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# European Central Bank Tools and Policy Actions A: Open Market Operations, Collateral Expansion and Standing Facilities[1]

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**Abstract**

Beginning in August 2007, the European Central Bank (ECB) responded to market turmoil with a variety of standard and non-standard monetary policy tools. This case discusses the operational framework of the ECB's open market operation tools and standing facilities before and during the financial crisis. Specifically, this case describes the ECB's use of its main refinancing and longer-term refinancing operations, the expansion of collateral eligible for use in Eurosystem credit operations, and the ECB's standing facilities, including its marginal lending and deposit facilities.

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[1] This case study is one of two Yale Program on Financial Stability (YPFS) case modules considering the European Central Bank's monetary policy operations during the Global Financial Crisis. The other is:

- *European Central Bank Tools and Policy Actions B: Asset Purchase Programs.*

Cases are available from the Journal of Financial Crises.

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# 1. Introduction

Beginning in August 2007, the ECB used standard and non-standard measures to address the onset of the global financial crisis. Its actions accelerated after September 2008 following Lehman Brothers' bankruptcy and the ensuing market turmoil. The ECB's response throughout the financial crisis consisted of five key elements:

1. expanding the list of assets eligible as collateral in Eurosystem[5] credit operations;
2. lengthening the maturities of refinancing operations;
3. meeting in full the banks' liquidity requests at a fixed-rate;
4. providing liquidity in foreign currencies; and
5. supporting the financial markets with purchases of various Euro-denominated securities.

This case focuses primarily on the first three elements: collateral expansion in Eurosystem credit operations, longer-term refinancing operations and the use of the ECB's standing facilities.

The ECB conducts monetary policy in normal times primarily through four tools: its main refinancing operations, its marginal lending facility, its deposit facility, and the use of reserve requirements. The ECB primarily signals the desired level of interest rates to financial markets through the rates applied to its main refinancing operations with which the ECB manages euro area liquidity by conducting reverse transactions with a wide set of counterparties.[6] The marginal lending facility and deposit facility provide overnight loans and deposits, respectively, and their rates move in lockstep with the main refinancing operation rate, normally straddling the refinancing rate by 100 basis points on either side. The marginal lending facility serves a similar role to the discount window in the United States. Figure 1 summarizes the ECB's main policy tools within its open market operations and standing facilities.

It is important to note that the ECB has a single mandate of price stability, unlike the Fed's dual mandate of full employment and price stability. Therefore, the ECB's actions throughout the Global Financial Crisis and European Sovereign Debt Crisis occur with a view towards maintaining price stability. The ECB is often criticized that its actions fall outside the bounds of the single mandate. As a result, the ECB relies on the so-called "separation principle" through which the ECB separates its liquidity operations and its determination of monetary policy (Trichet September 2008). That is, the ECB's quick provision of large amounts of liquidity—as in August 2007—did not constitute an easing in monetary policy conditions. For example, as the ECB engaged in the Securities Markets Program, an asset purchase program, in 2010 and 2011, the ECB sterilized the resulting cash flows to commercial banks to uphold its price stability mandate.[7]

The remainder of this case is organized as follows. Section 2 describes the ECB's open market operations, including the series of longer-term refinancing operations used through the

[5] The Eurosystem is the network of each member country's National Central Bank and the ECB.

[6] A reverse transaction is a repurchase agreement (often called repo) in which the ECB buys or sells assets against collateral.

[7] See YPFS case "European Central Bank Monetary Policy Operations During the Crisis Actions B: Asset Purchase Programs" for further discussion of the SMP and separation principle.

crisis and the ECB's expansion of collateral eligible for Eurosystem credit operations. Section 3 details the ECB's standing facilities.

Figure 1: Eurosystem Open Market Operations and Standing Facilities

| Monetary Policy Operations | Types of Transactions | | Maturity | Frequency | Procedure |
|---|---|---|---|---|---|
| | *Liquidity-Providing* | *Liquidity-Absorbing* | | | |
| **Open market operations** | | | | | |
| Main refinancing operations (MROs) | Reverse transaction | | One week | Weekly | Standard tenders |
| Longer-term refinancing operations (LTROs) | Reverse transaction | | Three months or longer | Monthly | Standard tenders |
| Fine-tuning operations (FTOs) | Reverse transaction | Reverse transaction | Non-standardized | Non-regular | Quick tenders |
| | Foreign exchange swaps | Collection of fixed-term deposits | | | |
| Structural operations | Reverse transaction | Issuance of debt certificates | Standardized or non-standardized | Regular and non-regular | Standard tenders |
| | Outright purchases | Outright sales | | Non-regular | Bilateral procedures |
| **Standing Facilities** | | | | | |
| Marginal lending facility | Reverse transaction | | Overnight | Access at the discretion of counterparties | |
| Deposit facility | | Deposits | Overnight | Access at the discretion of counterparties | |

*Source: European Central Bank.*

**Questions**

1. Was there clear authority for the ECB to use longer-term refinancing operations (LTROs) to the extent it used them?

2. How did the ECB decide the offered mix of maturities of its LTROs?

3. How effective was the timing and mix of main refinancing operations (MROs) and LTROs in affecting the desired outcomes?

4. What was the exit strategy and ultimate result of targeted longer-term refinancing operations (TLTROs)?

5. The ECB has been criticized for not lowering interest rates until October 15, 2008. How did this "separation principle" affect the ECB's use of refinancing operations throughout the financial crisis?

6. Under the fixed-rate full allotment process, the credit institutions rather than the ECB determined the amount of liquidity available in the banking system, and excess hoarding of liquidity occurred. What was the negative impact of this?

7. How has the Eurosystem's balance sheet changed throughout the financial crisis?

## 2. Open Market Operations

The Eurosystem sets rates via its management of liquidity in the euro area. It does so largely through open market operations, which are comprised of four tools: main refinancing operations (MROs), longer-term refinancing operations (LTROs), fine-tuning operations (FTOs), and structural operations. Of these, MROs and LTROs are the primary components of the Eurosystem's open market operations and this case will focus upon them, both before and during the financial crisis.

These four tools of open market operations are based on the legal authority set forth in the Treaty on the Functioning of the European Union (TFEU), Article 127(2), which states: "The basic tasks to be carried out through the European System of Central Banks (ESCB) shall be: to define and implement the monetary policy of the Union..." (TFEU). With this legal framework, the ECB published its "Guideline of the European Central Bank, on the implementation of the Eurosystem monetary policy framework" which articulates the design and use of the four forms of open market operations (Guideline of the European Central Bank 2014).

### Main Refinancing Operations

MROs are the ECB's basic liquidity-providing device through which the ECB manages liquidity within the euro area and steers short-term interest rates. The ECB provides credit to institutions in the euro area through weekly reverse repurchase transactions in exchange for collateral, i.e. on a collateralized basis, with weekly, or sometimes biweekly, maturity.

The ECB manages its monetary operations in response to three components of the liquidity situation of the euro area: autonomous factors, minimum reserve requirements, and excess reserves. Autonomous factors include (as they appear on the consolidated Eurosystem balance sheet) net foreign assets (A1+A2+A3-L7-L8-L9), banknotes in circulation (L1), government deposits (L5.1), and other marginal miscellaneous factors. These factors are autonomous in the sense that the ECB cannot control them. The second component of the liquidity situation of the Eurosystem is minimum reserves, which in normal times account for about half of credit institutions' short-term liquidity needs. Finally, excess reserves affect the liquidity situation of the Eurosystem on the margin and account for less than half a percent of total liquidity needs in the Eurosystem in normal times (ECB 2002).

