

Trust in Central Banks

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Abstract: *Trust in the central bank is an essential ingredient for a successful conduct of monetary policy. However, for many central banks trust has recently declined, for instance in the wake of the post-pandemic inflation surge, due to large errors in central banks' inflation forecasts, or given problems when exiting from forward guidance. The rapid, substantial and persistent erosion of trust makes it clear that trust needs to be earned continuously. This paper reviews why trust is important, what determines it and how central banks can enhance it. It also argues that it is important for central banks to improve the measurement and monitoring of trust. It ends by highlighting some future challenges for maintaining trust.*

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Introduction

Over the course of the early 2020s, the topic of trust in central banks has regained prominence both in academic research and in discussions among policymakers. The reasons for this are obvious.

On the one hand, at least three developments challenged the extent to which the public trusts their central banks. First, the post-pandemic inflation surge brought inflation in many advanced economies to levels that had not been observed since the 1970s and 1980s. As most central banks have inflation targets in place, it became glaringly apparent that central banks had missed their own objectives by a wide margin. Second, and related to this, central banks' inflation projections underpredicted the inflation surge substantially, and persistently so, tarnishing the image of central banks as expert and knowledge-based institutions. Third, once central banks wanted to tighten monetary policy to counteract the inflation surge, several of them still had forward guidance in place that was inconsistent with raising policy rates immediately.² Some decided to go ahead, raising rates earlier than what was expected based on the central bank's own forward guidance, leading to extensive criticism among the public and a potential loss in the credibility of the instrument of forward guidance – the effectiveness of which is entirely based on its credibility.

On the other hand, the disinflation process in the early 2020s has proven to be much easier than the experience of the 1970s and 1980s and has undoubtedly been helped by better trust in the central banks: having in place a credible monetary policy regime and as a consequence much better anchored inflation expectations has facilitated the job of central banks in bringing inflation back down to target.

Against this background, this paper reviews the relevant literature on trust in central banks (a substantial amount of which was released in the last few years). In so doing, it makes 10 statements about trust in central banks, covering the reasons why trust matters, the determinants of trust, means to generate and maintain trust, and future challenges to do so.

But what is trust in an institution? OECD (2017a) defines it as follows: "Institutional trust is generated when citizens appraise public institutions and/or the government and individual political leaders as promise-keeping, efficient, fair and honest". Related concepts are reputation and credibility, and these are often used interchangeably in the relevant

² For a review and critical discussion of the issues, see, e.g. Reserve Bank of Australia (2022).

literature. Often, reputation refers to the opinion that people hold about the central bank, and is usually seen as determined by people's assessment of the central bank actions and behaviour. Credibility is often related to the belief that the central bank will adhere to its communicated objectives; Blinder (1998, pp. 64-65) defines it as "... that your pronouncements are believed—even though you are bound by no rule and may have an incentive to renege". This makes it clear that these concepts are interrelated – having a "good" reputation will foster trust and credibility. Similarly, a central bank that is seen as credible is more likely to be trusted.

Statement 1: Trust and credibility are central to central banking

Central banks' mission statements or their codes of conduct often emphasise the importance of being a trusted central bank. The Reserve Bank of Australia's vision is "to be a world-leading central bank that is trusted for our analysis, service delivery and policies" (Reserve Bank of Australia 2023), and the Bank of Canada's vision is "to be a leading central bank – dynamic, engaged, and trusted – committed to a better Canada" (Bank of Canada 2024). The Bank of England's code of conduct stresses that the Bank's ability to achieve its mission "depends on public trust, and a belief that we will demonstrate the highest standards of public service" (Bank of England 2024), and the mission statement of the Eurosystem (i.e. the European Central Bank and the National Central Banks of the euro area) specifies that "in pursuing our objectives, we attach utmost importance to credibility, trust, transparency and accountability." (European Central Bank 2024).

That central banks put the issue of trust centre stage in their mission statements is not surprising, because trust is important for many dimensions of central banking. Banknotes will only serve their purpose if the public trusts that they are safe to use; the same will apply to digital currencies (Bijlsma, van der Cruijsen, Jonker and Reijerink 2023). Financial stability relies on trust that the financial system is stable. And monetary policy requires trust, along various dimensions – to keep inflation expectations anchored, to affect interest rate expectations, e.g. via forward guidance, and to ensure central bank independence. After all, monetary policy works largely by affecting forward-looking variables such as longer-term interest rates and other asset prices. This paper focuses on the monetary policy-related aspects of trust, and will turn to the relevant empirical evidence on these issues below.

A recent survey among former members of the ECB's decision-making body, the Governing Council, asked about the objectives of central bank communication (Ehrmann, Holton, Kedan and Phelan 2024). Respondents were given various options, covering "enhance transparency", "manage expectations", "ensure accountability", "enhance credibility and trust" and "safeguard central bank independence". While all of these statements were seen as important, enhancing credibility and trust was viewed as the most important objective of central bank communication. More than 70% of respondents found this reason to be "extremely important", more than 20% answered "very important", and all remaining respondents thought this was "important".

But why is credibility and trust so important to policymakers? An earlier survey by Blinder (2000), in which he solicited central bank governors' opinions on several questions related to central bank credibility, gets at this question. The main reasons why credibility was seen as important by the respondents were that it makes disinflation less costly, helps keep inflation down once it is low, makes defending the currency easier and helps garner support for central bank independence.

Statement 2: Trust, not popularity, matters

Monetary policy has distributional effects, whether it uses its conventional or its unconventional tools. Raising interest rates, for instance, benefits savers but hurts borrowers. This implies that monetary policy is, at least at times, unpopular – an important reason for making central banks independent from government. By being independent, central banks can take their decisions independently from short-term political considerations, and need to establish trust independently from the government. However, given the need to take unpopular measures, central banks should not strive for popularity, but for trust – or, to quote Warsh (2010): "The only popularity central bankers should seek, if at all, is in the history books."

As a trusted institution, a central bank will find it easier to conduct its policies also if these are unpopular with the public or even the government. Actually, it has been argued that the German Bundesbank has gained trust, which in turn has helped it keep its independence, precisely by being unpopular, namely by holding its line in various conflicts with the government (Berger and De Haan 1999; Issing 2018; Mee 2019).

The quest for trust rather than popularity might also impinge on the desirability of broadening central banks' tasks. In listening events with the general public, the ECB (like other central banks) was often urged to broaden its mandate and policy actions in order to address wider societal and economic issues (see European Central Bank 2021). The evidence provided by Eickmeier and Petersen (2024b) suggests that this could contribute to increased trust in the central bank. They find that providing consumers with information about the ECB's climate activities raises their trust in the institution. Whereas a small group of respondents is concerned that these activities could compromise price stability or the ECB's independence, more people actually believe that they foster the achievement of the ECB's core objectives. However, Federal Open Market Committee (FOMC) Chair Powell (2023) called for caution in that regard, arguing that "it is essential that we stick to our statutory goals and authorities, and that we resist the temptation to broaden our scope to address other important social issues of the day. Taking on new goals, however worthy, without a clear statutory mandate would undermine the case for our independence."

Statement 3: Trust helps anchor inflation expectations and reduce uncertainty about future inflation

Anchored inflation expectations are central to an effective conduct of monetary policy, and their formation depends on the past performance of monetary policy (Carvalho, Eusepi, Moench and Preston 2023). But is there also a role for trust?

In their study of Dutch consumers, Christelis et al. (2020) find that trust in the ECB helps anchoring consumers' inflation expectations, in two ways. First, it lowers consumers' uncertainty about future price developments. Second, those who trust are less likely to hold inflation expectations that are far from the ECB's inflation target. On average, consumers tend to have exaggerated inflation expectations (Weber, D'Acunto, Gorodnichenko and Coibion 2022; D'Acunto, Charalambakis, Georgarakos, Kenny, Meyer and Weber 2024). As higher levels of trust lead to an overall reduction in inflation expectations, this brings them closer to target. Importantly, however, the authors identify a non-linearity in this effect: trust in the ECB *raises* inflation expectations among individuals with *low* inflation expectations, while it *lowers* inflation expectations among those with *high* inflation expectations. Furthermore, the effect is stronger for those with high inflation expectations. In the middle of the distribution, the responsiveness is close to zero and insignificant, meaning that respondents who have

inflation expectations close to target barely change them when their trust in the ECB increases. In other words, trust in the ECB helps anchoring inflation expectations around the ECB's inflation objective – an effect that is identified after controlling for respondents' knowledge about the ECB's objectives, suggesting that institutional credibility can have some independent influence on people's inflation expectations.

