Lessons for Monetary Policy Communication:

Communication, Getting Through and Expectation Formation*

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Abstract: Interest and attention on central bank communication has grown substantially in the last three decades. Alongside this change, there has been a lot of work to understand the effects of such communication and to guide central banks on how to communicate. This paper is a personal assessment of some of the main lessons that I have taken from this work. It necessarily draws heavily on the lessons from my own work (as these are issues that I have thought most deeply about), but I also try to draw out the views of others in those areas. In addition, I discuss other non-comprehensive, important areas that I haven't worked on (yet) but I think the research has shown important insights from which useful lessons for central banks can be learned.

1 Introduction

> "Monetary policy is 98% talk and 2% action" Bernanke (2015)

It was only(!) 30 years ago, in 1994, that the Federal Reserve (Fed) first issued a timely announcement of the monetary policy decision of the Federal Open Market Committee (FOMC). A little before then, in 1990, the Reserve Bank of New Zealand adopted an Inflation Targeting framework that put transparency and communication at the heart of its monetary policy strategy. Since then, open monetary communication has become the norm in most economies, and there is substantial academic and policy interest in understanding its effects.

This note is a summary of my own work on central bank communications thinking about how and through what channels central bank communications work as a policy tool. It does not claim to be comprehensive. Rather, it is my personal assessment of the main lessons I have taken from this work. As a result, it focuses heavily on my own work, as these are issues I have thought most deeply about, though I also try to draw out the lesson in other areas.

In total, I present 13 lessons that draw on my research and that of others in the literature. My lessons are arranged into four broad sections:

1. I begin by asking "What should a central bank communicate about monetary policy?" with lessons from the standard theoretical models we use in monetary policy. There are 3 lessons here.

2. I then turn to the issue of what we have learned from empirical market event study analyses. There are 3 lessons from this work.

3. In the last eight years, central banks have been more active in trying to talk to the general public, as opposed to financial markets. For this literature, I examine what we know about "How do they best get through?". This yields 4 lessons.

4. Finally, I explore three key issues that I have not worked on, but from which I feel there are interesting lessons that can be drawn that are of interest to scholars and policymakers interested in central bank communication.

The note is short and sections are hopefully self-explanatory. In the final section, I conclude briefly with some comments on practical arrangements for monetary policy communication, and on central bank communication beyond monetary policy.

2   Lessons from standard models of optimal policy

There is a large literature on optimal monetary policy emanating from researchers in central banks and academia. The New Keynesian model, as in Clarida et al. (1999) or Galí (2015), forms the foundation on which much of this work builds. This work has been extremely important and influential in the design of monetary policy frameworks around the world. However, the optimal policy exercises in these models are not best suited for studying the role of communication in policy as I shall now discuss.[1]

The workhorse version of this class of models features full information and rational expectations. There is a New Keynesian Phillips curve and 'Dynamic IS curve':

$$\hat{\pi}_t = \beta\mathbb{E}_t\hat{\pi}_{t+1} + \kappa\hat{y}_t \tag{1}$$

$$\hat{y}_t = \mathbb{E}_t\hat{y}_{t+1} - \sigma\hat{r}_t \tag{2}$$

where $\hat{\pi}_t$ is the inflation gap at time t, $\hat{y}_t$ is the output gap, and the 'real interest rate gap', $\hat{r}_t$, is given by $\hat{r}_t = \hat{i}_t - \mathbb{E}_t\hat{\pi}_{t+1} - \hat{\tilde{r}}_t$. (Here I ignore exogenous shocks on these two fundamental equations.)

In such models, contemporaneous inflation and output dynamics depend on both current and expected future real interest rate 'gaps':

$$\hat{y}_t = -\sigma\sum_{\ell=0}^{\infty}\mathbb{E}_t\hat{r}_{t+\ell} \tag{3}$$

$$\hat{\pi}_t = \kappa\sum_{\ell=0}^{\infty}\beta^\ell\mathbb{E}_t\hat{y}_{t+\ell} \tag{4}$$

These expectations depend crucially on beliefs about how the central bank is expected to behave. A monetary policy reaction function determining nominal interest rates, $\hat{i}_t$, closes the model. Under optimal policy exercises, the central bank chooses the nominal interest to maximise a social welfare function.[2] The central bank is either assumed to commit to a particular policy, or it has discretion to optimally change its policy each period. The advantage of commitment is that, by committing to a history-dependent policy, the central bank can spread the effects of shocks over time and, thereby, improving any trade-off

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[1]This section draws on Istrefi and McMahon (2024).

[2]The reaction function is sometimes assumed to be a fixed function of economic conditions (such as a Taylor-type rule), with the coefficients selected to maximise welfare.

between inflation and output movements. But even under discretion, the objective function is perfectly understood by economic agents and does not vary.

The main takeaway in these models, at least related to central bank communication, is the key role for inflation expectations ($\mathbb{E}_t\hat{\pi}_{t+1}$) in driving inflation ($\pi_t$). The reason for this role is that firms worry about their relative price and, given they are assumed to only reset their price infrequently (sticky prices), firms expectations of how other prices will change is important in how they will change their price. The policy implication is that central banks need to manage inflation expectations (Woodford, 2005; King et al., 2008).[3]

The dependence on both current and expected future real interest rate 'gaps' in equations (3) and (4) means that different monetary policy paths can achieve the same output and inflation outcomes today and into the future. As Pill (2023) described it using a comparison to famous mountain peaks (illustrated in Figure 1), a central bank hoping to reduce inflation from current high levels could pursue:

- The Matterhorn approach: rates rise quickly to a high level, but can then be reduced more quickly.
- The Table Mountain approach: raise interest somewhat (ensuring that real rates are above the neutral rate) and then leave them at this restrictive level for a longer period.

