

Discussion

Green Capital Requirements

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This Paper

- ▶ **Question:** how should capital regulation account for climate risk?
 - ▶ When funding is scarce
 - ▶ When there are two distortions
 - ▶ Costly government guarantees (“deposit insurance”)
 - ▶ Environmental/carbon externality
 - ▶ When regulators have potentially different mandates
 - ▶ Strictly prudential
 - ▶ Broader “impact”

This Paper

- ▶ **Question:** how should capital regulation account for climate risk?
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 - ▶ When regulators have potentially different mandates
 - ▶ Strictly prudential
 - ▶ Broader “impact”
- ▶ **This paper:** subtle answers
 - ▶ Capital regulation is useful
 - ▶ But emissions could nonetheless increase
 - ▶ Or financial stability could worsen
- ▶ Very valuable contribution!

Outline of Discussion

- ▶ Summarize model and main results
 - ▶ Positive
 - ▶ Normative
- ▶ Comments/remarks

Model

- ▶ Two types of firms: clean & dirty
 - ▶ Dirty firms are more profitable: $NPV_D > NPV_C$
 - ▶ But also generate externality: $\phi_D > \phi_C = 0$
 - ▶ **Remark:** externality is irrelevant for positive results
- ▶ Log-normal risk: μ_q and σ_q
- ▶ Instrument(s): capital requirement $\frac{E}{A} = e \geq e_{\min}$

Model

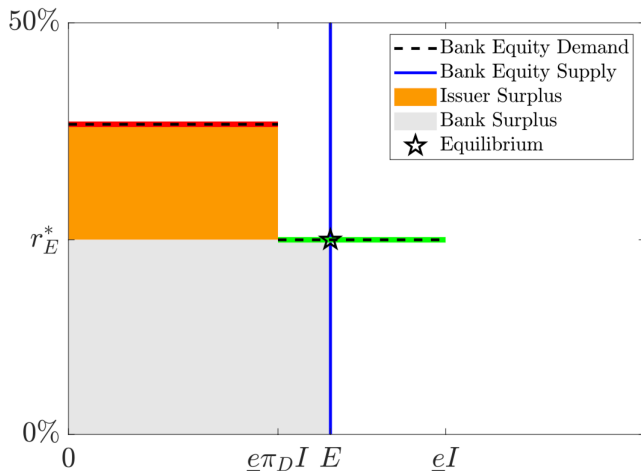
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- ▶ Log-normal risk: μ_q and σ_q
- ▶ Instrument(s): capital requirement $\frac{E}{A} = e \geq e_{\min}$
- ▶ Banks private objective

$$\max_{e, w} NPV + PUT$$

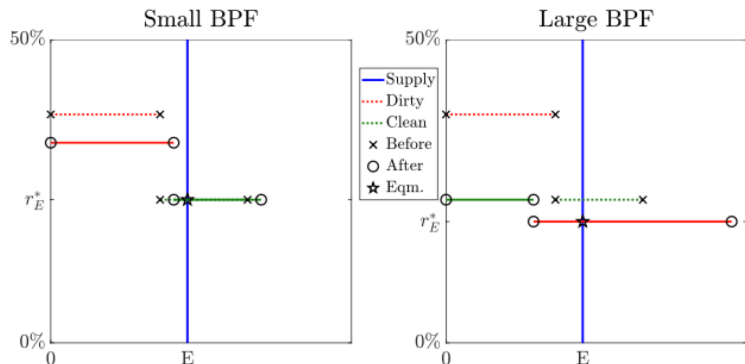
- ▶ **Result:** lending specialization
 - ▶ Firms \iff banks
- ▶ **Result:** maximum leverage

Positive Results

- ▶ Enlightening graphical solution of the model



Brown Penalizing Factor



- ▶ Also: green supporting factor
- ▶ Two channels:
 - ▶ Direct channel (changes returns)
 - ▶ GE channel (funding constraint)

Normative results

- ▶ Social objective:

$$W_q = \underbrace{NPV_q + PUT_q}_{\text{private}} - \underbrace{\phi_q}_{\text{broad}} - \underbrace{(1 + \lambda) PUT_q}_{\text{prudential}}$$

distortions

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distortions

1. Exogenous climate-related financial risks (increase in σ_D)
 - ▶ Increases e_D^* (via PUT), may decrease e_C^*
 - ▶ Brown penalizing + (maybe) green supporting
 - ▶ It may crowd out lending to clean firms
 - ▶ It may switch order of preferred bank

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 2. Externalities on other agents
 - ▶ No impact if strictly prudential objective (obvious)
 - ▶ Broad (“impact”) mandate
 - ▶ Cap. requirements cannot prevent funding dirty loans
 - ▶ Or it is optimal to reduce cap. requirement of clean loans (sacrificing financial stability)
- ▶ **Remark:** these “side effects” are still optimal

Extensions

- ▶ Non-bank financing
- ▶ Bank capital scarcity
- ▶ Carbon (Pigouvian) taxes
- ▶ Imperfect observability of firm types
- ▶ Firms' choice of production technology

1. What if dirty firms are less profitable?

- ▶ Possible justification:
 - ▶ *“At least historically, there has been a tension between profitability and sustainability, for example because of absent or imperfect carbon taxes”*
- ▶ If the profitability difference is due to taxes, this has different welfare implications
- ▶ It seems straightforward to work out opposite case
- ▶ Even more interesting: try to characterize general conditions for policy as a function of μ_q, σ_q, ϕ_q
 - ▶ Connects to my next point

Final Comments/Remarks

2. What should the regulators measure?

- ▶ Impact on marginal loan of changing cap. requirements?
 - ▶ More generally: marginal surface of loans?
- ▶ Funding supply elasticities?
- ▶ The paper can deliver clear answer to guide empirical work
 - ▶ Maybe even without fully solving the model

3. Direct vs. GE reinterpretation

- ▶ It would be useful to formally decompose the direct vs. GE effects on the normative side
 - ▶ Try to gauge/calibrate relative importance
 - ▶ Possible making funding elastic
- ▶ Understand “leakage” (Davila/Walther 2022)
 - ▶ Critical in second-best scenarios

Conclusion

- ▶ Highly relevant topic
- ▶ Very valuable positive and normative contributions
- ▶ More work like this is needed