20.07.17	955	313	187	101	4	-	-	2	0	0	0	0	131	0	9	1						11	421	701	401	601	501	81	101	91						21	13		1,3	3	2,4	1	3
17_6	Draghi	07.09.17	1108	406	164	132	4	-	-	2	0	0	0	0	131	0	1	7	11	9				11	203	421	601	501	401	701	101	91						21	13		1,5	3	2,4	1	3
17_7	Draghi	26.10.17	1194	311	219	137	4	-	-	2	0	0	0	0	132	0	9	1	11	7				11	421	601	501	701	401	81	101	91						21	13		1,5	3	2,8	1	3
17_8	Draghi	14.12.17	1170	413	171	172	4	-	-	2	0	0	0	0	131	0	9	1	7	11				11	601	501	81	421	101	91								21	13		1,5	3	2,4	1	3
18_1	Draghi	25.01.18	1068	292	208	166	4	-	-	2	0	0	0	0	131	0	1	11	7	9				11	801	203	421	601	501	401	701	81	101	91				21	13		1,4	3	2,8	1	3
18_2	Draghi	08.03.18	1134	406	166	186	4	-	-	2	0	0	0	0	131	0	1	11	7	9				11	421	601	501	401	701	203	101	901	91					21	13		1,2	4	2,4	1	3
18_3	Draghi	26.04.18	1080	297	221	179	4	-	-	2	0	0	0	0	131	0	1	11	7	9				11	601	501	401	701	201	101	901	91						21	13		1,3	3	2,8	1	3
18_4	Draghi	14.06.18	1395	473	280	159	4	-	-	2	0	0	0	0	12	1	1	11	7					21	11	201	421	601	501	401	701	101	901	91				21	13		1,9	1	1,6	2	3
18_5	Draghi	26.07.18	1117	366	182	159	4	-	-	2	0	0	0	0	12	1	1	11	7					203	11	421	601	501	701	401	81	901	101	91				21	13		2	1	1,6	2	3
18_6	Draghi	13.09.18	1128	409	138	156	4	-	-	2	0	0	0	0	12	1	1	7	9					11	203	71	601	501	401	701	81	801	101	91				13	21		2	1	1,6	2	3
18_7	Draghi	25.10.18	1025	291	185	156	4	-	-	2	0	0	0	0	12	1	1	9						11	203	71	601	501	401	701	81	801	101	91				13	21		2,1	2	1,6	2	3
18_8	Draghi	13.12.18	1138	439	147	164	4	-	-	2	0	0	0	0	11	1	1	7	9					83	71	11	203	423	601	501	701	401	101	91				13	21		2	1	0,8	3	3
19_1	Draghi	24.01.19	925	257	154	164	4	-	-	2	0	0	0	0	11	1	1	9						83	203	11	401	501	801	103	91							13	21		1,6	2	0,8	3	3
19_2	Draghi	07.03.19	1357	394	159	200	4	-	-	2	0	0	0	0	11	1	1	9						203	401	501	11	83	101	91								13	21		1,5	3	0,8	3	4
19_3	Draghi	10.04.19	1105	270	186	176	4	-	-	2	0	0	0	0	11	1	9	2	1					203	11	71	501	83	401	101	91							13	21		1,4	3	0,8	3	3
19_4	Draghi	06.06.19	1379	443	174	180	4	-	-	2	0	0	0	0	11	1	1	9	2					203	501	423	83	401	801	101	901	91						13	21		1,2	4	1,6	2	3
19_5	Draghi	25.07.19	1165	316	227	180	4	-	-	2	0	0	0	0	11	1	9	1						501	11	83	203	23	33	401	101	901	91					13	21		1,3	3	1,6	2	3
19_6	Draghi	12.09.19	1515	424	179	220	22	32	11(10)	3	0	0	0	0	0	1	9	2	1					11	501	83	203	401	22	32	101	91						13	21		1	4	0,8	3	3
19_7	Draghi	24.10.19	1131	286	182	228	4	-	-	3	0	0	0	0	0	1	1	9						11	501	83	203	703	401	22	32	101	901	91				13	21		0,8	5	0,8	3	3
19_8	Lagarde	12.12.19	1308	432	214	244	4	-	-	3	0	0	0	0	0	1	9	3	10	2	1		501	83	203	422	401	22	32	101	901	91	11				13	21		1	4	0,8	3	3
20_1	Lagarde	23.01.20	1320	326	244	243	4	-	-	3	0	0	0	0	0	1	9	3	10	2	1		11	83	203	703	423	401	501	23	33	101	901	91			13	21		1,3	3	1,2	3	3
20_2	Lagarde	12.03.20	1719	509	171	103	4	-	-	3	0	0	0	0	0	1	9						201	72	82	702	91										13	21		1,2	4	0,4	4	2
20_3	Lagarde	30.04.20	1979	453	277	112	4	-	-	3	0	0	0	0	0	1	2	9					412	201	11	802	422	72	401	83	22	32	101	901	91	11	13	21		0,4	5	-15,2	5	2
20_4	Lagarde	04.06.20	1758	551	184	126	4	-	-	3	0	0	0	0	0	1	9						502	201	602	702	422	11	802	72	22	32	101	91	412		13	21		0,1	5	-15,2	5	2
20_5	Lagarde	16.07.20	1792	433	322	224	4	-	-	3	0	0	0	0	0	1	2	1	9				423	201	502	602	702	802	11	82	22	32	101	91	403		13	21		0,3	5	-14,4	5	2

Appendix III

Appendix III.1: Overview of the Financial Crisis 2007-09

2006/07	the US real estate bubble bursts
07 February 2007	Profit warning of Europe's largest bank, the British HSBC, due to high write-offs on bad real estate loans
May 2007	US central bank chief Ben Bernanke says the subprime crisis will not spill over into the rest of the economy
June/July 2007	"securitised securities for subprime mortgages lose value drastically" (ibid.) and are downgraded by the major rating agencies
13 July 2007	Dax has a new all-time high - the crisis in the USA does not yet seem threatening in Germany
27-30 July 2007	German IKB must be rescued, other German banks come to the rescue
9 August 2007	the interbank market freezes because banks no longer know whether the other banks are creditworthy - ECB, Fed and the Bank of Japan pump a lot of money into the banking system
14 September 2007	Bank Run on British mortgage bank Northern Rock
15 January 2008	Munich-based real estate financier Hypo Real Estate announces write-downs of €390 million on US collateralised debt obligations (CDOs[16]
21 January 2008	"Black Monday" on European stock exchanges, the Dax falls by 7.2 percent - no concrete new information is the trigger, "only" fear
16 March 2008	JP Morgan takes over a competitor, investment bank Bear Stearns, after rumours that Bear Stearns is insolvent - more rumours follow on who will be insolvent next
21 May 2008	Hedge fund boss David Einhorn says publicly there are inconsistencies in the balance sheet of US investment bank Lehman Brothers
3 July 2008	out of fear of inflation, the ECB raises interest rates - despite the financial crisis
7 September 2008	the US government rescues the mortgage banks Fannie Mae and Freddie Mac with a guarantee of 200 billion dollars
11 September 2008	Lehman and the largest US insurance company AIG report record losses, their shares fall
12-14 September 2008	the US government and Wall Street banks discuss how to save Lehman - no deal is reached because the US government does not want to provide guarantees
15 September 2008	Lehman Brothers files for insolvency
16 September 2008	the US government gives AIG an emergency loan

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[16] „CDOs are structured bonds that securitise various types of receivables, in particular loan and mortgage receivables, in one security", according to the definition provided by boerse.ard.de (no date).

