The Benefits of Reducing Hold-Out Risk: Evidence from the Euro CAC Experiment, 2013-2018*

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September 2019, OECD (Paris)

* This presentation is based on joint work with Aitor Erce and Xu Jiang. Disclaimer: the views on this presentation are the authors' and not those of the European Stability Mechanism or its Management Board

Introduction

- How to deal with sovereign default? Statutory vs contractual approach --> collective action clauses
- **Traditional CACs - Bond-by-bond voting** introduced in the late 1990s
    - Euro area countries have them in their foreign law bonds since 2004
- Reaction to euro area crisis (defaults are not 0-probability events): introduced **two-limb CACs - bond-by-bond voting and aggregate voting**
    - Euro area countries have them under both domestic and foreign law since 2013
- Remaining concerns over holdout litigation: ICMA introduced **single-limb CACs - aggregate voting procedure**
    - To be adopted in the euro area (euro CACs would not have avoided the Greek outcome)

Introduction

- Ongoing debate happening with limited evidence
- What is the effect of CACs? Existing evidence between positive and neutral
  - Carletti et al. (2018), Picarelli et al. (2019), Steffen et al. (2019) on effects of euro area CACs
  - IMF (2017) and Picarelli et al. (2019) on effects of single-limb CACs
- How do CACs affect default risk components – PD and LGD? No systematic evidence
  - Easing restructuring ➡ quicker resolution ➡ decrease in LGD
  - Easing restructuring ➡ increase in PD (Bolton & Jeanne, 2009)

The nutshell of my talk

- Summarise Picarelli et al. (2019) on the pricing effect of euro CACs in domestic-law bonds
  - Euro CACs reduced yields
  - Country-specific & time-varying effects

- Evaluate the effect of coupons
  - Can the coupon spread explain the difference in yields assigned to CACs?
  - What is the effect of CACs for the high-low coupon spread?
  - Can we learn something about the effect of CACs on LGDs? (not there yet)

Euro area evidence: data and matching approach

- Dataset: all available bonds for euro area countries
- Time frame is 2013-2018
- Matching CAC and non-CAC bonds (same issuer and same currency)
    - closest maturity date $\in$ (-1; +1)
    - Drop pairs where coupon differential above 5%
    - Drop pairs where original maturity differential above 10 years

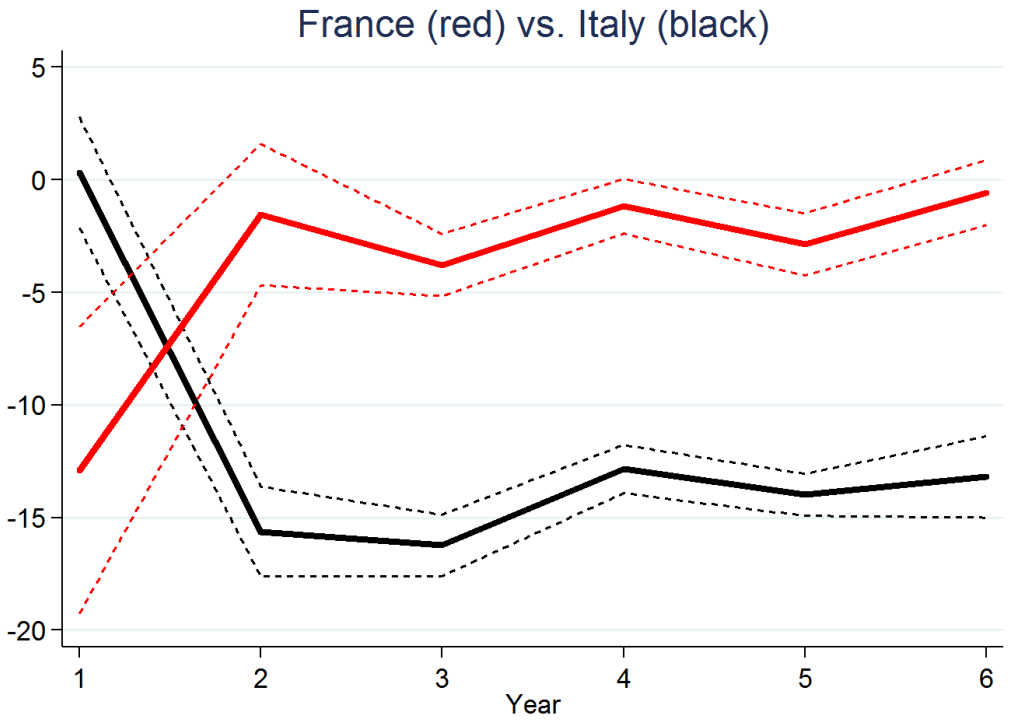
The effect of CACs on euro area sovereign yields

