The Interest of Being Eligible
The Additional Credit Claims (ACC) Program and loan rates to French firms

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06 November 2017

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Motivation

- Traditionally a bank's core function is to finance long-term illiquid assets (e.g. loans) using short-term liquid liabilities (e.g. deposits)
  - $\rightarrow$ funding liquidity risk

- How do banks manage this liquidity risk?
  - Securitization: banks can convert these illiquid loans into liquid securities
  - Central bank (CB) refinancing: pledge the loan as collateral in return for LOLR liquidity

- How important is CB collateral eligibility for banks when issuing loans?

Motivation

- BNP's 2011 Financial Statement
  - As part of its liquidity management, the Group seeks to maximise the refinancing available to it so that it can meet unexpected liquidity needs. In particular, this strategy is predicated on **holding securities eligible as collateral for refinancing from central banks**

- Credit Agricole's 2011 Financial Statement
  - The ECB responded by turning the liquidity taps back on, with the announcement on 8 December of two longer-term refinancing operations with a maturity of three years, accompanied by a **relaxation of the eligibility criteria for collateral**... by doing everything in its power to inundate banks with liquidity at virtually no cost, the ECB was playing its role as lender of last resort.

Main Idea

- Bank loans to non-financial firms are generally illiquid assets
  - $\rightarrow$ liquidity risk premium

- But what if such loans are made eligible for CB refinancing?

- By relaxing the liquidity constraints of banks, liquidity premia may fall for all loans belonging to a bank (common effect)

- But CB eligibility of a loan may imply an asset specific effect
  - higher demand for pledgeable assets $\rightarrow$ lower price

- **Eligibility Discount**
  - = the asset specific reduction in the liquidity risk premium due to CB eligibility

This paper

- **Estimate** the eligibility discount in France during a time of financial stress
  Fig.

- **Exogenous event**: Eurosystem's February 2012 **Additional Credit Claims (ACC) program**
  - ▸ relaxed eligibility criteria for credit claims accepted by the Eurosystem

- **Diff-in-Diff approach**: Exploit banks' pricing behaviour around the implementation of the program
  - ▸ compare spreads of newly eligible (4-rated = treated)/ to already eligible (4+-rated = control)

- **New dataset**: new loan issuances to French NFCs
  - ▸ Granular data collected for BdF's quarterly Survey on Credit Conditions

Preview of main results

Loan Spreads by Credit Rating
Fixed Rate Loans
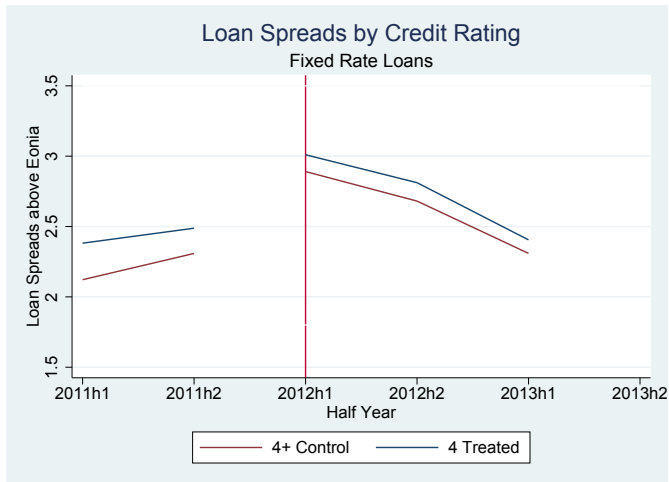
Main Findings

- Price an eligibility discount of 7 bps $= 1/3$ of unconditional ex-ante rate gap between newly/already eligible loans

- Evidence that price effect associated with increase in volumes lent (intensive margin) $=$ positive credit supply shock

- Effect concentrated on banks which are *ex-ante* more reliant on pledging credit claims.