In order to set rates in the euro area, the ECB adjusts its use of MROs. To do so, the ECB forecasts future autonomous factors, minimum reserves, and excess reserves. Based on its forecasts, the ECB sets a benchmark allotment that allows credit institutions to satisfy their reserve requirements "smoothly" in aggregate, meaning "proportionately" over the entire one-month maintenance period. This smoothing is preferred for three reasons: first, it provides a better buffer against unexpected liquidity shocks. Second, some credit institutions which are particularly risk-averse prefer to spread their reserve holdings over the entire reserve maintenance period. Third, the smoothing allows for each MRO in a maintenance period to supply liquidity, rather than just those at the beginning or end of a period.[8] The ECB also adjusts its benchmark allotment throughout the maintenance period should some unexpected factor accumulate a liquidity imbalance within a single maintenance period (ECB 2002).

MROs provide funds for a one-week period (and sometimes biweekly), by auction, against the preset benchmark allotment amount through reverse repurchase agreements. The ECB has used two types of auctions: fixed rate and variable rate auctions. In a fixed-rate tender, the ECB sets the rate it will lend at as well as the allotment amount. A variable-rate tender has no set interest rate and counterparties instead bid against each other with a floor "minimum bid rate" set by the ECB. The credit institutions which are successful with their bid provide eligible collateral to the ECB in exchange for the funds, and agree to purchase back their securities once the contract matures, either one or two weeks later. Infrequently these auctions are "underbid" or "overbid," the former when there are insufficient bids to distribute the benchmark allotment and the latter when very large bids are submitted (ECB 2002).

As MROs provide credit in exchange for collateral, the ECB specifies which securities are eligible for use as collateral in credit operations. Before 2008, credit institutions used a variety of securities as collateral under the so-called "General Framework," including (with their share as a percent of all collateral used in open market operations):

- government securities (30%)
- covered bank bonds (25%)
- uncovered bank bonds (20%)
- regional government securities (7%)
- asset-backed securities (ABS, 6%)
- corporate bonds (3%)

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[8] Counterparties have tended not to require premiums in overnight money markets when credit institutions held higher (lower) current account holdings on a given day and subsequently lower (higher) holdings on following days (ECB 2002).

- a mix of other marketable and nonmarketable securities (9%)

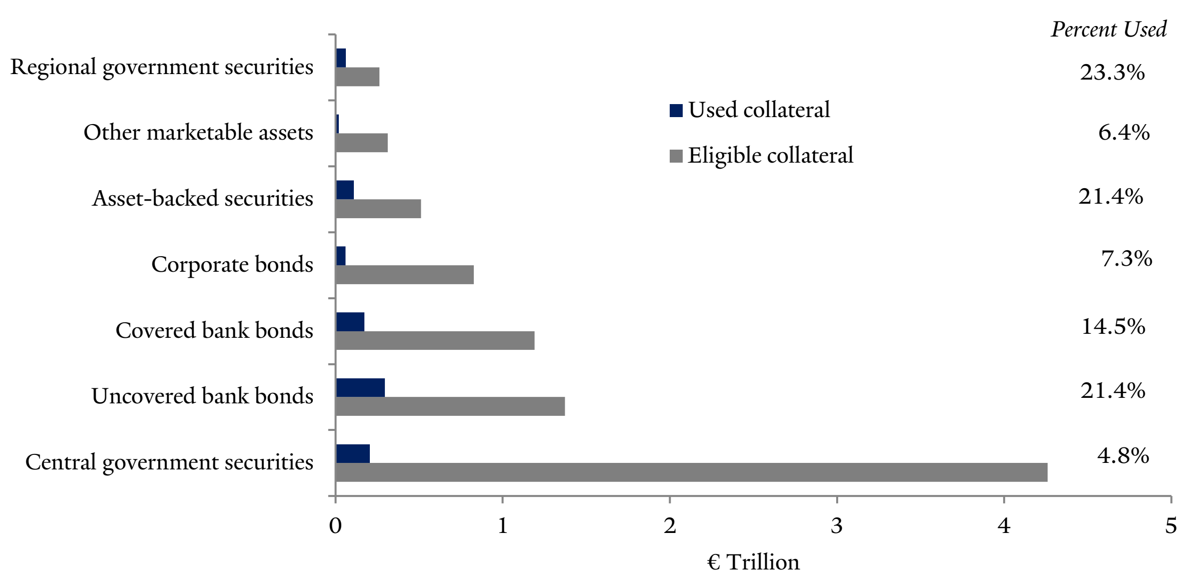
Central government securities comprised the majority of assets eligible for use as collateral for MROs before the crisis (about 50%), but covered bank bonds were also a large share of eligible assets (about 16%). Figure 2 provides the amount of eligible and used collateral by asset type in 2006.

Eligible counterparties to open-market operations and standing facilities must meet three main criteria. First, only institutions subject to the Eurosystem's minimum reserve system are eligible. Second, counterparties must be "financially sound" and subject to at least "one form of harmonised Union/[European Economic Area] supervision by national authorities." Third, firms must meet operational criteria specified by their respective National Central Bank (NCB) "to ensure the efficient conduct of Eurosystem monetary policy operations" (Official Journal of the European Union, 331/12).

These criteria have provided the ECB a large set of eligible counterparties. Before the financial crisis, some 2,000 firms were eligible counterparties and roughly 300 regularly submitted bids in normal, weekly MROs. Compared to the Federal Reserve System in the United States, this is a marked difference; the Federal Reserve conducts its normal open-market operations with a set of roughly twenty primary dealers.

Broadly compared to the United States, the Eurosystem's open-market operations regularly used a wider set of securities and counterparties. This is due, in part, to the historical legacy of the pre-Monetary Union, which required a more flexible framework in order to harmonize open-market operations across the diverse financial markets involved (Lenza et al. 2010).

Figure 2: Collateral in the Eurosystem, 2006




*Source: European Central Bank.*

**MRO Use During Global Financial Crisis**

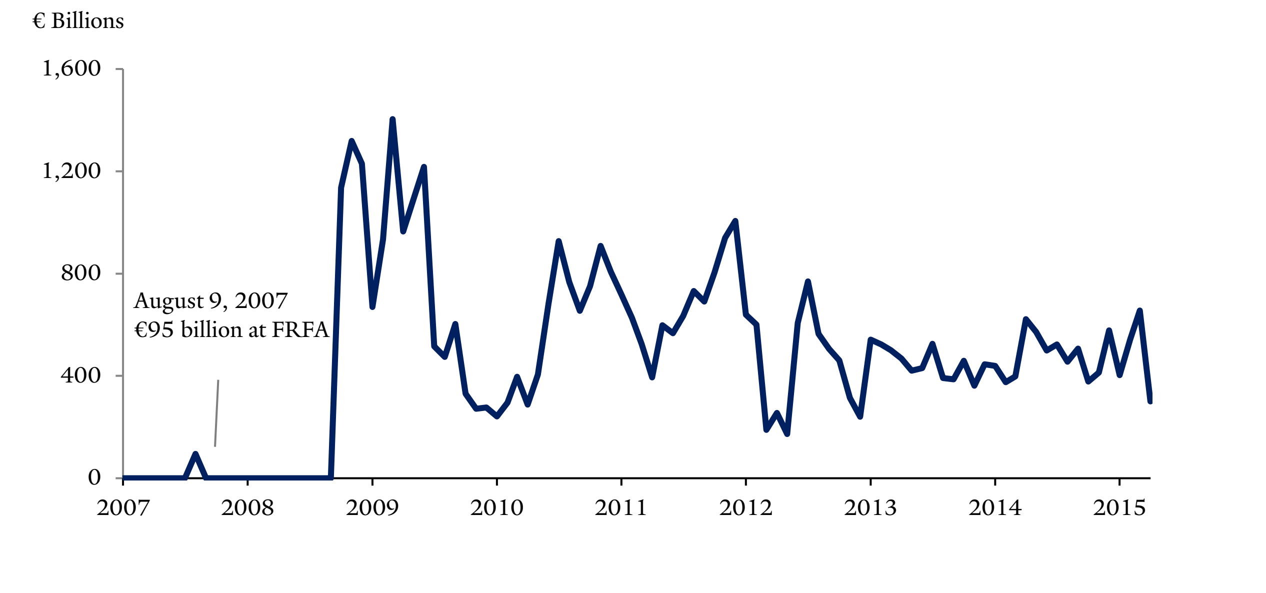
After the onset of the Global Financial Crisis in August 2007, the ECB incrementally changed the use of MROs. These changes resulted in a shift to fixed-rate full allotment (FRFA) refinancing operations and an expansion of collateral used in open-market operations (ECB October 2008).