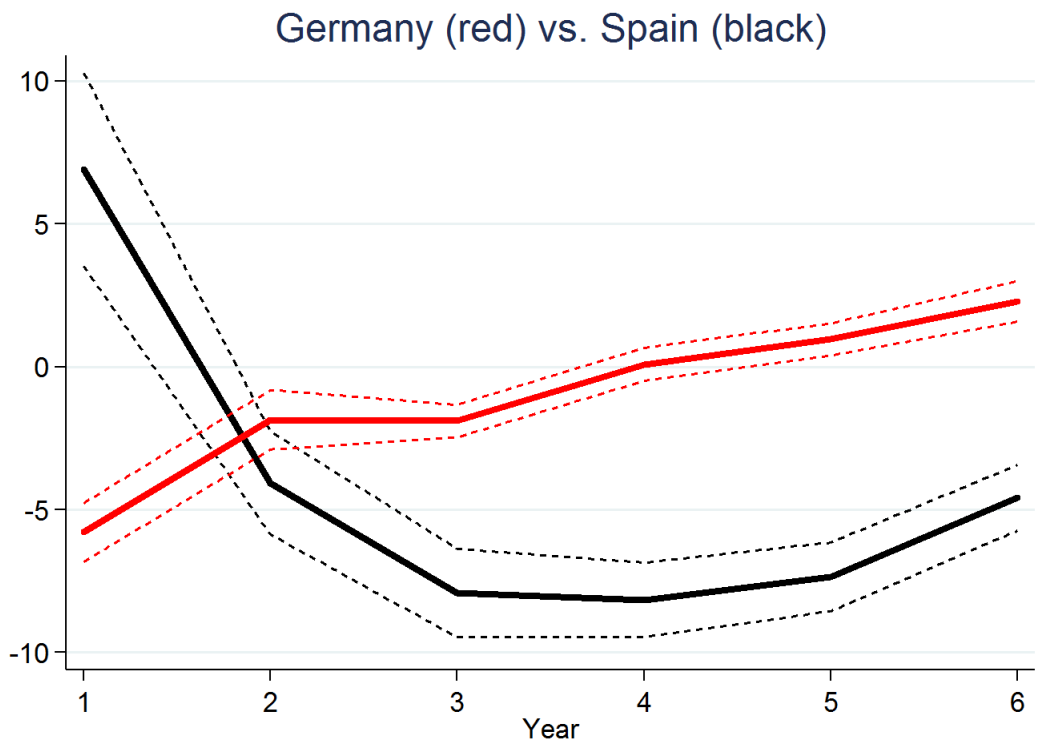
- In Picarelli et al. (2019) we estimate the following equation:

$$y_{i,c,t} = \alpha + \beta \cdot CAC_i + \gamma \cdot Controls_{i,c,t} + \chi_j + \phi_{\ t} + \varepsilon_{i,c,t}$$

- $Controls_{i,c,t}$ includes rating, euro area 10-year government bond yield, bond duration, bond bid-ask, ECB´s flow of bond purchases and stock of bonds holdings. χ_j are country-fixed effect and ϕ_t weekly fixed-effects
- Obtain country-specific time-varying effects by applying this model to country-year data

Country and time variation





What can explain these results?

