Collateral Eligibility of Corporate Debt in the Eurosystem

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Motivation

- Central banks have three main monetary instruments:
  - open market operations,
  - the minimum reserve system,
  - standing facilities.
- The ECB and national central banks use these tools to affect money market rates and to provide funding liquidity to the banking sector.
- The cornerstone of this liquidity provision and an important part of the marginal lending facility is the **collateral framework** of the open market operations (REPO) and standing facilities.
- The ECB is one of the few central banks that has always accepted **corporate bonds** as collateral (even for OMO-REPO), since its inception.

Motivation

- **Collateral pledgeability** helps the ECB to fulfill multiple policy objectives:
  - Control short-term interest rates, and provide overnight funding to banks,
  - Enlarge the pool of eligible assets to reduce the scarcity effect of government bonds, which instead can be used for more profitable transactions (e.g., repo),
  - Influence the secondary and primary markets for corporate bonds, affecting Security Lending, secondary bond market yields/liquidity and the financial decisions of bond-issuing firms,
  - Improve market functioning and completeness (there is not a liquid REPO market for corporate bonds in the Eurozone).

What we do

- We focus on the **Eurosystem's Collateral Framework**
  - Using the pledgeable asset list (eligibility list) to identify the inclusion date of
    - individual assets,
    - first ever inclusion date of bond-issuing non-financial firms.
  - we measure the **direct** and **capital structure effects** of the Eurosystem's collateral policy.
- We consider the collateral channel of monetary policy at the level of **eligible bonds** and **bond issuing firms**.

Results preview

- Following an **asset**'s inclusion in the eligibility list, we find that:
    - activity in the securities lending (SL) market increases, relaxing the constraint of limited collateral supply for the ECB OMO-REPO activity.
    - Eligible bonds trade at lower yields due to the fungibility feature of pledgeability (quasi-money)
    - Liquidity of Newly issued bonds declines, whereas the liquidity of older bonds does not change, or even improves.
- Following the first-time eligibility list inclusion, **bond-issuing firms**
    - Reduce bank debt and expand corporate bond issuance activity,
    - Increase the overall size of debt (not only bank to bond substitution), and issue bonds with longer maturity.

Literature contribution

- Studies on collateral frameworks:
  - Eberl and Weber (2014), Nyborg (2016,2017), Bindseil et al. (2017), Van Bekkum et al. (2018), Corradin and Rodriguez-Moreno (2016).
- **Studies on eligibility premium**
  - Bindseil et al.(2009) find a small eligibility premium in the Eurozone preceding the financial crisis,
  - Chen et al. (2019) quantify the value of pledgeability in the Chinese corporate bond repo market.
- Methodologically similar papers on the CSPP of the ECB:
  - Announcement: Abidi and Miquel-Flores (2018), Grosse-Rueschkamp et al. (2019), Todorov (2019)
  - Purchases: Arce and Mayordomo (2017), Galema and Lugo (2017).
- Capital and debt structure literature:
  - Debt structure: Rauh and Sufi (2010), Becker and Ivashina (2014),
  - Access to credit market: Faulkender and Petersen (2006), Saretto and Tookes (2013), Subrahmanyam et al.(2014, 2016).

The data

- The ECB's list of eligible assets
  - Monthly list: 2007-2009 from Eberl and Weber (2014)
  - Daily lists: Apr 2010-June 2016 from the ECB's website
  - the list of eligible assets per day is about 25,000 securities.
    - About **6% of the list consists of corporate bonds**, an average of 1450 individual securities on a given day.
- Bond level data
  - Bond characteristics, daily price, yield, and liquidity information from Bloomberg
  - Securities lending data from IHS Markit
- Firm level data
  - Balance sheet information from Compustat
  - Debt structure information from Capital IQ
    - Bond/Public debt: commercial paper, senior and subordinated notes and bonds
    - Bank debt: drawn credit lines and term loans