Related literature

- **Securitization and the pricing of corporate credit**
  - ▶ Effect of institutional demand on secondary debt market (Nadauld and Weisbach, 2012; Ivashina and Sun 2011)
  - ▶ Pricing effect may reflect risk-taking (Kara, Marques-Ibanez and Ongena, 2011)

- **Collateral channel as an additional monetary policy tool**
  - ▶ Effective alternative of affecting banks funding costs (Ashcraft, Garleanu and Pedersen, 2011; Cassola and Koulischer, 2016; Bindseil, 2013)

- **Assessment of ECB's unconventional monetary policies**, notably package of Winter 2011-2012
  - ▶ Positive effect of LTRO's and ACC program on bank's lending to real economy (Andrade, Cahn, Fraisse and Mésonnier, 2015; Garcia-Posada and Marchetti, 2016; Carpinelli and Crosignani, 2017, Cahn, Duquerroy and Mullins, 2017)
  - ▶ but may also promote risk-taking behaviour by banks (Dreschler, Drechsel, Marques-Ibanez and Schnabl, 2016; Nyborg, 2015; Acharya and Steffen, 2015; Crosignani, Faria-e-Castro and Fonseca, 2015)

Liquidity provision in the Eurosystem

- Liquidity provision in Eurosystem provided against eligible (=good) collateral
  - Full allotment since October 2008
  - (After haircut) value of pledged eligible collateral is the sole limit for bank's refinancing

- Collateral frameworks main objective is to mitigate credit risk
  - Marketable vs non-marketable assets (credit claims)
  - Haircuts depend on liquidity class, credit rating and maturity and can be as high as 70%

- Use of non-maketable assets increased in the Eurosystem during crisis
  - Share of pledged collateral (AHV), euro area: 27% in Dec 2012 vs 23% in Dec 2011
  - Trade-off: higher information and transaction costs vs lower opportunity cost

# Collateral Usage by Asset Class, Euro Area
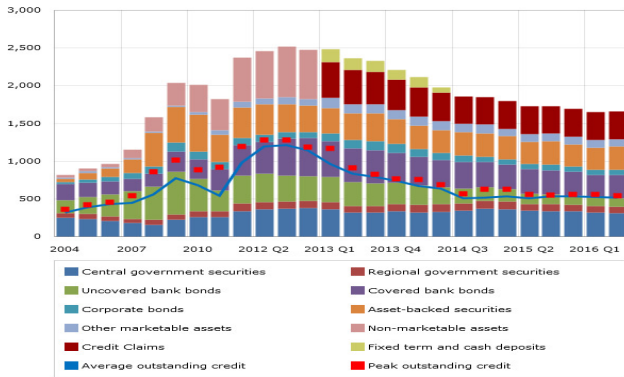
The 2012 ACC Program as Quasi Natural Experiment

- ACC program: announced by ECB in December 2011 as part of 3y-LTRO package + implemented by 8 NCBs in February 2012

  - Increase value of available bank's collateral (in response to firms' downgrades)
  - Free-up marketable collateral for private repos

- Details

  - ACC = Extension of eligible credit claims (mortgage and corporate loans) to lower rated firms
  - 1-year DP between .4% and 1% (BDF credit rating 4; Fitch BB-)
  - Targeted loan maturity: between one month and five years

Credit Ratings Banque de France

Compagny breakdown by credit rating
As at 30/04/2012
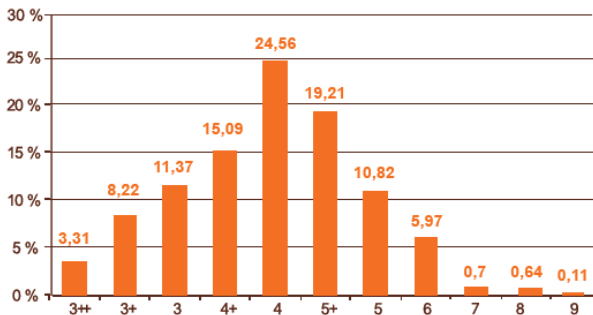
The 2012 ACC Program and French banks

- Program mainly targeted at crisis-hit, periphery countries, where banks deemed collateral constrained $\rightarrow$ relatively exogenous to banks in France

- ACC = large increase of French banks' pool of eligible corporate loans: $+EUR90bns$ ($+33\%$)

- France interesting case because of traditionally high use of credit claims: 36% of pledged collateral (AHV) in Dec. 2011

  ▶ Reasons: BdF's Credit Ratings (Cotation BDF: used by Eurosystem as ICAS) + BdF's automated interface for pledging credit claims (TRICP)

  ▶ End 2012: 16 individual banks pledging corporate ACC (among 56 banks pledging collateral with BdF)

Data

- **Loan Level**
  - Mcontran: quarterly survey of new loan contracts, collected among representative sample of bank branches
  - About 100,000 loans per quarter (first month), all significant credit institutions covered.

