Expected monetary policy and the dynamics of bank lending rates

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In this paper we explore empirically to what extent expected monetary policy matters for the dynamics of bank lending rates in the U.S. and in the U.K. Based on endogenously determined break points, we document a number of structural breaks in the relationship between expected policy and retail interest rates. We find that banks have increasingly behaved in a forward-looking fashion by taking expected changes in monetary policy rates into account. Overall, our results provide support for the hypothesis that monetary policy has become more effective by successfully influencing private sector expectations.

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1. Introduction

The effectiveness of monetary policy is closely related to the extent to which expectations of the private sector can be influenced. Goodfriend (1991) argues that monetary policy manages to influence long-term interest rates not just by adjusting the target for current short-term rates, but also – and perhaps even more importantly – by influencing the expectations of the path of future short-term rates, as this is a major determinant of long-term interest rates. Put differently, the more credible and predictable monetary policy is, the more effective it should be. Along these lines, Woodford (2003) argues that policy inertia strongly increases predictability and thereby fosters the effectiveness of monetary policy. Moreover, Lubik and Marzo (2007) emphasize that interest rate inertia is an important prerequisite for equilibrium determinacy.

Motivated by these theoretical arguments, we analyze empirically to what extent banks take expected monetary policy into account when setting retail lending rates in the U.S. and the U.K. We focus on bank lending rates as they are important determinants of financing conditions (Borio & Fritz, 1995) and therefore represent a central element of the monetary transmission mechanism.

Starting with Cottarelli and Kourelis (1994), a large literature argues that fluctuations in money market rates are only partially and slowly passed through to bank retail rates. Nevertheless, if retail interest rates respond not only to the current stance of monetary policy but also to expected monetary policy actions, then the pass-through from monetary policy rates to retail rates might be faster, as banks react to some extent even before monetary policy is fully adjusted. Consequently, the overall extent to
which changes in monetary policy are passed through to retail rates may be larger and monetary policy may be more effective in influencing aggregate demand and inflation.

Our empirical model is based on the literature on interest rate pass-through (see e.g. De Bondt, 2005; Gambacorta, 2008; Mojon, 2000; Sander & Kleimeier, 2004; Sander & Kleimeier, 2006). We essentially augment a pass-through estimation equation with the expected, future policy rate and estimate the resulting forward-looking relationship using the Generalized Method of Moments (GMM). Since predictability and credibility, and thus the extent to which expectations should matter may change over time, we also contribute to the literature by analyzing how the extent to which expectations matter for the pass-through to lending rates has evolved over time. To do so, we test for known as well as unknown break points in our estimation equation using the methodology advocated by Hall and Sen (1999).

We find that expected changes in monetary policy rates influence bank lending rates in the U.S. and the U.K. Moreover, the impact of expected policy changes has increased over time. The break points after which expected monetary policy was passed on to a greater extent to lending rates, correspond closely to regime switches in monetary policy identified by Clarida, Galí, and Gertler (1998) and Assenmacher-Wesche (2006). Thus, we conclude that along with the switch to more active monetary policies, banks have taken expected policy into account to a greater extent. Since one would expect that banks are more likely to adjust retail rates, if they believe that a change in monetary policy rates will not be reversed for a period of time, unless warranted by a change in conditions, our estimation results are consistent with the interpretation that monetary policy is increasingly perceived as predictable and also credible.

Overall, we conclude that banks have transmitted changes in policy rates to lending rates to a greater extent, which is at least partly due to an increased influence of expected changes in future money market rates. These results suggest that monetary policy has become more effective by influencing private sector expectations to a greater extent.

Our analysis is related to several strands of the literature: Banerjee, Bystrov, and Mizen (2010) also study the pass-through from expected monetary policy to different types of retail rates. They conclude that empirical models of the pass-through that do not account for expectations, are misspecified. Our analysis differs from this contribution mainly along two dimensions: First, while we impose rational expectations and apply GMM estimation, Banerjee et al. (2010) calculate predicted values of the future policy rate based on a number of forecasting models and include these predicted values as explanatory variables in their estimation equation. Second, while Banerjee et al. (2010) are primarily interested in providing a detailed characterization of the price-setting behavior of financial institutions, our focus is on the interaction between the interest rate pass-through and the conduct of monetary policy.

Sander and Kleimeier (2006) distinguish between expected and unexpected changes in monetary policy and study the implications for the pass-through to retail rates. In contrast to their paper, our analysis focuses on the degree to which banks incorporate future changes in monetary policy into their pricing decisions.

And finally, our paper is also related to Kuttner (2001), Gürkaynak et al. (2005) and Gürkaynak et al. (2007) who study the role of expected monetary policy. Kuttner (2001) uses data from the Federal funds futures market and finds that longer-term market interest rates respond significantly only to unanticipated changes in the target Federal Funds rate. Gürkaynak et al. (2005) provide empirical evidence suggesting that not only the current Federal Funds rate target, but also the future path of monetary policy affect stock prices and long-term interest rates. Moreover, Gürkaynak et al. (2007) evaluate the ability of financial market instruments to proxy expectations of future monetary policy (see also Piazzesi & Swanson, 2008, who discuss the effect of risk premia in this context.) While these papers study the responses of market interest rates and asset prices to changes in monetary policy, we focus on the effect on bank lending rates.

The remainder of the paper is organized as follows: Section 2 outlines the empirical model and the data we use to assess the role of expectations in the price setting of banks. Section 3 presents our estimation results. Finally, Section 4 summarizes and concludes the paper.

2. Empirical strategy and data

Our analysis is based on the following equation for the dynamics of the lending rate:

\[ \Delta LR_t = \alpha + \beta E \left( (MR_{t+k} - MR_t) | \Omega_t \right) + \sum_{i=0}^{m} \delta_i \Delta MR_{t-i} + \sum_{j=1}^{n} \gamma_j \Delta LR_{t-j}, \]

where \( LR_t \) and \( MR_t \) denote the retail lending rate and the monetary policy rate, respectively. \( E \) is the expectation operator, \( \Omega_t \) is the information set at time \( t \) and \( \Delta \) is the difference operator. Hence, we postulate that a change in the retail lending rate at time \( t \) is determined by the expected change of the monetary policy rate between \( t \) and \( t+k \), the current change in the policy rate, \( m \) lagged changes of the policy rate and \( n \) of its own lags.

Eq. (1) is closely related to the equations estimated in the empirical literature on the interest rate pass-through, which studies the extent to which retail interest rates respond to changes in market interest rates. A typical result in this literature is that retail rates are sticky with respect to money market rates. Put differently, changes in money market rates lead to a less than one-to-one change in retail interest rates. Theoretically, it is not entirely clear why retail interest rates are sticky to a certain extent. 

\footnote{GMM estimation has been fruitfully applied to a number of forward-looking, macroeconomic relationships, such as Taylor rules (see e.g. Clarida et al., 1998) and the New Keynesian Phillips curve (e.g. Gall, Gertler, & López-Salido, 1999).}
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