The capital constraints channel of collateral eligibility: evidence from a credit support exit policy

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Disclaimer

The views and conclusions presented in this paper are exclusively those of the authors and do not necessarily reflect the position of the Central Bank of Chile or the Board members.

Motivation

- During normal times, central banks accept a restricted array of highly liquid assets as collateral in refinancing operations
- Allowing banks to pledge their own loans as collateral has become a popular policy during time of distress
  - Used in tandem with cheap funding policies
- By changing collateral eligibility central banks can influence credit supply
  - Asset-specific channel $\rightarrow$ "eligibility discount" (Méssonier et al., 2022; Van Bekkum et al., 2018; Cahn et al., *forthcoming*)
  - Balance sheet level constraints $\rightarrow$ liquid asset holdings; capital
- **This paper:** Effect of a contraction in eligibility through balance sheet constraints
  - Unexpected policy in Chile affecting commercial loans
  - Explore role of capital constraints

What we do

- Exploit Covid-19 unexpected exit policy
  - Nov. 2022: gradual replacement of commercial loans as collateral for lending facility $\rightarrow$ tightening of asset liquidity constraints
  - Context of increased capital requirements anticipated and unanticipated (later)
- Data
  - Chile's excellent credit registry from bank regulator (CMF)
  - Public information from CMF on compliance of Basel III
  - Collateral and lending facility use by bank from the Central Bank of Chile (CBC)
- Empirical design
  - Asset liquidity constraints measure $\rightarrow$ % commercial loans as collateral
  - Capital constraints measure $\rightarrow$ capital surplus
  - Causal effect on credit supply $\rightarrow$ Khwaja and Mian (2008)
    - Additional results: risk taking, credit conditions, firm-level (not today)

What we find

- At loan-level, credit grows less in more exposed banks → tightening in asset liquidity constraints has a negative impact on credit supply
- Capital constraints also matter → credit grows less in banks with ex-ante lower capital surplus
  - Suggestive evidence of a mechanism → the policy change induced banks to lever up and avoid the unprofitable substitution of commercial loans with liquid instruments, which could only be attained if capital surplus was high enough
- No effect on aggregate credit supply overall
  - More constrained banks shift lending towards larger firms
- At firm-level, no effect for multi-bank firms, negative for single-bank

▸ Contribution

Chile's exit from Covid-19 credit support measures

- Three main measures to alleviate bank lending during the pandemic
  - *Facilidad de Crédito Condicional al Incremento de las Colocaciones* (FCIC) by the CBC → March 2020, cheap funding (0.5%) conditional on SME lending, repaid in July 2024, 9.7% of GDP
    - Allowed banks to pledge commercial loans as collateral
  - Expansion of partial credit guarantees program (FOGAPE) by the Government → March 2020, in tandem with FCIC, aprox. 10% of GDP, max. 4 years
  - Postponement of Basel III implementation by the CMF → additional capital requirements gradually implemented each December from 2021 to 2025 implied increments from 0.5% to 0.75% of RWA + systemically important charges
- Unexpected exit policies:
  - Change in collateral eligibility for the FCIC→ announced in October 2022. Starting in January 2023, banks had to substitute commercial loans by traditional safe instruments at a pace of 1/18 per month
  - Activation of the CCyB → 0.5% of RWA, announced May 2023, effective May 2024

How does a change in collateral eligibility affect credit supply?

- "Eligibility discount" channel (Méssonier et al., 2022) $\rightarrow$ banks value eligibility and pass it to interest rate of eligible assets (asset specific)
  - Show it is not relevant in our setting

- Hypothesis: effect of a contraction in eligibility on credit supply should also depend on balance sheet size restrictions $\rightarrow$ capital constraints channel
  - Policy change prompted banks to hold more liquid assets
  - Replacing commercial loans with assets reduces profits
  - Banks incentives: Δ^+ high-yield safe asset holdings without decreasing lending
  - Δ^+ capital is costly the short run $\rightarrow$ Δ^+ leverage, Δ^- capital surplus if possible
  - Commercial credit should grow faster in less exposed/less capital constrained banks after the policy change (but not before). Activation of CCyB should reinforce effects

