Central bank reserves and interbank market liquidity in the euro area

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1. Introduction

The crucial role played by the money market as regards the continuation of payment flows (and ultimately lending to the economy) became obvious with the 2007–2012 financial crisis. As the recent experience has demonstrated, financial distress in the money market may lead to a breakdown of interbank transactions while prolonged illiquidity can rapidly damage banks’ solvency. Central banks thus carefully monitor the well-functioning of the money market since this appears of the utmost importance to the functioning of the real economy. In this context, the European Central Bank (ECB) has always been concerned about the well-functioning of the interbank market. From a monetary policy perspective, the overnight rate is crucial for the conduct of monetary policy. It is also the rate that may get disconnected from the benchmark rate if the interbank market is not efficient enough. Therefore, the ECB has been keenly aware of developments in the interbank market and has always been ready to act to ensure its smooth functioning. In this context, the introduction of the Securities Market Programme (SMP) in 2012 was a clear indication of the ECB’s commitment to ensuring the well-functioning of the monetary transmission mechanism. In particular, it demonstrated the ECB’s ability to provide liquidity and thus support market operations and the functioning of the interbank market when and where it is needed. This approach has been further refined with the introduction of the Targeted Long-Term Refinancing Operations (TLTROs) in 2014, which aimed at providing more targeted funding to the banks that were most in need of liquidity support. These operations were designed to be more transparent and predictable than previous interventions, which should help to reduce the uncertainty and volatility in the interbank market. However, the success of these operations depends on the ability of the interbank market to absorb the liquidity provided by the ECB and to respond to the changing needs of banks. This paper aims to contribute to this debate by examining the speed of mean reversion of market liquidity, by affecting the level and the volatility of the overnight market rate, also affects the anchoring of the yield curve in the euro area.
importance to ensure the smooth transmission of monetary policy signals along the yield curve. In this context, this paper analyses the ability of the overnight segment to provide stable liquidity conditions (and hence, to guarantee the ability to trade) to market participants in both normal and stress periods.\footnote{Market liquidity traditionally has three dimensions: tightness (transaction costs), depth, and resiliency. The latter, on which this paper focuses specifically, captures the temporal dynamics of its first two dimensions (see, e.g., Kyle, 1985).}

In the euro area, monetary policy decisions are implemented according to precise rules\footnote{See ECB (2011).} which design the so-called operational framework for the monetary policy of the Eurosystem. Following a market-oriented approach, these rules aim notably at creating an active money market between the refinancing operations of the European Central Bank (ECB). The Eurosystem’s operational framework therefore creates strong incentives to encourage credit institutions to manage their reserves directly through the interbank market with a view to ending the maintenance period in a balanced position. In this respect, the overnight segment of the euro area money market plays an essential role since it connects cash-poor banks to cash-rich counterparties to meet their short-term liquidity needs between the refinancing operations of the ECB. Against the backdrop of the financial turmoil that started in the summer 2007 over which the volume exchanged in the interbank market decreased markedly, the ability of this market to guarantee the timely provision of unsecured funds under quiet and more stressful conditions therefore takes on particular importance.

The aforementioned considerations explain why central banks stand ready to take the necessary measures to guarantee a well-functioning money market should temporary or permanent market disturbances arise (e.g., in case of financial distress). In the specific case of the ECB, various events support this view over the sample considered in this paper. On the one hand, a new design of the operational framework was introduced in March 2004 to address the persistent volatility of the overnight interest rate. On the other hand, the financial turmoil episode has triggered increased interventions by the ECB through a series of 1-day fine-tuning operations to provide additional central bank reserves to the banking sector. This paper therefore focuses on two particular issues. First, we examine how the operational framework interacts with the speed of mean reversion of money market liquidity. Second, we explore the role played by the resilience of market liquidity in the transmission of the monetary policy stance to money market interest rates.

In a number of recent papers, the speed of convergence to stable liquidity conditions has been inferred from the number of quote updates required for transaction costs or market depth to return to their pre-shock levels (Degryse et al., 2005; Wuyts, 2012) or from the probability that liquidity is restored before the occurrence of a new transaction (Foucault et al., 2005). In the mean reversion framework set up in Kempf et al. (2009), this temporal dimension of market liquidity can be quantified, which opens the way for new investigations of its dynamics over time or across assets. Examinations of the resilience of order book liquidity nevertheless form the most significant part of the literature, which mostly focuses on the stock market.\footnote{For further details, see in particular Gomber et al. (2004) or Kempf et al. (2009) on the German Xetra stock market, Degryse et al. (2005) at Paris Bourse, or Large (2007) on SETS at the London Stock Exchange.} The speed of mean reversion of liquidity parameters under other market configurations, like in the money market where utilitarian motivations dominate other motivations to trade, nevertheless remains an open question.

Against this background, our contribution to the literature is essentially twofold. First, we check whether the central bank can interfere with market liquidity in a way that makes the money market more (or less) attractive to credit institutions to meet their needs for short-term funds. More specifically, we examine how the design of the operational framework for the implementation of monetary policy decisions affects the speed of reversion of transaction costs and market depth to their equilibrium levels. In particular, we assess the stability of resiliency over time and look for evidence of non-linear liquidity adjustments in the overnight segment of this market. We notably report that while resiliency drops markedly as banks face increasing pressures for balancing their reserves in the unsecured overnight market, the introduction of the current design of the operational framework in March 2004 leads to faster mean reversion of spreads and depth. Second, we show how the time-varying speed of mean reversion in market liquidity, by impacting the level and the volatility of the overnight
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