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# ECB Unconventional Monetary Policy: Market Impact and International Spillovers

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Marcel Fratzscher, Marco Lo Duca & Roland Straub

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## Abstract

*This paper assesses the financial market impact of ECB unconventional monetary policy between 2007 and 2012. The paper looks at a broad range of asset prices and portfolio flows in the euro area and globally, using data at daily frequency. It finds that ECB policies boosted equity prices and lowered bond market fragmentation in the euro area. Spillovers to advanced economies and emerging markets included a positive impact on equity markets and confidence. The effects of ECB policies on bond markets outside the euro area were negligible. ECB policies also lowered credit risk among banks and sovereigns in the euro area and other G20 countries, while there is limited evidence of portfolio rebalancing across regions and assets on impact.*

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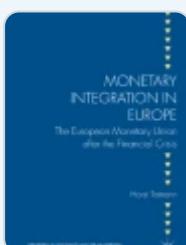
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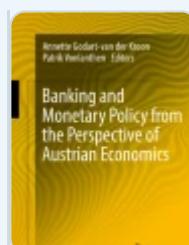
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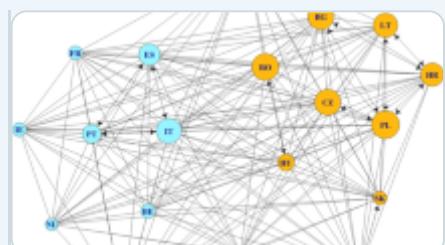
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## Notes

1. See for example R. Rajan, “Global Monetary Policy: A View from Emerging Markets,” Brookings Institution, April 10, 2014.
2. B. Bernanke, “Challenges of the Global Financial System: Risks and Governance under Evolving Globalization,” Tokyo, October 14, 2012.
3. Other recent articles focus on the impact of the ECB Extended Asset Purchase Programme (see, for example, [Altavilla, Carboni, and Motto, 2015](#)).
4. [Altavilla, Giannone, and Lenza \(2014\)](#) analyze the financial and macroeconomic implications of the ECB announcement of “Outright Monetary Transactions.”
5. We do not analyze the impact of swap lines between major central banks and the ECB covered bond program. The latter was relatively small in size compared with other unconventional monetary policy actions and targeted a specific market segment.
6. The ECB did not officially use the name Very Long Term Refinancing Operations or VLTROs.

7. See [Figure 1](#) for the evolution of the balance sheet of the ECB.
8. It is worth noting also the following technical details: first, all the SLTROs and VLTROs were preannounced by the ECB who communicated to markets precise schedules for operations. Second, initially, auctions took place for preset amounts at variable rate tenders where banks bid both the amount of money and the interest rate. In these auctions, the ECB would satisfy the demand of liquidity starting from the highest offered interest rate until exhaustion of the preset amount of loans available for auction. However, in October 2008, as the crisis intensified, the ECB moved to a framework where it agreed to satisfy all the liquidity demanded by banks (“full allotment”) against collateral. Also, the variable rate tenders were abandoned and the cost of liquidity was linked to the average main refinancing rate (the discount rate) of the ECB over the life of loans.
9. The liquidity created by bond purchases under the SMP was sterilized by the ECB via weekly liquidity absorbing operations.
10. For example, after the initial activation in mid-2010, the SMP became “dormant” in the first half of 2011 until it was reactivated in August 2011.
11. According to [Eggertsson and Woodford \(2003\)](#) central banks’ large-scale asset holdings serve as a credible commitment to keep interest rates low. Therefore, by introducing the LSAP, the Federal Reserve led to expectations of low rates for long (signaling channel).
12. [Joyce and others \(2011\)](#) also discuss a number of potential transmission channels.
13. A cross-country investigation of the signaling channel would indeed offer valuable insights on how ECB policies were transmitted across countries.

However, the latter analysis would entail particular challenges that go beyond the scope of this paper. The analysis would require estimating a term structure model to extract the expected path of the short-term rate for each of the more than 30 individual countries in the sample. Data limitations and modeling uncertainty would complicate the analysis. To our knowledge, from the literature it emerges that the importance of the signaling channel is model dependent ([Bauer and Rudebusch, 2014](#); [Bauer and Neely, 2014](#)). Against the background of the impact of the modeling strategy on the results, a credible analysis of the signaling channel would call for the adoption of different term structure models. We feel that this goes beyond the scope of our paper.

