Estimating the Collateral Eligibility Premium: An Euro Area Study

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Abstract

This paper estimates the **collateral eligibility premium**, the impact of the eligibility of a security in monetary policy operations on its pricing. We investigate major episodes of changes to **Eurosystem** collateral eligibility and analyze their impact on securities' yields using a **diff-in-diff panel methodology**, distinguishing between announcement and implementation effects. The main finding is that eligibility changes have a relatively **minor negative effect** on the yields of securities (around 1 basis point). However, in times of **liquidity shortages**, the eligibility premium can turn positive, signaling an increase between 16 and 25 basis points in the returns of the securities after becoming eligible for monetary policy operations.

Introduction

The impact of **central bank collateral frameworks** has recently found renewed interest in the economic literature. A key measure of the relevance of central bank collateral frameworks for debt securities markets and funding costs is the "eligibility premium" for securities. While some authors have generally argued that the impact of collateral eligibility on securities values would be significant and would have profound monetary policy and economic implications from it, e.g. Ashcraft et al, (2011), Nyborg (2017), Brunnermeier et al. (2016), others have attempted to provide estimates by focusing on the impact of concrete episodes of eligibility changes on securities yields, with results ranging from 5 to 13 basis points. This empirical study collocates itself in this last research field, with the novelty that a particular emphasis is given to the liquidity component. Indeed the latter turned out to be a significant variable in explaining the yield changes.

Models and Data

- **Difference-in-difference panel estimation:** comparison of the yields of both a treatment and a control group one, two and three weeks before and after the announcement and the implementation of the change in eligibility criteria.

$$y_{it} = \beta_0 + a_i + \beta_1 Event_t + \beta_3 Treat_i + \beta_4 EventTreat_{it} + \varepsilon_{it}$$

- **Events:** identification of dates in which the pool of ECB-eligible collateral changed as a result of **eligibility criteria modifications**.
  - Lowering of the minimum credit rating threshold from 'A-' to 'BBB-' (excluding ABS) (2008)
  - Eligibility/ineligibility of non-euro denominated debt instruments issued in the euro area (2008, 2010 and 2012)
- **Treatment and control groups:** construction of comparable pairs of pools of securities, of which the eligibility status of one of them changed and the other one did not. Treatment and counterfactual groups were identified using a unique proprietary data of the Directorate General Market Operations (DGM) of the ECB (eligibility status, maturity, denomination, rating, type of issuer).
- **Estimator**: Prais-Winsten regressions with time and country fixed-effects and with panel corrected standard errors (PCSEs), assuming a first-order autocorrelation structure
- **Data sources**: daily data on yields, market structure indices, credit default swaps retrieved from Bloomberg. Daily data on the euro area financial market liquidity indicator (used as a proxy for liquidity conditions) retrieved from the ECB Statistical Data Warehouse.
- **Controls:** include liquidity conditions, market structure, yield of the risk-free security, credit default swap and equity prices.

Results

Figures 1. Evolution of the average daily yields of the samples, three weeks before and after the implementation dates of the events, distinguishing between treatment group (blue) and counterfactual (red).

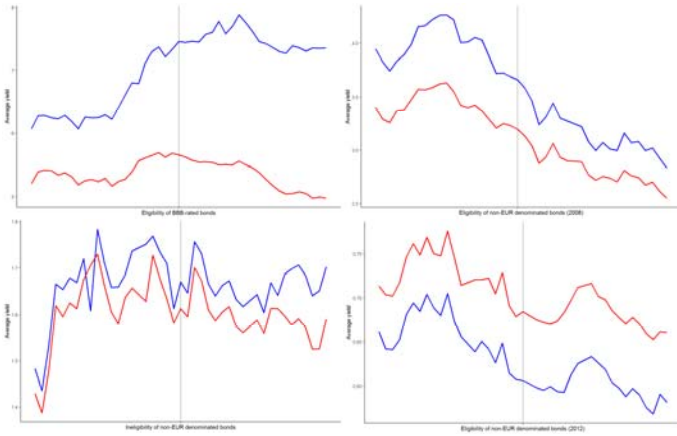

Table 1. Difference-in-differences coefficients. * indicates significance at 10% level, ** 5% level, ***1% level

	1 week	2 weeks	3 weeks
BBB-rated bonds eligibility			
Announcement – 15/10/2008	0.0959	0.175	0.183*
Implementation – 20/10/2008	0.161***	0.220*	0.250***
Non-EUR denominated eligibility			
Announcement – 15/10/2008	0.036	0.039	0.042
Implementation – 17/11/2008	-0.002	-0.011	-0.013
Non-EUR denominated ineligibility			
Announcement – 08/04/2010	-0.003	-0.002	-0.002
Implementation – 03/01/2011	0.006	0.006	0.005
Non-EUR denominated eligibility			
Announcement – 06/09/2012	0.007	0.003	0.002
Implementation – 09/11/2012	-0.009*	-0.011*	-0.010*

- Non-significant or **minor effects** in the majority of cases.
- **Liquidity** plays a significant role, particularly in **2008 events**. The positive effect on yields in the BBB-rated bonds eligibility event could indeed be explained by the behavior of this variable.

Figure 2. Evolution of the Euro area financial market liquidity indicator. Source: ECB

Conclusions

This study, based on the euro area, was aimed to verify the existence of a collateral eligibility premium brought by the change in the eligibility status of a security.

Our results show no evidence of market distortions induced by collateral framework changes: we find minor impacts on returns, which in cases of liquidity deficit, can turn the yield premium positive.

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‡ **Disclaimer**: This paper should not be reported as representing the views of the European Central Bank (ECB). The views expressed are those of the authors and do not necessarily reflect those of the ECB.

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