Corroborating evidence for the ECB is provided by Brouwer and De Haan (2022) in a later survey conducted among Dutch consumers, by Rumler and Valderrama (2020) for Austria and by Mellina and Schmidt (2018) for Germany, and the pattern also applies outside Europe: Niizeki (2023) provides causal evidence that decreasing trust in the Bank of Japan raised inflation expectations, moving them further away from the Bank of Japan's inflation target. Additional corroborating evidence accrued during the recent inflation surge, where consumers with high levels of trust in the ECB increased their long-term inflation expectations much less than consumers with low levels of trust (Galati, Moessner and van Rooij 2024).

Further evidence pointing to non-linearities depending on whether inflation is above or below target is provided by Coleman and Nautz (2024). They find that the credibility of the ECB's inflation target improves when inflation moves closer to target from above, but not when inflation is brought closer to target from below.

But is it important to have consumer inflation expectations close to target? That consumers act upon their inflation beliefs has been shown by a large number of studies, which are summarised in D'Acunto, Charalambakis, Georgarakos, Kenny, Meyer and Weber (2024). In particular, consumption decisions respond to consumers' inflation expectations. Typically, spending increases if inflation expectations increase (see., e.g., D'Acunto, Hoang and Weber 2022). However, the opposite pattern results if an increase in future inflation is taken to be a stagflationary signal, leading to more precautionary behaviour (Coibion, Georgarakos, Gorodnichenko, Kenny and Weber 2024).

Statement 4: Trust helps contain political pressure on the central bank

Even if central banks have been made independent from government, this does not mean that this independence is always and everywhere respected by politicians – especially in recent years, when the concept of central bank independence has been discussed more critically also within the economics profession (Goodhart and Lastra 2018, Issing 2018).

Binder (2021b) assembles an extensive dataset on political pressure faced by 118 central banks in the 2010s. She shows that such pressure is frequent – on average, about 10% of central banks experience such pressure per year. Even for central banks with high legal independence, pressure is not uncommon. In the vast majority of cases, the central bank is pressured to *loosen* its monetary policy. And such pressure does impress financial markets. There is ample evidence that asset prices respond – for the ECB and the U.S. FOMC (Demiralp, King and Scotti 2019), as well as in a panel of countries that includes in particular Turkey, where the central bank has been exposed to particularly sizeable pressures (Çakmaklı, Demiralp and Güneş 2023). To give one example, tweets about the U.S. Federal Reserve by Donald Trump during his 2017-2021 U.S. presidency have been analysed in several studies, and have been shown to affect asset prices (Bianchi, Gómez-Cram, Kind and Kung 2023, Camous and Matveev 2021, Tillmann 2020) and even consumers' long-term inflation expectations (Binder 2021a).

This issue connects with trust in the central bank. As Ehrmann and Fratzscher (2011) show, low public trust in the ECB increases the likelihood that national politicians exert pressure on the ECB to conduct a looser monetary policy, in particular if national (not euro area!) growth is lacklustre. This evidence supports the notion that a trusted central bank is harder to criticise and to pressurise, as politicians are more likely to face resistance by the electorate in such cases. Politicians are acutely aware of this, as illustrated in May 1974 by soon-to-be German chancellor Helmut Schmidt. In a confidential report (which was leaked to the media the day after he became chancellor), he wrote to the leadership of Germany's social democratic party: "We are not able to make use of any public conflict with the Bundesbank: public opinion would not stand on our side."³

Statement 5: Trust facilitates the achievement of the central bank objective

Beyond anchoring inflation expectations and containing political pressure, are there further effects triggered by trust in the central bank, in particular with regard to the macroeconomy, i.e. when it comes to business cycle stabilisation and controlling inflation developments? The literature on this question is surprisingly scant.

³ Quoted from Mee (2019), page 298.

A large literature studies the role of reputation in optimal monetary policy. For instance, the seminal paper by Barro and Gordon (1983) shows that building up a reputation allows the central bank to improve upon discretionary monetary policy. Moscarini (2007) adds to this that a central bank's (reputation for) competence makes monetary policy under discretion credible and transparent, as the public expects that a competent central bank will not want to stimulate output by generating inflation surprises, but instead uses its discretion to pursue its postulated target.

But the issue of trust goes beyond reputation. Even a central bank that is reputed for its anti-inflationary policy might face a loss of trust, for instance if the public starts doubting whether the central bank is actually able to achieve its objective. A few papers endogenise trust and study the effects of trust on the macroeconomy in general and the monetary transmission mechanism in particular. In Bursian and Faia (2018), trust emerges from a strategic interaction between policy makers that face a time inconsistency problem and agents that are averse to "betrayal". Agents rely on past policy outcomes as signals to decide whether or not to trust that the central bank will stick to its anti-inflationary policy stance in the future. The paper shows that a rise in trust lowers the risk aversion of private agents and boosts consumption. Output supply gets a boost, as firms take into account a reduced uncertainty surrounding future profits. The improvement in the expected inflation-output trade-off leads to a fall in inflation expectations. This allows the central bank to reduce the nominal interest rate, which in turn pushes demand even further. Importantly, in their model, the monetary transmission mechanism becomes more effective – the stochastic discount factor is more responsive to policy changes, which lowers the slope of the Phillips curve.

A related paper is Park (2023), who studies a New Keynesian framework with endogenous central bank credibility, where credibility is defined as the time-varying relative weight that private agents attach to the central bank's published forecasts when they form their own expectations of future macroeconomic conditions. In this model, maintaining credibility helps to anchor private expectations and to achieve macroeconomic stability.

Yet another concept of trust is employed in De Grauwe and Ji (2024), namely whether agents trust that the central bank can actually keep inflation close to the announced target. This paper finds that if trust is low and large shocks arise, a further loss of trust results, which in turn amplifies the negative effects of the initial shock. This makes trust a key variable to

ensure that the economy returns back to equilibrium smoothly also in the presence of large shocks.

A recent empirical analysis supports these findings: Aikman, Monti and Zhang (2024) extract a Twitter/X-based measure of trust in the Federal Reserve by studying tweets about the Fed and its senior leadership that include words related to competence, ethics or governance. The paper finds that a negative shock to trust worsens consumer sentiment and raises inflation expectations and inflation.

These four papers all use different measures of trust, but yield very similar conclusions. Whether trust relates to the belief that the central bank will pursue an anti-inflationary policy, to the credibility of the central bank's forecasts, to the belief that the central bank will actually manage to achieve its inflation target or to the perceptions of its competence and integrity, in all cases can it be shown that the macroeconomic environment within which the central bank operates becomes more stable.

Statement 6: Trust is determined by many factors, some of which lie outside the central bank's control

Many empirical studies test for the drivers of trust in central banks. Often, these relate to trust in the ECB and are based on the Eurobarometer survey, a public opinion survey that has been conducted on behalf of the European Commission since 1974, i.e. long before the ECB was established. It is conducted at least twice a year in all European Union (EU) member states and contains questions on trust in many EU institutions, among which (since its inception) the ECB. For this survey, micro data are made available to researchers, which allows studying the importance of socio-demographic characteristics.

Political orientation, gender, income education level and employment status have been identified as key factors explaining trust in the ECB (Farvaque, Hayat, and Mihailov 2017; Bursian and Fürth 2015). Higher income and education are correlated with higher levels of trust, whereas females, unemployed respondents and individuals more to the left of the political spectrum report lower trust on average. Also regional or national variation matters – for instance, in regions where general trust in others is low, trust in the ECB is also lower than in regions with high general trust (Angino, Ferrara, and Secola 2022). Similar findings have been reported for other countries where comparable data is available. Age is another determinant – older respondents tend to trust the central bank more, both in New Zealand

(Hayo and Neumeier 2021) and in the UK (Farrell, Fry, and Fry 2021). The latter study also identifies regional variation, with higher levels of trust in the Bank of England being reported in London (controlling for other socio-demographic factors). In addition, U.S. consumers who perceive the Federal Reserve to be aligned with their political affiliations express higher trust (Kuang, Weber and Xie 2024).