- Interplay of the CACs with domestic legislation:
  - **Reduced redenomination risk (and other types of retrofitting risks under domestic legislation)**
- **Country-specific factors**:
  - *Italy:* Unilateral extension available to the Italian DMO is more likely to be challenged now
  - *Spain:* constitutional reform reduced default risk -> benefited more bonds easier to restructure?
- **Coupon spread:** link between coupon and yield on defaultable bonds (Cecchetti & Di Cesare, 2012)
  - High coupon associated with high yields -> more arrears accumulated during default (larger LGD)
  - Bonds with CACs issued in a low coupon environment: their lower yield may reflect that
  - For equal default probabilities, coupon spreads convey information about recovery rates

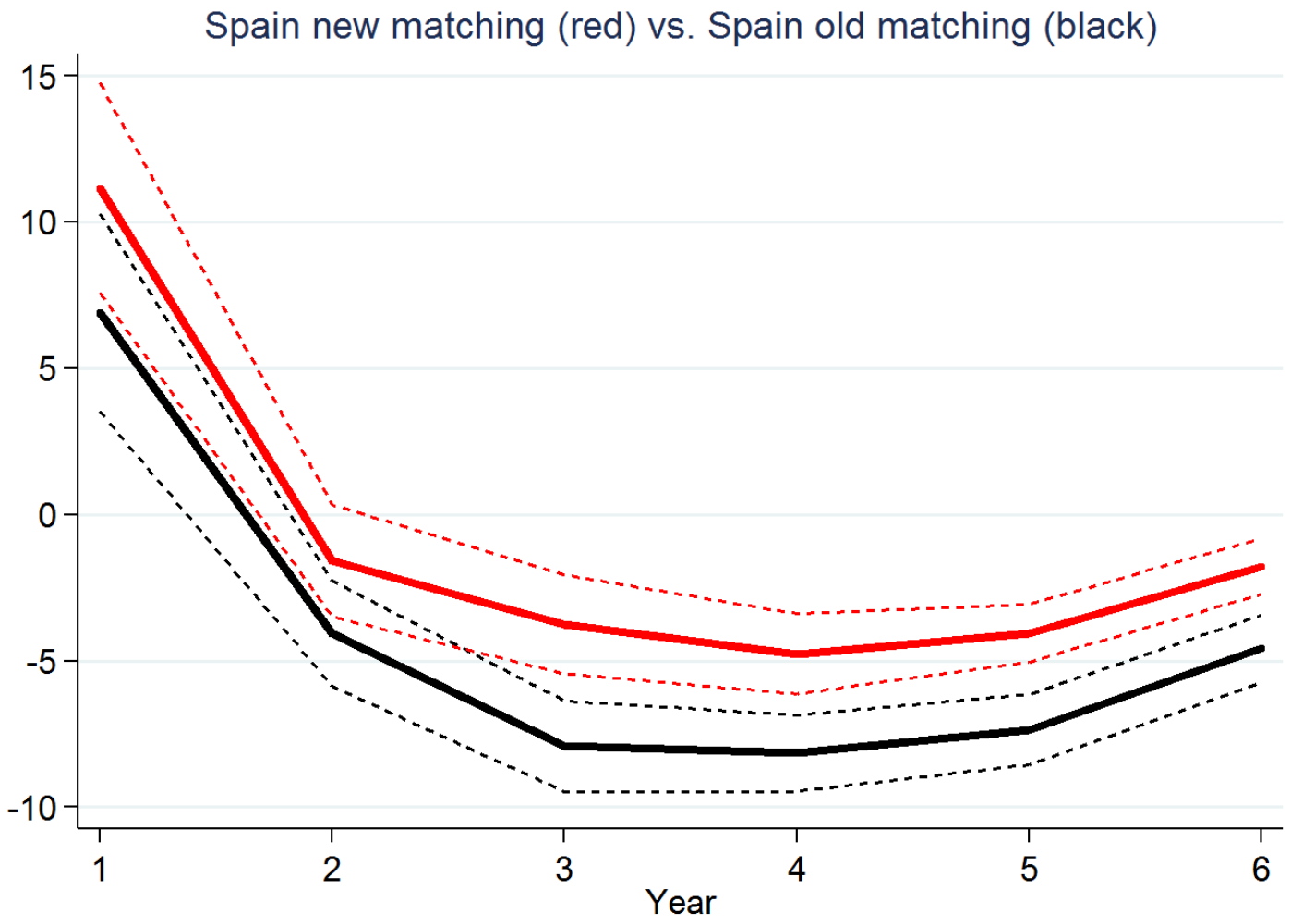
Do coupons matter in our sample?