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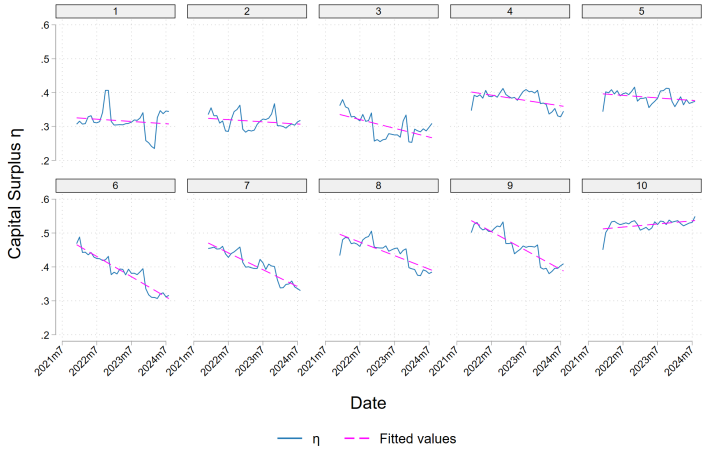
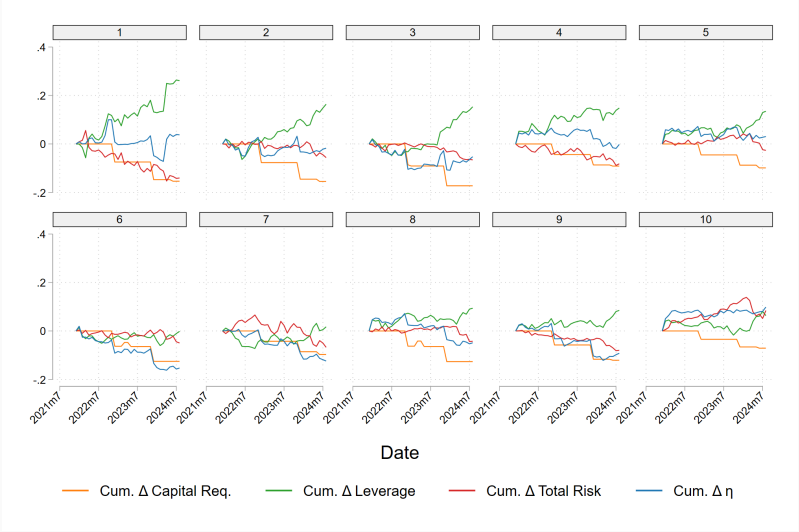
$$\Delta\eta_{bt} = \underbrace{(\eta_{bt} - 1)}_{<0}[\Delta^{\%}\kappa_{bt} + \Delta^{\%} Lev_{bt} + \Delta^{\%} Risk_{bt}]$$

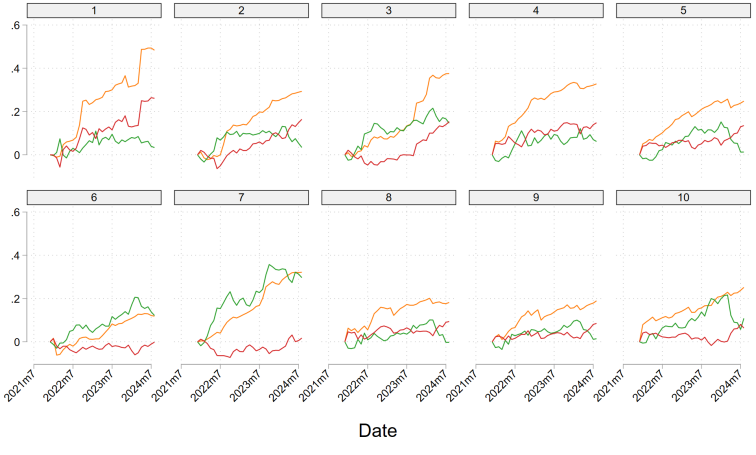
More capital constrained banks try to maintain their surplus while less constrained banks are willing to use it



More capital constrained banks maintain their surplus by decreasing leverage



More capital constrained banks decrease leverage by accumulating capital faster than asset growth



Effect of capital surplus (η) on credit supply: identification challenges

- Unobservable credit demand shocks potentially correlated with η from endogenous firm-bank matching
  - firm-time FE (Khwaja and Mian, 2008) for multi-bank firms; ILST FE (Degryse, De Jonghe, Jakovljevic, Mulier and Schepens, 2019)

