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Drivers of foreign and domestic demand for sovereign bonds in developed and emerging economies: fundamentals vs. market sentiment

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Key points

Objective: Identify the determinants of foreign and domestic demand for government debt

New Dataset: quarterly time series for 16 countries on debtholdings of:
(1) non-resident private and (2) non-resident official
(3) domestic banks, (4) domestic pension and insurance funds, (5) domestic investment funds

Key Results:

1.A Foreign private investors' have greater exposure to countries with less sustainable debt, weaker government effectiveness and higher bond yields.

1.B While US Treasuries, Gilts and JGBs continue benefiting from „flight to safety" effects, since 2007 rising risk aversion has been pushing foreign private investors to sell debt of Core and Peripheral Eurozone

2. Purchases of Foreign Central Banks contributed to lower yields and spreads among Safe Haven, Core and Peripheral Eurozone countries.

3.A Participation of Domestic Banks is related to higher yields and less sustainable debt.

3.B Domestic investors exhibit limited sensitivity to global risk aversion, policy uncertainty, risk in the banking sector and refinancing at the ECB.

Literature Overview

Motives for Holding Government Debt

<u>I. Returns</u>

Foreign Investors: **Return Chasers**, Kee-Hong Bae et al. (2006), Eichengreen and Luengnaruemitchai (2008) vs. **Spread Compression**, Warnock and Warnock (2009), Andritzky (2012)

<u>II. Safety and Liquidity</u>

A. **Use as Collateral** for the ECB and Interbank Refinancing – Buiter and Sibert (2005), Freixas (2005)

B. **Flight to Safety** - Fratzscher (2012), Forbes and Warnock (2012)

C. **Difference in Risk Perception and Mispricing** - De Grauwe and Ji (2012), D'Agostino and Ehrmann (2012)

Summary: Motives for investment in government bonds across countries inconclusive

Dataset on Holdings of Government Debt

- New dataset on Holdings of Domestic Debt extracted from national sources
- Data on debt held as reserve assets by Foreign Central Banks from IMF CPIS
- Project Scope: Panel for 16 countries between 2001Q1 to 2011Q3

Core Eurozone
- Germany
- France

Peripheral Eurozone
- Spain
- Greece
- Ireland
- Italy

Safe Havens
- US
- UK
- Japan
- Denmark

Emerging Economies
- Czech Republic
- Poland
- Hungary
- Mexico
- Malaysia
- Indonesia

- Estimation Method: Linear Panel Regression with Country Fixed Effects
- Standard-errors corrected using Driscoll-Kraay (1998) to correct for heteroskedasticity, serial correlation and cross-panel dependence

Methodological Approach: Dependent Variable

Share of domestic government debt held

- **Foreign**
  - Private
  - Central Banks excl. FED, ECB and BoE
- **Domestic**
  - Commercial Banks
  - Pension and Insurance Funds
  - Investment Funds

Other Domestic Investor Groups:

- General Government,
- Central Bank,
- Non-financial companies

Methodological Approach: Independent Variables

Fundamental

- Fiscal Sustainability
- Macroeconomic Indicators
- Government Effectiveness
- Sovereign Credit Rating

Market

- Yield Differential
- Market Sentiment Index
- Liquidity
- Real Effective Exchange Rate

External

- IMF Lending
- Banks’ Borrowing from the ECB
- Interbank Market Spread

Results (1): Non-resident Private Investors Descriptive Statistics

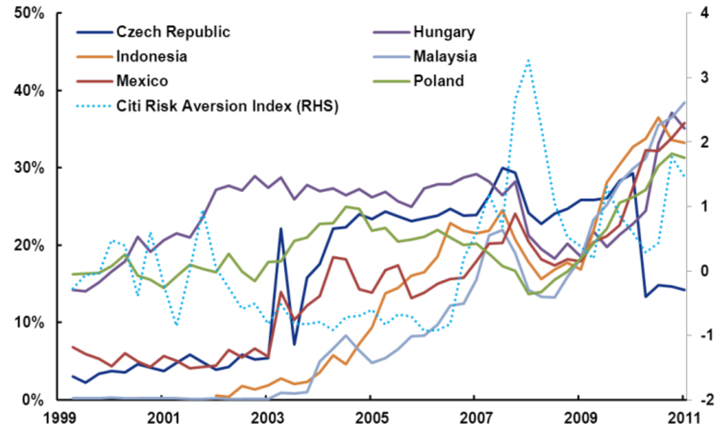
Share of government debt held by Non-resident Private Investors:

•Highest in Peripheral Eurozone: up to 75%

•Moderate in Core Eurozone and Emerging Economies: between 20% and 50%

•Lowest in Safe Haven countries: below 20%

Private Non-Resident Holdings in Total Debt vs. Risk Aversion
in % of Total Outstanding Government Debt vs. Index



