Monetary Policy, Financial Stability and Economic Growth

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Session on "Quantitative easing, asset prices and economic growth"

Navigating the storm: Setting long-term goals in volatile market conditions?
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Two main messages in this presentation

1. Expansive monetary policy (MP) reduces credit crunches, thereby increasing economic growth, especially in crises
   - Stronger in the Euro area GIIPS where other policies have difficulties (fiscal policy, banking union, and lack of structural supply-side reforms)
   - Emerging markets suffer from core QE tapering and higher MP rates. In the Euro area, GIIPS countries are our "emerging markets"

2. Too-long expansive MP via QE/LTROs and too-low rates imply high risk-taking by banks, creating credit and asset price bubbles and the seeds for the next financial crisis
   - An additional, very important risk is to raise interest rates too late (then, high and fast), with too high credit risk and financial instability
   - Freixas, Laeven and Peydró (*MIT Press*, 2015) argue that macropru policy reduces systemic risk, but there may be regulatory arbitrage, whereas MP affects all financial intermediaries that borrow short

Channels of transmission of MP

- Monetary policy works in the economy via several channels of transmission, affecting credit, asset prices, demand, thereby affecting economic growth and financial stability:
  1. Expansive monetary policy increases economic activity in a crisis by expanding liquidity and asset prices. Effects are stronger for countries, banks, firms and households with more financial constraints (Jiménez, Ongena, Peydró, Saurina, *AER*, 2012; Ciccarelli, Maddaloni, Peydró, *EP* 2013 & *RED* 2015)

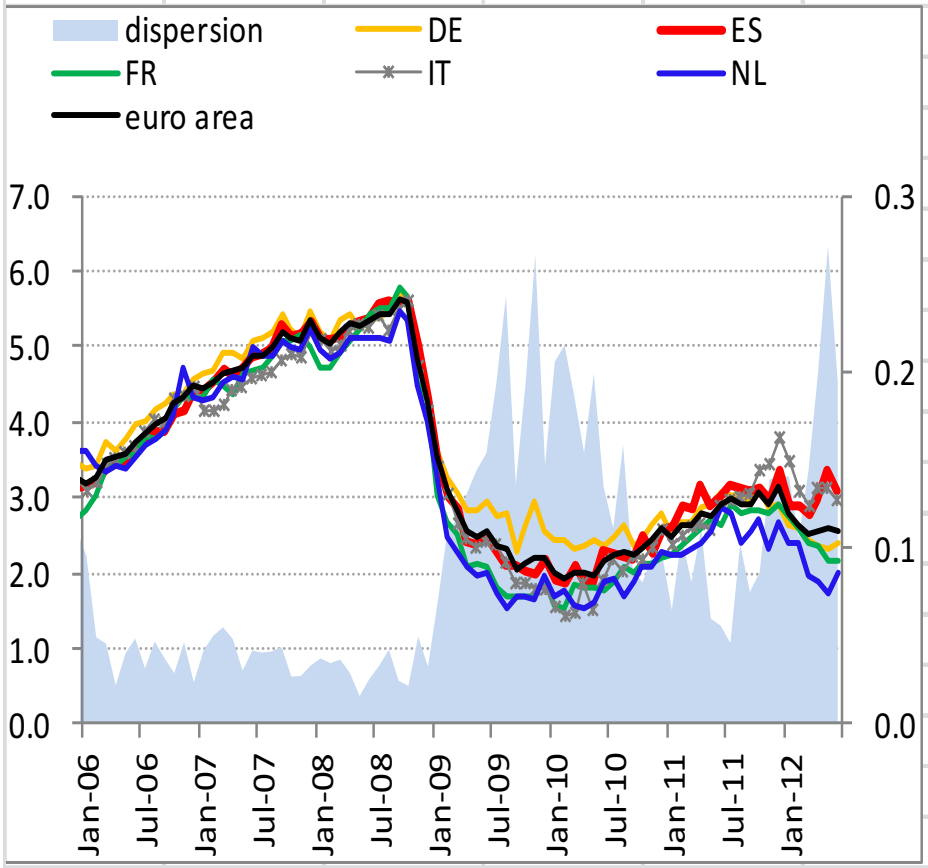
  2. Risk-taking channel of monetary policy: Expansive monetary policy through the increase in funding to banks may cause an increase in risk-shifting & search for yield, as banks face strong moral hazard problems – especially banks with lower capital at stake who do not fully internalize risk (Jiménez, Ongena, Peydró, Saurina, *Econometrica*, 2014; Maddaloni and Peydró *RFS* 2011 & *IJCB* 2013)

1st Question:

Credit crunch, Euro area financial fragmentation, monetary policy and positive real effects

