The invisible hand of the government: Moral suasion during the sovereign debt crisis

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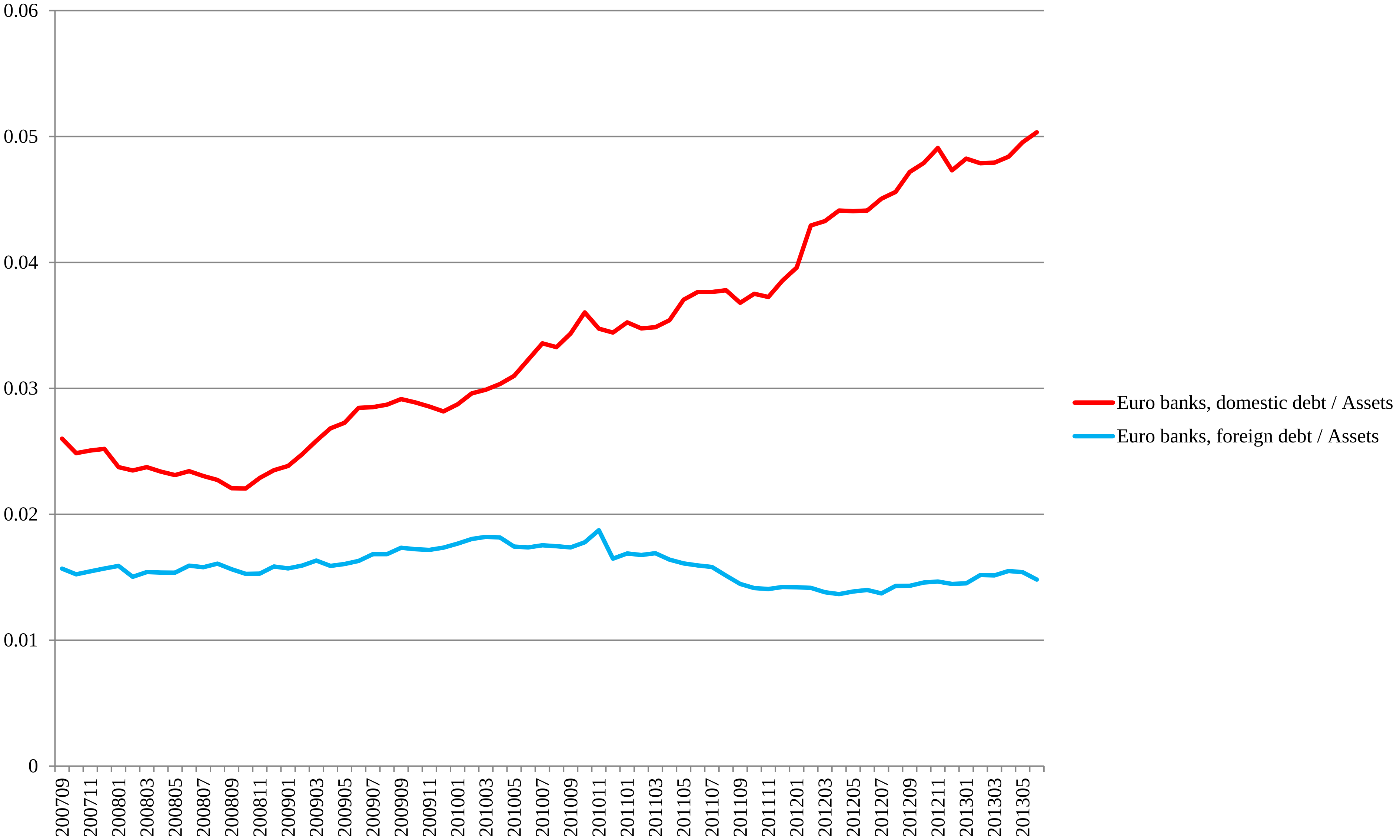
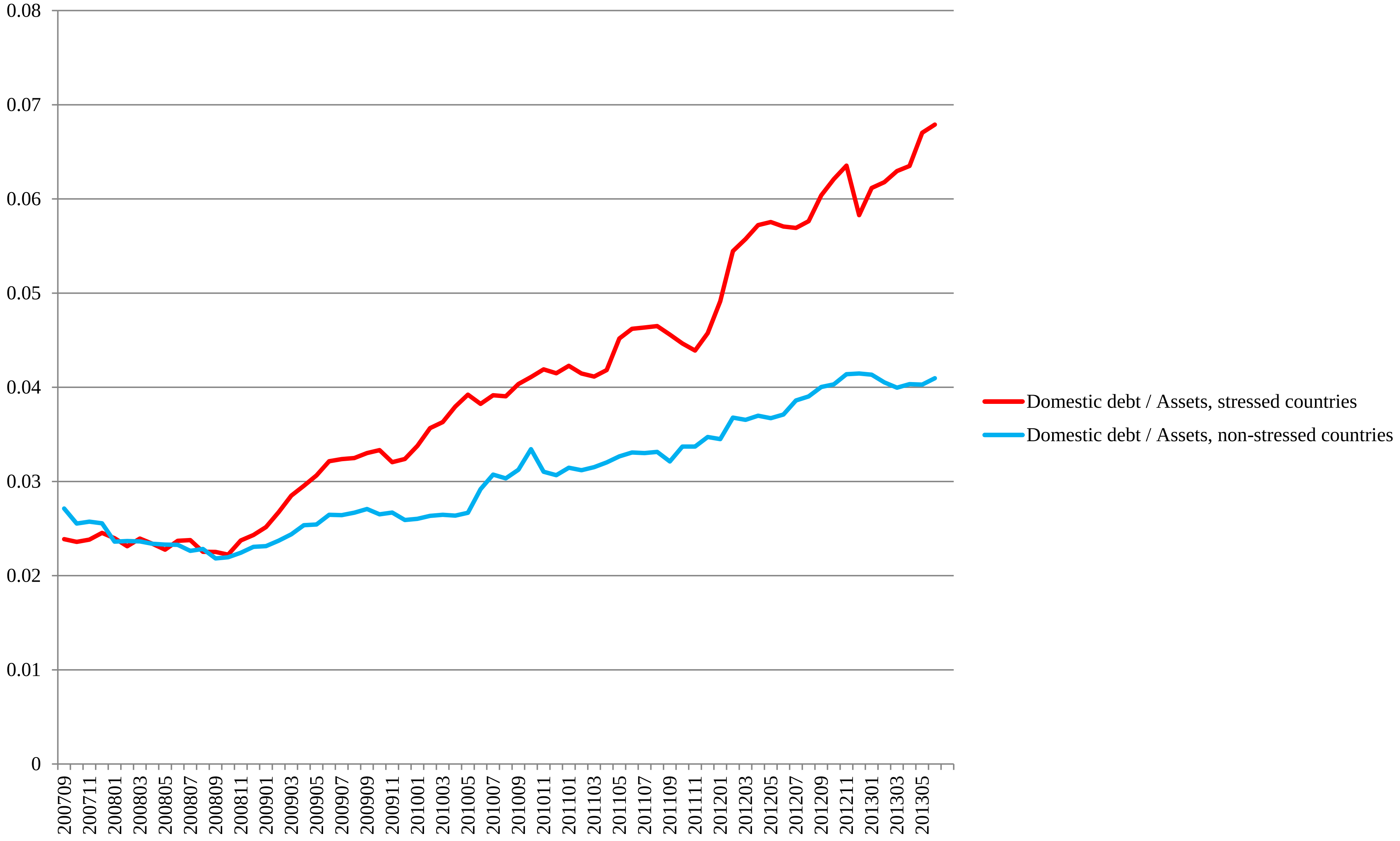
A PECULIAR TYPE OF POLITICAL RISK …

