BANCO DE ESPAÑA
Eurosistema

MONETARY POLICY AND INDIVIDUAL HETEROGENEITY: THE EXPERIENCE OF THE BANCO DE ESPAÑA

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This talk: Two issues

- **Optimal monetary policy (MP) with heterogeneous agents: A theoretical perspective**

  - ***How does individual heterogeneity shape the optimal response of MP in the short-run vs medium run?***

- **The investment channel in the aftermath of the Spanish financial crisis: The key role of firms' heterogeneity**

  - ***Squaring strong investment with strong deleveraging forces at the aggregate***

  - ***The transmission of the ECB's CSPP in a dual economy featuring many small firms and a few (very) large ones***

Why should MP-makers care about agent heterogeneity and the distributional effects of their policies?

- **In standard NK models intertemporal substitution effects are centerpiece for understanding MP transmission**

- **But there is growing evidence that this channel is not the full story (may not be even the main one…)**

  - ***The intertemporal allocation effects of changes in interest rates (IR) on consumption and investment are typically low***

  - ***Indirect (general equilibrium) effects of changes in IR are more relevant (Kaplan et al. 2016)***

  - ***Redistributive channels (heterogeneous earnings and IR exposures, Fisherian effects, etc.) may amplify the effect of IR (Auclert, 2016)***

  - ***Some key aspects of non-conventional MP –including Forward Guidance and QE-transmission- are bettter understood from a heterogenous-agent perspective (McKay et al. 2016)***

Individual heterogeneity seems relevant for MP: How should the CB incorporate it into its optimal policy?

- **Work in this area has been mainly positive, little progress on the normative side**

- **Recent research by Nuño and Thomas (BdE 2016) analyzes the fully optimal monetary policy in a heterogeneous-households (HHs) economy**

  Key ingredients:

  - **HHs face uninsurable idiosyncratic risk à la Huggett (1993)**

  - **HHs hold nominal non-contingent assets → *Fisherian channel***

  - **Utility costs of inflation (due to costly price adjustment)**

Main results

- Discretionary MP features a *redistribution-driven inflationary bias*:

- With incomplete markets (and concave preferences), low-wealth agents have higher marginal utility than high-wealth ones

- Under commitment, central bank promises to reduce inflation gradually over time (inflation front-loading):

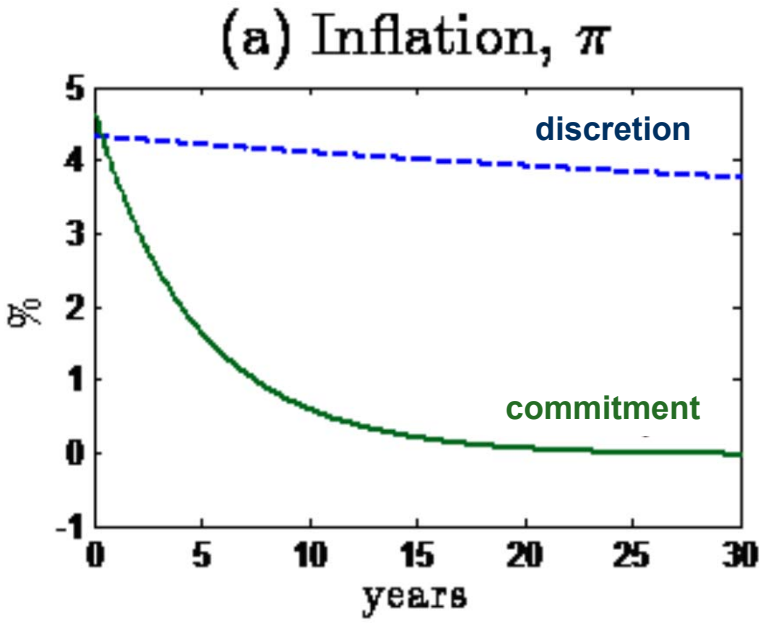
- to avoid high inflation expectations being priced into new bond issuances: optimal long run inflation is zero (under general conditions)

- **both** debtors and creditors gain relative to discretion

Discretion vs Commitment

- **<u>Discretionary</u>: inflation starts and remains high, i.e. inflationary bias**

