

**The Role of Inflation Expectations in Monetary Policymaking:
A Practitioner's Perspective**



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Introduction

I thank the ECB Forum on Central Banking for inviting me to participate on this panel. In my brief prepared remarks, I will discuss the role of inflation expectations from the practitioner's perspective. The views I present will be my own and not necessarily those of the Federal Reserve System or of my colleagues on the Federal Open Market Committee (FOMC).

Inflation Expectations in Theory

Inflation expectations have been a central factor in models of inflationary dynamics since the 1960s and 1970s, with the seminal work of Phelps, Friedman, and Lucas, and they play a key role in New Keynesian dynamic stochastic general equilibrium (DSGE) models used to inform and evaluate monetary policy.¹ In many inflation models used by central banks, inflation is driven by three key factors: some measure of a resource utilization gap (for example, the output gap or unemployment rate gap), or marginal cost of production; lagged inflation, which captures the inertia in the inflation process; and expectations of inflation. Different models put different weights on these fundamental factors, but household and business expectations matter, since they affect wage demands and offers, and therefore firms' price-setting behavior. Empirical work on the determinants of inflation finds that the output gap matters when it is large and that, in recent years, forward-looking measures of inflation expectations play a larger role in explaining inflation dynamics than do backward-looking measures.² Work done at the Cleveland Fed and by other researchers finds that including measures of inflation expectations in inflation forecasting models reduces the size of forecast errors.³ Anecdotal information from business contacts indicates that firms do base pricing decisions on their expectations about inflation, and recent empirical research documents that higher inflation expectations cause firms to raise their prices.⁴ In addition to their role in

¹ See Phelps (1967), Friedman (1968), and Lucas (1972).

² For further discussion, see Fuhrer and Olivei (2009) and Clark and Davig (2009).

³ See Faust and Wright (2013), Zaman (2013), Chan, Clark, and Koop (2018), and Tallman and Zaman (2020).

⁴ See Coibion, Gorodnichenko, and Ropele (2020).

inflation dynamics and helping to forecast inflation, inflation expectations also provide an indication of how credible the public finds the central bank's commitment to achieving its policy goals.

The Federal Reserve's monetary policy framework emphasizes the role of well-anchored inflation expectations in helping to achieve and maintain price stability. In 2012, the FOMC first established its explicit 2 percent longer-run inflation goal. The FOMC's statement on longer-run goals and monetary policy strategy, revised in 2020 and reaffirmed since then, says that the Committee judges that longer-term inflation expectations that are well anchored at 2 percent contribute to achieving its monetary policy goals.⁵ There are various ways to define "well anchored." Here, I mean longer-term inflation expectations that are insensitive to data and are at levels consistent with 2 percent inflation. Achieving "well anchored" in this sense would depend on how well the public understands the central bank's inflation goal and how strongly it believes the central bank is committed to returning inflation to goal when it has deviated. This implies that central bank communications can play an important role in keeping inflation expectations anchored and, via this channel, communications can help to mitigate the persistence of shocks to inflation. It is important to note that if inflation expectations are stable but are well anchored at levels inconsistent with price stability, then they would be an impediment to achieving the inflation goal.

Theory indicates that well-anchored inflation expectations can help to mitigate the pull of resource gaps on inflation, and therefore, the cyclical movements in interest rates that policymakers induce to maintain price stability need not be as large as when inflation expectations are not well anchored. This is particularly useful when the zero lower bound constrains interest rates. Arguably, the U.S. might have suffered much lower inflation during the Great Recession had inflation expectations not been relatively stable, offsetting some of the influence the negative output gap had on inflation. Similarly, in the face of

⁵ Federal Open Market Committee (2022).

today's very high inflation readings, if inflation expectations were to become unanchored, their influence would offset the impact of any beneficial change in the output gap and monetary policy would have to act more forcefully to return inflation to goal.