Going beyond socioeconomic determinants, several studies of trust in the ECB have studied the role of macroeconomic developments, and identified several important determinants. Somewhat surprisingly, several of these are unrelated to the ECB's mandate and not necessarily under its control. Bursian and Fürth (2015) show that real GDP growth impacts trust positively, whereas government debt, government bond yield spreads and the unemployment rate have a negative effect on trust. Neither of these are covered by the ECB's single monetary policy mandate, which is price stability. What is more, the only variable included in their analysis that is related to the ECB's mandate, inflation deviations from the target level, is not found to determine trust in the ECB once the other macroeconomic conditions are controlled for.⁴ It is also interesting to note that it is national rather than euro area macroeconomic developments that determine trust in the ECB (Wälti 2012), even though the ECB's mandate relates to price stability in the euro area as a whole, not to price stability in the individual member states.

Beyond regular macroeconomic developments, trust is particularly affected by crises. Ehrmann, Soudan, and Stracca (2013) study the fall in ECB trust during the global financial crisis and show that the severity of the banking sector's problems in the various countries explains a substantial share of the fall in trust in the ECB. This is in line with the more recent study by Brouwer and de Haan (2022), which finds that respondents whose bank was bailed out during the global financial crisis report more trust in the ECB.

Also the COVID-19 pandemic had a bearing on trust in the ECB, as shown by two studies. First, based on a consumer survey that asks directly about trust in the ECB, van der Cruijsen and Samarina (2023) find that respondents who reduced the number of working hours due to COVID-19 have lower trust in the ECB than those with unchanged working hours. Second, based on German consumers' long-term inflation expectations, Coleman and Nautz

⁴ This study relates to the early years of the ECB, namely from 1999 to 2010, when inflation deviations from target were relatively moderate, especially compared to the recent inflation surge. An update of the analysis would therefore be interesting.

(2023) find that credibility has decreased in the course of the deep recession implied by the Covid-19 pandemic – not because of expected low inflation, but because more people expected inflation to be clearly above 2% over the medium term (even though inflation rates in Germany had been below 2% for several years).

Statement 7: Trust is more easily lost than gained

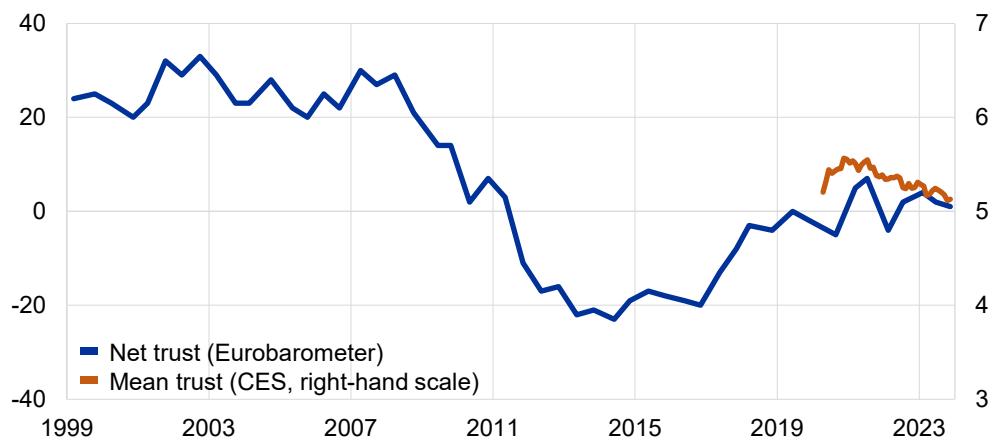
As just discussed, trust in central banks is not only determined by their inflation-fighting credentials. Trust is correlated with the macroeconomy and with other developments that the central bank is associated with in the minds of the general public. Especially during crises, trust in central banks tends to fall, and at times precipitously. This is illustrated in Figures 1 and 2, which report trust in the ECB and satisfaction with the Bank of England.⁵

In its first decade, net trust in the ECB remained stable at around 20-30%, but then declined substantially in the wake of the global financial crisis and the European sovereign debt crisis, to a low of around -20%. Even though it started to recover subsequently, it did so only slowly (Bergbauer, Hernborg, Jamet, and Persson 2020), and still has not returned to its earlier levels.

The chart for the Bank of England shows a similar pattern, whereby satisfaction can drop sharply and struggles to recover subsequently. Net satisfaction started from 40-50% in the early 2000s, then fell to single-digit (albeit positive) levels before it recovered partially to 20-30%. Subsequently, in the course of the post-pandemic inflation surge, it fell sharply into negative territory, bottoming out at -20% in Q3 2023.

⁵ Figure 1 reports net trust based on Eurobarometer data (calculated as the share of respondents who tend to trust the ECB minus the share of respondents who tend not to trust it) and mean trust based on CES data. Figure 2 reports net satisfaction with the Bank of England based on the Bank of England's Inflation Attitudes Survey (calculated as the share of respondents who are satisfied with the Bank of England minus the share of those who express their dissatisfaction)

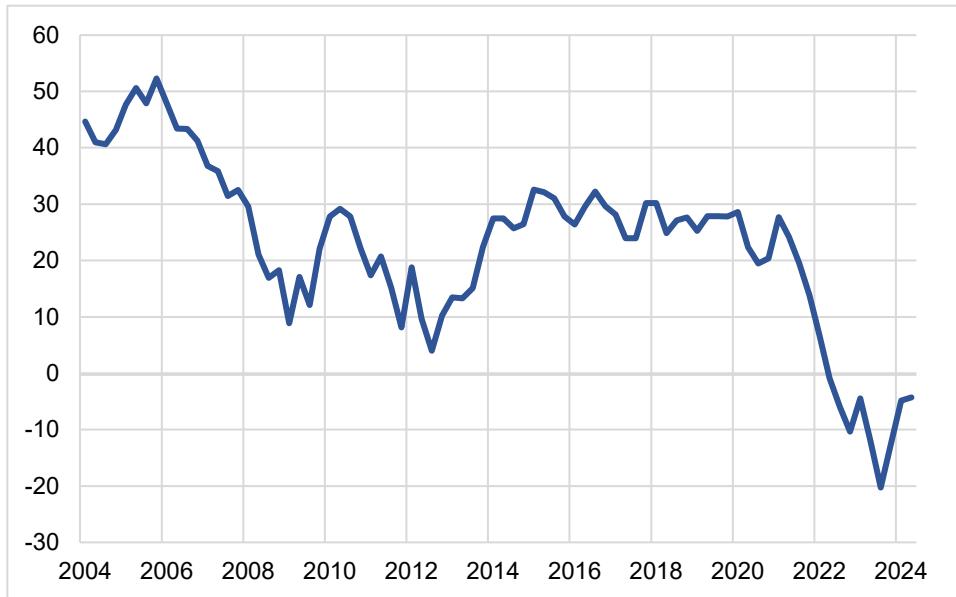
Figure 1: Trust in the ECB



Sources: Standard Eurobarometer, ECB Consumer Expectations Survey (CES) and author's calculations. Reproduced from Dreher (2024).

Notes: Standard Eurobarometer data cover survey waves 51 (spring 1999) to 100 (autumn 2023). Net trust is the percentage of respondents answering "tend to trust" minus the percentage answering "tend not to trust". Respondents who answered "don't know" are disregarded. CES data are a weighted average and cover monthly survey waves from April 2020 to December 2023. The CES trust question is answered on a scale of 0 to 10 (with 0 being no trust at all and 10 being complete trust).

Figure 2: Satisfaction with the Bank of England



Sources: Quarterly Bank of England Inflation Attitudes Survey and author's calculations.

Notes: Net satisfaction based on answers to the question "Overall, how satisfied or dissatisfied are you with the way the Bank of England is doing its job to set interest rates in order to control inflation?" Possible answers are: "Very satisfied", "Fairly satisfied", "Neither satisfied nor dissatisfied", "Fairly dissatisfied", "Very dissatisfied" and "No idea". Net satisfaction is calculated as the difference between the share of respondents who answer they are very or fairly satisfied and the share of respondents who are very or fairly dissatisfied. Numbers are expressed in %.