28 September 2008	Hypo Real Estate is rescued by the German state and German banks with guarantees amounting to 35 billion euros, otherwise "the German credit system [...] would have gone under" (ibid.), says Germany's top banking supervisor Jochen Sanio
2 October 2008	The US government adopts the Troubled Asset Relief Program (abbreviated TARP) with a volume of 700 billion dollars - in addition, the banks are forced to accept the money.
12 October 2008	The G7 states agree on a 5-point plan against the crisis, for 1 trillion euros
13 October 2008	more Confidence causes the Dax to rise, Germany and France adopt rescue packages and aid plans
13 November 2008	Germany is in recession - the financial crisis becomes an economic crisis
15 November 2008	at the World Finance Summit, the G20 countries plan a new global financial architecture, but do not yet lay down binding measures
25 November 2008	the Fed launches its first QE program for 800 billion dollars
4 December 2008	the ECB lowers key interest rates to 2.5 per cent in the largest interest rate move in ECB history
16 December 2008	the Fed lowers the target range for the key interest rate to 0.0 to 0.25 per cent
17 February 2009	the new US President Obama launches a huge economic stimulus package (787 billion dollars)
6 resp. 9 March 2009	first the US stock indexes hit rock bottom, the European stock indexes do so three days later
2 April 2009	G20 Summit in London: the G20 countries want to fight the economic crisis with more than one trillion dollars
7 May 2009	the results of the Fed's bank stress test are published
19 October 2009	the new Greek Prime Minister Papandreou declares that Greece has a budget deficit twice as high as stated - the euro crisis begins

Appendix III.2: Press conferences which were analyzed

- US real estate bubble bursts (the beginning): 11 January 2007 (PK01)

  ◦ Subprime mortgage securities are downgraded (the beginning, part 2): 6 June (PK02) and 5 July 2007 (PK03)

  ◦ the interbank market freezes (crisis): 2 August (PK04) and 6 September 2007 (PK05)

  ◦ The ECB raises the interest rates (action): 3 July 2008 (PK06)

  ◦ Lehman bankruptcy and subsequent bailouts and help efforts (crisis): 4 September (PK07), 2 October (PK08) and 6 November 2008 (PK09)

- historical ECB interest rate cuts (action): 4 December 2008 (PK10) and 15 January 2009 (PK11)

- Fed bank stress test results (the end): 7 May 2009 (PK12)

Appendix III:3: Codebook

The expressions "unclear" and "not relevant" are different. "Unclear" means that the coder cannot assign a coding; "not relevant" refers to the fact that there cannot be a meaningful answer to the category at all for various reasons: for example, if President Trichet does not address the financial crisis at all because it is just emerging.

Other strategies can occur several times in a single press conference. The first five other strategies that occur (in the course of the text) are coded.

As a general rule, it must be added that questions and statements on problems other than the crisis under consideration or the financial crisis in general (e.g. on the question of whether Italy should be allowed to reduce its deficit more slowly) are not coded because this limits the reliability of the analysis. Moreover, to code "yes", it is sufficient to use a strategy according to Benoit, a pictorial representation, a (more or less) direct address or an unexplained technical term/abbreviation at least once. "Partly" is used if it is an indirect address, a strategy only partly implemented or an explained technical term/abbreviation.

In the course of coding, it has become apparent that the ECB, especially in the early press conferences, does not address the "crisis peak", which had been expected from theory, or only very casually, but does communicate on other factors that (causally) preceded the financial crisis. This is then called risk communication and essentially functions in the same way as crisis communication, only it takes place before the crisis has occurred (cf. Federal Ministry of the Interior 2014, 12). Therefore, the expression "not relevant/no" was added in order to be able to code the other strategies/success factors anyway.

Question	Components	Categories	Codings
General	date	Date	the dates of the press conferences mentioned in Appendix III.2
	crisis	which „crisis peak"?	[all events in Table 1 (Appendix III.1) are permissible]; unclear

Question	Components	Categories	Codings
	ECB action	interest rate decision	constant = 0; otherwise + or - xy basis points
		other programs, decisions etc.	[short description]
Basic principles of crisis communication	promptness	active (can be assumed at press conferences) und early (coded via *time factor* below)	no coding necessary
	Truthfulness	factual: Argumentation with data and arguments, not based on emotions	not relevant; unclear; yes; partly; no; not relevant/no
		transparent: in terms of decision-making; the economic and monetary analysis alone are "only" enough for a "partly" coding. E. g. in PK10 Trichet refuses to say whether the interest rate decision was unanimous. Ex. for "yes": „We concentrated in our discussion at today's meeting on one option, which was maintaining rates at their present level. We were unanimous in making that decision" (PK07)	not relevant; unclear; yes; partly; no; not relevant/no
	Comprehensibility	simple/uncomplicated for „partly" it is sufficient if the most important points are explained in a straightforward way and the details are clarified afterwards	only a subjective assessment is possible: not relevant; unclear; yes; partly; no; not relevant/no
		pictorial: uses linguistic images, metaphors, etc. Example: „various central bank armouries" (PK10). The term „monetary [or economic] pillar" is not considered a linguistic image, because this is a fixed term in the ECB, which is used as a technical term and not for illustration. The same applies to inflation expectations, which are „firmly anchored" - this has become a fixed phrase and illustrates nothing.	not relevant; unclear; yes; partly; no; not relevant/no
		no technical terms Example for „no": „Stage Three of EMU" (PK01) - this is only understandable for a professional audience	not relevant; unclear; yes; partly; no; not relevant/no

Question	Components	Categories	Codings
		No abbreviations; generally understandable abbreviations such as ECB, EU, Fed, GDP, etc. do not count as abbreviations - in short: everything that an EU citizen with only a casual economic interest would know. for „partly" it is sufficient to explain an abbreviation first and then use it or to choose the wording in such a way that the abbreviation does not have to be understood, e.g. "HICP inflation" (PK07) Ex. for "no": "SLTRO" without long version or explanation (PK07)	not relevant; unclear; yes; partly; no; not relevant/no
success factors of crisis communication	time factor	quick response	unclear; not relevant; otherwise in days after the crisis (0, 1, ...) or, if this is not possible, a description in words; not relevant/no
	Personnel factor	Persons speaking (up to 5) Only Trichet's statements/answers seem to have been recorded (cf. PK10, question 3: there is a reference to a statement by another participant that is not included in the transcript. Therefore, every person who is noted in the heading or whose utterances are referred to is coded.	Trichet; Papademos; [other members of the Governing Council]; unclear
	trust factor	addressing journalists Ex: "Deflation is different from disinflation. Deflation is a concept which means [...]" (PK10), a clarification of concepts for a journalist who had asked a question – this is the clearest example	not relevant; unclear; yes; partly; no; not relevant/no
		addressing financial market actors Addressing in the third person is sufficient for coding with "yes" Ex: "And it is important that the market gets that message" (PK 03)	not relevant; unclear; yes; partly; no; not relevant/no
		addressing EU citizens	not relevant; unclear; yes; partly; no; not relevant/no