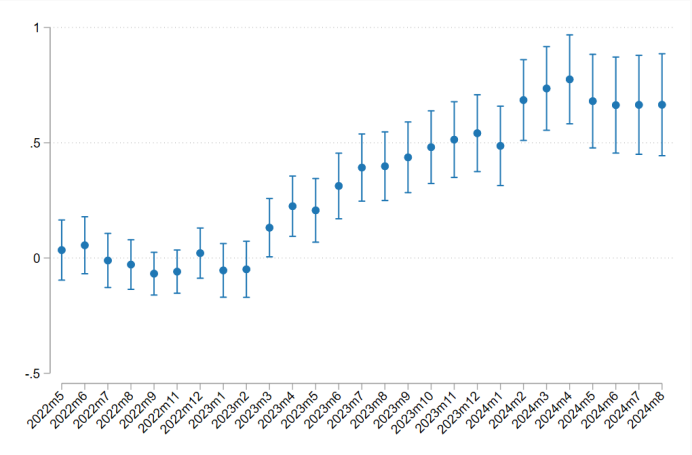
- No anticipation, no other policies $\rightarrow$ additional capital requirements of Basel III

- In addition, to correctly capture capital constrained channel need capital surplus relative exogenous, particularly to liquidity channel regressor

- Until June 2023, capture effect of change in collateral eligibility, after that, joint effect with CCyB

No evidence of adjustment in credit supply in response to anticipated Basel III calendar. Consistent with evidence of adjustments of η

$$C_{ibt} = \alpha_{it} + \delta_{ib} + \sum_{s \in \{-m,\ldots,0,\ldots,n\}} \gamma_s \eta^{Aug22}_{b,t-s} + \varepsilon_{ibt} \text{ (outstanding debt, multi-bank)}$$



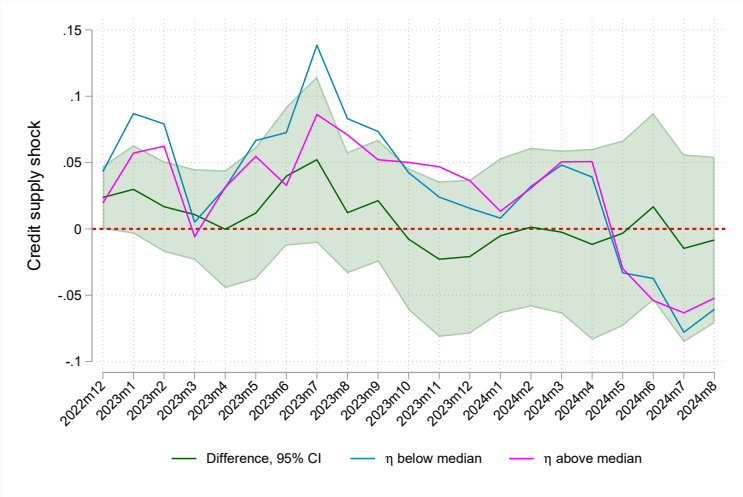
Main results: at the loan-level, credit grows faster in less exposed and less capital constrained banks

$$GC_{ibt+h} = \alpha_{it+h} + \beta_{it+h}\ \eta_b^{Aug22} + X_b^{Aug22}\ \lambda_{bt+h} + \varepsilon_{ibt+h}$$

	Collateral eligibility				Collateral eligibility + CCyB announcement					
	+3		+6		+9		+12		+18	
η (aug-22)	0.019	0.018	0.162***	0.161***	0.283***	0.363***	0.332***	0.523***	0.370***	0.585***
	(0.020)	(0.024)	(0.025)	(0.030)	(0.029)	(0.035)	(0.033)	(0.040)	(0.041)	(0.050)
FCIC (exposure X total/col)		-0.064		-0.359***		-0.322***		-0.316***		-0.333**
		(0.073)		(0.091)		(0.104)		(0.115)		(0.139)
Obs.	133,819	133,819	128,695	128,695	124,056	124,056	120,237	120,237	107,423	107,423
Bank Level Controls	No	Yes*	No	Yes*	No	Yes*	No	Yes*	No	Yes*

- Δ^+ 1 pp $\eta \Rightarrow$ 0.25% more credit in 6m. $\sim$ 2% more for 1 s.d. of η level

Main results: no effects when we weight for loan size → no aggregate level effects even after activation of CCyB



Heterogeneity: size. More constrained banks shift lending towards larger firms

$$GC_{ibt+h} = \alpha_{it+h} + \delta_{t+h}\ \eta_b^{Aug22} + \beta_{t+h}\ \eta_b^{Aug22} \times Size_i^{Aug22} + X_b^{Aug22}\ \lambda_{t+h} + \varepsilon_{ibt+h}$$

