BANK FOR INTERNATIONAL SETTLEMENTS

Comments to "In the Quest of Macroprudential Policy Tools", By Daniel Sámano Peñaloza (Bank of Mexico)

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What the author does?

- Extends a semi-structural model with a financial block.
- Estimates the parameters of the financial block.
- Analyses the relationship between monetary (interest rate) and macroprudential (CAR) policy.
- Estimates the coefficients of the policy rule that maximise a metric of welfare.

Why it is important?

- A semi-structural model (no direct microfundations) can deliver a clearer picture of the channels (easy to explain / disentangle the channels).
- It can be straightforward to use it in policy analysis.
- It can be easy to adapt to other economies.
- However, it can have some drawbacks for welfare analysis (eg it is not clear which imperfections macroprudential policy try to fix).

What are the main findings? (1)

- In the presence of financial shocks, a second instrument (CAR) increases welfare $\longrightarrow$ reduces the variance of output, inflation and CAR.
- A CAR rule that responds to lending spreads (2c) performs better than the other rules.
- CAR rules that respond to credit / output gap (2a, 2b) show a procyclical capital adequacy policy and an offsetting effect with MP.

What are the main findings? (2)

Table 3. Evaluation of Loss Functions and Variances under Different Rules†

	Taylor rule (Case 1)	Taylor rule + CAR rule (Case 2a)	Taylor rule + CAR rule (Case 2b)	Taylor rule + CAR rule (Case 2c)
Loss function	14.1967	12.5735	12.5669	12.4659
Variance of output gap	2.6190	2.6364	2.6328	2.5732
Variance of inflation gap	4.6184	4.6805	4.6714	4.6044
Variance of Real FX change	0.0181	0.0211	0.0203	0.0194
Variance of interest rate	10.7693	10.7845	10.9477	9.8302
Variance of lending spreads	5.3289	7.9718	7.8925	1.5195
Var of delinquency indexes	0.7141	0.7205	0.7169	0.6703
Variance of credit gap	106.0353	161.3593	157.8088	26.1848
Var of capital adequacy ratio	1.8669	2.8741	2.8201	0.9074
Corr(credit gap,output gap)	0.2187	0.2062	0.2037	0.2510
Corr(credit gap, delinquency index)	-0.8529	-0.8916	-0.8874	-0.6071
Corr(credit gap, CAR)	-0.6013	-0.7124	-0.7058	0.0299
Corr(interest rate, CAR)	-0.1988	-0.1921	-0.2263	0.1635

†Simulations were performed by applying the same random shock scenario to all rules for a forecast of 1,000 periods. The number of repetitions was set at 3,000; reported figures are the average across repetitions.

Comments

- The objective of macroprudential policy.
- The transmission mechanism of CAR.
- The role of expectations.
- Other comments.

Objective of macroprudential policy (1)

- Objective of macroprudential policy is to limit systemic risk.
- 2 dimensions at work:
  - Cross-section dimension (identifying and addressing common exposures, risk concentrations and interdependencies)
  - Time dimension (dampening the build-up of financial imbalances).
- This paper focus on the **time dimension**.

Objective of macroprudential policy (2)

- Loss function:

$$\mathcal{L} \equiv \sigma_x^2 + \sigma_\pi^2 + \sigma_{\Delta i}^2 + \phi\sigma_{\Delta CAR}^2 \qquad \text{(EQ13)}$$

- Policy objectives: inflation, output gap, interest rate smoothing and CAR smoothing.
- Interest rate component: captures smoothness in the data.
- Reasons for interest rate smoothing in the literature:
  - effects of uncertainty on policy decisions,
  - effects of short-term interest rate on long-term interest rates,
  - concerns on destabilisation effects of interest rate volatility,
  - and disagreement among policymakers.
- Similarly we can argue some similar reasons for CAR smoothing!

Objective of macroprudential policy (3)

- But CAR smoothing should not be a policy objective per se.
- Alternative macroprudential policy objectives: credit growth, credit/gdp deviations or deviations of credit its steady state.
- Why equal weights? $\longrightarrow$ important **robustness analysis**.
- These assumptions are **key** for the results.

