

Discussion on

“Banking dynamics, market discipline and capital regulations”

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Overview & positioning of the paper

- This paper proposes and calibrates ambitious industry equilibrium model aimed to jointly study the effects of
 - (i) a countercyclical capital buffer
 - (ii) market disciplineon banks in Canada.
- The model features bank heterogeneity, bank default, and distributional dynamics but
 - (i) no interactions between banks
 - (ii) no other source of feedback
- Its core is made of banks' individual dynamic optimization problems:
 - (i) aggregate outcomes are just the sum of individual outcomes
 - (ii) in response to common and idiosyncratic shocks
 - (iii) "industry equilibrium part" is minimal

- Shocks:
 - Two exogenous aggregate states
 - Two exogenous individual bank states
 - Continuous idiosyncratic shocks to loan defaults

- Industry equilibrium part:
 - Exiting banks are just replaced by equal number of entering banks
 - Only endogenous price is that of wholesale funding (WSF), which is determined purely individually for each bank
 - Instead of market/bank level demands for loans, deposits, etc. banks face
 - * exogenous bank-specific inelastic demand of unremunerated deposits
 - * “convex enough” costs of loan origination and issuance of WSF to generate interior solutions

- My take on the approach:
 - I see loan origination & issuance costs (partly) as a short-cut to a fuller specification of the other side of the market
 - This approach neglects potentially relevant interactions between banks
 - “partial, partial equilibrium” model
 - more in “industry equilibrium” than “macro-banking” tradition
- Heterogeneity:
 - Authors highlight the significance of capturing bank heterogeneity
 - Exogenously evolving states & shocks + banks’ decisions produce endogenously evolving (i) funding needs (a) & (ii) existing loans (l) [endogenous state variables]
 - very ambitious aspect of the formulation ✓
 - but not sure current results extract enough from it

Model & structure of the analysis

- Bank owners derive utility from dividends & dynamically optimize choosing:
 - dividends [if negative, extra “equity issuance cost” incurred]
 - short-term WSF [if uninsured = source of market discipline]
 - new loan origination [loans are long-lived ✓]

subject to capital regulation with two levels of stringency:

- minimum requirement ($\underline{\theta}$) [bank cannot operate below it ✓]
- minimum plus combined buffer requirement ($\theta(z)$) [if operating below it, dividends cannot be positive ✓]
- The soft requirement $\theta(z)$ is contingent on the aggregate state, capturing presence or release of a two-level version of the Domestic Stability Buffer (Canadian version of the CCyB)

- Baseline calibration of $\theta(z)$ and $\underline{\theta}$
 - $\theta(G) = 13\%$ vs $\theta(B) = 11.5\%$ ($= 8\% + 2.5 \text{ CCoB} + 1\% \text{ DSIB} \Rightarrow \text{DSB}=1.5\text{pp}$)
 - Surprisingly, however, $\underline{\theta} = 0$ [why not 8%?]

- The analysis considers
 - *Stationary economy* (state reached after sufficiently many $z = G$ periods)
 - * across baseline vs. $\theta(G) = \theta(B)$ cases
 - * with vs without market discipline (uninsured vs. insured WSF)
 - Impulse-response functions (from shift to $z = B$ for two years)
 - * for $\theta(G) = 13\%$, with and without market discipline
 - * for $\theta(G) = 16.5\%$ (DSB=5pp)
 - Transition resulting from announced at $t=2$ permanent upward shift in $\theta(G)$ to 16.5% after $t=3$

Model & structure of the analysis

- Main results (mean IRFs, mean transitional paths for key outcome variables) are reported for three groups of banks: (i) top decile by capital ratio, (ii) all banks, (iii) bottom decile by capital ratios
- The key findings are well summarized by the authors:
 - DSB smooths credit supply & bank default
 - * But quantitative impact under $\theta(G) - \theta(B) = 1.5\text{pp}$ is small
 - * Impact is larger for low capitalized banks
 - * Impacts are bigger when $\theta(G) - \theta(B) = 5\text{pp}$
 - Market discipline drives normal capital ratios up
 - * On average softens the impact of a crisis
 - * But increases funding vulnerability of large & well-cap banks [which rely more on WSF]

Main comments

- Interesting and ambitious paper, with promising first results
- I am a bit nervous about the black-box approach to the demand side
- I would avoid (i) having convoluted non-linearities in cost of loan origination, and (ii) provide additional quantitative discipline to calibration of origination & issuance costs
- Readers would need extra arguments to be convinced about current treatment of bank heterogeneity
- How do you validate the current calibration along this dimension?
 - Said to match data from largest Canadian banks
 - How many banks are in this group?
 - I think you match means and coefficients of variation of key variables
 - How to assess capacity to reproduce the entire empirical distribution?