	Collateral eligibility		Collateral eligibility + CCyB announcement		
	+3	+6	+9	+12	+18
η (aug-22)	0.0392	0.2923***	0.4998***	0.6475***	0.9176***
	(0.0311)	(0.0369)	(0.0410)	(0.0448)	(0.0510)
η (aug-22) $\times$ Large$_i$	-0.0509	-0.2293***	-0.3378***	-0.2521***	-0.3713***
	(0.0692)	(0.0809)	(0.0878)	(0.0952)	(0.1083)
Obs.	144,421	144,418	144,418	144,417	144,410
Bank Level Controls	Yes	Yes	Yes	Yes	Yes

- Not related to risk.

Heterogeneity: risk. More constrained banks moderate increase risk taking but switch after activation of CCyB

$$GC_{ibt+h} = \alpha_{it+h} + \delta_{t+h}\ \eta_b^{Aug22} + \beta_{t+h}\ \eta_b^{Aug22} \times Risk_i^{Aug22} + X_b^{Aug22}\ \lambda_{t+h} + \varepsilon_{ibt+h}$$

	Collateral eligibility		Collateral eligibility + CCyB announcement		
	+3	+6	+9	+12	+18
η (aug-22)	0.0596**	0.2489***	0.4449***	0.6293***	0.8704***
	(0.0300)	(0.0365)	(0.0407)	(0.0451)	(0.0521)
η (aug-22) $\times$ Provision Above Median$_{ib}$	-0.0713***	-0.0396***	0.0180	0.0657***	0.1305***
	(0.0115)	(0.0139)	(0.0155)	(0.0169)	(0.0194)
Obs.	123,456	123,452	123,453	123,453	123,445
Bank Level Controls	Yes	Yes	Yes	Yes	Yes

- Banks do not seem to manage their capital surpluses by adjusting risk $\rightarrow$ likely related to profitability

Conclusion

- We study the effect of bank capital constraints on credit supply after a policy change that tightened bank asset liquidity constraints
- We find that more exposed and more capital constrained banks reduce credit supply relative to other banks
- Our findings indicate that the impact of policies designed to alter banks' incentives to maintain higher levels of liquid assets is significantly influenced by capital constraints

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Contribution

- Lit. on effects of changes in collateral eligibility on credit supply: Méssonier, O'Donnell and Tautain, (JMCB, 2022); Van Bekkum, Gabarro and Irani, (RFS 2018); Cahn, Duquerroy and Mullins (MS, forthcoming)
  - Study liquidity channel effects of expansions in eligibility
  - Opposite policy not symmetric and capital constraints reinforce liquidity effects
- Lit. on friction channels through which financial policy is transmitted
  - Tightness of capital and liquidity constraints key, usually dealt separately
  - Evidence of novel mechanism affecting credit supply that links bank liquidity constraints with bank capital constraints
- Lit. on optimal timing for enter and exit policies that affect credit supply
  - Policies can be state dependent if constraints are occasionally binding
  - Expansions in collateral eligibility during crises alleviate liquidity and capital constraints. Contractions may affect credit even if liquid collateral is not scarce

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Effect is larger on single-bank firms

$$GC_{ibt+h} = ILST_{it+h} + \beta_{it+h}\ \eta_b^{Aug22} + X_b^{Aug22}\ \lambda_{bt+h} + \varepsilon_{ibt+h}$$

	Months after event									
	+3		+6		+9		+12		+18	
Weighted Avg. Eta	-0.065*	0.180***	-0.029	0.458***	0.066	0.577***	0.119*	0.663***	0.087	0.634***
	(0.037)	(0.038)	(0.050)	(0.044)	(0.059)	(0.049)	(0.067)	(0.053)	(0.082)	(0.060)
Weighted Avg. FCIC Exposure	-0.598***	-0.932***	-0.778***	-1.106***	-0.832***	-1.130***	-0.721***	-1.174***	-0.702***	-1.209***
	(0.129)	(0.192)	(0.168)	(0.218)	(0.197)	(0.238)	(0.223)	(0.253)	(0.270)	(0.282)
Obs.	44,857	102,876	44,857	102,876	44,857	102,872	44,857	102,870	44,857	102,867
Multibank	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

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