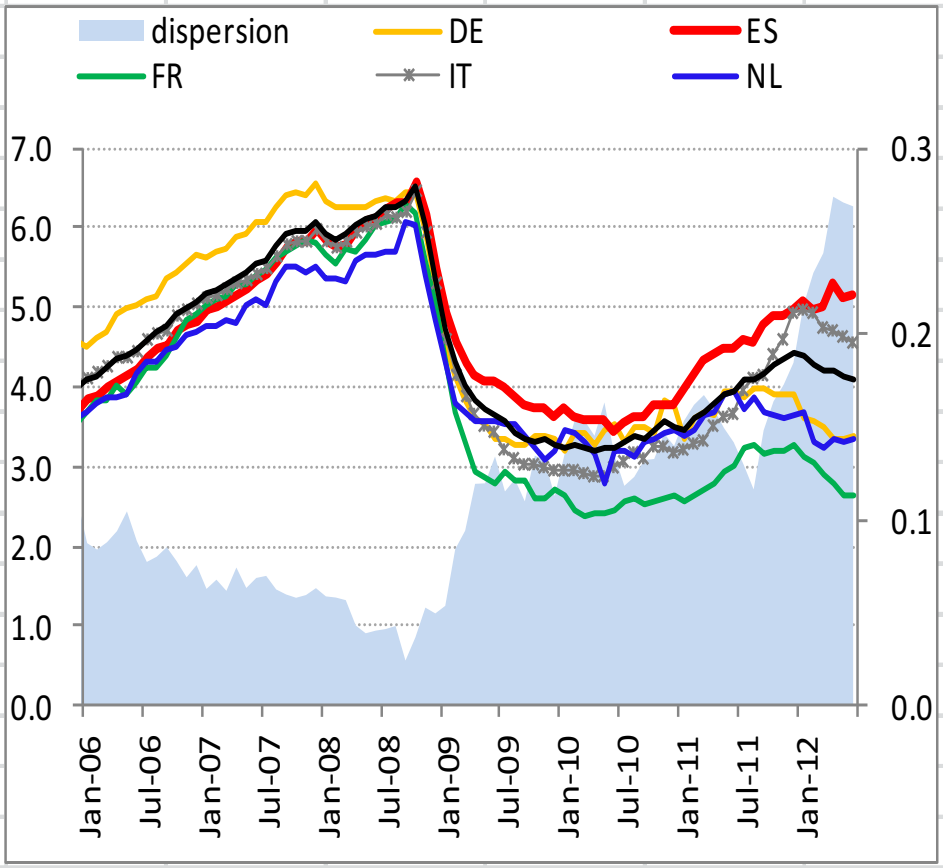
Heterogeneity in loan rates for firms

Short term MIR rates on loans to NFCs > 1 EUR million



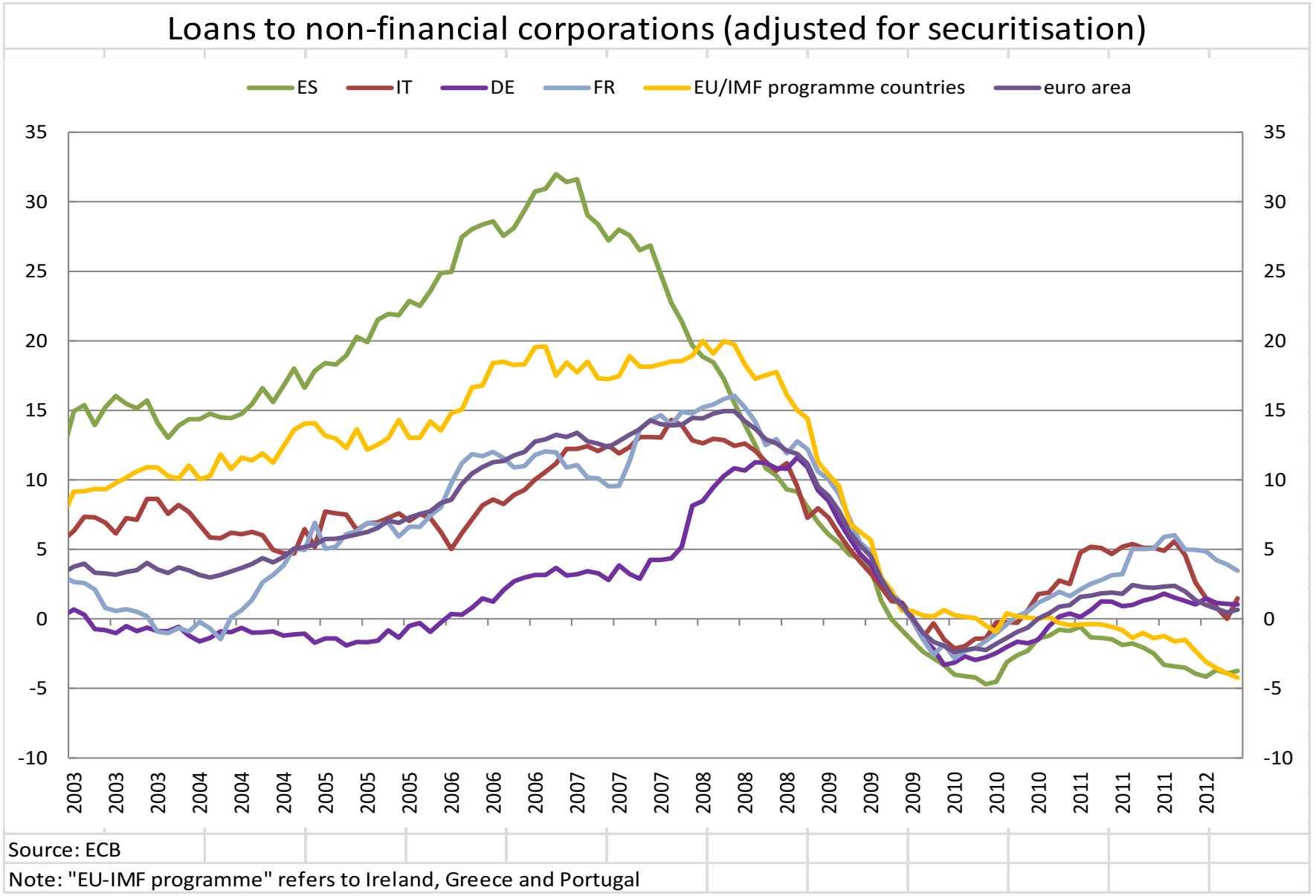
Source: ECB

Short term MIR rates on loans to NFCs < 1 EUR million



Source: ECB

Heterogeneity in loan volumes for firms



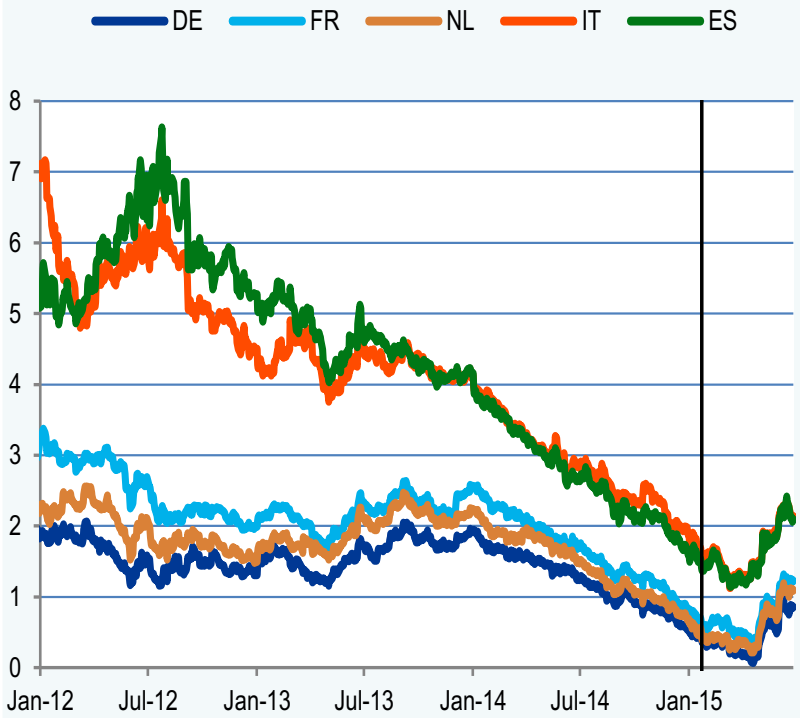
Source: ECB