Question	Components	Categories	Codings
		addressing affected parties Ex. for "partly": "We are telling all countries that they have to respect the orientations of the Stability and Growth Pact. (PK10, context: budget deficits in the context of the financial crisis; „partly" because all EU countries are addressed instead of only those that are meant).	not relevant; unclear; yes; partly; no; not relevant/no
strategies according to Benoit	denial	fingerpointing	not relevant; unclear; yes; partly; no; not relevant/no
		denying that there is a crisis	not relevant; unclear; yes; partly; no; not relevant/no
		denying responsibility	not relevant; unclear; yes; partly; no; not relevant/no
	evading responsibility	accident	not relevant; unclear; yes; partly; no; not relevant/no
		not enough knowledge	not relevant; unclear; yes; partly; no; not relevant/no
		bad judgement	not relevant; unclear; yes; partly; no; not relevant/no
	Reducing Offensiveness of Event	crisis is not bad	not relevant; unclear; yes; partly; no; not relevant/no
		actions to combat the crisis for "yes", it is sufficient to present the action as if there were no alternative. Ex: „including the fact that we are as we speak supplying liquidity on an unlimited basis at fixed rates on a one-week, one-month, three-month, six-month basis, which is a clear demonstration of the extraordinary decisions we have been taking" (PK10)	not relevant; unclear; yes; partly; no; not relevant/no
		new strategies, so that the crisis will not be repeated	not relevant; unclear; yes; partly; no; not relevant/no
	Mortification	apology	not relevant; unclear; yes; partly; no; not relevant/no
	own strategies (found in the trial run)	keeping an eye on the problem Ex: „we will continue to look very carefully at everything and see when and where we have to take action" (PK10)	not relevant; unclear; yes; partly; no; not relevant/no

Question	Components	Categories	Codings
		having seen the problem early on Ex: „ we've been very prompt in diagnosing, as early as 9 August 2007, very serious problems in the financial and money market" (PK10)	not relevant; unclear; yes; partly; no; not relevant/no
		not talking about the problem	not relevant; unclear; yes; partly; no; not relevant/no
		having done what was right Ex: „we were doing what we had to do, taking into account the circumstances" (PK10)	not relevant; unclear; yes; partly; no; not relevant/no
		the crisis is a short-term problem, not a medium-term one	not relevant; unclear; yes; partly; no; not relevant/no
		the future is unpredictable and projections are just projections	not relevant; unclear; yes; partly; no; not relevant/no
		never pre-commit Ex: „we never pre-commit" (PK07)	not relevant; unclear; yes; partly; no; not relevant/no

Appendix III.4: Verification of intracoder reliability

The following table lists the main codings and the verification codings side by side. The value in "How much do they match" results as follows:

- complete (content-related) agreement in both PFs: 1
- complete (content-related) agreement in one PF and partial agreement (e.g. for "yes" and "partly" or "partly" and "no", or for "no" and "not relevant") in the other: 0.75
    - if there are several codes in the same category (e.g. speaker, other), each PK counts for 50 % in the overall score, and the individual score consists of equal parts of the individual codes
- partial match in both PKs: 0.5
- partial match in one PF and no match in the other: 0.25
- no agreement: 0

The value is only intended to paint a rough picture of how much the codings match the verification codings.

Intracoder reliability

Category	PK08	PK08 verification	PK10	PK10 verification	How much do they match?
date	02.10.08	02.10.08	04.12.08	04.12.08	1
crisis	Lehman bankruptcy	Lehman bankruptcy	Recession is here/action:	Recession after Lehman bankruptcy and	0,83

			largest interest rate cut	action: largest interest rate step	
interest rate decision	0	0	-75	-75	1
programs, actions etc.	-	no	-	no	1
factual	yes	yes	yes	yes	1
transparent	yes	yes	partly	partly	1
simple	partly	partly	partly	partly	1
pictorial	yes	yes	yes	yes	1
no technical terms	no	no	partly	no	0,75
no abbreviations	no	no	no	no	1
quick reaction	17	17	79 (Lehman)	79 (Lehman)	1
spokesperson	Trichet; Papademos	Trichet; Papademos	Trichet; Papademos; Quaden (belgische ZB)	Trichet; Papademos; Quaden (belgische ZB)	1
addressing journalists	yes	yes	yes	yes	1
addressing financial markets	yes	yes	yes	yes	1
addressing EU citizens	yes	yes	no	no	1
addressing affected parties	no	partly	no	no	0,75
fingerpointing	no	no	no	no	1
denial	no	no	no	no	1
denying responsibility	no	no	no	no	1
accident	no	no	no	no	1
not enough knowledge	no	no	no	no	1

bad judgement	no	partly	no	no	0,75
crisis is not bad	no	no	no	no	1
actions to combat the crisis	yes	yes	yes	yes	1
new strategies	no	no	no	no	1
apology	no	no	no	no	1
keeping an eye on the problem	yes	yes	yes	yes	1
having seen the problem early on	yes	yes	yes	yes	1
not talking about the problem	partly	partly	no	no	1
having done what was right	yes	yes	yes	yes	1
the future is unpredictable and projections are just projections	partly	no	yes	yes	0,75
the crisis is a short-term problem, not a medium-term one	no	no	no	no	1
never pre-commit	yes	yes	yes	yes	1

Appendix III.5: Codings

PK	date	crisis	interest rate - +	programs/actions
PK01	11.01.07	US real estate bubble bursts	0	no
PK02	06.06.07	Subprime mortgage securities are downgraded	25	no
PK03	05.07.07	see PK02	0	no
PK04	02.08.07	Financial market "turmoil" intensifies, a bank in Germany has to be rescued	0	no
PK05	06.09.07	Interbank market freezes up	0	more LTROs (long-term refinancing opterations)
PK06	03.07.08	Action: Interest rate increase	25	no
PK07	04.09.08	before Lehman goes bankrupt	0	Haircut of 12% on all asset-backed securities; extra haircut of 5% on theoretically rated ABS and unsecured bank bonds; further changes in collateral as reviewed every two years; extend SLTROs (supplementary long term refinancing operations)
PK08	02.10.08	Lehman goes bankrupt	0	no
PK09	06.11.08	Lehman goes bankrupt	-50	no
PK10	04.12.08	Recession is here/action: largest interest rate cut	-75	no
PK11	15.01.09	Recession is here	-50	(Slovakia joins the euro); (corridor of standing facilities is extended again)
PK12	07.05.09	Fed stress test: the end	-25	Extended SLTROs (supplementary LTROs); LTROs with 12-month maturity; general decision that the Eurosystem will buy covered bonds; European Investment Bank can borrow money from ECB

Appendix III.6*: Notes on the press conferences and codings*

- PK02 and PK03: the downgrades of subprime mortgage securities are not addressed, but other factors that preceded the crisis (also causally) are, hence the coding with "not relevant/no".

- PK04: no press conference, but "press briefing", because no regular press conference was held in August at that time
- PK07: same linguistic picture as almost always: price stability as "needle in our compass".
- PK09: often "our fellow citizens
- PK10: Lehman bankruptcy is mentioned as a turning point that still has influence
- PK11: "all parties concerned" to address those affected
- PK12: Papademos speaks (and this is on record) to press conferences and codifications

Appendix IV

Appendix IV.1: Interview guide – german version

1. Einstiegsfrage: Im Herbst vergangenen Jahres beschloss der EZB-Rat, wieder Staatsanleihen zu kaufen. Bundesbank-Chef Weidmann sagte, die EZB sei über das Ziel hinausgeschossen. Die Kritik an der lockeren Geldpolitik dauert nun seit Jahren an. Wie angespannt erleben Sie das Verhältnis von EZB und Bundesbank?