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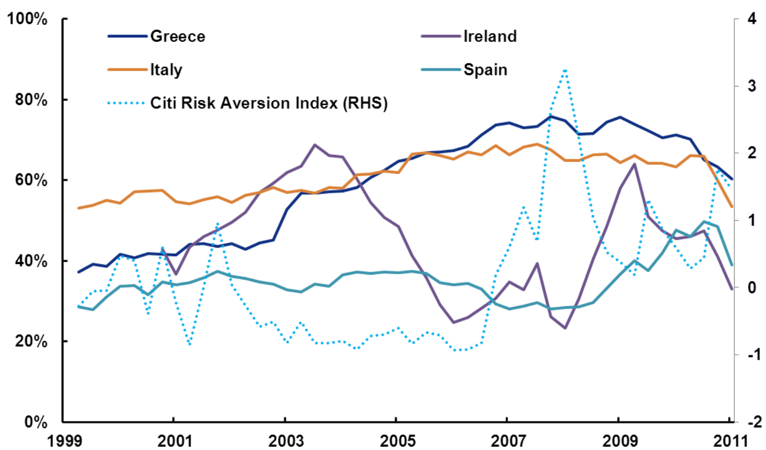

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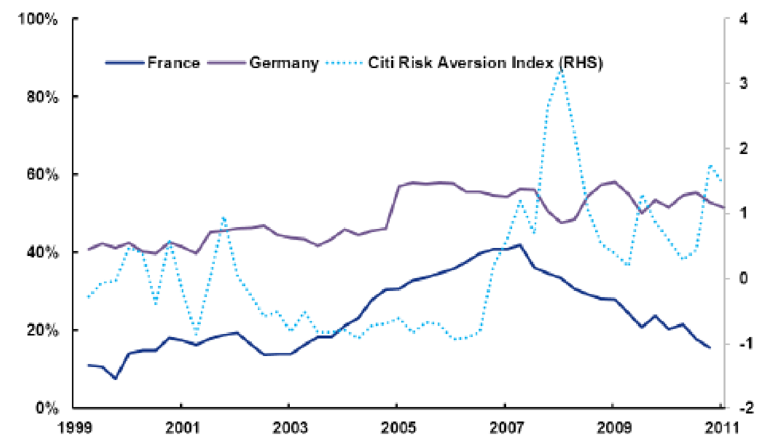
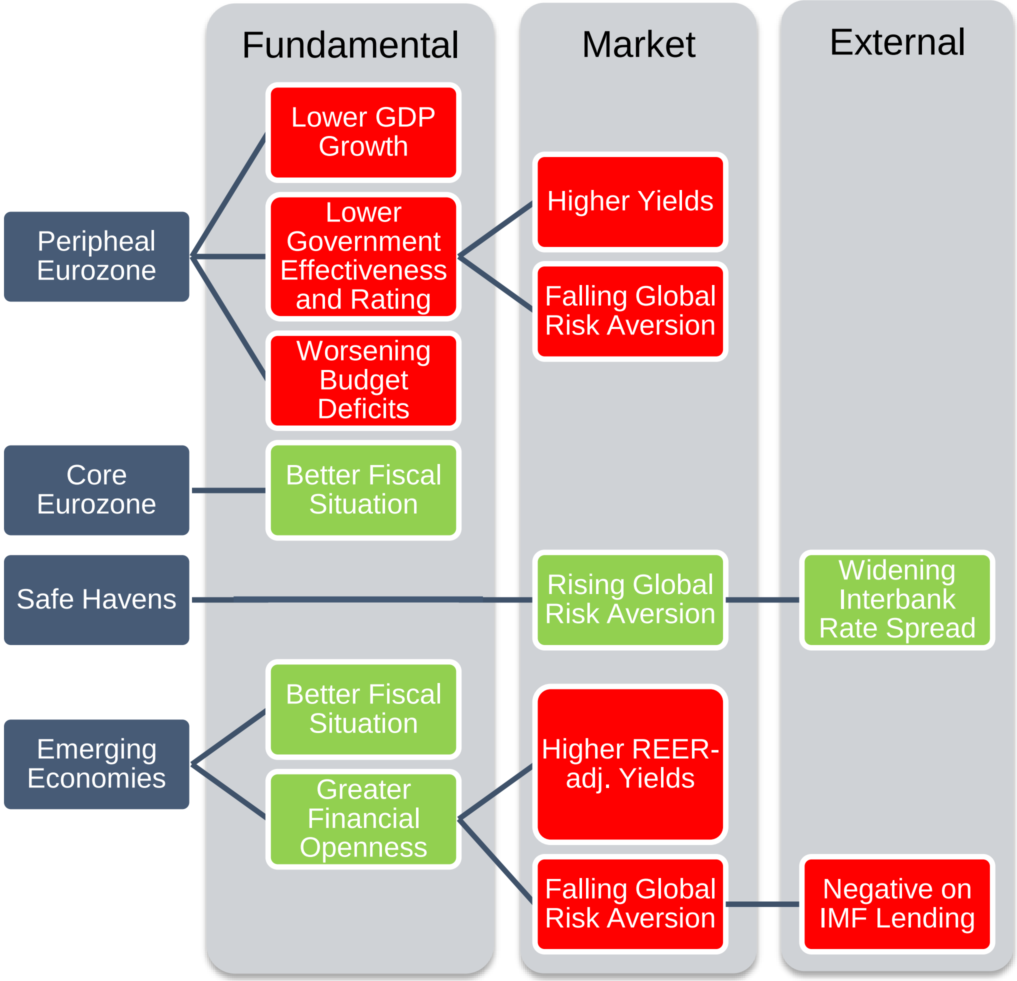