This variety of options follows largely from the linearity of the model and the absence of, for example, financial stability concerns. For instance, allowing for non-linearities in the inflation process means that pursuing the Table Mountain approach risks not doing enough; there are benefits of front-loading policy in a world without commitment. There is, on the other hand, a risk doing too much, too quickly and causing financial stability issues in the banking system with the Matterhorn approach.

2.1 What to communicate

While these models build in a lot of communication implicitly, they nonetheless provide a good initial guide as to the key role that central bank communication can play, and a guide as to what central banks should communicate. The first lesson concerns communication of the reaction function.

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[3]Rudd (2022) disputes that inflation expectations play an important role in determining inflation when inflation is low and stable. And there is growing empirical evidence that household / firm expectations directly impact actual decisions as in Coibion et al. (2020) for firms, and D'Acunto et al. (2021b) and Coibion et al. (2023a) for households.

(a) The Matterhorn   (b) Table Mountain

Figure 1. Mountain strategies for Monetary Policy. The figure shows "Matterhorn" by Rob Hodgkins (via Emma Farrington) [CC-BY-SA-2.0], available at flickr. and"Table Mountain" by Axel Bührmann [CC-BY-SA-2.0], available at flickr

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Lesson 1: Reaction Function

The central bank should provide clear communication of their reaction function.

Equations (3) and (4) capture a real-world phenomenon whereby expectations about how the central bank will behave in the future link the decision on short rates today to long rates (Blinder, 1998). This makes such beliefs crucial to behaviour of the economy, and means that a well-communicated reaction function is crucial for the effectiveness of any current policy stance.

Central banks in the models typically commit to, and follow, a specific, time-invariant reaction function. If this were the case in practice, this would make communication of the reaction function easy. In practice, it is impractical for policymakers, facing a complex and changing environment, to rely on and communicate rigid rules. The challenge is to convey the central bank's reaction function clearly but to still retain flexibility to adjust policy reaction as the economy evolves.

One reason that it is difficult in practice to communicate a reaction function is that, unlike in models, the data is noisy, subject to revision and mostly not released contemporaneously. In practice, even policymakers don't know some of this information in real-time (Orphanides, 2001). This muddies the mapping between the current data and the policymakers best guess of underlying state of the economy, which means a fixed reaction to contemporaneously available macro data is infeasible in practice.

This is a point made in Byrne et al. (2022). They note that while the data covering macroeconomic concepts, financial market variables, surveys of households, firms and professionals, etc

are generally commonly available to the central bank and other economic agents, these data do not uniquely define the state of the economy. Instead, economists including policymakers, must map data into a vector of beliefs about the state of the economy; they call this the "*Assessment*" function and note that it includes forecasting the best guess about where the economy is headed. They must then select the appropriate interest rate as a function of this expected state – their "*Preferences*".

Different economists, despite looking at the same underlying data, can come to alternative assessments. And similar headline macroeconomic data could, at a different point in time, lead a single policymaker to come to an alternative assessment which would appear as a time-varying reaction function estimated on the headline macroeconomic variables. For instance, inflation may be high but if it is adjudged to only be high temporarily due to a transitory factor, the central bank would sensibly choose to look through that effect; on another occasion, they may see fit to tighten policy to reduce the impact of an expected persistent inflationary pressure.

Hence, while in the stylized models outlined above, the state of the economy to which policy reacts is observable and understood in real time by all agents, this is clearly not true in reality. This reality yields Lesson 2.

> **Lesson 2: Economic Assessment**
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> Policymakers must communicate their assessment of the economic outlook, both nowcasts and forecasts, and its rationalization.

In fact, by carefully communicating economic assessment (Lesson 2), they make it easier for people to understand their reaction function (Lesson 1).

2.2 What role for forward guidance?

One of the key communication channels emphasised in the recent literature concerns forward guidance. Central banks have often revealed information about the future path of interest rates (such as the Fed's 'balance of risks' (since 1999), or the ECB's use of language such as 'strong vigilance'). I consider these to be broad forms of forward guidance. The greatest interest in forward guidance came when interest rates are constrained by the Effective Lower Bound (ELB). Eggertsson and Woodford (2003) show that in such a situation, if the central bank communicates that it will respond to future economic conditions with a 'lower for longer' strategy, they can raises $\hat{y}_{t+h}$ and $\hat{\pi}_{t+h}$, which raises $\hat{y}_t$ and $\hat{\pi}_t$. In other words, there are powerful stimulus gains *today* to a future commitment. The challenge is that

while policy achieves better outcomes now, outcomes are worse in the future. The policy is time inconsistent. Del Negro et al. (2023), and others, point out that these forward-looking models overstate the power of forward guidance.

In practice, most central banks have been keen to stress they are not making commitments with forward guidance (though the Bank of Canada referred to its policy as a 'conditional commitment'). Campbell et al. (2012a) discuss how in theory forward guidance is supposed to be news about central-bank's reaction function ('Odyssean'), in practice it is news about central bank's beliefs of economic conditions ('Delphic'). And central banks tried many different versions after GFC (Ehrmann et al., 2019): open-ended (e.g. 'no immediate rise in interest rates is expected'), time-dependent (e.g. 'interest rates stay low until 2015'), and state-dependent (e.g. 'interest rates stay low until unemployment falls below 7%').

