The Nexus Between Financial Sector and Sovereign Credit Risks: Theory and Evidence

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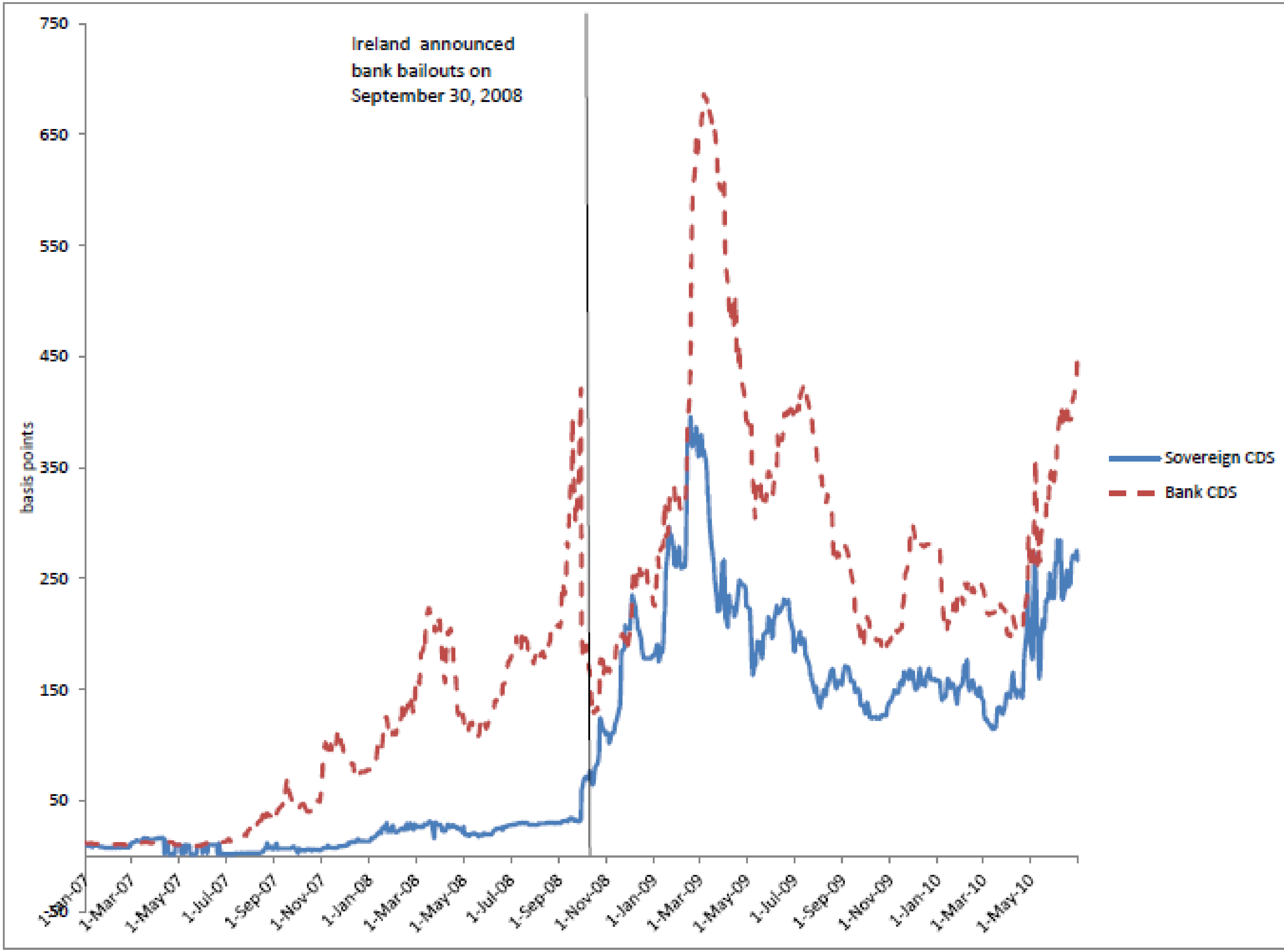
A Framework to Understand Recent Financial and Sovereign Crises

- Economic agents:
  - Financial sector
  - Real sector or households
  - Governments
- Financial sector critical to intermediation
- Key agency problems:
  - <u>Debt-overhang</u> or risk-shifting by under-capitalized financial firms
  - <u>Myopia and populism</u> of governments in public finances and fiscal policy

Bank – Sovereign Credit Risk Loop

- Sovereigns sacrifice credit quality to bail out the distressed financial sector
  - Financial sector credit risk -> Sovereign credit risk
- (Further) Deterioration of sovereign credit risk weakens financial sector further
  - Sovereign credit risk -> Financial sector credit risk
  - Direct collateral damage as well as weakened guarantees
- Weakened non-financial sector from crowding out effects of sovereign debt -> Stagnation

