# BANK FUNDING COSTS AND SOLVENCY

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## SUMMARY

This paper studies the relationship between bank **funding costs and bank solvency** in the euro area for the period between 2005 and 2015. Using a system GMM approach we investigate **two proprietary datasets** from the European Central Bank, namely iBoxx for **senior bond yields** and IMIR for **deposit rates,** to measure the costs of funding at the individual bank level.

**Motivation**

- High funding costs can erode banks' earnings and lead to the depletion of banks' capital buffers
- High funding costs can be passed through into higher lending rates and hurt the real economy
- Funding costs dynamics and potential second round effects need to be considered in stress tests

**Results**

- Confirm a **significant negative relationship** between bank solvency and funding costs
- The effect is **stronger on senior bond yields than on term deposit rates**, while overnight deposit rates are the least sensitive
- The relation is non-linear: we identify a solvency threshold beyond which **the effect of an increase in solvency on wholesale funding costs becomes positive**

## DATA

**Confidential datasets for costs of funding**

- Markit iBoxx bond indexes: weighted average of the yields of outstanding Euro denominated senior bonds for each issuer (*53 banks from 10 countries*)
- Individual Monetary and Financial Institution Interest Rates: individual deposits rates charged by banks for overnight deposits (*113 banks from 14 countries*) and deposits with agreed maturity (*107 banks from 16 countries*)
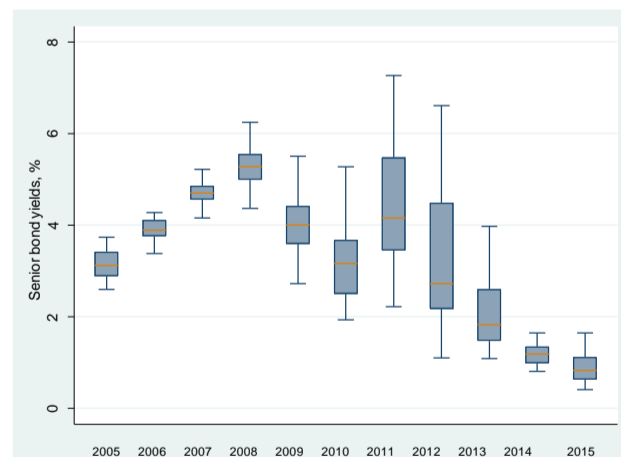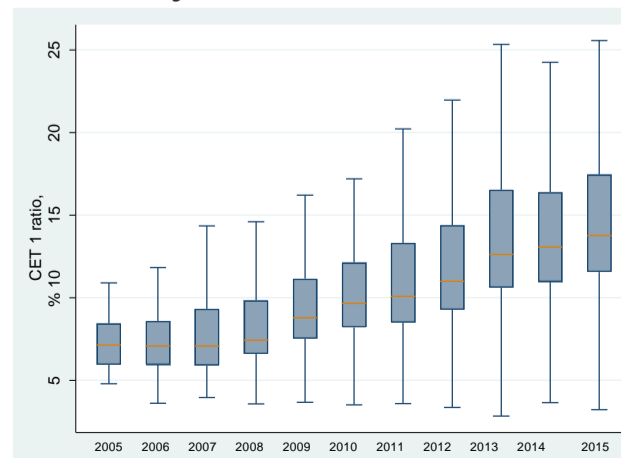

Senior bond yields (in %)
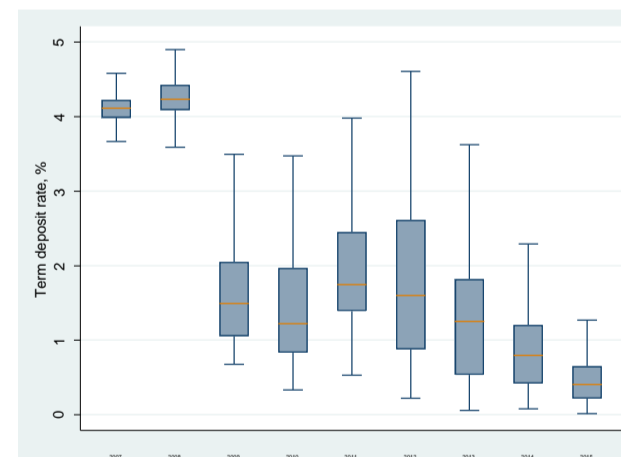

Term deposit rates (in %)
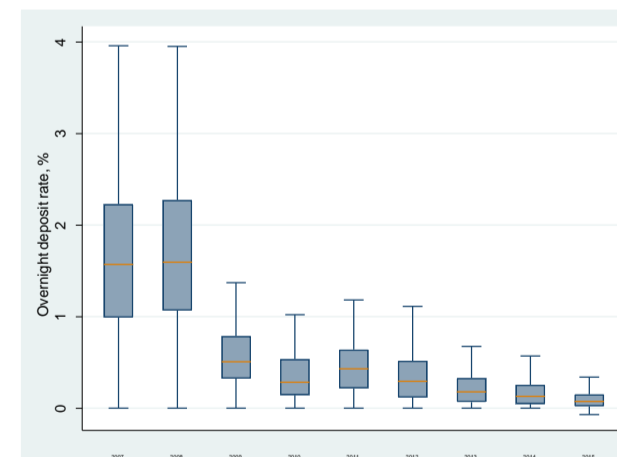

Overnight deposit rates (in %)