First, the ECB changed the timing of MROs: beginning in August 2007, the ECB provided more reserves in the first weeks of the maintenance period and less during the last weeks of the maintenance period.

Second, in October 2008, the ECB committed to meet banks' liquidity requests in full, ensuring unlimited liquidity to all eligible euro area financial institutions. FRFA aimed to support the short-term funding needs of banks and the availability of credit to households and companies. This change—providing full allotment at a fixed rate set by the ECB—applied to all main and longer-term refinancing operations. These changes permitted euro area credit institutions, rather than the Eurosystem, to determine the amount of liquidity the market absorbed. Figure 3 shows the increased usage of FRFA operations as a source of credit in late 2008 (ECB October 2008).

The shift to FRFA for MROs succeeded in producing some downward pressure on short-term money market rates and nominal rates in longer-term maturities. However, research has found FRFA may have resulted in hoarding of excess liquidity (Heider et al. 2009).

Figure 3: Quick Tender, FRFA, Liquidity Providing Operations




*Source: European Central Bank.*

**Collateral Expansion**

MROs are the ECB's key tool for implementing monetary policy and MROs rely on the provision of adequate collateral, as defined by Article 18.1 of the Statue of the European System of Central Banks. The ECB defines adequate collateral in two ways: that the Eurosystem is sufficiently protected from losses in its credit operations, and that financial markets have a sufficiently broad base of eligible collateral to ensure the Eurosystem can provide the necessary amount of liquidity (ECB July 2013b).

In normal times, the ECB relies upon its collateral guidelines as set forth in "The implementation of monetary policy in the euro area: General documentation on Eurosystem monetary policy instruments and procedures." This is often called the "standard Eurosystem collateral framework" or the "General Documentation." This guideline specifies eligible marketable and nonmarketable securities in terms of "the type of asset, the place of issuance, the type and residence of issuers/debtors/guarantors, the denomination and the credit quality of the asset/debtor/guarantor" (ECB July 2013b).

On October 15, 2008, the ECB announced that in connection with the expanded refinancing (FRFA), the ECB would also expand the types of eligible collateral for refinancing operations, thereby broadening an already broad list. In the announcement, the ECB included the following assets as acceptable collateral in Eurosystem credit operations in its so-called "Temporary Framework":

- Euro-denominated syndicated credit claims governed by UK law.
- Debt instruments issued by credit institutions which were traded on the accepted non-regulated markets; this measure implied *inter alia* that CDs were also eligible when traded on one of these accepted non-regulated markets. All debt instruments issued by credit intuitions, which were traded on the accepted non-regulated markets, were subject to a 5% haircut.
- Subordinated debt instruments when they were protected by an acceptable guarantee as specified in 6.3.2 of the General Documentation on Eurosystem monetary policy instruments and procedures. These instruments were subject to a haircut add-on of 10%, with a further 5% valuation markdown in case of theoretical valuation.
- The ECB also lowered the threshold for marketable and non-marketable assets from A- to BBB- with the exception of ABS, and imposed a haircut of 5% on all assets rated BBB-.

Later, in November 2008, the ECB expanded the Temporary Framework to include securities denominated in certain foreign currencies, given the issuer was within the European Economic Area and that the instruments were settled in the euro area.

The ECB retained many of these temporary changes beyond 2009. As a result, banks were able to finance a larger share of their assets with the ECB and thereby increased their access to liquidity. The ECB became the lender against low-end collateral that the tightened market would not accept.

In April 2010, the ECB reconfirmed its credit threshold for marketable and nonmarketable assets at the investment-grade threshold (BBB-/Baaa3) beyond 2010, updating its initial collateral expansion which was to last through 2010. Further, the ECB announced a set of graduated valuation haircuts for assets rated between BBB+ and BBB-, replacing the uniform haircut of five percent that had originally been applied to the assets. The ECB also announced that it would no longer accept the following as collateral beginning in January 2011:

- marketable debt instruments denominated in currencies other than the euro;

- debt instruments issued by credit institutions traded on accepted non-regulated markets; and

- subordinated debt instruments protected by an acceptable guarantee. (ECB April 2010)

Turmoil in European rates markets in the latter half of 2011 caused the ECB to expand eligible collateral. This reduced the rating threshold for certain ABSs and allowed NCBs to accept certain bank loans. The ECB further expanded the Temporary Framework in response to concerns in early 2012 that counterparties would have insufficient eligible collateral for the series of three-year LTROs (discussed below), although these concerns ultimately proved to be overly pessimistic. Throughout 2012 the ECB continued to expand eligible collateral, lowering the rating threshold for certain ABSs in June 2012 (ECB July 2013b).

Between 2012 and 2014 the ECB occasionally adjusted its collateral framework. These actions included suspending credit requirements for certain sovereign debt instruments (Ireland, for example) and the temporary acceptance of other credit claims under certain conditions, but in a way that the responsibility to accept the claims was with the respective national central bank (ECB July 2013).

Due to its role in supervising certain Member States under an EU/IMF program, the ECB temporarily suspended its credit thresholds for certain instruments issued or fully guaranteed by the same Member State. The ECB notes:

> Since the Eurosystem contributes to devising and monitoring these programs, it is indeed in a good position to assess the credit risks related to the public debt in question. Hence, over the past few years, the Eurosystem has also undertaken measures to reduce the role that credit ratings play in its collateral and risk control framework in order to avoid mechanistic approaches that could have otherwise led to abrupt and significant changes to the eligibility of certain financial instruments. (ECB July 2013b)

As a result of these policies of collateral expansion, the volume of eligible marketable assets increased from about €9 trillion in 2007 to more than €14 trillion in 2013. After 2013, the eligible amount plateaued around €14 trillion. Figure 4 provides the detailed breakdown of the expansion of eligible marketable assets. The ECB does not provide country-by-country details of available collateral.

The increase in eligible collateral mirrors the increased use of collateral and outstanding credit from the Eurosystem. Collateral usage increased from about €1.3 trillion in 2007 to above €2.5 trillion in late 2012. Figure 5 provides details on the euro area's use of collateral during the global financial crisis.

As the ECB increased eligible collateral it also implemented additional risk management procedures. The ECB required loan-by-loan information for the Eurosystem's acceptance of ABS as collateral. This requirement, first implemented in January 2013, provided additional transparency into the underlying health of ABS by providing specific information about the loans underlying certain ABS securities.