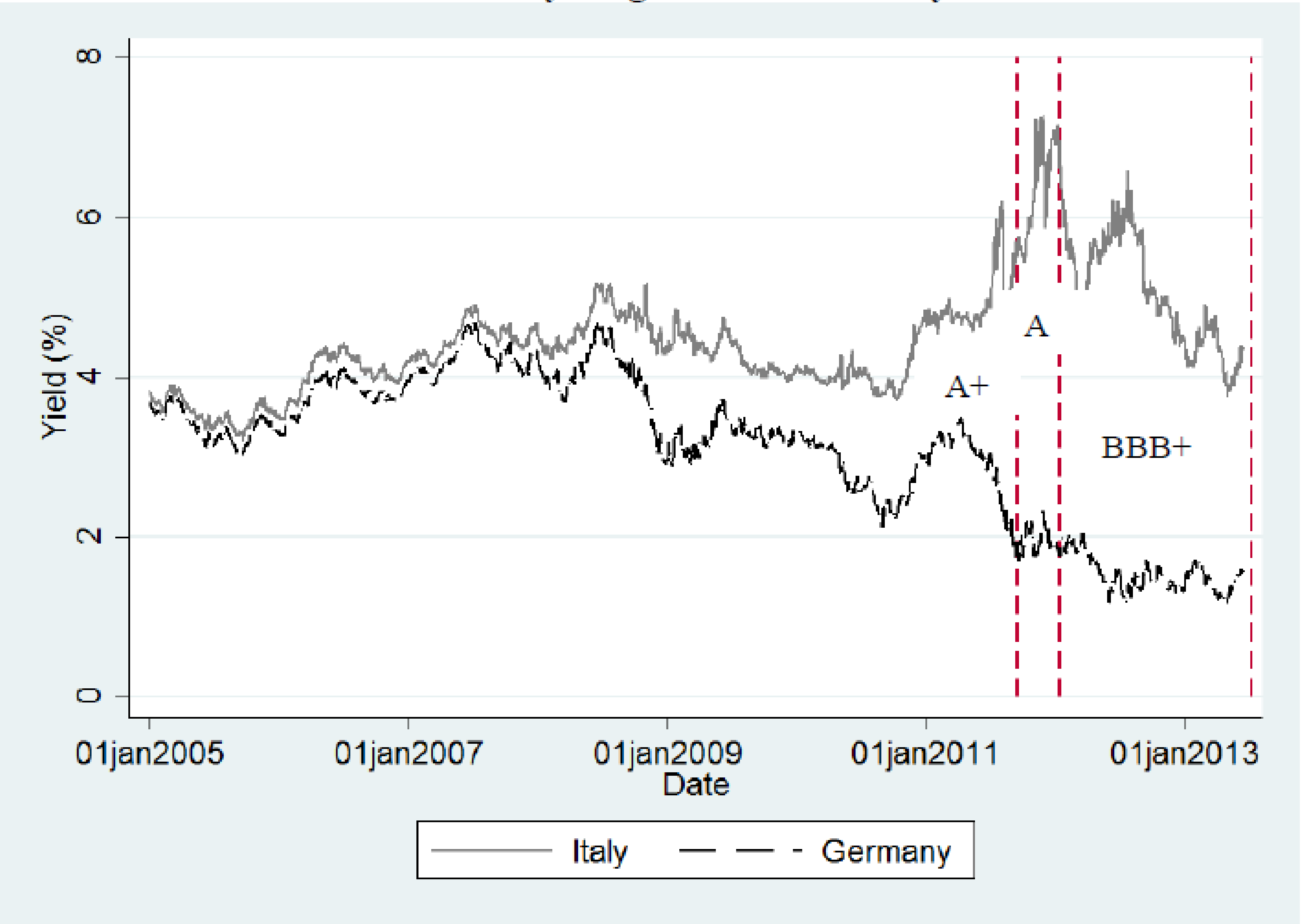


750
650
550
450
350
250
150
50
-50
basis points
Ireland announced
bank bailouts on
September 30, 2008
1-Jan-07
1-Mar-07
1-May-07
1-Jul-07
1-Sep-07
1-Nov-07
1-Jan-08
1-Mar-08
1-May-08
1-Jul-08
1-Sep-08
1-Nov-08
1-Jan-09
1-Mar-09
1-May-09
1-Jul-09
1-Sep-09
1-Nov-09
1-Jan-10
1-Mar-10
1-May-10
Sovereign CDS
Bank CDS