	CACs		no-CACs		diff.
	Mean	Dev. Std.	Mean	Dev. Std.	
Coupon (maturity < 4 years)	0.23	0.71	3.63	0.88	3.40***
Coupon (maturity > 4 years)	1.50	1.24	4.36	1.42	2.86***

t statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01

A "*high to low coupon*" trend in coupons was observed in the Euro area around the same time that CACs were introduced

Do coupons matter to our estimates?



Coupons and CACs as drivers of yields

- Re-evaluate the CAC effect after adding coupon levels as control variable:

$$y_{i,c,t} = \alpha + \beta \cdot CAC_i + \beta_1 Coupon_i + \beta_2 CAC_i \cdot Coupon_i + \gamma \cdot Controls_{i,c,t} + \chi_j + \phi_t + \varepsilon_{i,c,t}$$

- Two different effects can be studied:
  - The cost of issuing a coupon bond, with or without CAC
  - The effect of CACs on coupon spread

Coupons and CACs as drivers of yields: Pooled results

	Full sample
Collective action clause	38.58***
	(27.66)
Coupon	12.34***
	(34.61)
Collective action clause x coupon	-8.643***
	(-22.65)
Country fixed effect	Y
Monthly fixed effects	Y
Numer of observations	29650
R-squared	0.911

t statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Findings

- The cost of issuing bonds with the average (observed) coupon, with or without CACs:

  Cost in a CACs regime: $\beta + (\beta_1 + \beta_2) \cdot Coupon_{CAC}$

  Cost in a no-CACs regime: $\beta_1 \cdot Coupon_{No-CAC}$

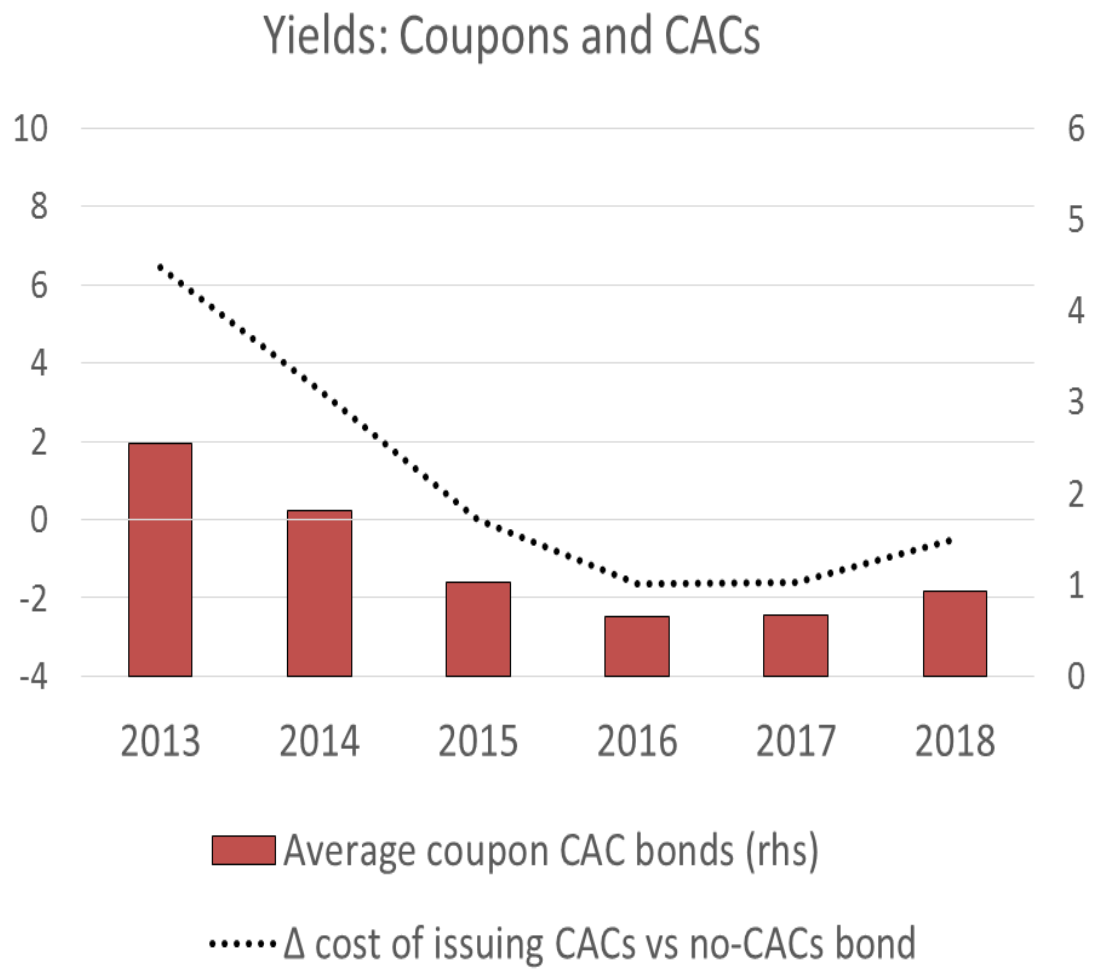
- The cost difference is:

  $\beta + \beta_2 \cdot Coupon_{CAC} + \beta_1 \cdot (Coupon_{CAC} - Coupon_{No-CAC})$

- We set:

  $Coupon_{CAC}$ = corresponding yearly averages

  $Coupon_{No-CAC} = 3.4$ (average $2010 - 2013$)



Findings

- Effect of CACs on coupon spread:

  $\beta_2 < 0$ → CACs reduce coupon spreads

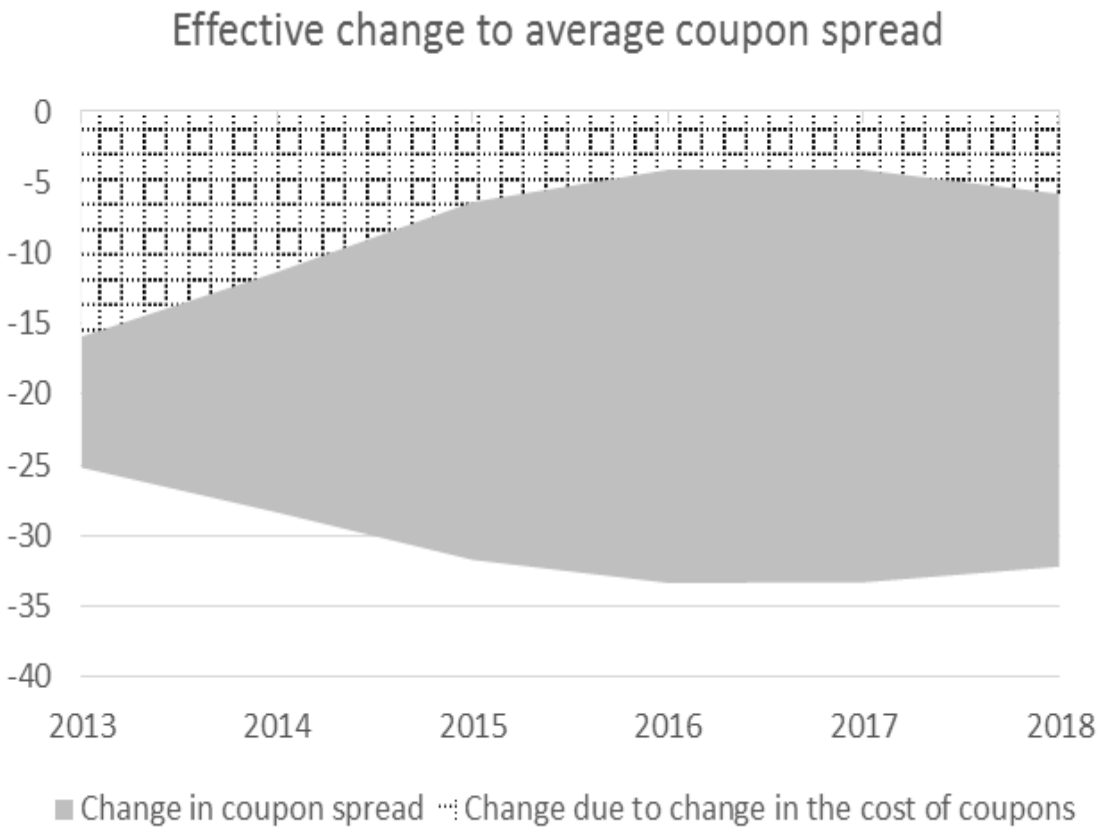
- Define average coupon spread (against a zero-coupon):