2. Welche Ziele verfolgen EZB und Bundesbank aus Ihrer Sicht jeweils mit ihrer Pressearbeit?

- Wie machen EZB und Bundesbank Hintergründe von Entscheidungen und Einschätzungen transparent?
- Inwieweit bereiten EZB und Bundesbank geldpolitische Fachdebatten Ihnen gegenüber für ein breites Publikum auf?

3. Differenzen zeigen EZB und Bundesbank vor allem bei der lockeren Geldpolitik. Wie begründen die Organisationen die Differenzen Ihnen gegenüber?

- Welche Rolle spielen die führenden Vertreter der Organisationen in der Kommunikation mit Journalisten?
- Welche Bedeutung haben explizit deutsche Interessen in der Kommunikation?

4. Wie hat sich die Pressekommunikation von EZB und Bundesbank in den vergangenen Jahren verändert?

- Wie suchen EZB und Bundesbank Kontakt zu Journalisten?
- Wie oft haben Sie telefonischen oder direkten Kontakt mit Sprechern oder anderen Vertretern von EZB und Bundesbank?
- Benötigt die Bundesbank Ihre Berichterstattung, um eine wirkungsvolle Opposition gegen die lockere Geldpolitik zu sein?

5. Wie reagieren EZB und Bundesbank auf die mediale Beurteilung der Geldpolitik?

- Wie empfinden Sie den Umgang von EZB- und Bundesbank-Vertretern mit Medienvertretern?
- Wie kommen bei Ihnen Themen und Timing der geldpolitischen Berichterstattung zustande?

- Wie wirkt sich die Pressearbeit von EZB und Bundesbank auf Ihre Berichterstattung aus?

Appendix IV.2: Interview guide – english version

1st entry question: In autumn last year, the ECB Governing Council decided to buy government bonds again. Bundesbank chief Weidmann said the ECB had overshot the mark. Criticism of the loose monetary policy has been going on for years now. How strained do you experience the relationship between the ECB and the Bundesbank?

2. What are the objectives of the ECB's and the Bundesbank's press relations from your point of view?

- How do the ECB and the Bundesbank make the background to decisions and assessments transparent?
- To what extent do the ECB and the Bundesbank prepare specialist monetary policy debates for a broad audience in contact with journalist?

3. The ECB and the Bundesbank show differences, especially about the loose monetary policy. How do the organisations explain their differences to you?

- What is the role of the organisations' leaders in communicating with journalists?
- What significance do explicitly German interests have in communication?

4. How has the ECB's and Bundesbank's press communication changed in recent years?

- How do the ECB and the Bundesbank seek contact with journalists?
- How often do you have telephone or direct contact with spokespersons or other representatives of the ECB and Bundesbank?
- Does the Bundesbank need your reporting to be an effective opposition to loose monetary policy?

5 How do the ECB and the Bundesbank react to the media's assessment of monetary policy?

- How do you feel about the way ECB and Bundesbank representatives deal with media representatives?
- How do decide about the topics and timing of monetary policy reporting?
- How does the press work of the ECB and the Bundesbank affect your reporting?

Appendix IV.3: Category system – german version

Kategorie	Kodierregel	Beispiel	Befragte/r
Ziele	Informationen zu(m) Legitimation, Glaubwürdigkeit, Vertrauen, Transparenz, Konsistenz, Erklärung von Handlungen, Unterstützung der Geldpolitik, Erhalt einer Institution, Stabilität, Akzeptanz, Image, Entwerfen einer geldpolitischen Idee	„Und das heißt, die Bank […] hat eben darauf wertgelegt und das steuert die Kommunikation, deutlich zu machen, dass man den reinen Geist der Geldpolitik, die Tradition der Bundesbank, schützt und darauf hinwirkt, dass die EZB den weiter fortsetzt.“	Interviewpartner 7
Differenzen	Informationen zu(r) Bedeutung des Mandats, geldpolitischen Notwendigkeiten, nationalen Interessen, internationalen Interessen, Pfadabhängigkeit einer Institution, persönliche Differenzen, Personalisierung	„Also, die EZB begründet ja immer alles sowieso mit der Preisstabilität.“	Interviewpartner 3
Entwicklung	Informationen zu(r) Phasen veränderter Kommunikation, Stagnation, verstärkter Pressearbeit, reduzierter Pressearbeit, Änderung beim Wechsel an der Spitze einer Organisation, veränderten Rollen der Banken, Frequenz von PR-Maßnahmen	„Und insofern hat sich die Bundesbank da auch sehr gewandelt, ist auch viel offener geworden, ist auch viel moderner geworden in der Kommunikation.“	Interviewpartner 2
Austausch	Informationen zu Themen und Timing von Berichterstattung, Kommunikationskanälen, Determination, Medialisierung, Einweg- / Zweiwegkommunikation, Kontext-	„Wenn sie zufrieden sind, sagen sie meistens nichts. Wenn sie nicht zufrieden sind, meckern sie vielleicht schon mal.“	Interviewpartner 6

	steuerung, PR-Beschreibungen, PR-Maßnahmen, Risiken des Austauschs		
Medien- / Personenabhängigkeit	Informationen zu medienabhängigen Angeboten, Selektion von Medien, Unterscheidung zwischen Journalisten, persönlichen Verhältnissen zwischen Journalisten und Pressestellen	„Also, was man natürlich bei den Pressekonferenzen sieht, wenn Fragen gestellt werden: Es werden immer wieder dieselben Kollegen aufgerufen. Das ist ein Kreis von vielleicht zehn, zwölf Leuten, die Fragen stellen."	Interviewpartner 4

Category system – english version

Category	Coding rule	Example	Respondent
Objectives	Information on legitimacy, credibility, trust, transparency, consistency, explanation of actions, support for monetary policy, preservation of an institution, stability, acceptance, image, designing an idea of monetary policy	"And that means that the bank [...] has made it a point, and that is what controls the communication, to make it clear that the pure spirit of monetary policy, the tradition of the Bundesbank, is being protected and that it is working towards the ECB continuing this."	Interviewee 7
Differences	Information on importance of the mandate, monetary policy necessities, national interests, international interests, path dependency of an institution, personal differences, personalisation	"Well, the ECB always justifies everything with price stability anyway."	Interviewee 3
Development	Information on phases of changed communication, stagnation, increased	"And in this respect, the Bundesbank has also	Interviewee 2

	press relations, reduced press relations, change at the top of an organisation, changed roles of banks, frequency of PR measures	changed a lot, has become much more open, has also become much more modern in its communication."	
Exchange	Information on topics and timing of reporting, communication channels, determination, medialisation, one-way / two-way communication, context control, PR descriptions, PR measures, risks of exchange	"When they are satisfied, they usually don't say anything. When they are not satisfied, they might grumble."	Interviewee 6
Media and person-specific	Information on media-dependent offers, selection of media, differentiation between journalists, personal relationships between journalists and press offices	"Well, what you see of course at the press conferences when questions are asked: The same colleagues are called again and again. It's a circle of maybe ten, twelve people who ask questions."	Interviewee 4

Appendix V

Appendix V.1: R code of the LDA-analyses on Weber

#Setzen der Working-Directory

setwd("…")

#Laden des Package und der Daten

library (tosca)

load("Weber.Rdata")

#Entfernen von Dubletten

weber_dup <-duplist(Weber2, paragraph =TRUE)

Weber_unique <- filterID(Weber2,id =weber_dup$uniqueTexts)