Results (1): Non-resident Private Investors Econometric Findings

Non-resident Private Investors tend to invest in unsustainable debt at higher yields.

Their holdings are associated with:
(-) Higher yields
(-) Worsening budget deficit
(-) Fewer fiscal rules
(-) Lower government effectiveness

(+) Lower financial fragility
(+) Longer Maturities
(+) Size / Liquidity



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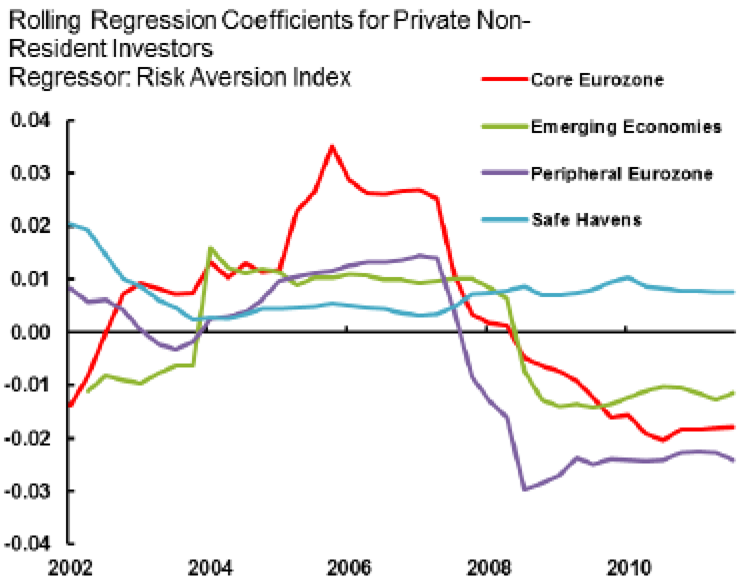
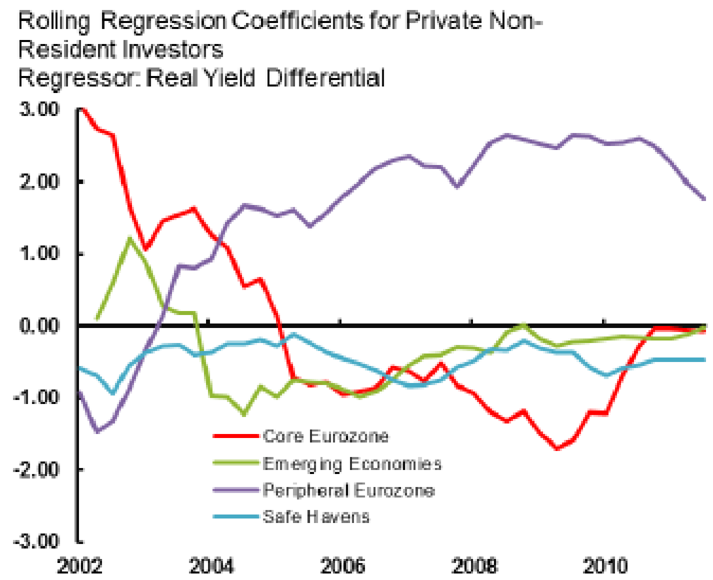
Results (1): Non-resident Private Investors
Structural Shift and Coefficient Stability

- Risk Aversion: recent crisis has brought a structural change in the flight to safety. From 2007 onwards rising risk aversion pushes international investors to buy US Treasuries, Gilts and JGBs and sell Eurozone debt