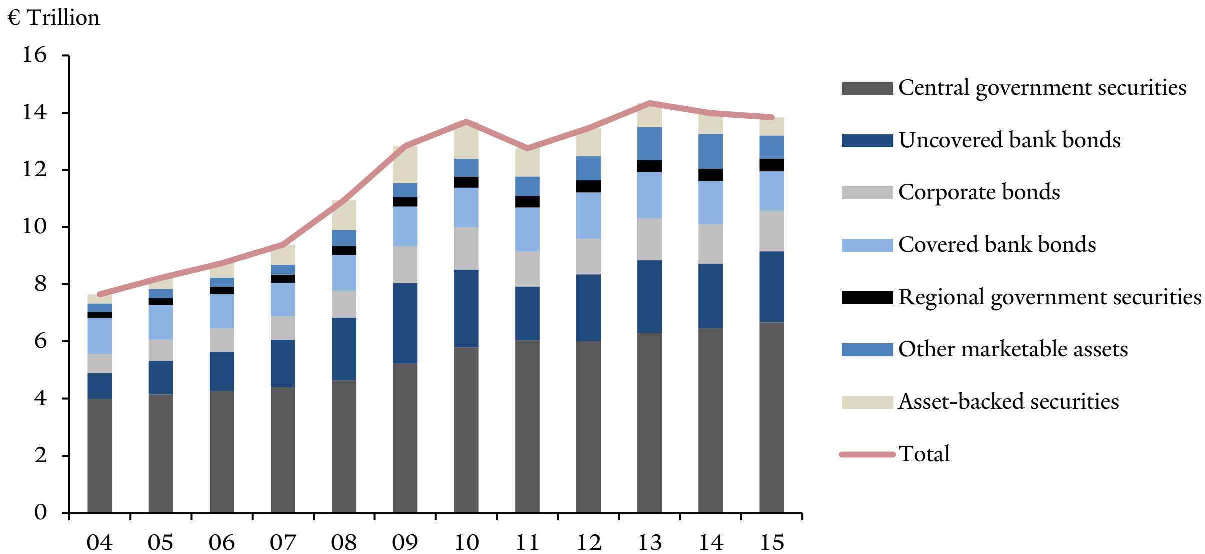
The improved transparency and standardized information process, which was made public and accessible to market participants indefinitely, was "considered necessary to revive the ABS markets" (ECB Website, ABS Loan-level Initiative).

**Longer-Term Refinancing Operations**

Although MROs were the Eurosystem's primary liquidity management tool, longer-term refinancing operations (LTROs) provided roughly 20% of overall liquidity supplied by the ECB. LTROs became an increasingly important tool to the ECB after-market tensions beginning in 2007.

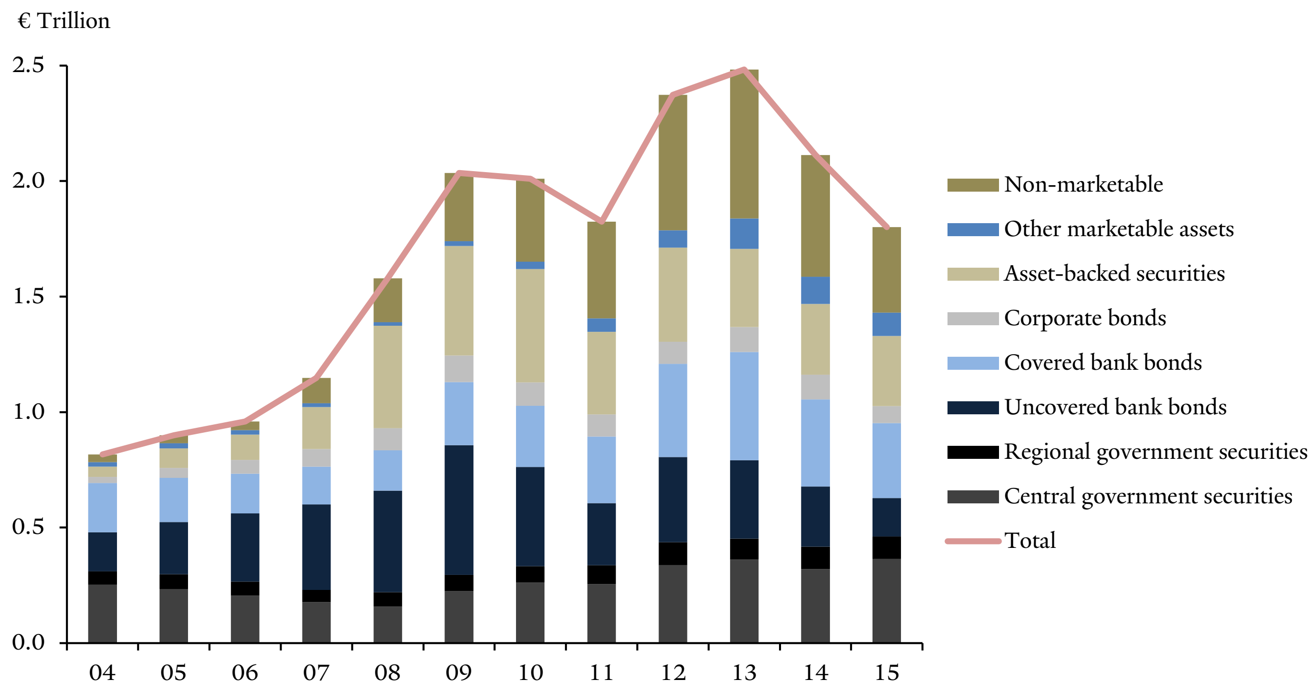
Before the global financial crisis, LTROs were monthly operations which provided credit for a period of three months. The ECB did not, "as a rule, intend to send signals to the market and therefore normally act[ed] as a rate taker" (ECB 2002b). LTROs were conducted in a pure variable rate tender auction format and the ECB regularly indicated the operation volume to be allotted in the coming offerings. Unlike MROs, LTROs had no minimum bid rate. LTROs were executed by the national central banks and had the same collateral and counterparty eligibility requirements as MROs.

Figure 4: Collateral Expansion, Eligible Marketable Assets




*Source: European Central Bank.*

Figure 5: Collateral Use




*Source: European Central Bank.*

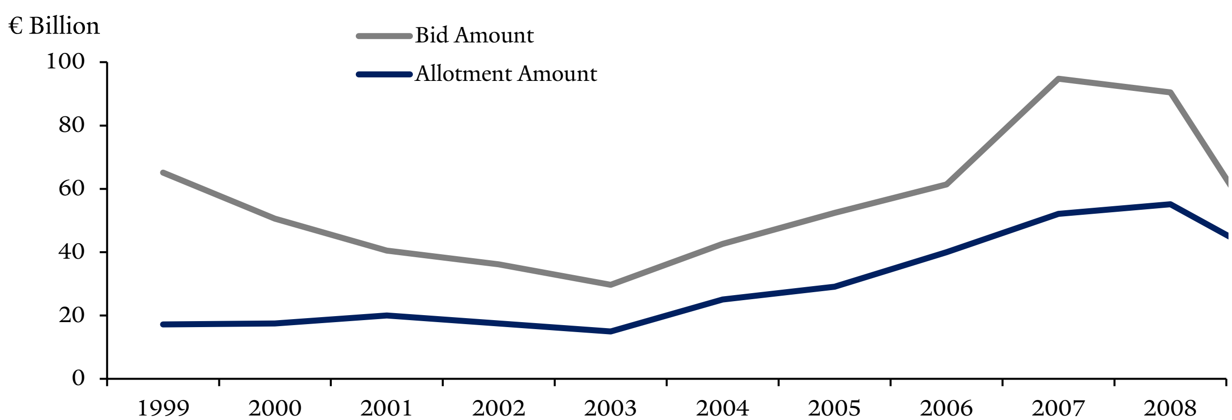
The ECB's initial design of LTROs intended to support small and medium sized banks, in part because these firms managed their reserves less actively than larger peers. The ECB also noted that an original purpose of LTROs was to provide "a good opportunity for smaller banks which have limited or no access to the interbank market to receive liquidity for a longer period" (ECB 2002b). Later research found that, while LTROs comprised a larger share of small and medium sized banks' refinancing, it was not used any more by smaller banks than larger banks. After this realization in 2002, the ECB proposed eliminating LTROs to streamline and simplify its refinancing operations, but banks "were overwhelmingly in favor of LTROs to be able to diversify the maturity of their liabilities and to obtain liquidity during times of general market tensions..." Further, banks said "that alternative sources of longer-term funding were not viable substitutes for the LTROs because of the different collateral requirements..." (ECB 2003a and Linzert, Nautz, and Bindseil 2004).