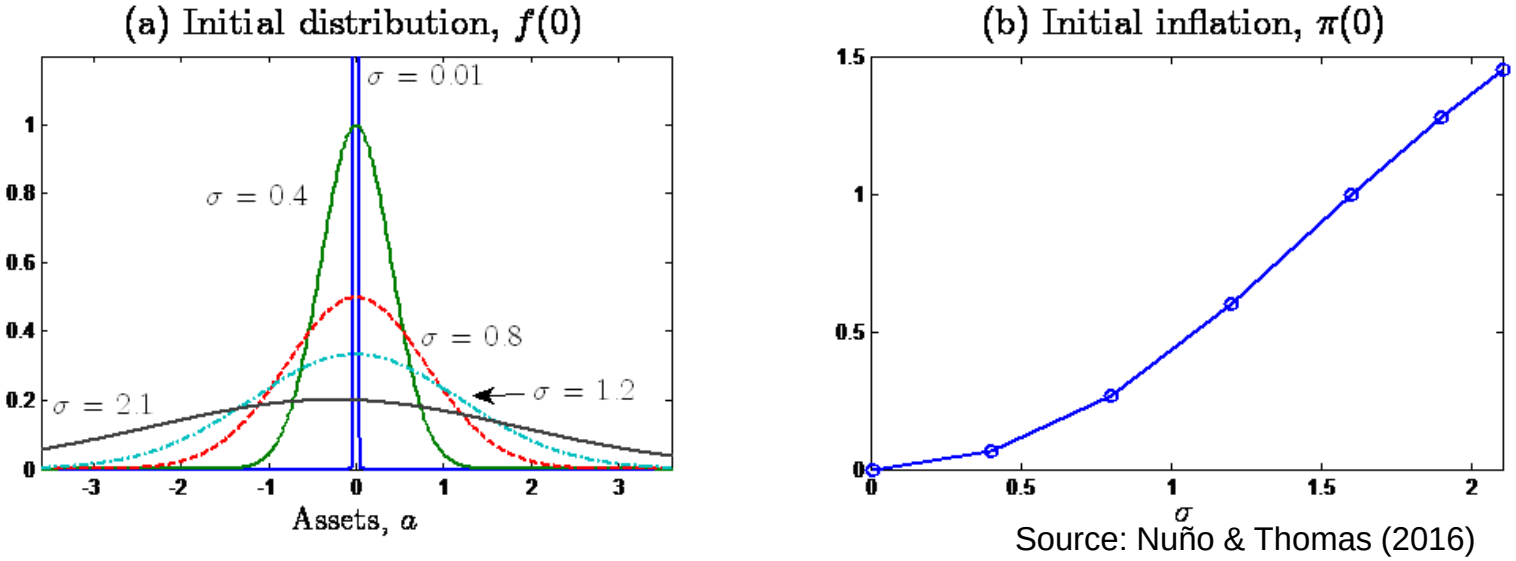
- **<u>Commitment</u>: inflation starts high (no pre-commitments), but falls gradually towards long-run target (≈ zero)**



Source: Nuño & Thomas (2016)

What do we learn in practical terms?

- **Medium-long run: Anti-inflation commitment is optimal**
- **Short run: There is margin to optimally exploit the redistribution channel**
  - ➢ **By how much? It depends on the initial wealth distribution…**



Source: Nuño & Thomas (2016)

  - ➢ **….hence, it is an empirical question.**

Aggregate consequences of individual heterogeneity: An empirical view on the corporate sector

- **The Nuño-Thomas (2016) theory offers a stylized framework to think about optimal MP with heterogeneous households / distributional issues.**