A number of countries have faced challenges with conveying that their forward guidance is not commitment. These challenges may reduce the benefits of forward guidance (at least in its current forms). Notwithstanding that, forward guidance can provide a way for central banks to communicate both their assessment of the likely state of the world (Lesson 2), and their reaction function (Lesson 1). This may be surprising if you only think about forward guidance as representing a deviation from "normal service" at the ELB, but broad forward guidance can be used even away from the ELB, and even at the ELB, by explaining what normal policy reaction is, and why you will deviate from this because of the current and expected state of the economy.

> **Lesson 3: Forward Guidance**
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> Explicit forward guidance is over-emphasised in the standard models. But forward guidance does provide a way for central banks to communicate both their assessment of the likely state of the world, and their reaction function.

Though, as I will return to later, in an environment of uncertainty, forward guidance may be more constraining than a risk management approach that involves communicating different scenarios to communicate the central bank's assessment and reaction function.

2.3   Other Modelling Approaches

There is, of course, an extensive literature that relaxes the assumptions of the standard model I have described above. For the interested reader, I now highlight some of the alternative approaches to modelling central bank communication and its impact, or potential impact, on expectation formation. The alternative models I mention below make the issues of Lessons 1

and 2 explicitly in theoretical frameworks with alternative information assumptions relative to the benchmark New Keynesian model.[4]

Models of Imperfect Information

The full-information rational expectation assumption of standard New Keynesian models, while useful as a modelling assumption, is not well supported in the data (Coibion et al., 2018). There are also models that make the imperfect information explicit.[5] Eusepi and Preston (2010) show that where economic agents have expectations that can be inconsistent with monetary policy, communication of the policy and the key policy-relevant economic variables (and their outlook) improves the efficacy of monetary policy. Myatt and Wallace (2014) show that when there is heterogenous information across economic agents about the state of the economy, the central bank has an incentive to acquire and transmit signals about the economy that likely to be most differently held.

In a world where communication of the rule is imperfect, agents must learn the central bank reaction function. Orphanides and Williams (2004) who show that statistical learning of unobserved central bank preferences change the dynamics of the model in meaningful ways and give rise to a clear role for communication of central bank objectives. Davig and Foerster (2023) address the gap between theory (central banks setting policy by rules) and reality (none formally do). They show that central banks can have rule-based policy outcomes by communicating an inflation target and range, as well as their assessment of the economic outlook.[6]

In Carvalho et al. (2023), the focus is on anchoring of long-term inflation expectations which are endogenous and get revised when inflation outturns surprise. Gáti (2023a) uses a similar environment and emphasises the role of the sensitively long-run inflation expectations to inflation surprises; optimal monetary policy has to respond more aggressively when inflation expectations de-anchor.

The Value of Public Signals

A literature starting with Morris and Shin (2002) shows how public signals might actually be detrimental for welfare because agents end up placing more emphasis on central bank communication, as public signals, than is socially efficient and hence there is too little private information reflected in the economy.[7] Chahrour (2014) allows the communication to vary

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[4]Others, not discussed here, include games of Bayesian persuasion (Gáti, 2023b), formally considering the role of narrative (Shiller, 2017; Macaulay and Song, 2023), and explicit consideration of the role of media in transmission of central bank signals to agents (Drager et al., 2016).

[5]See also Eusepi and Preston (2018).

[6]See also Gáti and Handlan (2022) on communication of rules.

[7]Though this result is dependent on the specific parameterisations of the model (Svensson, 2006; Morris et al., 2006).

in both the number of signals (scope) and their precision (reflected in lower noise in the signal). Increasing scope can, depending on agents' information choices, lead to a cacophony problem which lowers the value of public signals. In such a case, limits to the extent of public communication can improve social welfare.

Kohlhas (2022) shows that, by making expectations of the private sector and the central bank closer to common knowledge, central bank communication no longer decreases information and welfare. The key, as in the title of his paper, is information sharing; the private sector learns from the central bank communication, and the central bank learns from private sector choices of firm prices. Central bank communication is beneficial in such as environment.

Attentiveness to information
There is a large literature on how agents rationally allocate their attention (see, for example, Maćkowiak et al., 2023). Such rational inattention frameworks have been used to analyse questions related to central bank communication. For example, Reis (2011) asks when a central bank should optimally communicate a low frequency policy change such as a change in the inflation target. Agents choose their attention to news balancing the trade-off between being more informed about today (and responding better to today's environment) and being better informed about the future (and so preparing better for the change). The central bank nears to bear this in mind when choosing when to announce the policy change; too early and agents won't pay attention, but too late and there is not enough time for agents to prepare for the change.

As alluded to above, Paciello and Wiederholt (2013) show that allowing firm decision makers to optimally allocate attention to aggregate conditions, can lead firms to respond more to cost-push, or other inefficient, shocks. In such an environment, limiting communication and thus making it difficult to pay attention to inefficient shocks is good for welfare. Kohlhas (2022), discussed above, also overturns the finding that communication can increase responses to inefficient cost-push shocks.

More specifically on inflation expectations, monetary policy that successfully limits and contains inflation generates inattention to inflation and monetary policy because the small benefits of informedness don't warrant the costs of attention (Candia et al., 2020). Pfäuti (2024) shows that since the Great Inflation of the 1970s, declining attention makes the management of inflation expectations more difficult. Weber et al. (2023) show, using RCTs across different countries and at different points in time, that attention is endogenous to the state of the economy.