  CAC regime: $(\beta_1 + \beta_2) \cdot Coupon_{CAC}$

  No-CAC regime: $\beta_1 Coupon_{No-CAC}$

- Effective change to average coupon spread following inclusion of CACs:

  $\beta_2 \cdot Coupon_{CAC} + \beta_1 \cdot (Coupon_{CAC} - Coupon_{No-CAC})$



Conclusion

- The effect of euro CACs is heterogeneous across countries and time-varying
    - Larger effects for Italy and Spanish: CACs reduce local-law advantage (Buccheit 2019)
- Bonds issued with CACs have lower yield even if coupon spreads are taken into account
    - Zero coupons would be better without CAC but larger coupon bonds not
    - Coupons and CACs interact to affect bond pricing
- CACs reduce the coupon spread
    - Can we infer that CAC increase expected recoveries (reduces LGD)?

Thanks for your attention

Euro area evidence: Data and matching approach

Summary statistics for the loose and tight sample – CACs and matched no-CACs bonds

Loose sample

Variable	CACs bonds		Non-CACs bonds		Diff.
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	
Yield	73.12	112.71	120.99	142.27	47.87***
Duration	7.01	4.24	7.48	4.33	0.47***
Liquidity	0.03	0.24	0.22	2.96	0.19***

Tight sample

Variable	CACs bonds		Non-CACs bonds		Diff.
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	
Yield	65.28	111.90	110.52	140.28	45.24***
Duration	6.12	3.35	6.45	3.31	0.33***
Liquidity	0.03	0.27	0.26	3.24	0.22***

Euro area evidence: Data and matching approach

Country breakdown during data preparations

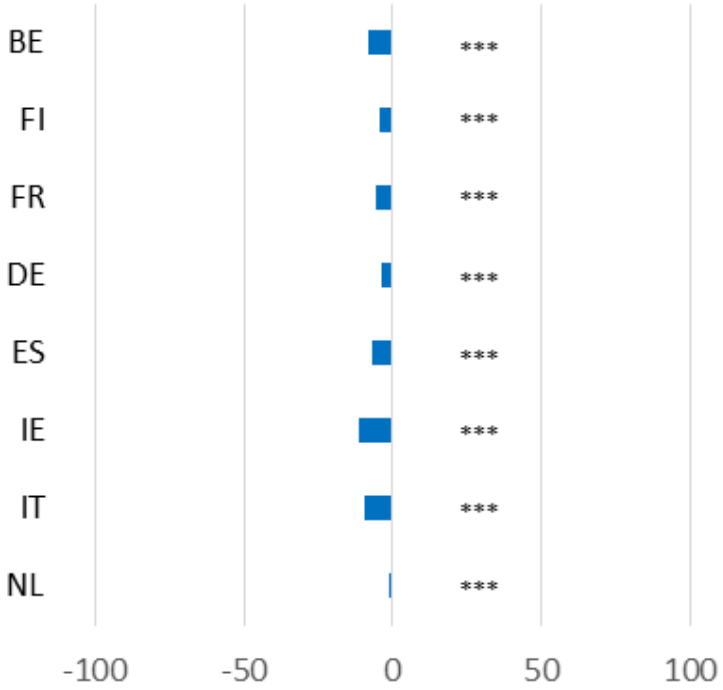
Issuer	All bonds with CAC provisions	Usable bonds with CAC provisions	CAC & No-CAC matched pair (loose matching)	CAC & No-CAC matched pair (tight matching)
Austria	19	13	11	6
Belgium	23	21	15	5
Finland	12	12	10	8
France	34	27	24	12
Germany	53	44	43	28
Ireland	14	10	5	1
Italy	80	59	53	30
Netherlands	16	8	8	6
Portugal	11	9	5	1
Spain	35	32	27	18
Total	297	235	201	115

