Proposal: A Reassessment of Monetary Policy Surprises and High-Frequency Identification

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Background

Over the past two decades, high-frequency interest rate changes around FOMC announcements, or *monetary policy surprises*, have become an important tool for identifying the effects of monetary policy on asset prices and the macroeconomy. For example, Kuttner (2001), Bernanke and Kuttner (2005), Gürkaynak et al. (2005), Hanson and Stein (2015), and Swanson (2021) use monetary policy surprises to estimate the effects of monetary policy on asset prices, while Cochrane and Piazzesi (2002), Faust et al. (2004), Gertler and Karadi (2015), Ramey (2016), Stock and Watson (2018), and Caldara and Herbst (2019) use them as an external instrument to estimate the effects of monetary policy on macroeconomic variables in a structural VAR or via local projections.

Recently, however, some concerns have emerged about whether high-frequency monetary policy surprises are valid in these contexts. First, Ramey (2016) points out that the macro effects of monetary policy are often poorly estimated in samples that begin after about 1984, likely because monetary policy was conducted more systematically over this period and thus there are fewer monetary policy "shocks" that can be used to identify its effects. Second, Cieslak (2018), Miranda-Agrippino and Ricco (2021), Bauer and Swanson (2021), and Sastry (2021) have documented substantial predictability of monetary policy surprises, which calls into question their validity as exogenous external instruments. For example, Bauer and Swanson (2021) obtain R^2 of 10–40 percent for regressions of monetary policy surprises on data that was publicly available prior to the FOMC announcements themselves. These predictability results undermine the central assumption that monetary policy surprises represent exogenous changes in monetary policy, which is implicit in essentially all the empirical work summarized above.

Key Contributions

We propose reassessing high-frequency identification of the effects of monetary policy on financial markets and the macroeconomy. Specifically, we make two key methodological improvements to

address the aforementioned challenges: First, we add useful new data by substantially expanding the set of monetary policy announcement events. The studies mentioned above all use only FOMC announcements as their exogenous monetary policy events, but we follow Swanson and Jayawickrema (2021) and add several other types of monetary policy announcements to our sample, including, most importantly, all speeches by the Fed chair. Overall, the Fed chair's speeches are even more important for financial markets than FOMC announcements themselves (Swanson and Jayawickrema, 2021), and thus should more than double the amount of monetary policy variation in our analysis, relative to previous work. Thus, we respond to Ramey's (2016) critique by increasing the number and total variation of monetary policy announcement shocks in our sample. Moreover, following Swanson and Jayawickrema (2021), we extend the sample for all of these monetary policy announcements back to 1988, giving us a few more years of data during a period when monetary policy was more variable than in the 1990s, which increases the variation in our monetary policy surprise series further still.

Second, for this expanded set of high-frequency monetary policy surprises, we build on the work of Bauer and Swanson (2021) to remove the component that is predictable. Those authors present substantial evidence that the predictability is due to a "Fed response to news" channel, in which market participants underestimated how aggressively the Fed would respond to economic news (see also Cieslak, 2018; Schmeling et al., 2021). Thus, financial markets do not have full information and high-frequency monetary policy surprises are correlated *ex post* with information that pre-dates the FOMC announcements. Bauer and Swanson (2021) also show that controlling for the Fed response to news channel eliminates the "Fed Information Effect" puzzle documented earlier by Campbell et al. (2012) and Nakamura and Steinsson (2018). For the present paper, we cleanse our high-frequency monetary policy surprise data of Fed response to news effects by projecting out their predictable component to obtain a better measure of the exogenous variation in monetary policy. This improved measure of monetary policy shocks should help to eliminate any "price puzzles" or other "information effect" types of results in our estimates. Thus, we address Ramey's (2016) critique by also improving the measure of monetary policy shocks used in our analysis.

With this new empirical framework we answer the following questions: What do the estimated effects of monetary policy shocks on financial markets and the real economy look like once we fix the problems with high-frequency identification? Do the recently documented empirical puzzles in the macroeconomic responses disappear? What are the implications for the debate about central bank information effects and for the practice of monetary policy?

Outline

First, we introduce our empirical framework, including the extended set of monetary policy announcements based on Swanson and Jayawickrema (2021) and the calculation of monetary policy

shocks that are orthogonal to information pre-dating the announcements. In this context, we document strong predictability of high-frequency monetary policy surprises, extending the evidence in Bauer and Swanson (2021) and elsewhere and driving home the point that the usual assumption of exogenous monetary policy surprises in the literature is invalid. Furthermore, we provide evidence that this predictability is not driven by time-varying risk premia but rather by a failure of the Full Information Rational Expectations (FIRE) hypothesis, since survey forecast errors for the federal funds rate are also significantly predictable using the same pre-announcement information.

Second, we revisit the evidence for high-frequency effects of monetary policy announcements on financial markets (e.g. Kuttner, 2001; Bernanke and Kuttner, 2005; Gürkaynak et al., 2005), using our new measure of exogenous high-frequency monetary policy shocks. Event studies using the extended set of policy announcements provide estimates of the effects of monetary policy changes on stock, bond, credit, and foreign exchange markets.

Third, we apply our empirical framework to high-frequency identification of the effects of monetary policy in SVARs and local projections (LP). A focus of our empirical investigation is to revisit the SVAR and LP estimates of Gertler and Karadi (2015) and Ramey (2016). As part of this analysis, we investigate whether our improved measure of monetary policy shocks successfully addresses Ramey's (2016) critique of poorly estimated macro responses to monetary policy shocks.

Fourth and finally, we discuss implications of our results for monetary policy and central bank communication in practice. For example, we address the question of whether policymakers should be concerned about information effects or other effects that might attenuate or counteract the intended effects of montary policy announcements. We also discuss what our new estimates imply about the effectiveness of policy communication in speeches by the Fed chair vs. official communication by the FOMC itself.

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