- **Firm Level**
  - Credit Rating data: about 250,000 NFCs per year
  - Firm Balance Sheet data and characteristics: rich set of firm controls

- **Bank Level**
  - Summary balance sheets
  - Information on collateral pools and refinancing

Sample Restriction

- **Loan Level**
  - We drop loans with non-standard contract terms (subsidised rates...)
  - Keep only *fixed rate* investment and treasury loans.

- **Firm Level**
  - NFCs from mainland France with positive values of total assets
  - Exclude those who switch treatment groups

- **Bank Level**
  - Individual banks which borrowed from Eurosystem's MRO before 2012 and appear in dataset in both periods for both groups
  - Special case: aggregate the three regional mutualist banking networks

$\implies$ 9 "banks" from 5 major banking groups: 48% of corporate loans from banks chartered in France $+$ 70% of borrowed BdF liquidity as end of 2011

Eligibility Discount and Identification Strategy

- The spread between the 4+-rated and 4-rated loans is sum of two components:
  - credit risk compensation
  - liquidity risk compensation

- Pre-ACC period (2011) vs post-ACC period (2012 Q3 - 2013 Q2):

  - **Before the program** only control group is eligible
  - Spread between rating classes = credit risk + liquidity risk

  - **After the program** both groups are eligible
  - Spread between rating classes = (mainly) difference in credit risk

- Key Assumption: identical counterfactual trends in treated and control groups

Empirical Model

Baseline Regression

$$Spread_{ijkt} = \alpha + \beta_1 ACC_{jt} + \beta_2 POST_t + \beta_3(ACC * POST)_{jt} + \beta_4 X_{it} + \beta_5 Z_{jt} + \epsilon_{ijt} \quad (1)$$

where:

- $Spread_{ijkt}$: spread (vis-à-vis the EONIA) of a loan i to firm j from bank k at time t.

- ACC: dummy variable, 1 when firm j is "treated" by the ACC program

- $POST$: dummy variable, 1 when quarter t belongs to the post-ACC period

- X and Z are vectors of loan and firm controls
  - Loan-level: size, maturity years, investment purpose, secured
  - Firm-level: assets, leverage, asset turnover, subsidiary, age

Verifying balanced covariates

Table : Balance test of covariates Pre-ACC and Post-ACC

	Mean 4	SD 4	Mean 4+	SD 4+	Std Diff
Log Loan Size	10.90	1.29	11.01	1.33	-0.06
Maturity Years	3.52	1.31	3.65	1.18	-0.07
Investment Loan	0.86	0.34	0.93	0.26	-0.15
Fixed	0.42	0.49	0.37	0.48	0.08
Log Total Assets	7.69	1.31	7.94	1.41	-0.13
Debt/Assets	0.34	0.31	0.28	0.26	0.13
Sales-to-Assets	2.11	1.39	1.93	1.06	0.10
Age >10 years	0.79	0.41	0.85	0.36	-0.10
Part of Group	0.52	0.50	0.55	0.50	-0.05

	Mean 4	SD 4	Mean 4+	SD 4+	Std Diff
Log Loan Size	10.98	1.65	11.07	1.44	-0.04
Maturity Years	3.33	1.32	3.51	1.42	-0.09
Investment Loan	0.83	0.33	0.88	0.38	-0.10
Fixed	0.46	0.48	0.38	0.50	0.12
Log Total Assets	7.76	1.71	7.99	1.54	-0.10
Debt/Assets	0.31	0.23	0.27	0.26	0.10
Sales-to-Assets	2.04	1.20	2.02	1.32	0.01
Age >10 years	0.78	0.37	0.84	0.42	-0.11
Part of Group	0.51	0.50	0.55	0.50	-0.05

Note. Standardized difference = difference in means divided by squared root of sum of variances.

Results: measuring the eligibility discount (baseline)

Table : Baseline

	(1)	(2)	(3)	(4)	(5)	(6)
Rating4	0.225***	0.230***	0.219***	0.190***	0.179***	0.171***
	(0.029)	(0.025)	(0.025)	(0.022)	(0.024)	(0.023)
POST	0.296***	0.325***	0.324***			
	(0.084)	(0.070)	(0.066)			
POST*Rating4	-0.122**	-0.110***	-0.117***	-0.087**	-0.086**	-0.070**
	(0.053)	(0.039)	(0.040)	(0.037)	(0.037)	(0.035)
Loan Controls	No	Yes	Yes	Yes	Yes	Yes
Firm Controls	No	No	Yes	Yes	Yes	Yes
Sector_Period	No	No	No	Yes	Yes	Yes
Region_Period	No	No	No	Yes	Yes	Yes
Bank_Period	No	No	No	No	Yes	Yes
Quarter	No	No	No	No	No	Yes
Observations	3977	3977	3977	3977	3977	3977
Adj. R^2	0.037	0.191	0.227	0.284	0.339	0.378

Note. Standard errors are corrected for clustering at the Bank∗Quarter level.

