Γραφείο Προϋπολογισμού του Κράτους στη Βουλή
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From Financial Stability to Real Investment: The Confidence Channel of Macroprudential Policy

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Motivation and Key Results

Motivation

- Macroprudential policy has become a ***central pillar*** of financial stability frameworks in the EU, especially after the Global Financial Crisis.

- Its use has expanded significantly across EU countries, with the European Commission, ECB, and ESRB all highlighting the importance of a ***harmonized macroprudential framework***.

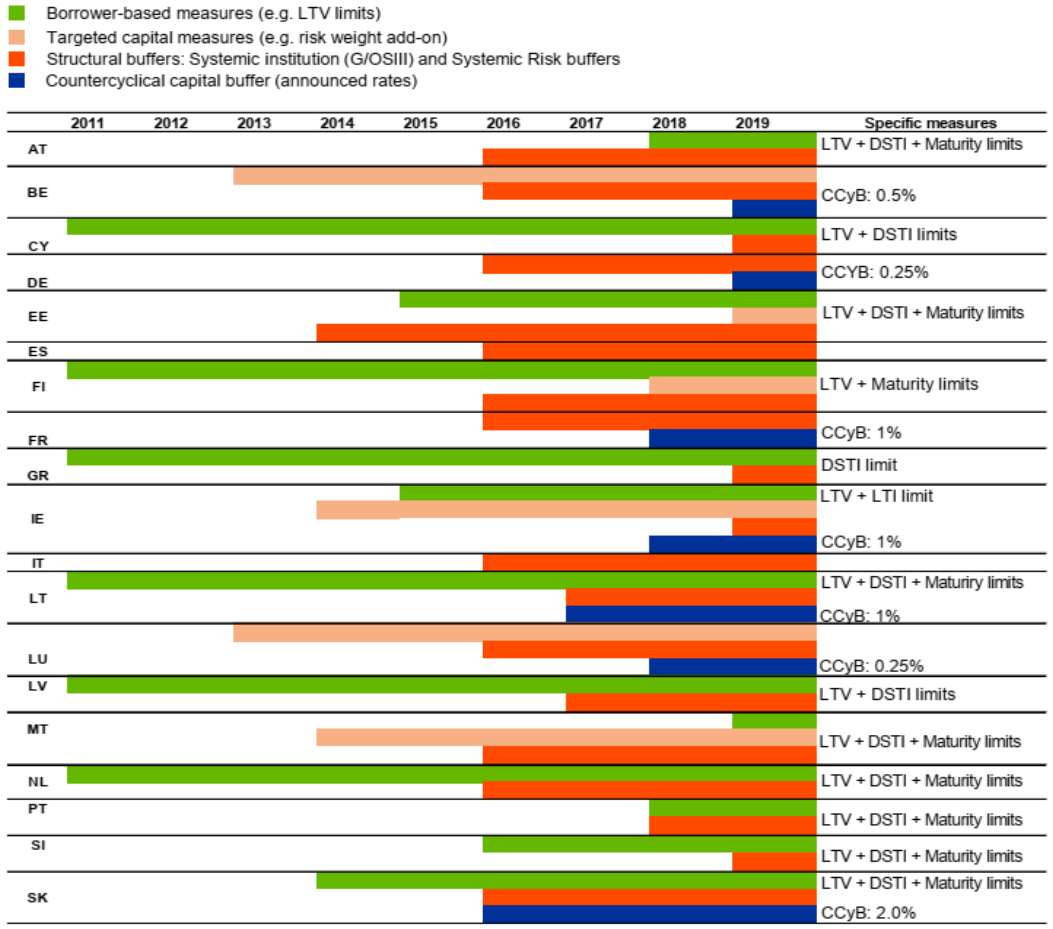
- This debate has been reinvigorated by the ***ongoing revision*** of the EU macroprudential framework, which seeks to strengthen tools and ensure consistent application across Member States.

- The academic literature has so far focused primarily on ***aggregate-level outcomes*** (credit growth, GDP, house prices) or on the supply side (bank lending constraints).

- In this paper, we shift attention to the demand side, and specifically to how ***firms*** adjust their investment decisions in response to macroprudential tightening.

Chart 5.1

Use of macroprudential policy instruments has increased across the euro area



Source: ECB FSR, Nov. 2019, Section 5 Figure 5.1

What we do?