Haldane et al. (2021) consider communication with the general public and the potential interaction with a form of trust. Trust affects the extent to which agents will pay attention

to the messages sent by the central bank. Trust rises when the central bank engages the public but if agents perceive that the central bank has made mistakes, fairly or not, will lead to a loss of trust. They show that simplifying communication can increase the engagement of the public with central bank messages making their expectations more precise. However, once shocks occur and the central bank's past signal look inaccurate, trust declines and people disengage with central bank messaging.[8]

3   Lessons from empirical studies of market reactions

There is a large literature that examines the reaction of financial markets to monetary policy announcements using high-frequency event-study analysis, which shows the importance of central bank communication to market expectations and asset pricing. For instance, Gürkaynak et al. (2005) stress that policy statements drive yields more than the specific policy action through signals about the future policy. Some of this literature emphasise, as noted in Lesson 2, that the central bank's communication of its view of economic conditions is important (for example, Romer and Romer (2000); Campbell et al. (2012b); Nakamura and Steinsson (2018); Jarociński and Karadi (2020)). Even nonverbal communication in press conferences around announcements is shown to be important (Gorodnichenko et al., 2023; Curti and Kazinnik, 2023; Alexopoulos et al., 2023). And this literature does not only focus on the effects of FOMC communication, but also applies for other central banks (see Altavilla et al. (2019), and Andrade and Ferroni (2021), among others).

And it is not just policy announcements that matter. During the inter-meeting period, communication in the form of speeches, minutes and political hearings also lead markets to update beliefs (Kohn and Sack (2004); Ehrmann and Fratzscher (2007); Ehrmann et al. (2014); Neuhierl and Weber (2019); Leombroni et al. (2021); Ahrens and McMahon (2021); Istrefi et al. (2022); Swanson and Jayawickrema (2023) and Ahrens et al. (2025), among others).

3.1   Uncertainty, Monetary Policy and Communication

Alongside the traditional view of communication as being about monetary news or fundamental news, there is a growing literature that examines the effect of central bank communication on risk premiums (Bernanke and Kuttner (2005), Hanson and Stein (2015), Cieslak and Pang

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[8]van der Cruijsen et al. (2023) provide evidence how the recent increase in inflation is associated with a decline in trust in the Dutch central bank and government.

(2021) and Bauer et al. (2023) are some of the prominent papers). The interest in this area is natural given that, as Greenspan (2004) notes, "uncertainty is not just a pervasive feature of the monetary policy landscape; it is the defining characteristic of that landscape". The idea is that central bank communication can influence the amount or price of risk perceived by investors. It can even be that the Fed signals about economic fundamentals or policy rates are what cause the revision of beliefs about risks as in Hansen et al. (2018).

To understand why premiums can matter for monetary policymakers, consider a central bank that wishes to influence 10 year real interest rates (r_t^{10}) as the financial conditions that affect major investment and saving decisions. This real interest rate is related to the nominal policy rate (current and expected future rates), adjusted for any risk or term premiums and adjusted for expected inflation:

$$r_t^{10} = \underbrace{\mathbb{E}\left[\frac{\sum_{j=0}^{10} i_{t+j}^{cb}}{10}\right]}_{\text{Nominal rate expectations}} + \underbrace{RP_t^{10}}_{\text{Premium}} - \underbrace{\pi_t^{e,10}}_{\text{Inflation Expectations}} \tag{5}$$

Equation (5) highlights the challenge that uncertainty brings for monetary policy control of financial conditions: worries about the central bank's ability or commitment to control inflation drive up volatility in the RP_t^{10} and $\pi_t^{e,10}$ terms, making it harder to control real rate gaps with i_t^{cb}. As Stein (2013) notes, with risk premia involved, policymakers' *"grip on the steering wheel is not as tight as it otherwise might be"*. This issue has been the focus of my work in a series of papers with Anna Cieslak and other co-authors.

In Cieslak et al. (2023), we first looked *within* the FOMC meeting to understand how uncertainty impacts decision-making. We find that inflation uncertainty, and particularly concerns about upper-tail inflation risks, prompt a more hawkish policy stance. This effect occurs when expected inflation nears or exceeds the target, and we can link this to narrative evidence that suggests a driving concern is a loss of credibility. We link this behaviour to the risk management approach to monetary policy which Greenspan (2004) suggested was a key tenet of practical monetary policy.[9]

The risk management approach involves policymakers presenting their current preferences for policy and their view of the current economic state, but also, acknowledging the uncertainty they faced, they present oral scenarios of what different-from-current policies might look

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[9]Greenspan (2004) suggested that "the conduct of monetary policy in the United States has come to involve, at its core, crucial elements of risk management. This conceptual framework emphasizes understanding as much as possible the many sources of risk and uncertainty that policymakers face, quantifying those risks when possible, and assessing the costs associated with each of the risks." See also Blinder and Reis (2005) for a further discussion of risk management under Greenspan.

