Restructuring Sovereign Bonds: Holdouts, Haircuts and Effectiveness of CACs

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Motivation

- Resolving sovereign debt crises is hard.
- A key challenge is the holdout problem with dispersed bondholders:
  - Individual creditors always have the incentive to free-ride.
  - Aggressive holdout tactics such as litigation are on the rise.
- The policy response has focused on collective action clauses (CACs).
- Despite policy attention and theories, there is little empirical evidence on holdout behavior or the effectiveness of CACs.

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⇒ **This paper: first empirical analysis of the holdout problem using a novel granular dataset on sovereign bond restructurings**

- What determines bondholder participation / holdouts?
- Which bonds are most at risk?
- Are CACs an effective means to reduce holdouts?

The Problem: holdouts and litigation risks are on the rise

Argentina 2005

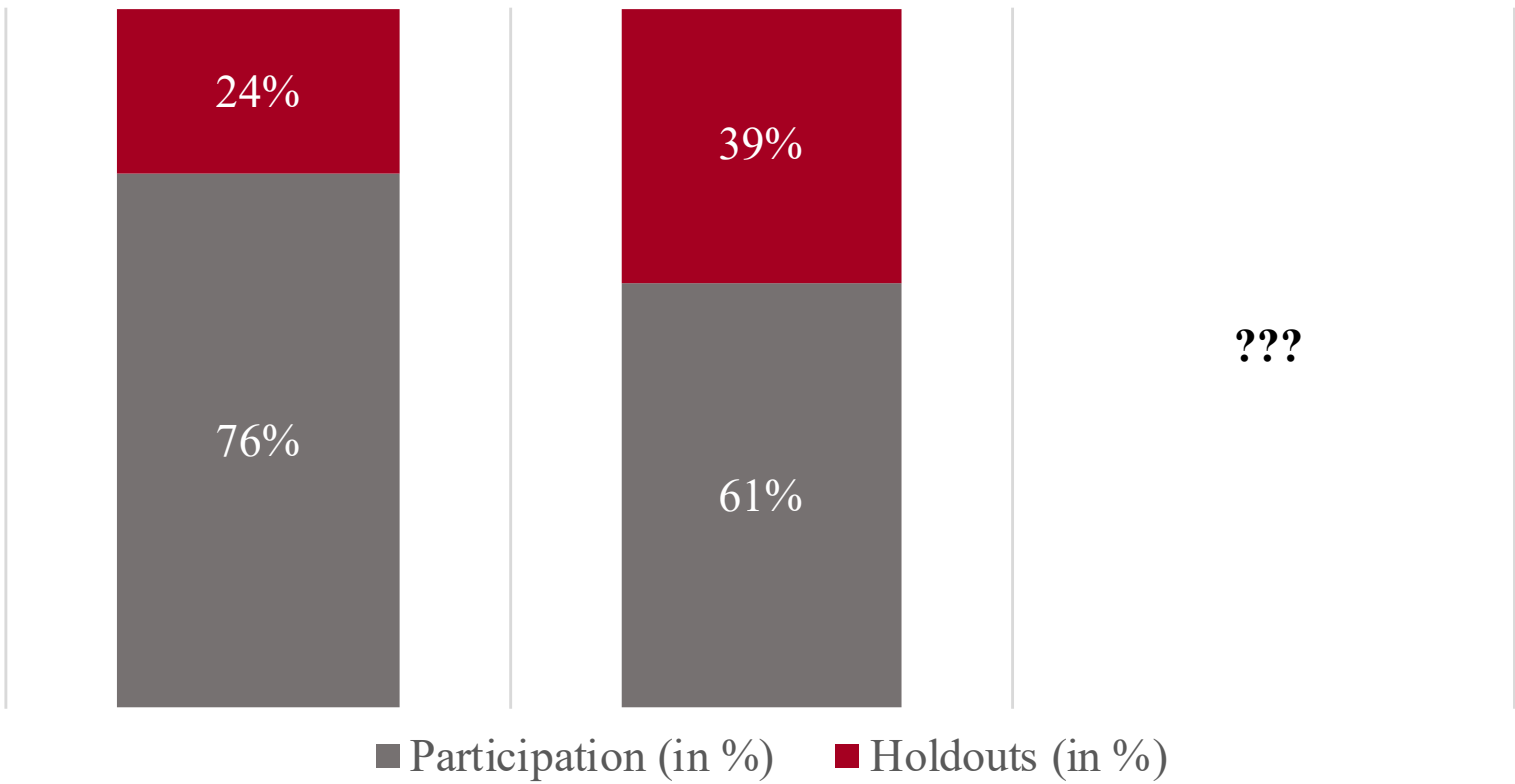
$20 bn holdouts
(10% of GDP)
fully repaid after
10 years of litigation

Greece 2012 (Foreign Law)

€6.5 bn holdouts
(3% of GDP)
fully repaid (no haircut)

Argentina 20??

most contain
enhanced CACs
(single/double-limb)



Policy Response: Three Generations of CACs

- **Classic CACs:** bond-by-bond voting
  - Historically already in most English-law bonds (typically 66%)
  - Advocated by G10, IMF and US Treasury following bailouts in 1990s (75%)
  - First New-York-law issuance with CACs by Mexico in 2003 (75%)
- **Double-Limb CACs:** bond-by-bond voting plus aggregation across bonds (two steps)
  - Included in restructured bonds such as Uruguay and Argentina (66% bond-by-bond with 85% aggregate)
  - Included in all euro area domestic-law government bonds in accordance with 2013 ESM Treaty (50% bond-by-bond with 75% aggregate)
- **Single-Limb CACs:** aggregate voting across bonds (one step)
  - Retro-fitted and applied in Greece 2012 (66%)
  - Recommended by ICMA (2014) and IMF (2014) (75%)
  - Currently discussed as part of ESM reform package (threshold TBD)

What This Paper Does

1. Assemble a new, granular database of holdouts, haircuts, and CACs for modern sovereign debt restructuirngs.
2. Explore the determinants of holdouts and effects of CACs via (i) stylized facts (ii) regressions and (iii) simulations.

