Summary

- Using data from the EU emissions trading system, the authors study the interplay between corporate capital structure and cap-and-trade programs.
  - 4,000 non-financial firms subject to the EU ETS, 2013-2019.

- Firms with higher leverage reduce carbon emissions to a greater extent.
  - Emissions efficiency improves, driven by reductions in total firm emissions.
  - Effects concentrated among listed firms.
  - Highly-indebted firms are unable to fund the low-carbon transition.

- The use of “green finance” to fund the transition appears limited.
Comments

- Paper presents importance evidence on the relation between leverage and carbon emissions.

- Capital structures are path-dependent so leverage an important force for low-carbon transition (see, Lemmon, Roberts, and Zender, 2008; DeAngelo and Roll, 2014).

- Comments on:
  - sample and panel regressions,
  - difference-in-differences tests around the 2018 introduction of more stringent emission targets,
  - economic interpretation
Comment 1: Panel Regressions

- Higher leverage associated with lower carbon emissions/emissions efficiency.
  - The associations are stronger cross-sectionally than in the time series.

- Is this association driven by firms’ capital markets access/financial constraints? More constrained firms tend to lever more.
  - The leverage-emissions relation may have less to do with incentives to reduce emissions than with the ability to do so.

- The listed/non-listed firms split helps alleviate this concern, more tests:
  - Account for banking relationships, access to bond and (private) equity markets, access to government financing.

- Controls from canonical leverage regressions:
  - Could you use firms’ total asset/employees to proxy for size?
  - Some measure of asset tangibility?
Comment 2: Diff-in-diff regressions

- Treatment is defined along two dimensions: excess leverage and emission permit shortfalls.
  - Leverage interacts with the tighter emission requirements:
    - Consider defining treatment in terms of emissions shortfalls and then partitioning the sample along the leverage dimension.

- Was the 2018 change in emission targets anticipated?
  - If so, both treated and control firms may have responded in advance of the rule change producing the flat line in figure 7.

- Similar concerns about the inclusion of more controls and the interpretation of coefficients.

- It may be useful to compare emitting to non-emitting firms to gauge the impact of the 2018 rule change.
Comment 3: Interpretation

How do these results reconcile with studies documenting higher financing costs of cap-and-trade programs?

- For example, Ivanov, Kruttli, Watugala (2022) and Delis, de Greiff, Ongena (2019).
- The “discipling effect of leverage” channel suggests that financing costs may ultimately decrease after cap-and-trade regulation.

How do the results reconcile with the international evidence on financing costs of cap-trade-regulation?

- What can we learn from the emissions-leverage relation for firms that can avoid these regulations by “exporting” emissions?