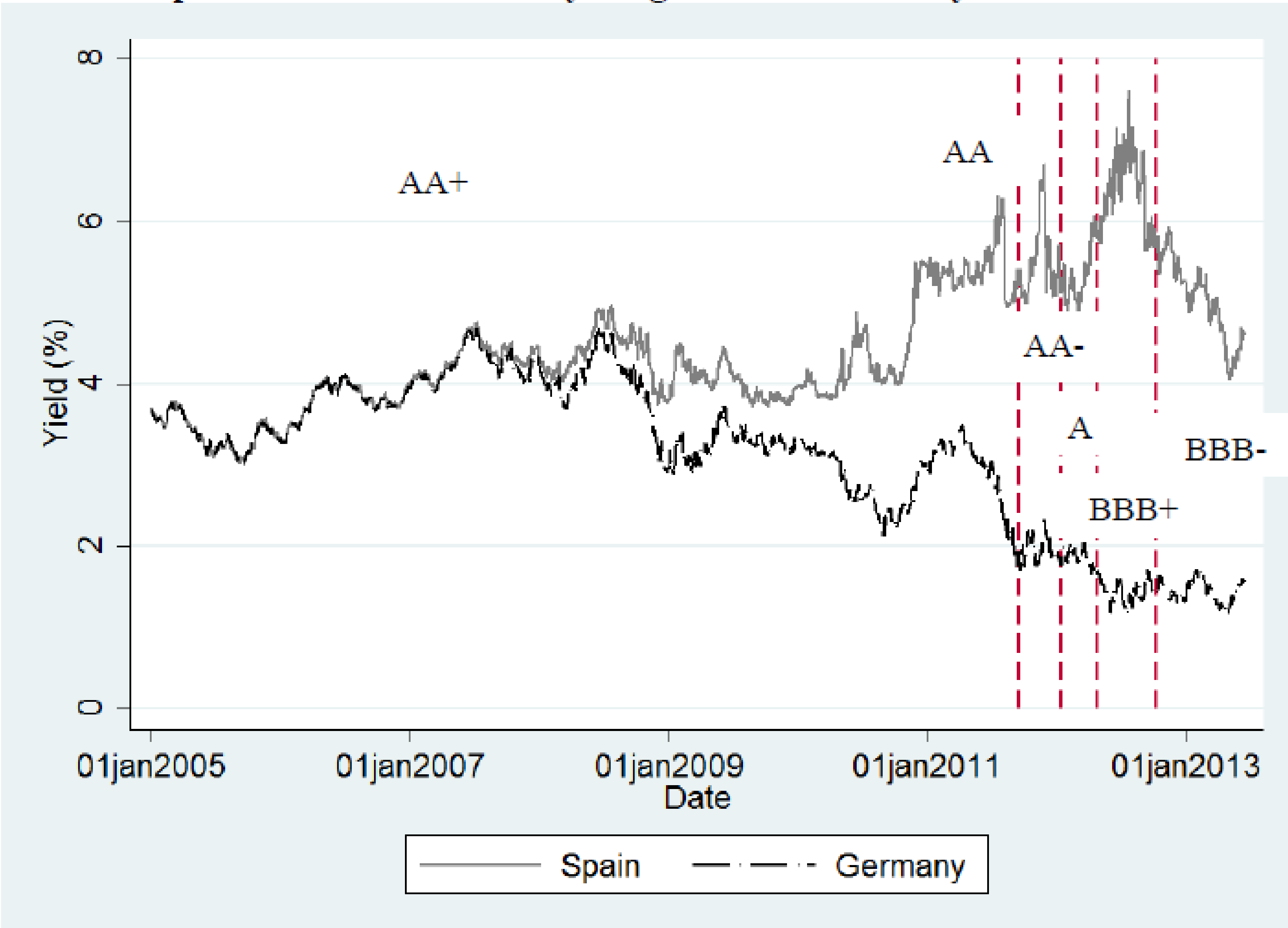
Banks Gamble on Risky Sovereign Debt

- Bailed-out or under-capitalized banks have incentives to gamble
  - Sovereign riskiness makes government bonds an attractive gamble for out-of-money equity
  - Domestic government bonds even more attractive as gambles leading to “home bias”
- Banks fund sovereign debt in short-term funding markets for maximum “carry”
  - Bank solvency and liquidity risk deeply inter-twined
  - Lead to weakened non-financial sector -> Stagnation

Panel A. Italian and German 10-year government bond yields



Panel B. Spanish and German 10-year government bond yields



Increasing Sovereign Exposure: Bank Level Evidence

By Bank Risk (Holdings scaled by Total Assets)

	Δ Italy March 2010-Dec 2010
High Tier 1	0.022
Low Tier 1	0.491
High RWA/Assets	0.696
Low RWA/Assets	0.004
High Loans/Assets	0.387
Low Loans/Assets	-0.022

	Δ Spain March 2010-Dec 2010
High Tier 1	-0.015
Low Tier 1	0.679
High RWA/Assets	0.543
Low RWA/Assets	0.072
High Loans/Assets	0.505
Low Loans/Assets	-0.066

- For example, banks with a Tier-1 ratio below 9.03% (the 25% quartile) increase their Italian bond holdings, on average, by 0.49% of total assets between March and December 2010.

- Banks with low Tier 1 ratios, high RWA / Assets and high Loans / Assets *increase* their exposure to Italian and Spanish sovereign debt.

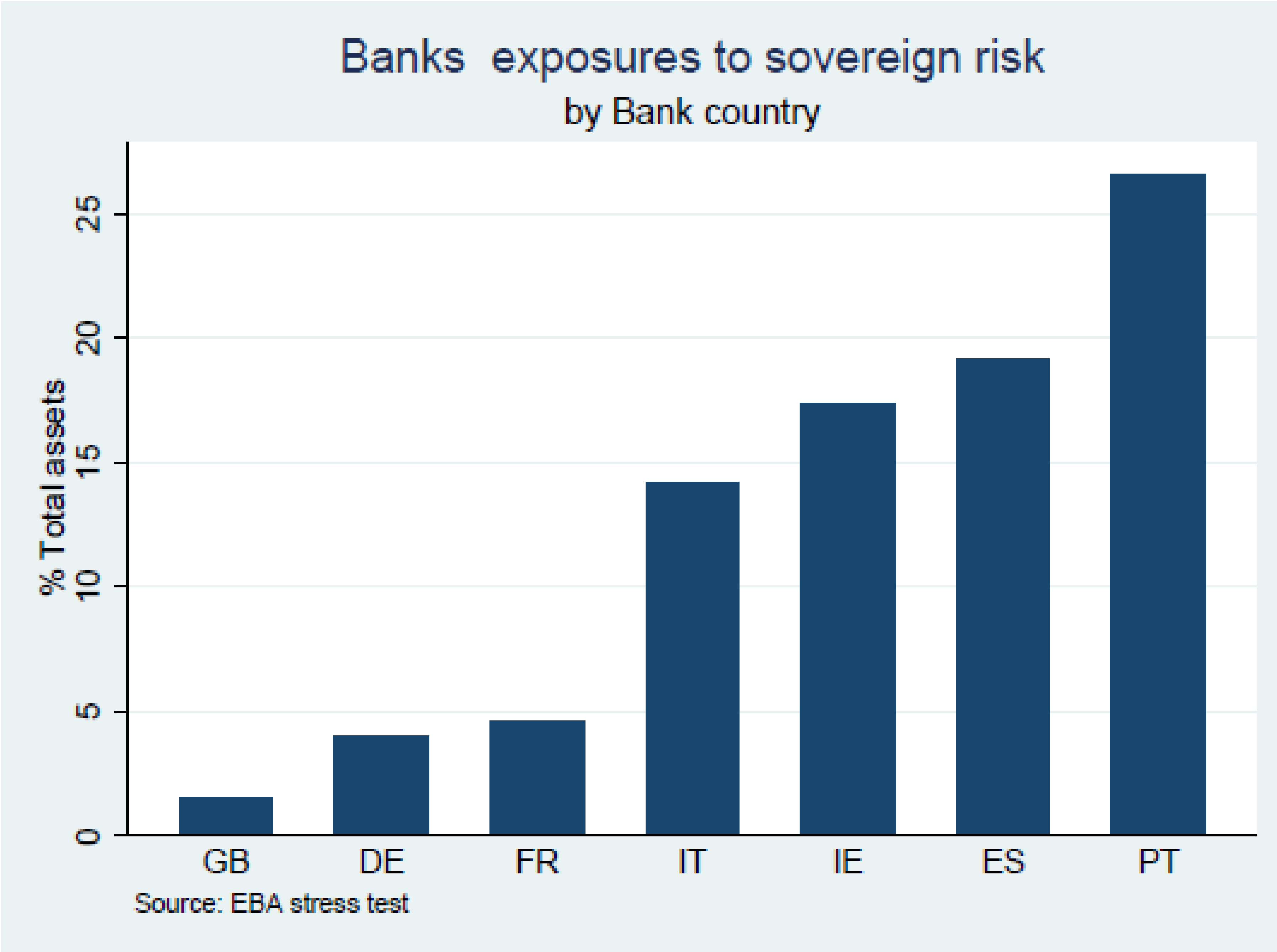
Increase in Home Bias After ECB Dec'11 and Feb'12 LTROs

- The exposure of core European banks to Italian and Spanish sovereign debt *decreased* over the March 2010 to June 2012 period.

