see Box 4). While average daily recourse to the deposit facility decreased to €90.5 billion, down from €114.5 billion in the previous maintenance period, average current account holdings in excess of reserve requirements decreased from €217.3 billion to €195 billion. On 3 July, during the sixth maintenance period of the year, excess liquidity further declined to stand at €267.2 billion, owing to an increase in the liquidity absorbed by autonomous factors and the early repayment of funds.

Box 4

EARLY REPAYMENTS OF FUNDS RAISED THROUGH THREE-YEAR LONGER-TERM REFINANCING OPERATIONS: DEVELOPMENTS SINCE FEBRUARY 2013

Since 25 January and 22 February 2013 counterparties have been able to make early repayments of funds obtained in the first and second three-year longer-term refinancing operations (LTROs) respectively. Box 3 in the February 2013 issue of the Monthly Bulletin described in detail the modalities for, and the market reaction to, the first repayments.[1] This box describes the Eurosystem's experience with early repayments so far and briefly discusses new evidence concerning banks' motives behind early repayment decisions, including repayments of the second LTRO funds. The box also provides an analysis of the impact of repayments on conditions in euro area money markets since March 2013 by gauging the effects of repayment flows on excess liquidity and EONIA forward rates.

Repayments between 25 January and 27 June 2013

Since 25 January 2013 banks have had the option of repaying funds borrowed in the three-year LTROs on a weekly basis. Out of a total of €1,018.7 billion borrowed in the two three-year LTROs, aggregate repayments between 25 January and 27 June 2013 amounted to €205.8 billion and €101.7 billion from the first and second three-year LTROs respectively. This reflects an early payback of about 59% of the initial net injection of central bank liquidity in the market.[2]

As the size of the two operations differed by only €30 billion, the larger repayments of funds from the first LTRO appear to mainly reflect a preference to retain funds with higher remaining maturity; this factor is of particular relevance for counterparties that obtained funds in both operations.

Economic factors behind early repayment decisions: further evidence

Repayment decisions have been affected by general trends in market-based funding conditions across Member States as well as by bank-specific factors. In order to shed more light on the latter, the ECB conducted a survey among a sample of counterparties that had borrowed in the three-year LTROs. The results are in line with the preliminary assessment of the economic factors driving early repayment decisions as set out in Box 3 in the February 2013 issue of the Monthly Bulletin. According to the new survey evidence, banks predominantly based their repayment decisions on considerations relating to their funding position, which has improved

1 See the box entitled "Early repayment of funds raised through three-year longer-term refinancing operations: economic rationale and impact on the money market" *Monthly Bulletin*, ECB, February 2013.

2 The initial net injection is computed as the difference between the increase in liquidity provision under the LTROs and the decrease of liquidity provision under the other operations (especially the main refinancing operations).

in line with the better conditions in euro area financial markets that have been observed since mid-2012. In the survey, the majority of the banks that repaid (in full or in part) mentioned the availability of competitive market funding and the need for lower liquidity buffers as their main reasons for repayment. Furthermore, banks that did not repay stated that the attractiveness of Eurosystem financing in terms of pricing, or simply the desire to maintain liquidity buffers, were their main reasons for retaining the funds obtained in the LTROs.

Motivations related to signalling of financial strength seem to have played only a minor role in banks' repayment decisions, according to the survey. This evidence underscores the success of the LTROs as an effective measure to support bank lending and liquidity in the euro area money market.

Impact on euro area money markets

The overall increase in excess liquidity due to the funds allotted under the two operations has contributed to keeping very short-term money market rates at a small margin above the deposit rate. Excess liquidity stood on average at €258.1 billion in the maintenance period of November 2011, just before the first three-year LTRO was allotted, and increased to €775.6 billion in the maintenance period of March 2012, immediately after the second three-year LTRO was allotted.