Note: "EU-IMF programme" refers to Ireland, Greece and Portugal

Heterogeneity in sovereign risk premia

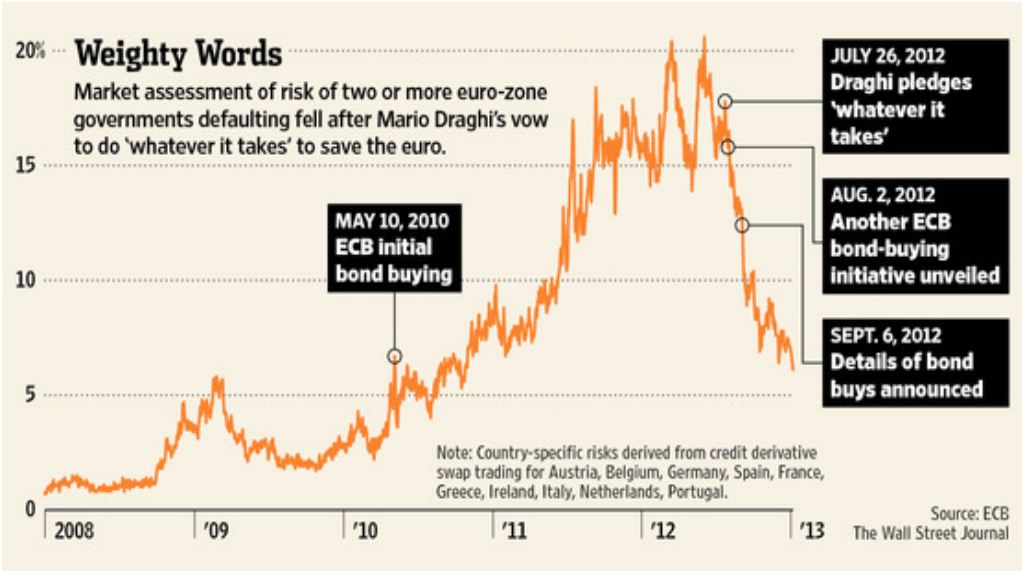
Sovereign bond yields for selected euro area countries

(percentages per annum, Jan. 2012 – Jul. 2015)



Sources: Bloomberg, Olivier de Bandt

Notes: The line refers to 22 January 2015 which was the date when the extended APP was announced.

