

# Monetary Policy and Anchored Expectations

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## 1 De-anchoring as a challenge to monetary policy

Policymakers came out of the Great Inflation era with a clear understanding that it was essential to anchor inflation expectations at some low level.

Jerome Powell, Chairman of the Federal Reserve <sup>1</sup>

The opening remarks of Federal Reserve Chairman Jerome Powell at the Fed’s August 2019 conference “Challenges for Monetary Policy” is one of the many central banker speeches that stress the importance of anchoring inflation expectations. Yet what do central bankers mean when they talk of anchored expectations?<sup>2</sup> And, more importantly, why should anchoring be a major concern for central bankers, in particular in the current post-crisis, low interest rate environment?

This project aims to investigate the ways in which the possibility of de-anchored expectations can pose problems for the conduct of monetary policy. My objective is to theoretically assess whether de-anchored expectations can render monetary policy ineffective, or potentially even unable to achieve its price stability objective. Understanding how de-anchored expectations affect the monetary policy problem is crucial for optimal policy design, since if policy-makers are aware of potential threats due to de-anchoring, they can adapt policy in order to mitigate those threats. Thus by analyzing the nature of the monetary policy problem under potentially de-anchored expectations, I will also

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<sup>1</sup>Federal Reserve “Challenges for Monetary Policy,” August 23, 2019, Opening Remarks.

<sup>2</sup>For example, going through the European Central Bank (ECB) president Mario Draghi’s speeches of and the ensuing Q&A sessions in recent years, one finds that the question of whether expectations are anchored and what this actually means for central bank policy always comes up; journalists and the general public are confused about how to think about anchoring.

be able to formulate policy proposals and suggest ways optimal monetary policy should behave if expectations threaten to become unanchored.

Broadly, the project belongs to the macroeconomic literature that emphasizes the role of expectations for macroeconomic outcomes. Much research has been devoted to departing from standard assumptions in macroeconomic modeling of full information and expectations that are formed with the optimal use of available information (the “rational expectations” paradigm). In particular, my approach aligns closely with the statistical learning literature in macroeconomics which postulates that economic expectations evolve according to simple statistical rules; that is, economic actors use a forecasting rule to predict future economic outcomes, and update the forecasting rule as new data become available.

The novelty of my project is to use recent developments within the learning literature to reevaluate monetary policy in a framework where expectations may or may not be well anchored. Specifically, I will embed the anchoring mechanism of Carvalho, Eusepi, Moench & Preston (2019, henceforth CEMP) in an otherwise standard state-of-the-art macroeconomic model, augmented to allow for long-run expectations in the spirit of Preston (2005). This will allow me to complement the standard results of the learning literature, which speak more to the technical question of under what conditions statistical learning renders the economy unstable. Instead, my interest here concerns policy: if statistical learning with the possibility of de-anchored expectations indeed alters the problem faced by monetary policy, then understanding the nature of the novel challenges will also shed light on how central bankers can respond optimally.

## 2 Methodology

My proposed project is first and foremost theoretical. In essence, this means that I plan to write down a standard macroeconomic model, make the minimal adjustments necessary so as to incorporate the possibility of expectations becoming unanchored, and study how optimal monetary policy behaves in this setting. Without going into technical details, let me illustrate what each of these steps means specifically.

The standard workhorse model in contemporary macroeconomics is the so-called New Keynesian (NK) model. NK models provide the baseline for evaluating optimal monetary policy.<sup>3</sup> However, in the standard NK model, there is no clear concept of anchored expectations.<sup>4</sup> Therefore, CEMP

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<sup>3</sup>Clarida, Gali, Gertler, Woodford

<sup>4</sup>Moreover, numerous economic studies indicate that the rational expectations assumption underlying standard NK models is widely rejected in the data, providing more reason to abandon the rational expectations assumption.

extends a simplified version of the NK framework using the statistical learning approach mentioned above.<sup>5</sup> Moreover, the authors incorporate a novel specification of the forecasting rule used by economic actors, in which one-period ahead forecasts of inflation depend on agents' expectations of where inflation will be in the long run. This allows CEMP to provide a model-based definition of anchoring as the situation in which long-run expectations are not sensitive to short-run forecast errors.

In order to study what implications this has for monetary policy, I first need to replace CEMP's simplifying assumptions. In other words, I need to reintroduce the demand side of the model economy in order to be able to specify monetary policy at all, which is missing in CEMP's model. Thus the first step of my project is to solve a full-blown version of the NK model, augmented with long-run expectations and with CEMP's forecasting rule specification. This technically challenging task will give me a representation of the economy in which both monetary policy and a potential de-anchoring of expectations is explicitly spelled out.

As a second step, I plan to carry out simulations of the model in order to understand how it behaves and to assess whether its dynamics resembles the behavior of modern economies known from data and stylized facts. This step is necessary to get a first-pass feel for how the mechanism of anchoring works in the model and whether it seems like an adequate representation of reality.

The third step is the heart of the analysis. This involves comparing the monetary policy problem in my model with the standard rational expectations NK model benchmark. I intend to do this in two ways, and will thus have two metrics for evaluating the extent to which the optimal conduct of monetary policy differs in the two models. The first way is via simulating both models for various specifications of monetary policy. Studying differences in the evolution of economic variables such as inflation, output and interest rates across the two models for the same policy specification will then inform me of how the anchoring mechanism affects the policy problem.

The second way is to formulate the monetary policy problem analytically, and solving it for the optimal policy parameters in both models. In this approach, differences between the optimal policy parameters will allow me to assess on what dimensions and to what extent optimal policy behaves differently when it needs to take a potential de-anchoring of expectations into account.

Lastly, armed with these theoretical results, I plan to use data to estimate the model. In particular, my interest here is to investigate to what extent estimated policy parameters deviate

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<sup>5</sup>While the simplifications CEMP makes are purely technical in nature and do not matter for the empirical estimation exercise that paper pursues, for my purposes they are not tenable; see below.

from the optimal values I derived in the previous step. This will provide insight into whether central bankers have conducted monetary policy suboptimally, not taking proper account of the anchoring mechanism in expectations.

### **3 Monetary policy manages expectations**

The abundance of central bankers anxious to anchor expectations makes it clear that in practice, central banks are concerned about managing expectations. The fact that economic theory has so far not suggested a theoretical reason for doing so constitutes a gap in the literature on monetary policy. This project aims to fill this gap by extending the standard macroeconomic model with the CEMP-mechanism that allows for expectations to become unanchored. Deriving optimal monetary policy and comparing it to its counterpart in the standard NK framework will shed light what novel tradeoffs potential de-anchoring introduces for monetary policy as well as how to react to these new challenges in an optimal way.