MARKET REACTIONS TO MONETARY POLICY: New analysis of changing beliefs using data from Twitter

New research uses data from Twitter to measure the extent to which people's changing beliefs about the timing of tapering by the US Federal Reserve affect asset prices. The study by **Annette Meinusch** and **Peter Tillmann**, to be presented at the annual congress of the European Economic Association in Mannheim in August 2015, shows how the shift to a 'tapering soon' belief in 2013 led to a significant increase in long-term interest rates, falling share prices and persistent appreciation of the dollar.

Many market participants use their Twitter account to express their views on the future stance of monetary policy. The dataset analysed in this study covers the entire Twitter volume on Federal Reserve tapering in 2013. Based on the time series of beliefs about an early or late tapering constructed from Twitter messages, the authors estimate the responses of a change in tapering beliefs. They comment:

> 'Understanding market responses to the end of unconventional monetary policies is important. The usual problem of any study addressing sudden changes in beliefs is that we cannot usually see people's expectations, but this dataset allows us to track the evolution of market beliefs about monetary policy to the second.'

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What happens to financial markets when the music stops – that is, when central banks exit unconventional monetary policies? This is one of the main concerns facing central banks and market participants after years of exceptionally loose monetary policy.

Markets coined the term 'tapering' to describe the reduction of asset purchases by the Fed and the eventual end of quantitative easing (QE). When Federal Reserve Chairman Ben Bernanke first mentioned the possibility of reducing asset purchases, he triggered fears of a premature end of asset purchases and an earlier than expected increase in the federal funds rate.

This paper analyses the extent to which people's changing beliefs about the timing of tapering affect asset prices. The primary difficulty of any study addressing sudden changes in beliefs and their consequences is that individual beliefs about the future course of monetary policy are not observable.

This paper offers a new approach to identifying shocks to people's beliefs about monetary policy by using social media. The researchers use data from Twitter, the social media network for short text messages ('tweets' of no more than 140 characters). To the best of the authors' knowledge, Twitter data has not been used to study monetary policy before.

Many market participants use their Twitter account to express and disseminate their views on the future stance of monetary policy. The dataset covers the entire Twitter volume on Federal Reserve tapering in 2013. Based on the time series of beliefs about an early or late tapering constructed from Twitter messages, the study estimates the responses of a change in tapering beliefs.

The results show that ‘tapering soon’ belief shocks lead to a significant increase in long-term interest rates, a strong drop in share prices and a persistent appreciation of the US dollar.

A prototypical belief shock raises the share of all tweets considering an early tapering by six percentage points, leads to a four basis point increase in long-term yields and a 4% lower stock market index. The authors also derive measures of monetary policy uncertainty and disagreement of beliefs, respectively, and estimate their impact.

The advantage of using Twitter data for research purposes is that (1) users not only receive information but can actively share information, (2) tweets reflect personal views of market participants, (3) tweets can be used to extract not only a consensus view on policy, but also the degree of uncertainty and disagreement about policy, respectively and (4) Twitter users can respond immediately to news about policy such as Bernanke’s testimony and also to other Twitter users’ contributions.

The dataset allows the authors to track the evolution of market beliefs about monetary policy up to the second.

Understanding market responses to exiting from unconventional monetary policies is important. Not only is the Fed about to exit gradually from unconventional monetary policy, but the Bank of England and, at some point in the future, the Bank of Japan and the European Central Bank are all on the brink of similar exits from unconventional monetary policies.

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Unconventional Monetary Policy and Tapering Uncertainty: Evidence from Twitter
Annette Meinusch and Peter Tillmann