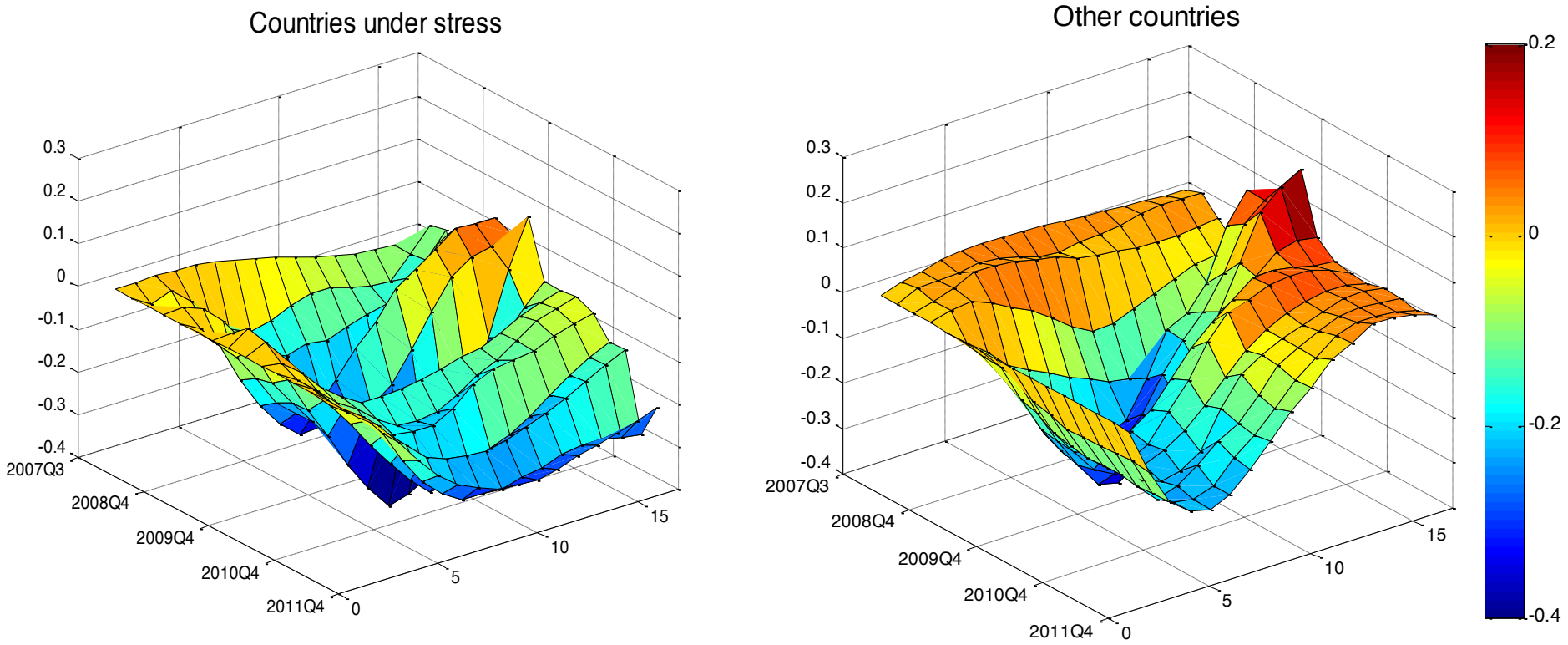


Wessel, D: "ECB's Tutorial in Successful Jawboning", WSJ, 09 Jan 2013.

VAR model with loan data

- In the Euro area, what are the effects of MP after 2008 for the core versus the GIIPS countries?
- Standard VAR model estimated recursively on a panel of 12 euro area countries separated in GIIPS and non-GIIPS with data on credit conditions and standards, monetary policy, macro and other financial data
- MP both through EONIA rates and expansion of the Eurosystem balance sheet to proxy non-standard MP; identification with Cholesky
- Responses by country of the Bank Lending Survey (BLS):
  - BLS reports loan conditions for all the applicants (also rejected borrowers)
  - Disentangle sub-credit channels: changes in credit conditions due to
    - Bank balance sheet strength (bank-lending channel)
    - Net worth, risk & collateral of firms & households (balance sheet channel)
  - We analyse for GIIPS and non-GIIPS:
    - Impact of monetary policy (MP) on GDP (or prices)
    - Impact of MP on GDP through changes in loan conditions due to bank or borrower balance sheet strength (mapped into BLS observables)

Effectiveness of monetary policy on GDP growth



- The impact of a monetary policy shock is stronger during the crisis and has stronger effects in countries under stress (GIIPS)
  - Positive effects via relaxing lending conditions for firms, households and banks in GIIPS countries
  - Recursive impulse responses of GDP growth to a monetary policy shock

Summary of the results from EP paper

- The transmission mechanism of the single monetary policy has changed since 2008, the impact is stronger during the crisis, especially for GIIPS

- Significant amplification through the credit channel in GIIPS: the bank-lending channel is strong in 2008-09; the non-financial borrower (firms and household) balance sheet channel is strong in all years

- Policy framework was still insufficient to reduce credit availability problems stemming from deteriorated firm net worth and risk conditions, especially for small firms in GIIPS countries. Hence need of TLTRO (or funding for lending scheme) and QE

Abbassi, Iyer, Peydró, Tous (*JFE*, forthcoming)

- We analyze securities trading by banks during the crisis and the associated spillovers to the supply of credit. We use the Bundesbank proprietary dataset that have the investments of banks at the security level since 2005 in conjunction with the German credit register:

  1. During the crisis, banks with higher trading expertise (trading banks) increase their investments in securities, especially in those that had a previous larger price drop, with the strongest impact in low-rated and long-term securities (banks get 12% ex-post returns!!)