While the theory is compelling, the real world does not always cooperate. For example, in Japan, inflation expectations have run well above actual inflation for a number of years.⁶

Inflation Expectations in Practice

One of the first things policymakers need to confront in practice is that while the theory speaks of “inflation expectations,” these expectations are not directly observable. Instead, there are a number of measures, which differ by type of agent and time horizon. These include measures based on surveys of consumers, businesses, and professional forecasters, and measures derived from financial markets.⁷ So, in practice, to get an indication of where inflation expectations are and where they are going, policymakers need to look at a variety of different indicators or a composite such as the index of common inflation expectations.⁸ But a clear signal is not always forthcoming, because the inflation expectations of different groups of agents can behave differently from one another and the literature has not firmly established whose expectations are most important for inflation dynamics.⁹ For example, survey measures of the inflation expectations of professional forecasters and financial industry participants were

⁶ See Trehan and Lynch (2013) and Hattori and Yetman (2017).

⁷ Model-consistent expectations, or rational expectations, get around the unobservability issue by assuming that agents' expectations will be consistent with the underlying fundamentals of the model. But empirically, these model-consistent expectations alone are not good predictors of inflation. This should not be too surprising. A model is a representation of the economy and may not capture factors relevant to expectations formation or changes to the underlying structure of the economy that are not fully understood by either the public or policymakers.

⁸ The index of common inflation expectations is a research data series maintained by the Board of Governors' staff. See Ahn and Fulton (2021).

⁹ See Candia, Coibion, and Gorodnichenko (2021).

fairly stable over the course of the Great Recession and recovery, while those of households and businesses drifted down.¹⁰

Even within a particular group of agents there is considerable heterogeneity. The inflation expectations of consumers appear to vary with demographic and socioeconomic factors.¹¹ And changes in the prices of particular salient items, including gasoline and food, can have an outsized effect on households' inflation expectations.¹²

Empirical results also raise questions about the direction of causality. Reduced-form forecasting equations are not able to answer the question of whether high inflation leads to increases in inflation expectations, or whether expectations of high inflation affect household and business decisions, leading to higher inflation, or both.¹³ And while businesses are the ones that set prices, we have only limited information on the inflation expectations of these relevant actors.

Another practical consideration for policymakers is how to assess whether inflation expectations are becoming unanchored from the target and, relatedly, the level of the central bank's credibility in the eyes of the public. Levels of longer-term inflation expectations relative to shorter-term expectations can provide some indication. For example, longer-term expectations remaining stable in the face of a positive

¹⁰ For further discussion, see De Pooter, et al. (2016).

¹¹ This measure indicates that women's inflation expectations are higher than men's and that older respondents and more educated respondents also report higher inflation expectations. The Cleveland Fed's indirect consumer inflation expectations measure, which started in 2021, is based on a nationwide survey with more than 10,000 responses and is updated on a weekly basis. Instead of asking consumers directly about overall inflation, the survey asks consumers how they expect the prices of the things they buy to change over the next 12 months and how much their incomes would have to change for them to be able to afford the same consumption basket and be equally well-off. See Hajdini, et al. (2022).

¹² For the effect of experiences from high-inflation eras on inflation expectations, see Malmendier and Nagel (2016). For the effect of salient prices on inflation expectations, see Coibion and Gorodnichenko (2015), Cavallo, Cruces, and Perez-Truglia (2017), D'Acunto, et al. (2021), and Campos, McMain, and Pedemonte (2022).

¹³ See, for example, the recent critique by Rudd (2021).

shock to inflation would indicate that the public believes that inflation will come down, although it need not indicate that the public believes monetary policy will be the main driver of the reduction. In addition to the stability of the median or mean level of inflation expectations across respondents to a survey, dispersion across the respondents might also indicate how well inflation expectations are anchored, with lower dispersion indicating better anchoring.¹⁴ Policymakers also need to contend with the possibility that financial markets may have more confidence than the general public in the central bank's ability and commitment to bring inflation back to goal, which suggests again that policy communications are important for keeping inflation expectations well anchored.