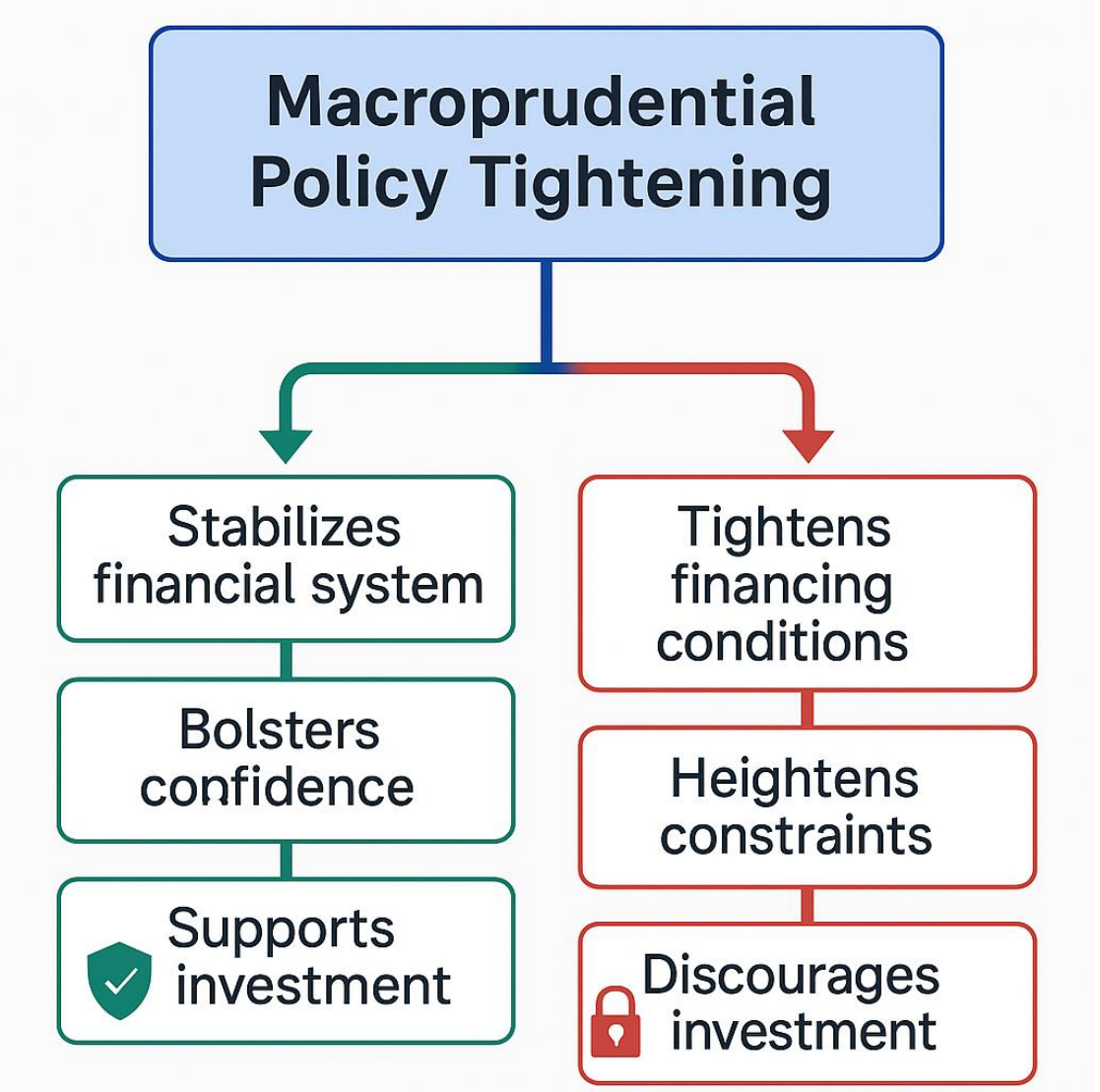
- **Research question:** *How does macroprudential policy affect firms' real investment behavior in the Euro Area?*

- Our ***new mechanism*** – the confidence channel:

  - Macroprudential tightening can ***strengthen confidence in the financial system***, reducing precautionary cutbacks and supporting investment.

  - But it can also ***dampen confidence*** by tightening financing conditions, discouraging firms from undertaking planned investment.

- We investigate empirically which of these forces dominates, using unique ***micro-level*** evidence.