#Filtern auf alle Texte in denen zweimal Weber und einmal Bundesbank vorkommt

Weber_Filter   <-filterWord(Weber_unique,   search=list(data.frame(pattern="weber", word="word", count=2)),ignore.case = TRUE)

Weber_Filter <-filterWord(Weber_Filter, search=list(data.frame(pattern="bundesbank", word="pattern", count=1)),ignore.case = TRUE)

#Vorverarbeitung der Texte

sw <- read.csv("stopwords_deutsch_lang.csv",   header = FALSE, stringsAsFactors = FALSE)

sw <- as.character(sw)

Weber_clean <-cleanTexts(Weber_Filter, sw = sw, paragraph = TRUE, checkUTF8= FALSE)

tmp <- makeWordlist(Weber_clean$text)

wordtable <- tmp$wordtable

words5 <- sort(names(wordtable)[wordtable>5])

#Durchführung der LDA

Weber_LDA <-LDAprep(Weber_clean$text, vocab=words5, reduce = TRUE)

```
LDA14 <-LDAgen(documents=Weber_LDA , K = 14L, vocab=words5, num.iterations =
200L, burnin = 70L, alpha = NULL, eta = NULL, folder="K14", num.words = 100L, LDA
= TRUE)
```

#Daten zur Interpretation

```
load("K14-k14alpha0.07eta0.07i200b70s45979297.RData" )
```

```
topID14 <-topTexts(ldaresult=result, ldaID=ldaID, limit= 20)
```

```
showTexts(object=Weber_Filter, id=topID14, file="K14/K14")
```

#Ausgeben Anzahl der Artikel pro Quartal im Zeitverlauf

```
AnzahlArtikelWeber <- plotScot(Weber_Filter, id = Weber_Filter$meta$id, type =
c("docs"), rel = FALSE, mark = TRUE, unit = "quarter", file = "Weber-Zeitverlauf.pdf")
```

```
write.csv (AnzahlArtikelWeber, file = "Weber-Zeitverlauf.csv")
```

#Ausgeben Anteil der Topics pro Quartal im Zeitverlauf

```
load("K14-k14alpha0.07eta0.07i200b70s45979297.RData" )
```

```
plotWeberquater <- plotTopic (object=Weber_clean, ldaresult=result, ldaID=ldaID,
unit="quater", tnames=c("Bundesregierung", "Ackermann-Nachfolge", "EZB-Geldpoli-
tik", "Bankenrettung", "Internationale Währungspolitik", "Wirtschaftslage", "Aufsichtsre-
form", "Wechsel des Praesidenten", "Sarrazin", "Trichet-Nachfolge", "Bundesbankvor-
stand", "Staatsschulden", "Sonstige", "Bankenregulierung"), rel=TRUE,
legend="topleft", pages=TRUE, file = "plotWeber-Quater.pdf")
```

```
write.csv (plotWeberquater, file = "plotweber-Quater.csv")
```

Appendix V.2: R code of the LDA-analyses on Weber

#Setzen der Working-Directory

```
setwd("C:/Users/timoh/OneDrive/Dokumente/Uni/Bachelorarbeit/LDA")
```

#Laden des Package und der Daten

```
library (tosca)
```

```
load("Weidmann.Rdata")
```

#Filtern auf alle Texte in denen zweimal Weidmann und einmal Bundesbank vorkommt

Weidmann_Filter <-filterWord(Weidmann2, search=list(data.frame(pattern="weidmann", word="word", count=2)),ignore.case = TRUE)

Weidmann_Filter <-filterWord(Weidmann_Filter, search=list(data.frame(pattern="bundesbank", word="pattern", count=1)),ignore.case = TRUE)

#Vorverarbeitung der Texte

sw <- read.csv("stopwords_deutsch_lang.csv", header = FALSE, stringsAsFactors = FALSE)

sw <- as.character(sw)

Weidmann_clean <-cleanTexts(Weidmann_Filter, sw = sw, paragraph = TRUE, checkUTF8= FALSE)

tmp <- makeWordlist(Weidmann_clean$text)

wordtable <- tmp$wordtable

words5 <- sort(names(wordtable)[wordtable>5])

#Durchführung der LDA

Weidmann_LDA <-LDAprep(Weidmann_clean$text, vocab=words5, reduce = TRUE)

LDA18 <-LDAgen(documents=Weidmann_LDA , K = 18L, vocab=words5, num.iterations = 200L, burnin = 70L, alpha = NULL, eta = NULL, folder="K18", num.words = 100L, LDA = TRUE)

#Daten zur Interpretation

load("K18-k18alpha0.06eta0.06i200b70s56139473.RData")

topID18 <-topTexts(ldaresult=result, ldaID=ldaID, limit= 20)

showTexts(object=Weidmann_Filter, id=topID18, file="K18/18")

#Ausgeben Anzahl der Artikel pro Quartal im Zeitverlauf

AnzahlArtikelWeidmann <- plotScot(Weidmann_Filter, id = Weidmann_Filter$meta$id, type = c("docs"), rel = FALSE, mark = TRUE, unit = "quarter", file = "Weidmann-Zeitverlauf.pdf")

write.csv (AnzahlArtikelWeidmann, file = "Weidmann-Zeitverlauf.csv")

#Ausgeben Anteil der Topics pro Quartal im Zeitverlauf

load("K18-k18alpha0.06eta0.06i200b70s56139473.RData")

plotWeidmannquater <- plotTopic (object=Weidmann_clean, ldaresult=result, ldaID=ldaID, unit="quater", tnames=c("Sonstige 1", "Merkel", "Eurokrise", "Internationale Währungspolitik", "Wirtschaftslage", "Konflikt Anleihenkäufe", "EZB-Rat", "Sonstige 2", "Ende Anleihenkäufe", "Bundesverfasungsgericht", "Lohnpolitik", "Draghi-Nachfolge", "Banken", "Persönlichkeit", "Lagarde", "Bargeldabschaffung", "Bundesbank-Gewinn", "Sonstige 3"), rel=TRUE, legend="topleft", pages=TRUE, file = "plotWeidmann-Quater.pdf")

write.csv (plotWeidmannquater, file = "plotweidmann-quater.csv")

Appendix V.3: Results of the LDA-analyses on Weber

Top Words				
AW-1	AW-2	AW-3	AW-4	AW-5
German Government	**Succession of Ackermann**	**ECB Monetary Policy**	**Bank Bailout**	**Int. Currency Policy**
euro	*Bank*	*ezb*	*steinbrueck*	*iwf*
mrd	*Ackermann*	*geldpolitik*	*hre*	*washington*
bundesbank	*Deutschen*	*zentralbank*	*milliarden*	*china*
gold	*Gibt*	*zinsen*	*euro*	*fonds*
jahr	*Frage*	*euroraum*	*banken*	*g*
steinbrueck	*Chef*	*inflation*	*sanio*	*strausskahn*
bund	*Lange*	*leitzins*	*hypo*	*waehrungsfonds*
tonnen	*Jahren*	*trichet*	*real*	*minarette*
eichel	*Deutsche*	*europaeische*	*asmussen*	*deutschland*
rund	*Welt*	*ezbrat*	*estate*	*lagarde*