Before the crisis, regular LTROs offered €20 to €50 billion in refinancing from 1999 up to the global financial crisis. On average, LTROs allotted about half the value of total bids. Figure 6 provides the time series of LTRO bid and allotment amounts. On average, about 200 institutions participated in LTROs before the crisis, although there was a general decline in the number of participants from 1999, which averaged more than 300 participants. Figure 7 provides the average number of LTRO participants leading up the global financial crisis.

## LTRO use after 2008

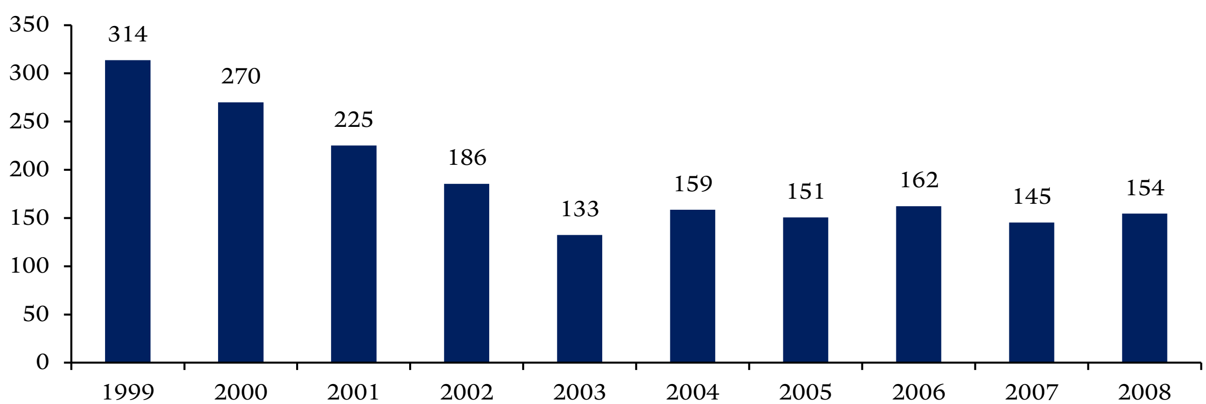
The ECB relied heavily on LTROs to provide liquidity to the market in the period after 2008. Over two-thirds of the funding provided during 2007-09 came in the form of LTROs. "The outstanding amount of LTROs increased from €150 billion in June 2007 to over €600 billion by the end of 2008. Over the same period, the total amount of outstanding liquidity almost doubled, peaking at €857 billion on 2 January 2009, more than 9 percent of euro area GDP and nearly 4 percent of total euro area monetary financial institutions' financial assets" (Trichet 2010).

Figure 6: Average LTRO Bid and Allotment Amount




*Source: European Central Bank.*

Figure 7: LTRO Participants




*Source: European Central Bank.*

The ECB employed LTROs in various forms throughout the crisis, including LTROs with fixed-rate full allotment, with longer than the usual three-month maturity, and LTROs which targeted credit in specific markets.

The ECB's first changes to LTROs were supplementary LTROs which were LTROs in addition to regular, monthly LTROs. In mid-August 2007 European markets entered a period of "nervousness, a period in which [the ECB] saw increased volatility in many markets and a significant re-appreciation of risks" (Trichet 2007). As a result, on August 22, 2007, the ECB announced a set of supplementary LTROs which provided additional supplemental three-month financing at a variable rate tender in a bid auction through reverse transactions against acceptable collateral (ECB August 2007). The ECB provided €40 billion in the August 22, 2007 operation. Later, the ECB announced additional supplementary LTROs on September 12, which featured a variable rate tender with no preset allotment amount. As a result the operation allotted about €75 billion (ECB September 2007).

Following the near-collapse of Bear Stearns, on March 28, 2008, the ECB announced an additional supplemental LTRO and continued to roll over supplementary LTROs initially offered between August and September of 2007. The March 2008 supplementary LTRO also featured a longer-than-normal six-month maturity instead of the usual three months. The March operations totaled €25 billion and would become subject to renewal on September 4, 2008 (ECB March 2008).

The ECB continued to provide supplementary LTROs through 2008 and 2009 with between 50 and 150 participants regularly submitting bids. In conjunction with the ECB's October 2008 announcement that MROs would be carried out through fixed-rate full allotment tender procedures, each LTRO after October 2008 —of any maturity or purpose—was offered in fixed-rate full allotment form (ECB October 15, 2008).

In May 2009, the ECB announced a series of 3-month and 12-month LTROs with fixed-rate full allotment terms, one each in June, September, and December of 2009 (ECB May 2009). These operations were widely used, with some 1,121 firms submitting bids and refinancing more than €442 billion in the June 25, 2009, year-long LTRO alone. The following September and December operations proceeded similarly; some 600 firms refinanced €75 billion in September, and more than 200 firms refinanced €100 billion in the December operation. For comparison, the previous three-month and six-month LTROs at the time averaged about 150 participants and less than €50 billion allotted.

In December 2011, the ECB announced two 36-month LTROs with fixed-rate full allotment, commonly called very long-term refinancing operations (VLTROs). The rate of these two operations was fixed at the average rate of MROs over the life of the operation. Firms had the option to repay the LTRO after one year, given the firm notified its respective NCB of its desire to repay a week before they intended to do so (ECB December 2011). On December 22, 2011 the first 36-month maturity LTRO attracted about 500 participants who refinanced €489 billion, and the second 36-month LTRO on January 1, 2012, saw 800 participants refinance €530 billion. These operations boosted total refinancing operations from about €600 billion in late 2011 to above €1.2 trillion after the second VLTRO in February 2012.