In contrast to the sharp decline in satisfaction with the Bank of England during the recent inflation surge, trust in the ECB does not seem to have been affected much (see Figure 1). This is in line with the results by Bursian and Fürth (2015) reported above, that trust is determined by many macroeconomic developments, but not necessarily inflation. However, in other surveys, a loss of trust is visible also for this latter period. Based on a survey among Dutch consumers, van der Cruijsen, van Rooij, and de Haan (2023) identify a substantial drop in trust in both the ECB and De Nederlandsche Bank (DNB, the National Central Bank of the Netherlands). Remarkably, this study also finds that most respondents think that maintaining price stability is the responsibility of the government. Not surprisingly, trust in politics therefore also saw a decline.

A drop in trust in the ECB in the recent high inflation period is also observed in the ECB's Consumer Expectations Survey (CES; see Dreher (2024) and Figure 1), which contains a more granular measure of trust, measured on a scale of 0 to 10 (with 0 being no trust at all and 10 being complete trust). Also, Guillochon and ter Ellen (2024) report that inflation starts to affect trust in the ECB once it becomes a concern for respondents, i.e. only once it has crossed a certain threshold.

The picture that emerges from this is that even though results differ across the specific surveys (more on this in the next section), there are several instances where trust in (or satisfaction with) the central bank declines rapidly. All recent crises showed this pattern, be it the global financial crisis, the European sovereign debt crisis, the pandemic or the post-pandemic inflation surge. In contrast to the rapid fall in trust, it is also a common pattern that recovery is slow and only partial. This question is analysed more systematically in Istrefi and Piloiu (2020), who show that shocks to economic policy uncertainty induce economic contractions and sharp deterioration in trust or satisfaction measures, and that rebuilding trust takes longer than the recovery of economic growth.

Statement 8: There are ways to enhance trust

Above, I argued that trust is determined by many factors, some of which lie outside the central bank's control. While this is certainly the case, it also holds that there are avenues for the central bank to enhance trust. Clearly, the most important avenue is to deliver on the mandate. In Blinder's (2000) survey, "establishing a history of living up to its word" was ranked as the most important factor in building credibility. In line with this, Goldberg and

Klein (2011) find that after its inception, the ECB started to gain credibility through its policy decisions, and in particular following its first monetary tightening. Similarly, Bauer, Pflueger and Sunderam (2024) show that following the long-lasting episode where U.S. policy rates were constrained at the zero lower bound, markets had to re-learn the Federal Reserve's reaction function, and did so once the Federal Reserve started hiking policy rates to counteract the inflation surge.

But there are also other factors that can help enhance trust and are (at least partially) under the central bank's control. Transparency is one of them (van der Cruijsen and Eijffinger 2010; Horvath and Katuscakova 2016) – but on what issues? In particular, how transparent should central banks be about less favourable issues (such as, for example, the poor performance of central banks' forecasting models)? Eickmeier and Petersen (2024a) provide evidence that speaks to this question based on a survey of German consumers. Respondents who care about the central bank's *competence* report higher trust in the ECB – evidence which is in line with results for Israel in Kril, Leiser, and Spivak (2016). In contrast, Eickmeier and Petersen (2024a) also find that respondents who place greater importance on *values* (such as the integrity of policy makers, honesty in communication and caring for the well-being of the general public) tend to trust the ECB less. This suggests that the traditional focus of many central bank communications on the central bank's competence is well placed, but should be extended with a stronger emphasis on values – even (or possibly especially) when things are not going according to plan, a conclusion that is also in line with the broader report on how to rebuild public trust issued by the OECD (2017b).

One example of such communication is the ECB's dealing with its recent forecast errors. The ECB decided to tackle the issues up-front and openly, by providing thorough analysis on the source of the forecast errors and by promising follow-up on the side of the ECB (Chahad, Hofmann-Drahovsky, Meunier, Page and Tirpák 2022 and Chahad, Hofmann-Drahovsky, Page and Tirpák 2023). A similar approach has been adopted by other central banks (Bank of Canada 2022). That such communication might help enhancing trust is also in line with the findings by McMahon and Rholes (2023), who show that previous forecast errors by the central bank affect its credibility, but that communication can partly mitigate the effect of the forecast errors. A second example of a communication that critically discusses previous central bank performance is the forward guidance review conducted by the Reserve Bank of

Australia (2022), which provided a thorough analysis of the issues at stake and elaborated extensively on the lessons learned.

Another area where central banks can help improve trust is by enhancing knowledge about central banking matters. An impressive number of papers has shown, for various countries and many different sample periods, that either financial literacy more generally or knowledge about central banking issues enhances trust (Hayo and Neuenkirch 2014; Mellina and Schmidt 2018; Haldane and McMahon 2018; Hayo and Neumeier 2021; Brouwer and de Haan 2022; van der Cruijsen and Samarina 2023; Nițoi and Pochea 2024). This suggests that increased educational efforts might help overcome what Haldane (2017) refers to as a “twin deficit” problem, whereby central banks are faced with both, a deficit of public understanding and a deficit of public trust.

But how should this be done? After all, Hwang, Lustenberger and Rossi (2023) suggest that giving more speeches might be counterproductive and *reduce* the level of trust that is endowed to the central bank, so it is likely not just about increasing the quantity of communications. One issue is to ensure that the communications can be understood by the public. Bholat, Broughton, Ter Meer, and Walczak (2019) provide experimental evidence that the relatability of information matters: more relatable content helps increase trust and furthermore improves the perception of the central bank, a result that is corroborated by subsequent work (Mochhoury 2023).

Furthermore, simplicity or clarity is another factor that helps getting the central bank messages through to its citizens. For instance, Bjerkander and Glas (2024) find that higher clarity of central bankers’ speeches is associated with more optimistic media sentiment in the subsequent reporting. McMahon and Naylor (2023) argue that complex messages reduce attention to the communication, but that it is less important to reduce the “semantic” complexity than to tackle the “conceptual” complexity of texts. In other words, while it might not harm to improve on margins such as shortening word and/or sentence length, it is particularly valuable to reduce the use of jargon. Importantly, the study finds that conceptual complexity is detrimental to getting the central bank message through even to individuals with economics degrees, i.e. people who possess prior information about central banking issues.

Another important dimension is to not only confront the public with facts, but to also provide explanations. In their randomised control trial (RCT) based on the ECB’s CES,

Ehrmann, Georgarakos and Kenny (2023) find that making consumers aware of the central bank's inflation target enhances credibility. Respondents who are provided with factual information about the inflation target report higher levels of credibility that the ECB will achieve price stability. But the effects of this information treatment vanish quickly, and no credibility gains are observed among the less financially literate. In contrast, by providing information about the target together with some background explanations about the rationale for the target and its implications for how monetary policy can stabilise the economy, the effect on credibility is substantially larger, it is more persistent, and it also gets through to the less financially literate respondents. Explanations might be particularly important when it comes to communication about relatively more complex issues such as unconventional monetary policy measures, which tend to lower trust in central banks (van Rooij and de Haan 2019).

Lastly, recent research has also shown that the messenger matters. When the messenger and the receiver share certain characteristics, communication is more effective. D'Acunto, Fuster and Weber (2021) study this for the United States with respect to gender and race; Wabitsch (2024) furthermore finds that nationality matters in the European context. This makes it clear that a more diverse committee facilitates reaching out to the general public.

Statement 9: To monitor trust, it needs to be measured; this is not straightforward

The concept of trust is not well defined, which implies that it is not straightforward to measure it. But measurement is a precondition for monitoring trust. The complexity of measuring in particular institutional trust is described in the guidelines for measuring trust proposed by the OECD (2017b).

The literature on trust in central banks as well as the practice within central banks have taken different approaches. One possible measurement is the extent to which long-term inflation expectations are anchored at the central bank's target. This is often done based on financial market data. However, long-term inflation expectations are not directly observed from asset prices, and hence need to be estimated, e.g. by adjusting for time-varying risk premia (for a review of this literature, see Baumeister 2023).