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Literature

- **Aggregate focus:** Much of the existing macroprudential literature has concentrated on aggregate-level effects — credit growth, house prices, GDP fluctuations — or on broad assessments of systemic risk (e.g., Kuttner & Shim 2016; Cerutti et al. 2017).

- **Supply-side emphasis:** More recent work examines firm–bank interactions, showing that macroprudential tightening can constrain credit supply and thereby reduce corporate investment (e.g., Alper et al. 2025).

- **Our contribution**:

  - We complement this literature by shifting attention to the demand side.

  - Specifically, we study firms that report an investment need but nevertheless choose to reduce investment.

  - By focusing on this conditional behavior, we uncover a confidence channel: firms adjust investment not only in response to credit availability but also to signals and expectations generated by regulatory tightening.

Two Key Dimensions of Our Analysis

- **Firm investment behavior conditional on investment need**
  - We study investment decisions conditional on firms reporting a need to invest.
  - This design isolates active behavioral responses — firms that state an investment need but nevertheless choose to reduce investment — rather than mixing them with firms that had no investment demand in the first place.
- **Layers of macroprudential policy analysis:** We study MaPs at multiple levels
  - **Aggregate stance:** a composite index of 17 instruments of all types.
  - **Policy categories:** capital-based, corporate credit, housing credit, liquidity, foreign exchange.
  - **Individual instruments:** e.g. Countercyclical Capital Buffer, Loan Loss Provisioning, LTV, Reserve Requirements, Limits on FX Lending.
- This layered approach reveals which tools stabilize investment and which may unintentionally discourage it.

Key Messages

- **Macroprudential tightening and investment behavior:** On average, macroprudential tightening reduces the probability of de-investment, indicating a stabilizing effect on firm behavior. This supports the idea that financial stability policies can bolster business confidence and mitigate precautionary cutbacks.
- **Heterogeneity across instruments:**
  - Corporate credit-based and liquidity-based measures are particularly effective in lowering de-investment risk.
  - In contrast, housing credit-related measures increase the probability of de-investment, likely because they tighten collateral constraints for SMEs.
  - Capital-based and FX-based measures show little or no effect.
- **The confidence channel:** These results reveal a behavioral mechanism: macroprudential actions influence not only credit supply but also firm expectations and willingness to invest. The design and calibration of specific tools therefore matter greatly to avoid unintended adverse effects.

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Data and Preliminary Evidence

Data Sources

- We combine firm-level with macroprudential policy data.
- **Firm-level data**
  - ECB's Survey on the Access to Finance of Enterprises
  - Detailed information on firms' investment needs and outcomes.
  - Information on: size, age, sector, ownership, turnover, profitability, interest expenses.
- **Macroprudential policy data**
  - IMF's iMaPP database
  - It records macroprudential policy actions across countries and instruments.
- **Integrated dataset:** SAFE × iMaPP matched at country–wave level.
- Links firm behavior with the macroprudential environment they face.

Firm-level Data

- ECB Survey on the Access to Finance of Enterprises (SAFE).
- Sample: 2014–2024 (waves 11–30), >74,000 firm-level observations in Euro Area.
- Measuring investment behavior:
  - Q2: Investment increased / unchanged / decreased → defines de-investment.
  - Q6A: Financing used for fixed investment → conditions on investment need.
- Focus: firms that need to invest but reduce investment.
- Firm characteristics (controls & heterogeneity): Size, age, sector, ownership. Financial indicators: turnover, profitability, interest expenses.

Firm-level Data II

Important Heterogeneity

- **By country:** substantial cross-country variation.
- **By firm-characteristic:** smaller & younger firms more likely to de-invest
- **By financial position:** firms with falling turnover or profits or higher interest expenses show higher de-investment rates.