Robustness

- Placebo 1: No effect for ACC firms whose loans are non-eligible (Loans above 5 years)

- Placebo 2: No effect when changing treated group to an already eligible group (BDF rating 3)

- Alternative controls: Effect holds when replacing control group with ineligible firms (BDF rating 5+)

Robustness: results

Table : Robustness

	Baseline	Non-Eligible	3 / 4+	4 / 5+
Rating4	0.171***	0.091	-0.118***	-0.117***
	(0.023)	(0.055)	(0.025)	(0.031)
POST*Rating4	-0.070**	-0.009	-0.038	-0.134**
	(0.035)	(0.076)	(0.043)	(0.054)
Loan Controls	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
Sector_Period	Yes	Yes	Yes	Yes
Region_Period	Yes	Yes	Yes	Yes
Bank_Period	Yes	Yes	Yes	Yes
Quarter	Yes	Yes	Yes	Yes
Observations	3977	920	2889	3733
Adj. R^2	0.378	0.462	0.452	0.373

Note. Standard errors are corrected for clustering at the Bank*Quarter level.

Did the ACC trigger a credit supply shock?

- Look also at volumes lent by the 9 selected banks to 4+- vs 4-rated firms, Dec. 2011 to Dec. 2012

  - Data source: BdF's Credit registry (all bank-firm exposures above 25 kEUR)

  - Keep 4+- and 4-rated firms that do not switch ratings over 2012

- Control for firms' demand/risk: firm-specific information + Region*Industry fixed effects

- Control for banks' characteristics: Bank fixed effects

Impact on lending volumes: results

Table : Impact of the ACC on loan volumes (intensive margin)

	(1) $\Delta ln(L_{i,j})$	(2) $\Delta ln(L_{i,j})$	(3) $\Delta ln(L_{i,j})$	(4) $\Delta ln(L_{i,j})$
Rating4	0.017***	0.016***	0.015***	0.015***
	(0.004)	(0.004)	(0.004)	(0.004)
Log Total Assets		0.007***	0.005***	0.006***
		(0.002)	(0.002)	(0.002)
Debt/Assets		0.046***	0.046***	0.049***
		(0.013)	(0.011)	(0.011)
Sales-to-Assets		0.015***	0.009***	0.008***
		(0.003)	(0.003)	(0.003)
Sector*Region	No	No	Yes	Yes
Bank	No	No	No	Yes
Observations	33,259	33,259	33,053	33,053
R^2	0.001	0.005	0.054	0.055

Note. Standard errors are corrected for clustering at the Bank*Industry level.

Bank Heterogeneity

- Banks likely differ in their valuation of the associated liquidity advantage $\Longrightarrow$ intensity of the treatment

- **Sort banks** (strictly above/below median) along 3 dimensions:

  - ex ante ratio of pledged credit claims to total pledged collateral

  - ratio of LTRO-uptakes to ex ante pledged collateral (AHV)

  - bank's capitalization

Bank Heterogeneity

Table : Bank Heterogenity

	All Banks	High CC	Low CC	High LTRO	Low LTRO	High Capital	Low Capital
Rating4	0.171***	0.173***	0.177***	0.170***	0.138***	0.158***	0.212***
	(0.023)	(0.032)	(0.032)	(0.031)	(0.037)	(0.031)	(0.029)
POST*Rating4	-0.070**	-0.096**	-0.002	-0.055	-0.002	-0.057	-0.091
	(0.035)	(0.045)	(0.048)	(0.045)	(0.072)	(0.044)	(0.058)
Loan Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector_Period	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region_Period	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank_Period	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3977	2085	1596	1999	1141	2129	1689
Adj. R^2	0.378	0.306	0.414	0.296	0.467	0.411	0.395

**Note**. Standard errors are corrected for clustering at the Bank*Quarter level.

Conclusion

- Identified effect may be a lower bound of overall effect
  - our identification strategy differences out any common effect due to the program

- Key outstanding question is how relevant is this effect for aggregate economic activity?