Large theoretical literature on determinants of holdouts and (contradictory) effectiveness of CACs:

- Ghosal and Miller (2003), Haldane et al. (2005), Bolton and Jeanne (2007, 2009), Pitchford and Wright (2007, 2012) Engelen and Lambsdorff (2009), Bi, Chamon and Zettelmeyer (2016)

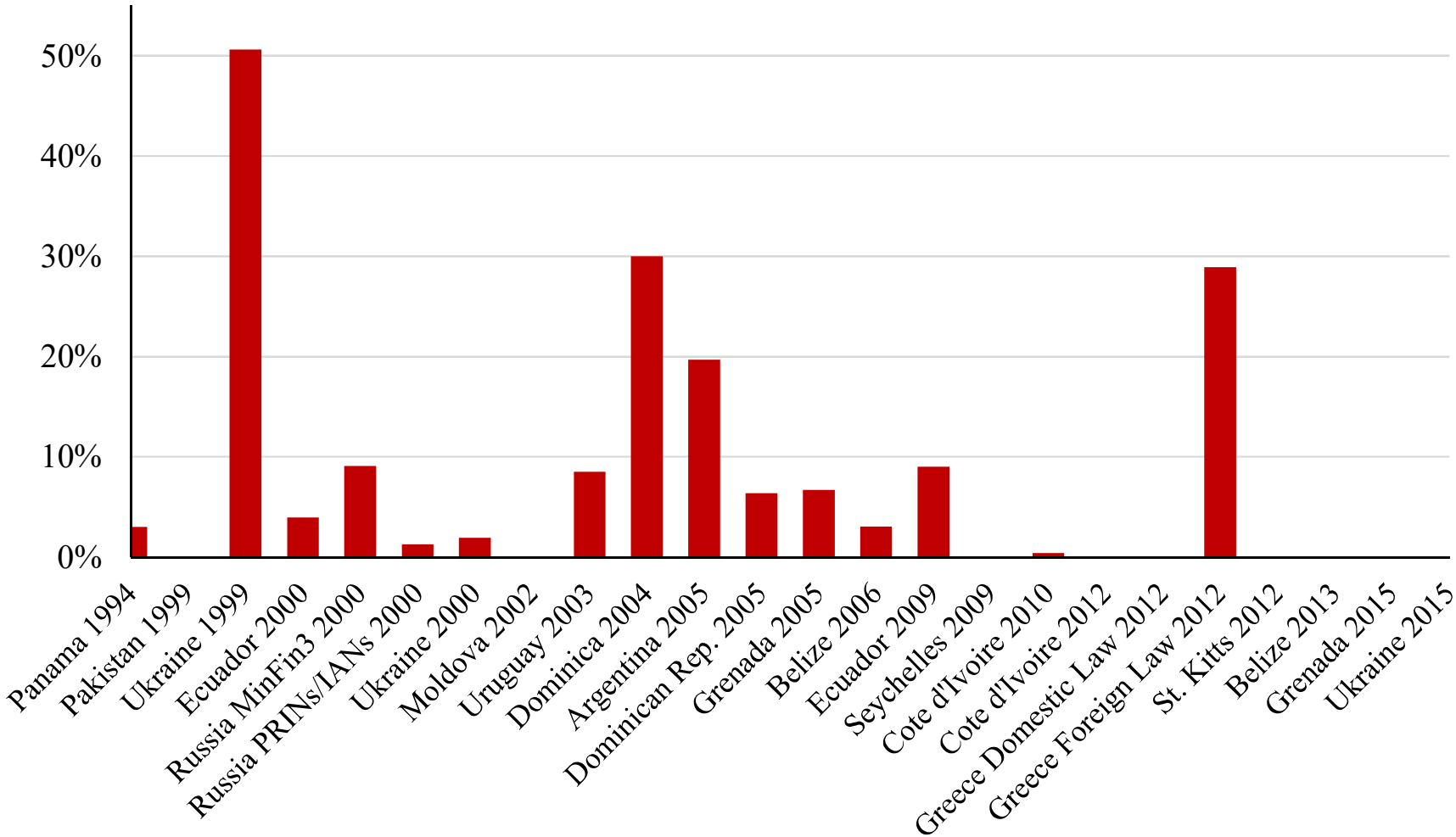
Empirical literature mainly focused on pricing effects of CACs:

- Eichengreen and Mody (2000, 2004), Becker et al. (2003), Bradley and Gulati (2014), Bardozetti and Dottori (2014), Carletti et al. (2018), Colla and Gulati (2018), Picarelli et al. (2018)

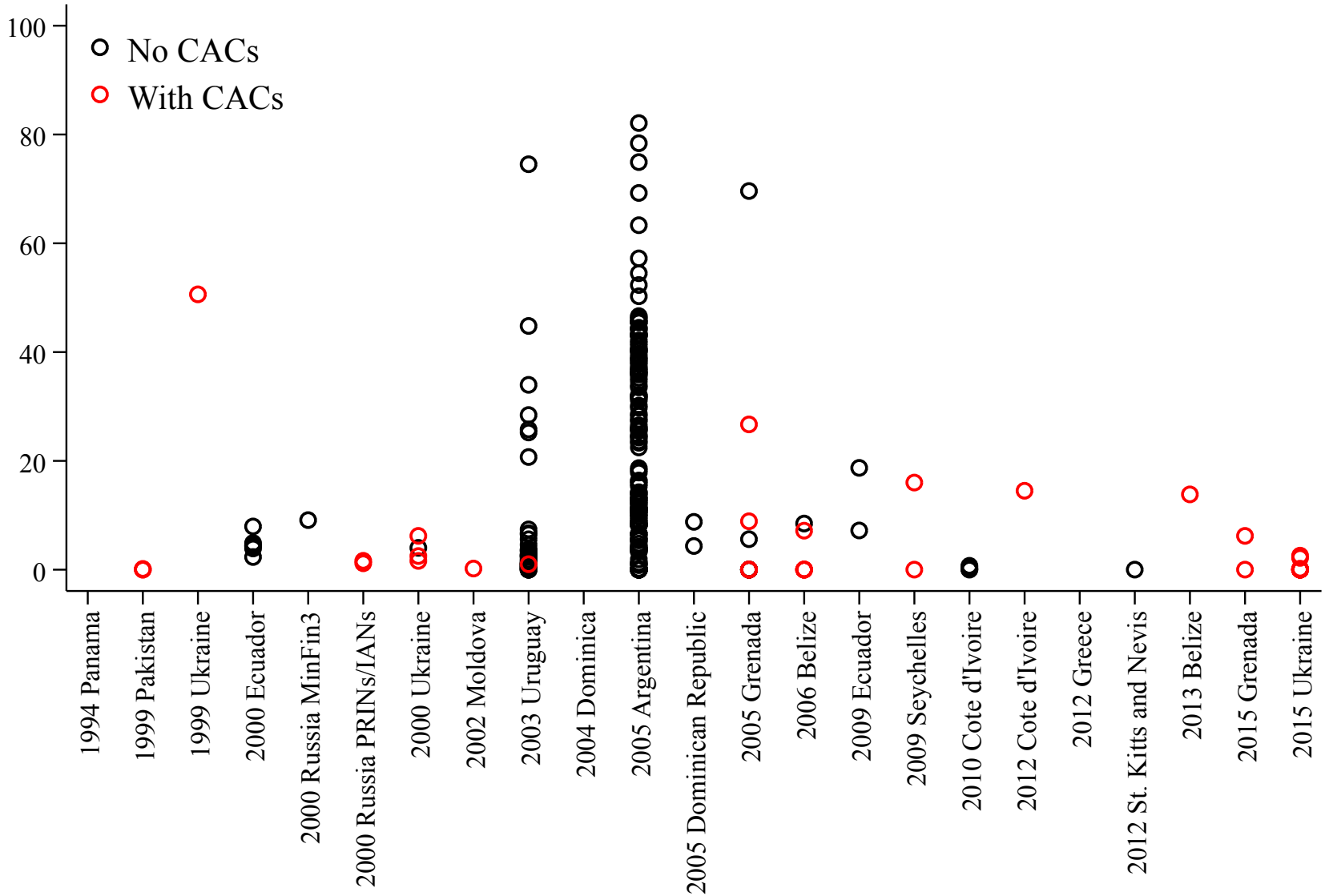
Sample: Bond-Level Data on 23 Restructurings