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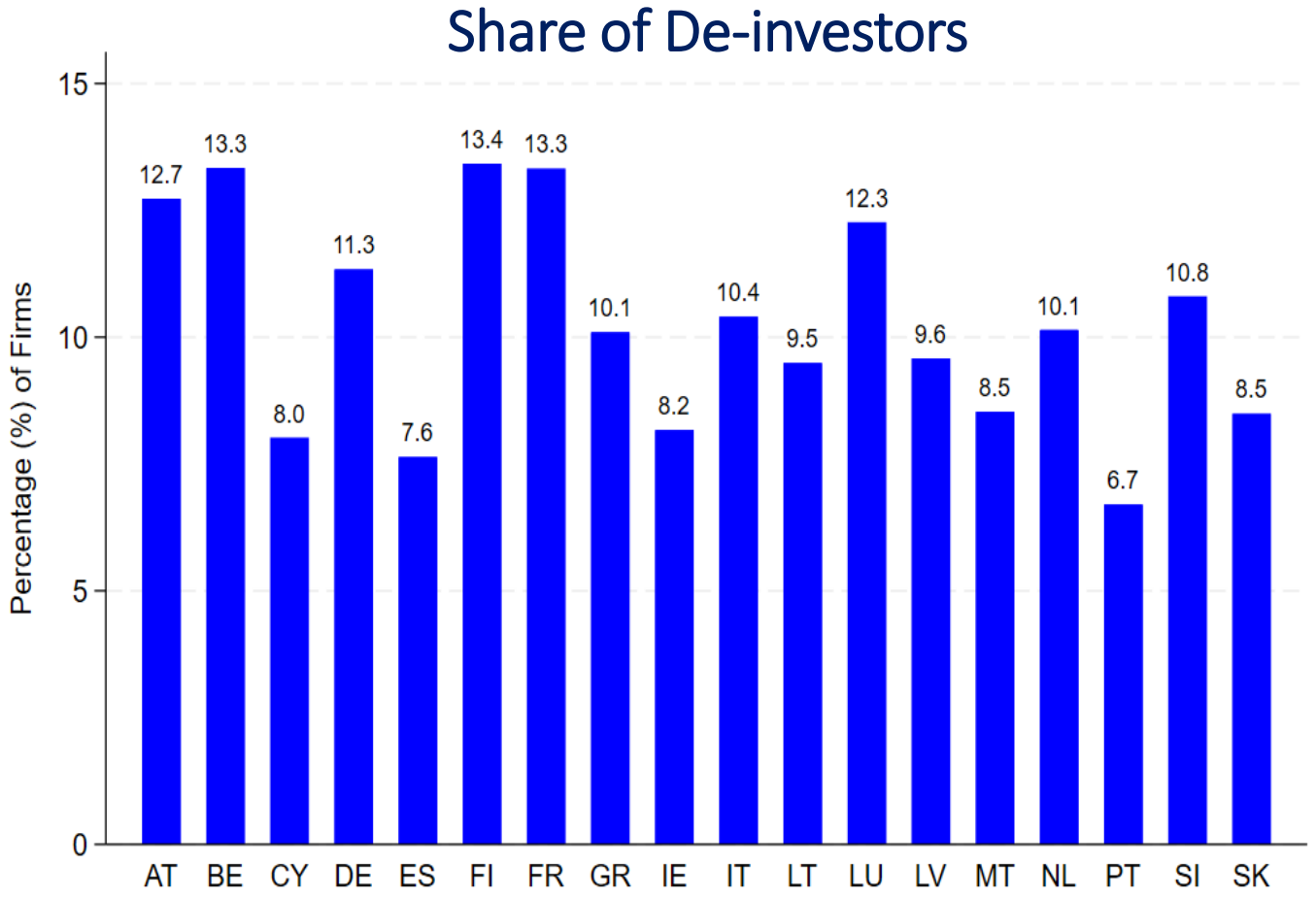
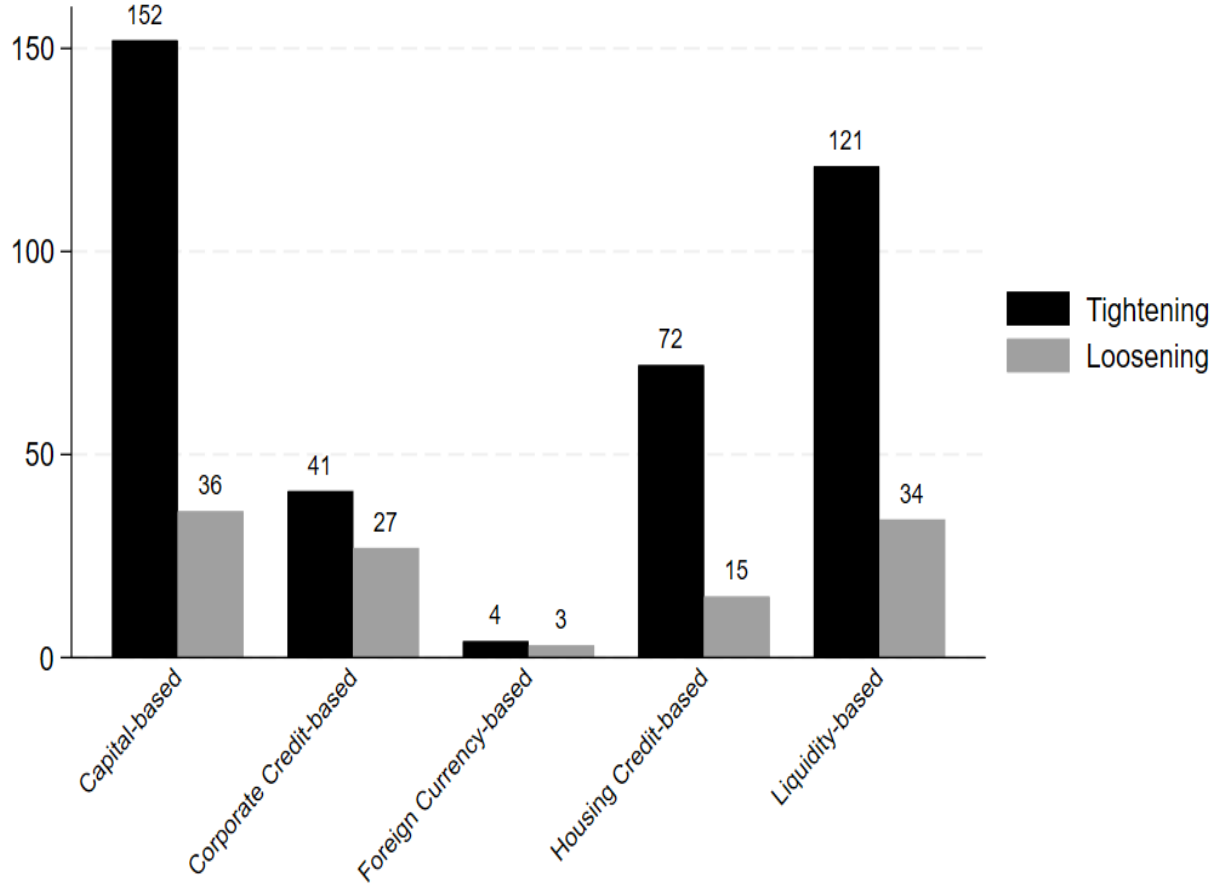