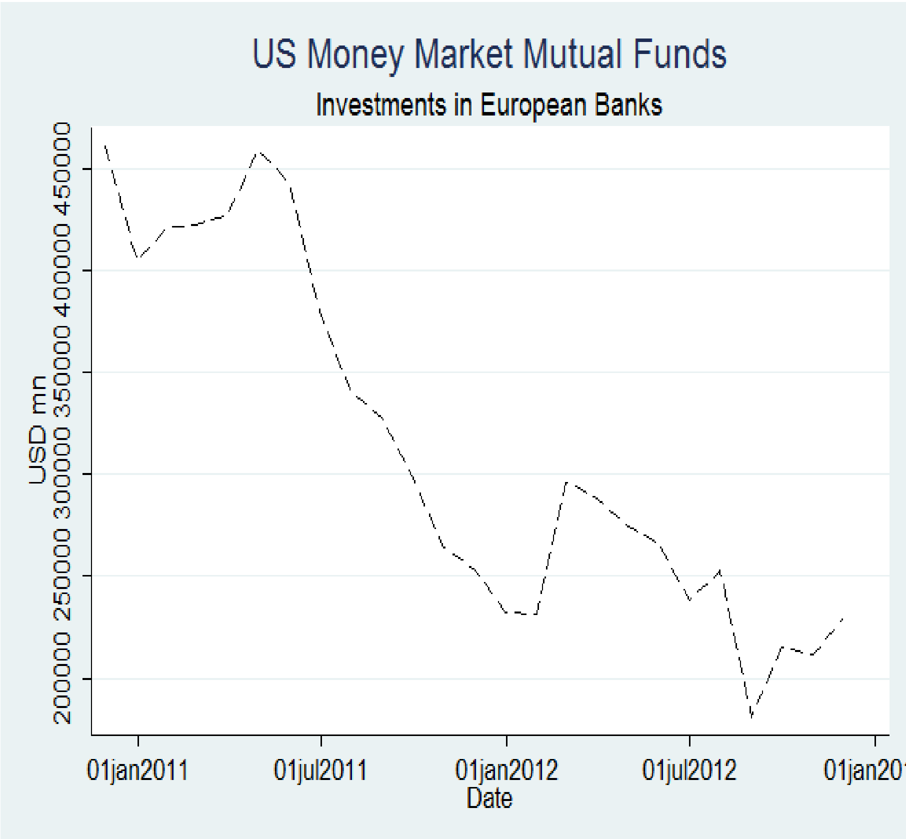
- The exposure of peripheral banks to their domestic sovereign debt *increased* over the same period.

Italian Bank	% Change (2010)	% Change (2012)
No	19.26%	-0.86%
Yes	13.22%	24.65%

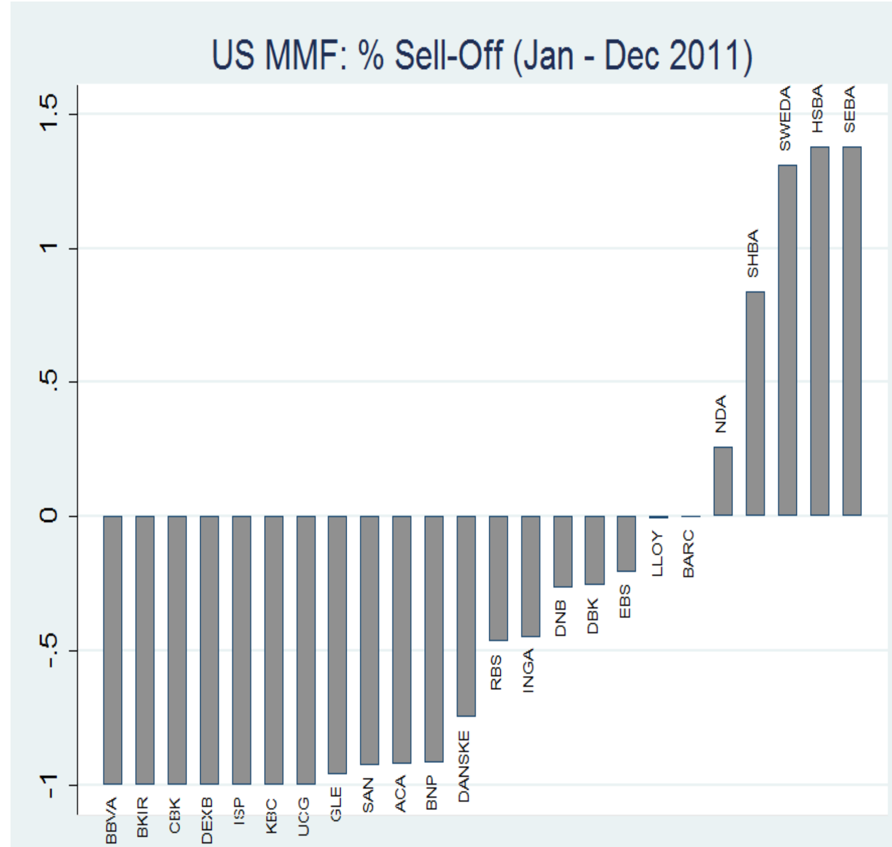
Spanish Bank	% Change (2010)	% Change (2012)
No	66.34%	-7.69%
Yes	3.71%	11.28%