like if the economy does not evolve as expected. In Cieslak and McMahon (2024), we look at how such alternative-policy scenarios impact risk premia in financial markets. We show how market perceptions of policy "mistakes" can raise risk premia against policy intentions, consistent with the idea in Bernanke (2015) that monetary policy is *"98% talk and only 2% action"* but *"cost of sending the wrong message can be high"*.[10] We find that communicating a more hawkish policy stance in what an alternative policy might look like predicts lower risk premium in the intermeeting period. This information, which we measure from the meeting transcripts, is communicated to the markets away from formal policy announcements. By communicating its willingness to move aggressively should a need arise, the central bank can assuage market concerns about too-dovish policymakers falling behind the curve and lead to a lower-than-otherwise premium. Such scenario communication can help to ensure that financial conditions are closer to the desired level and not as restrictive if market concerns had been allowed to grow.[11]

A case in point was the late 1990s when, with the economy growing strongly, markets and the media started to fear that the strong economy indicated overheating and an inevitable higher inflation. However, the Greenspan-led FOMC believed the strong growth was driven by productivity growth meaning that the low inflation was sustainable. Without adjusting the policy rate, the FOMC became increasingly hawkish in its messaging which reassured, at least somewhat, market worries and prevented a greater-than-otherwise tightening in financial conditions during that period.

Lesson 4 captures this important dimension of policy implementation:

> ### Lesson 4: A Risk Management Approach to Monetary Policy
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> The monetary policy framework, decision-making and communication need to reflect *uncertainty* inherent in policymaking. A risk management strategy with scenario communication is one way to do this.

3.2   Lessons from the more recent inflationary episode

In Cieslak et al. (2024), we look at the FOMC's communication in the period since 2020. This is an interesting period because the Fed, the ECB and the Bank of England all

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[10]Caballero and Simsek (2022) present a model of disagreement between the central bank and the markets.

[11]Scenario analysis has become increasingly discussed since it was one of the main recommendations for the Bank of England in the recent Bernanke Review (Bernanke, 2024). And Schnabel (2024) recently suggested a potential use of scenarios at the ECB. However, the idea is not completely new though the current focus has shifted to quantitative scenarios rather than the more qualitative different-from-current policy descriptions emphasised in Cieslak and McMahon (2024).

conducted substantial reviews of their monetary policy frameworks, the world had the Covid-19 pandemic and inflation in most advanced countries surged as the economy re-opened after the pandemic, there were energy and commodity price impacts from Russia's invasion of the Ukraine, and there were large fiscal stimulus packages approved. This analysis draws a number of general and specific recommendations for the Fed's upcoming review. Here, I reference two more general ones.

The first is a caveat to Lesson 3, already sign-posted above. In our analysis, we show that just after the framework announcement, and before inflationary pressures surfaced, short-term yields remained firmly anchored by the Fed's communicated lower-for-longer policy. Long-term yields also barely moved as it was generally accepted that the economic position necessitated loose financial conditions. However, from mid-2021, with rising inflation and some evidence of a tightening labor market, long-term yields accelerated significantly. The bulk of this increase occurred outside the Fed's communication events. This was because markets were regularly revising their beliefs about the appropriate policy stance in response to macroeconomic events. While these revised beliefs can, in theory, stem from either expectations about the short-rate path and/or the market's changing risk perceptions and the associated premium, we show that the Fed event days and macro days are associated with a significant build-up of premia. This build-up continues until the Fed's hawkish pivot in mid-2022. From August 2020 to mid-April 2022, the term premium component linked to the Fed-induced uncertainty rises by around 80 bps cumulatively at the ten-year maturity.

While our earlier work would have led us to expect the Fed to talk tough and, as the economic outlook evolved, change policy, this didn't happen initially. We suggest that the FOMC appeared focused on establishing credibility for the newly adopted Flexible Average Inflation Targeting (FAIT) framework which indicated a degree of inflation overshoot, and so they didn't want to deviate from their issued forward guidance. The result was a delay in addressing the growing challenge of persistent inflation. We show that there is evidence of growing market concerns that the FOMC was making a policy mistake by sticking to its forward guidance.

As such, we argue that explicit forward guidance should be used with caution and moderation. When employed, the inclusion of escape clauses, offers more flexibility for future actions and maintains adaptability:

> **Lesson 5: Constraining Guidance**
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> Explicit forward guidance can be constraining, and the appearance of being constrained can undo the intended policy stance.

The second lesson that I draw from this analysis, and the sixth of my lessons overall, concerns the design of the monetary policy framework and the management of inflation expectations. While there is broad consensus, including from the standard models, that monetary policy must manage inflation expectations (e.g., King et al., 2008), the evidence suggests that there is a significant gap between how rational agents in models adjust their expectations and real-world evidence from policy shifts. For example, (Coibion et al., 2023b) suggest that the announcement of FAIT failed to influence market and household beliefs about inflation.

The idea behind the overshooting element of the FAIT framework is that when inflation has undershot the target, agents will know that the central bank will allow for more inflation and hence revise up their expected inflation. This has the effect of lowered real interest rates and encouraging the expected increase in inflation. If these endogenous expectational shifts work as designed, it could create around 25 to 50 bps of additional stimulus when inflation undershoots persistently. This framework was attractive to the FOMC who had grown worried between 2014 and 2020 that falling natural rates of interest would make getting inflation back to their 2% target increasingly difficult. But the realities of expectation formation means that FAIT, which relies on a complex adjustment of inflation expectations, are likely smaller in practice than in theory. Our analysis points to the challenges in effectively communicating FAIT including the FOMC's unwillingness to be precise about the window for averaging and the acceptable overshoot.[12]

Given the difficulties, it is likely better to anchor inflation expectations around the inflation target and not try to get small benefits from fine-tuning them up and down aroud this level:

Lesson 6: Expectations Management

Monetary policy requires careful managing of inflation expectations, but not micro-managing them.