Macroprudential policy data

- IMF iMaPP database,
- Macroprudential policy actions across 17 instruments
- Policy actions: +1 (tightening), –1 (loosening), 0 (no change).
- Five categories: capital, corporate credit, housing credit, liquidity, foreign exchange-based measures.
- Net Tightening Index: number of tightening episodes: (i) across all instruments, (ii) by instrument category; (iii) by individual instrument.

Number of Macroprudential Policy Episodes by Instrument Category



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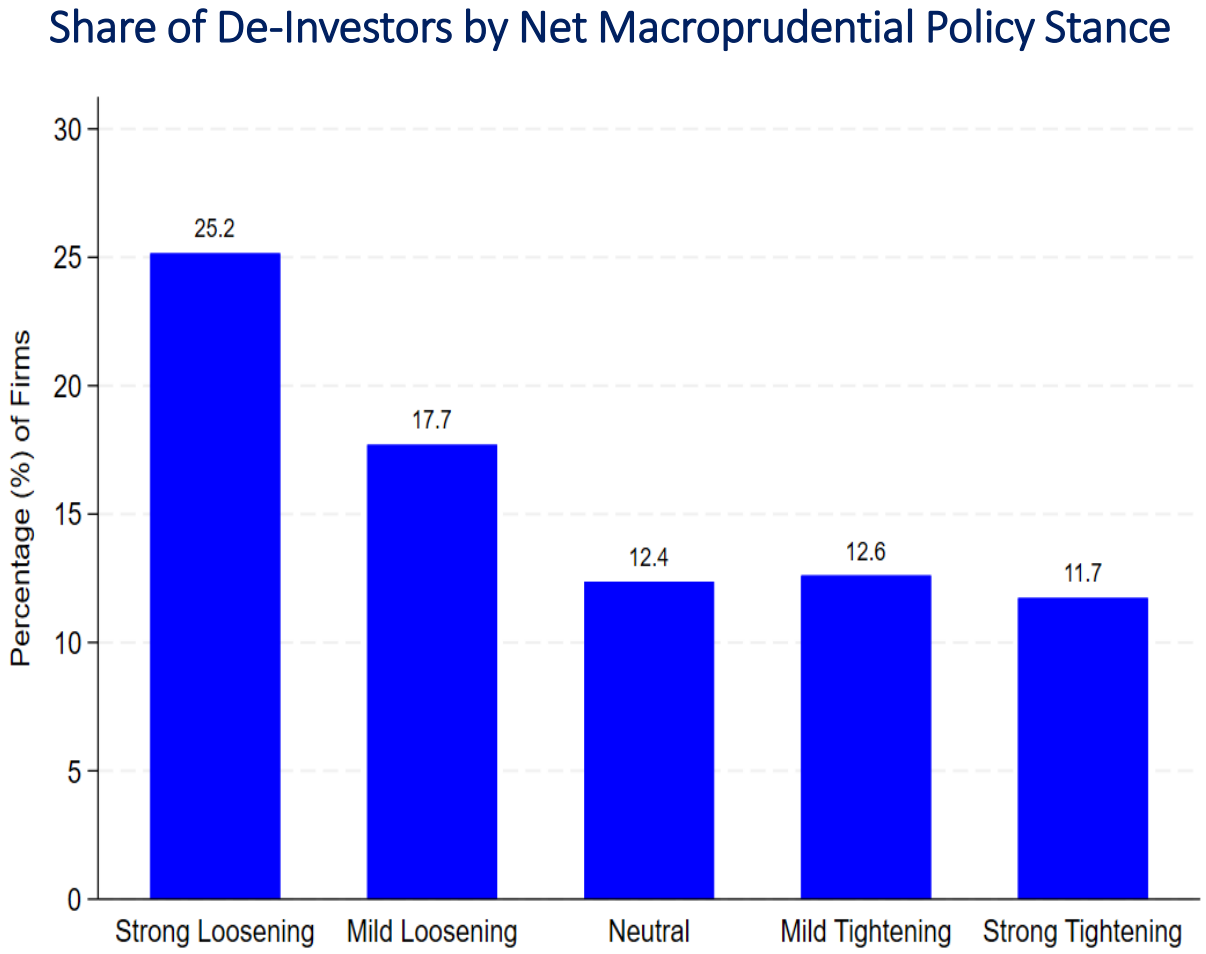
Preliminary Evidence: De-investment and MAPs

- Figure illustrates the percentage of firms that de-investacross different macroprudential policy stances.
- Clear negative relationship between policy stance and de-investment.
- Strong loosening: highest de-investment rate (25%). Mild loosening: still elevated (18%). Neutral / tightening: lower de-investment rates (~12%).
- Suggests that macroprudential tightening reduces the likelihood of de-investment, consistent with a stabilizing confidence effect.



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Methodology and Results

Empirical Framework

- **Heckman framework:** Two-stage probit model with sample selection
- **Selection equation:** models the probability that a firm reports a need to invest (from SAFE survey).

$$Prob(N_{ijt} = 1) = \Phi\left(\lambda^0 + \lambda^1 \cdot MAP_{ijt-1} + \lambda_2 \cdot Compet_{ijt} + \sum_{k=1}^{K} \theta_k \cdot Z_{ijt}^k + \delta_j + \varepsilon_{ijt}\right)$$

- **Outcome equation:** conditional on reporting an investment need, models the probability that the firm reduces investment (de-invests).

$$Prob(DI_{ijt} = 1 | N = 1) = \Phi\left(\beta^0 + \beta^1 \cdot MAP_{ijt-1} + \sum_{k=1}^{K} \theta_k \cdot Z_{ijt}^k + \delta_j + u_{ijt}\right)$$