Another avenue to measure the anchoring of inflation expectations is by conducting surveys among professionals, firms or households. For the case of the ECB, professional

expectations are collected through the ECB's Survey of Professional Forecasters (SPF; Garcia 2003), firms' expectations via the Survey on the Access to Finance of Enterprises (Baumann, Ferrando, Georgarakos, Gorodnichenko and Reinelt 2024), and consumers' expectations through the CES (Georgarakos and Kenny 2022). Such surveys allow going beyond the aggregate statistics, which can mask considerable heterogeneity. Binder, Jensen and Verbrugge (2023) investigate the U.S. SPF and show that while the aggregate long-run inflation expectation has usually been near the Federal Reserve's inflation target, individual forecasters' expectations fluctuate substantially and show sizeable deviations from the inflation target. The importance of looking at distributions rather than central tendencies is also emphasised by Reis (2023), who furthermore calls for a combination of different measures to get a robust measurement of inflation expectations.

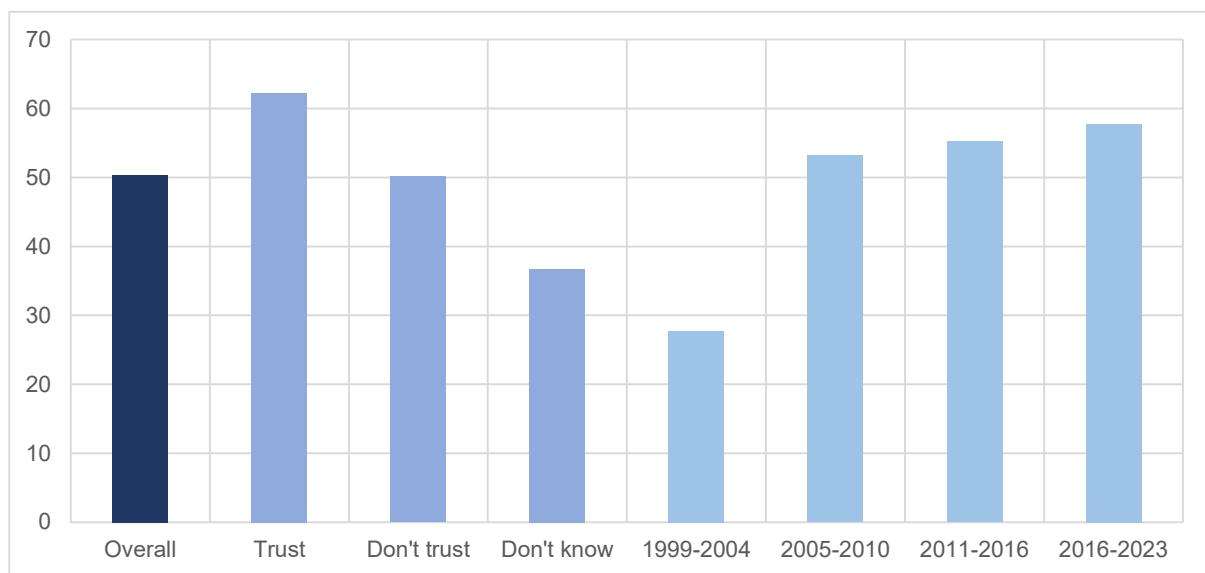
As an alternative, in surveys it is also possible to ask respondents directly about the trust they place in the central bank, as is done for instance in the Eurobarometer for the ECB. Yet also when asking respondents directly, measurement poses several challenges. As discussed in the previous section, different surveys about trust in the ECB yield different results, possibly because they use slightly different wordings or options to answer. For instance, while in the Eurobarometer survey, the respondents can answer that they "Tend to trust", "Tend not to trust" or "Don't know", in the DNB's Dutch Household Survey and the ECB's CES, respondents are given a ten-point scale, and Hayo and Neumeier (2021) offered a five-point scale.

Not only the wording, but also the order of questions in the survey matters. Angino and Secola (2022) experiment with the positioning of the question about trust in the ECB in the ECB's Knowledge and Attitude Survey. They find that reported trust in the ECB is higher when it is asked early (the authors refer to this as "instinctive" trust) than when it is asked later, after the survey participants had the chance to learn and think more about the role of the central bank (what the authors label "reflective" trust). On average, the effect is small (a reduction from 60% to 57%), but the result is driven in particular by respondents who feel they have little knowledge about the central bank's policies.

Usually, the various surveys that cover trust in the central bank contain related questions about trust in other institutions. This can generate framing effects, for instance by connecting the national central bank to the national government (Hayo and Neumeier (2021) show that respondents place more trust in the Reserve Bank of New Zealand (RBNZ) if they

have higher trust in government institutions in general, whereas Nițoi and Pochea (2024) find that this link is weaker for more financially literate respondents), or in the case of the ECB to other European Union institutions. The Eurobarometer asks *inter alia* about trust in the EU as well as about trust in the European Commission, the European Parliament and the ECB. As highlighted by Ehrmann, Soudan and Stracca (2013), most respondents do not differentiate their answers across the different institutions.

Figure 3: Share of Eurobarometer respondents with identical answers for trust in 4 EU institutions



Sources: Standard Eurobarometer and author's calculations.

Notes: Standard Eurobarometer data cover survey waves 51 (spring 1999) to 100 (autumn 2023). The chart reports the share of respondents who provide the same answer with regard to their trust in all four EU institutions (the EU, the European Commission, European Parliament, ECB), for the full sample ("Overall"), for those who tend to trust the EU, who tend not to trust it or who don't know, and the share of share of respondents who provide the same answer with regard to their trust in all four EU institutions for different subsamples. Numbers are expressed in %.

This also holds true for an updated sample. Looking at all standard Eurobarometer waves from 1999 to 2023, slightly more than 50% of respondents provide the same answer for all four institutions (see Figure 3). 62% of those who report that they trust the EU (which is asked about first) provide the same answer throughout. More differentiation takes place among those who say they do *not* trust the EU (here, 50% provide the same answer for all four institutions) and those who say they do not know whether they trust the EU (in this case, 37% also file a don't know response for all institutions). The share of respondents who do not differentiate their answers has been increasing over time. It started off with 28% in the first

6 years of the survey, and stands now at 58% (59.3% in the last two years covered, 2022-2023). The high interconnectedness of responses is also corroborated by Dreher (2024) based on the ECB's CES. He documents a correlation of over 72% for all institution pairs when pooling all survey responses, and based on a principal component analysis identifies both an EU factor and a central bank factor, which implies that trust in the ECB is influenced by trust in EU institutions and in central banks more broadly. While it is difficult to ascertain whether the measured correlations are “excessive”, i.e. go beyond the “true” correlations (which are likely to be sizable, too), the high numbers are in line with a framing effect that increases the correlations.

As discussed above, trust in the central bank or in its inflation-fighting credentials is one thing, but trust that the central bank will actually be able to achieve price stability, and thus deliver on its mandate, is another. To get at this perspective, it is important to adjust the relevant survey question. This has been done in Ehrmann, Georgarakos and Kenny (2023). Their question on credibility is formulated as “How likely do you think it is that the ECB will maintain price stability in the euro area economy over the next 3 years?”, and respondents can give any answer between 0% and 100%. Respondents are not provided with any further information about what price stability means or how it should be interpreted, to avoid framing effects. They are therefore able to provide their perception of the likelihood that price stability will be achieved, consistent with their own subjective understanding of price stability. This novel measure of perceived credibility yields plausible results, for instance because higher credibility is associated with better-anchored medium-term inflation expectations.

Given the multiple dimensions that likely determine trust in the institution overall, it is also important to check for different components separately. Trust that the central bank delivers price stability is one such dimension. The credibility of the inflation forecast is another (Kril, Leiser, and Spivak 2016). A large number of different components of trust is investigated in Bulutay (2024), who asks survey respondents to assess whether the ECB 1) will ensure price stability in the euro area over the next three years, 2) cares about the economic well-being of everyone in the euro area, 3) acts within the limits of its mandate, 4) communicates with the public in a transparent and honest manner, 5) has sufficient expertise to understand general economic developments and 6) makes decisions that benefits “people like me”. Beyond that, trust surveys administered by central banks often also cover dimensions beyond those related

to monetary policy (see, for instance, the Bank of Canada's Public Awareness Survey, which asks about the Bank's role in ensuring that the financial system works well) – after all, these are likely to also contribute to overall institutional trust.