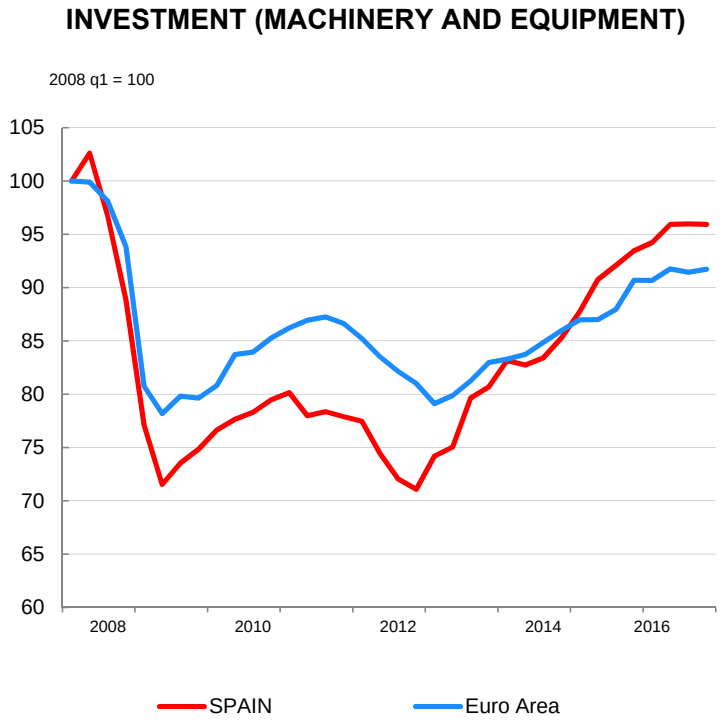
- **But the empirical and firm dimensions are relevant in practice too.**

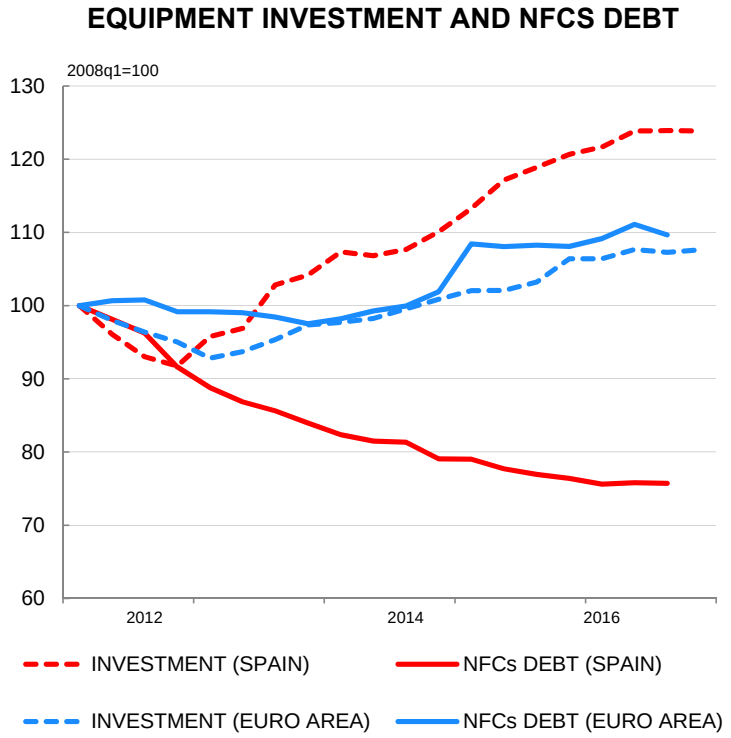
- **Two specific questions on this (focused on the BdE's experience):**

  - ***Squaring strong investment with strong deleveraging forces at the aggregate***

  - ***The transmission of the ECB's CSPP in a dual economy featuring many small firms and a few (very) large ones***

