A Static Capital Buffer is Hard to Beat
by Matthew Canzoneri, Behzad Diba, Luca Guerrieri, and Arsenii Mishin

discussion by N. Aaron Pancost

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Motivation

Banks may be incentivized to take excessive risks

Deposit insurance subsidy: banks reap gains, FDIC pays for losses

Capital requirements are a useful policy tool

Big question: what is the optimal capital requirement?

This paper: what is the optimal time/state variation in capital requirements?

Basel III: should increase with credit/GDP ratio
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What They Do

- Calibrate an RBC model with a rich banking sector
- Banks can lend to safe firms or risky firms
- Risky firms are negative-NPV, so they are ERT
- Banks endogenously choose ERT depending on state

Trade-off:
- Higher $\gamma_t$ can eliminate ERT
- Cost: households like deposits (in their utility)

Model has an endogenous "cliff"
- Optimal policy is to set $\gamma_t$ just high enough to avoid the cliff
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Results

ERT amplifies negative TFP shocks and turns good shocks (ISP) bad

Optimal Ramsey plan for $\gamma_t$ can completely eliminate ERT

IRL regulators may not be able to set $\gamma_t$ to precisely avoid the cliff

Examine simple policy rules, e.g. follow credit/GDP

Main result: optimal time-variation in $\gamma_t$ is $\approx 15–30$ bps

Static $\gamma_t = \gamma$ is probably better
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- Logic of model is standard:
  - Trade-off between ERT and deposits-in-utility
  - Van den Heuvel, Begenau, Davydiuk, Pancost & Robatto, ...

- Contribution: particular "cliff" model of ERT

- Expected: evidence that this is how ERT looks in the data

- Pros:
  - Bank failures do come in waves
  - Reduction in bank loan spread $\Rightarrow$ ERT episode
  - Lines up with intro motivation of "reach for yield"

- Cons:
  - Doesn't seem to be quite what Basel III has in mind.
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For TFP and ISP shocks, $\gamma_t$ rises when credit/GDP falls!

One plan:

Make this the main result. Basel III is wrong!

Show convincing evidence that this is the best way to describe credit/GDP episodes

Another plan:

Modify ERT machinery to mimic what Basel III has in mind

e.g. Jorda-Schularick-Taylor story:

$\text{ERT} \Rightarrow \text{rise in credit/GDP, output, employment, investment}$

Good in short run but destructive in long run

Semi-exogenous ERT would be fine here

e.g. time variation in cost of ERT

Pancost & Robatto (2023): time-constant cost of ERT
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Feedback (3): Should Analyze Welfare

Paper: small variation in $\gamma_t$ under optimal policy (15–30 bps).

But: massive effects on consumption and output.

IRFs

Welfare measures are standard in this literature

Consistent units across models

Optimally balances trade-offs

Davydiuk’s JMP also finds $\approx 10$ bps $\Delta \gamma_t$ is optimal

But welfare gain is massive!

Also: fixes section 7.2

Uses multiple measures to evaluate policies ($R^2$, freq of BRT episodes, level of deposits)

Households in the model can do this for you!
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Feedback (4): Level of Capital Requirements

Model calibration:\n$\gamma^* \approx 10\%$ is roughly optimal.

Way too low!

Begenau (2020), Begenau & Landvoigt (2021): 12–16\%

Pancost & Robatto (2023): 22\%

Why? firm deposit demand responds very differently to $\gamma_t$ shocks.

Cost of raising $\gamma_t$ is also time/state varying!

All benefits from raising $\gamma_t$ are state-dependent (the cliff).

= \Rightarrow a calibration to $\gamma^* = 22\%$ would all show up in time-varying $\gamma_t$.

Very least: Sensitivity analysis with respect to this calibration target.
Feedback (4): Level of Capital Requirements

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Feedback (5): Do We Already Have $\gamma_t$?

Historical-cost accounting $\Rightarrow \gamma_t$ already is time-varying!

Orama Ramcharan & Robatto (2023):

HCA is equivalent to mark-to-market with time-varying $\gamma_t$

Implied $\Delta \gamma_t$ is massive:

2010 Italian sovereign debt crisis $\Rightarrow$ 24% reduction in $\gamma_t$

Recall $\gamma^* = 10\%$

(i.e. 240 bps, compared to model optimum of 30 bps)

Questions:

Does this already look like Basel III's suggestion?

Is it too much, e.g. do we need $\gamma_t$ to undo HCA?
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Section 8.1: "model is not suitable for a serious attempt to pin down the optimal steady-state value."

This is giving up.

If the model is not suitable for the static (first order) policy, why is it suitable for the dynamic (second order) policy?

Show how/whether results vary with $\xi$. 
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- Description of when banks do ERT confusing

- More economics and less notation in the text would help.

- Intro motivation is about low interest rates; where is that here?

- Why not have a monetary policy shock?

- "Risk-taking episode" is a key feature of the model, but never defined.

- Three possible equilibria? all banks behave, all banks mis-behave, or banks randomize.

- Fine, but then a "RTE" is when they randomize, or when they all misbehave?

- Or is it that each bank is all-good or all-bad, but then an endogenous fraction $\mu_t$ are all bad?

- $\mu_t \in (0, 1)$ or $[0, 1]$?

- Just needs more explaining / clearer writing
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Even More Little Stuff

Effect is not asymmetric, it's non-linear.

Small but negative shock to $\gamma_t$ might be similar to the positive shock.

Positive shock to $\gamma_t$ from the ERT state could jump us to the good state.

IRFs from the non-stochastic SS are not sufficient in a non-linear model!

Calibration is fine, but where are the check moments?

Model must also match features of the data that you were not targeting.

What is “estimated by SMM”? Tell me what data moment you match (simulated is fine).

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1. Total output

2. Bank capital requirement

3. Consumption

4. Credit/GDP ratio

5. Expected Equity Return Spread (risky-safe)

6. Total capital

7. Expected Safe Equity Return

8. Investment Price

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Positive Investment Shock

1. Total output

2. Bank capital requirement

3. Consumption

4. Credit/GDP ratio

5. Expected Equity Return Spread (risky-safe)

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Positive Volatility Shock

1. Total output
2. Bank capital requirement
3. Consumption
4. Credit/GDP ratio

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