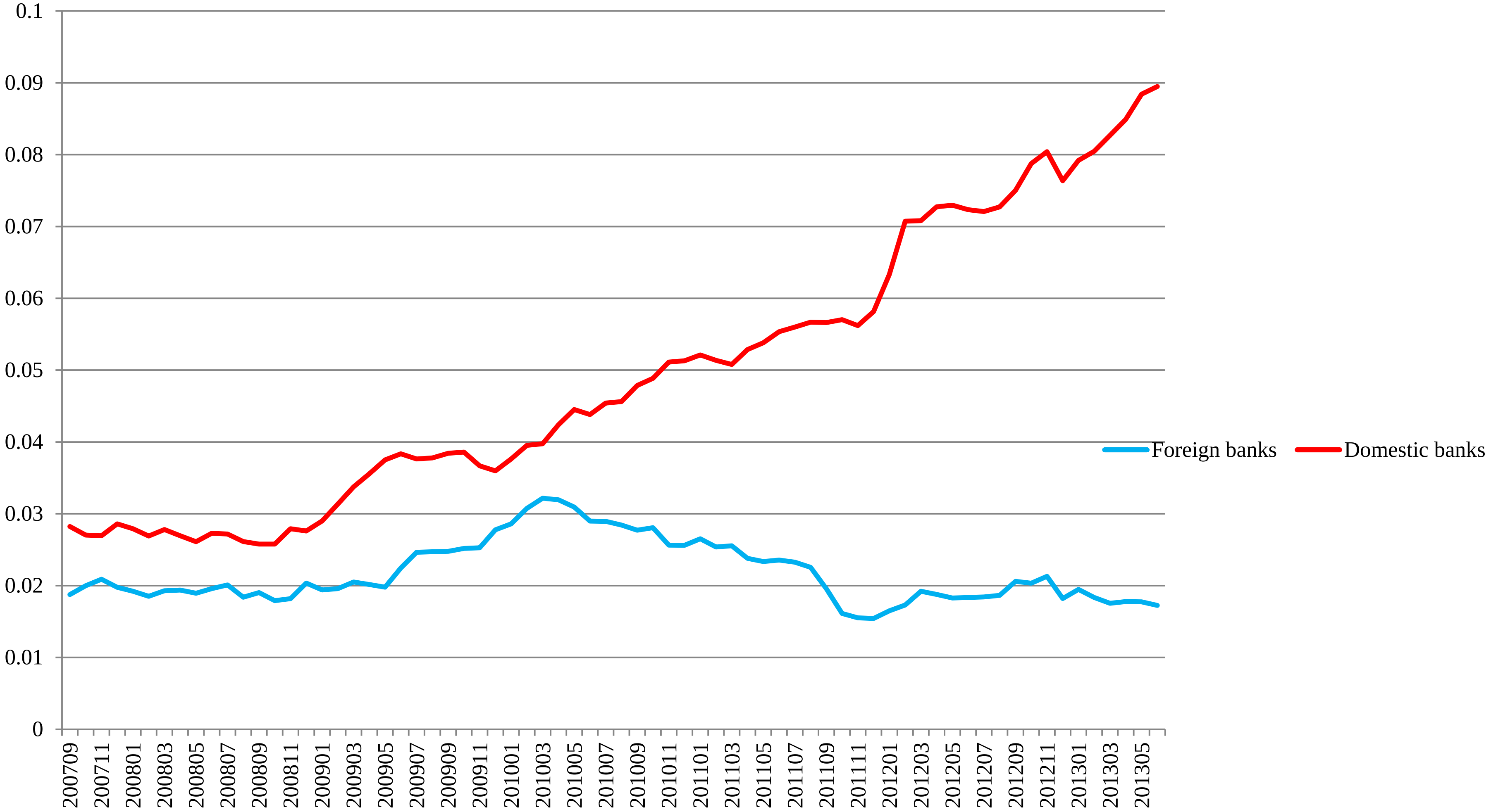
Sovereign debt, euro area



Sovereign debt, stressed vs. non-stressed countries



Sovereign debt in stressed countries, domestic vs. foreign banks



Motivation

- Unprecedented increase in banks‘ domestic sovereign bond holdings during the crisis
  - Total holdings by 100 largest euro area banks: €368 bln. in Oct. 2008, € 766 bln. In Oct. 2012
  - Not the case for foreign sovereign debt
  - Mostly due to actions taken by domestic banks in Greece, Ireland, Italy, Portugal, and Spain