Banks exposures to sovereign risk
by Bank country
% Total assets
0
5
10
15
20
25
GB
DE
FR
IT
IE
ES
PT
Source: EBA stress test

Liquidity risk: US MMF Withdrawals

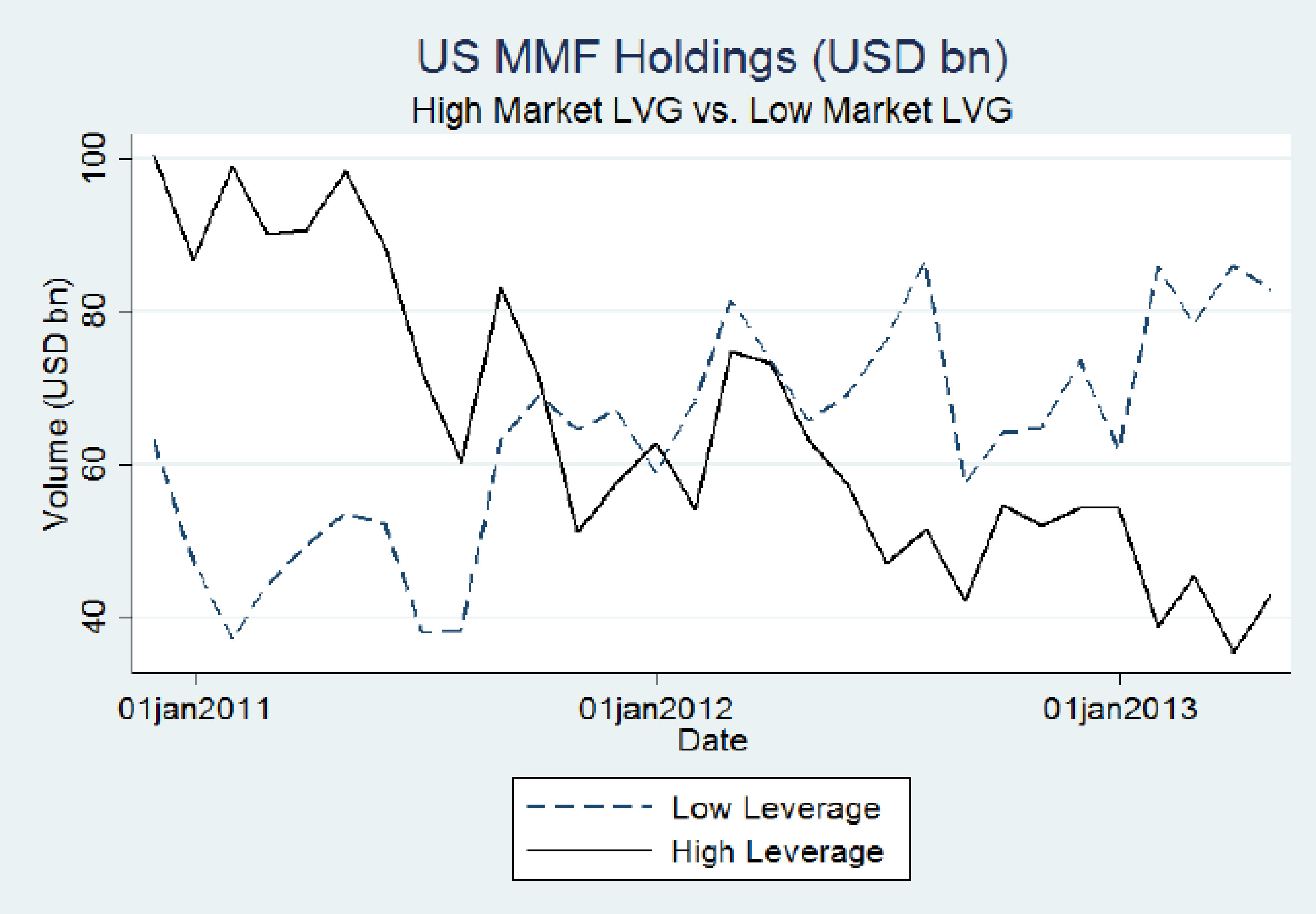


This figure depicts the investments of US MMF in European banks since October 2010.



Sale of commercial paper and repurchase agreements of European banks during the January to December 2011 period.