The recovery of the Spanish economy: Deleveraging-cum-investment



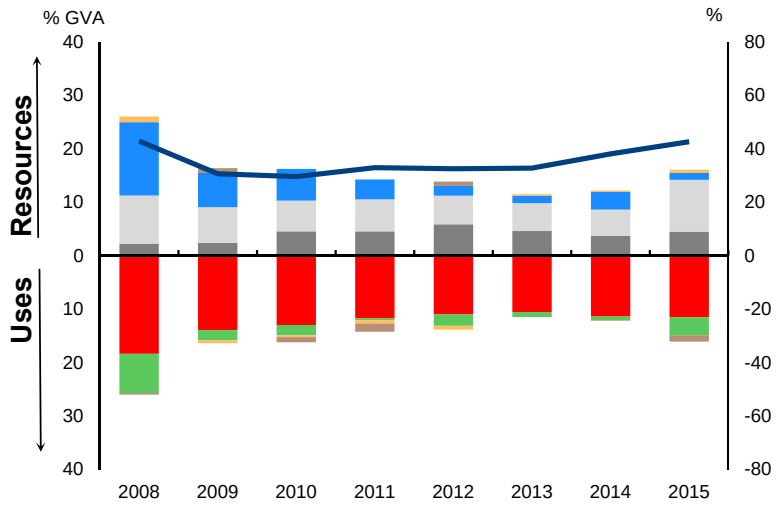


Source: Banco de España, Eurostat

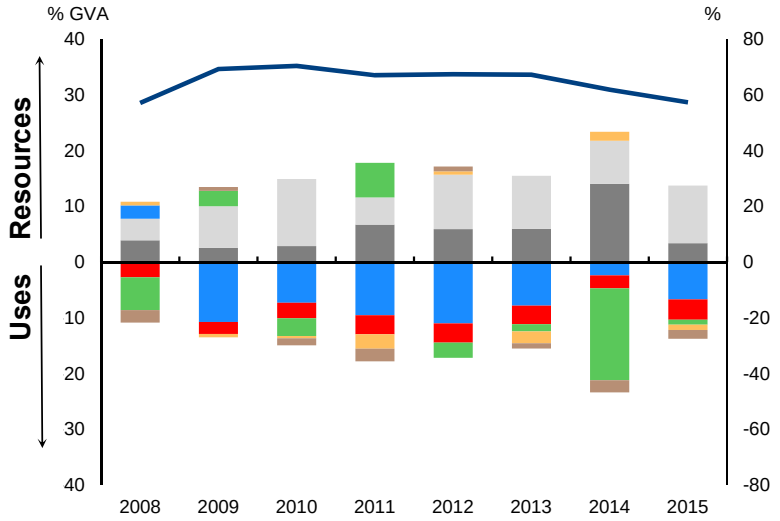
Aggregate deleveraging has been compatible with a significant share of investing firms raising their indebtedness

- **Only a fraction of the firms distribution is relevant to understand aggregate investment dynamics during the current recovery**
  - *see Ottonello and Winberry (2017) for related evidence on the US economy*

ASSETS AND LIABILITIES OF NFCs WITH POSITIVE OR ZERO NET INVESTMENT. FLOWS



ASSETS AND LIABILITIES OF NFCs WITH NEGATIVE NET INVESTMENT. FLOWS

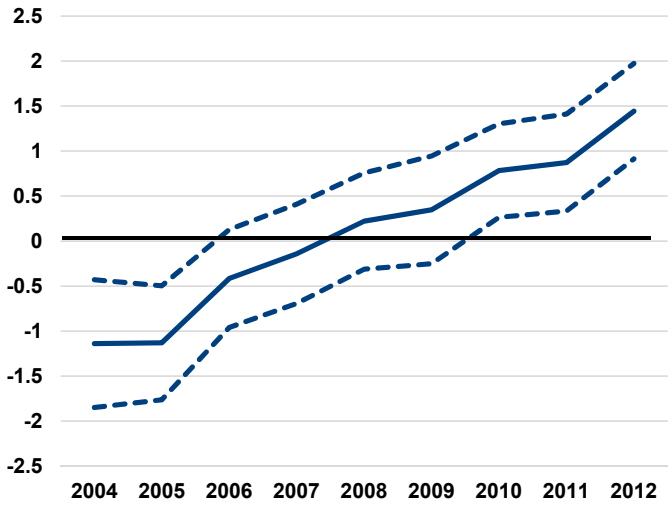


Source: INE, Banco de España

NET CAPITAL INCREASE
FINANCIAL DEBT
FINANCIAL INVESTMENT
OTHER NET FLOWS (ASSETS - LIABILITIES)
INTERNAL FINANCE
GROSS FIXED CAPITAL FORMATION
NET TRADE CREDIT (ASSETS - LIABILITIES)
FIRMS AS PERCENTAGE OF TOTAL (Right-hand scale)