AW-6	AW-7	AW-8	AW-9	AW-10
Economic Situation	**Supervisory Reform**	**Change of President**	**Sarrazin**	**Succession of Trichet**
jahr	*bundesbank*	*bundesbank*	*sarrazin*	*ezb*
wachstum	*Bafin*	*weidmann*	*bundesbank*	*trichet*
wirtschaft	*bankenaufsicht*	*weber*	*thilo*	*draghi*
Dollar	*Aufsicht*	*kanzlerin*	*sarrazins*	*merkel*
deutsche	*finanzaufsicht*	*welteke*	*Bundesbankvorstand*	*jeanclaude*
unternehmen	*Fdp*	*geldpolitik*	*vorstand*	*europaeischen*
deutschland	*Union*	*unabhaengigkeit*	*aeusserungen*	*zentralbank*
aufschwung	*Hiess*	*webers*	*interview*	*staatsanleihen*
konjunktur	*Sanio*	*eichel*	*fall*	*sarkozy*
Quartal	*Cdu*	*bundesbankpraesidenten*	*Bundespraesidenten*	*mario*

AW-11	AW-12	AW-13	AW-14
Bundesbank Board	**Public Debt**	**Unclear**	**Banking Regulation**
stark	*griechenland*	*ag*	*banken*
kandidaten	*Land*	*hauptversammlung*	*krise*
gilt	*deutschland*	*quartal*	*institute*
vorstand	*staaten*	*zahlen*	*kredite*

nachfolge	laender	berlin	finanzkrise
nachfolger	Eu	bilanzpressekonferenz	mrd
posten	schulden	Pressekonferenz	bank
bundesbank	griechische	Mai	muessten
waere	regierung	Thema	risiken
Juergen	Euro	April	eigenkapital

Appendix V.4: Interpretation of the Top Text on Weber

AW-1 German Government

This Topic deals with the relationship between the Bundesbank and the Federal Government. The main focus is on conflicts between the two sides. The topics of dispute are different. For example, it is about the sale of parts of the gold reserves, the budgetary policy of the Federal Government or salary bonuses for Bundesbank employees. As a rule, Weber has his say and comments on the respective controversial topic.

AW-2 Succession of Ackermann

This topic deals with speculation about Weber succeeding Josef Ackermann as head of Deutsche Bank. Typical articles discuss why Weber would be suitable for the post and what other candidates there are. In the process, Weber is reported on. There are no statements on the subject by Weber himself.

AW-3 ECB Monetary Policy

This topic focuses on Weber's statements on ECB monetary policy such as interest rate cuts. In addition to Weber's statements, the typical articles usually summarise opinions of other ECB council members or experts and analysts. In addition, there are general monetary policy forecasts.

AW-4 Bank Bailout

This topic deals with aid pacts to rescue banks during the banking crisis. The focus is on the rescue of Hypo Real Estate. The typical articles deal with the negotiations on the rescue pacts in which Weber participated and the HRE committee of enquiry before which Weber also testified.

AW-5 Int. Currency Policy

This topic deals with international monetary policy. The typical articles usually report on meetings of the IMF, as well as G20 or G7 summits on the topic of monetary

policy. It is often about IMF reform. The articles contain Weber's statements on the respective topic.

AW-6 Economic Situation

This topic contains Weber's statements on current and future economic developments. For example, it deals with economic data or unemployment figures. In the typical articles, economic data and forecasts of other actors are often presented as well.

AW-7 Supervisory Reform

This is about the Federal Government's plans to reform banking and financial supervision in Germany. The typical articles deal with statements by Weber, but also by other protagonists such as the Minister of Economics or the head of BaFin.

AW-8 Change of President

This topic is about changes at the top of the Bundesbank. That is, Weber's appointment and assumption of office, as well as his resignation at the end of his term. The typical articles often deal with Weber as a person and his biography.

AW-9 Sarrazin

This topic deals with the Sarrazin affair. The typical articles deal with Weber's statements on the subject, analyses of his handling of the affair and recommendations for action addressed to him.

AW-10 Succession of Trichet

This topic is about speculation about Trichet's successor as ECB president. Typical articles focus on who is in favour of or against Weber as ECB president. The conflict between Weber and Trichet regarding the purchase of government bonds is also taken up.

AW-11 Bundesbank Board

This topic focuses on personnel issues in the Bundesbank board. The typical articles deal with changes in the Executive Board, changes in the allocation of departments and debates about a reduction in the size of the Executive Board.

AW-12 Public debt

This topic covers measures to reduce public debt. The typical articles mainly deal with rescue measures for Greece in the euro crisis, on which Weber comments. However, it also covers debates on reducing public debt in Germany before the euro crisis.

AW-14 Banking Regulation

This section deals with the tightening of banking regulations, especially after the financial crisis. The typical articles deal with concrete measures. Weber's opinion on this often appears in them.

Appendix V.5: Results of the LDA-analyses on Weidmann

Top Words				
JW-1	JW-2	JW-3	JW-4	JW-5
Unclear 1	**Merkel**	**Euro Crisis**	**Int. Currency Policy**	**Economic Situation**
europa	merkel	griechenland	schaeuble	deutschland
gibt	kanzlerin	efsf	finanzminister	zinsen
waere	angela	euro	weidmann	jahr
geldpolitik	schaeuble	italien	iwf	wirtschaft
politik	cdu	spanien	europa	wachstum
notenbanken	weber	athen	wolfgang	usa
beispiel	berlin	staatsanleihen	washington	investitionen
wuerde	spd	anleihen	deutschland	deutschen
rolle	weidmann	geld	bundesfinanzminister	deutsche
deutschland	bundeskanzlerin	esm	frankreich	unternehmen
JW-6	JW-7	JW-8	JW-9	JW-10
Conflict Bond Purchases	**ECB Governing Council**	**Unclear 2**	**End Bond Purchases**	**Bond Purchases in Court**
ezb	ezb	the	geldpolitik	bundesverfassungsgericht
draghi	ezbrat	of	inflation	ezb
staatsanleihen	sinn	to	euroraum	omt
weidmann	oekonomen	a	zinsen	bundesbank
notenbank	bundesbank	is	deutlich	karlsruhe
mario	rat	for	zwei	asmussen
zentralbank	handelsblatt	that	anleihekaeufe	gericht
geldpolitik	entscheidungen	be	niedrigen	richter
anleihen	debatte	this	inflationsrate	omtprogramm
draghis	fuenf	it	donnerstag	gerichtshof

JW-11	JW-12	JW-13	JW-14
Wage Policy	**Succession of Draghi**	**Banks**	**Personality**
deutschland	*weidmann*	*banken*	*bundesbank*
bundesbank	*draghi*	*bankenaufsicht*	*weidmann*
hoehere	*posten*	*aufsicht*	*weber*
deutschen	*ezb*	*bafin*	*axel*
loehne	*gilt*	*bank*	*stark*
mindestlohn	*geldpolitik*	*bankenunion*	*trichet*
wirtschaft	*waere*	*risiken*	*asmussen*
qe	*europaeischen*	*zypern*	*deutschen*
unternehmen	*lautenschlaeger*	*finanzkrise*	*notenbank*
renditen	*ezbpraesident*	*ezb*	*jahre*

JW-15	JW-16	JW-17	JW-18
Lagarde	**Cash Abolition**	**Bundesbank Profit**	**Unclear 3**
lagarde	*bargeld*	*milliarden*	*deutschen*
scholz	*euro*	*euro*	*gut*
christine	*dollar*	*bundesbank*	*zeit*
macron	*unternehmen*	*weidmann*	*politik*
bruessel	*gold*	*banken*	*jahren*
trump	*milliarden*	*notenbanken*	*geld*
altmaier	*geld*	*schaeuble*	*welt*
lane	*weidmann*	*risiken*	*menschen*
frau	*jens*	*notenbank*	*heute*
chefin	*millionen*	*jahr*	*macht*

Appendix V.6: Interpretation of the Top Text on Weidmann

JW-2 Merkel

This topic deals with the relationship between Merkel and Weidmann. The typical articles in this topic describe Weidmann as a close confidant of the chancellor. They mainly date from the time before Weidmann took office.

