

15 January (in which €10.5 billion was allotted) and a three-month LTRO on 30 January (in which €3.7 billion was allotted). Moreover, since 30 January counterparties have the option to voluntarily repay before maturity, on a weekly basis, funds borrowed in the three-year LTRO allotted on 21 December 2011. As of 1 February, €140.6 billion was repaid (see Box 3).

The Eurosystem also conducted four one-week liquidity-absorbing operations as variable rate tender procedures with a maximum bid rate of 0.75% on 15, 22 and 29 January and 5 February. With these operations, the Eurosystem fully absorbed the liquidity associated with bond holdings under the Securities Markets Programme.

After reaching historical record levels during the second quarter of 2012, excess liquidity further declined during the first maintenance period (from €621.4 billion to €558.4 billion). This development mainly reflected the start of repayments of the first three-year LTRO funds on 30 January. While average daily recourse to the deposit facility decreased to €191.9 billion, from €238.4 billion in the previous maintenance period, current accounts in excess of reserve requirements decreased on average from €383 billion to €366.5 billion.

**Box 3****EARLY REPAYMENT OF FUNDS RAISED THROUGH THREE-YEAR LONGER-TERM REFINANCING OPERATIONS: ECONOMIC RATIONALE AND IMPACT ON THE MONEY MARKET**

This box recalls the modalities for the early repayment of funds raised through three-year longer-term refinancing operations (LTROs) and discusses both the economic rationale for early repayment decisions and the impact of early repayment on euro area money markets.

As part of the non-standard measures aimed at both forestalling a curtailment of credit and ensuring that the ECB's monetary policy would be transmitted effectively to the real economy, the ECB decided, as announced on 8 December 2011, to conduct two additional LTROs, each with a maturity of three years. The first of these operations was settled on 22 December 2011, and the second on 1 March 2012. In order to increase the attractiveness of the operations, counterparties were given the option to repay the amounts obtained from the Eurosystem, either in part or in full, on a weekly basis starting after approximately one year. In conjunction with the feature of the interest rate being indexed, over the life of the respective operation, to the average rate for main refinancing operations (MROs), the three-year LTROs could thus be considered, from the perspective of Eurosystem counterparties, as being equivalent to two one-year operations with an option to extend their maturity to up to three years.

The difficult funding situation faced by many euro area banks at the time the operations were conducted and the interest rate of the operation, which was attractive in comparison with corresponding prevailing market rates, e.g. those for three-year secured lending, together with the optional features,<sup>1</sup> led to significant demand in both operations. The first operation attracted bids from 523 counterparties, for around €489.2 billion (including transfers of €45.7 billion from

<sup>1</sup> See the box entitled "Impact of the two three-year longer-term refinancing operations" in *Monthly Bulletin*, ECB, March 2012.

the one-year LTRO allotted in October 2011). The volume of the second operation was even larger, attracting bids from 800 counterparties, for around €529.5 billion. Overall, the allotments in both operations resulted in a net increase of around €480 billion in the Eurosystem's liquidity provision.

### How does early repayment work?

Counterparties have the option to repay any part of the amounts they have been allotted in the operations, on any day that coincides with the settlement day of an MRO. Counterparties must inform their respective national central bank, giving one week's notice, of the amount they wish to repay. The first three-year LTRO could be repaid as of 30 January 2013 and the second as of 27 February 2013. At 12 noon on the last business day of each week, the ECB announces the total amount that will be repaid and the number of counterparties repaying each LTRO in full or in part is published the following week.

In line with this procedure, counterparties had a first opportunity on 30 January to return the funds they had obtained in the first three-year operation. On Friday, 25 January, the ECB announced the sum total of all intended repayments: 278 counterparties opted to repay €137.2 billion.<sup>2</sup> One week later, on 6 February, an additional €3.5 billion was returned by 27 counterparties.

### Economic factors behind early repayment decisions

There are various factors that drive counterparties' decisions to pay back three-year LTRO funds early. The most important is that euro area banks' access to funding markets has improved considerably since December 2011, even though funding conditions continue to vary across jurisdictions. Many euro area credit institutions are again able to place senior unsecured and secured bonds in the market, as is evidenced by the significant increase in issuance activity in the second half of 2012. The widespread funding uncertainty prevailing a year ago, which had prompted a large-scale precautionary take-up of the longer-term funding, has diminished considerably in the meantime. Banks' decisions to pay three-year LTRO funds back at this point in time are also driven by the following general factors. First, a widespread tendency to return to a more conservative funding model has led to a reduced overall reliance on funding raised on capital markets and to a relative increase in funding sources that are deemed to be more stable, such as retail deposits. Second, euro area banks are still in the midst of a process of balance sheet adjustment, which is generally associated with less rapid growth, or even a decline of the size of balance sheets, thereby reducing their funding needs.<sup>3</sup> Third, some counterparties appear to have opted for early repayment to signal improvements in their individual funding conditions.