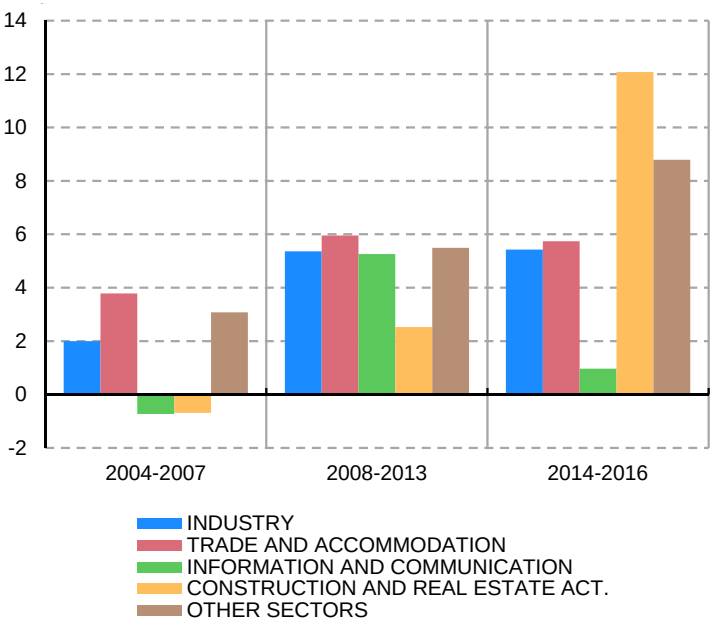
But, which part of the distribution?
Following the burst of the crisis, credit has been allocated towards firms that on average are more productive…

PROBABILITY OF OBTAINING A CREDIT: TIME-VARYING COEFFICIENT ON TFP



Source: INE, Banco de España

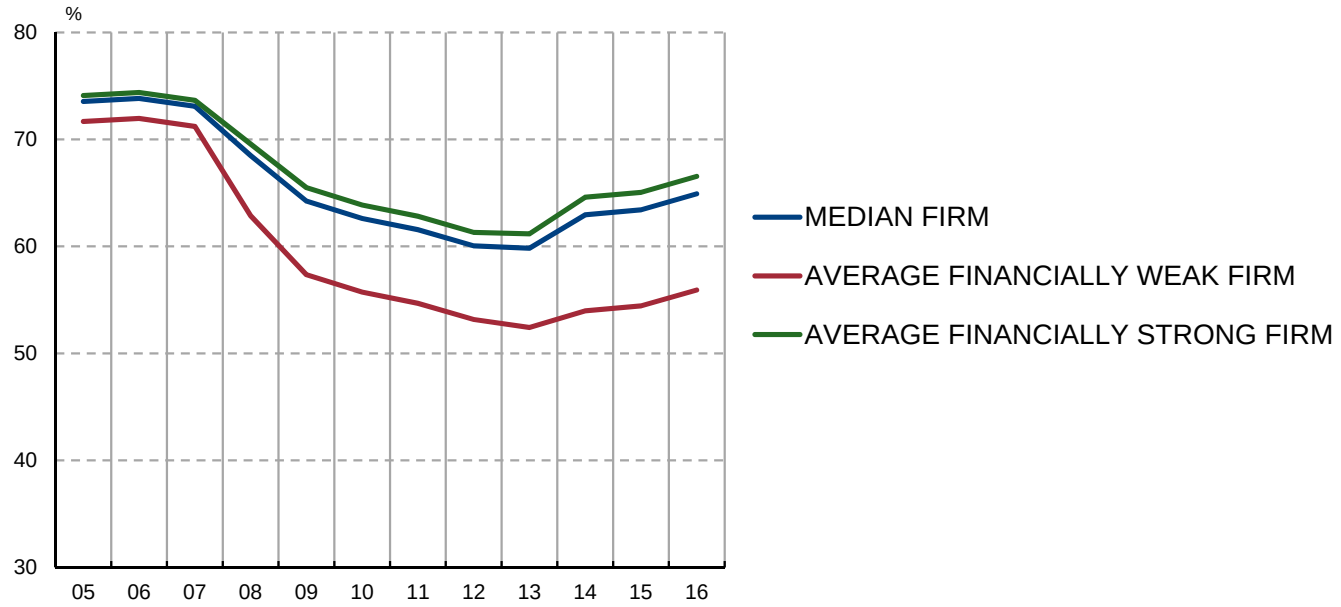
AVERAGE DIFFRENCE OF TFP BETWEEN FIRMS WITH NON-NEGATIVE CREDIT GROWTH AND WITH NEGATIVE CREDIT GROWTH (T-1)