- One prominent explanation offered: „Moral suasion“
  - „[…] sovereign credit risk may alter swiftly as it did in 2008-09 due to […] moral suasion of the financial sector“ (Viral Acharya, VOX, 16 October 2012)
  - „The reasons for the increased exposure of banks to their domestic sovereigns may [include] moral suasion […]“ (Jens Weidmann, FT, 30 September 2013)
  - „[…] there could be „moral suasion by regulators or politicians“ in Greece to support the efforts of the authorities to effectively stay in the Eurozone.“ (Alex Michaelides, EP 2014)

- Undersubscribed auctions carry a fiscal and a reputational cost
  - Failed UK auction in March 2009: gilt prices slumped, pound weakened, opposition accused government of losing control of public finances and PM of „economic incompetence“

Government debt and moral suasion

Government debt and moral suasion

Other examples of moral suasion

Alternative explanations for increase in sovereign bond holdings

- Risk shifting
  - Increase profitability in good states of the world, gambling-for-resurrectin motive (Broner et al., 2014; Crosignani, 2015; Farhi and Tirole, 2014; Uhlig, 2013)
  - Explains **average** increase in domestic debt holdings by domestic banks in stressed countries

- Regulatory compliance
  - Need to replenish regulatory capital post-Lehman Brothers‘ bankruptcy
  - Stressed countries / domestic banks bias unclear (information advantage?)

- Carry trade
  - Use cheap short-term wholesale funds to take longer stressed sovereign bond positions
    - Domestic banks bias unclear – everyone should be buying the most profitable bond

- No „smoking gun“ for sovereign-bank collision (e.g., a Wikileaks file)

Identifying moral suasion

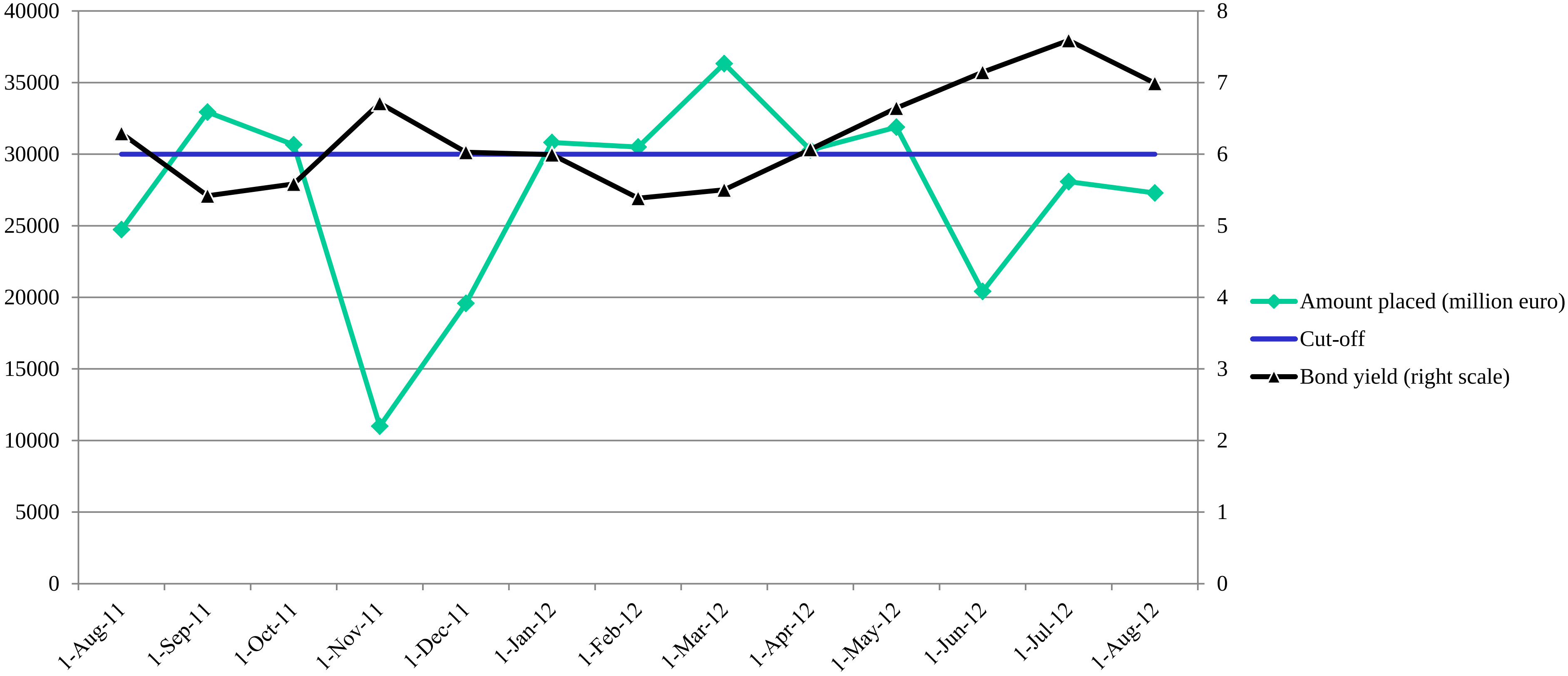
- Amount of maturing debt main determinant of newly issued debt
  - Italy in 2012: €360 billion maturing, €365 billion auctioned