- Policy implications for future post-crisis monetary policy tightening via collateral channel

Background slides

Bond spreads for euro-area banks
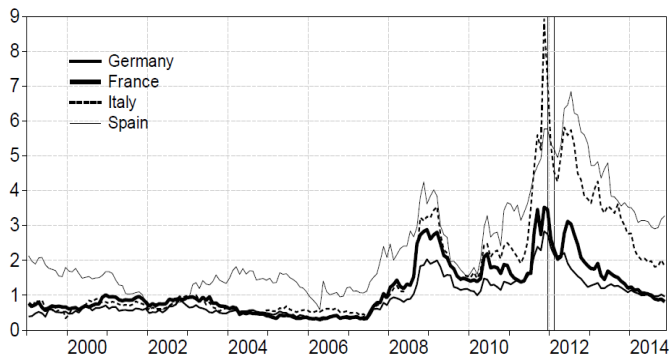
Note. This figure shows for each country the average spread of bank bonds towards the German Bund. Aggregate spreads are computed from individual bond data following the methodology in Gilchrist and Mojon (2014). Vertical lines stand for the two rounds of the LTROs.

# Eurosystem's LTRO-ACC package and bank credit to firms: macro view

back

Bank loans to non-financial firms (annual growth rates in %)
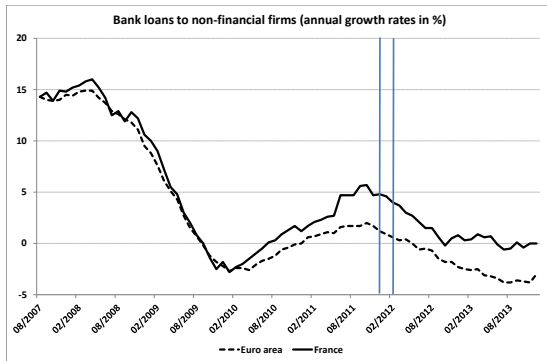
Note. This figure shows for France and the euro area the annual rate of growth of loans of domestic MFIs to non-financial firms. Vertical lines stand for the two rounds of the 3-year LTROs. The ACC program was operational in France just before round 2.

BLS France: Credit supply and demand, non-financial corporates
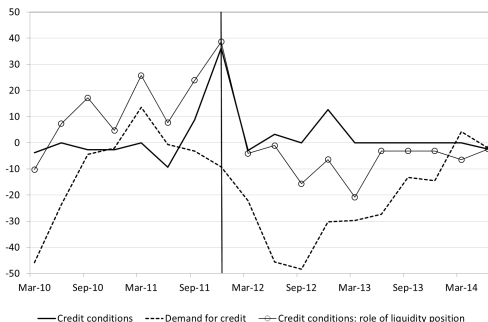
Note. Index of credit conditions for bank lending to non-financial firms (solid line) and index for credit demand by non-financial firms (dashed line). Source: Eurosystem's Bank Lending Survey for France. Positive numbers denote respectively tighter supply and stronger demand. End-of-quarter figures refer to perceived changes over the last three months.

Descriptive statistics

Table : Loans in our Sample in 2011 (Pre-ACC period)

	count	mean	sd	p1	p50	p99
4						
Loan Spread	1091	2.44	0.65	1.01	2.39	4.67
Credit Volume k	1091	245.77	2818.40	5.00	47.00	2000.00
Maturity Years	1091	3.52	1.31	1.00	4.00	5.00
Investment Loan	1091	0.86	0.34	0.00	1.00	1.00
Secured	1091	0.42	0.49	0.00	0.00	1.00
4+						
Loan Spread	845	2.21	0.59	0.89	2.19	3.89
Credit Volume k	845	255.39	1221.64	6.00	50.00	4750.00
Maturity Years	845	3.65	1.18	1.00	4.00	5.00
Investment Loan	845	0.93	0.26	0.00	1.00	1.00
Secured	845	0.37	0.48	0.00	0.00	1.00

Note. This table presents descriptive statistics on our sample of newly issued loans. Only standard investment and treasury loans with fixed rate are included. Loan spreads to the EONIA are expressed in percentage points. Credit volumes are in EUR thousand. *Investment loan* and *Secured loans* are dummy variables for these loan categories respectively.