Statement 10: Several developments will make it more challenging to maintain trust going forward

The previous discussion has shown that gaining and maintaining trust is a worthwhile, but not an easy task. Going forward, it might become even more challenging to do so, for various reasons.

First, economies might more often be hit by sizable and persistent supply shocks (Carstens 2022). Monetary policy affects demand conditions in the economy, so it is much easier for central banks to deal with demand than with supply shocks. The post-pandemic inflation surge has likely been caused (or at least been strengthened) by major supply shocks (Lagarde 2024), and has already led to a deterioration of trust in central banks. More of this might be under way if central banks are indeed faced with supply shocks more often.

Second, the broader mandates that central banks have taken on in recent years have increased the complexity of the central bank and its communication. For instance, there is an asymmetric reputational risk for a central bank that is entrusted with financial supervision (Goodhart 2002). While successful supervisory roles usually go unnoticed, failures attract a lot of media attention and might adversely affect trust in the supervisory wing of the central bank. Such a decline in trust could, in turn, spill over to the central bank's monetary policy function if the public does not distinguish between these two functions but instead forms a view of the central bank in general (Born, Ehrmann and Fratzscher 2012).

A third factor is the notable rise in polarisation and populism. As discussed by Funke, Schularick and Trebesch (2023), this tends to foster economic disintegration, decreasing macroeconomic stability and the erosion of institutions – none of which will be conducive to enhancing trust in central banks. The rise of populism has already been related to low trust in government (Algan, Guriev, Papaioannou, and Passari 2017). In addition, the rise in populism endangers central bank independence (Goodhart and Lastra 2018) and the likelihood that populists' criticism of central banks' policies will be taken on by the general public.

Fourth, there are likely to be repercussions from the changing media landscape. While it still holds that consumers in many advanced economies tend to learn about central banking

issues (if at all) from the traditional media (Gardt, Angino, Mee and Glöckler 2021), social media are gaining in importance. Research has shown that discussions of central bank actions on social media are particularly influential when they are critical: in their study of tweets about the ECB, Ehrmann and Wabitsch (2022) provide evidence that tweets with negative, stronger or more subjective views are more likely to be retweeted, liked or replied to. This implies that social media can act as a multiplier of central bank criticism, thereby further complicating the rebuild of trust in the institution.

Last, and related to the rise of social media, there are increasing threats of disinformation and misinformation (i.e. the spread of false information with or without the intention to mislead the recipient). While Budak, Nyhan, Rothschild, Thorson and Watts (2024) find that exposure to false content is low and concentrated among specific user groups, central banks have already been victims to fake news, such as deepfake videos featuring central bank governors. Cœuré (2017) has furthermore warned about the risk of fake or low quality statistics for central banks.

Conclusion

Trust is central to the conduct of monetary policy, but has for various reasons taken a hit in recent times. Past experience suggests that trust can fall precipitously, but is much harder to rebuild. And maintaining or rebuilding trust might become even more challenging going forward. How should central banks deal with these challenges? Clearly, central banks need to be aware of them, monitor developments in trust and strengthen their communication with the general public. An improved understanding of the role of the central bank will make citizens less susceptible to become a victim of disinformation, to understand and disentangle the various central bank functions and to understand the limits as to what central banks can and cannot achieve, for instance when faced with supply shocks.

The increased emphasis of several central banks on their communication with the general public is a promising avenue. As Blinder, Ehrmann, de Haan and Jansen (2024, p. 451) write in conclusion of their literature review of central bank communication with the general public: “All this makes us think that building trust may be the most important objective of central bank communication with the general public—and that there is at least some hope for success.”

References

Aikman, David, Francesca Monti, and Shunshun Zhang. 2024. "In the Fed We Trust? Measuring Trust in Central Banking and its Effects on the Macroeconomy." Available at <https://drive.google.com/file/d/1sTtPeY49IRAtmjx0QghGs25mDahhP6/view?usp=sharing>.

Alesina, Alberto, and Lawrence H. Summers. 1993. "Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence." *Journal of Money, Credit and Banking* 25, 151-62.

Algan, Yann, Sergei Guriev, Elias Papaioannou, and Evgenia Passari. 2017. "The European Trust Crisis and the Rise of Populism." *Brookings Papers on Economic Activity* (Fall 2017), 309-382.

Angino, Siria, and Stefania Secola. 2022. "Instinctive versus Reflective Trust in the European Central Bank." European Central Bank Working Paper No. 2660.

Angino, Siria, Federico M. Ferrara, and Stefania Secola. 2022. "The Cultural Origins of Institutional Trust: The Case of the European Central Bank." *European Union Politics* 23(2), 212-235.

Bank of Canada. 2022. "Monetary Policy Report July 2022, Appendix: Main Factors Behind Inflation Forecast Errors." Available at <https://www.bankofcanada.ca/wp-content/uploads/2022/07/mpr-2022-07-13.pdf>.

Bank of Canada. 2024. "Vision Statement." Available at <https://www.bankofcanada.ca/about/our-vision-our-values-our-promise/>.

Bank of England. 2024. "Code of Conduct." Available at <https://www.bankofengland.co.uk/about/governance-and-funding/staff-codes-and-policies/our-code>.

Barro, Robert J., and David B. Gordon. 1983. "Rules, Discretion and Reputation in a Model of Monetary Policy." *Journal of Monetary Economics* 12(1), 101-121.

Bauer, Michael D., Carolin E. Pflueger, and Adi Sunderam. 2024. "Changing Perceptions and Post-Pandemic Monetary Policy." Paper presented at the 2024 Jackson Hole Symposium, Federal Reserve Bank of Kansas City, available at https://www.kansascityfed.org/Jackson%20Hole/documents/10337/pflueger_jh.pdf.

Baumann, Ursel, Annalisa Ferrando, Dimitris Georgarakos, Yuriy Gorodnichenko, and Timo Reinelt. 2024. "SAFE to Update Inflation Expectations? New Survey Evidence on Euro Area Firms." European Central Bank Working Paper No. 2949.

Baumeister, Christiane. 2023. "Measuring Market Expectations." in: Bachmann, Rüdiger, Giorgio Topa, and Wilbert van der Klaauw (eds), *Handbook of Economic Expectations*, Academic Press, 413-441.

Bergbauer, Stephanie, Nils Hernborg, Jean-Francois Jamet, and Eric Persson. 2020. "The Reputation of the Euro and the European Central Bank: Interlinked or Disconnected?" *Journal of European Public Policy* 27(8), 1178-1194.

Berger, Helge, and Jakob de Haan. 1999. "A State Within a State? An Event Study on the Bundesbank." *Scottish Journal of Political Economy* 46, 17–39.

Bholat, David, Nida Broughton, Janna Ter Meer, and Eryk Walczak. 2019. "Enhancing Central Bank Communications Using Simple and Relatable Information." *Journal of Monetary Economics* 108, 1-15.

Bianchi, Francesco, Roberto Gómez-Cram, Thilo Kind, and Howard Kung. 2023. "Threats to Central Bank Independence: High-Frequency Identification with Twitter." *Journal of Monetary Economics* 135, 37-54.

Bijsma, Michiel, Carin van der Cruijsen, Nicole Jonker, and Jelmer Reijerink. 2024. „What Triggers Consumer Adoption of Central Bank Digital Currency?" *Journal of Financial Services Research* 65, 1–40.

Binder, Carola. 2021a. "Presidential Antagonism and Central Bank Credibility." *Economics and Politics* 33, 244–263.

Binder, Carola. 2021b. "Political Pressure on Central Banks." *Journal of Money, Credit and Banking* 53(4), 715-744.

Binder, Carola, Wesley Janson, and Randal Verbrugge. 2023. "Out of Bounds: Do SPF Respondents Have Anchored Inflation Expectations?" *Journal of Money, Credit and Banking* 55(2-3), 559-576.

Bjerkander, L., and A. Glas. 2024. "Talking in a Language that Everyone can Understand? Clarity of Speeches by the ECB Executive Board." *Journal of International Money and Finance* 149, 103200.

Blinder, Alan S. 1998. "Central Banking in Theory and Practice." The MIT Press: Cambridge, Massachusetts.

