Macro Research

Global Markets / Inflation / Monetary Policy

The lay of *The Land*

What do we really know about inflation? The state of the art was recently laid out by top academics and central bank economists at the "Inflation: Drivers & Dynamics" conference, held at the Federal Reserve Bank of Cleveland. In this comment we give a first-hand account of what was discussed in "The Land". The conference gave greater insight into the anchoring of inflation expectations at central banks' targets, mixed with a new understanding of inflation fundamentals. Change is often hard work, but policymakers would be smart to embrace these latest insights.

Main impressions

- *Harder than it seems to gauge the anchoring of inflation expectations. While this difficulty could weaken the status of inflation expectations as input into central bankers' decision-making, we find that new tools can instead add to the status.*
- *Understanding of inflation has improved, for example, as more realistic heterogeneity among households, firms and products is considered. Generates better policy and scenario analysis.*
- *New models can help central bankers draw better and more timely conclusions on business cycle and oil price effects on the inflation outlook.*

Anchor, what anchor?

The message usually comes across crystal clear – central banks care a lot about inflation expectations. But why is that?

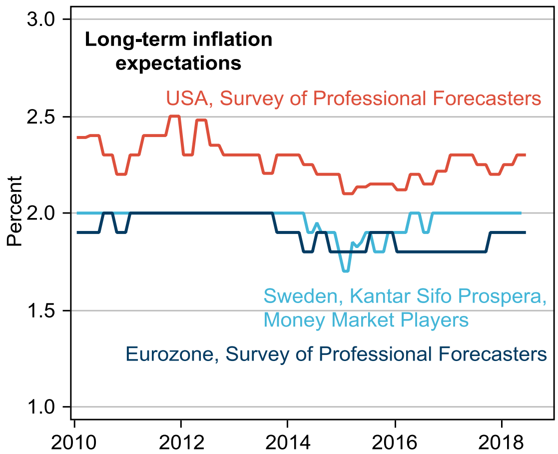
For starters, expectations matter because they affect the decisions of households, firms and other *agents* in the economy. It means an inflation-targeting central bank will have a harder time achieving its goals if longer-term inflation expectations are not anchored at the target level, say two percent. One effect is that unnecessary costs to society arise, as monetary policy has to be extra vigilant to manage inflation. Think about an example whereby unanchored expectations mean that the policy rate needs to be raised faster than usual to curb an inflation outbreak and in the process deals a harder-than-usual blow to economic activity and unemployment.

So, given that background, central bankers and economists surely know well whether or not inflation expectations are anchored at the target, right? Not necessarily. At the conference at the Cleveland Fed, research showed that the task is no picnic.

Surely central bankers know if inflation expectations are anchored? Not necessarily.

Geoff Kenny of the European Central Bank (ECB) presented a number of aspects that are important. First, checking the anchoring of inflation expectations is not just about finding out the mean or median *level* of all agents' long-run expectations, or the most common answer out there (mode). It is also about looking into how *tightly* the expectations are gathered around the inflation target, in terms of uncertainty (variance), skewness and tail risks. Moreover, the *sensitivity* of those factors to news about economic developments etc. is another aspect making inflation expectations analysis harder.[1]

Surprise, surprise! Aggregate data like these do not tell the full story.



Source: Macrobond

[1] The last aspect can be interpreted as an indicator of the credibility enjoyed by the central bank: greater faith in its ability to achieve its goal is embodied in low sensitivity of long-run expectations

Consider an example: are inflation expectations better anchored if the mean rises from 1.8 to the target of 2 percent while uncertainty around the new, higher level or its sensitivity to news doubles?

In brief, Kenny concludes that inflation expectations in the eurozone became less well-anchored in the years following the Great Financial Crisis (Dovern and Kenny 2018). On the face of it, that might not appear to have been the case, as median long-run inflation expectations remained roughly in line with the ECB's target (see chart). But after digging into the micro data, it turns out that the decline in the expectations mean is significant, the uncertainty increased and the distribution of answers became skewed to the downside. There was also an increase in the sensitivity of the expectations uncertainty to news about unconventional monetary policy.

Eurozone inflation expectations have become less well-anchored in recent years

Causes of inflation expectation de-anchoring – some examples:

1. A central bank's track record of hitting its target affects expectations for future inflation. That means bygones are not bygones, as a period of poor central bank performance can worsen its chances to improve.
2. Imperfect information about or variation over time in the central bank's objectives.
3. Being in a situation where the central bank is nearing the limitations of the policy toolbox (e.g. reaching the policy rate's effective lower bound).

Source: Dovern and Kelly (2018) and references therein.

Food for thought:

Point 1) has helped fuel the idea that a period of, say, undershooting the inflation target can be compensated by a period of overshooting, as the central bank wants to make sure inflation expectations are (re-)anchored.

But is that really risk-free, in light of 2), as deliberately missing the inflation target might create confusion about the central bank's objectives?

In conclusion, it is a more complicated task than often suggested to judge whether or not inflation expectations are well anchored. In isolation, that should weaken its status in central bankers' decision-making processes. But instead, the good news is it that there are analysis tools that can help economists make *better* sense of what is really happening to expectations.