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4 Communicating with the general public

4.1 The Case for Broader Communication

Growing evidence in the last decade indicates the importance of how central banks communicate with the broader public. Beyond managing expectations of the household and business sector, Haldane and McMahon (2018) argue that there are additional reasons for

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[12]Brassil et al. (2024) explore optimal policy in a model with behavioural expectation formation and find that, where the central bank is "explicit what average and flexible mean", optimal policy looks like FAIT.

trying to do so effectively. These include benefits in terms of accountability, the potential to build trust and the ability to listen to a major constituent of the economy. Moreover, because financial markets do not always accurately reflect all information that households or businesses may need to make informed decisions, it is useful for policymakers to convey their outlook directly to a wider audience.

Many central banks have already taken steps to communicate their monetary policy with a broader audience. The Bank of England and the ECB have both moved to complement their traditional communication with financial markets by providing simplified communication. While there is a lot of material for a broader audience in the Fed System, the FOMC does not, yet, provide simpler-to-read content that explains monetary policy decisions without complex technical language. A finding from across central banks that try to communicate directly with the public is that it is a hard but nonetheless a worthwhile endeavour (Blinder, 2018).[13]

My main takeaway from the research on these efforts is summarised in Lesson 7.

> **Lesson 7: Public Communication**
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> Non-expert public can be reached, but to a lesser extent than experts. And though central banks are still learning how to communicate with the wider public, the payoffs from doing so might be larger given their existing inattention the central bank.

This lesson comes from empirical findings using both information provision experiments, as in Haldane and McMahon (2018) and Coibion et al. (2022), and observational data from social media, as in Ehrmann and Wabitsch (2022). Most research has focused on how different messaging, or different delivery of messaging affects the understanding of subjects or their expectations.

Notwithstanding this progress, Haldane et al. (2021) described the key challenges in terms of communicating with the general public as relating to 3Es: Explanation, Engagement, and Education. The remaining three lessons in this section draw one lesson from each of these broad areas. But despite the challenges, it is important that central banks continue to try (Blinder, 2018). And research, together with central banks' trial-and-error attempts to address the challenges, will play an important part in developing the "what works" lessons of the future.

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[13]Research is advancing quickly with guidance on what works and what doesn't, see a recent summary by Blinder et al. (2024).

4.2 Explanation

Explanation is the core of communication in the effort to manage expectations and it involves ensuring that people can understand the latest information in order to be able to form their expectations with the best possible information. There has been a majority of research focusing on the explanation dimension and, in particular, trying to understand what messaging "works".

This research has given rise to many important practical steps to making content easier to understand and to better manage expected inflation. This includes the use of simplified language (Haldane and McMahon, 2018, who analysed the Bank of England's move to layered content), the use of explanatory images (as shown in Bholat et al., 2019), and, in terms of directly influencing the expectations of households, directly telling them the inflation target (as in Coibion et al., 2022).

However, one issue is the way in which we typically measure complexity. The standard approach is to measure linguistic complexity using a reading age level with Flesch-Kincaid (FK) being the most commonly used. Perhaps I have to accept some responsibility for this as my own early work did exactly this (Haldane and McMahon, 2018). But there is reason to worry about this choice as it is not clear that long sentences with big words (what FK primarily measures) is the main reason people find monetary policy material difficult to understand. What if it is a different issue and central banks' focused efforts to reduce the reading age of their material are misguided?

In McMahon and Naylor (2023), we examine what types of language complexity matter. Particularly, we distinguish between the kind of semantic complexity measured by FK, and what we term conceptual complexity which relates to the use of economics jargon.

We construct a novel measure of the latter, termed the 'Conceptual Complexity Index' (CCI), which utilises a dictionary of economic and financial jargon terms to capture the quantity, breadth, and range of technical jargon used in a text. This metric seeks to better reflect the 'true' information-processing costs identified by theory. We then conduct an information provision RCT to see which type of complexity really matters; the study gives rise to Lesson 8.

> **Lesson 8: Explanation**
>
> On explanation, lack of understanding about the economic concepts involved in central bank policy rather than complexity of the language is the bigger problem.

4.3 Engagement

Even the most carefully prepared communication will have no effect on people's beliefs if they don't absorb the message. That is, without engagement, investment in explanation is useless.

But how can a central bank get the population it serves to engage with its messaging? Social media platforms provide new opportunities and new challenges.[14] However, while these platforms may make it easier to engage with the public, central banks have, still, relatively few users as a percentage of their national population (McMahon et al., 2018). Local network events with businesses, or even members of the general public (so-called citizens panels) can play a useful role (Joseph et al., 2021). But these can also be costly in terms time taken to reach a relatively small number of people.

We also know that attention to issues of monetary policy and attention are, perhaps rationally, time-varying (Pfäuti, 2024; Pfauti, 2023). And while awareness of inflation and the central bank may increase, McMahon and Rholes (2023) may offer a salutary lesson that precisely when inflation is high, it may be that the public's willingness to listen to what the central bank has to say is reduced. This result comes from an evaluation of how forecast performance, especially the timing of errors, affects the extent to which incentivised members of the public use the central bank's forecast to inform their own outlook. Not only does forecast performance matter, we find a form of recency bias when subjects evaluate forecast accuracy. This bias, which applies to both short-term and medium-term forecasts, is especially strong after poor forecasting performance.