14. In the EA core, we include countries whose AAA credit rating was never questioned in the period under review (Austria, Finland, Germany, and Netherlands). In the EA periphery, we include countries where re-pricing of sovereign risk took place but we exclude countries that lost market access as bond pricing signals for the latter group of countries might be distorted. This is the reason why we include only Italy and Spain in the EA periphery. However, including Ireland, Portugal, and Greece does not have strong implications on the results of the paper.
15. See, for example, any recent issue of the Quarterly Review of the Bank of International Settlement or of the Global Financial Stability Report of the International Monetary Fund.
16. [Lim, Mohapatra, and Stocker \(2014\)](#) use EPFR to assess the impact of quantitative easing on international capital flows. [Fratzscher, Lo Duca, and Straub \(2013\)](#) also use high frequency EPFR data to assess the impact of quantitative easing announcements and operations on global portfolio flows. [Forbes and others \(2012\)](#) use EPFR data to assess the impact of capital controls, while [Lo Duca \(2012\)](#) uses them in a model for monitoring the drivers of capital flows in real time.

17. The estimation was done with STATA 12.
18. This approach also reduces the concern that other events occurring over the same day drive market developments.
19. The ECB communicated the intention to “actively implement its Securities Markets Programme” on Sunday, August 7, 2011.
20. Using information on the total allotment before the auction takes place might be problematic if the sum finally allotted is not known in advance. Two considerations alleviate this concern. First, there could be market expectations on the size of the allotment. Second, before the auction, banks might start frontloading collateral (also government bonds) on the basis of their predetermined demand of liquidity that will be revealed (to the public) at the auction. In the robustness section, we do some tests on the ex-ante inclusion of the allotted amounts.
21. It is worth highlighting that our approach does not assume that the market situation “today” does not matter for the demand of long-term liquidity by banks. In our approach, we simply argue that the *change* in the market situation today (daily developments) does not really alter the “broad picture” and does not matter for the demand of liquidity in the long term.
22. SMP holdings are publicly available at weekly frequency. Therefore the equation is estimated with weekly data.
23. Unfortunately, little public operational details are available for the SMP.
24. The overnight return is the percentage price change between the closing price on day  $t-1$  and the opening price on day  $t$  (source: Bloomberg).

25. As purchases are nonnegative, we estimate the reaction function with a Tobit model.
26. For the announcement dummies the procedure is the same, that is, we multiply the number of ones/events by the estimated coefficients of the dummies.
27. An earlier version of this paper presented an impulse response analysis consistent with the findings of Neely.
28. The results above survive a number of robustness tests that are described in the next sections and in the [online annex](#). For Italy and Spain, however, the positive impact of the SMP on equity prices crucially depends on the inclusion of the dummies for May 14, 2010 and August, 10 2011 which capture particularly bad days for global stock markets.
29. Also here, we assume that the effects of operations and announcements are permanent.
30. As flows tend to react more sluggishly than prices to news and announcements, we slightly modified the specification of some of the explanatory variables in the model. In particular, all the announcement dummies take value one on the day of the announcement and in the following two days. Also for the other variables, we consider up to three lags. Finally, to take into account the persistence of the flows, we also estimate the model by adding three lags for the dependent variable. The latter modification does not impact the results.
31. The results refer to the baseline specification. We conducted a number of checks as we did for asset prices (different set of control variables, Pesaran-Smith mean group estimator, robust regressions, random effect estimator).

The tests indicate that the baseline specification delivers fairly robust results. We do not report the results for brevity.

32. Regarding the announcements related to the SMP, implied volatilities went down in response to the first SMP announcement on May 10, 2010, while they increased on the day of the second SMP announcement on August 8, 2010.
33. For emerging markets, only announcements significantly reduced yields.

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[Supplementary information](#) accompanies this article on the *IMF Economic Review* website ([www.palgrave-journals.com/imfer](http://www.palgrave-journals.com/imfer))

\*Marcel Fratzscher is currently the President of the DIW and professor at Humboldt-University in Berlin. He worked at the ECB as Head of the International Policy Analysis Division. Marco Lo Duca works at the ECB as Principal Financial Stability Expert. Roland Straub works at the ECB as Counsellor to the Executive Board. The authors would like to thank Pierre-Olivier Gourinchas, Ayhan Kose, Luc Laven, Luca Dedola, Larry Ball, Philip Lane, Livio Stracca, Olivier Vergote, Cornelia Holthausen, Isabel Kernel, Thomas Werner, three anonymous referees, the participants to two ECB internal seminars for their very helpful comments, the participants to the 15<sup>th</sup> Jacques Polak Annual Research Conference of the IMF.

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