Carbon Emissions and the Bank-Lending Channel

EFA Discussion

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Summary of Paper

Decarbonizing Bank Loans

Do commitments result in more environmentally friendly distribution of credit?

- **Use bank-level commitments to decarbonization as proxy for preferences**
  - → Exploit the cross-sectional variation among banks on whether they commit (or not), through the Science Based Targets Initiative (SBTi)
  - → Analyze the credit supply mechanism, use data from 2013-2018

- **This is against the back drop of banks increasingly committing to net-zero pledges**
  - → Banks have a global reach with a broader scope of public and private firms
  - → Face higher adjustment costs – suggestive that they may be slow to adjust, but when they adjust it will be more permanent

Summary of Paper

Establish Full Chain from Commitments to Real Effects

1. **Banks Reduce Lending Based on Scope 1 Emissions**
   - → Reduction of 6.4% — 8.6% in bank commitments to total debt, conditional on Scope 1 emissions. Evidence coming from changes in *bank debt*
   - → No change in maturity choices of loans
   - → No significant variation in debt based on levels of scope 2 and 3

2. **Adjustment through syndicate loans happen primarily through the extensive margin**
   - → Also present evidence of substitution between and across industries

3. **Important Financial Effects on Borrowing Firms**
   - → Firms reduce their total assets, increase liquidity, decrease leverage
   - → Increase in average firm profitability (ROA)

4. **Muted Real Effects**
   - → No change in Scope 1 emissions
   - → Suggestive evidence of greenwashing by firms

Perspective on the Paper

Do bank relationship matters? Are commitments a useful tool?

$>>$ *Complete empirical analysis, interesting, important, and carefully executed!*

Numerous ways investor can affect firms to redress climate change risks:

- *(Activism)* Investors demands – e.g. environmental activism, shareholder proposals
- *(Financial Asset)* assets catering to investors – e.g. green bonds
- *(ESG Funds)* Delegation of preferences – e.g. equity allocation decisions
- *(Financial Intermediaries)* Investors target banks reduce access to credit $\leftarrow$ **This Paper!**
- ...
- (Regulation) Government regulation and enforcement

What *should* a bank do?

- This gets back to Friedman's argument and necessary conditions
- We would need a well functioning government to impose limits to reach the 1.5c targets.
- In the absence of government regulation, can private markets redress climate change risks?

Comment 1 – Bank Decisions Problem

Level of pollution, intensity, credit

Do banks relationships depend on profitability?
How does this interact with Scope 1 emissions and intensity of pollution?

Let's consider two firms:

- **Green Firm** – They pollute 10 $kgCO_2e$
- **Brown Firm** – They pollute 100 $kgCO_2e$

Q1: Which firm should the bank cutoff financing to?

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Q1: Which firm should the bank cutoff financing to?

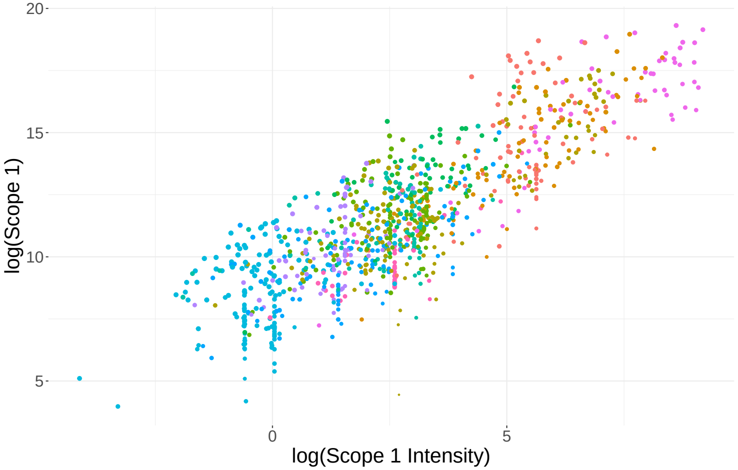
Let's now consider profits

- **Green Firm** – The bank profits \$1, implying 10 $kgCO_2e$/\$
- **Brown Firm** – The bank profits \$100, implying 1 $kgCO_2e$/\$

Q2: Which firm should the bank cutoff financing to?

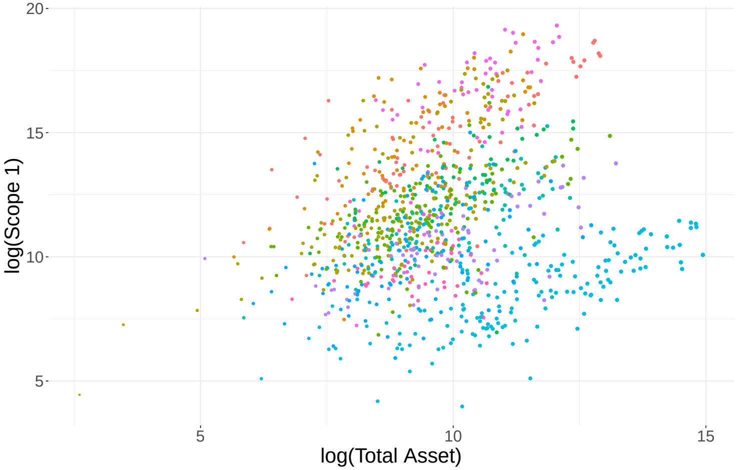
Comment 1 – Bank Decisions Problem

How to banks trade off cutting based on scope 1 vs. intensity of scope 1?



