

# **Dissecting Foreign Investments in Euro Area Bond Markets during the Sovereign Debt Crisis**

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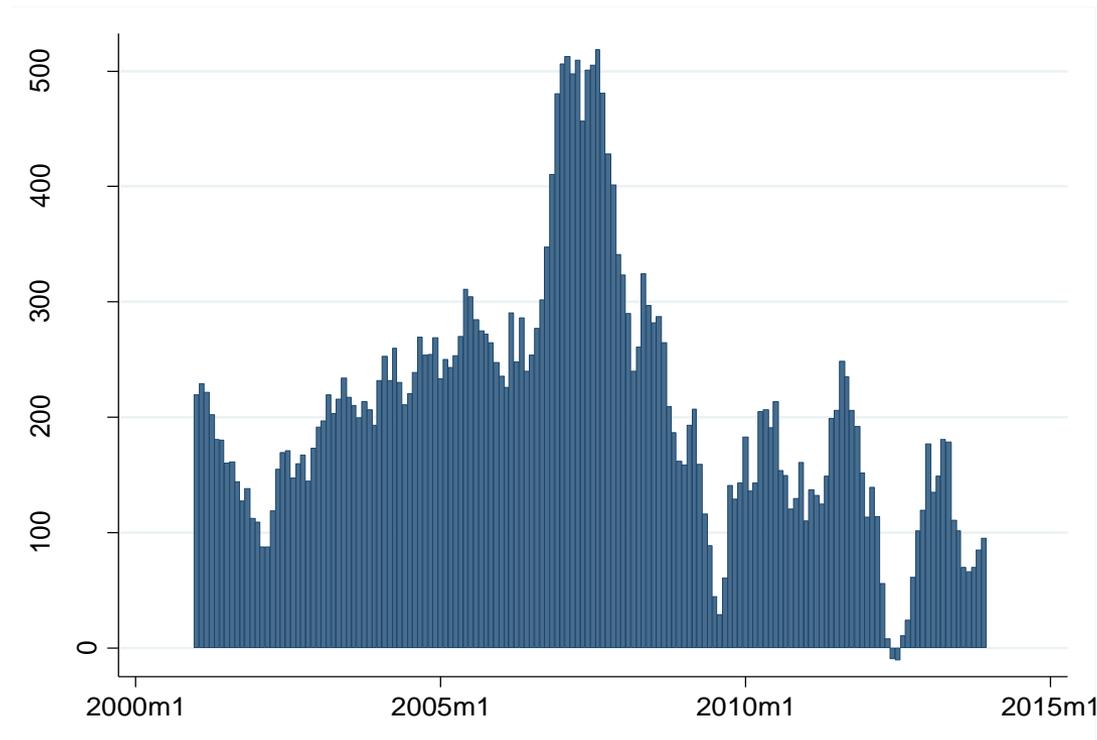
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# Motivation

- During peak phase of euro area crisis foreign investors retrenched from euro area bond markets
  - Do these outflows reflect general pattern of repatriation by foreign investors across all countries?
  - Have foreign investors rebalanced between stressed and non-stressed euro area countries?
  - To what extent have perceptions of sovereign risk been a driver of debt flows to the euro area?
  - Has observed pattern of debt flows persisted after OMT?