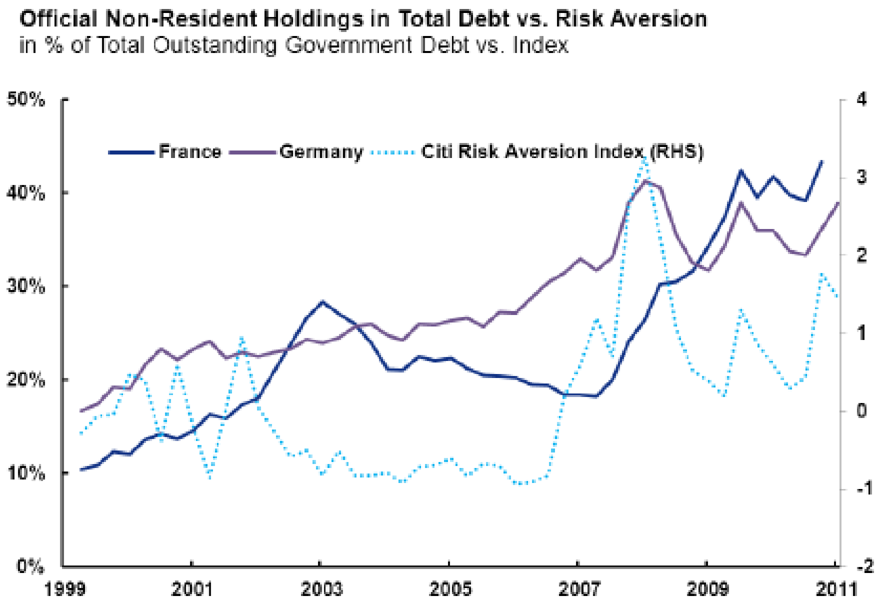
- Yield Differential: foreign private demand for peripheral eurozone debt has been driven by attractive sovereign spreads

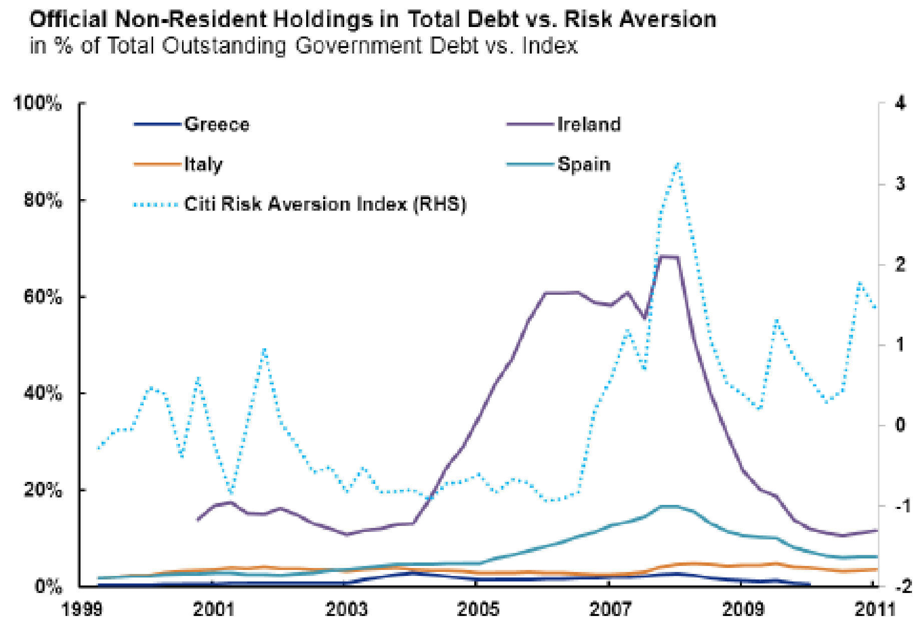




Results (2): Non-resident Official Investors Descriptive Statistics

Share of government debt held by Foreign Central Banks* as reserve assets:
- Historical High: over 70% in 2008 in Ireland
- Rising Share in France and Germany: nearly 40%
- Low and surprisingly stable among Safe Haven: 2% in Japan, 10%-15% in US, UK and Denmark





*Excluding the ECB in case of Eurozone countries

Results (2): Non-resident Official Investors Econometric Findings

Foreign Central Banks tend to invest in low-yielding safe debt, in particular under rising risk aversion.

In general, foreign central bank holdings are associated with:

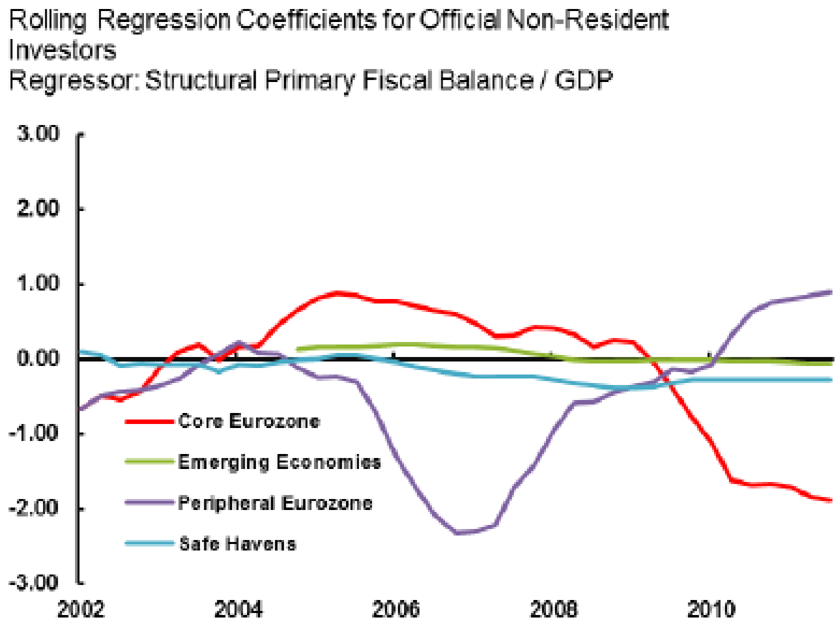
(-) Widening Current Account Deficits

(+) Higher Credit Ratings
(+) Fiscal Surpluses and better Fiscal Rules
(+) Higher GDP Growth
(+) Higher Private Credit to GDP
(+) Lower Yields

Results (2): Non-resident Official Investors Structural Shift and Coefficient Stability

- Private credit to GDP: rising private indebtedness attracted more foreign official investors to Peripheral Eurozone and scared off investors in Core Eurozone and Safe Haven countries

- Fiscal Balance: before 2009 foreign central banks would increase exposure in Peripheral Eurozone despite growing fiscal deficits and decrease exposure to France and Germany

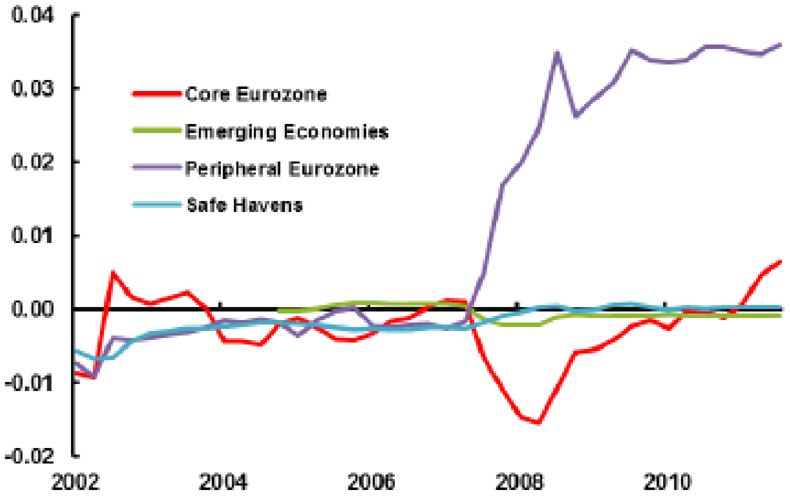


Results (2): Non-resident Official Investors Structural Shift and Coefficient Stability

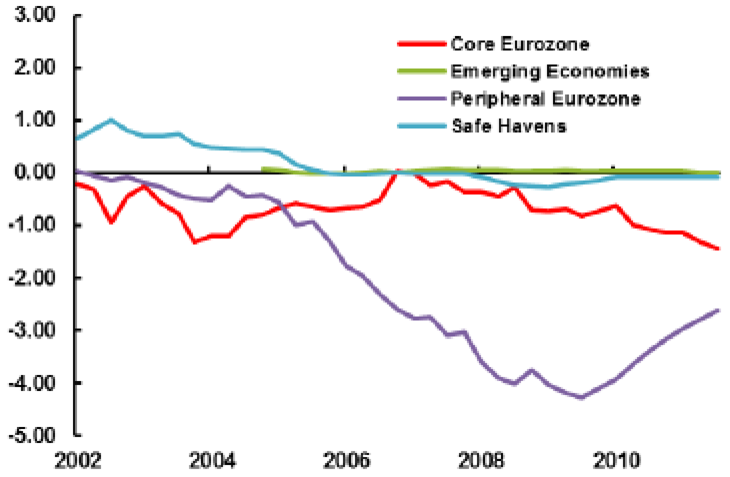
- Risk Aversion: since 2007 debt issued in Peripheral Eurozone was considered to be a safe refuge by foreign central banks

- Yield differential: foreign central banks appear to be co-responsible for the spread compression in Peripheral Eurozone

Rolling Regression Coefficients for Official Non-Resident Investors
Regressor: Risk Aversion