Policymaking Given the Gap Between Theory and Practice

Taken all together, the research suggests that there is still much to learn about how inflation expectations are formed, yet policymakers need to make decisions based on the available limited information. Recent data in the U.S. indicate that longer-term inflation expectations are below current inflation readings, suggesting that the public expects inflation to move back down from its unacceptably high level. But the level of inflation expectations at longer horizons is rising, and dispersion across respondents in household surveys has begun to increase (see Figures 1 and 2). The fact that the salient prices of gasoline and food remain elevated suggests that there is some risk that longer-term inflation expectations of households and businesses will continue to rise.

In the current situation, from a risk-management perspective, it is important for policymakers to ask which situation would be more costly: erroneously assuming longer-term inflation expectations are well anchored at the level consistent with price stability when, in fact, they are not? Or erroneously assuming that they are moving with economic conditions when they are actually anchored? Simulations of the

¹⁴ Naggert, Rich, and Tracy (2021) find that the lower end of the distribution of 5-year/5-year-forward PCE inflation expectations from the U.S. Survey of Professional Forecasters shifted up toward 2 percent and the dispersion of inflation expectations across respondents narrowed after the FOMC announced its revised monetary policy framework in August 2020.

Board's FRB/US model suggest that the more costly error is assuming inflation expectations are anchored when they are not.¹⁵ If inflation expectations are drifting up and policymakers treat them as stable, policy will be set too loose. Inflation would then move up and this would be reinforced by increasing inflation expectations. If, on the other hand, inflation expectations are actually stable and policymakers view the drift up with concern, policy will initially be set tighter than it should. Inflation would move down, perhaps even below target, but not for long, since inflation expectations are anchored at the goal.

These simulation results, coupled with research suggesting that persistent elevated inflation poses an increasing risk that inflation expectations could become unanchored, strongly argue against policymakers being complacent about a rise in longer-term expectations. Indeed, inflation expectations are determined not only by movements in inflation but also by policymakers' actions to follow through on their strongly stated commitment to return inflation to its longer-run goal, thereby justifying the public's belief in the central bank's commitment.

The current inflation situation is a very challenging one. Central banks will need to be resolute and intentional in taking actions to bring inflation down. The low inflation readings during the pre-pandemic expansion led to considerable research on how low equilibrium interest rates and the zero lower bound can create a downward bias to inflation and inflation expectations. The policy implication some drew from this research was that if policy had to err, it should err on the side of being too accommodative, since it would be easier to address high inflation than low inflation. The current challenging situation in which a sequence of supply shocks have contributed to inflation being at a 40-year high belies that view. It also calls into question the conventional view that monetary policy should always look through supply shocks. In some circumstances, such shocks could threaten the stability of inflation expectations and would require policy action. My hope is that just as the period of low inflation generated important

¹⁵ See De Pooter, et al. (2016).

research, the current period will generate new research to help the FOMC deliver on its commitment to price stability and maximum employment.

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Slides for
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Figure 1: Measures of longer-term inflation expectations in the U.S. are rising