- 23 sovereign bond restructurings by 16 countries and 418 bonds.
- Instrument-level characteristics including CACs, coupon structure, amortization schedule, governing law, currency denomination, etc.
- Hand-collected from a variety of sources including prospectuses, press releases, news archives, Bloomberg, Thomson One, IMF country reports and other academic papers – cross-checked between sources to ensure consistency.
- Focus on distressed sovereign bond restructurings (no debt management operations, loans, or private-to-private restructurings, criteria as in Cruces and Trebesch (2013)) and drop loan-like bonds (Ukraine & Cote d'Ivoire) as well as bonds with unusual features (strips and perpetuities).
- **Result: rich new data archive of modern sovereign bond restructurings**.

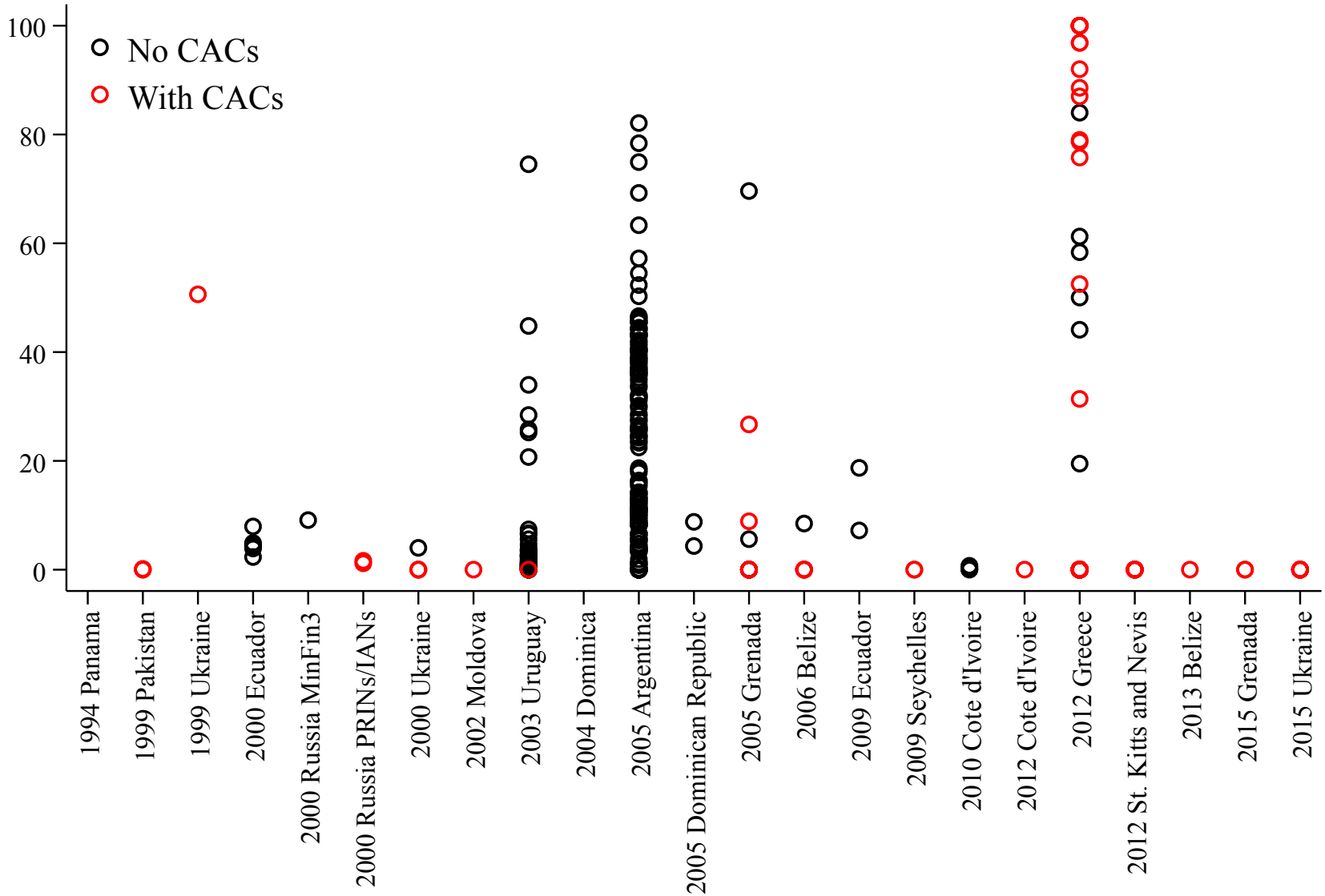
Aggregate Holdouts (Post-CACs)