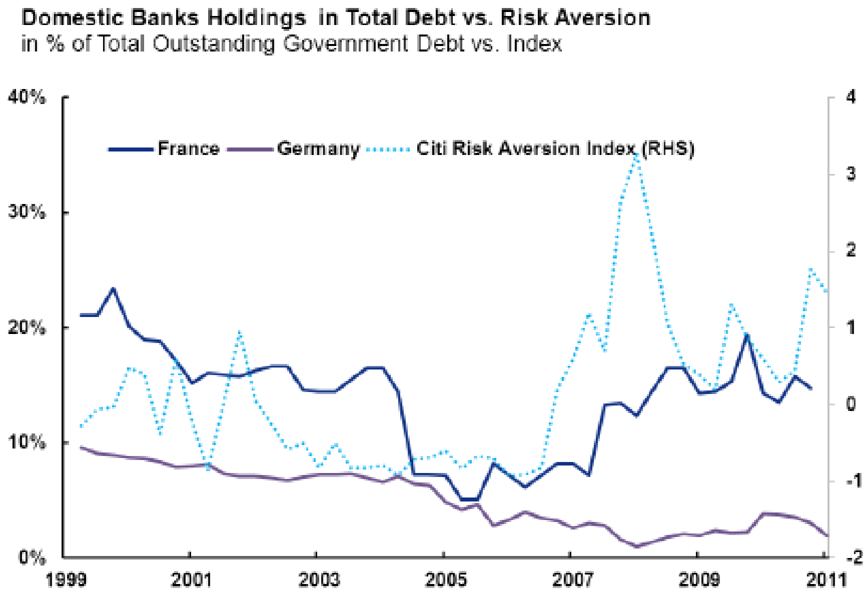


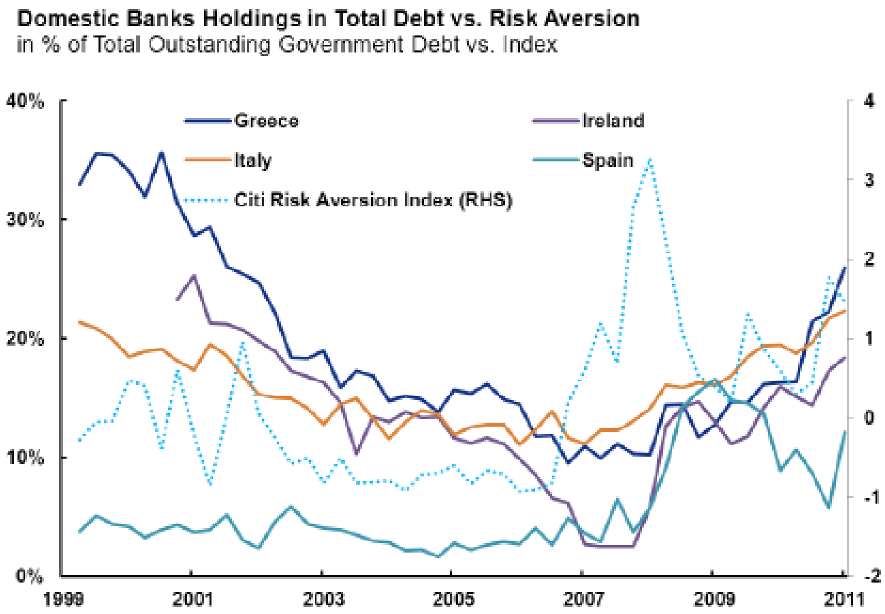
Rolling Regression Coefficients for Official Non-Resident Investors
Regressor: Real Yield Differential



Results (3): Domestic Banks Descriptive Statistics

- Share of government debt held by domestic banks oscillates between 10% and 30%.
- Bondholdings of domestic Banks in Peripheral Eurozone, France, UK and Emerging Economies reached historical lows in 2007 and surged as financial crisis began to unwind.





*Excluding the ECB in case of Eurozone countries

Results (3): Domestic Banks
Econometric Findings

Domestic banks tend to invest in domestic debt when it actually becomes unsustainable, average maturities shorten and the IMF is solicited to step in to provide funding.

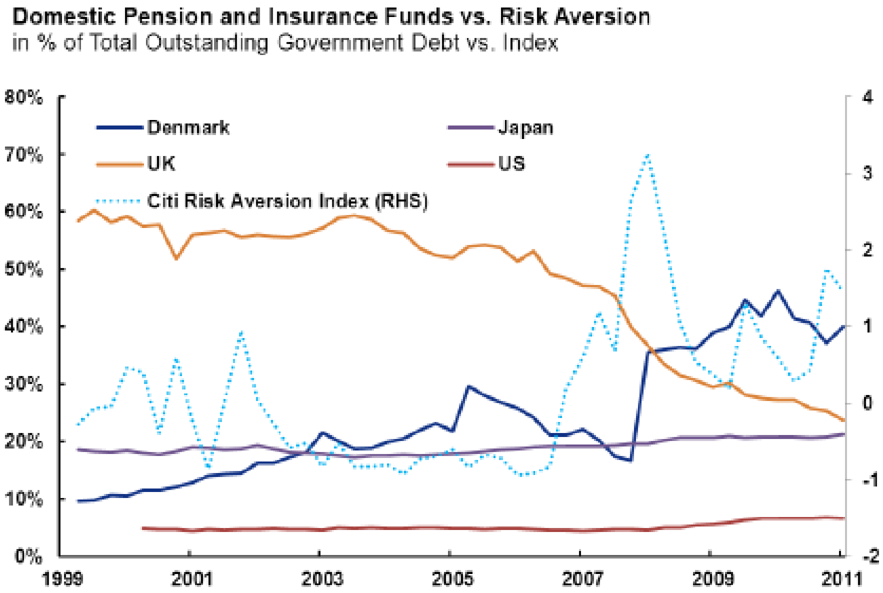
Greater holdings of domestic banks are associated with
(-) higher yields
(-) lower government effectiveness
(-) less sustainable debt
(-) lower growth