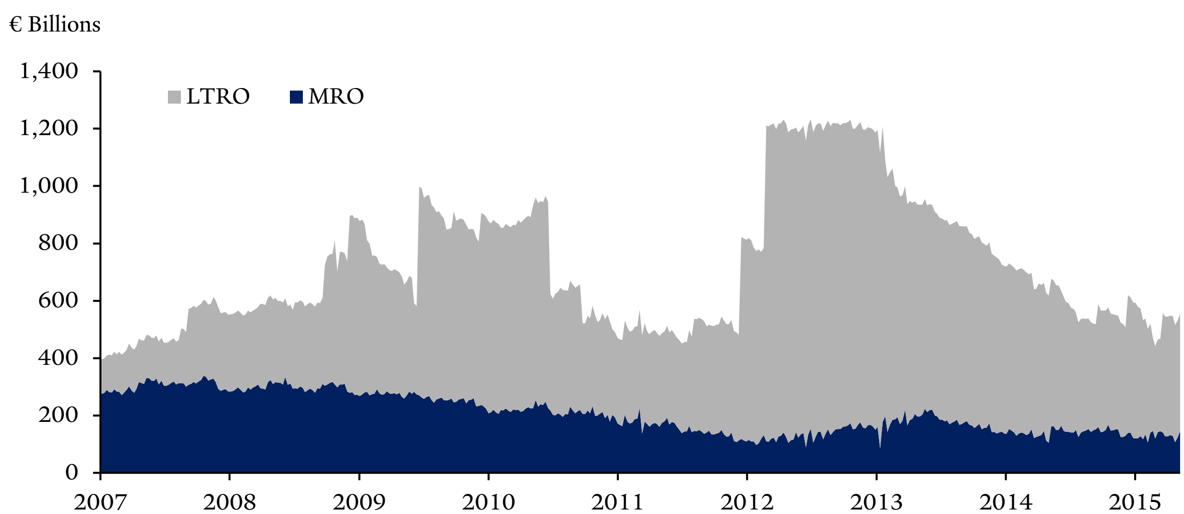
Use of LTRO through 2012 skewed towards firms in the most stressed economies, including Portugal, Ireland, Italy, Greece, and Spain. Indeed, borrowing since 2010 in these countries accounted for more than 80% of total borrowing through the LTROs, while banks in northern Europe simultaneously decreased their use. After January 2013, however, firms in the mentioned economies began repayment of VLTROs—Spanish firms repaid about €200 billion between December 2012 and February 2014 (Bruegel 2014).

Figure 8 provides the aggregate use of MROs compared to LTROs, and Figure 9 provides the detailed breakdown of LTROs by maturity between 2007 and June 2015.

### Targeted Longer-Term Refinancing Operations

In June 2014, the ECB announced a series of targeted longer-term refinancing operations (TLTROs) "aimed at improving bank lending to the euro area non-financial private sector," including euro area households and non-financial corporations. In effect, TLTROs allowed banks to borrow from the ECB at comparatively lower rates on the condition they lend the funds to specific portions of the private sector. The goal of TLTROs was to enhance "the functioning of the monetary policy transmission mechanism by supporting bank lending to the real economy" (ECB June 2014).

Figure 8: Aggregated Eurosystem Refinancing Operations




*Source: European Central Bank.*

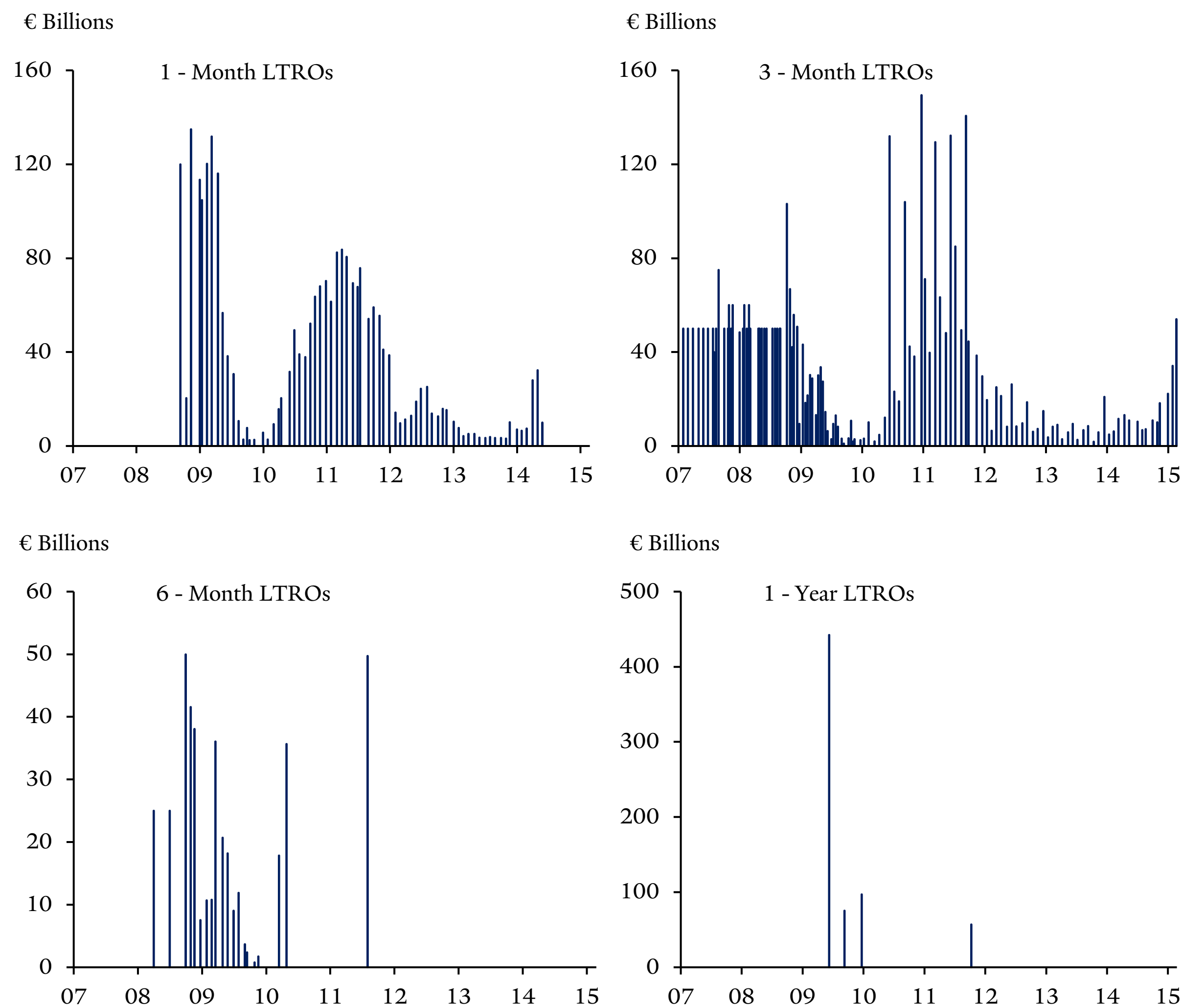
The TLTROs were designed to work in a series of eight quarterly operations, with maturities up to four years and early repayment options. Mortgage lending and government bond purchases were ineligible for funding from the ECB through TLTROs. Bank lending was evaluated relative to bank-specific benchmarks based on the firm's eligible lending as of April 2014, some two months before the ECB announced the TLTROs. In the first two TLTROs in September and December 2014 banks were allowed to borrow up to 7% of a portion of their existing loans. After December 2014, banks were allowed to borrow based on their lending activities in excess of the bank-specific benchmarks. The additional borrowing allowance could not exceed three times the difference between a bank's net lending and its benchmark.