JW-3 Euro crisis

This topic focuses on the euro crisis and measures to save indebted countries, especially Greece. In the typical articles, Weidmann expresses his views on various measures such as Eurobonds or a Greek exit from the euro.

JW-4 International Currency Policy

This topic deals with international monetary policy. The typical articles usually report on meetings of the IMF, as well as G20 or G7 summits on the topic of monetary policy, which Weidmann usually also attended.

JW-5 Economic Situation

This topic includes statements by Weidmann on current and future economic developments. For example, it deals with economic data or unemployment figures. In the typical articles, economic data and forecasts of other actors are often presented as well.

JW-6 Conflict Bond Purchases

This topic deals with the conflict between Weidmann and Draghi, or other ECB council members, on the ECB's bond-buying programs. The typical articles include Weidmann's criticism of the purchase programs as well as the corresponding counter-positions.

JW-7 ECB Governing Council

This topic is about the ECB Governing Council as a body. The typical articles in this topic deal with the change of the voting principle in the Council and the introduction of the publication of minutes of meetings.

JW-9 End Bond Purchases

This topic deals specifically with an end to the ECB's bond-buying programs. While the typical articles of topic JW-6 deal with the fundamental conflict as to whether bond-buying programs are part of the ECB's mandate, the typical articles of this topic call for the programs to be ended due to a better economic situation. In addition to Weidmann, other actors who call for an end to bond purchases also have their say.

JW-10 Bond Purchases in Court

This topic focuses on the trial of the ECB's bond-buying programs before the Federal Constitutional Court. Typical articles focus on Weidmann's testimony at the hearing and the judges' verdict.

JW-11 Wage Policy

This topic is about the level of wages in Germany. In the typical articles, Weidmann comments on this.

JW-12 Succession of Draghi

This topic is about speculation about Draghi's successor as ECB president. The typical articles discuss Weidmann's chances of winning the post.

JW-13 Banks

This topic deals mainly with banking regulation and European banking supervision. In addition, the typical articles deal with the handling of troubled banks in the euro states affected by the debt crisis. In this context, Weidmann comments on the plans under discussion.

JW-14 Personality

This topic is about Weidmann's personality. Typical articles describe his biography and analyse his personality. Many articles date from the beginning of his term in office. Others deal with changes during his tenure.

JW-15 Lagarde

This topic is about Christine Lagarde as Draghi's successor at the helm of the ECB. The typical articles deal with speculations about Lagarde as successor, but also with the expectations when she took office.

JW-16 Cash Abolition

This topic focuses on the discussion about abolishing cash. Typical articles include statements by Weidmann on this topic.

JW-17 Bundesbank Profit

This topic deals with the Bundesbank's profit. The typical articles report on the annual balance sheet press conference at which the profit is announced.

Appendix VI

Appendix VI.1: German Topics

Greece / Italy	Interest rates	Possible change of monetary strategy	QE
Tg1	**Tg2**	**Tg3**	**Tg4**
9,04	12,14	21,52	9,59
italien	geld	ezb	ezb
griechenland	prozent	prozent	banken
ezb	ezb	geldpolitik	staatsanleihen
regierung	banken	inflation	kredite
milliarden	zinsen	draghi	notenbank
banken	inflation	sagte	kaufen
griechischen	wirtschaft	anleihekaeufe	programm
spanien	preise	zinsen	aufkauf
rom	sparer	euroraum	abs
esm	unternehmen	notenbank	zentralbank
griechische	leitzins	zwei	staatsfinanzierung
sagte	null	sitzung	omt
land	kredite	ezbrat	kreditvergabe
italienische	eurozone	deutlich	kauf
euro	deflation	ezbpraesident	markt
Stock market	Politics	ECB staff	USA, $/€ exchange rate
Tg5	**Tg6**	**Tg7**	**Tg8**
8,98	18,76	12,76	7,22
prozent	deutschland	weidmann	fed
anleger	europa	bundesbank	usa
investoren	ja	ezb	dollar
aktien	politik	schaeuble	trump
dax	muessen	deutschen	notenbanken
dollar	immer	geldpolitik	geldpolitik
renditen	waehrungsunion	draghi	yellen
rendite	waere	jens	notenbanker
euro	gibt	ezbrat	europa

anleihen	deutschen	ezbpraesident	waehrung
seit	politiker	deutsche	bernanke
deutsche	herr	merkel	usnotenbank
jahr	frankreich	weber	euro
sagt	krise	bundesbankpraesi-dent	wirtschaft
bundesanleihen	macht	notenbank	wechselkurs

Appendix VI.2: French Topics

Interest rates	QE	Possible change of monetary strategy	ECB staff
Tf1	**Tf2**	**Tf3**	**Tf4**
18,41	11	8,93	10,1
rate	banken	qe	rat
senkung	milliarden	inflation	politisch
gouverneure	rate	vermögenswerte	gouverneure
ezb	schulden	politisch	mitglieder
rat	euro	milliarden	trichet
euro	kredit	euro	jeanclaude
preis	bargeld	wachstum	bank
inflation	bank	steigen	jackson (hole)
bereich	anleihen	september	siehe
euro	bereit	ezb	ökonom
monetär	ezb	programm	banker
dollar	jahre	kaufen	institution
politisch	bankwesen	monetär	zentral
mario	markt	monat	monetär
prognose	staaten	rücknahmen	wirtschaft
Germany	Stock market	Greece/ EU Politics	? (QE II)
Tf5	**Tf6**	**Tf7**	**Tf8**
12,81	15,95	8,48	14,31
ezb	märkte	griechenland	politisch

deutsch	investoren	hollande	euro
merkel	bei	französisch	wachstum
politisch	institution	minister	preis
bundesbank	schulden	griechisch	mehr
präsident	rate	frankreich	bereich
euro	senkung	haushalt	interesse
europäisch	donnerstag	europa	rate
stabilität	wirtschaft	brüssel	gut
weidmann	maßnahmen	pakt	währung
staaten	cac	atheisten	euro
spanien	mehr	europäer	wirtschaftlich
italien	ezb	europäisch	deflation
kanzler	punkte	reformen	krise
land	euro	finanzen	monetär

Appendix VI.3: Topic results for higher values of k

	German media			French media		
k	**8**	**10**	**12**	**8**	**10**	**12**
1	Griechen-land / Italien	QE / Anleihen-käufe	Eurokurs	Zinspolitik	(Kein) Kurswech-sel in Sicht	Personalie Draghi
2	Zinspolitik	(Kein) Kurswech-sel in Sicht	Zinsenpoli-tik	Anleihen-käufe	?? / Euphorie	(Kein) Kurswech-sel in Sicht
3	(Kein) Kurswech-sel in Sicht	?? / Was sonst so anfällt	Griechen-land / Ita-lien	(Kein) Kurswech-sel in Sicht	Zinspolitik (und Inflation)	Zinspolitik
4	QE / Anleihen-käufe	??	(Kein) Kurswech-sel in Sicht	EZB intern / Persona-lien	Börse und Märkte	Griechen-land