  2. Trading banks reduce their credit supply, and the credit crunch is binding at the firm level (i.e., an externality arising from fire sales in securities markets on credit supply)

  3. Banks use central bank liquidity and government subsidies like public recapitalization and implicit guarantees mainly to support trading of securities

Abbassi, Iyer, Peydró, Tous (*JFE*, forthcoming):
one simple example

(a) Market price of 7-year JP Morgan note

(b) Security holdings of 7-year JP Morgan note

- Drop in price (from 100 to 85 Euro cents, s. left panel)
- **German** trading banks increase their investments of this note as long as the price continues to drop (s. right panel). This leads to a cut on the supply of credit to the real sector (not shown)
- With Polo and Sette, we analyze similar data for **Italy** until 2015 and find that monetary policy affects risk-taking in banks' investments

2nd Question:
Excessive risk-taking of expansive monetary policy

- I concentrate on banks for the sake of time, but insurance firms and other financial intermediaries are equally important

The risk-taking channel is not a new idea

- "*Speculative manias gather speed through expansion of money and credit or perhaps, in some cases, get started because of an initial expansion of money and credit*" (Kindleberger (1978), p.54)

  - See in particular, Allen-Gale models summarized in Allen and Rogoff (2011), Rajan (*Jackson Hole speech*, 2005), Diamond and Rajan (*JPE* 2012), Borio and Zhu (2008), Adrian and Shin (*Monetary Economics Handbook*, 2011)
  - Jiménez, Ongena, Peydró, Saurina (*Econometrica*, 2014); Maddaloni and Peydró (*RFS* 2011 & *IJCB* 2013)

What history shows us

- Brunnermeier and Schnabel (2015) review most prominent asset price bubbles from the past 400 years. Historical evidence suggests that the emergence of bubbles is often preceded or accompanied by an expansionary monetary policy and lending booms

- Jordà-Schularick-Taylor set of papers show that credit booms are particularly costly for financial crises, especially accompanied by asset price bubbles, and expansive monetary policy is important for this risk-taking

- Data is very aggregated as it is historical, so it is a good starting point, but we need more micro data to pin down causal mechanisms and tackle endogeneity of policy

Identification problems and micro data

- How to disentangle credit supply from demand (fundamentals)?
  - Only 1/3 of credit booms end with a financial crisis (IMF 2012)
  - What are the lending opportunities? Do we observe the social and private NPV of each one?
  - Which banks should be more affected by policy?
  - Credit register data: all loans, including applications, matched with firm and bank balance sheet data
    - Loan applications from the same firm to different banks at the same time

- How to construct the counterfactuals?
  - Monetary policy is endogenous to economic fundamentals
  - Euro area: same monetary policy rate but very different conditions in the cycle: say Spain vs. Germany in 2002-05 or during the crisis…
    - Credit register data and control for bank*time and firm*time fixed effects and other important time-varying variables in high order interactions
    - Lending surveys in Euro area countries (and US)

First experimental setting: Spain
Jiménez, Ongena, Peydró, Saurina (Econometrica, 2014)

- Data: Exhaustive credit register from a bank dominated economy
  - **Loan applications** since 2002 at monthly frequency with borrower and lender identity
  - *All* granted individual loans since 1984

- Shocks: Monetary policy mainly decided in Frankfurt since mid 1988 (Spain enters the European ERM; afterwards the Euro since 1999)
  - Not highly correlated monetary rates with local CPI (0.1) and GDP (0.25). Gives exogenous variation of monetary policy conditions

Summary of results and economic effects

- A lower overnight rate induces lower capitalized banks to:
  - grating applications to ex-ante riskier firms (semi-elasticity of 8%)
  - condition on granting applications, granted loans are larger in volume (semi-elasticity of 18%), with more ex-post defaults (by 5%) and with less collateral requirements (by 7%)
    - In "dollarized" Bolivia, we have loan prices, and even prices are softened
  - A lower long-term rate and other key aggregate factors as higher securitization and current account deficit (capital inflows) and low US short and long term rates, however, have no such effects
    - none of these factors are robust statistically (and when stat significant, they are not economically more important than Euro area short-term rates)
    - one p.p. decrease in the overnight rate on firms with vs. firms without doubtful loans engaged by one standard deviation of bank capital

- All banks take higher credit risk when lower monetary rates (19%)

External validity

- Ongoing empirical work documents the robust existence and potency of a bank risk-taking channel of monetary policy across many countries and time periods:
  - See e.g. for the U.S. (Altunbas, Gambacorta and Marquez-Ibañez (2010), Buch, Eickmeier and Prieto (2010), Buch, Eickmeier and Prieto (2011), Delis, Hasan and Mylonidis (2011), Paligorova and Santos (2012), Dell'Ariccia, Laeven and Suarez (2013)), Austria (Gaggl and Valderrama (2010)), Colombia (López, Tenjo and Zárate (2010a), López, Tenjo and Zárate (2010b)), the Czech Republic (Geršl, Jakubík, Kowalczyk, Ongena and Peydró (2015)), Sweden (Apel and Claussen (2012)), etc

- Not only risk-taking in bank lending, but also in banks' investments in securities: Peydró, Polo and Sette (2015) analyze all investments in securities and lending for Italian banks until 2015 and find that monetary policy also affects risk-taking in banks' investments

Second experimental setting: Euro Area

- Geographical focus: Euro area
  - Common monetary policy with big cross-country differences in GDP growth and inflation (Taylor, 2008; Rajan, 2010) – different monetary stance in same quarter (time fixed effects)
  - National authorities responsible for banking supervision until now, while monetary policy is decided by the Eurosystem
  - Institutional differences in market regulations: For example in mortgage markets (LTVs) and some in supervision of capital

- Data: the euro area Bank Lending Survey
  - Complete source of information on credit conditions, factors affecting changes and specific terms for borrowers
  - Panel dimension (12 countries)

Summary of results

- Expansive monetary policy softens lending conditions for firms and households
  - over and above firm risk and the balance sheet position of banks
  - all lending conditions are softened (e.g. collateral, maturity…)
  - evidence of excessive risk-taking in mortgage loans as all the supply factors affect more the non-prime borrowers
  - the effect of low interest rates is statistically and economically more significant than low long-term rates and current account deficits