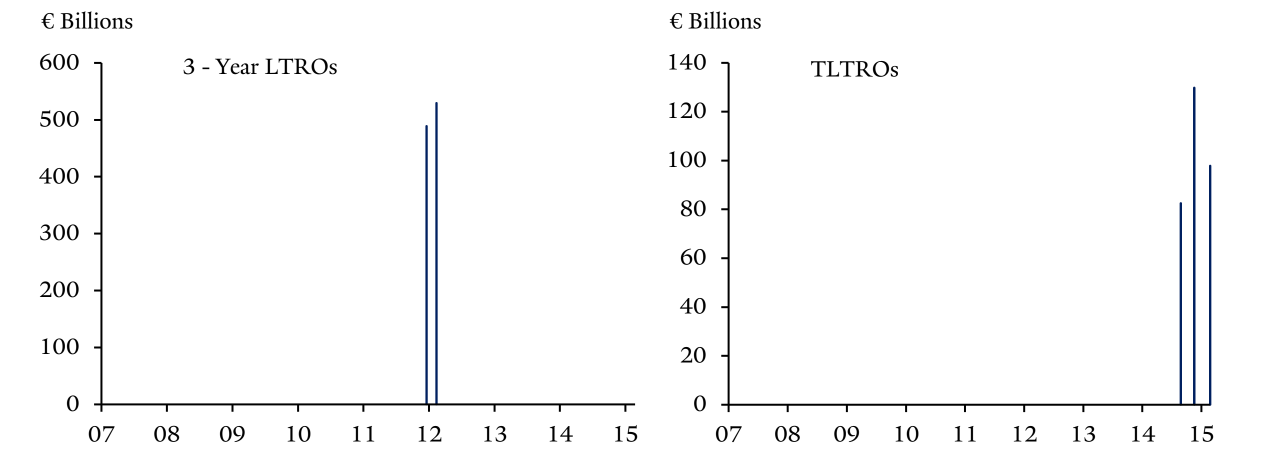
Eurosystem counterparties were allowed to participate in TLTROs individually or as a "TLTRO group." Firms were allowed to form such groups if they met the following conditions:

- Each member of the group had a "close link" to the others or held required reserves with the Eurosystem through another firm in the group.
- The group appointed one member as a lead institution. The lead institution must have been an eligible counterparty to Eurosystem credit operations.
- The lead institution applied to its home national central bank to form its TLTRO group.

Institutions in a group were unable to change the composition of the group throughout the eight operations (ECB July 2014).

Figure 9: LTROs by Size and Maturity






*Source: European Central Bank.*

The ECB calculated borrowing limits for each counterparty (either as an individual or as a TLTRO group) in the first two TLTROs so as not to exceed 7% of the counterparty's eligible outstanding loans as of April 30, 2014. Eligible outstanding loans included "loans on the balance sheet net of securitised or otherwise transferred loans" to euro area non-financial corporations and households, excluding loans for purchase of a home, in all currencies. Firms which had positive or zero eligible net lending in the twelve months before April 2014 had a benchmark set at zero net lending. Firms with negative eligible net lending in the twelve months before April 2014 had a benchmark which extrapolated their average monthly net lending for 12 months to April 2015, and from April 2015 to April 2016 the benchmark was set at zero.

Firms were unable to borrow more than 7% of the value of their outstanding loans as of April 30, 2014 cumulatively in the first two TLTROs. In the remaining six TLTROs, each counterparty could not "borrow more than three times the amount by which its eligible net lending granted between 30 April 2014, and the respective allotment reference month exceeds its benchmark in that allotment reference month, less any amounts previously borrowed in TLTROs that take place in the period from March 2015" (ECB July 2014).

Eligible collateral for the TLTRO had to meet the same collateral rules as those used in other Eurosystem liquidity providing refinancing operations. Banks were allowed to repay early on terms consistent with the existing three-year tenders. Alternately, if a bank's eligible net lending fell below its benchmark between May 2015 and April 2016, the bank was required to repay their TLTRO borrowings within four weeks.

The ECB implemented a set of reporting standards with TLTRO for three purposes: to calculate additional borrowing allowances, to calculate forced early repayments, and for monitoring purposes. The reporting standards generally follow the guidelines as in the ECB's balance sheet items (BSI) regulation, specifically the requirements of the recast BSI Regulation (ECB/2013/33). To help facilitate reporting, the ECB provided a specific template for counterparties to complete and return to their NCB at least four weeks before the next TLTRO. Figure 10 provides the materials given to borrowers by the ECB as an example of the reporting standards required (ECB July 2014b).

The ECB originally expected the first two operations to account for roughly €400 billion (i.e., 7% of the banks' outstanding loans to the non-financial private sector, excluding mortgages). However, banks only used roughly €212 billion, slightly more than half of the expected utilization. In its January 2015 minutes, the ECB noted:

> The targeted longer-term refinancing operations (TLTROs) had contributed to a further decline in bank lending rates across the euro area, thereby easing borrowing conditions for firms and households. However, the "quantitative" element of the Governing Council's measures had clearly fallen short of initial expectations. The total estimated take-up over all eight TLTRO operations was significantly lower than envisaged in September 2014 (ECB January 2015).

**Fine-Tuning Operations**

In addition to MROs and LTROs, the ECB used fine-tuning operations (FTOs) on an ad-hoc basis in order to have a rapid impact on the liquidity situation in markets. FTOs utilized a quick tender process so that transactions were executed within a time frame of less than an hour. FTOs usually took the form of repo but could also take the form of foreign exchange swaps or the collection of fixed-term deposits. Quick tenders were limited to a subset of the ECB's normal counterparties, and FTOs were implemented by the NCBs. Under exceptional circumstances, though, the ECB could execute the fine-tuning bilateral operations by itself (ECB 2011 "Guideline of the European Central Bank of 20 September 2011 on monetary policy instrument and procedures of the Eurosystem").

Fine-tuning operations played a role in the ECB's initial response to the market turmoil that began in August 2007. On August 9, 2007, the ECB announced an FTO which aimed "to assure orderly conditions in the euro money market." The ECB offered the FTO with full allotment, which was received with strong demand, providing €95 billion in overnight liquidity (ECB August 2007). This quick action was effective in alleviating acute stresses in the money market.

## Figure 10: TLTRO Reporting Template Example

Loans to non-financial corporations and households excluding loans to households for house purchase (EUR thousands)

| **Main aggregates** | | Loans to non-financial corp. | Formula |
|---|---|---|---|
| 1 | Outstanding amounts of eligible loans at the end of the month preceding the start of the reporting period. | 95 | 1 = 1.1 - 1.2 *(+1.3)* |
| 2 | Eligible net lending in the reporting period | 15 | 2 = 2.1 - 2.2 |
| 3 | Adjustments to the outstanding amounts: reductions (-) and increases (+) | -50 | 3 = 3.1 + 3.2 |
| 4 | Outstanding amounts of eligible loans at the end of the reporting period | 60 | 4 = 4.1 - 4.2 *(+4.3)* |
| **Underlying items** | | | |
| | Outstanding amounts of eligible loans at the end of the month preceding the start of the reporting period | | |
| 1.1 | Outstanding amounts on the balance sheet | 105 | |
| 1.2 | Outstanding amounts of loans securitised or otherwise transferred but not derecognised from the balance sheet | 10 | |
| *1.3* | *Outstanding provisions against eligible loans** | | |
| | Eligible net lending in the reporting period | | |
| 2.1 | Gross lending | 44 | |
| 2.2 | Repayments | 29 | |
| | Adjustments to the outstanding amounts: reductions (-) and increases (+) | | |
| 3.1 | Loan sales and purchases and other loan transfers during the reporting period | -30 | 3.1 = 3.1A + 3.1B + 3.1C |
| 3.1A | Net flows of loans that are securitised with an impact on loan stocks | -11 | |
| 3.1B | Net flows of loans that are otherwise transferred with an impact on loan stocks | -9 | |
| 3.1C | Net flows of loans that are securitised or otherwise transferred without any impact on loan stocks | -10 | |
| 3.2 | Other adjustments | -20 | 3.2 = 3.2A + 3.2B + 3.2C |
| 3.2A | Revaluations owing to changes in exchange rates | 2 | |
| 3.2B | Write-offs/write-downs | -12 | |
| 3.2C | Reclassifications | -10 | |
| | Outstanding amounts of eligible loans at the end of the reporting period | | |
| 4.1 | Outstanding amounts on the balance sheet | 79 | |
| 4.2 | Outstanding amounts of loans securitised or otherwise transferred but not derecognised from the balance sheet | 19 | |
| 4.3 | *Outstanding provisions against eligible loans** | | |