- Governments face exogenously determined need to roll over maturing debt
  - Monti government in April 2012: 100% of maturing debt issued by predecessors
    - 2/3 issued by the Berlusconi government (6m, 12m, 2y)
    - 1/3 issued by the Prodi government (5y)

- Need to roll over maturing debt fluctuates wildly month-on-month
  - Italy: €11 bln. in November 2011, €36 bln. in March 2012, €20 bln. in June 2012
  - Amount maturing in each month determined by amounts and maturities chosen in the past

- Domestic banks can be swayed more easily than foreign ones by governments in need
    - Threat to discontinuing access to the Fed‘s discount window (Horvitz and Ward, 1987)
    - Cornenrstone of English monetary policy (Romans, AER 1966)

Identifying moral suasion: Italy



Identifying moral suasion

- Compare purchases by foreign vs. domestic banks in high-need vs. low-need months
  - Large differences in behavior during high-need months would point to „moral suasion“

- High-frequency analysis negates alternative mechanisms
  - Risk-shifting: bank risk does not fluctuate month-on-month
  - Carry trade: debt profitability does not fluctuate month-on-month
  - Regulatory compliance: end-of-year capital vs. month-on-month purchases?

- Still, can formally control for alternative mechanisms
  - Bank capitalization, bank CDS, bond yields, shocks to investment opportunities, primary dealers

Main findings

- Domestic banks more likely to purchase domestic sovereign debt in months when the government faces high refinancing need
  - Controlling for bank fixed effects, country X months fixed effects, alternative mechanisms

- Effect particularly strong for state-owned banks with low intial stock of domestic sovereign debt
  - Strategic suasion

- Effect disappears in falsification tets
  - Not present in GIIPS before the crisis
  - Not present in Germany during the crisis

- Effect not stronger after ECB‘s LTRO in December 2011
  - No evidence that moral suasion effect driven by supply of cheap central bank liquidity

Contribution to the literature

- Sovereign-bank linkages
  - Banks‘ incentives to hold domestic sovereign debt (Acharya and Rajan, RFS 2013; Broner et al., JME 2014; Cooper and Nikolov, 2013; Crosignani, 2015; Farhi and Tirole, 2014; Gennaioli et al., JF 2014; Uhlig, 2013)
  - **Our paper:** Identifying a channel free of incentives
- Moral suasion during the sovereign debt crisis
  - Acharya and Steffen (JFE 2015): Stock returns higher for intervened banks in stressed countries
  - Becker and Ivashina (2015): Connected banks exposed to domestic debt less likely to extend loans to large firms
  - **Our paper:** Actual bond holdings, monthly data, identification strategy based on maturing debt
- Politicians and banks
  - Government ownership and bank performance (La Porta et al., JF 2002; Sapienza, JFE 2004; Dinc, JFE 2005; Micco et al., JBF 2007; Chung-Hua and Chih-Yung, JFI 2012)
  - Political influences on banks (Kroszner and Strahan, QJE 1999; Brown and Dinc, QJE 2005; Kwaja and Mian, QJE 2005; Claessens et al., JFE 2008; Li et al., JDE 2008)
  - **Our paper:** Political determinants of securities holdings