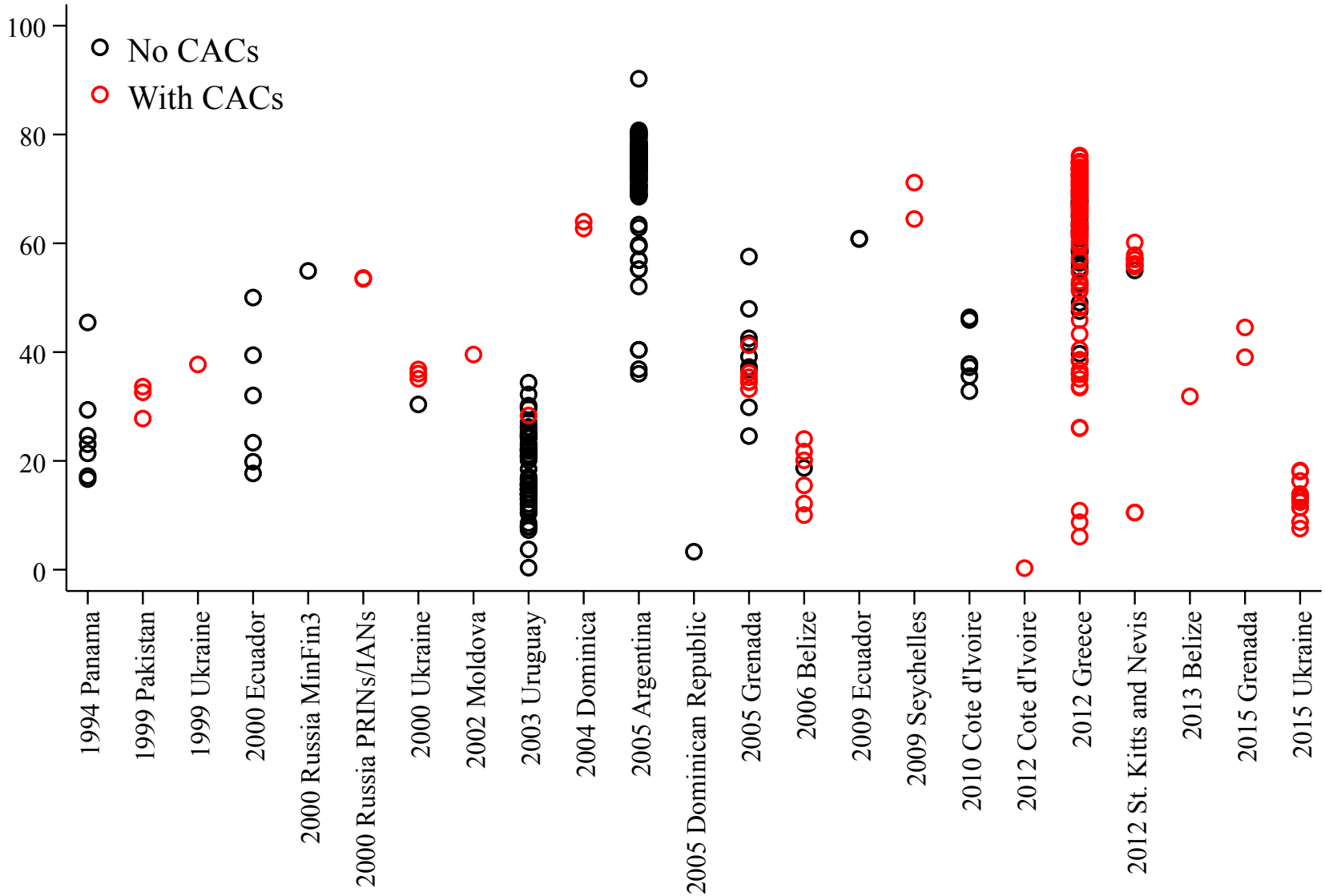
Variation in Pre-CACs Holdouts



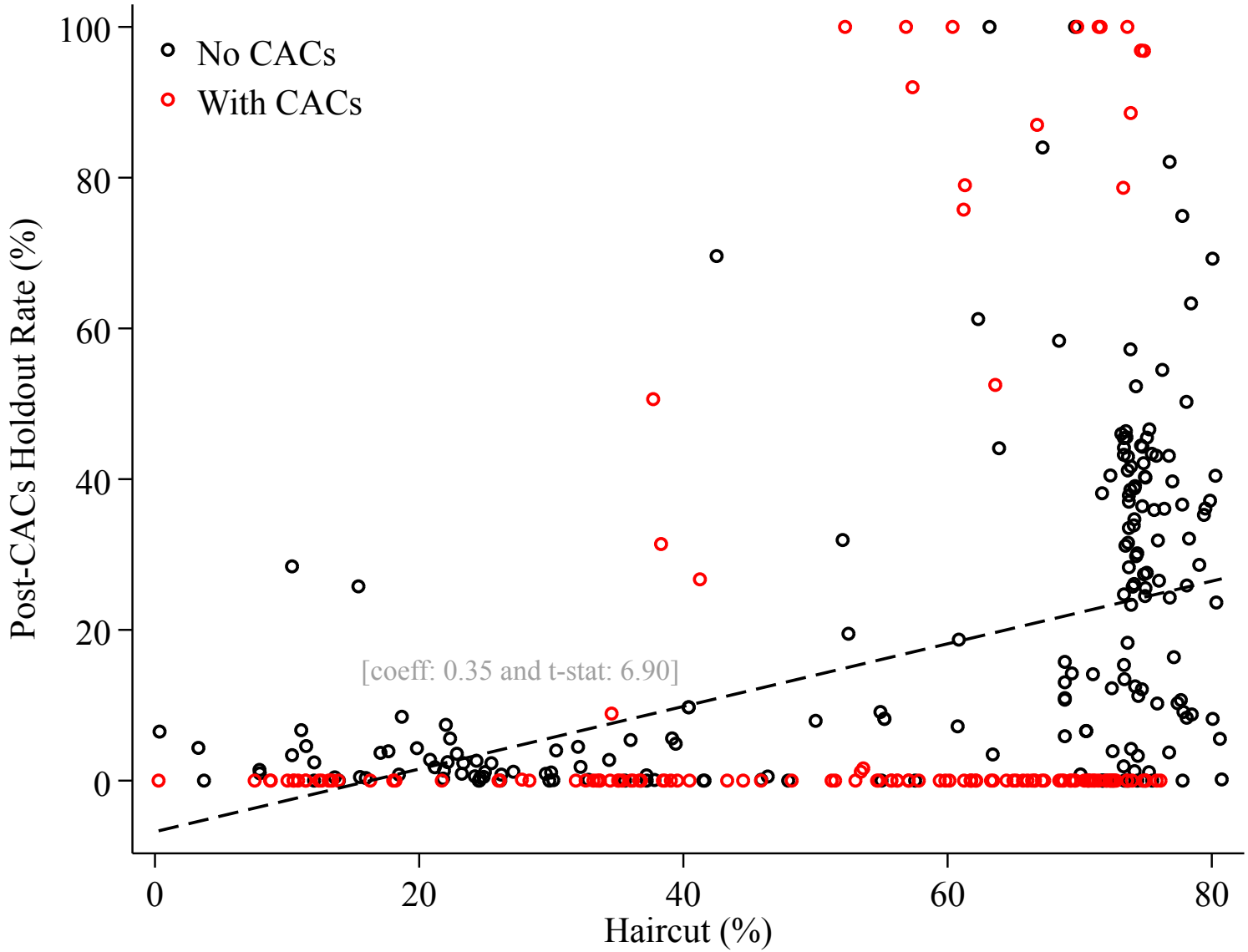
Variation in Post-CACs Holdouts



Variation in Haircuts



Holdouts vs Haircuts



Empirical Framework

$$Holdout_{i,j} = \alpha_i + \beta_1 CAC_{i,j} + \beta_2 Haircut_{i,j} + \gamma \mathbf{x}_{i,j} + \epsilon_{i,j}$$

- $Holdout$: non-participation rate, pre-CACs / post-CACs
- α_i: deal fixed effects
- CAC: inclusion of CACs / types of CACs
- $Haircut$ (Sturzenegger and Zettelmeyer 2005, 2008):

$$1 - \frac{\text{Present Value of New Debt}}{\text{Present Value of Old Debt} + \text{Arrears}}$$

- $\mathbf{x}_{i,j}$: controls including indicator of foreign law, years to maturity, log of principal amount, coupon rate, indicator of traded on exchanges, indicator of denominated in USD

Regression Results

Determinants of Initial Holdouts: Pre-CACs

Dependent Variable	***Pre*-CACs Holdout Rate**	
	OLS (Cross-Section)	With Deal Fixed Effects
Haircut Size	0.249***	0.335***
	(0.030)	(0.059)
CACs Included	-5.139*	1.485
	(2.872)	(4.160)
Foreign Law Bonds	7.129**	8.324**
	(2.582)	(3.267)
Years To Maturity	0.002	0.025
	(0.071)	(0.077)
Principal Amount (log)	-1.260***	-1.240***
	(0.204)	(0.133)
Coupon Rate	0.597	0.823***
	(0.417)	(0.220)
Traded (Liquid Bonds)	9.485***	9.194***
	(1.414)	(1.369)
US$ Denominated	-5.649***	-6.260***
	(0.984)	(0.838)
Deal Fixed Effects	No	Yes
Obs (Nr. of Bonds)	233	233
Nr. of Restructurings	20	20
R2 (within)	0.507	0.491

Holdout rates are *ex ante* (before the application of CACs) ...

- increasing in haircuts
- higher in foreign-law bonds
- higher in bonds with smaller principal amount
- not systematically different in bonds with CACs $\Rightarrow$ **suggests no systematic strategic behavior**

