Journal of Macroeconomics 34 (2012) 404–418

Contents lists available at SciVerse ScienceDirect

Journal of Macroeconomics

journal homepage: www.elsevier.com/locate/jmacro

Asymmetric response to monetary policy surprises at the long-end of the yield curve

Selva Demiralp *, Kamil Yılmaz

Department of Economics, Koc University, Turkey

ARTICLE INFO

Article history:
Received 2 September 2011
Accepted 2 March 2012
Available online 28 March 2012

JEL classification:
E44
E52

Keywords:
Asymmetric monetary policy
Yield curve
Federal funds futures

ABSTRACT

This paper investigates the responsiveness of asset markets to monetary policy path revisions. Using federal funds futures contracts to extract near-term path revisions, we find that the responsiveness of longer term Treasury securities to path revisions is significantly asymmetric, the magnitude of which increases during tightenings and decreases during easings. These findings blend nicely with the earlier literature that documents asymmetric effects of monetary policy on output.

1. Introduction

In this paper, we analyze the responsiveness of asset markets to revisions in near-term monetary policy expectations. By investigating the sensitivity of asset markets to monetary policy surprises beyond the current month, we detect a stronger reaction to policy actions at the longer-end of the yield curve, consistent with the rational expectations hypothesis. More importantly, we are able to document an asymmetry where the responsiveness of longer term securities is significantly stronger during times of tightenings relative to times of easings.

The responsiveness of asset markets to monetary policy actions has been a popular topic of investigation. A common finding in these studies is a general decline in the effectiveness of monetary policy at the longer horizons of the yield curve (see e.g. Cook and Hahn, 1989; Roley and Sellon, 1995; Kuttner, 2001; Demiralp and Jorda, 2004; Gurkaynak et al., 2005). By pointing to an asymmetric response of the asset markets to monetary policy actions, we illustrate that the decline in the responsiveness to monetary policy along the yield curve is much more muted during tightening periods.

Our findings tie together the literature on the monetary policy and the yield curve to the studies that detect an asymmetry in the effectiveness of monetary policy in influencing output (see e.g. De Long and Summers, 1988; Cover, 1992; Morgan, 1993). We supplement our results by providing a dynamic analysis of the responsiveness of asset markets to monetary policy path revisions. The dynamic analysis underlines the evidence of an asymmetry where the responsiveness of longer term yields follows the policy changes.

* Corresponding author. Address: Koc University, Department of Economics, Rumeli Feneri Yolu, Sariyer, Istanbul 34450, Turkey. Tel.: +90 212 338 1842; fax: +90 212 338 1393.

E-mail addresses: sdemiralp@ku.edu.tr (S. Demiralp), kyilmaz@ku.edu.tr (K. Yılmaz).

0164-0704/$ - see front matter © 2012 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.jmacro.2012.03.001

The rest of the paper is organized as follows: In the next section we provide a brief literature review on the anticipation effect in asset markets and provide a perspective on the issue. Section 3 presents the empirical results while Section 4 concludes. Appendix A explains the methodology of calculating policy path revisions based on federal funds futures contracts.

2. Anticipation effect in asset markets

Under the current interest rate targeting regime, the textbook description of the monetary transmission mechanism starts with a change in overnight interest rates which leads to consequent changes in longer term interest rates through the term structure relationship, and changes in the equity prices through the Gordon equation by changing expected returns.

What is missing in this textbook description is the asset markets' response to expected monetary policy actions before the policy decision is announced. Evidence of this type of an "anticipation effect" in Treasury markets has been documented in several studies where market rates are found to respond to monetary policy actions in the period prior to a target change (see e.g. Kuttner, 2001; Lange et al., 2003; Gurkaynak et al., 2005). Meanwhile, Carpenter and Demiralp (2006a) documented an anticipation effect in the federal funds market in the days prior to a target change, despite the close control by the Trading Desk. Bernanke and Kuttner (2005) documented an anticipation effect in equity markets. The common understanding in all these studies is that asset markets respond to anticipated policy prior to the policy event and they only respond to the unexpected (or the surprise) component following the event.

In this paper, we illustrate an asymmetry in the anticipation effect. Using a near-term measure for policy expectations, we quantify the asset markets' response to anticipated policy actions 6 months into the future. To that end, we consider a methodology to form market expectations based on federal funds futures contracts. Using this methodology, which is an extension of the technique described by Kuttner (2001), we compute the unanticipated component of target changes that are related to the current policy action and changes (or revisions) in the policy path in the upcoming 6 months. This measure of policy path revisions allows us to identify a strong asymmetry in the responsiveness of the longer term Treasury securities to policy surprises which cannot be detected if unanticipated policy actions are measured for horizons less than 6 months.

We find that the asset markets' responsiveness to path revisions are uniformly larger relative to their responses to the current month's policy surprise. This is an intuitive result because path revisions provide more forward looking information which is more relevant than the current month's policy surprise over the duration of a financial contract. This should not be interpreted as current policy actions are becoming secondary but that their influence comes earlier when investors build in expectations of those actions.

3. Empirical analysis

3.1. A closer look at policy surprises

Appendix A (available in the working paper version of this paper) describes our methodology of calculating policy surprises on the day of an FOMC meeting or an intermeeting change as well as for each month into the future (up to 6 months). Furthermore, we calculate the revisions in the expected policy path which are constructed as average surprise series over a particular time frame.

The intuition behind the generation of these path revisions is as follows: Federal funds futures price for a particular month reflects the average expected funds rate for that month. The 1-day change in the federal funds futures contract price on the day of a policy action primarily reflects market participants' revisions about the expected funds rate for that month. Weighting these revisions with the number of days left in the month allows us to obtain policy surprises in each month. Once the policy surprises are derived in this manner, path revisions are obtained by averaging these surprise series over a particular period.

Table 1
Average policy surprises.

	Full sample	Tightenings	Easings	No change
Surprise 1	−0.02*	0.02*	−0.08*	0.00
Surprise 2	−0.01*	0.01*	−0.06*	0.00
Surprise 3	−0.01*	0.01	−0.08*	0.00
Surprise 4	−0.02*	0.01	−0.08*	0.00
Surprise 5	−0.02*	0.02*	−0.08*	−0.01
Surprise 6	−0.01*	0.03*	−0.08*	0.00
Revision 3	−0.01*	0.02*	−0.07*	0.00
Revision 6	−0.02*	0.02*	−0.07*	0.00
Number of obs.	179	31	43	105

Surprise i refers to the unanticipated policy action for the ith month in the future. Revision i refers to the i-month path revision which is the weighted average of the individual surprise series for a particular i-month horizon.

* Sample mean is significantly different from zero at 95% level of confidence.