It is important to also stress that trust is an important dimension of this. It has been known for quite a while that there is a link between household informedness, their trust in central banks and how well-behaved their inflation expectations are (Haldane and McMahon, 2018). And both Ehrmann (2024) and Blinder et al. (2024) emphasise the importance of building trust as potentially the most important objective of monetary policy communication. Even though trust is determined by factors outside of the control of the central, it is vital that they build it as much as they can.

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[14]See also Binder (2017a) on the implications of new media.

> **Lesson 9: Engagement and Credibility**
>
> Credibility and the public's attention to the central evolves endogenously; they pay most attention exactly when things are not going to plan and this can make it hardest for policymakers to influence expectations precisely when they most need to. Building trust over time is likely a key to managing these challenges, and communication is a key part of this.

4.4 Education

The final E, education, builds off the last point – given that more informed members of the public generally have better anchored expectations, and are more trusting of the central bank, then it makes sense to think about how to make sure more of the population are well informed.

An important question is who is responsible for education. On the finer points of the central bank framework, strategy, analysis and policy decisions, it is certainly fair to allocate this responsibility to the central bank. And in most countries the central bank not only provides high frequency information (such as policy decisions), but it also provides more background, low frequency, educational material such as guides to how monetary policy works. The New York Fed even provides comic guides for the younger audience! And policymakers often deliver speeches at universities or community events as part of their educational outreach.

For broader economics education, it may be necessary to think about how to incorporate this into the school curriculum to ensure a more widespread exposure to the information. This approach would address the challenge of engaging the general public who may not use the material provided on the websites of central banks.

There has been little work within monetary economics to explore the extent to which such education works. Given the importance of narrative to people's understanding of the economy (Shiller, 2017), the question for central banks is whether they can, via communication, teach people to have mental models that allow them to *anticipate monetary policy decisions*, and *understand how policy impacts upon the economy*? In on-going work with Ryan Rholes and Peter Rickards, we try to answer these questions (McMahon et al., 2024). The results so far suggest targeted education can achieve better and lasting understanding.

> **Lesson 10: Education**
>
> There is hope that we can improve understanding, and trust, with more educational guidance on mechanisms.

5 Extra Lessons on Monetary Policy Communication

As I signalled from the start, this piece is very much a personal reflection. But I want to finish by discussing some of the work on three key issues that I have not worked extensively on, but from which I feel there are important lessons. The three areas are the role of the media in central bank communication, the effect of *who* communicates from the central bank, and the important issue of how to communicate uncertainty.

5.1 The Role of the Media

The public primarily obtains economic information through the media (Blinder and Krueger, 2004; Gardt et al., 2022). This suggests that any attempt by the central bank to influence "popular narratives" that might play a role in determining behaviour in the macroeconomy (Shiller, 2017) requires the transmission of central bank communication through the media.

However, reliance on the media to transmit such information can have drawbacks. Coibion et al. (2019) find that reading the FOMC statement directly changes inflation expectations by the same as the latest inflation data but that relying on news intermediaries gives rise to effects that are smaller and less persistent. This is particularly the case for some lower-income, lower-education participants when reading "USA Today". One reason for different effects is that media select the messages that they transmit (Munday and Brookes, 2021).

To explore this, Rickards (2024) information provision experiment in which he disentangles the total effect in a source effect (who communicates) and the detail effect (what is communicated). He shows that household beliefs and expectations are significantly shaped by the perceived credibility and trustworthiness of the information source. When a media source is considered less credible, households adopt the information less strongly. Notably, individuals less engaged with economics are especially dependent on the perceived credibility of the source when forming beliefs.

In terms of details, households respond more to central bank communications when provided with additional context and detail about the economic environment. However, media summaries often truncate central bank statements, omitting important contextual information.

This lack of detail diminishes the potential benefits of communication for both high- and low-financial-literacy households. This means that there is an advantage when households receive economic information directly from the central bank rather than indirectly through the media. They tend to develop more negative perceptions of the central bank and are less likely to support its decisions.

This research suggests that active engagement with journalists and media intermediaries may assist in ensuring the key elements of messages as well as contextual detail are transmitted to the public. These traditional information intermediaries, such as the mainstream media and financial markets, may benefit from new, simpler narrative communication (Haldane and McMahon, 2018). And direct engagements such as Citizen's Panels (Joseph et al., 2021), especially if combined with local media engagement, can help to provide "narrative torchbearers" in the local economy. Though there remains a great deal to be done to more fully understand the media transmission of central bank communication (Binder, 2017b).

> **Lesson 11: Media**
>
> The media is the key channel for getting through to the wider public. But this comes at a cost in terms of understanding of decisions and perceptions of the bank. Direct and active engagement with media intermediaries can help to ensure that the narrative of the central bank is well understood by those who may more directly transmit to the public.

5.2   The Role of the Messenger

There is growing recognition that the extent to which messages get through can depend on the characteristics of the message sender (Malmendier and Veldkamp, 2022). The idea is that in-group membership, where the receiver of the message shares a pertinent characteristic with the sender of the message, can affect the way in which information is received, and whether it is received at all. There are many scenarios in which this matters; a recent case in point was the low uptake of vaccines by minority populations in the UK which was, at least partly, reversed by targeted communication campaign led by leaders in those minority communities.