Euro area results

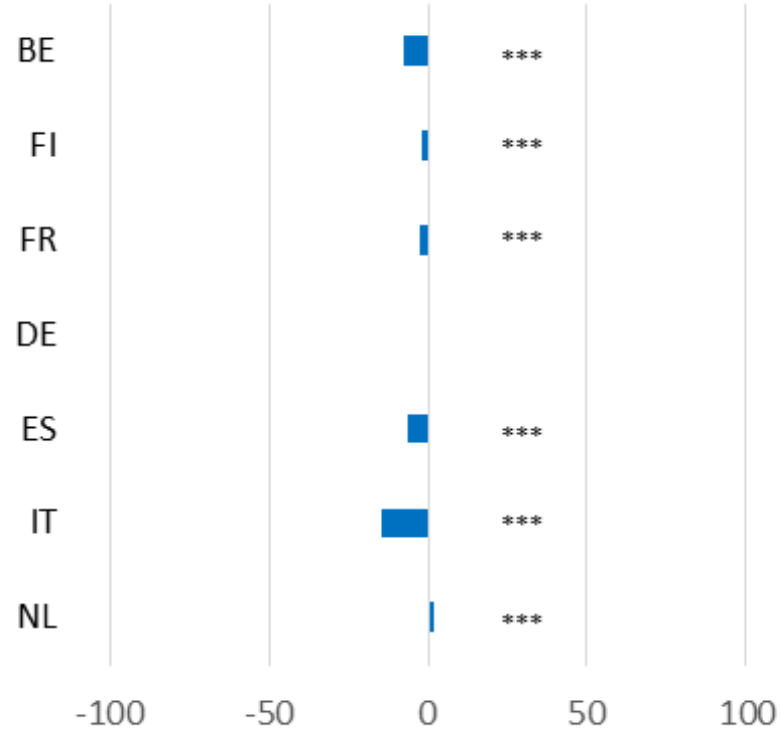
	Carletti et a. (2018)	Carletti et a. (2018)	Loose matching	Loose matching	Tight matching	Tight matching	Tight matching - Italy excluded
10Y Euro are gov. bond yield	1.008***	1.008***	1.154***	1.257***	1.082***	1.243***	1.283***
	(145.66)	(25.24)	(22.42)	(24.20)	(15.05)	(17.35)	(22.07)
Rating	-27.10***	-17.07***	-20.42***	-19.34***	-18.50***	-19.99***	-45.42***
	(-210.52)	(-13.76)	(-305.69)	(-35.99)	(-214.91)	(-25.10)	(-57.32)
ECB stock	0	0	1.291***	1.812***	1.184***	2.055***	2.810***
	(.)	(.)	(14.76)	(20.23)	(11.75)	(19.32)	(36.93)
ECB flow	0	0	50.78***	72.82***	86.53***	122.4***	25.81***
	(.)	(.)	(22.72)	(29.44)	(32.95)	(37.30)	(9.58)
Duration	14.80***	14.40***	14.96***	14.68***	18.37***	18.50***	15.76***
	(103.70)	(102.37)	(222.90)	(215.69)	(174.14)	(160.54)	(193.10)
Liquidity	-1.621***	-2.146***	0.354***	0.132*	0.444***	0.306***	0.270***
	(-6.01)	(-8.16)	(4.40)	(1.70)	(5.64)	(3.93)	(3.58)
CAC	-10.83***	-6.410***	-5.300***	-4.450***	-3.725***	-4.141***	-2.257***
	(-10.86)	(-7.03)	(-14.07)	(-12.22)	(-8.24)	(-9.93)	(-6.51)
Country fixed effect	N	Y	N	Y	N	Y	Y
Weekly fixed effects	N	Y	Y	Y	Y	Y	Y
Numer of observations	12920	12920	55064	55064	30683	30683	22866
R-squared	0.889	0.906	0.892	0.899	0.897	0.907	0.939

t statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Euro area results: country-specific effects