Source: Banco de España

…and with sounder financial fundamentals

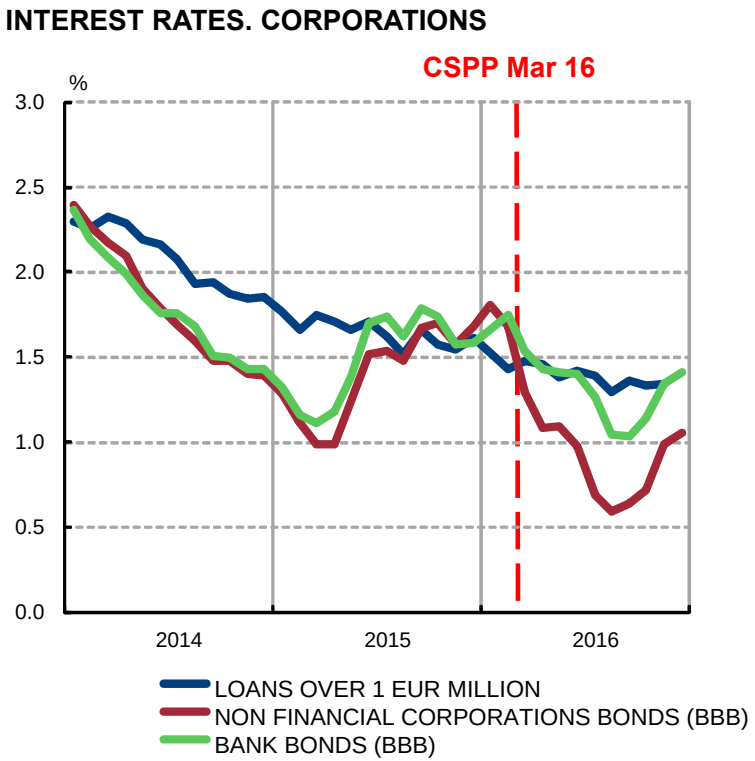
PROBABILITY OF GETTING A LOAN FROM ANY BANK

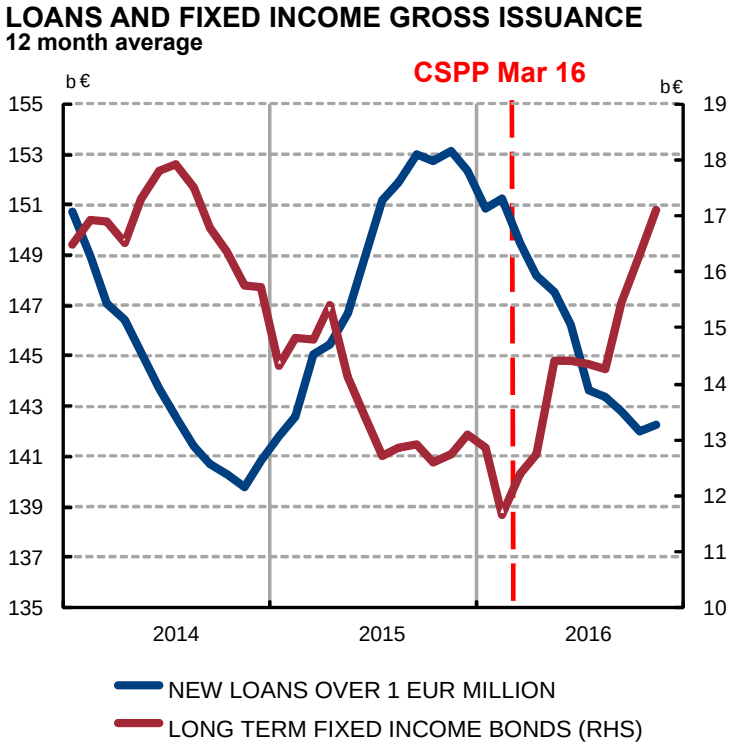


Source: Banco de España

The transmission of the Eurosystem's corporate sector purchase programme (CSPP) in a dual economy