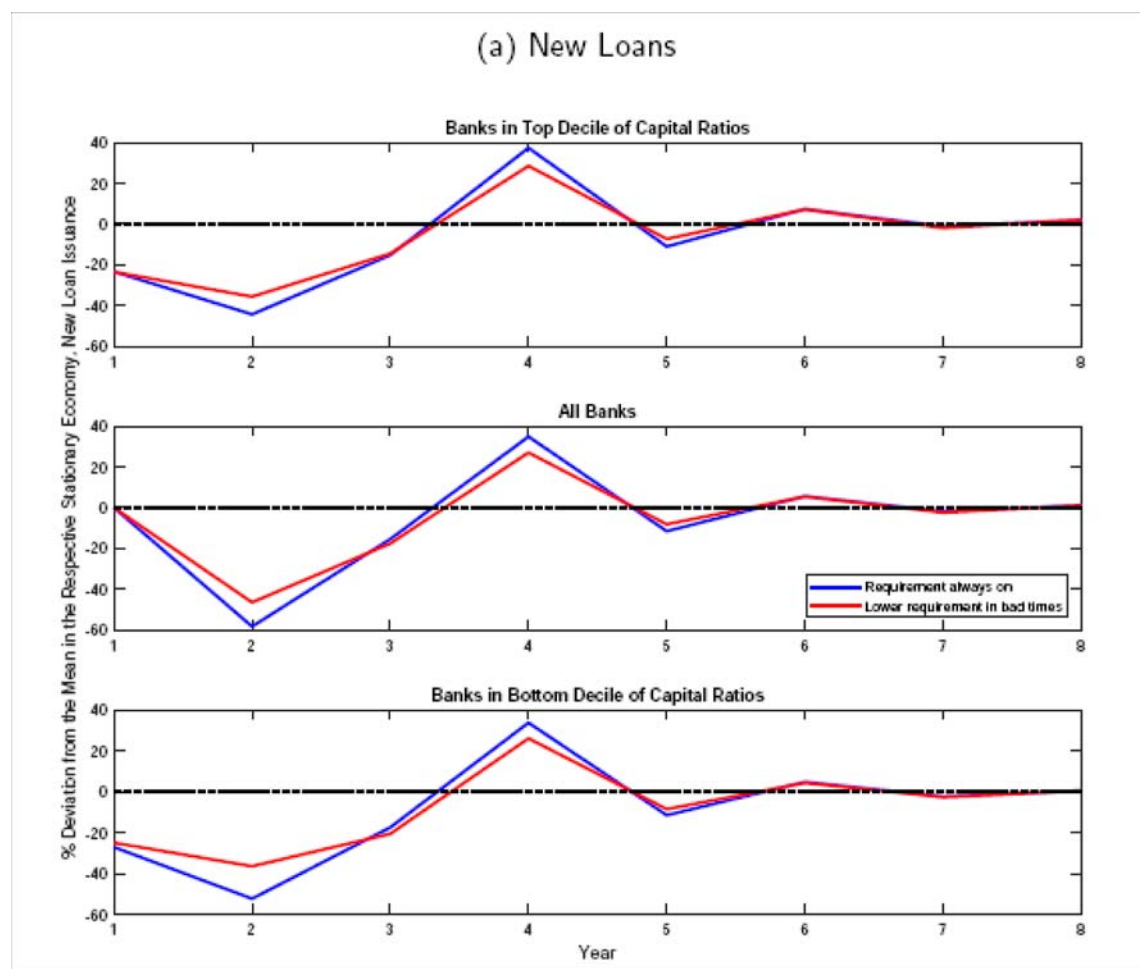
- Is the current partition of results (top & bottom capitalization deciles + average) the most relevant? Why?
- I think the capacity of the model to capture well bank behavior regarding capital ratios (management buffers) and dividends/equity issuance is key:
 - Should be main advantage of model with dynamically optimizing banks
 - But current calibration does not perform very well along these dimensions:

“Overall, they match very well, except for a few moments on dividends”
(p. 12, on Table 4)

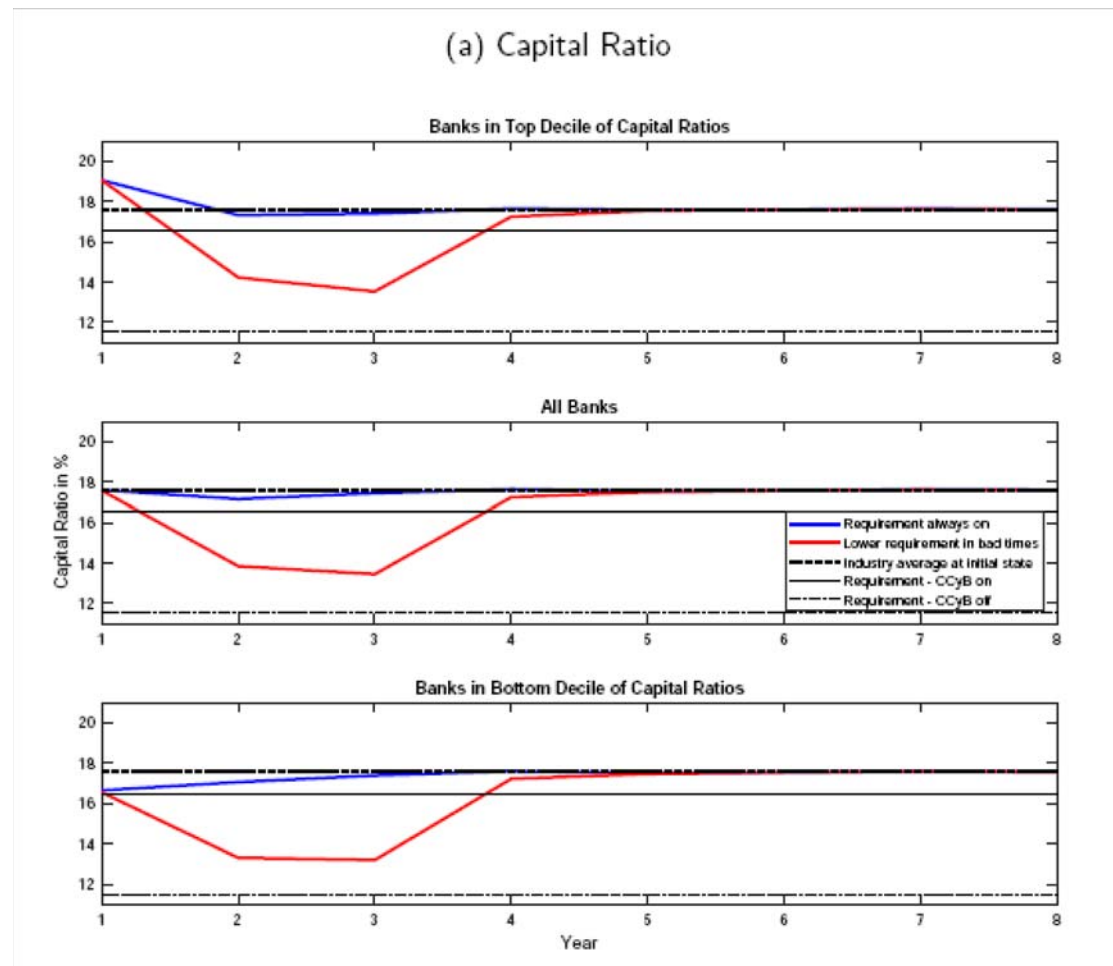
Equity/Deposit	0.24	0.29
Dividend/Deposit	0.04	0.09
CV(New Loans/Deposit)	0.49	0.35
CV(Loan Balance/Deposit)	0.23	0.27
CV(WSF/Deposit)	0.26	0.25
CV(Equity/Deposit)	0.23	0.20
CV(Dividend/Deposit)	0.26	0.81
CV(Capital Ratio)	0.03	0.06