Regression Results

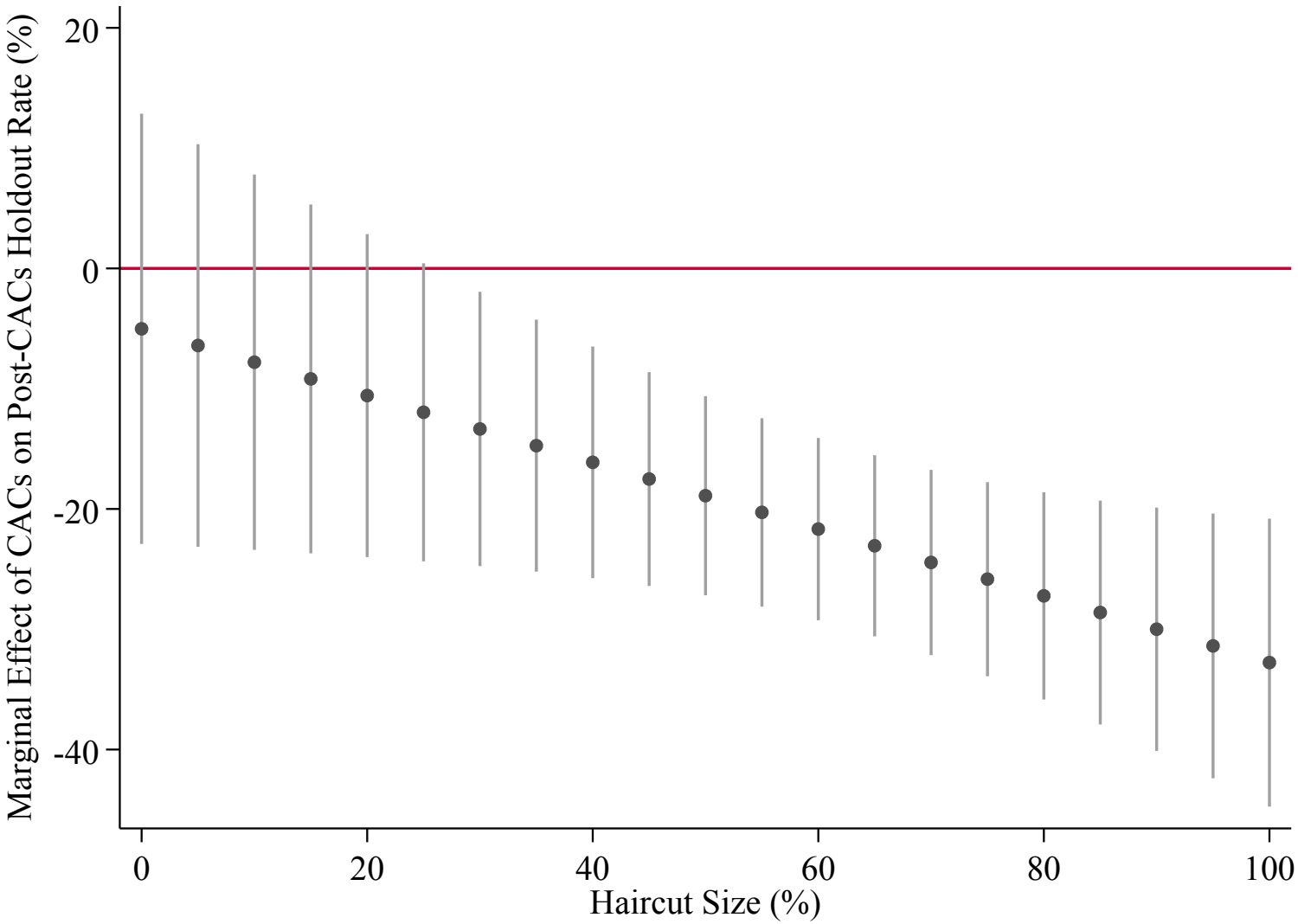
Predicting Final Holdouts: Post-CACs

Dependent Variable	***Post*-CACs Holdout Rate**		
	Baseline	CAC Types	Interaction
Haircut Size	0.631**	0.774***	0.850**
	(0.250)	(0.257)	(0.321)
CACs Included	-19.395***		-4.954
	(3.798)		(9.199)
Bond-by-Bond CACs		-9.218***	
		(3.120)	
Single Limb CACs (Greece)		-54.110***	
		(4.254)	
CACs x Haircut			-0.279**
			(0.132)
Foreign Law Bonds	32.412**	11.313***	32.365**
	(11.705)	(1.980)	(11.661)
Years To Maturity	0.083	0.260	0.107
	(0.277)	(0.270)	(0.274)
Principal Amount (log)	-1.458***	-0.951**	-1.385***
	(0.374)	(0.380)	(0.384)
Coupon Rate	0.219	0.352	0.135
	(0.485)	(0.260)	(0.422)
Traded (Liquid Bonds)	0.697	7.651***	0.811
	(4.377)	(2.290)	(4.352)
US$ Denominated	0.975	-5.907***	0.920
	(3.235)	(0.861)	(3.172)
Deal Fixed Effects	Yes	Yes	Yes
Obs (Nr. of Bonds)	320	320	320
Nr. of Restructurings	21	21	21
R2 (within)	0.280	0.301	0.272

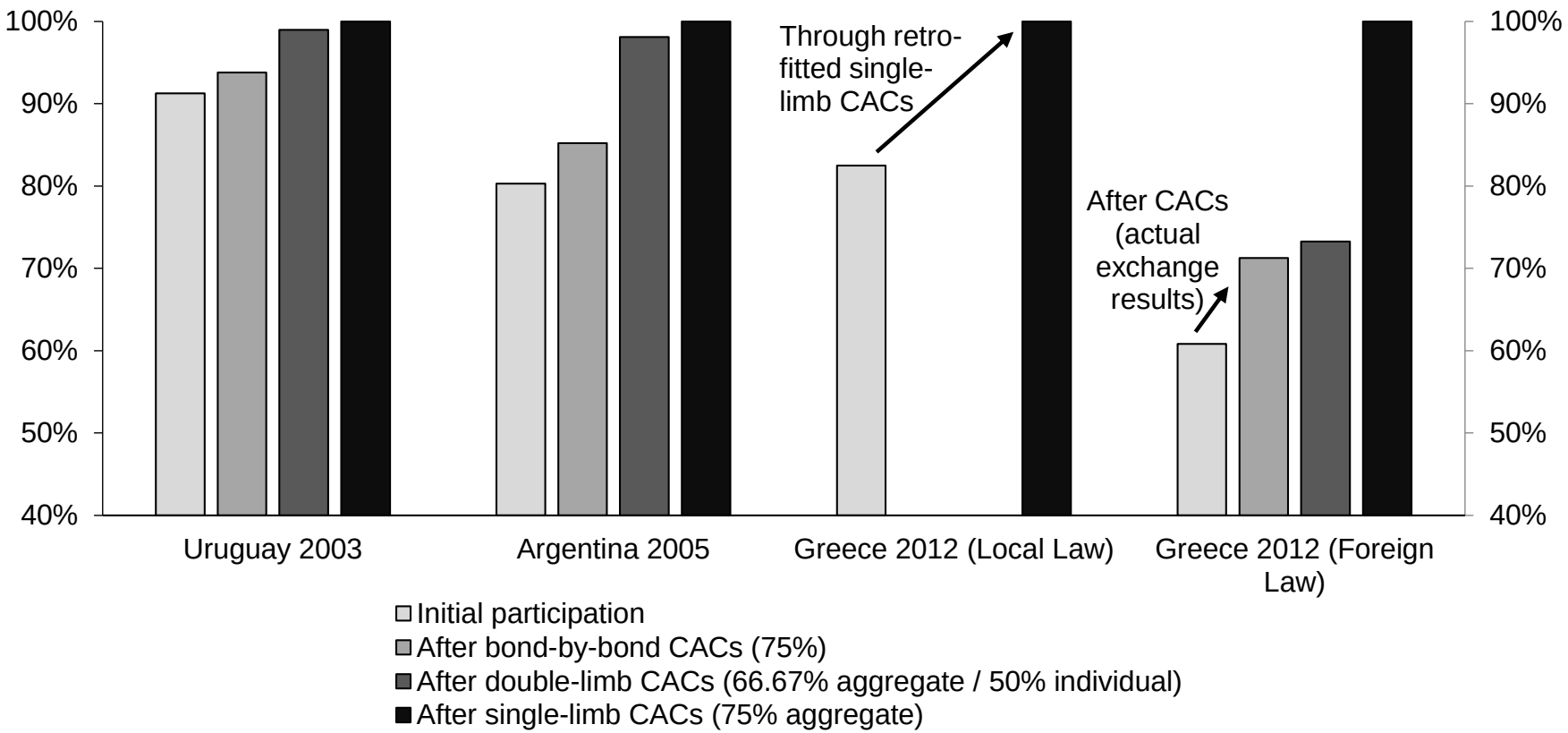
Final holdout rates are (after the application of CACs) ...