- The softening effects monetary policy is reduced by more stringent prudential policy on bank capital and loan-to-value!
  - Freixas, Laeven and Peydró (*MIT Press*, 2015) analyze the interactions between macroprudential policy, crises and systemic risk. Macropru has a very important role. One caveat with macropru is that there may be regulatory arbitrage, whereas MP affects all financial intermediaries that borrow short

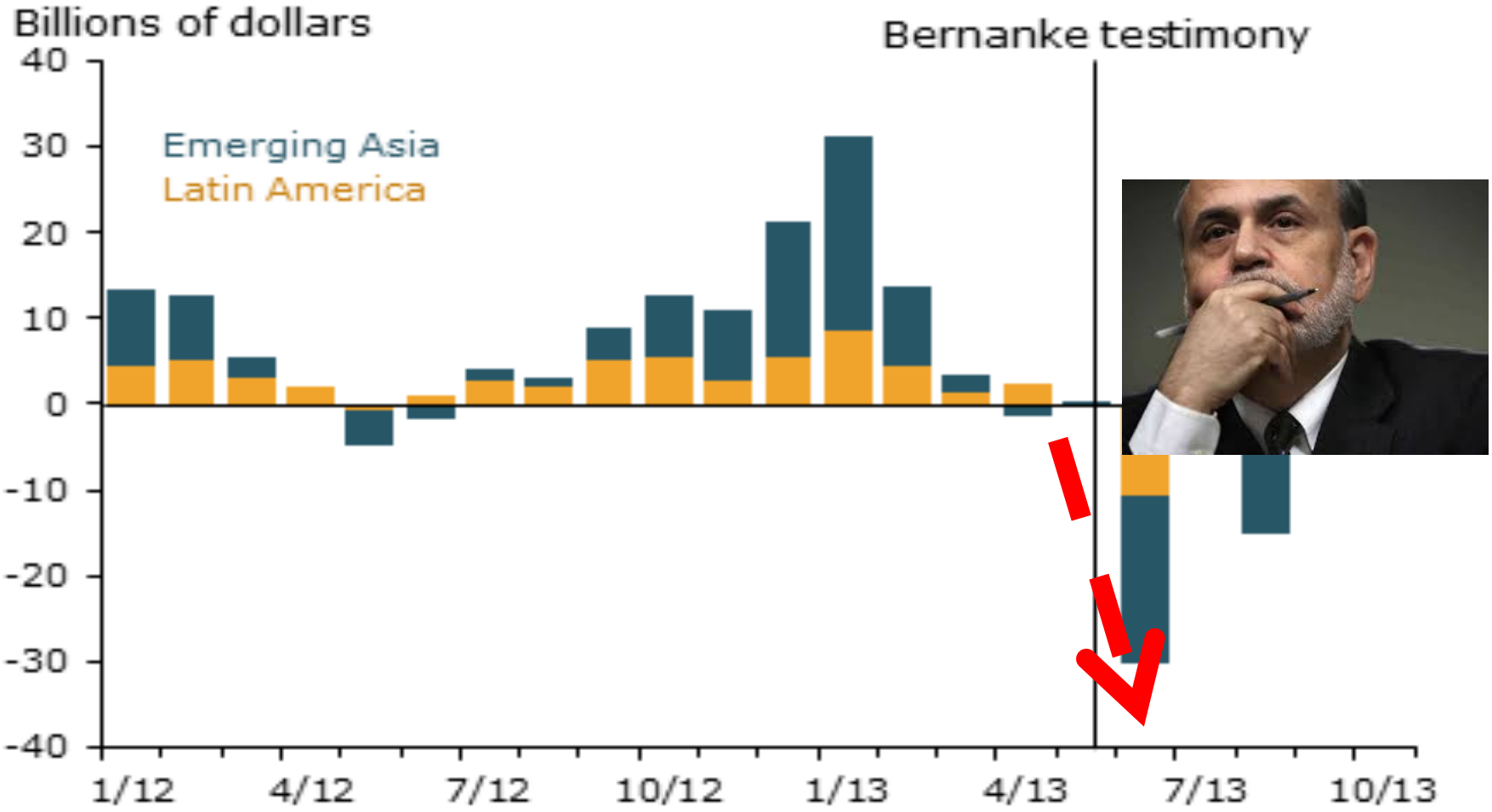
Emerging markets

- Previous effects on expansive unconventional monetary policy on GIIPS Euro Area countries is in generally thought about also emerging markets (Rey, 2013; Stanley Fischer, 2014; Raghu Rajan, 2014)

- Hence a global crucial financial stability risk is the potential tightening by the US Federal Reserve (expected in this Fall/Winter). Are there spillovers from US and European monetary policy on emerging markets? Is there a role for macroprudential policy? Even for capital controls?