- This may affect the results and their practical relevance/plausibility

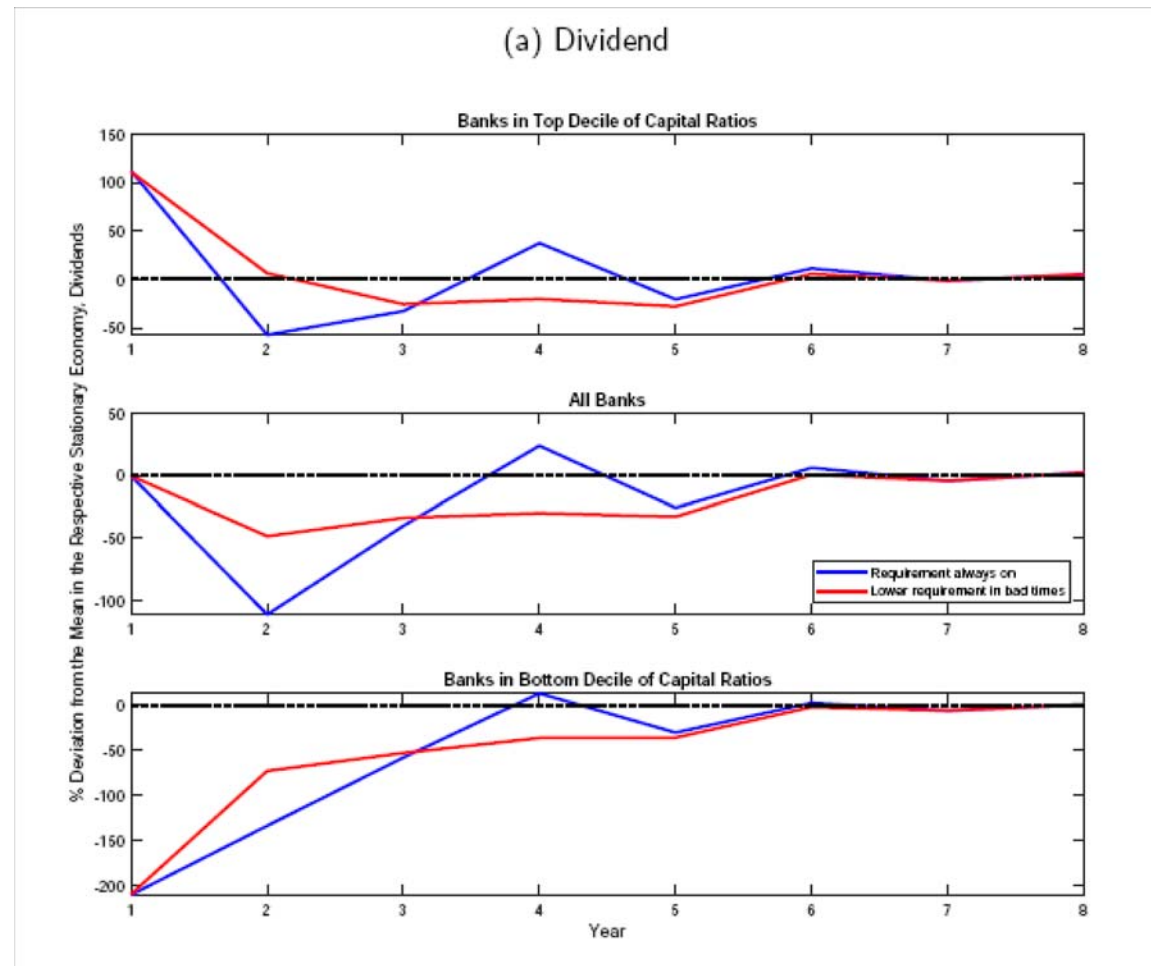
- Illustration: Impulse Responses of New and Existing Loans by Initial Capital Ratio: 5-p.p. CCyB vs Non-State Contingent (Figures 11, 13, 14)
 - Buffer release does not have very large effects on new loans



– But the released capital is very much “used” ...



- ... it is mostly used in **reducing** dividends cuts / equity issuance!



To conclude

- Nice paper, very interesting to read
- Ambitious and promising model setup
- There are aspects of the modeling and calibration that could be reconsidered, polished or better justified
- I think dynamic optimization by banks should be more strongly aimed to replicate capital and dividend payment responses when banks are hit by negative shocks

THANK YOU VERY MUCH