** Only applicable in those cases where loans are reported net of provisions; see the reporting instructions for more details.*
*Source: European Central Bank.*

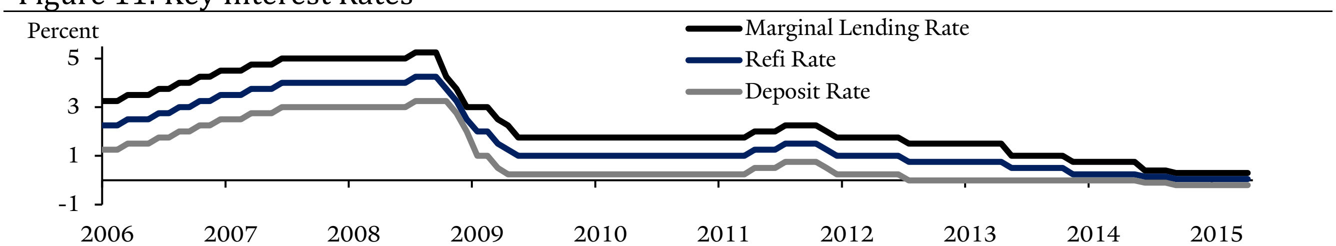
## 3. Standing Facilities

The Eurosystem uses two standing facilities as its tools for managing overnight liquidity: its marginal lending facility and its deposit facility. The marginal lending facility lends funds to credit institutions overnight and credit institutions can deposit excess cash at the deposit facility overnight to earn the set interest rate, similar to the Federal Reserve's Discount Window. Normally, the ECB set the main refinancing rate and then set the marginal lending rate 100 basis points above and deposit rate 100 basis points below. Throughout the global financial crisis and ensuing sovereign debt crisis the ECB has narrowed the channel on either side from 100 basis points to 25 basis points. Figure 11 shows how the marginal lending rate and deposit rate moved in lockstep with the refinancing rate.

Throughout the financial crisis, the ECB cut the main refinancing rate and narrowed the width of the band for the rates of the marginal lending facility and deposit facility.

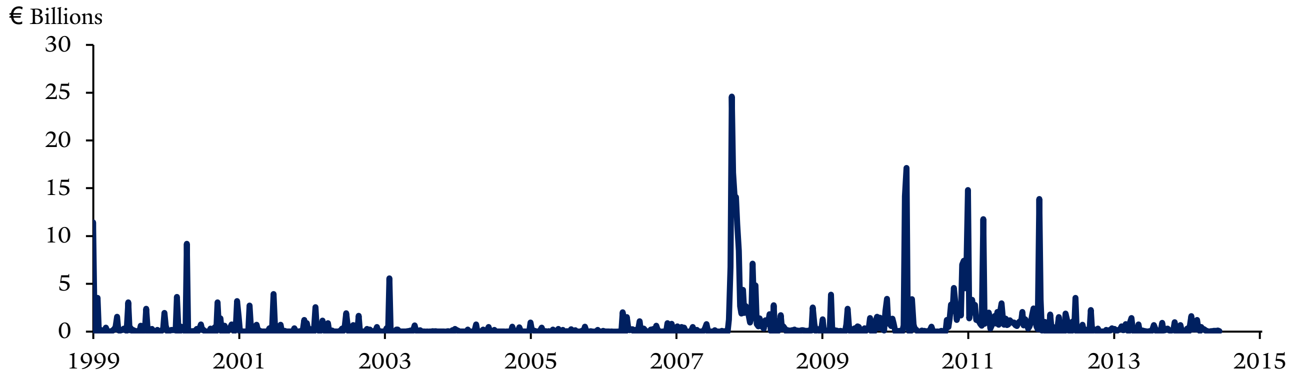
In June 2014 the ECB made deposit rates negative for the first time with a cut to -0.10% (ECB June 2014b). When banks hold more than their required minimum reserves in such an environment, they face two choices: hold excess reserves on account with their central bank or physically store the cash. Due to the costs involved with physically securing cash at a storage facility, banks either lend excess reserves or keep excess reserves at the ECB despite the negative rate. The cut was a result of two factors: first, low inflation through 2013 and 2014 threatened price stability and the ECB consequently lowered rates. Second, to maintain functioning money markets the ECB must keep a distance between the main refinancing rate and the deposit rate—once the ECB cut the main rate from 0.25% to 0.15% in June 2014, it subsequently needed to cut the deposit rate from 0.0% to -0.10%. Figures 12 and 13 show the usage of the marginal lending facility and deposit facility respectively.

Figure 11: Key Interest Rates



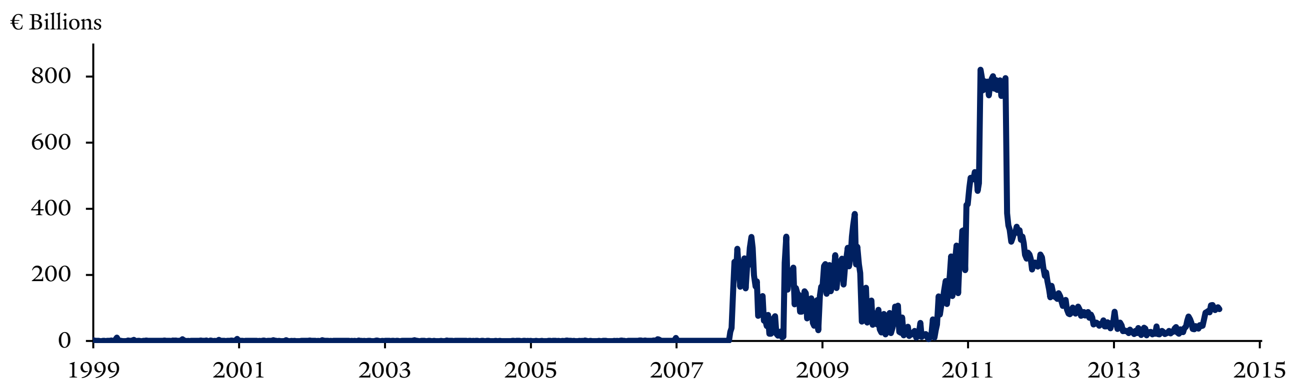

*Source: European Central Bank.*

Figure 12: Marginal Lending Facility Use




*Source: European Central Bank.*

Figure 13: Deposit Facility Use




*Source: European Central Bank.*

## Glossary

| | |
|---|---|
| ABS | asset-backed security |
| ABSPP | Asset-backed Securities Purchase Program |
| BSI | balance sheet item |
| CBPP | Covered Bond Purchase Program |
| ECB | European Central Bank |
| ECJ | European Court of Justice |
| EFSF | European Financial Stability Facility |
| ESM | European Stability Mechanism |
| FRFA | fixed-rate full allotment |
| FTOs | fine-tuning operations |
| IMF | International Monetary Fund |
| LTROs | longer-term refinancing operations |
| MROs | main refinancing operations |
| NCB | national central bank |
| OMT | Outright Monetary Transactions |
| PSPP | Public Sector Purchase Program |
| SLTROs | supplementary longer-term refinancing operations |
| SMP | Securities Markets Program |
| TFEU | Treaty on the Functioning of the European Union |
| TLTROs | targeted longer-term refinancing operations |
| VLTROs | very long-term refinancing operations |

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