# EA crisis weighed on foreign demand for EA securities

## Foreign demand for euro area long-term debt instruments



*Source: Euro area BoP.*

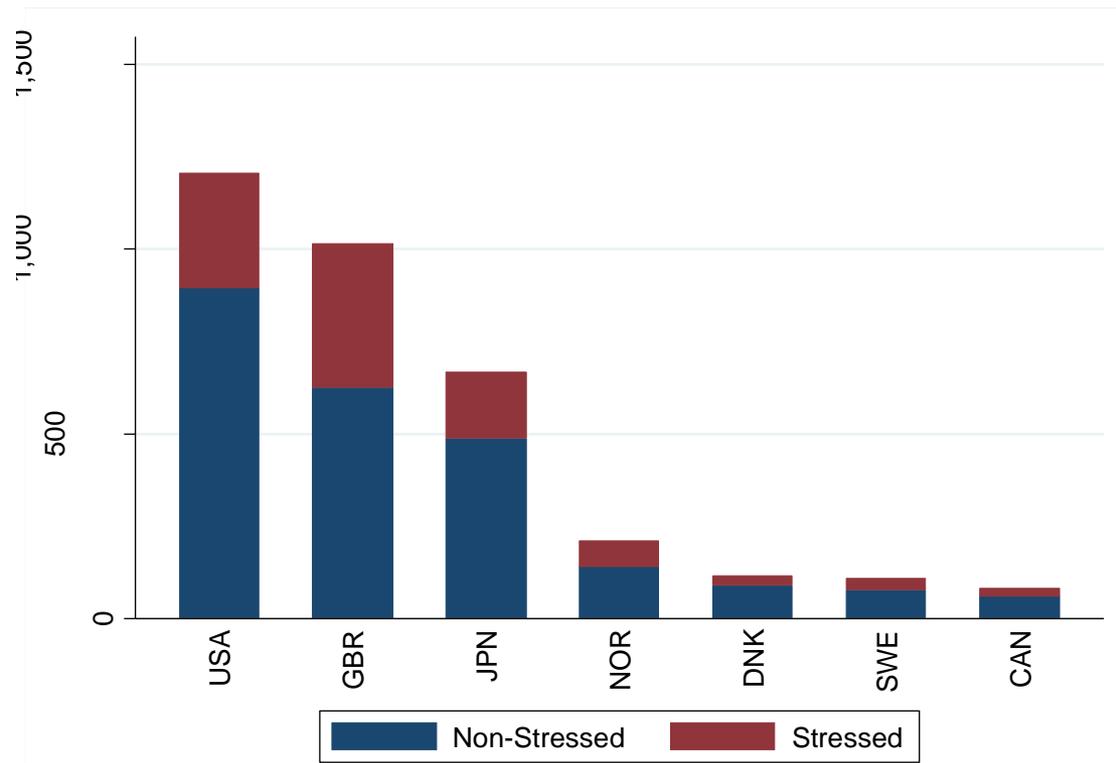
*Notes: Flows in EUR billion, 12-month cumulated.*

# The CPIS data set

- Analysis requires bilateral data on international portfolio investments
  - EA BoP does not report assets and liabilities by counterparty
- IMF's Coordinated Portfolio Investment Survey (CPIS):
  - Annual data on bilateral portfolio holdings from 2001 to 2012
  - Covers around 70 investor and over 200 destination countries
  - Data on equity and debt securities
- CPIS limitations
  - Stock data
  - Excludes some major economies, incl. China
  - Only provides information on proximate destinations

# Foreigners' holdings of euro area debt largely concentrated on non-stressed countries

## Major non-EA countries' holdings of EA long-term debt in 2009

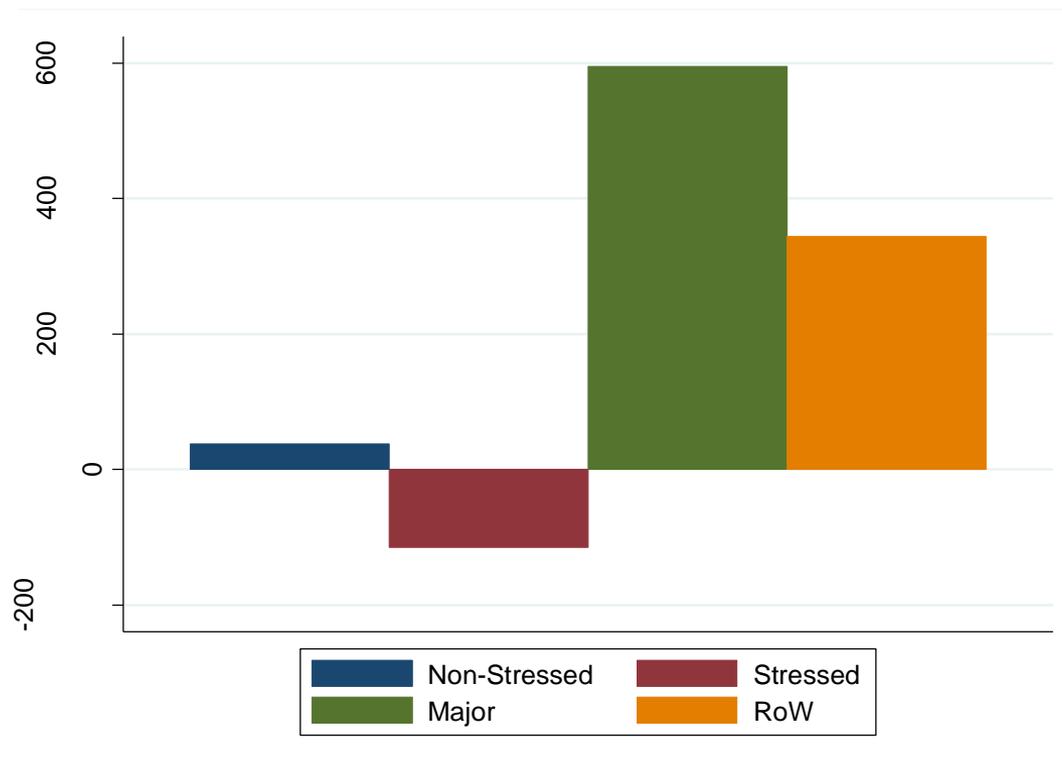


Source: CPIS

Notes: Volumes in USD billion. Countries shown on horizontal axis refer to investor countries.