In the context of monetary policy, there are various dimensions that appear to matter. Perhaps most applicable to all central banks is the gender of the speaker. D'Acunto et al. (2021a) use information provision experiments in which they vary the salience of female and minority representation on the FOMC. Women participants form expectations that are closer to those of the FOMC when they receive the messages from female policymakers. Importantly, they find no evidence that White males are less well communicated with when

facing a minority policymaker. Given that most populations have roughly equal splits of males and females (with a small minority of those that identify differently to their birth sex), this is another reason to not allow monetary policy committees become too dominated by members of a single gender.

These authors also find that race and ethnicity can matter. This is important for central bankers in countries with racially diverse populations. In those places it makes sense to ensure that the policymakers represent the populations they serve.

Of particular importance in the EU, Wabitsch (2024) shows that the issue of nationality also matters. Using real-world evidence from Twitter / X, she shows that in-groups (Italians under Draghi and the French under Lagarde) are exposed to more communication (information availability effect) and these in-groups update their beliefs more (information processing effect). She also examines an inflation forecasting experiment to disentangle the effects of nationality and institutional affiliation. Her causal evidence also supports the existence of positive nationality-based in-group effects which makes communication more effective when speaking to an in-group.

> **Lesson 12: Messenger Matters**
>
> The messenger influences this reach and how they respond to monetary policy communication.

Taken together, this evidence yields Lesson 12. It suggests that optimal communication can involve strategic selection of messengers to maximise welfare showing that delegation is a powerful additional communication policy tool.

5.3   How to Communicate Uncertainty

The issue of uncertainty was already discussed above in the context of risk management and policymakers understand they set policy amidst pervasive uncertainty (Greenspan, 2004; Bernanke, 2007). But since central banks have started to introduce simplified layered communication, there has been a growing focus on the way in which they can communicate uncertainty. In particular, many economists have worried that communicating more simply might transmit the impression of unjustified certainty. Especially in a dynamic, repeated interaction, the concern is that such perceived certainty would end up being proven false to the detriment of the Bank's credibility.

I call this the uncertainty critique of simplifying language. Such a loss of credibility was built in to the modelling in Haldane et al. (2021). And just before the Covid pandemic, I

had started to research whether simplified communication transmits less uncertainty to the general public than more traditional forms of monetary communication via an information provision experiment. I presented the pilot results at the AEA Conference in San Diego January 2020[15] which showed a good news and a bad new story. The good news was that simplified communication didn't transmit less uncertainty. The bad news was that this was because *neither* transmitted uncertainty signals.

While I need to return to this work, perhaps a lesson is that we need more research on the question of how to communicate uncertainty with a broader audience. But it has also come up following the suggestion that the Bank of England should get rid of its Fan Charts (Bernanke, 2024).[16]

Another reason this is a hard question is that the central bank may wish to convey uncertainty about many things. There is uncertainty about its assessment of the economy along many dimensions, and also its certainty or uncertainty about the path for interest rates into the future. Central banks must balance coming across too certain or unwavering (as this can create concerns about potential policy mistakes) with the appearance of looking powerless and too vague in your view.

Of course, there are others who have worked on the question of how to communicate uncertainty with a broader audience. For instance, Rholes and Petersen (2021) finds that communication with point estimates is more effective than communication with a density forecast. But Petersen and Rholes (2022) finds that, at least during Covid, there seemed to be a falling tolerance for overly precise communication and suggests a need to convey uncertainty. Kostyshyna and Petersen (2023) argue that uncertainty ranges are useful to anchor inflation expectations.

These results point to the possibility that uncertainty plays multiple roles.[17] For instance, more uncertainty might reduce the coordinating power of a precise signal. But communicating uncertainty can help people trust that there is not spurious certainty and lend confidence to the signal if the public are even more uncertain that the central bank signals that it is.

Taken together, my final lesson is one which leaves a lot of room open for more work.

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[15]The title was "Does the Public Understand Policy Uncertainty?" and the programme is here: https://assets.aeaweb.org/asset-server/files/11341.pdf.

[16]It should be noted that this is an issue beyond economics and interested readers should see the work of Prof David Spiegelhalter and his team at the Winton Centre for Risk and Evidence Communication for specific examples.

[17]I thank, without implication, Ryan Rholes for a discussion on this.

> **Lesson 13: Communicating Uncertainty**
>
> Uncertainty communication is important, but difficult. More research would be welcomed.

6 Conclusion

This note has presented my (very personal) 13 lessons from the literature on monetary policy communication. These lessons are, by design, focused on the issues that I have thought most about and therefore I don't claim any comprehensive coverage. The last 3 lessons are on issues which I think are important and on which others, especially my students, have done interesting and exciting work.

This note was also limited to monetary policy communication. Central bankers will realise that there are other areas of their policy which also demand careful communication; most obviously financial stability and macroprudential analysis. Given the potential interactions between monetary and macroprudential policy, there can also be interesting interactions between the communication of the different policies. Interested readers can get a good start on financial stability communication issues by reading papers such as Istrefi et al. (2023) and Correa et al. (2020).

Another area of macro policy which has received a lot less attention concerns fiscal policy communication. I think this area is ripe for research, especially in terms of explaining fiscal policy to a wider public (End and Hong, 2022). It would be great to improve the quality of the discussion around fiscal choices facing policymakers, as this should allow the voting public to make better informed choices. But these are issues for future research.

While 13 is considered unlucky by some, the good news for researchers interested in communication of macro policy is that there is scope for much research leading to many more lessons. So while I have presented my *current* key lessons, I reserve the right to update my views on my own key lessons as the research develops!

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