Bank refinancing costs are highly bank-specific and are also, as long as financial market fragmentation persists, driven by country-specific factors. Currently, the cost of 75 basis points for three-year funds still remains very attractive for a large proportion of the euro area credit institutions. For example, the yield on the bulk of euro area bank bonds in the two-year segment is typically in the range of between 1% and 3%. However, not least following recent improvements

<sup>2</sup> See the ECB's website at [www.ecb.europa.eu](http://www.ecb.europa.eu), or the ECB's pages on Bloomberg and Reuters.

<sup>3</sup> See, for example, Special Feature A, entitled "EU bank deleveraging – driving forces and strategies", in *Financial Stability Review*, ECB, June 2012.

in banks' funding conditions, a sizeable proportion of the euro area banks is currently able to refinance at conditions that are more favourable than those offered by the three-year LTROs. Overall, as refinancing through the outstanding LTROs remains more attractive than that through market-based funding for large parts of the euro area banking system, the pace of further early repayments should be limited.

### Impact on euro area money markets

Since the introduction of fixed rate tenders with full allotment in October 2008, short-term money market rates in the euro area have been influenced by varying degrees of excess liquidity. The fixed rate full-allotment procedure allows banks to obtain as much funding as they desire in all liquidity-providing operations of the Eurosystem. Banks' aggregate demand for central bank liquidity usually exceeds their aggregate liquidity needs as it also includes, among other elements, a precautionary reserve against liquidity shocks. The emergence of such reserve holdings, which replace a fully functioning interbank money market, leads to excess liquidity, defined as the amount of central bank reserves demanded by banks in excess of their needs, which are given by reserve requirements and autonomous factors. These precautionary holdings become particularly pronounced when banks face widespread funding stress.

Excess liquidity can also be considered to be a shift in the probability of each individual bank ending the day with recourse to the deposit facility – rather than with no net recourse to the standing facilities in the case of balanced liquidity conditions. Thereby, excess liquidity causes short-term money market rates to decline and, with the increasing probability of end-of-day recourse to the deposit facility, to also approach the interest rate on the latter. More specifically, large amounts of excess liquidity have caused the average level of short-term money market rates to be set at a small margin above the deposit rate, i.e. significantly below the interest rate applied in MROs.

The large allotment volumes of the two three-year LTROs resulted in the level of excess liquidity rising to around €775 billion in the maintenance period of March 2012, up from €258 billion during the maintenance period of November 2011. Therefore, the two three-year LTROs can be considered to have been a key driver of excess liquidity since December 2011. The increase in excess liquidity, in turn, was associated with overnight rates trading very close to the rate of the deposit facility (see Chart A below for a scatter plot showing the relationship between the EONIA and the level of excess liquidity per maintenance period).

Each point in Chart A represents the average amount of excess liquidity, as well as the associated average spread between the EONIA and the MRO rate in a given maintenance period over the period from January 2007 to January 2013. The spread between EONIA and the MRO rate is bounded by the width of the interest rate corridor, as the EONIA should normally not exceed the rate on the marginal lending facility, nor should it trade below the rate on the deposit facility. For this reason, it is important to consider the prevailing width of the interest rate corridor in each maintenance period, and the observations have been marked accordingly.

The relationship between the level of excess liquidity and the EONIA depends on several factors that go beyond the pattern presented in Chart A. For example, the degree of money market segmentation has an upward influence on the threshold from which the EONIA starts to trade at levels very close to the deposit facility rate. The higher the money market segmentation

(or the higher the financial market stress), the higher is this threshold. This can be seen in Chart A, from the maintenance periods throughout the fourth quarter of 2011. During that period, euro area financial markets were subject to particularly severe stress, leading to a situation in which, even with rather high levels of excess liquidity, the EONIA traded at a higher margin over the deposit rate than would otherwise have been the case in periods of lower financial stress.

In general, it holds that once excess liquidity passes a certain threshold, very short-term money market rates essentially move in parallel with the rate of the deposit facility. A visual assessment of the distribution in Chart A would place this threshold somewhere between €100 and €200 billion (shaded in yellow).

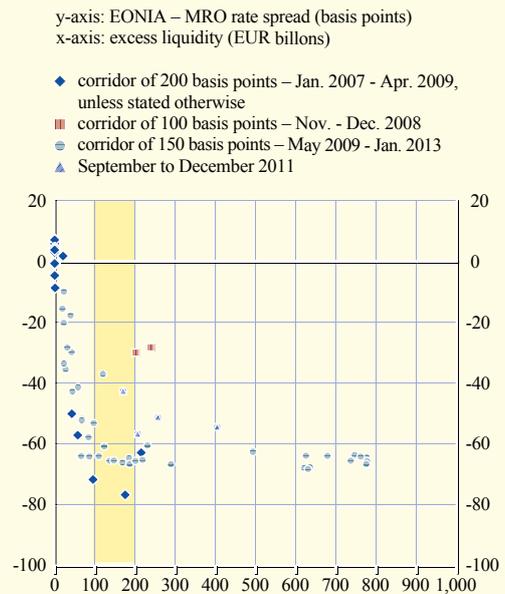
Moreover, the relationship depends on expected levels of excess liquidity in the period under consideration, because the minimum reserve averaging-provision links the days of every maintenance period to each other. Furthermore, the allotment of the two three-year operations led to a significant decline in forward EONIA rates across a wide range of maturities, as it affected market expectations of future levels of excess liquidity, given the “lock-in” of sizeable amounts of excess liquidity for a period of at least one year.