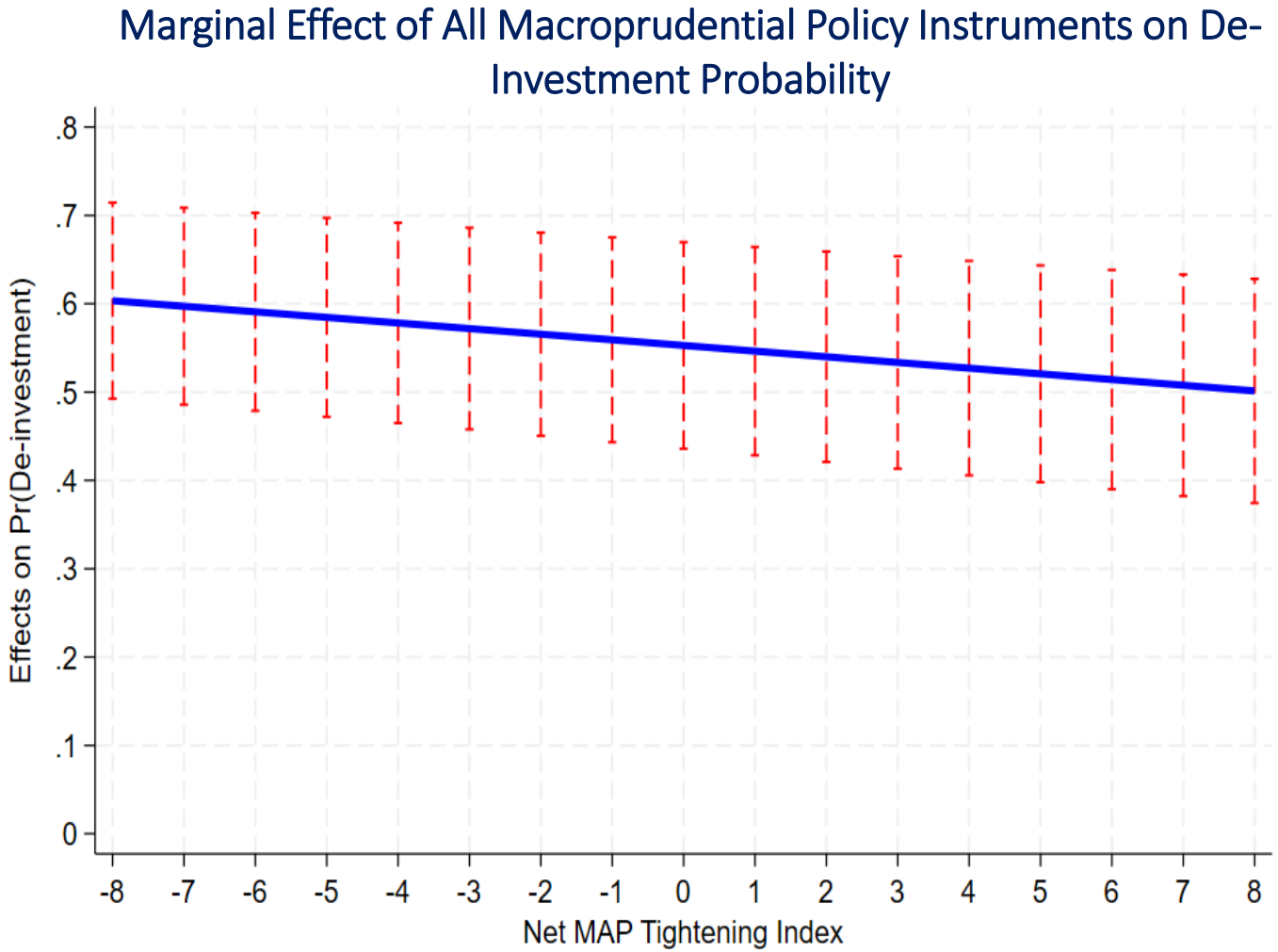
- This approach is crucial: without conditioning on investment need, de-investment could simply reflect firms that had no demand for investment, which would bias the results.

Identification Strategy

- Heterogeneity
  - Controls: firm size, age, sector, turnover, profitability, interest expenses, ownership.
  - Country dummies: capture unobserved national frameworks and macro conditions.
- **Exclusion restriction:** perceived ***market competition*** included only in the investment need equation. Competition drives whether firms need to invest. It does not directly affect de-investment, once the need is established.
- Estimation
  - Full Information Maximum Likelihood (FIML): joint estimation
  - Marginal effect at means (MEMs) instead of raw estimates

Baseline Results

- A one standard deviation tightening in the aggregate MaP stance (across the 17intruments) reduces the probability of de-investment by **0.7 percentage points** (≈3.5% relative to mean de-investment rate).
- Result is both statistically (at the 1%) and economically significant.
- Confirms that MaP tightening has a stabilizing effect, lowering precautionary investment cutbacks.