Data

- Bank-level data from the ECB‘s Individual Balance Sheet Statistics (IBSI)
  - Monthly observations for 247 banks from August 2007 on
  - 60 banks in Greece, Ireland, Italy, Portugal, Spain
    - Drop 17 banks with no info or that could not be matched to Bankscope
  - Flow and stock of domestic sovereign debt securities
  - Controls: assets, deposits, loans, capital
- Bank ownership from Claessens and Van Horen (2014)
  - Foreign vs. domestic (state-owned or privately owned)
- Monthly data on bond auctions from Bloomberg

- Date crisis period using the activation and disactivation of the SMP
  - May 2010 – September 2012 for Greece, Ireland and Portugal
  - August 2011 – September 2012 for Italy and Spain

Empirical strategy

$$\frac{Flow_{bct}}{Stock_{bct-1}} = \beta_1 High\,need_{ct} \times Domestic_{bct} + \beta_2 X_{bct-12} + \beta_3 \mu_b + \beta_4 \vartheta_{ct} + \varepsilon_{bct}$$

- $Flow_{bct}$: the net purchase of domestic sovereign bonds by bank *b* in country *c* in year-month *t*
- $Stock_{bct}$: is the stock of domestic sovereign bonds by bank *b* in country *c* in year-month *t-1*
- $High\,need_{ct}$: dummy = 1 if the government faces above-median refinancing need in year-month *t*
- $Domestic_{bct}$: dummy = 1 if bank *b* in country *c* in year-month *t* is domestic-owned
- μ_b: matrix of bank fixed effects
- ϑ_{ct}: matrix of interactions of country *c* and year-month *t* dummies
- ε_{bct}: idiosyncratic error

- Main coefficient of interest: β_1
  - Difference between domestic and foreign banks in propensity to buy domestic sovereign debt in high-need months relative to low-need months

Summary statistics (pre-crisis): Domestic vs. foreign banks

Variable	Foreign	Domestic	Difference
Domestic sovereign securities/Assets	0.034	0.041	-0.007
Log (Assets)	10.209	10.934	-0.725***
Deposit/Assets	0.554	0.491	0.063
Loans/Deposits	1.427	1.721	-0.294
Capital	0.066	0.090	-0.026**

- Domestic banks larger (pre-crisis)
  - Assuage risk shifting concerns?
- Domestic banks better capitalized (pre-crisis)
  - Assuage regulatory compliance and risk shifting concerns?

Domestic banks, government need, and sovereign debt

	Flow_t/Stock_t-1 domestic sovereign securities		
	(1)	(2)	(3)
High need × Domestic bank	0.081***	0.077***	0.068***
	(0.022)	(0.023)	(0.027)
Domestic bank	0.030**	0.034**	
	(0.014)	(0.016)	
High need	-0.026	-0.026	
	(0.019)	(0.020)	
Log (Assets)		-0.009*	-0.013
		(0.006)	(0.021)
Deposits/Assets		-0.042	0.025
		(0.042)	(0.140)
Loans/Deposits		0.010***	0.019
		(0.003)	(0.039)
Capital		0.016	0.175
		(0.114)	(0.139)
Bank fixed effects	No	No	Yes
Country × Year-month fixed effects	No	No	Yes
R-squared	0.06	0.08	0.30
No. observations	997	997	997

- Domestic banks exhibit persistently higher appetite for domestic sovereign bonds
- Domestic banks more likely by half a st. dev. to purchase domestic sovereign bonds in high-need months
- Effect robust to bank FEs, country X month dummies, and balance sheet controls

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Falsification tests

	Flow_t/Stock_t-1 foreign sovereign securities	Flow_t/Stock_t-1 loans to sovereign	Flow_t/Stock_t-1 domestic sovereign securities	
	Crisis period	Crisis period	Pre-crisis period	Germany, crisis period
	(1)	(2)	(3)	(4)
High need × Domestic bank	0.001	-0.040	0.011	-0.004
	(0.040)	(0.042)	(0.039)	(0.008)
Bank controls	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes	Yes
R-squared	0.27	0.27	0.20	0.10
No. observations	707	1,002	1,119	1,529