Transmission mechanism of CAR (1)

The model

- IS includes **lending spreads**.
- Financial block:
  - Lending Spreads: f(lagged value, delinquency ratios, **capital requirements**).
  - Delinquency indexes: f(lagged value, output gap).
  - Credit: f(lagged value, **lending spreads**, output gap).
- Shocks: demand, cost-push and financial (spreads, delinquency, credit) shocks.

Transmission mechanism of CAR (2)

Effectiveness of instruments

$$x_t = b_2 E_t x_{t+1} + b_3 r_{t-1} + b_6 spread_{t-1} + ... + \varepsilon_{x,t} \quad \text{(EQ2-IS)}$$

$$spread_t = \overline{\gamma}_0 + \overline{\gamma}_1 spread_{t-1} + \overline{\gamma}_2 delin_t + \overline{\gamma}_3 CAR_t + \varepsilon_{spread,t} \quad \text{(EQ3-spread)}$$

$$cr_t = \overline{\mu}_0 + \overline{\mu}_1 cr_{t-1} + \overline{\mu}_2 spread_t + \overline{\mu}_3 x_t + \varepsilon_{cr,t} \quad \text{(EQ5-credit)}$$

- Is $b_3 \gtrless b_6 \times \overline{\gamma}_3$? Calibration is key for relative effectiveness on output gap.
- Key mechanism: interest rate does **not** affect spread but CAR does.
- Also, policy rate does **not** affect credit!!

Transmission mechanism of CAR (3)

Trade-offs

- *Demand shocks*: can be neutralised by MP (and therefore also the effect on delinquency ratios and credit).
- *Cost push type shocks*: generate a trade-off (It is not possible to stabilise both inflation and output gap).
- *Spread shocks*: affect both credit and output gap. Can be fully neutralised by CAR policy. **NO TRADE-OFF**.
- *Credit shocks*: if credit is a policy objective, it can generate a trade-off (cannot stabilise both spreads and credit).

Transmission mechanism of CAR (4)

Alternative policy specifications

- BASEL III: suggests CREDIT/GDP ratio as reference guide for anticyclical CAR.
- What the model can say about this?

$$cr_t - x_t = \overline{\mu}_0 + \overline{\mu}_1 cr_{t-1} + \overline{\mu}_2 spread_t + \left(\overline{\mu}_3 - 1\right) x_t + \varepsilon_{cr,t}$$

(EQ5-$cr_t - x_t$)

- Given that $\overline{\mu}_3 < 1$, demand shocks decrease CR/X ratio, and CAR decreases $\longrightarrow$ expansive Macroprudential policy (direction in contrast to MP).
- This is not the case for financial shocks

The role of expectations (1)

Rules are important because they affect expectations.

- IS can be written as:

$$x_t = \sum_{s=0}^{\infty} \lambda^s \left(b_3 r_{t+s} + b_t spread_{t+s} \right) + ... + \varepsilon_{x,t}$$

- Expected changes in CAR (rules) have and additional effect on output gap through expectations.
- Note: this channel is not present in the financial block.

The role of expectations (2)

- Lucas' critique applies: estimation of financial block is done with a different policy regime (CAR as a banking decision, not a policy decision).
- Private sector response would be different when changing the policy regime (CAR rule).
- Estimation of financial block made by SUR.
- Alternatively: joint Bayesian estimation would take into account private sector expectations. SUR estimates / calibrated parameters: priors for the estimation

Other comments

- Why Taylor Principle does not need to be satisfied in this model?, What is the nominal anchor in the model? Table 2 (p.18): coefficient $f_3 < 1$ in all the specifications.
- Which shocks drive the result? $\longrightarrow$ Given iid shocks (by groups), we can analyse the variance decomposition of the loss function.
- Prices vs quantities as indicators for policy. Which are more informative for EMEs?

Conclusions

- Very interesting paper.
- Motivates the analysis of the interaction between monetary and macroprudential policy. Useful for policy analysis.
- Robustness exercises can be explored.