**Solvency measure**



risk-weighted CET1 ratio (in %)

**Macroeconomic and financial conditions, and bank controls**

- monetary policy: EONIA
- sovereign spread: 10y sovereign with German bonds
- risk aversion in the financial markets: VSTOXX
- bank controls: ROE, ROA, loan loss provisions, deposit and wholesale funding

## KEY RESULTS

| | Senior bond yields | Term deposits | Overnight deposits |
|---|---|---|---|
| First lag | 0.245* | 0.302*** | 0.350*** |
| | (0.141) | (0.0242) | (0.0716) |
| Second lag | | -0.167*** | -0.106** |
| | | (0.0246) | (0.0492) |
| Maturity | -0.0880 | 0.572*** | |
| | (0.0990) | (0.169) | |
| Sovereign spread | 0.786*** | 0.220*** | 0.0226 |
| | (0.258) | (0.0278) | (0.0140) |
| Volatility index | 0.0589*** | 0.0232*** | 0.00989*** |
| | (0.0141) | (0.00302) | (0.00178) |
| EONIA | 0.771* | 0.922*** | 0.241*** |
| | (0.436) | (0.0843) | (0.0563) |
| **CET1 ratio** | **-0.0562**** | **-0.0401***** | **-0.00826*** |
| | (0.0253) | (0.0130) | (0.00488) |
| ROE | -0.0133*** | 0.000901 | 0.00194 |
| | (0.00475) | (0.00356) | (0.00239) |
| Loan loss provisions over gross loans | 0.904** | -0.0305 | -0.0549 |
| | (0.383) | (0.0678) | (0.0346) |
| Wholesale funding (over total assets) | -0.00682 | | |
| | (0.0168) | | |
| Deposits (over total assets) | | -0.000750 | 0.000607 |
| | | (0.00318) | (0.00136) |
| Hansen J test (p-value) | 0.350 | 0.340 | 0.505 |
| AR(2) Arellano-Bond test (p-value) | 0.885 | 0.151 | 0.167 |
| Number of instruments | 42 | 90 | 112 |
| Number of banks | 42 | 104 | 107 |
| Number of observations | 144 | 466 | 531 |

## NON-LINEAR RELATION

Total effect of the CET1 ratio on bank funding costs after introducing a **squared term**.


Senior bond yields


Term deposit rates
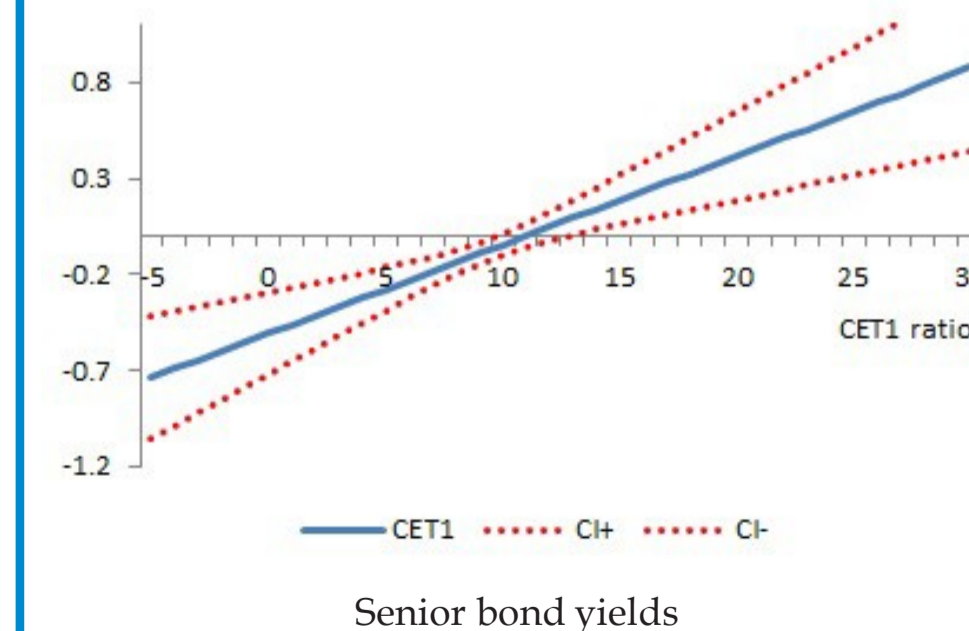
⇒ **47%** of CET1 ratio observations in our whole sample exhibit a higher value than the threshold