The early repayments of three-year LTRO funds has reduced excess liquidity to some extent and may contribute to a further reduction of expectations of excess liquidity. However, repayment volumes remain too low to significantly affect short-term money market interest rates at present.

Average expected EONIA rates in the months ahead rose sharply after the announcement of the first repayments on 25 January 2013 (see Chart B). The pronounced market reaction suggests that a scenario is starting to be priced into forward short-term money market rates in which excess liquidity could decline towards the threshold values associated with rising short-term money market rates.

There are, however, several factors that speak against such a scenario of sharply increasing short-term money market rates. First of all, current levels of excess liquidity remain rather high. Significant additional repayment flows would be needed for tangible effects on short-term money market rates to materialise. However, market expectations of future repayment flows are still below those that would be required to trigger significant upward moves in very short-term money market rates. Second, the fixed rate tender procedure will remain in place for all operations at least until June

**Chart A Relationship between the EONIA-MRO spread and average excess liquidity per maintenance period**

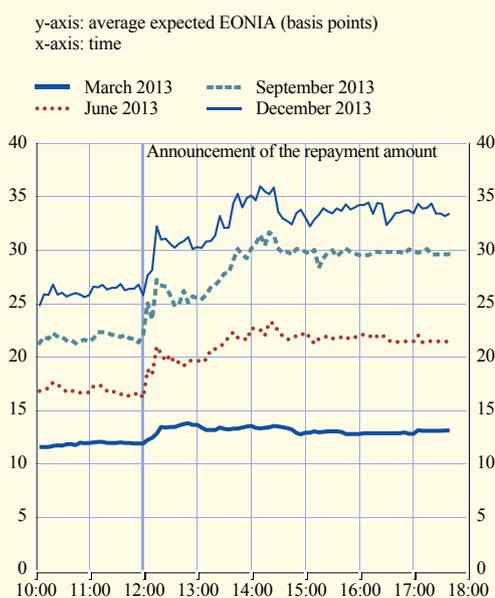


Source: ECB.

this year. This should contribute to smoothing increases in short-term money market rates that are due to spikes in repayment volumes. Finally, significant repayment volumes are likely to be linked to further improvements in financial market conditions. Such improvements reduce the level of excess liquidity needed to closely align short-term money market rates with the rate on the deposit facility. Thus, improving financial market conditions should, all other things being equal, lead to lower short-term money market rates for any given level of excess liquidity.

To sum up, counterparties have so far repaid €140.6 billion of the €489.2 billion obtained in the first of the two three-year LTROs. These amounts reflect continued improvement in financial market confidence. Repayments are provided for in the modalities of the three-year LTROs and are at the discretion of the counterparties, who must appropriately assess their funding situation, their ability to provide new loans to the economy and their resilience to shocks. The ECB will closely monitor conditions in the money market and their potential impact on the stance of monetary policy, which will remain accommodative with the full allotment mode of liquidity provision.

**Chart B Average expected EONIA rates, by maintenance period, around the time of the announcement of the first repayment on 25 January**



Sources: Reuters and ECB calculations.

## 2.4 BOND MARKETS

Between 2 January and 6 February, yields on AAA-rated euro area long-term government bonds and US long-term government bond yields rose by 16 and 12 basis points respectively. For most of the review period, market sentiment was positive, driven by several factors such as the strong demand observed at recent auctions for the sovereign debt of some of the euro area countries under financial stress, the temporary agreement on the fiscal debt ceiling in the United States and the early repayments of funds raised through the three-year longer-term refinancing operations conducted by the ECB one year ago. However, towards the end of the period under review, market sentiment reversed somewhat amid a perceived increase in uncertainty in some euro area countries. Uncertainty about future bond market developments, as measured by implied bond market volatility, increased slightly. Market-based indicators continue to suggest that inflation expectations remain firmly anchored in line with price stability.

Between 2 January and 6 February, AAA-rated long-term euro area government bonds and US long-term government bond yields increased by 16 and 12 basis points respectively. Consequently, the nominal interest rate differential between ten-year government yields in the United States and those in the euro area narrowed by around 4 basis points (see Chart 11). Yields on Japanese sovereign long-term bonds remain broadly unchanged at levels close to 0.8%.