Loose sample



Tight sample

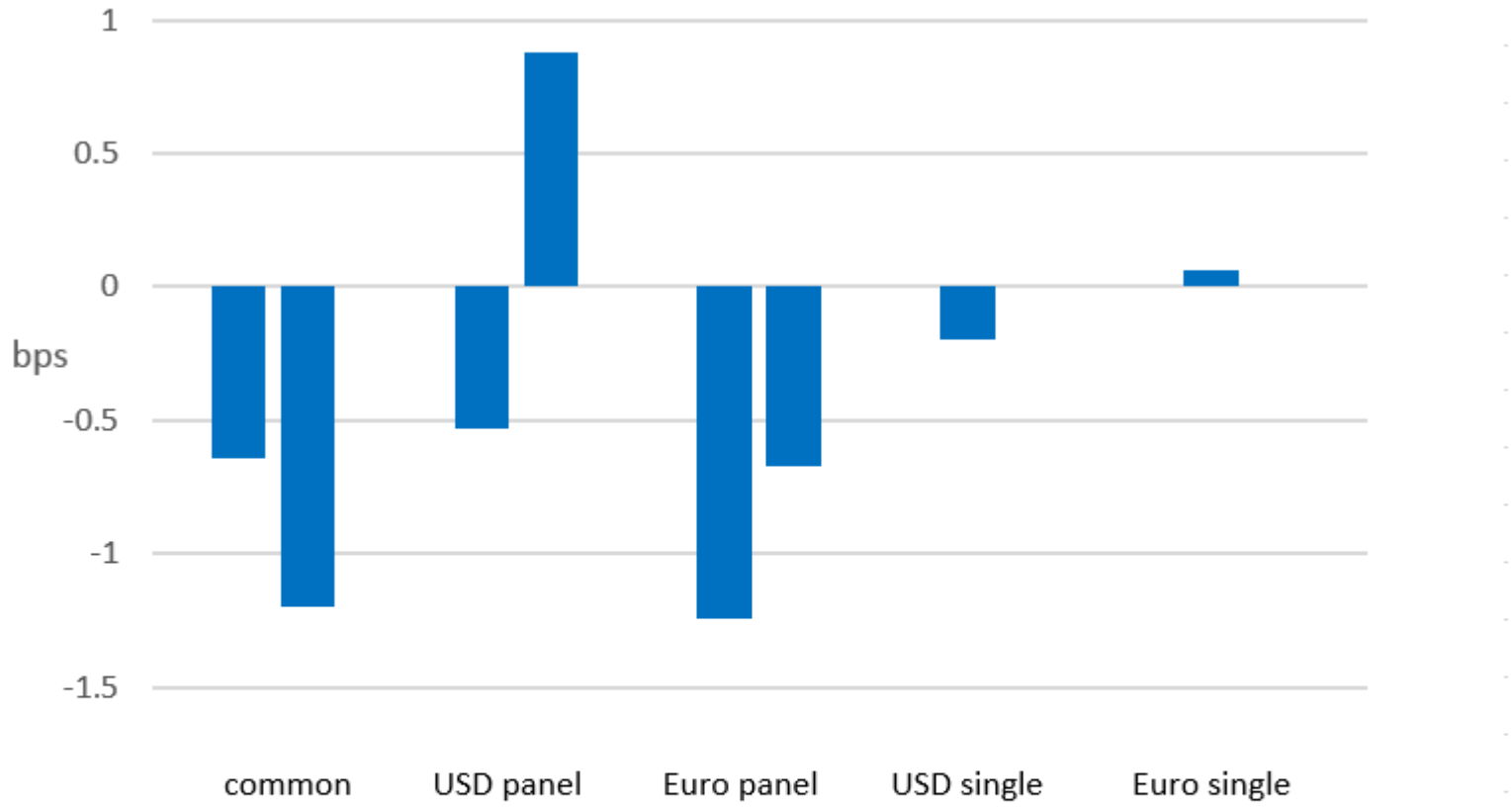
Evaluating the single-limb: the case of Sweden

- Sweden introduced the ICMA CAC in 2017 in its foreign-law bonds
- We collect data on 36 bonds since 2010
  - 30 traditional CAC bonds
  - 6 single-limb bonds
- We estimate the following two equations:

1) $$y_{i,t} = \alpha + \beta \cdot CAC_i^{single} + \gamma \cdot Controls_{i,t} + \theta_c + \psi_i + \phi_t + \varepsilon_{i,t}$$

2) $$y_{i,t} = \alpha + \sum_{\forall i \in (euro,dollar)} \beta_i \cdot CAC_i^{single} + \gamma \cdot Controls_{i,t} + \psi_i + \phi_t + \varepsilon_{i,t}$$

Swedish results



The graph depicts the coefficients from the regression using the post-2009 sample and adding weekly fixed effects to the regressions. Common refers to the model where the effect of CAC is assumed identical across markets. Panel refers to the model where CAC effects are currency specific but the analysis pools all bonds together. Single refers to the models estimated for each currency subsample.