Atlanta Fed Business Infl Exp, over next 5-10 years

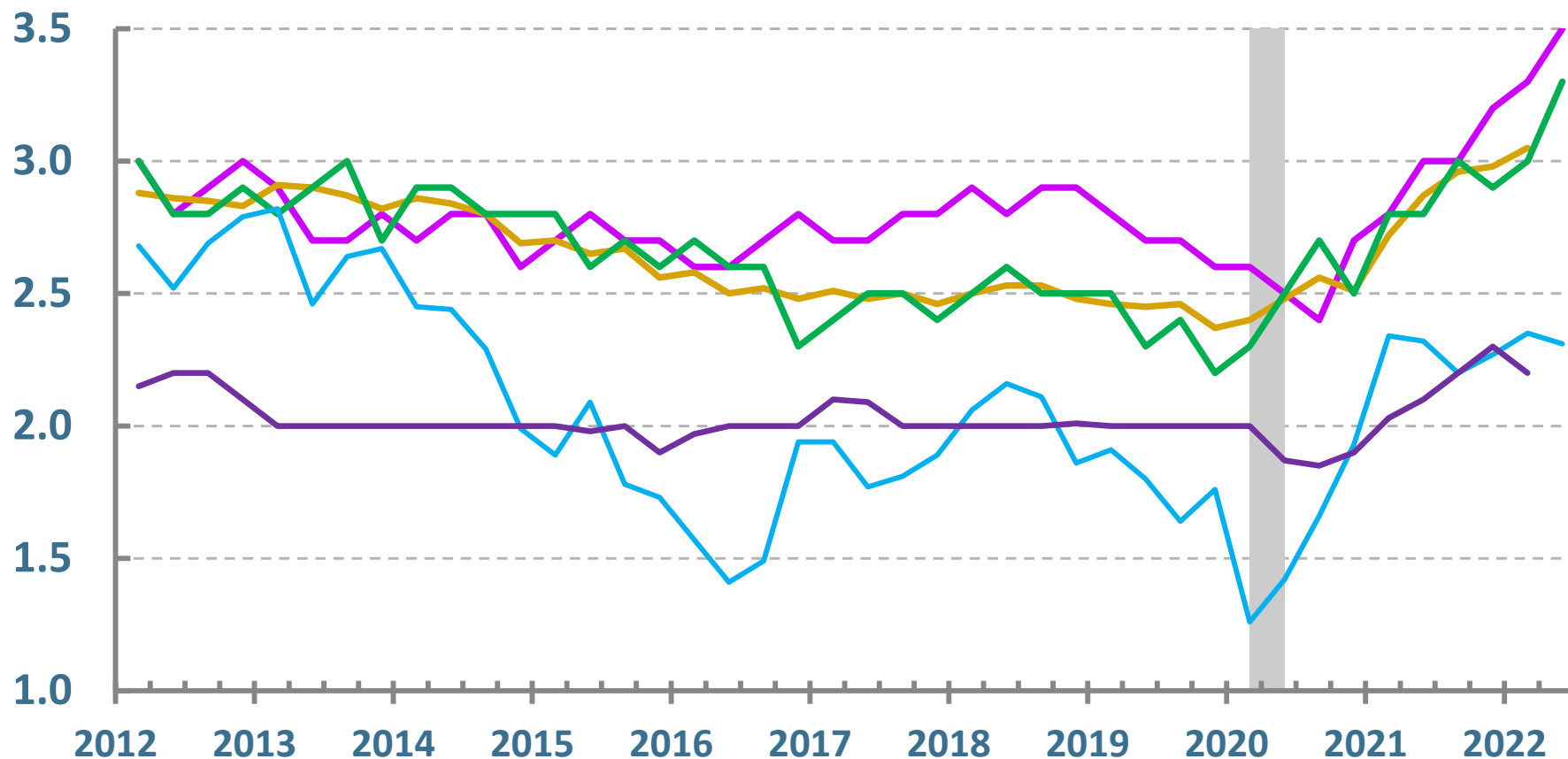
U Michigan Consumer Infl Exp, over next 5-10 years