5	Börse und Märkte	EZB intern / Personalien	?? / Streit intern	Deutschland	Griechenland	Inflation
6	Politik / Interview-Topic	Griechenland / Italien	EZB intern / Personalien	Börse und Märkte	Anleihenkäufe	Wirtschaft Europa
7	EZB intern / Personalien	Börse und Märkte	?? / Ansprachen Draghi	Griechenland	Strukturreformen	?? / Wesen der EZB
8	USA / Eurokurs	Interview-Topic	USA	?? / QE-Maßnahmen	EZB Personalien	Strukturreformen
9		Draghi und die Deutschen	Börse und Märkte		Deutschland	Anleihen-, Schuldenkauf
10		Eurokurs	Reformen / Bankenaufsicht		??	??
11			Draghi Und die Deutschen			Börse und Märkte
12			Interview			Deutschland

Appendix VI.4: German Topics over time
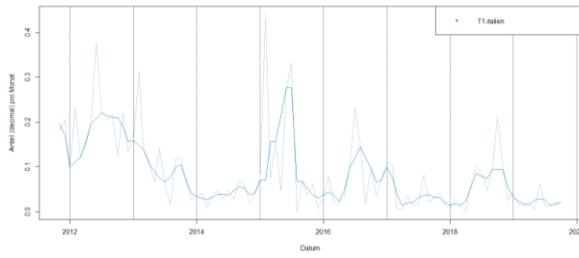
Figure 1: Tg1 over time
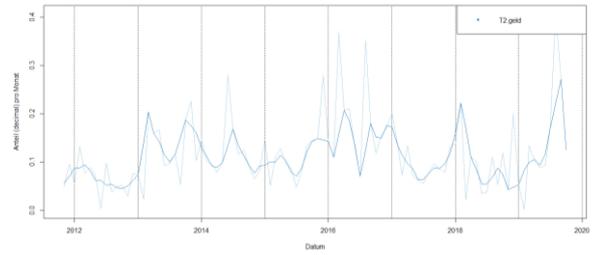
Figure 2: Topic Tg2 over time
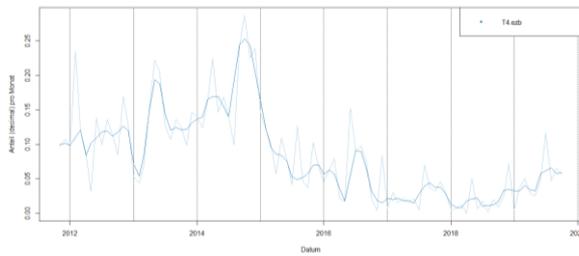
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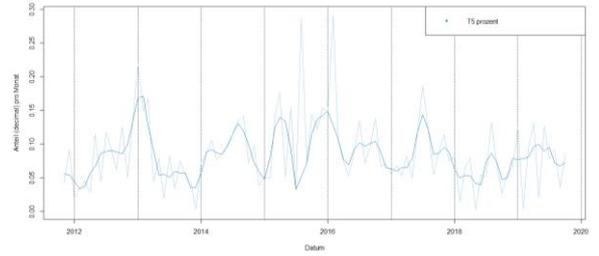
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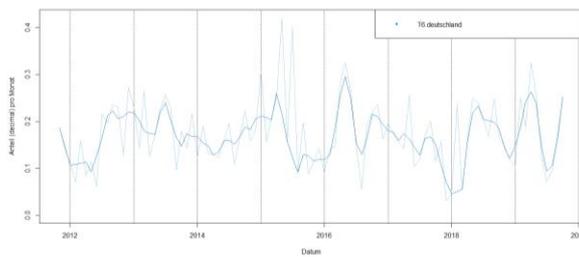
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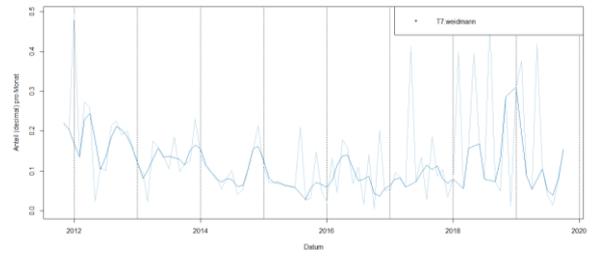
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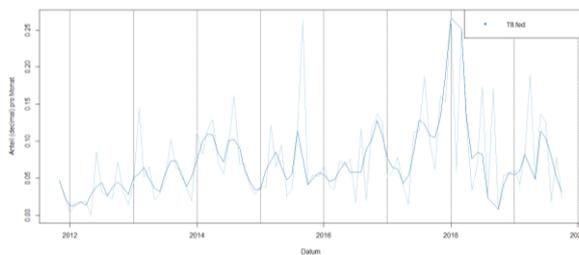
Figure 7: Topic Tg8 over time

### Appendix VI.5: French Topics over time
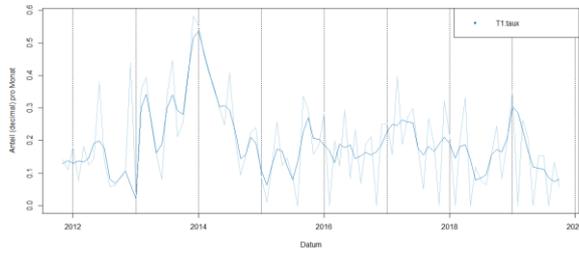

Figure 8: Tf1 over time
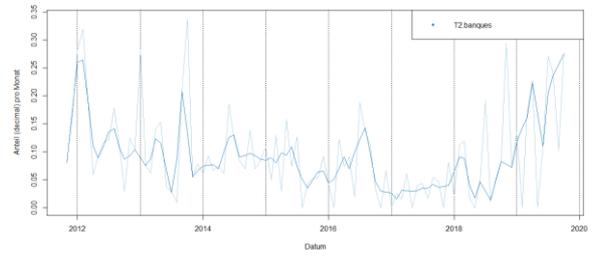
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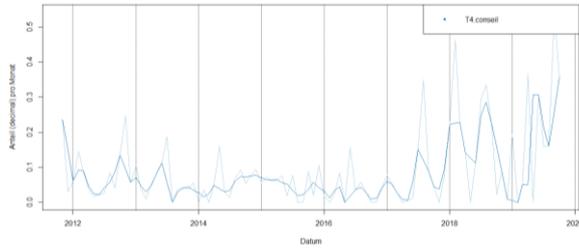
**Figure 10: Tf4 over time**
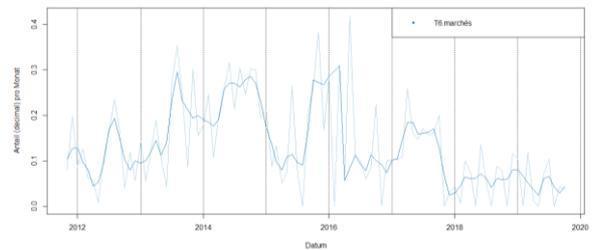
Figure 11: Tf6 over time
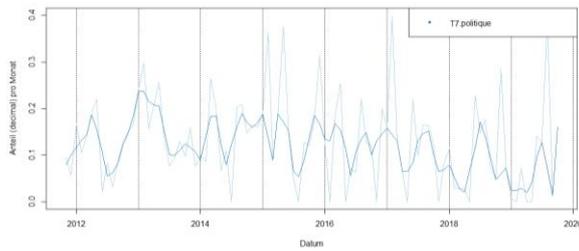

Figure 12: Tf7 over time

Figure 13: Tf8 over time