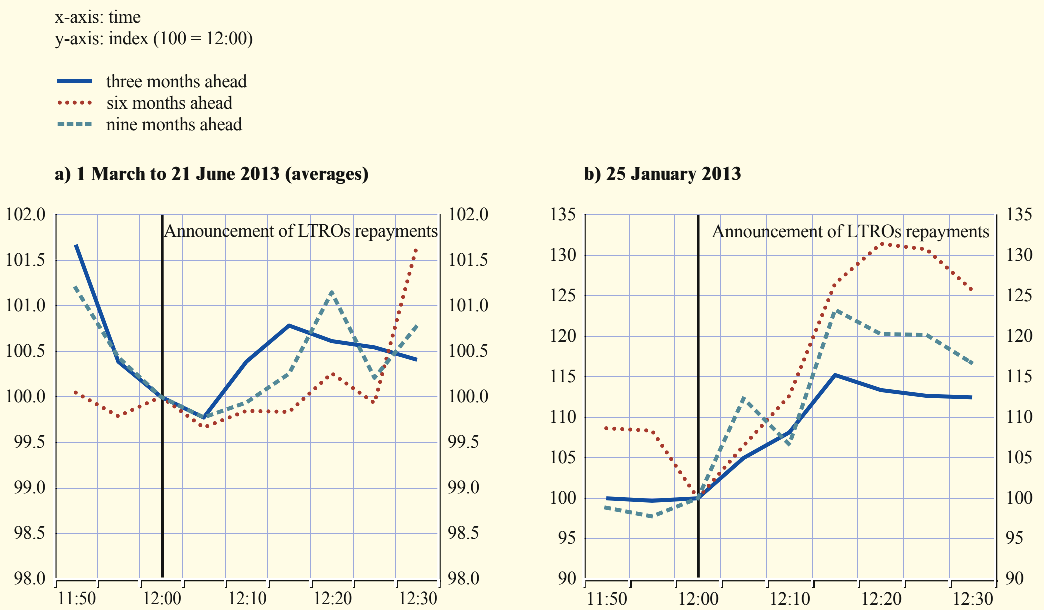
In general, if excess liquidity remains above a certain threshold, estimated to be in the range of €100 billion to €200 billion, short-term money market rates are expected to stay slightly above the deposit rate.[3] Given the importance of the three-year operations for the overall level of excess liquidity, early repayments could therefore be expected to have a potential to change market expectations of future excess liquidity and thereby affect the money market term structure.

The announcement of the first repayments on 25 January 2013 was a case in point. While markets expected repayments of around €100 billion, actual repayments were €137.2 billion. As a consequence, average expected EONIA rates in the months ahead rose sharply. Moreover, due to the non-linearity of the relationship between excess liquidity and EONIA, relatively small changes in expected weekly repayments can trigger a significant steepening of the money market forward curve. Indeed, the reaction to this larger than expected repayment suggested that markets had interpreted the event as indicative of a faster than expected early repayment schedule going forward. Such faster than expected repayments were associated with rising expected short-term money market rates as the volume of excess liquidity was seen as declining faster toward the aforementioned range of €100 billion to €200 billion (see Chart A, right-hand panel).

However, this increase in forward rates was short-lived, due to the subsequent observed repayment pattern. Following the first repayment, the path of subsequent repayments was more moderate and relatively stable. As a result, in the context of this stable repayment pattern, autonomous factors turned out to be more important in determining short-term fluctuations in excess liquidity. New repayments hence ceased to significantly change expectations of future excess liquidity.