Blinder, Alan S. 2000. "Central Bank Credibility: Why Do We Care? How Do We Build It?" *American Economic Review* 90(5), 1421-1431.

Blinder, Alan S., Michael Ehrmann, Jakob de Haan, and David-Jan Jansen. 2024. „Central Bank Communication with the General Public: Promise or False Hope?" *Journal of Economic Literature* 62(2), 425-457.

Born, Benjamin, Michael Ehrmann, and Marcel Fratzscher. 2012. "Communicating about Macro-Prudential Supervision – A New Challenge for Central Banks." *International Finance* 15(2), 179-203.

Brouwer, Nils, and Jakob de Haan. 2022. "Trust in the ECB: Drivers and Consequences." *European Journal of Political Economy* 74, 102262.

Budak, Ceren, Brendan Nyhan, David M. Rothschild, Emily Thorson, and Duncan J. Watts. 2024. "Misunderstanding the Harms of Online Misinformation." *Nature* 630, 45–53.

Bulutay, Muhammed. 2024. "Consumer Beliefs about Central Bank Inflation Forecasts." Mimeo, available at https://drive.google.com/file/d/1xuJWFldU2OcmfOeBOXX2_NBVNrrkI2Jh/view.

Bursian, Dirk, and Ester Faia. 2018. "Trust in the Monetary Authority." *Journal of Monetary Economics* 98, 66–79.

Bursian, Dirk, and Sven Fürth. 2015. "Trust Me! I Am a European Central Banker." *Journal of Money, Credit and Banking* 47, 1503–1530.

Çakmakli, Cem, Selva Demiralp, and Gökhan Şahin Güneş. 2024. "Do Financial Markets Respond to Populist Rhetoric?" *Oxford Bulletin of Economics and Statistics* 86(3), 541-567.

Camous, Antoine and Dmitry Matveev. 2021. "Furor over the Fed: A President's Tweets and Central Bank Independence." *CESifo Economic Studies* 67(1), 106–127.

Carstens, Agustín. 2022. "A Story of Tailwinds and Headwinds: Aggregate Supply and Macroeconomic Stabilization." Remarks delivered at "Reassessing Constraints on the Economy and Policy," a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, available at https://www.kansascityfed.org/Jackson%20Hole/documents/9668/JH2022_Carstens.pdf.

Carvalho, Carlos, Stefano Eusepi, Emanuel Moench, and Bruce Preston. 2023. "Anchored Inflation Expectations." *American Economic Journal: Macroeconomics* 15 (1), 1–47.

Chahad, Mohammed, Anna-Camilla Hofmann-Drahovsky, Baptiste Meunier, Adrian Page, and Marcel Tirpák. 2022. "What Explains Recent Errors in the Inflation Projections of Eurosystem and ECB Staff?" European Central Bank Economic Bulletin, Issue 3/2022.

Chahad, Mohammed, Anna-Camilla Hofmann-Drahovsky, Adrian Page, and Marcel Tirpák. 2023. "An Updated Assessment of Short-Term Inflation Projections by Eurosystem and ECB staff." European Central Bank Economic Bulletin, Issue 1/2023.

Christelis, Dimitris, Dimitris Georgarakos, Tullio Jappelli, and Maarten van Rooij. 2020. "Trust in the Central Bank and Inflation Expectations." *International Journal of Central Banking* 16(6), 1-37.

Cœuré, Benoît. 2017. "Policy Analysis with Big Data." Speech at the conference on "Economic and Financial Regulation in the Era of Big Data", Banque de France, Paris, available at <https://www.ecb.europa.eu/press/key/date/2017/html/ecb.sp171124.en.html>.

Coibion, Olivier, Dimitris Georgarakos, Yuriy Gorodnichenko, Geoff Kenny, and Michael Weber. 2024. "The Effect of Macroeconomic Uncertainty on Household Spending." *American Economic Review* 114(3), 645-77.

Coleman, Winnie, and Dieter Nautz. 2023. "Inflation Expectations, Inflation Target Credibility and the COVID-19 Pandemic: New Evidence from Germany." *Journal of Money, Credit and Banking* 55(7), 1937-1953.

Coleman, Winnie, and Dieter Nautz. 2024. "Asymmetric Inflation Target Credibility." Mimeo, FU Berlin.

D'Acunto, Francesco, Evangelos Charalambakis, Dimitris Georgarakos, Geoff Kenny, Justus Meyer, and Michael Weber. 2024. "Household Inflation Expectations: An Overview of Recent Insights for Monetary Policy." European Central Bank Discussion Paper No. 24.

D'Acunto, Francesco, Andreas Fuster, and Michael Weber. 2021. "Diverse Policy Committees Can Reach Underrepresented Groups." NBER Working Paper No. 29275.

D'Acunto, Francesco, Daniel Hoang, and Michael Weber. 2022. "Managing Households' Expectations with Unconventional Policies." *Review of Financial Studies* 35(4), 1597–1642.

De Grauwe, Paul, and Yuemei Ji. 2024. "Trust and Monetary Policy." *Journal of Forecasting* 43(4), 903-931.

Demiralp, Selva, Sharmila King, and Chiara Scotti. 2019. "Does Anyone Listen when Politicians Talk? The Effect of Political Commentaries on Policy Rate Decisions and Expectations." *Journal of International Money and Finance* 95, 95-111.

Dreher, Ferdinand. 2024. "Trust in the ECB – Insights from the Consumer Expectations Survey." European Central Bank Economic Bulletin, Issue 3/2024.

Ehrmann, Michael, and Marcel Fratzscher. 2011. "Politics and Monetary Policy." *Review of Economics and Statistics* 93(3), 941-960.

Ehrmann, Michael, and Alena Wabitsch. 2022. "Central Bank Communication with Non-Experts – A Road to Nowhere?" *Journal of Monetary Economics* 127, 69-85.

Ehrmann, Michael, Dimitris Georgarakos, and Geoff Kenny. 2023. "Credibility Gains from Communicating with the Public: Evidence from the ECB's new Monetary Policy Strategy." European Central Bank Working Paper No. 2785.

Ehrmann, Michael, Michel Soudan, and Livio Stracca. 2013. "Explaining European Union Citizens' Trust in the European Central Bank in Normal and Crisis Times." *Scandinavian Journal of Economics* 115(3), 781–807.

Ehrmann, Michael, Sarah Holton, Danielle Kedan, and Gillian Phelan. 2024. "Monetary Policy Communication: Perspectives from Former Policy Makers at the ECB." *Journal of Money, Credit and Banking* 56(4), 837-864.

Eickmeier, Sandra, and Luba Petersen. 2024a. "Toward a Holistic Approach to Central Bank Trust." NBER Working Paper No. 32716.

Eickmeier, Sandra, and Luba Petersen. 2024b. "The ECB's Climate Activities and Public Trust." CEPR Discussion Paper No. 19549.

European Central Bank. 2021. "ECB Listens – Midterm Review Summary Report." Available at <https://www.ecb.europa.eu/home/search/review/html/ecb.strategyreview001.en.html>.

European Central Bank. 2024. "Eurosystem Mission." Available at <https://www.ecb.europa.eu/ecb/orga/escb/eurosystem-mission/html/index.en.html>.

Farrell, Lisa, Jane M. Fry, and Tim R.L. Fry. 2021. "Who Trusts the Bank of England and High Street Banks in Britain?" *Applied Economics* 53(16), 1886-1898.

Farvaque, Etienne, Muhammad Azmat Hayat, and Alexander Mihailov. 2017. "Who Supports the ECB? Evidence from Eurobarometer Survey Data." *The World Economy* 40, 654–677.

Funke, Manuel, Moritz Schularick, and Christoph Trebesch. 2023. „Populist Leaders and the Economy." *American Economic Review* 113, 3249-3288.

Galati, Gabriele, Richhild Moessner, and Maarten van Rooij. 2024. "Reactions of Household Inflation Expectations to a Symmetric Inflation Target and High Inflation." Available at SSRN: <https://ssrn.com/abstract=4742748>.

Garcia, Juan A. 2003. "An Introduction to the ECB's Survey of Professional Forecasters." ECB Occasional Paper No. 8.

Gardt, Marius, Siria Angino, Simon Mee, and Gabriel Glöckler. 2022. "ECB Communication with the Wider Public." *European Central Bank Economic Bulletin*, Issue 8/2021.