- still increasing in haircuts, higher in foreign-law bonds, and higher in smaller bonds
- **significantly lower in bonds with CACs**
- particularly lower with Single-Limb CACs
- particularly lower for bonds with higher haircuts

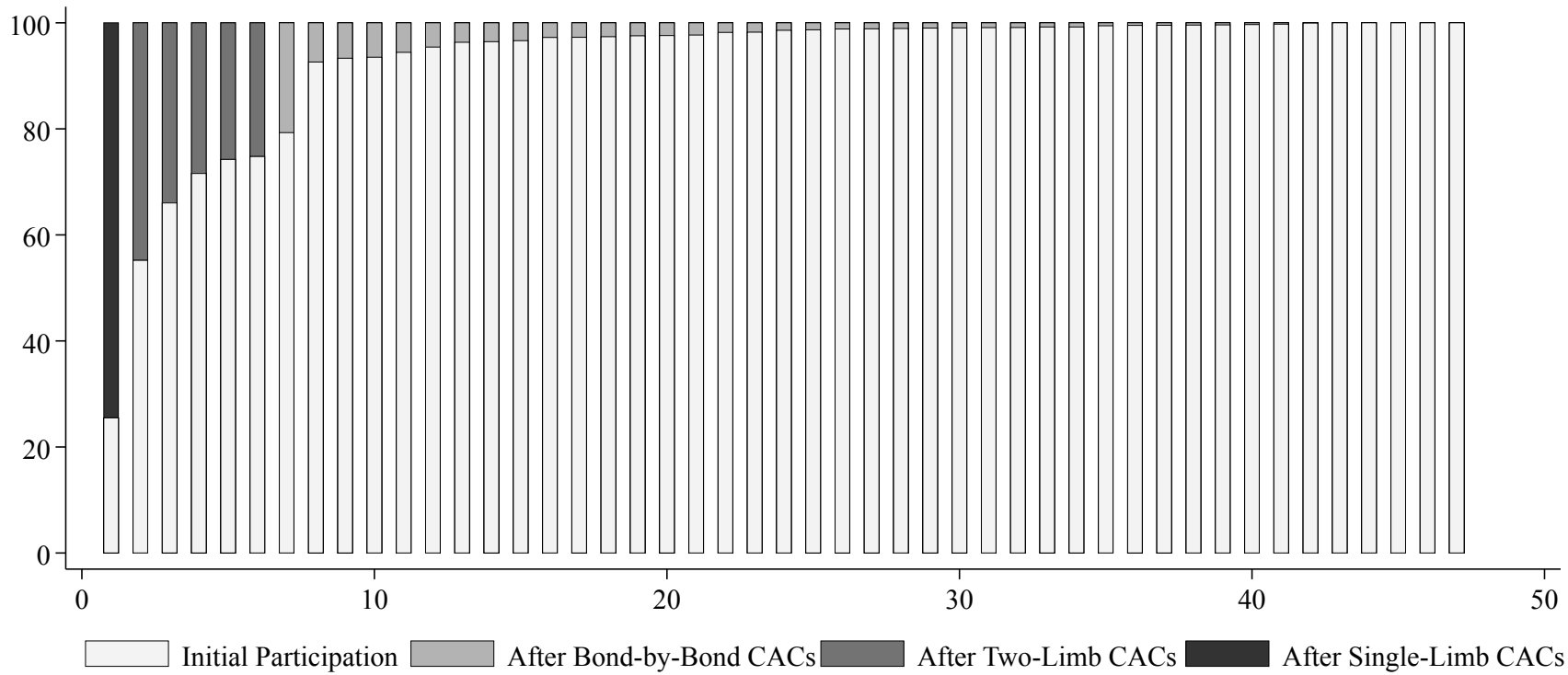
CACs Offset High Haircuts



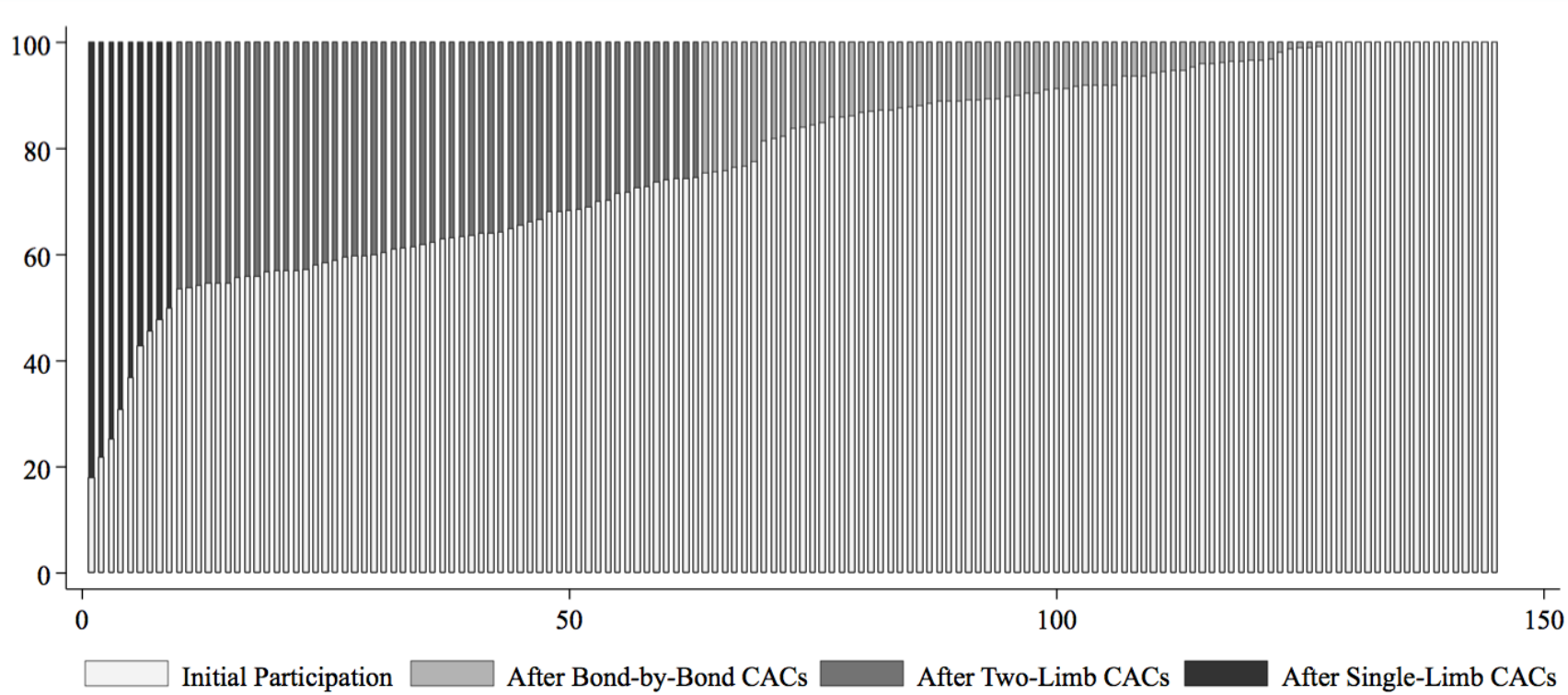
Only single-limb CACs are a safeguard against holdouts & litigation risks