3 See the box referred to in footnote 1.

Chart A Effect of LTROs repayment announcements on EONIA forward rates

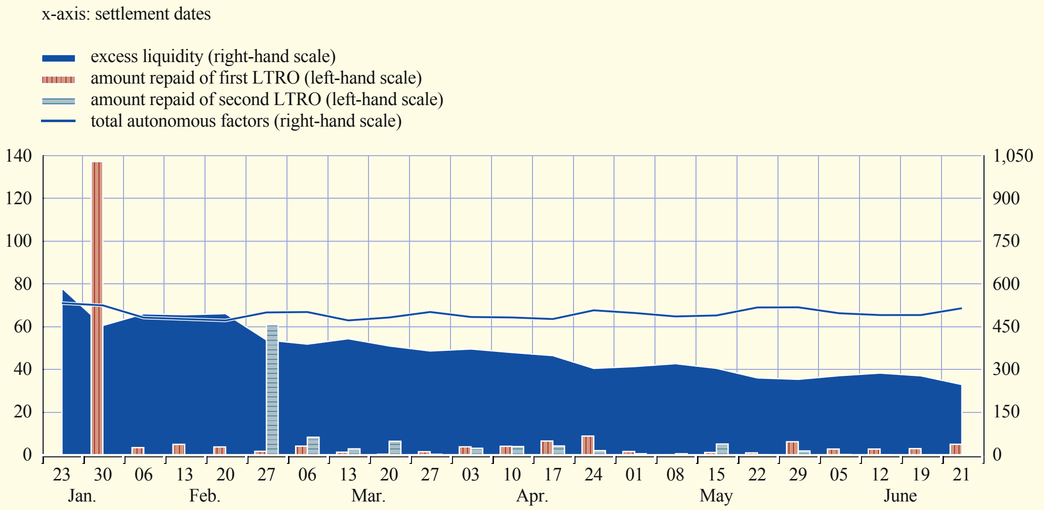


Sources: Thomson Reuters and ECB calculations.

Chart B below depicts the evolution of repayments, autonomous factors and the level of excess liquidity and provides the following key insights. First, banks heavily used the first opportunity to repay their funds, on 25 January and on 22 February 2013 for the two operations respectively. On these two days, counterparties repaid around 64% of the total repayments accumulated so

Chart B Excess liquidity, early repayments and autonomous factors

(EUR billions)



Source: ECB.
Note: The dates on the horizontal axis refer to the ECB announcements of actual repayments.

far. Excluding these relatively large repayments, the weekly average of repayments amounts to just €5.2 billion. Second, the chart illustrates that, except for the large initial repayments, a considerable fraction of the variation in excess liquidity is due to variations in autonomous factors. Since January 2013 autonomous have factors increased by around €21 billion.

In light of the rather stable repayment pattern following the large initial repayments of each operation, market expectations of future levels of excess liquidity have stabilised. This can also be inferred from the limited overall impact of announcements regarding the weekly repayments on money market interest rates.

Chart A plots the average effects of the announcements of LTRO repayments on EONIA forward rates at three different horizons. These effects are calculated by taking the average of the intraday movement in EONIA forward rates – during the 30-minute interval after the ECB's announcement on actual amounts repaid (which is published on the ECB website on the last working day of each week at 12 a.m. CET) – for each weekly repayment since March 2013. The absence of any other regular data releases or events scheduled at the time of these announcements ensures that changes in EONIA forward rates occurring during the narrow time window shortly after the announcement of repayments are likely to be entirely driven by changes in expectations concerning future levels of excess liquidity.

A comparison of the average announcement effect since March 2013 with the actual change in the EONIA forward curve that took place on 25 January 2013 shows that, after some initial volatility, subsequent early repayments played only a minor role in driving the evolution of forward money market rates. This may suggest that – with the exception of the first repayment on 25 January 2013 – market participants have been overall quite successful in anticipating the repayment flows and have adjusted quickly to them.

To sum up, a substantial amount of the funds borrowed in the two three-year LTROs has been repaid. Higher than expected repayments (especially the first repayment which was announced on 25 January 2013) led to a short-lived surge in expected short-term money market rates. However, these developments later reversed and changes in money market rates have been driven by factors unrelated to repayment shocks since then.

2.4 BOND MARKETS

Between the end of May and 3 July 2013, yields on AAA-rated long-term government bonds in the euro area increased by 20 basis points to stand at around 2.0%. In the United States, long-term government bond yields rose by around 40 basis points over the same period, standing at around 2.5% on 3 July. The marked increases in both areas took place amid discussions about a tapering-off of quantitative easing in the United States. Economic data releases were slightly on the positive side of expectations in the euro area, although they still point to weak growth dynamics. In the United States, economic releases were also on the positive side of expectations, thereby continuing the recent trend. Over the period under review, uncertainty about future bond market developments increased in both the United States and the euro area. Finally, intra-euro area sovereign bond yield spreads widened moderately, while market-based indicators of long-term inflation expectations remained consistent with price stability.