By Policy Category

Heterogeneity across Policy Categories

- **Liquidity-based MaPs:** strongest stabilizing effect → reduce de-investment significantly (-3.5 p.p.), consistent with easing credit availability and boosting confidence.
- **Corporate credit-based MaPs:** second strongest stabilizing effect (-2.6 p.p.)
- **Housing credit-based MaPs:** in contrast, increase probability of de-investment (+ 1.2 p.p.), likely due to tighter collateral constraints for SMEs.
- **Capital-based MaPs:** no significant effect → mainly long-term resilience, little short-term impact on firm behavior.
- **FX-based MaPs:** no significant effect → less relevant for euro area SMEs borrowing domestically.

By Instrument

Liquidity-based MaPs

- Liquidity coverage ratio:

  –0.035* →** strong stabilizing effect.

- Reserve requirements (RR):

  0.000 → no effect.

- Loan-to-deposit (LTD):

  0.001 → no effect.

- The stabilizing effect is exclusively driven by the liquidity coverage ratio, which strengthens confidence in banks' ability to provide credit.

By Instrument

Corporate credit-based MaPs

- Loan-loss provisioning (LLP):

  –0.029* →** significant stabilizing effect.

- Corporate loan risk weights:

  +0.004 → insignificant.

- The stabilizing effect comes exclusively from loan-loss provisioning, which reassures firms on future credit supply.

By Instrument

Housing credit-based MaPs

- Household loan risk weights:

  +0.039** → tightening increases de-investment (collateral spillover).

- Debt-service-to-income (DSTI):

  +0.019 → insignificant

- Loan-to-value (LTV):

  –0.002 → insignificant.

- The destabilizing effect is driven by household loan risk weights, reflecting tighter collateral constraints for SMEs.

By Instrument

Capital-based MaPs

- Conservation buffer: **–0.024*** → significant stabilizing effect, signaling prudence and resilience, reassuring firms about future credit availability
- Countercyclical capital buffer (CCB): +0.004 → insignificant.
- General capital requirements: +0.004 → insignificant.
- Capital requirements (household lending): –0.018 → insignificant.
- Capital requirements (corporate lending): **+0.137*** → large positive reflecting reduced lending capacity for banks heavily exposed to corporates, but driven by few cases.
- Capital requirements (FX exposure): 0.000 → no effect.
- Capital-based tools produce mixed signals — conservation buffer stabilizes, but corporate capital requirements appear to discourage investment when binding.

By Instrument

Foreign exchange-based MaPs

- FX lending limits (LFX):

  +0.001 → insignificant.

- FX reserve requirements (RR_FCD):
  0.000 → no effect.

- Overall: FX instruments not relevant for euro area SMEs.

Sensitivity Analysis

1. Tightening episodes only:
   - ➢ Results hold when focusing only on periods of net macroprudential tightening → confirms causal direction.
2. Announcement and timing effects:
   - ➢ Macroprudential instruments sometimes undergo an extended notification period ("long announcement phase") prior to implementation
   - ➢ Using a two-period lag (instead of one) shows consistent results → effects are persistent, not short-lived.
   - ➢ Confirms the role of expectations and signaling in the confidence channel.

Discussion and Policy Implications

Results and Interpretation

- **Stabilizing effect:** macroprudential tightening, on average, reduces de-investment → supports the existence of a confidence channel: regulation can reassure firms, lowering precautionary retreat.
- **Instrument heterogeneity matters:**
  - Corporate credit- and liquidity-based tools: most effective in reducing de-investment risk.
  - Housing credit-based tools: opposite effect → increase de-investment probably via collateral constraints, especially for SMEs.
  - Capital- and FX-based tools: limited or no significant effect.
- **Interpretation:** macroprudential tools send signals that shape firm expectations. Design and calibration of specific instruments determine whether these signals stabilize or discourage investment.

Policy Implications

- **Prioritize stabilizing tools:** Policymakers should rely more on corporate credit- and liquidity-based MaPs, which effectively reduce de-investment risk.
- **Use housing tools with caution:** Housing-related MAPs can raise de-investment through collateral constraints, especially for SMEs.
- **Integrate firm-level evidence:** Incorporate SAFE-type data into macroprudential surveillance to detect and mitigate unintended real-economy effects.

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Next Steps

1. **Channel analysis:** explore more directly the mechanism of the confidence channel.
   - ➢ Use survey-based trust data (e.g., World Values Survey) to measure ***trust in banks/financial system***.
   - ➢ Examine the role of "trust" as a ***mediating factor***: MAPs should increase trust and this increase must reduce the probability of de-investment.
2. **Further robustness checks :** regressions by age, size, financial position. Role of credit history and economic outlook.

Thank you!

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