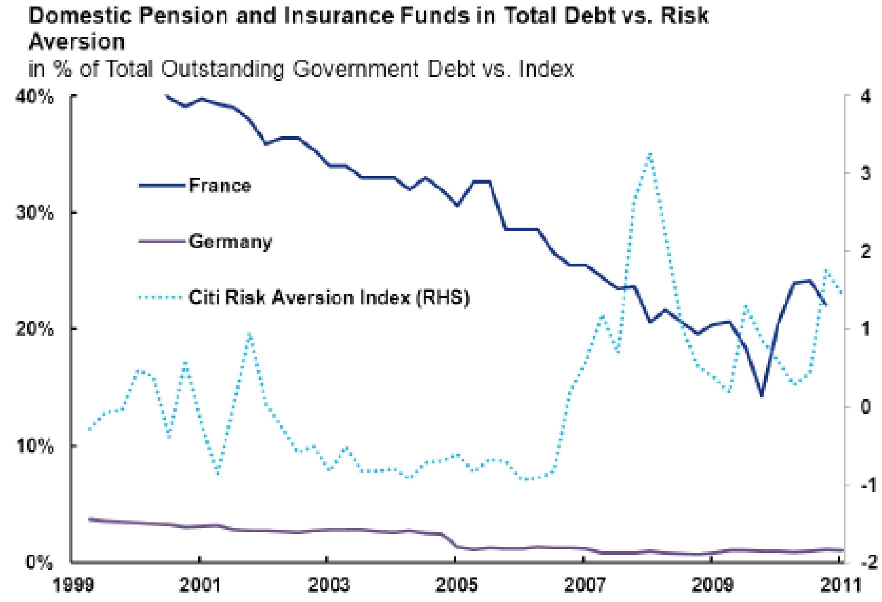
While interbank market rate is a significant driver of banks' demand in Safe Haven, in the Eurozone banks tend to repatriate assets under higher policy uncertainty.

Neither sovereign ratings nor refinancing at the ECB does not seem to have a significant impact on demand for domestic government bonds.

Results (4): Domestic Pension Funds and Insurance Companies Statistical and Econometric Findings

Domestic Pension Funds and Insurance Companies hold between 2% and 20% of government debt in developed economies and between 20% and 50% in emerging countries.





Debtholdings of pension funds and insurance companies are associated with (-) lower ratings, (-) smaller GDP size, (-) higher debt burden and (-) lower liquidity.

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Results (5)
Development of Diversified Investor Base in Emerging Markets

Among Emerging Economies, greater Financial Openness and Government Effectiveness significantly helped attract foreign investors and reduce reliance on captive domestic.

Despite of „graduation” the phenomenon of sudden in- and outflows is not over yet.

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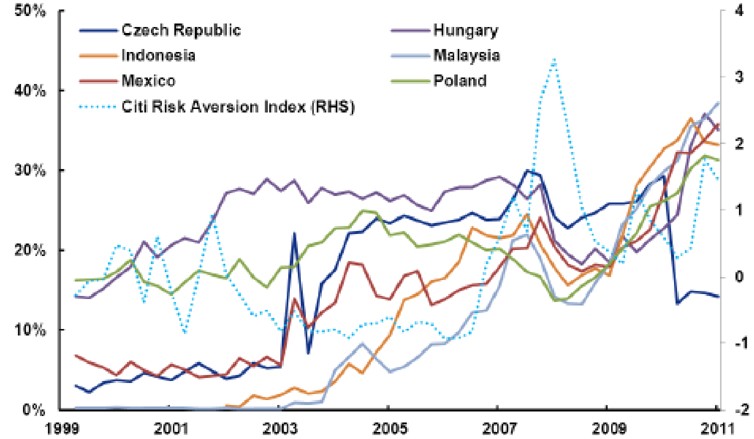

Domestic Banks Holdings in Total Debt vs. Risk Aversion
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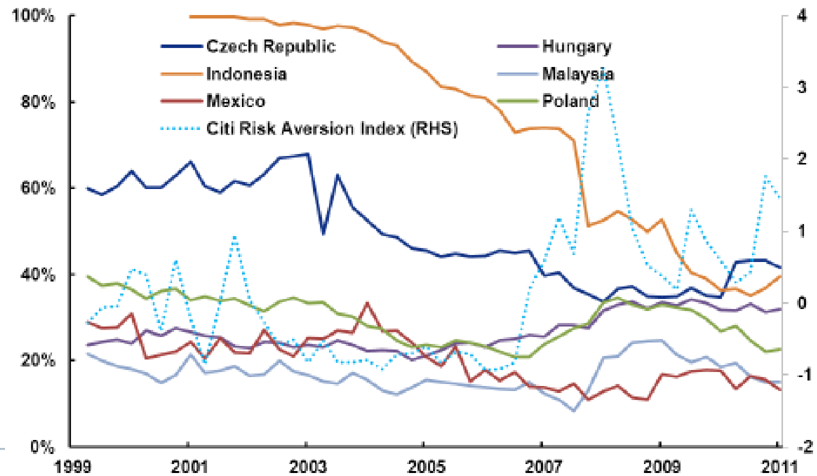