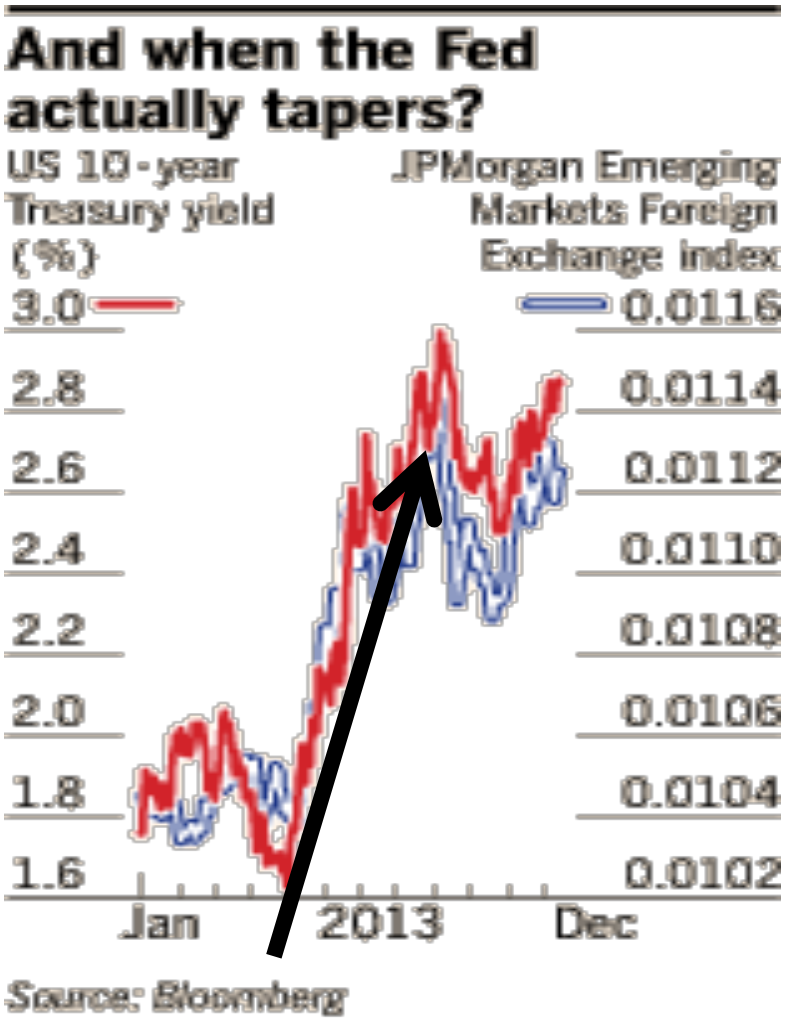
- I have three papers analyzing emerging markets with all loans in a country (with Cruz & Morais, 2015 for Mexico, with Dassati & Tous, 2015 for Uruguay, and with Baskaya, di Giovanni, Kalemli-Ozcan & Ulu, 2015 for Turkey) finding important effects

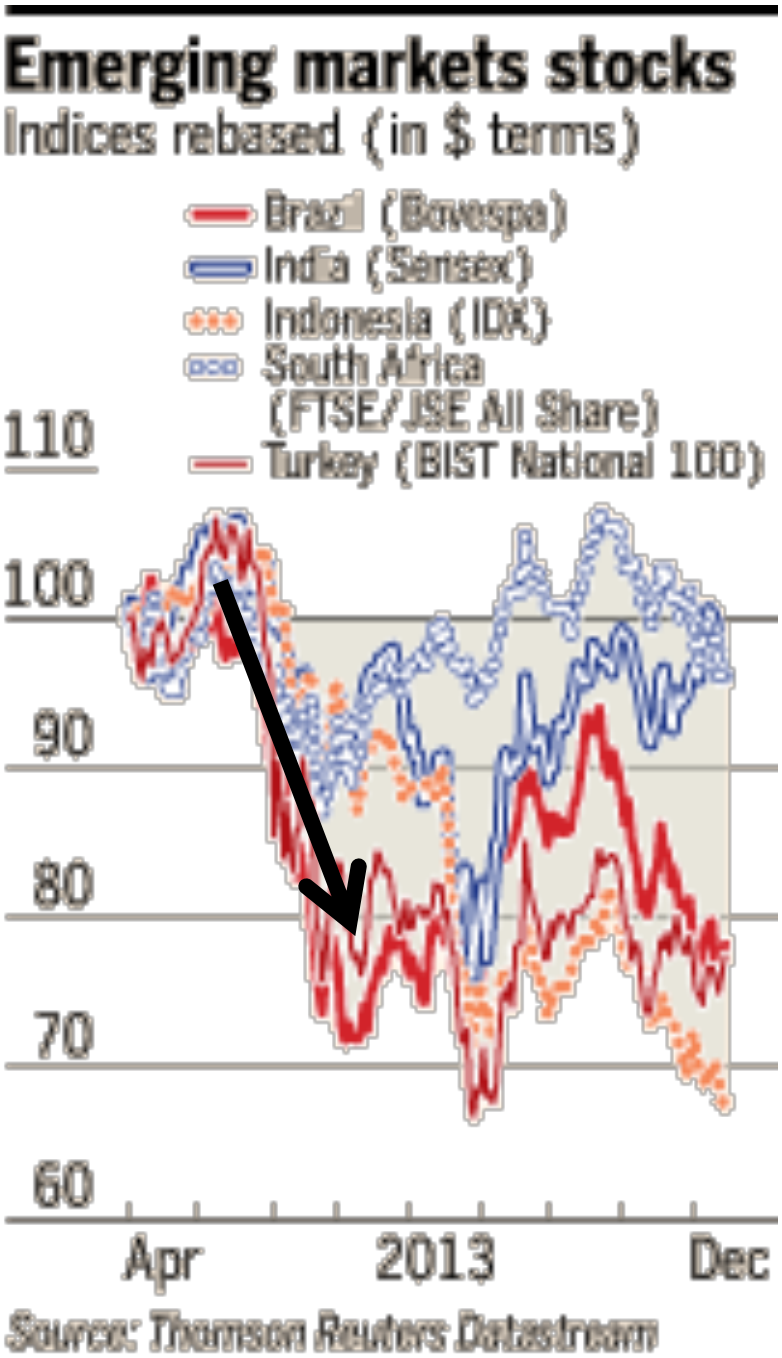
After Fed "taper talk" in May 2013, capital flows to Emerging Markets reversed again