Panel B. U.S. MMF Withdrawals and Bank Capitalization



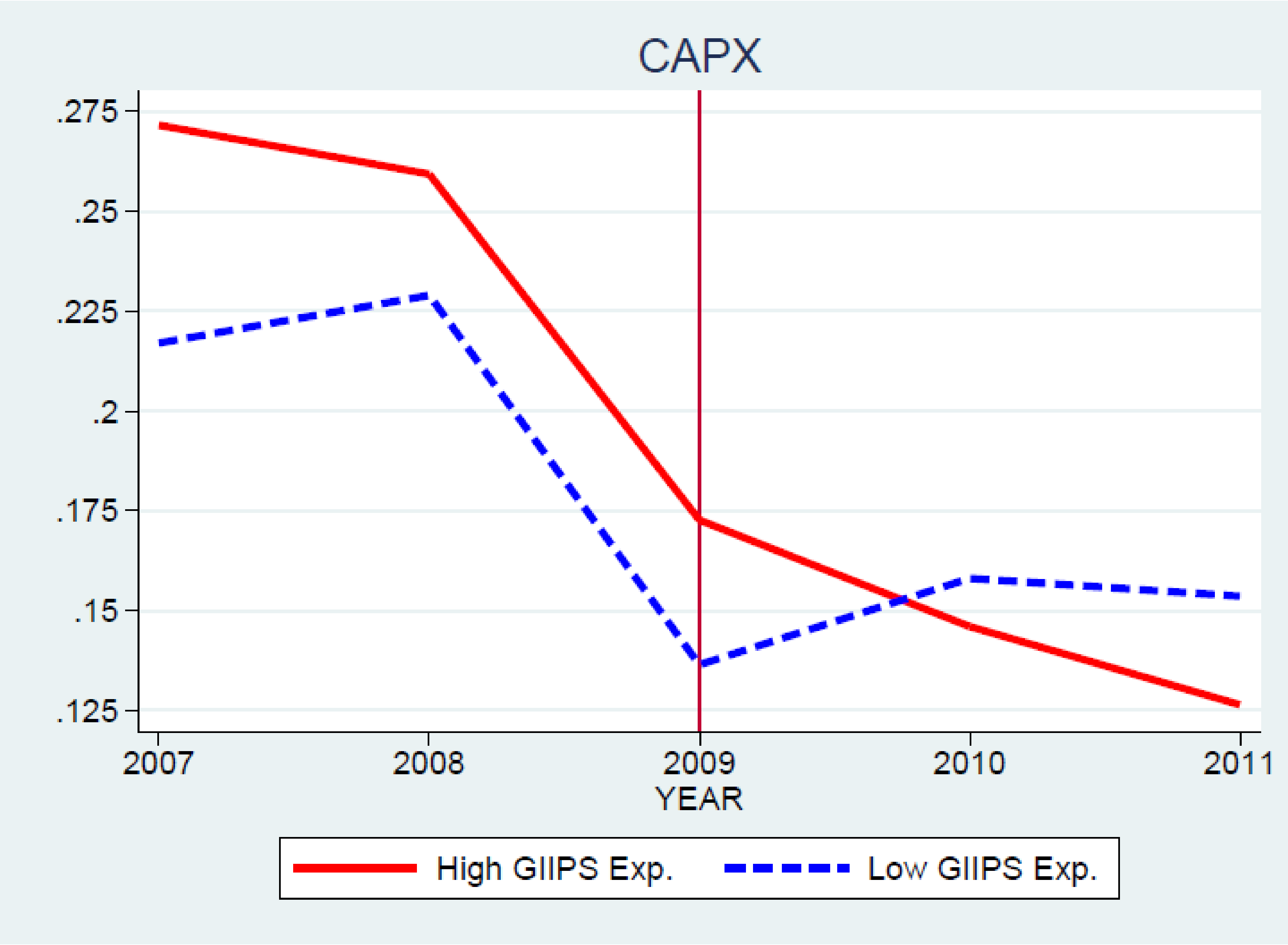
Government Myopia and Sovereign Debt

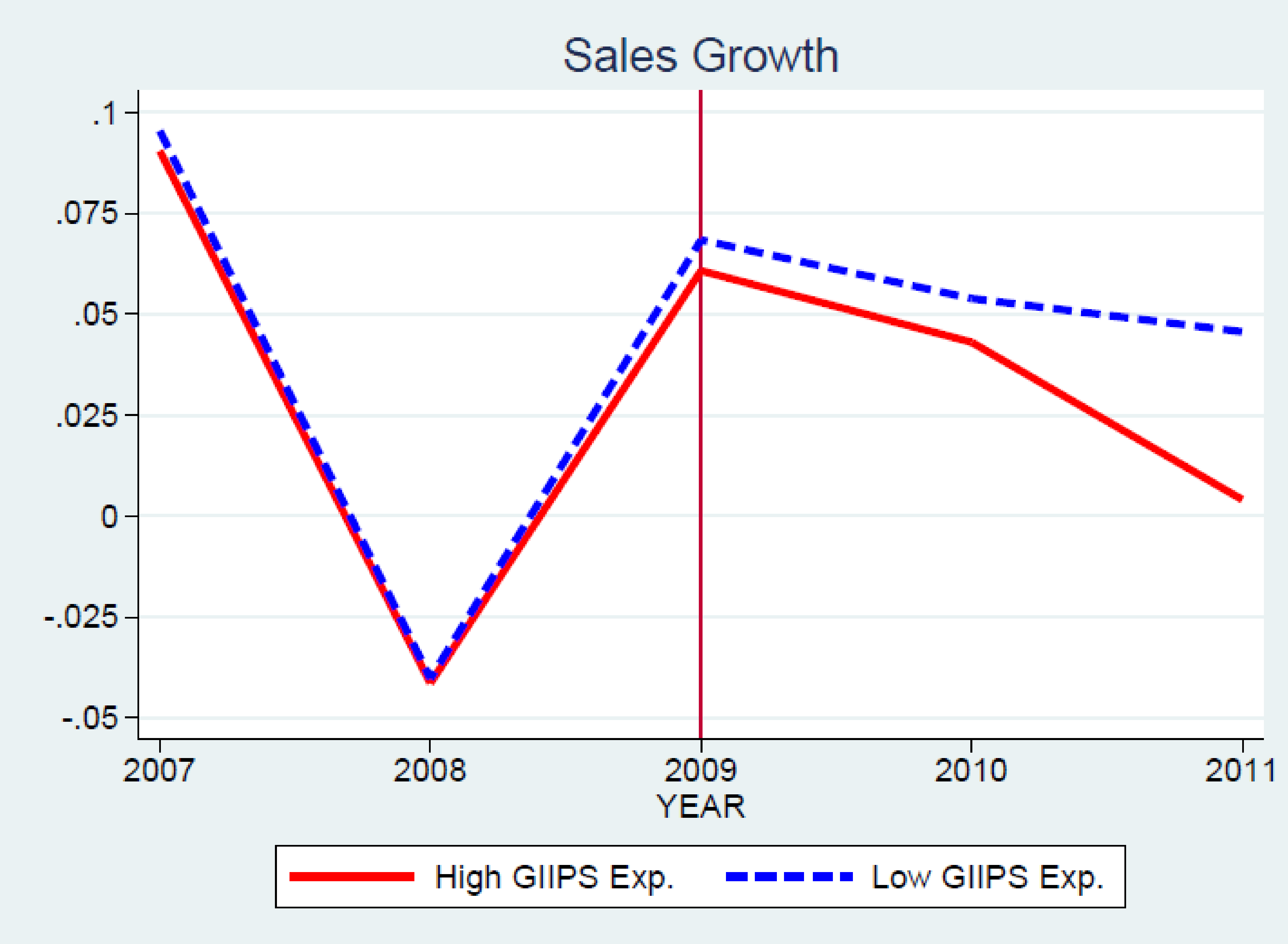
- Why don't governments limit the bank holdings of own debt?
  - Governments in fact encourage banks to hold more
  - Or consciously leave (or let) banks (be) under-capitalized
- Myopic nature of government borrowing for populism (or unwillingness to incur populist costs)
  - Postpone restructuring to future dates and governments
  - May engage in financial repression ("narrow banks"!)
- Debt overhang of banks and government myopia create an unholy nexus between financial and sovereign credit risks, which leads to stagnation