Comment 1 – Bank Decisions Problem

Does profitability matter? Let's use total assets as a proxy as the value of relationship.



Comment 1 – Bank Decisions Problem

Level of pollution, intensity, credit

Can the paper say more about the bank's decision problem?

Suggestion 1: Consider the pollution relative to profitability

- This will help us understand about the bank's decision
  - → If banks cutoff lending based on Scope 1 alone, this is interesting!
  - → If they cutoff lending based on some measure of profitability, this is interesting too!

Suggestion 2: Consider the actual commitments made by banks

- Does the intensity of the credit rationing vary with the level of commitment?
- Of course, the choice and amount to commit is endogenous, but understanding the extensive vs. intensive treatment is interesting

Comment 2 – Measuring Changes of the Firm

Level of Pollution Versus Efficiency

Why don't firms improve? Does intensity matter?

- **Green Firm**
  - → t=1, pollutes 10 $kgCO_2e$, and produces 1 widget, results in 10 $kgCO_2e$/ widget
  - → t=2, pollutes 20 $kgCO_2e$, and produces 2 widgets, results in 10 $kgCO_2e$/ widget

- **Brown Firm**
  - → t=1, pollutes 100 $kgCO_2e$, and produces 10 widgets, results in 10 $kgCO_2e$ / widget
  - → t=2, pollutes 200 $kgCO_2e$, and produces 40 widgets, results in 5 $kgCO_2e$ / widget

The bank may want more brown firms versus green firms:

- Levels may not adequately capture the efficiency gains (even though they are polluting more)
- Note, it is also important *how* they achieve this

Comment 2 – Measuring Changes of the Firm

Level of Pollution Versus Efficiency

The paper suggests that firms do not reduce their Scope 1 emissions

- For firms being shut out of financial markets, why wouldn't they reduce emissions? Interesting!

Recent literature points to firms outsourcing/selling pollutive activities

- e.g. Rui Dai, Rui Duan, Hao Liang, and Lilian Ng (2022), Itzhak Ben-David, Yeejin Jang, Stefanie Kleimeier, and Michael Viehs 2021 ...

If this is the case, we could re-interpret the results as:

- Firm sell assets (decreased PPE?)
- Increase liquidity (cash for sale?)
- Deleveraging from maturing loans that are not renewed?
- Firms may be focusing on emission *intensity* ← my conjecture

Comment 2 – Measuring Changes of the Firm

Level of Pollution Versus Efficiency

Understanding this gets at the big 'so what' of the paper

Suggestion: Helpful to consider other outcomes alongside the intensity margin

1. Are firms reducing the intensity of pollution?
2. Is there increased financial distress for firms that cannot access bank loans?
3. If not, who are they borrowing from?
4. Heterogenous adjustment costs
   - → Firms those with very high adjustment costs (energy firms)
   - → Firms with low adjustment costs (all others).

Comment 3 – Bank Relationships

Can the paper show more that bank relationship matter

What more can the paper say about banking relationships?

One interpretation of this paper, it is really about bank relationships

- This literature focused on relationship lending trying to understand whether firms benefit from long-term relationships with banks
- There are costs and benefits of relationships (e.g. Rajan 1992)
- (I started writing a lit review and realized I would miss too many papers!)

The paper sheds new light on the importance of relationships for the loan market, and if commitments can alter lending decisions

- Some of my favourite results are tucked into the internet appendix! (see Table A3 and Table A5)

Are commitments enough to disrupt deep relationships

- Investors demand banks to limit credit to 'polluters'
- This imposes an additional constraint on lending decisions

Comment 3 – Banking Relationships

Can the paper show more that bank relationship matter

What more can the paper say about the role of banking relationships?

Suggestion 1: Are new relationships being formed?

- Which institutions (if any) help fill the void created by committed banks?
- Do we observe Scope 1 of non-committed banks increasing as well?

Suggestion 2: Does relationship matter if firms have financial flexibility?

- Firms with access to public markets may use equity or access other financing
- Smaller and younger firms with less pre-existing relationships are likely to be affected most

This is an Important Paper

Decarbonization of bank lending

I really like this paper – This is an important paper that helps us understand one of the actions that investors can take to redress climate change risks!

Important in completing our understanding of if and how intermediaries can help redress climate change risk:

- *(Activism)* Investors demands – e.g. environmental activism, shareholder proposals
- *(Financial Asset)* assets catering to investors – e.g. green bonds
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