Identification strategy and methodology

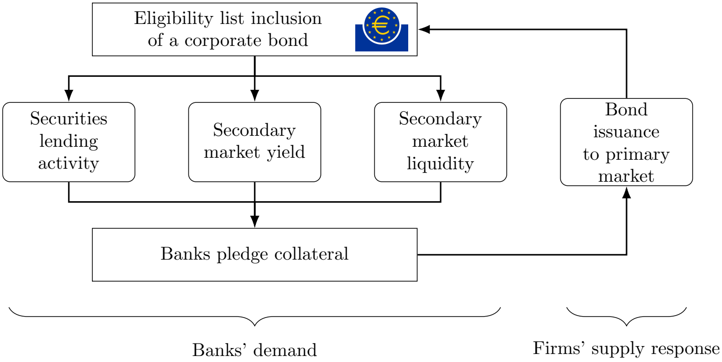
- The identification comes from the **eligibility assessment framework**:
  - the ECB never confirms eligibility prior to an asset's issuance,
  - The ECB might not include otherwise suitable assets in the list due to risk management and operational reasons, or any other discretionary measure.
  - Therefore the eligibility list inclusion is **not mechanical** and **predictable** even for compliant bonds/issuers.

- Methodology: two-way fixed effects diff-in-diff model

$$Firm/bond\_proxy_{f,t} = \alpha + \beta_1 EA_{bt} \times Post_t + \beta_2 EA_{bt} + \beta_3 Post_t + \mathrm{B}_b t + \Phi_f + \Gamma_t + \epsilon_{bt}$$

  - Bond proxies are SL activity, yield and liquidity, while we study debt structure, size of total debt, and debt maturity at the firm level.
  - EA_f is a time-invariant indicator for treated firms, $Post_t$ is an indicator for post-treatment periods $X_{,t}$ are controls, and Φ_f and Γ_t are firm and time fixed effects.

The collateral channel of monetary policy



Securities lending market activity

New bonds	**Supply**	**Demand**	**Utilisation**	**LendingFee**
EA*Post	0.393***	0.841***	3.489***	-0.254***
	[0.035]	[0.232]	[0.841]	[0.049]
Post	-0.029	-0.312	-1.192*	0.095**
	[0.021]	[0.197]	[0.624]	[0.040]
EA	-	-	-	
Observations	21,210	15,990	21,210	15,873
R-squared	0.921	0.676	0.767	0.471
Bond Controls	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes
# Bond Clusters	735	673	735	671

- The SL market allows market participants to borrow collateral eligible assets, thereby relaxing the constraint of limited collateral supply.
- Eligibility increases supply, demand, and utilisation, while borrowing costs drop. SL activity is concentrated in the new bond segment.

Secondary market yield effects of eligibility

Yield spread	**Overall sample**	**On-the-run bonds**	**Old bonds**
EA*Post	-0.110***	-0.070**	-0.165***
	[0.017]	[0.032]	[0.038]
Post	0.066***	0.041	0.062***
	[0.006]	[0.030]	[0.006]
EA	-	-	-
TTM/tenor	3.111***		
	[1.025]		
Observations	113,813	21,210	92,601
R-squared	0.750	0.984	0.716
Time FE	Yes	Yes	Yes
Bond Controls	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes
#Bond Clusters	819	735	146

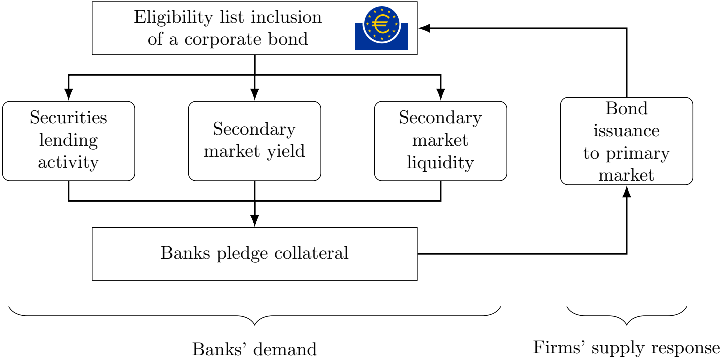
- In the 30 days following the eligibility list inclusion of a bond, its yield drops by 7-16 basis points, but this effect is larger in seasoned bonds.
- The yield drop is an eligibility premium, compensating for the fungibility/liquidity service of eligible bonds.