Transmission to the Real Economy

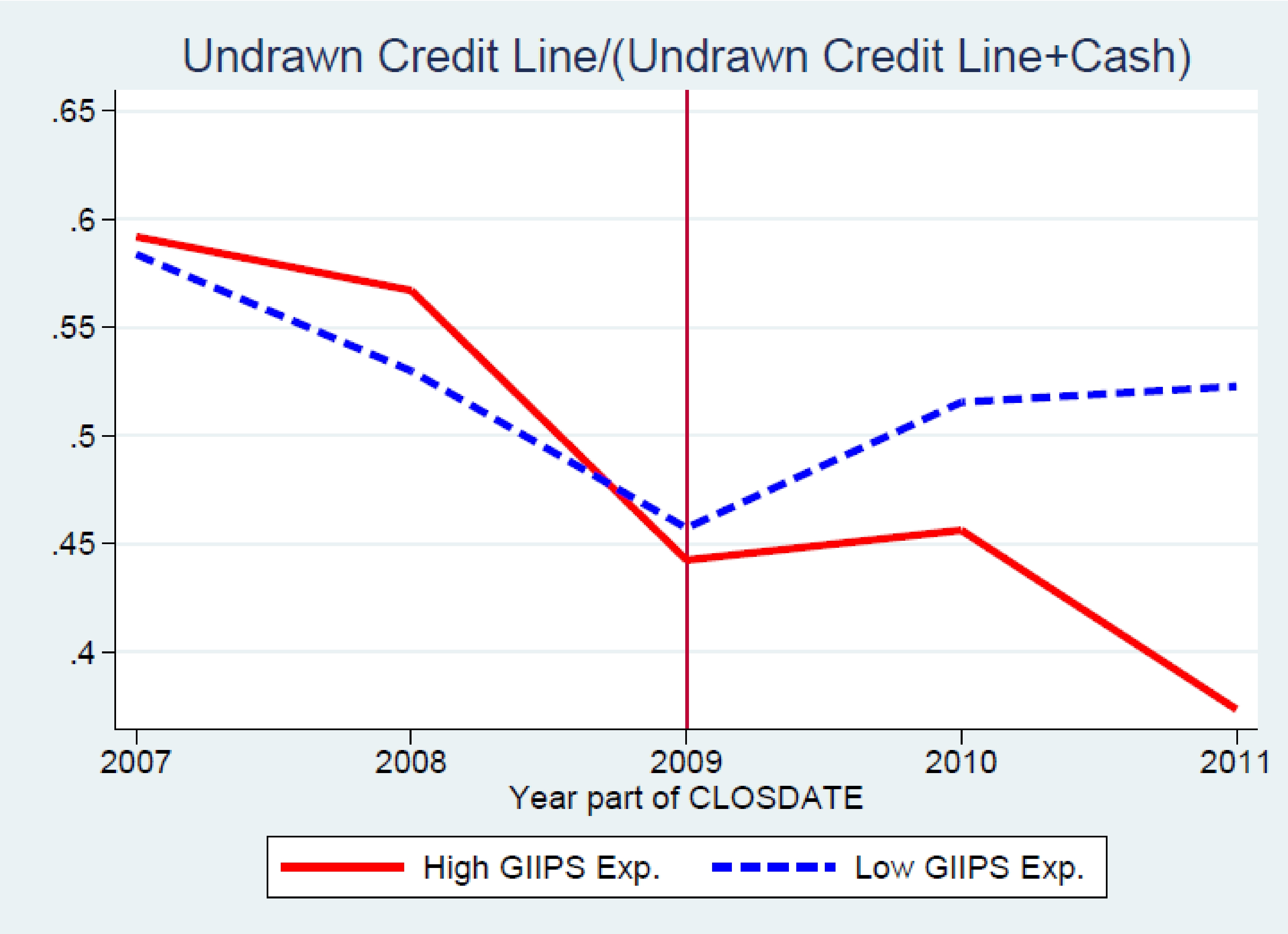
- Significant contraction in bank lending (spot as well as lines of credit) during sovereign debt crisis in the Eurozone periphery
  - In Ireland and Spain overall loan volume declined by 82% and 66%, respectively
- How does this impact the corporate policy of borrowing firms?
- Firms with a higher exposure to banks affected by the sovereign debt crisis become financially constrained
  - Increase precautionary holdings of cash, which leads to
    - lower employment growth
    - lower capital expenditures
    - lower sales growth rates

Employment Growth
.075
.05
.025
0
-.025
2007
2008
2009
2010
2011
YEAR
High GIIPS Exp.
Low GIIPS Exp.