BOG Common Infl Exp, scaled by U Mich, over next 5-10 years

Infl Comp: 5 yr/5 yr forward

SPF, 10-year PCE infl

Percent



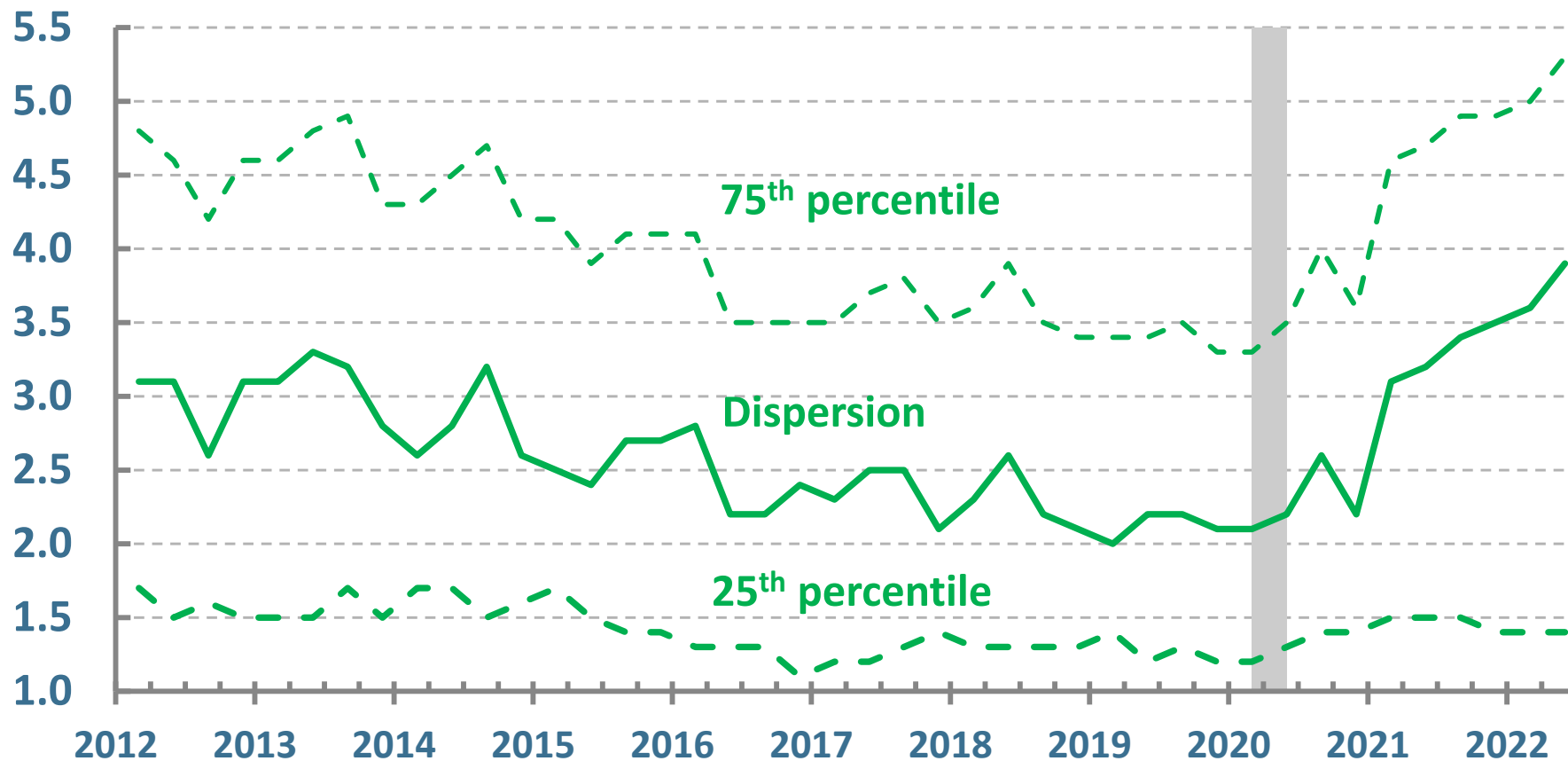
Source: Federal Reserve Board, Federal Reserve Bank of Atlanta, Federal Reserve Bank of Philadelphia, University of Michigan, via Haver Analytics

Quarterly data (end of qtr for U Mich and Infl Comp): Last obs. 2022Q1 for CIEI, end of 2022Q2 for U Mich and Infl Comp, 2022Q2 others

Figure 2: Dispersion in longer-term inflation expectations of households is rising

University of Michigan Consumer Survey of Expected Inflation over next 5 to 10 years

Percent



Source: University of Michigan
Last month of each quarter: Last obs. June 2022