Secondary market liquidity effects of eligibility

	Bid-ask spread		% of zero returns	
	On-the-run	**Old bonds**	**On-the-run**	**Old bonds**
EA*Post	0.149**	0.038	4.571***	-0.188
	[0.061]	[0.043]	[0.551]	[0.161]
Post	-0.088	0.011***	-1.574***	-0.002
	[0.060]	[0.004]	[0.468]	[0.011]
EA	-	-	-	-
Observations	20,934	92,002	21,210	92,601
R-squared	0.860	0.752	0.843	0.517
Time FE	Yes	Yes	Yes	Yes
Bond Controls	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes
# Bond Clusters	729	145	735	146

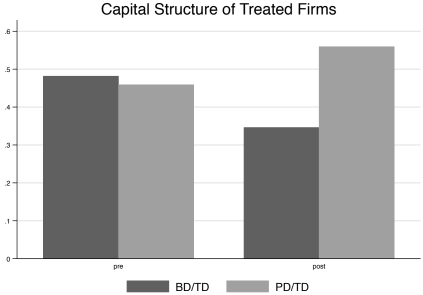
- Two liquidity measures: bid-ask spread and % zero returns.
- Eligibility and the subsequent demand pressure can trigger either an increase in liquidity (spotlight effect) or a decrease (hoarding effect).
- We find an asymmetric liquidity reaction for both liq. measures: on-the-run bonds are subject to hoarding, whereas the liquidity of older bonds does not change, or even improves.

The collateral channel of monetary policy



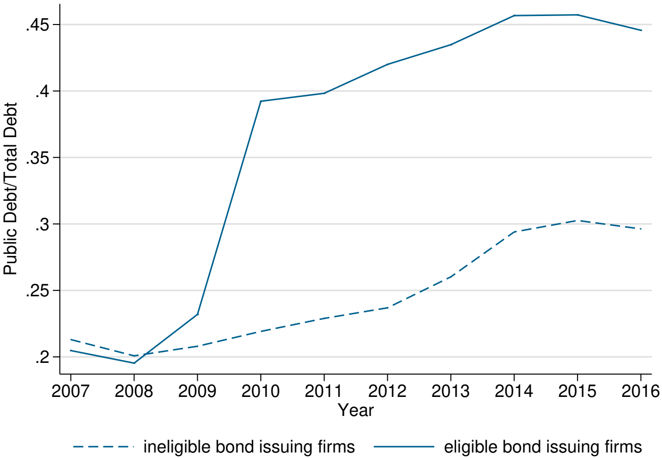
Capital structure effects of collateral policy

- A unique feature of the eligibility list is that we see the first ever inclusion date of an issuer.
- So we can study the **effect** of eligibility on the firm's capital and debt structure.



- We study the debt structure, size of total debt, and bond maturity of treated firms pre- and post eligibility list inclusion.
- We control for the eligibility list inclusion predictability by including the probability of inclusion estimated form issuer-level logistic regressions.

Capital structure effects of collateral policy: Public debt share of bond issuing firms



Capital structure effects of collateral policy

- **Debt structure**
  - Firms restructure their debt following their inclusion in the eligibility list: they decrease bank debt and increase public debt.
- **Total debt**
  - In the 4 quarters following the eligibility event, firm increase their total debt by about 5%.
  - Eligibility improves the capital market access of firms, which tilt their debt structure toward the cheaper funding option, corporate bond issuance.
- **Debt maturity**
  - The maturity of public (bond) debt increases by up to 1.5 years, following the eligibility list inclusion.

Policy implications

- Corporate bond pledgeability and its externalities have **policy implications**:
  - The collateral framework is an efficient crisis management tool: expand/contract the size of the eligible asset list or the specific set of asset classes depending on the business cycle.
  - Expanding the pledgeable asset classes is more flexible than the standard practice of OMOs, as it can even address liquidity issues in the repo market during QE.
- The **unintended consequences** of eligibility criteria are:
  - Positive externality of improved market functioning and completeness, mostly due to the SL market for corporate bonds.
  - Capital market development, whereby the European corporate bond market doubled in size by 2018, reaching about 10% of EU GDP.

Summary

- Our paper is the *first* to examine the plethora of implications the **collateral channel of monetary policy** has on the primary and secondary markets for Eurozone corporate debt
- We find that increased demand for pledgeable collateral,
  - Increases trading activity in the SL market, that relaxes the constraint of limited collateral supply.
  - Gives rise to an eligibility premium (yields)
  - Generates an asymmetric liquidity response along the maturity spectrum of corporate bonds
- We observe that eligible firms
  - Reduce bank debt and expand corporate bond issuance activity,
  - Increasing the overall size and maturity of their total debt.

Thank you for your attention!