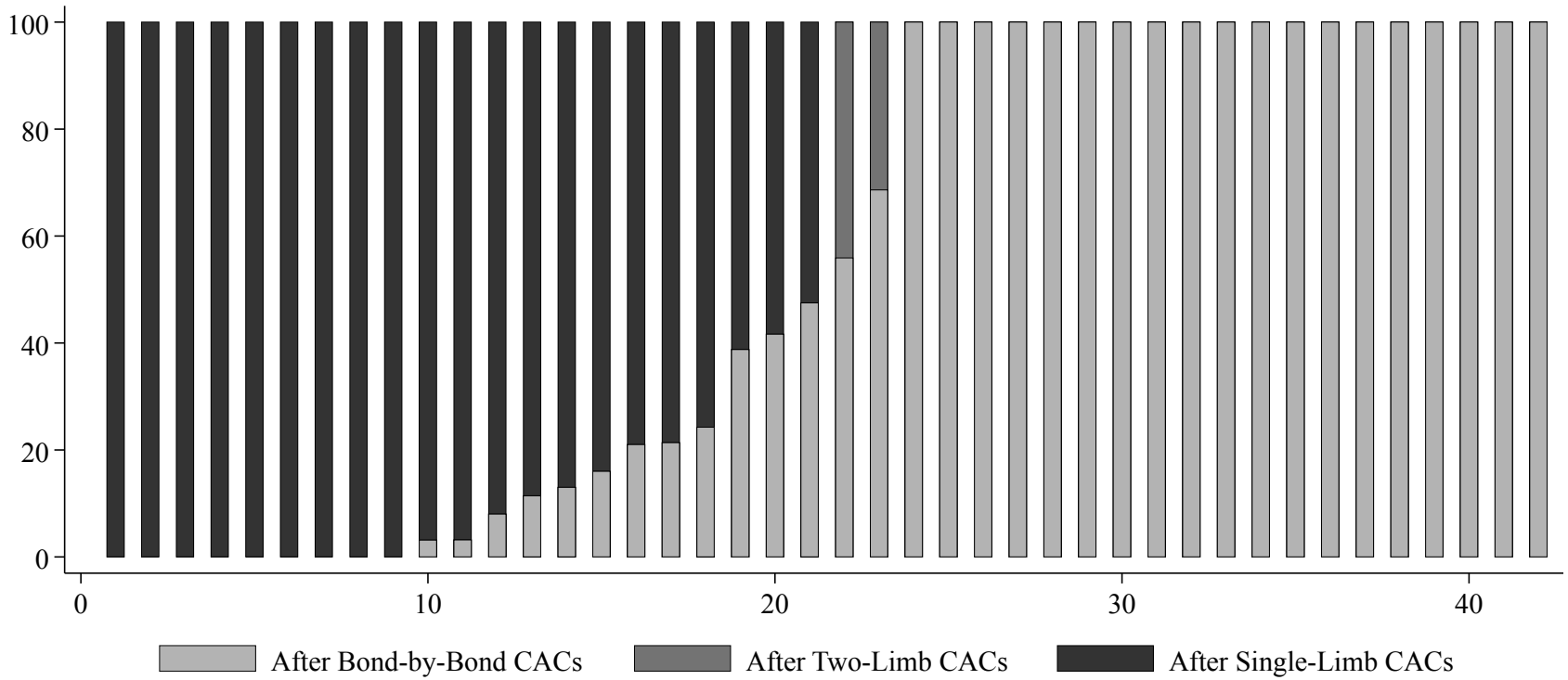
Uruguay: double-limb (Euro-) CACs would have sufficed to reach high participation



Argentina: only single-limb CACs would have avoided the litigation drama



Greece (foreign-law): classic CACs failed big time and only single-limb would have been effective



Conclusion

- The holdout problem is common, not just in Argentina.
- Bonds at risk: high haircut, foreign law, small size, and liquid.
- CACs work: reduce holdouts by around 20% on average.
- However, CACs design is crucial:
  - Classic bond-by-bond CACs are not sufficient and can fail
  - Only the strongest single-limb CACs could eliminate the holdout problem, especially for cases with high haircuts like Argentina 2005 and Greece 2012

Appendix

CACs in Each Restructuring

Restructuring	CACs in Outstanding Bonds?				Voting Threshold of Old CACs	New CACs
	Total Nr. Old Bonds	With CACs	Voting attempted	Threshold **not** reached		
1994 Panama	9	0	0	0	n.a.	No CACs
1999 Ukraine	1	1	1	1	75%	Bond-by-Bond
1999 Pakistan	3	3	0	0	unknown	Bond-by-Bond
2000 Russia MinFin3	1	0	0	0	n.a.	No CACs
2000 Russia PRINs/IANs	2	2	0	0	95% and 98%	Bond-by-Bond
2000 Ukraine	4	3	3	0	75%	Bond-by-Bond
2000 Ecuador	6	0	0	0	n.a.	Bond-by-Bond
2002 Moldova	1	1	1	0	75%	n.a.
2003 Uruguay	65	1	1	0	66%	Two-Limb
2004 Dominica	3	3	unknown	unknown	unknown	unknown
2005 Argentina	145	0	0	0	n.a.	Two-Limb
2005 Dominican Republic	2	0	0	0	n.a.	Two-Limb
2005 Grenada	16	6	unknown	unknown	unknown	Bond-by-Bond
2006 Belize	5	5	5	0	85%	Bond-by-Bond
2009 Seychelles	2	2	2	0	75%	Bond-by-Bond
2009 Ecuador	2	0	0	0	n.a.	n.a.
2010 Cote d'Ivoire	6	0	0	0	n.a.	Bond-by-Bond
2012 Cote d'Ivoire	1	1	1	0	75%	n.a.
2012 St. Kitts and Nevis	12	11	11	0	75%	Bond-by-Bond
2012 Greece (Foreign Law)	42	35	35	18	75% for 14 bonds 66% for 20 bonds	Two-Limb
2012 Greece (Local Law)	75	53	Retrofitted Single-Limb	0	Retrofitted Single-Limb	Two-Limb
2013 Belize	1	1	1	0	75%	Bond-by-Bond
2015 Grenada	2	2	2	0	75%	Single-Limb
2015 Ukraine	13	13	13	0	75%	Single-Limb