- Result only obtained for domestic sovereign debt
  - Not for foreign debt and not for loans to the sovereign
- Result specific to GIIPS countries during the crisis
  - Divergence in trends does not predate the crisis
  - No difference between domestic and foreign banks in Germany

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Alternative mechanisms

	Flow_t/Stock_t-1 domestic sovereign securities					
	Balance sheet shocks	Bank risk	Sovereign risk	Investment opportu-nities	Prime dealers	Foreign banks' suasion
	(1)	(2)	(3)	(4)	(5)	(6)
High need × Domestic bank	0.067**	0.056**	0.064**	0.060*	0.065***	
	(0.028)	(0.028)	(0.026)	(0.035)	(0.020)	
Log (Assets) × Domestic bank	-0.233					
	(0.180)					
Deposits/Assets × Domestic bank	0.003					
	(0.236)					
Loans/Deposits × Domestic bank	0.114					
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Capital × Domestic bank	-0.217					
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Bank CDS × Domestic bank		-0.027				
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Bank CDS		0.026				
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10-year bond yield spread × Domestic bank			-0.003			
			(0.004)			
Loan spread × Domestic bank				-0.003		
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High need × Primary dealer					-0.079***	
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Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes	Yes	Yes	No
Year-month fixed effects	No	No	No	No	No	Yes
R-squared	0.31	0.30	0.31	0.29	0.31	0.27
No. observations	997	775	997	879	997	239

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- Results robust to including balance sheet controls
  - Different balance sheet socks to domestic banks

Alternative mechanisms

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- Results robust to controlling for bank CDS
  - Gambling for resurrection by weak banks doe snot explain main result

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- Results robust to controlling for the riskiness of the underlying bond
  - Portfolio risk shifting likely not the main cause of increased exposures to own sovereign

Alternative mechanisms

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- Results robust to controlling for difference between loan and deposit rates
    - Changes in investment opportunities do not explain increased exposures to own sovereign

Alternative mechanisms

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- Results robust to controlling for behavior of prime dealers
    - Most prime dealers large internationally active banks (Barclays, Deutschebank, SocGen)

Alternative mechanisms

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- Results not driven by foreign banks
  - Gradual withdrawal from domestic sovereign bond markets, not more so in high-need months

Model robustness

	Flow_t/Stock_t-1 domestic sovereign securities		
	Maturing debt	75% cut-off	Auctioned debt
	(1)	(2)	(3)
High need (maturing) × Domestic bank	0.045***		
	(0.012)		
High need × Domestic bank		0.063*	
		(0.043)	
Auctioned debt/1,000 × Domestic bank			0.007*
			(0.004)
Bank controls	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes
R-squared	0.21	0.29	0.30
No. observations	997	652	997

- Results robust to using maturing instead of auctioned debt
- Results robust to applying a 75% - 25% cut-off for debt auctions

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	(0.012)		
High need × Domestic bank		0.063*	
		(0.043)	
Auctioned debt/1,000 × Domestic bank			0.007*
			(0.004)
Bank controls	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes
R-squared	0.21	0.29	0.30
No. observations	997	652	997

- Results robust to using maturing instead of auctioned debt
- Results robust to applying a 75% - 25% cut-off for debt auctions

Sample robustness

	Flow_t/Stock_t-1 domestic sovereign securities				
	Excluding Greece	Excluding Ireland	Excluding LTRO months	August 2007 – June 2013	Matched sample
	(1)	(2)	(3)	(4)	(5)
High need × Domestic bank	0.074***	0.087**	0.073**	-0.003	0.058**
	(0.031)	(0.034)	(0.034)	(0.027)	(0.027)
High risk × High need × Domestic bank				0.073**	
				(0.030)	
High risk × Domestic bank				0.037*	
				(0.022)	
Bank controls	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes	Yes	Yes
R-squared	0.30	0.31	0.33	0.18	0.32
No. observations	858	791	885	3,244	711