Powell, Jerome. 2013. "Advanced Economy Monetary Policy and Emerging Market Economies." Speech at the Federal Reserve Bank of San Francisco Asia Economic Policy Conference, November .
http://www.frbsf.org/economic-research/publications/economic-letter/2014/march/federal-reserve-tapering-emerging-markets/

When Ben Bernanke warned of tapering QE in May 2013, US interest rates rose, and EM stocks fell





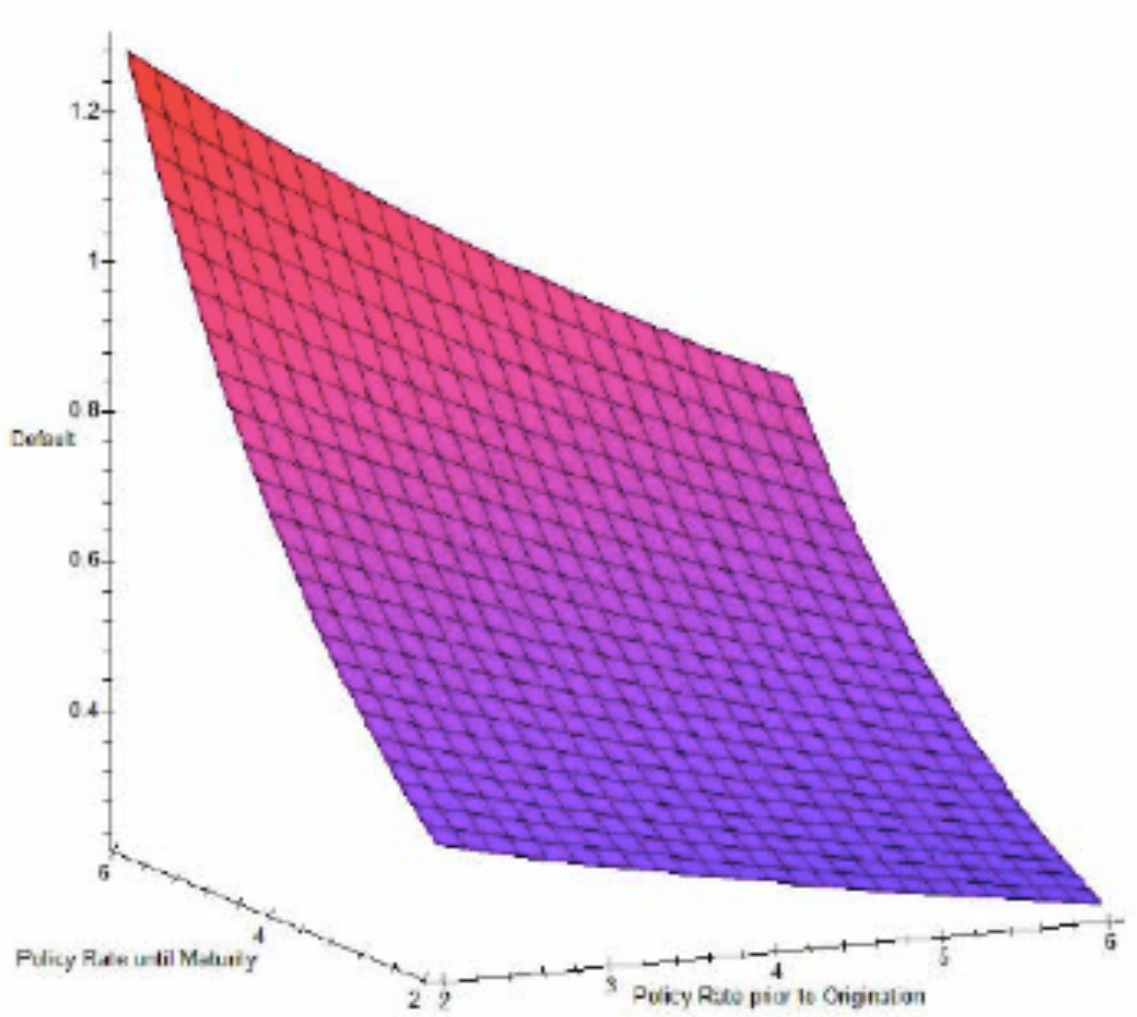
Emerging markets lessons for GIIPS

- We find stronger effects of Euro area monetary policy on GIIPS and also US and Euro area MP effects on emerging markets, in lending with real effects for the economy and also on risk-taking

- Effects of US tapering were not identical for all countries. Strong economic domestic fundamentals (including domestic policy) and macroprudential policy matter. Hence, macroprudential and banking euro, as well as structural supply-side reforms matter for the Euro area
  - The euro with the low interest rates and strong capital inflows starting in 1999 did not help at all in increasing the structural reforms needed in a monetary union without fiscal and banking union (see also Fernandez-Villaverde, Garicano and Santos, *JEP*, 2013)

- What are other effects of a tightening of monetary policy?

Strong credit risk when rates go up fast to normal levels



- Higher default risk when loans are granted with too low monetary policy rates followed by monetary hikes during the life of the loan
- Current crisis after the exit strategies especially for GIIPS countries and emerging markets?, the Great Depression, the Japanese crisis, US and Europe in 2002-07 …

In sum, two main messages in this presentation

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