Everything is not said and done, of course, and the conference discussion pointed to the need for a useful, straightforward definition of the concept "well-anchored" (Rich 2018). Moreover, conference participants did not agree about how relevant the inflation expectations in widely-used surveys of professional forecasters are to depict the true expectations in the economy as a whole (Coibion 2018). As we shall see next, however, that may not be a major problem.

Deeper understanding, but old truths hold?

Surveys have shown that the perceptions and expectations of inflation in certain groups of agents are way off actual inflation outcomes and anything in recent history. No wonder one might question if it is possible to draw conclusions about inflation expectations in the economy, using only surveys of professional forecasters! Interestingly, however, analysis from New Zealand indicates that when the same firms that gave poor inflation responses are instead asked about *prices in their own sector*, and all such replies are aggregated to an economy-wide measure, it ends up close to actual inflation (Schoenle 2018). How should one understand that observation?

Hassan Afrouzi of Columbia University ties it together in a set up where it makes sense for a firm not to attempt to update its expectations for own sector prices with all the available news on fundamental economic developments (Afrouzi 2018). Instead, the firm sets prices also considering its competitors' expected responses, given their flawed accounting of news. The model enriched with "strategically inattentive" firms yields somewhat different results, in terms of what impact to expect from a monetary policy shock on inflation. But also worth highlighting is that the link from economic developments to inflation is intact, as the former at least correlates with firms' heterogeneous price expectations, which in turn affect price-setting decisions and hence inflation.

What about other dimensions of heterogeneity? Michael Weber of the University of Chicago presented ongoing work on the question of if it is the price changes in the actual purchases of a household that shape its inflation expectations (D'Acunto et al 2018). If so, do *all price changes* affect the household, or mainly the eye-catching, *salient ones*? And, do households react differently in the face of the price changes experienced? Preliminary results include signs that salient price changes play a role in the formation of households' inflation expectations, and this result is driven by a few categories of households. However, the importance of salient price changes remains unclear, as the discussion in Cleveland pointed to earlier research not supporting the idea (Bachmann 2018).

Is it appropriate to "look through" food and energy price changes, if those shape inflation expectations?

To conclude, central banks may generally be able to rely on older economic truths. But new research at the conference shows that one should be aware that not least heterogeneity among firms, households and products can materially change inflation dynamics; for instance, the size of the effect from monetary policy changes. And perhaps deeper knowledge also raises questions about some common central bank practices. For instance, is it appropriate to frequently "look through" changes in food and energy prices in policy decisions, if such prices turn out to be important in forming our inflation expectations?

Getting to grips with oil price fluctuations and the business cycle swings

Speaking of energy prices, when are oil price fluctuations large enough to merit a reaction from monetary policy? A central banker needs to decide in real-time if the inflation effect of an oil price change will be merely transitory, as the relative price of energy goods change, or instead more widespread and lasting, with second-round effects hitting inflation expectations and wage demands. Only the latter case spurs action from the policymaker, normally.

One way to draw conclusions about oil prices is to try and disentangle the demand and supply effects driving the fluctuations. In Cleveland, Kristin Hubrich of the Federal Reserve Board instead proposed trying to detect episodes of widespread and lasting effects at an early stage with a regime-switching framework (Holm-Hadulla and Hubrich 2018). Detecting the start of an adverse regime, where the inflation effect is not transitory, does not depend on knowledge about difficult-to-pin-down drivers such as supply and demand. In other words, it would be a promising additional help to central bankers; it would be interesting to know what it is saying about the current upward oil price trend. Are we in a regime with second-round effects on inflation? Could we have realised that at an early stage?

In other good news for central bankers and forecasters alike, Michele Lenza of the ECB presented research where drawing upon the relationship between the business cycle and inflation, usually called the Phillips curve, actually generates an improved ability to forecast inflation (Jarocinski and Lenza 2017). It has been a long-standing feature of Phillips curve type models that they lack forecasting ability, because in real-time it is too hard to pin down where we are in the business cycle (i.e. the size of and direction in the output gap). But in Cleveland, Lenza showed a model that estimates a useful real-time output gap, while also producing good forecasts during the evaluated test period. Can the model keep up the good work ahead?

Why do investment bankers keep asking if the Phillips curve is dead?

But wait a minute! Have we not heard that the Phillips curve is dead? Those rumours have been gravely exaggerated, it appears. Not a word was said about it at the Cleveland inflation conference. It is back to business as usual among academics and central bank economists. And the same goes for the IMF. In a separate meeting in Washington, a senior staff member concluded that the empirical evidence of the hypothesis was "unconvincing", after posing the rhetorical question "why do investment bankers keep asking if the Phillips curve is alive?"

Clearly, the "Inflation: Drivers and Dynamics" conference featured several tools that could help central bankers make better and more timely calls on economic developments, not least business cycle and oil price effects on inflation. That is crucial, as monetary policy affects the economy with a lag and therefore needs to be forward-looking in nature.

A brief comment such as this cannot cover all the research presented at the conference, but we hope that we have given a flavour of some of the topics and discussions. Have a look in the references section to discover other question marks that were straightened out this year. And who knows, maybe next time the Federal Reserve Bank invites us to "The Land", we can go there to hear the unravelling of digitalisation and globalisation effects on inflation?

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Want to read more? Dig in!

Full agenda, with links to papers and discussants' presentations is available at the conference website:

https://clevelandfed.org/newsroom-and-events/events/2018/inflation-drivers-and-dynamics-2018/agenda.aspx

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