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Nonlinear Bank Capital Regulation

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SGF, 04 April 2025

From insight to impact.

The Big Picture

Key Question:

- How should regulators structure risk weights in capital requirements?

Approach:

- A sufficient statistics framework using a perturbation method to evaluate nonlinear reforms

Application:

- Federal Reserve's 2023 proposal to flatten risk weights

Which issues the Fed's proposal intended to fix?

- **Reduce regulatory arbitrage**
  - Current system uses discrete risk-weight buckets (e.g., 50%, 75%, 100%), which create strong incentives for banks to manipulate exposures near bucket thresholds
- **Improve Credit Allocation Efficiency**
  - Discrete jumps in capital requirements distort lending decisions; a flatter schedule means that capital charges increase more smoothly with risk, better aligning private incentives with systemic risk charges
- **Enhance Financial Stability**
  - The reform avoids sharp regulatory cliffs that can cause over-concentration or sudden deleveraging in downturns. This contributes to reduced bailout risk
- **Align Regulation with Modern Risk Modeling**
  - Continuous risk metrics (e.g., credit scores, internal risk weights) make rigid buckets less justified. The flatter schedule reflects a shift from rules-based to risk-sensitive supervision.
- **International Harmonization**
  - Flattening aligns with broader Basel III principles that advocate for more risk-sensitive capital frameworks

Main Contributions

➢ Theoretical:

- Unifying framework for nonlinear bank capital regulation using sufficient statistics

➢ Empirical:

- Estimates of behavioral elasticities from German and US loan data

➢ Normative:

- Characterization of optimal risk-weight schedules under first-, second-, and third-best settings

➢ Policy:

- Fed's proposed reform is close to optimal

Contribution 1: Use of Sufficient Statistics

- Brings modern public finance tools (Chetty-style) into bank regulation
- Avoids need for structural calibration while allowing rich behavioral insights
- Generalizes across many banking models → High portability
- Suggestion:
  - Provide more intuition or visualization of key elasticities

Contribution 2: Normative Clarity with Rich Policy Implications

- Clear welfare breakdown: households, bankers, entrepreneurs
- Three policy environments (1st, 2nd, 3rd-best) offer realism and transparency

- Suggestion:
  - Use graphical decomposition for welfare trade-offs

Empirics: Innovative IV Strategy

- US estimation uses Fed's 2020 bond-market intervention as IV
- Germany estimation uses rich credit-registry data

- **Suggestion:**
  - More on external validity and quantify uncertainty of key parameters

Practical Relevance: Fed Proposal Evaluation

- Reform flattens risk weights (e.g., 65% for low-risk, 100% for high-risk)
- **Findings:** +109% equity, −6% loans, 51% decline in bailout risk
- **Suggestion:**
  - Discuss robustness of 'close to optimal' result

Extensions: What's Next?

- **Model extensions:** firm exit/entry, dynamics, multiple instruments
- Can include broader credit externalities

- **Suggestion:**
  - Examine macro feedbacks or interactions with other regulations

Final Thoughts

- **Overall:**
  - Strong paper with real policy traction
- **Strengths:** Theoretical elegance + Empirical grounding, Timely policy implications
- **Areas to Explore:** Uncertainty quantification, communication to regulators, regulatory interactions