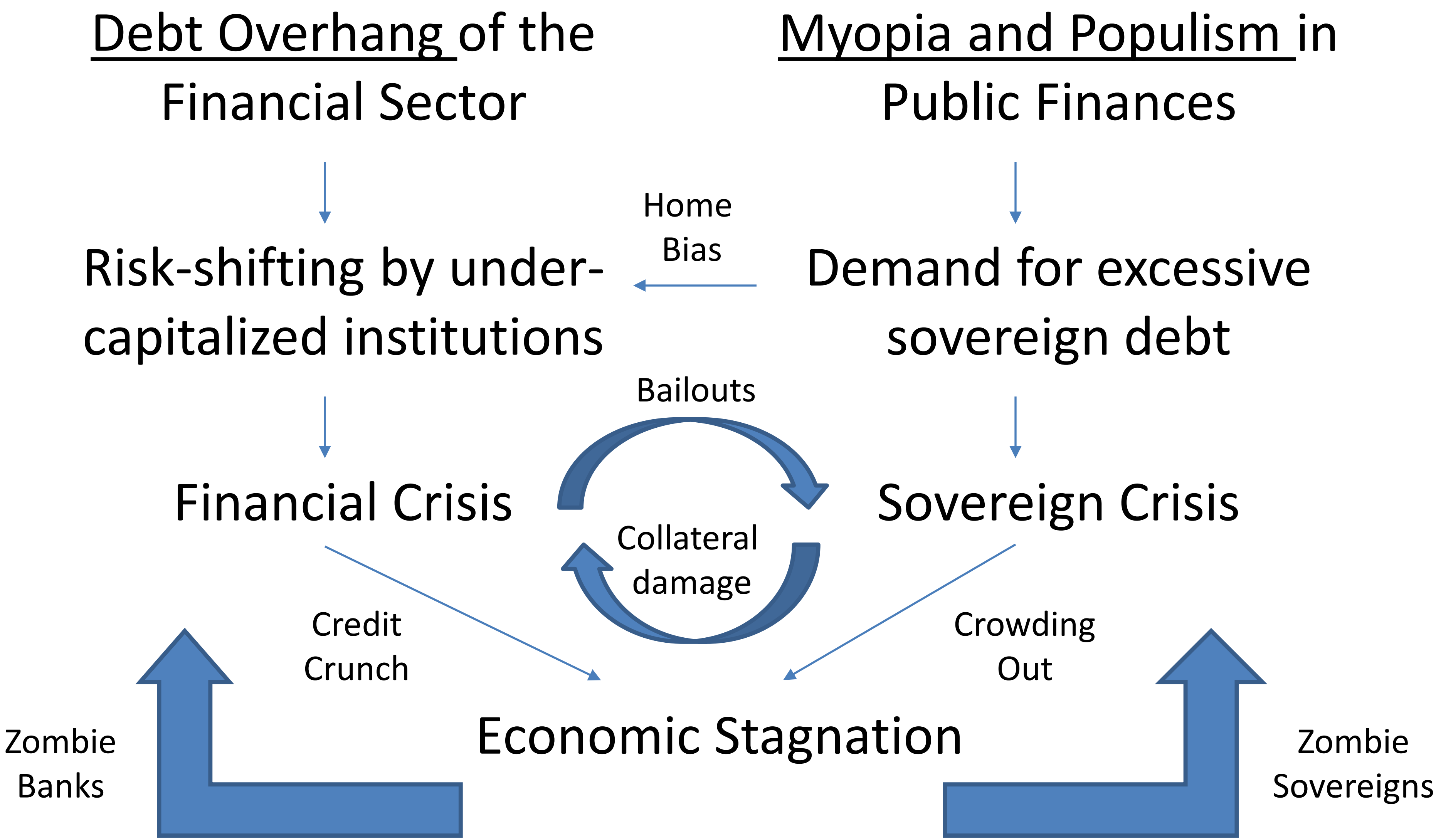

CAPX
.275
.25
.225
.2
.175
.15
.125
2007
2008
2009
2010
2011
YEAR
High GIIPS Exp.
Low GIIPS Exp.



Sales Growth
.1
.075
.05
.025
0
-.025
-.05
2007
2008
2009
2010
2011
YEAR
High GIIPS Exp.
Low GIIPS Exp.


Undrawn Credit Line/(Undrawn Credit Line+Cash)
.65
.6
.55
.5
.45
.4
2007
2008
2009
2010
2011
Year part of CLOSDATE
High GIIPS Exp.
Low GIIPS Exp.

Summary


Debt Overhang of the Financial Sector
Myopia and Populism in Public Finances
Home Bias
Risk-shifting by under-capitalized institutions
Demand for excessive sovereign debt
Bailouts
Financial Crisis
Sovereign Crisis
Collateral damage
Credit Crunch
Crowding Out
Economic Stagnation
Zombie Banks
Zombie Sovereigns

Does This Matter in Macro Finance?

- What are the “macro” facts about financial sector and crises?
- View 1:
  - Banks face tight market discipline (“solvency constraint”)
  - Banks de-leverage in wake of adverse shocks
  - The real problem of crises is this de-leveraging
  - Banks hold safe assets in crises and shun risky ones
  - Public finance and bank regulations are in terms of importance second-order effects

Does This Matter in Macro Finance?

- What are the “macro” facts about financial sector and crises?
- View 2:
  - Banks do not face adequate market discipline (“too big to fail”, “too many to fail”, “too systemic to fail”…)
  - Banks continue as Zombies in the wake of crises
  - The real problem of crises is the persistent debt overhang or under-capitalization
  - Banks hold (legacy) risky assets and shun safer assets
  - Public finance and bank regulations are intimately tied to bank choices in good times

Some Open (Rhetorical!) Questions

- Do we want to fit macro-finance models and their insights to data that come from a world with bank regulation, bank bailouts and exploding public finance?

- Can we meaningfully calibrate macro-finance models to recent crises without role for public finance, e.g., in housing and sovereign debt, the epicenter of crises?

- Do macro-finance models have the “right” economic foundations? Do we need a different set of micro-foundations for macro-finance going forward?

References

- *“A Pyrrhic Victory? Bank Bailouts and Sovereign Credit Risk”* (Viral Acharya, Itamar Drechsler and Philipp Schnabl, *Journal of Finance*)
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- *“Real Effects of the Sovereign Debt Crises in Europe: Evidence from Syndicated Loans”* (Viral Acharya, Tim Eisert, Christian Eufinger and Christian Hirsch)
- *“Why Are Banks Not Recapitalized During Crises? A Political Economy Explanation”, Matteo Crosignani, NYU Stern Doctoral student paper.*