Domestic Pension and Insurance Funds Holdings in Total Debt vs. Risk Aversion
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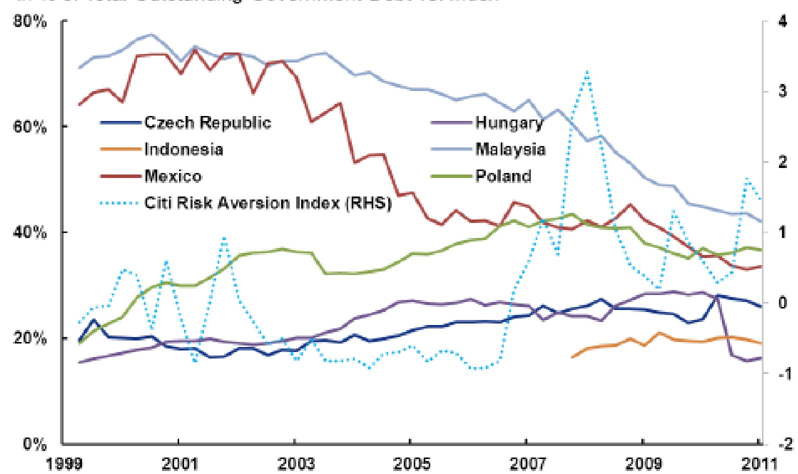


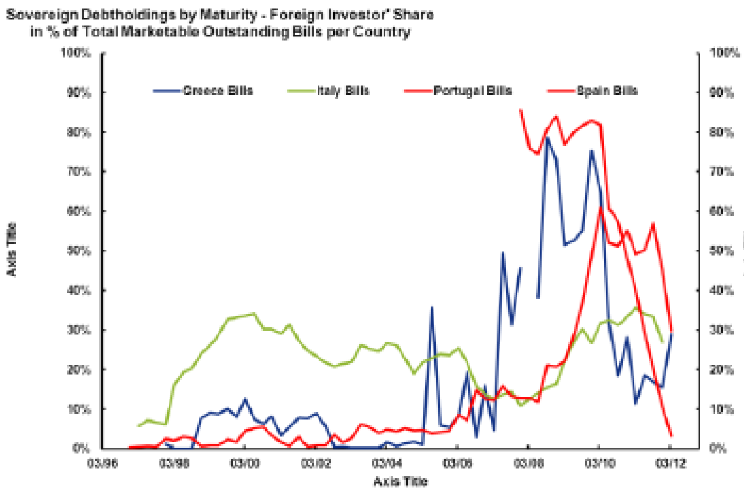
Thank you for your attention!

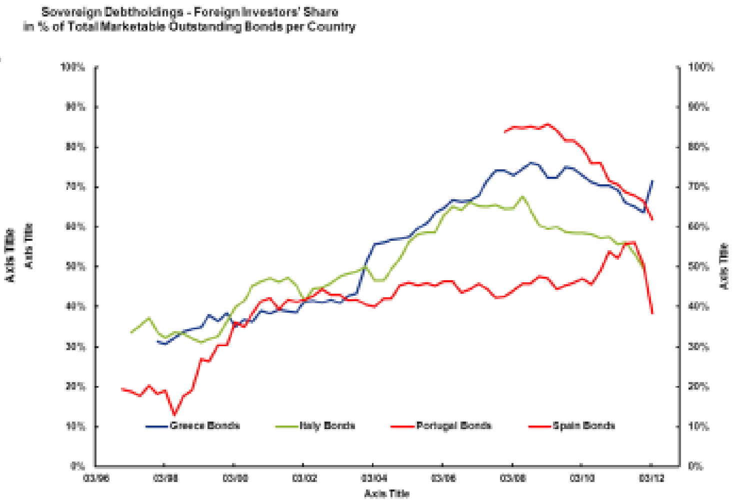
Back Burner

Back Burner (1)

Further Research Themes:

1. Elasticity of Demand for safe and risky debt
   - How does the elasticity of demand with regard to yield or credit risk change at different risk level and maturity
   - Reaction of investors to shocks in credit risk, yields and inflation (Panel VAR)
2. Sudden stops in bond market





3. Local and foreign currency debt in emerging economies – are foreign investors prone to change their exposure to LC debt if FX yields change