- **CSPP has accelerated the trend towards less banking intermediation in Spanish corporates financing**

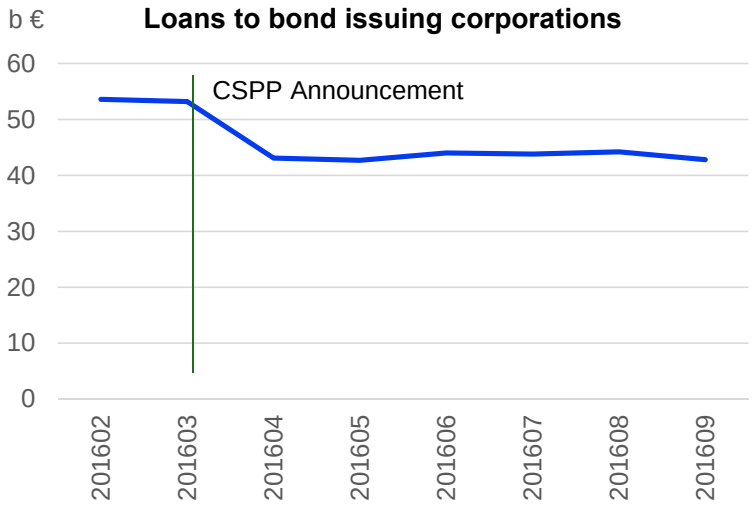


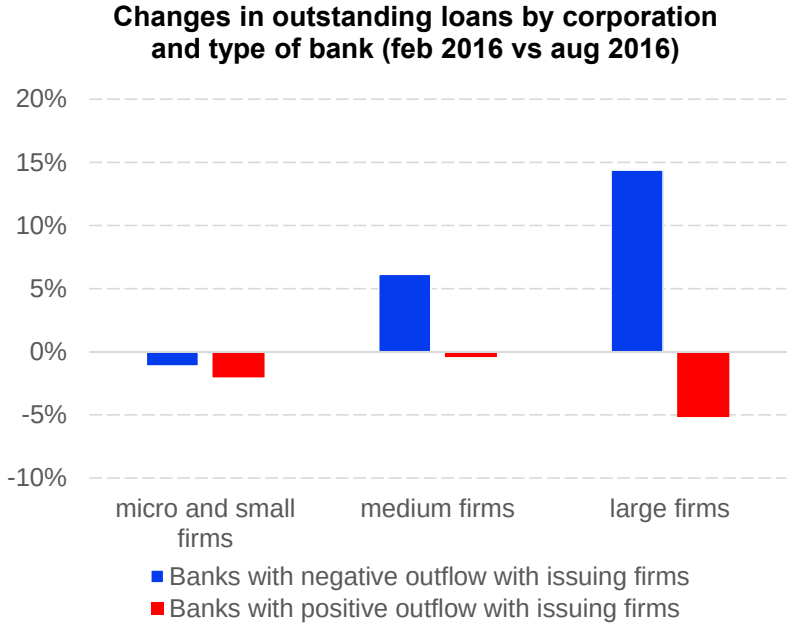


Source: Banco de España

Beside substitution effects, the CSPP is unchaining positive spillovers to non CSPP-elegible firms through banks' credit reallocation

- **Heterogeneity in the distribution of firms across sizes allows for a stronger transmission of monetary instrument (Arce, Gimeno, Mayordomo 2017)**





Fuente: Arce, O., Gimeno, R., y Mayordomo, S. (2017). "Making room for the needy: The effects of the CSPP program". Work in progress.