ASSET OVERHANG AND TECHNOLOGICAL CHANGE

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Discussion by **Diana Bonfim**

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BANCO DE PORTUGAL
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SUMMARY OF THE PAPER

- Financing **innovation** and **diffusion** of knowledge is desirable.
- Financing **green** innovation and diffusion has become even more so.

- Are there barriers to a greener economy?
- What is the role of **banks**?
- How can we change **incentives** to make sure that green firms with positive NPV projects are financed?

SUMMARY OF THE PAPER

This paper:

- Green innovation and diffusion can be **disruptive**.
    - Negative **externalities** on other firms.

- If banks are heavily **exposed** to these incumbent firms, they will not finance the innovators.
    - **Asset overhang** problem that can hinder the green transition.

SUMMARY OF THE PAPER

Two types of green firms:

- Green **innovators** (process or product)
- Green **diffusors** (provider or adopter)

Two types of externalities for incumbents:

- deterioration in **performance** (PD)
- loss of **collateral** value (LGD)

SUMMARY OF THE PAPER

Main results:

- Both innovation and diffusion generates negative **spillovers** on brown firms (on performance and collateral value).

- Innovators' that have impact on banks' **legacy portfolios** are 5pp less likely to receive credit.

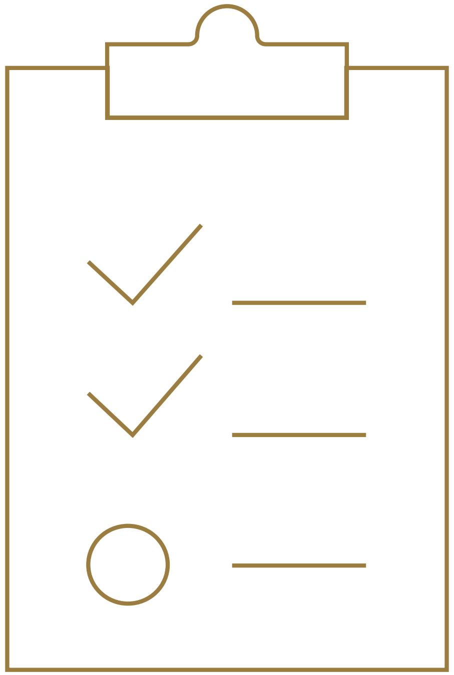
- Banks with smaller legacy positions are more likely to "**break the barrier**". Argument for the creation of green banks.

- The results are generally more pronounced for **innovators** than diffusors.

SUMMARY OF THE PAPER

Ticks all the boxes:

- Important question
- Novel contribution to the literature
- Careful execution
    - Model
    - Empirical design
- Great data
- Well written, with many very interesting conclusions.



1.FROM GREEN TO COLORFUL

The contribution of the paper can be much **broader**.

If we read the paper without the word “**green**” and think about innovation, diffusion, externalities, etc., most of the findings will still hold.

Innovation is often disruptive an will destroy value for incumbents. It’s expected that banks want to protect them.

What should be done?

1. Embrace this a make a broader contribution to the literature (building on Minetti, 2011).

   OR

2. Go deeper on what is special about green barriers.

   - Societal goals? Policy implications? Externalities?

2.POSITIVE VS NEGATIVE EXTERNALITIES

- The paper focuses on **negative externalities**.

  “Green product innovators **negatively** affect brown incumbents in the same product space.

  Green diffusors **negatively** affect brown incumbent in the same product space

  Green process innovators & green adopters **negatively** affect firms in the same product & technology space.”

- **Positive externalities** are not ruled out, but they are ignored. Short-term vs long run effects?

- But the consensus around the **green transition** is actually anchored on the positive **long-term** effects.

  - There will be positive effects not only on climate and biodiversity, but also for firms (e.g., energy efficiency)

  - All past innovation has been disruptive for some, but overall we’re better today than if we had horse-drawn carriages.

3. BANK SPECIALIZATION AND COMPETITION

The paper also contributes to the literature on **bank specialization**.

Paravisini, Rappoport and Schnabl (2021), Degryse and Ongena (2007), De Jonghe, Mulier and Samarin (2022).

“Greenness is potentially a dimension of bank specialization.”

If some banks are specialized on brown firms, in a **competitive market** less specialized banks may want to attract greener firms.

In the model, **competition** is mostly linked to the heterogeneity in asset-overhang. But does the intensity of bank competition vary in other dimensions? How can this be captured **empirically**?

4.POLICY IMPLICATIONS

Legacy-free green banks

- Are banks the best institutions to lend to innovative (green) firms?

- Newly created banks might not have the best **screening** technology (Jiménez, Peydró, Repullo and Saurina, 2018).

Macroprudential policies

- Are macroprudential authorities concerned with technological disruption?
- Encouraging banks to take risks by financing innovators is something that is possibly within the **mandate of macroprudential authorities**.

MINOR ISSUES

1. In the model, incumbents have **collateral** and entrants have **cash**. Is the comparison legitimate? To what extent does this affect the results?

2. The model assumes that there are no information asymmetries on exposures. In reality, they exist. Suggestion: does the ECB **climate stress-test** lead to any change in outcomes (to be tested in a few years)?

3. Does controlling for the **5-year standard deviation of profitability** eliminate young firms, which may be innovators and diffusors?

SUMMING UP

- Great paper. It ticks all the boxes!
- Very important argument: we all agree with the end-goal of converging to a greener economy, but there are many challenges in (financing) the transition.
- Banks might not have the adequate incentives.
- Barriers can lowered.

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