- Results robust to exluding countries with no auctions in some months (GR, IE)
- Results robust to excluding months with abnormal ECB liquidity allotment
- Results obtrain in full sample period, only for the highest-sovereign-risk period
- Results robust to choosing sample of domestic banks based on pre-crisis observables

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	(1)	(2)	(3)	(4)	(5)
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	(0.031)	(0.034)	(0.034)	(0.027)	(0.027)
High risk × High need × Domestic bank				0.073**	
				(0.030)	
High risk × Domestic bank				0.037*	
				(0.022)	
Bank controls	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes	Yes	Yes
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Who is suaded?

	Flow_t/Stock_t-1 domestic sovereign securities			
	State-owned versus private domestic	State-owned and supported versus private domestic	State-owned versus non-supported private	Low versus high initial share domestic bond holdings
	(1)	(2)	(3)	(4)
High need × State-owned bank	0.032		0.073**	
	(0.032)		(0.036)	
High need × State-owned or supported banks		0.023		
		(0.026)		
High need × Low initial share sovereign holdings				0.045**
				(0.021)
Bank controls	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes	Yes
R-squared	0.34	0.34	0.38	0.34
No. observations	758	758	459	758

- Within the sample of domestic banks, some more likely to be suaded:
  - State-owned banks
  - Banks with low initial holdings of sovereign bonds
  - Informed moral suasion?

Who is suaded?

	Flow_t/Stock_t-1 domestic sovereign securities			
	State-owned versus private domestic	State-owned and supported versus private domestic	State-owned versus non-supported private	Low versus high initial share domestic bond holdings
	(1)	(2)	(3)	(4)
High need × State-owned bank	0.032		0.073**	
	(0.032)		(0.036)	
High need × State-owned or supported banks		0.023		
		(0.026)		
High need × Low initial share sovereign holdings				0.045**
				(0.021)
Bank controls	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes	Yes
R-squared	0.34	0.34	0.38	0.34
No. observations	758	758	459	758

- Within the sample of domestic banks, some more likely to be suaded:
  - State-owned banks
  - Banks with low initial holdings of sovereign bonds
  - Informed moral suasion?

Effect of the ECB‘s LTRO in December 2011

	Flow_t/Stock_t-1 domestic sovereign securities			
	Domestic versus foreign	State-owned versus private domestic	State-owned versus non-supported private	Low versus high initial share domestic bond holdings
	(1)	(2)	(3)	(4)
Post LTRO × High need × Domestic bank	0.017			
	(0.056)			
High need × Domestic bank	0.057			
	(0.039)			
Post LTRO × Domestic bank	-0.111***			
	(0.040)			
Post LTRO × High need × State-owned bank		0.104	0.085	
		(0.067)	(0.084)	
High need × State-owned bank		0.013	0.050	
		(0.032)	(0.044)	
Post LTRO × State-owned bank		-0.017	-0.007	
		(0.016)	(0.020)	
Post LTRO × High need × Low initial share sov. holdings				-0.045
				(0.046)
High need × Low initial share sovereign holdings				0.061***
				(0.022)
Post LTRO × Low initial share sovereign holdings				0.020
				(0.020)
Bank controls	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes
Country × Year-month fixed effects	Yes	Yes	Yes	Yes
R-squared	0.32	0.31	0.37	0.28
No. observations	997	758	459	758

- Results do not appear to be driven by the provision of cheap ECB liquidity

Conclusion

- Domestic banks more likely than foreign banks to purchase domestic government bonds in high-need months during periods of elevated sovereign risk
  - Effect stronger for state-owned banks, banks with low initial holdings of domestic bonds
  - Independently of regulatory compliance or profit-maximizing motives (risk shifting, carry trade)
  - Points to bank-sovereign collision („moral suasion“)
- Moral suasion not driven by shocks to the cost of wholesale funding
- Policy implications
  - Banking Union / SSM: break the link between government financing needs and bank choices?
  - Feasible with zero-risk regulatory treatment of sovereign debt?
  - Eurobonds?

THANK YOU

and have a productive remainder of the

ETH Risk Day 2016!