# Foreign holdings of stressed countries' debt dropped during EA crisis

## Changes in major non-EA economies' debt holdings between 2009 and 2011



Source: CPIS

Notes: Volumes in USD billion. Countries shown on horizontal axis refer to investor countries.

# Empirical model

- Cross-section gravity model on bilateral change in long-term debt holdings between end-2009 (pre-crisis) and end-2011 (peak) for 53 investor and 113 destination countries:

$$\begin{aligned} \Delta \ln(\text{Stock}_{ij0911}) \\ = \alpha_i + \alpha_j + \beta_1 \ln(\text{Stock}_{ij09}) + \beta_2 \ln(\text{Stock}_{ij09})^2 + \beta_3 \ln(\text{Imp}_{09ij}) \\ + \beta_4 \ln(\text{Dist}_{ij}) + \beta_5 \text{Lang}_{ij} + \beta_6 Z_{ij} + \varepsilon_{ij} \end{aligned} \quad (1)$$

- Investor ( $\alpha_i$ ) and destination ( $\alpha_j$ ) country fixed effects capture common portfolio dynamics, in particular valuation effects
- Specification assesses whether observed flows have been excessive, i.e. whether bilateral investments have been above or below average levels suggested by standard portfolio determinants

# Between end-2009 and end-2011 foreigners under-invested in euro area bond markets

	(1)	(2)
	Debt	Debt
	b/se	b/se
L.Stock	-0.266*** (0.024)	-0.266*** (0.024)
L.Stock_2	0.029*** (0.007)	0.028*** (0.007)
Imports	0.105* (0.058)	0.103* (0.058)
Distance	-0.287*** (0.046)	-0.284*** (0.046)
Language	0.304*** (0.113)	0.306*** (0.113)
NonEA_EA	-0.225*** (0.079)	
NonEA_EA_Core		-0.164 (0.104)
NonEA_EA_Stressed		-0.276** (0.123)
Observations	1526	1526
r2	0.21	0.21

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

# Under-investment confined to stressed euro area countries; no evidence for rebalancing

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# Impact of sovereign rating changes and portfolio asymmetries after OMT

- Open questions
  - Can the observed under-investment be explained by sovereign ratings?
  - Has under-investment persisted after OMT?
- Need for higher frequency and more timely data
  - US Treasury International Capital (TICS)
  - Japanese Ministry of Finance (MoF)
- Estimated
  - separately for TICS and MoF data
  - separately for pre and post-OMT time period
  - at aggregated stressed/non-stressed EA block level for TICS data

# Rating downgrades only partially account for under-investment in stressed EA countries

	(1) US TICS, p~T	(2) JP MoF, pr~T	(3) US TICS, p~T	(4) JP MoF, po~T
Stock in 2009	0.001 (0.005)	0.013** (0.005)	-0.005 (0.007)	-0.002 (0.002)
Imports in 2009	0.004 (0.007)	-0.021* (0.011)	0.012 (0.011)	0.005 (0.005)
Distance	-0.051*** (0.011)	-0.009 (0.011)	-0.025* (0.013)	-0.000 (0.007)
Common official la~e	-0.000 (0.022)		0.015 (0.023)	
Total net bond pur~s	0.797* (0.443)	0.350*** (0.120)	0.537+ (0.392)	0.410* (0.207)
L.Change in rating	-0.105 (0.135)	-0.220* (0.115)	0.349 (0.461)	0.118 (0.267)
Non-stressed	0.000 (0.013)	-0.013 (0.020)	0.039+ (0.023)	0.059* (0.031)
Stressed	-0.035*** (0.011)	-0.088*** (0.026)	0.014 (0.020)	0.005 (0.016)
o.Common official ~e		0.000 (.)		0.000 (.)
Constant	0.380*** (0.122)	-0.002 (0.117)	0.219* (0.130)	-0.007 (0.094)
Observations	925	823	615	541
Adjusted R-squared	0.04	0.12	0.02	0.05

Standard errors in parentheses

+ p<0.2, \* p<0.1, \*\* p<0.05, \*\*\* p<0.01

# Under-investment from stressed EA vanished after September 2012

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# Conclusions

- Foreign investments in bond markets of euro area stressed countries were disproportionately small during EA crisis
  - Under-investment cannot be explained entirely by rating changes
  - Under-investment disappeared after OMT announcement
- Nevertheless, the impact of foreign investors on euro area financial market fragmentation has most likely been small
  - Small foreign investments in stressed countries
  - No parallel over-investment in non-stressed economies
- Temporary under-investment in stressed EA consistent with limited decline in international use of the euro during EA crisis