Georgarakos, Dimitris, and Geoff Kenny. 2022. "Household Spending and Fiscal Support During the COVID-19 Pandemic: Insights from a New Consumer Survey." *Journal of Monetary Economics* 129, S1-S14.

Goldberg, Linda, and Michael Klein. 2011. „Evolving Perceptions of Central Bank Credibility: The European Central Bank Experience." *NBER International Seminar on Macroeconomics* 7(1), 153-182.

Goodhart, Charles, and Rosa Lastra. 2018. "Populism and Central Bank Independence." *Open Economies Review* 29, 49–68.

Guillochon, Justine, and ter Ellen, Saskia. 2024. "Inflation Concern, Attention, and Central Bank Trust." Mimeo, available at <https://ssrn.com/abstract=4584115>.

Haldane, Andrew. 2017. "A Little More Conversation, a Little Less Action." Speech, available at <https://www.bankofengland.co.uk/-/media/boe/files/speech/2017/a-little-more-conversation-a-little-less-action.pdf?la=en&hash=E49F87ECF3D5A52A5E17349026B1CFAC18E2B78F>.

Haldane, Andrew, and Michael McMahon. 2018. "Central Bank Communications and the General Public." *American Economic Association Papers and Proceedings* 108, 578-583.

Hayo, Bernd, and Edith Neuenkirch. 2014. "The German Public and its Trust in the ECB: The Role of Knowledge and Information Search." *Journal of International Money and Finance* 47, 286–303.

Hayo, Bernd, and Florian Neumeier. 2021. "Explaining Central Bank Trust in an Inflation-targeting Country: The Case of the Reserve Bank of New Zealand." *Oxford Economic Papers* 73(1), 27–48.

Horvath, Roman, and Dominika Katuscakova. 2016. "Transparency and Trust: The Case of the European Central Bank." *Applied Economics* 48(57), 5625-5638.

Hwang, Do In, Thomas Lustenberger, and Enzo Rossi. 2023. "Central Bank Communication and Public Trust: The Case of ECB Speeches." *Journal of International Money and Finance* 137, 102916.

Issing, Otmar. 2018. "The Uncertain Future of Central Bank Independence." in: "Hawks and Doves: Deeds and Words." (edited by Sylvester Eijffinger and Donato Masciandaro), CEPR, 25-32.

Istrefi, Klodiana, and Anamaria Piloiu. 2020. "Public Opinion on Central Banks when Economic Policy is Uncertain." *Revue d'Économie Politique* 130, 283-306.

Kril, Zeev, David Leiser, and Avia Spivak. 2016. "What Determines the Credibility of the Central Bank of Israel in the Public Eye?" *International Journal of Central Banking* 12(1), 67-93.

Kuang, Pei, Michael Weber, and Shihan Xie. 2024. "Perceived Political Bias of the Federal Reserve". NBER Working Paper No. 33071.

Lagarde, Christine. 2024. "Monetary policy in an Unusual Cycle: The Risks, the Path and the Costs." Speech at the ECB Forum on Central Banking in Sintra, Portugal, available at

<https://www.ecb.europa.eu/press/key/date/2024/html/ecb.sp240701~ba1ae1bd25.en.html>.

McMahon, Michael, and Matthew Naylor. 2023. "Getting Through: Communicating Complex Central Bank Messages." Mimeo, available at https://mcmahonecon.com/wp-content/uploads/Complexity_EEAdraft.pdf.

McMahon, Michael, and Ryan Rholes. 2023. "Building Central Bank Credibility: The Role of Forecast Performance." CEPR Discussion Paper No. 18660.

Mee, Simon. 2019. "Central Bank Independence and the Legacy of the German Past." Cambridge University Press.

Mellina, Sathy, and Tobias Schmidt. 2018. "The Role of Central Bank Knowledge and Trust for the Public's Inflation Expectations." Deutsche Bundesbank Discussion Paper No. 32/2018.

Mochhoury, Sarah. 2023. "Central Bank Communication and Trust: An Experimental Study on the European Central Bank and the General Public." ECB Working Paper No. 2824.

Moscarini, Giuseppe. 2007. "Competence Implies Credibility." *American Economic Review* 97(1), 37-63.

Niizeki, Takeshi. 2023. "Trust in the Central Bank and Inflation Expectations: Experimental Evidence." *Economics Letters* 231, 111296.

Nițoi, Mihai, and Maria-Miruna Pochea. 2024. "Trust in the Central Bank, Financial Literacy, and Personal Beliefs." *Journal of International Money and Finance* 143, 103066.

OECD. 2017a. "Trust and Public Policy. How better Governance can Help Rebuild Public Trust." OECD Public Governance Reviews, available at https://www.oecd-ilibrary.org/trust-and-public-policy_5jg341bm849s.pdf?itemId=%2Fcontent%2Fpublication%2F9789264268920-en&MimeType=pdf.

OECD. 2017b. "OECD Guidelines on Measuring Trust." OECD Publishing, Paris, available at <https://doi.org/10.1787/9789264278219-en>.

Park, Kwangyong. 2023. "Central Bank Credibility and Monetary Policy." *International Journal of Central Banking* 19(2), 145-197.

Powell, Jerome. 2023. "Panel on *Central Bank Independence and the Mandate—Evolving Views*." Speech given at the Symposium on Central Bank Independence, Sveriges Riksbank, Stockholm, Sweden, available at <https://www.federalreserve.gov/newsevents/speech/powell20230110a.htm>.

Reis, Ricardo. 2023. "Four Mistakes in the Use of Measures of Expected Inflation." *AEA Papers and Proceedings* 113, 47-51.

Reserve Bank of Australia. 2022. "Review of the RBA's Approach to Forward Guidance." Available at <https://www.rba.gov.au/monetary-policy/reviews/approach-to-forward-guidance/pdf/review-of-the-rbas-approach-to-forward-guidance.pdf>.

Reserve Bank of Australia. 2023. "Annual Report." Available at <https://www.rba.gov.au/publications/annual-reports/rba/2023/our>

[role.html#:~:text=Mission%20To%20promote%20the%20economic,stability%20of%20the%20financial%20system.](#)

Rooij, Maarten van, and Jakob de Haan. 2019. "Would Helicopter Money be Spent? New Evidence for the Netherlands." *Applied Economics* 51(58), 6171–6189.

Rumler, Fabio, and Maria T. Valderrama. 2020. "Inflation Literacy and Inflation Expectations: Evidence from Austrian Household Survey Data." *Economic Modelling* 87, 8–23.

Tillmann, Peter. 2020. "Trump, Twitter, and Treasuries." *Contemporary Economic Policy* 38, 403–408.

van der Cruijsen, Carin, and Sylvester C.W. Eijffinger. 2010. "From Actual to Perceived Transparency: The Case of the European Central Bank." *Journal of Economic Psychology* 31(3), 388–399.

van der Cruijsen, Carin, and Anna Samarina. 2023. "Drivers of Trust in the ECB During the Pandemic." *Applied Economics* 55(13), 1454-1476.

van der Cruijsen, Carin, Maarten van Rooij, and Jakob de Haan. 2023. "The Impact of High Inflation on Trust in National Politics and Central Banks." DNB Working Paper No. 762.

Wabitsch, A. 2024. "The Messenger Matters." Mimeo, available at <https://www.dropbox.com/scl/fi/hgse6cquz3gjfrdu2lk7b/The-Messenger-Matters-A-Wabitsch.pdf?rlkey=p214s5mzckb1ewufvx43p19pm&st=aeqxezhr&dl=0>.

Wälti, Sébastien. 2012. "Trust No More? The Impact of the Crisis on Citizens' Trust in Central Banks." *Journal of International Money and Finance* 31, 593–605.

Warsh, Kevin M. 2010. "An Ode to Independence." Speech delivered at the Shadow Open Market Committee, New York. Available at <https://www.federalreserve.gov/newsevents/speech/warsh20100326a.htm>.

Weber, Michael, Francesco D'Acunto, Yuriy Gorodnichenko, and Olivier Coibion. 2022. "The Subjective Inflation Expectations of Households and Firms: Measurement, Determinants, and Implications." *Journal of Economic Perspectives* 36(3), 157–184.