

DISCUSSION: “ASSET OVERHANG AND TECHNOLOGICAL CHANGE”
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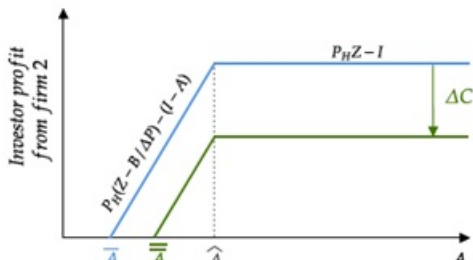
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THIS PAPER

- ▶ Do banks ration firms that develop or diffuse disruptive innovations due to the adverse implications for their legacy borrowers?
- ▶ Theoretically model and empirically test how the legacy positions of banks lead to asset overhang as new technologies may reduce the collateral values or weaken the performance of incumbent firms
- ▶ Key finding: green innovators or diffusers that generate negative spillovers on banks' legacy positions are less likely to receive bank credit → Barriers in financing green firms
- ▶ Key take-away: (1) Legacy positions in investors' portfolios may hinder the optimal allocation of funds into green firms if the latter could threaten the performance and asset valuations of the incumbent firms. (2) Banks want to protect their businesses from the transition into the green economy
- ▶ Policy implication: Legacy-free investors or initiatives not subject to externalities or implementing macroprudential regulations that lead banks to reduce rationing

THEORETICAL MODEL

- ▶ Base their model on Holmstrom and Tirole (1997)
- ▶ First consider a monopoly investor setting and introduce asset overhang in the presence of negative externalities on the incumbent companies
- ▶ Then extend their model and consider the market structure where investors have heterogenous exposure to asset overhang
- ▶ Negative externalities can arise because of lower performance (*e.g.*, through business stealing) or asset devaluation (*e.g.*, stranded assets problem because of the transition to green technology)
- ▶ Empirical predictions: (1) Legacy effect: An increase in negative externalities may lead to more rationing, and (2) A decline in the lowest sensitivity to these externalities would lead to less rationing



EMPIRICAL EVIDENCE - 1

- ▶ Setting: Belgium banks as (1) economy highly bank-based with limited alternative financing opportunities (2) banks exposed to green transition shocks (3) heterogeneous banks
- ▶ Identify the externalities: performance vs. asset devaluation
- ▶ Construct a measure of green firm's externalities and spillovers
- ▶ Based on this metric, do banks decide to ration firms to protect their incumbent borrowers? Differentiate green activities as each type has different type of negative externalities on the performance and collateral value of neighbouring firms
 - innovation versus diffusion
 - product versus process innovation
 - green adoption versus green provision
- ▶ Construct these measures based on the pairwise proximity in the product space (*i.e.*, proximity in outputs or share of sales in each sector) and technology space (*i.e.*, firm-proximity in inputs or level procurements from each sector)
- ▶ Construct spillovers

EMPIRICAL EVIDENCE - 2

- ▶ At extensive margin, asset overhang reduces the likelihood of reducing credit for disruptive innovators
- ▶ Intermediaries with less legacy positions mitigate economy-wide asset overhang as banks less exposed to asset overhang more likely to lend to green firms
- ▶ At intensive margin, an increase in lowest asset overhang reduces lending growth

COMMENTS - 1

- ▶ Very interesting paper
- ▶ Very well and clearly written
- ▶ Empirics and theory tied well together
- ▶ Combine several datasets to quantify the size of the externalities of green firms on the incumbent firms and the legacy positions of banks exposed to these green firms
- ▶ Executed meticulously, and in detail, I learned a lot from the paper
- ▶ Very clear stylized model with plausible predictions
- ▶ I like the policy discussions and implications/suggestions throughout the paper

COMMENTS - 2: EMPIRICS

- ▶ How about also directly focus on the proximity measures in the empirical design without computing the size of the externalities and then relating these proximity measures to credit rationing → it is reasonable to expect that these proximities would lead to these externalities
- ▶ How about patent or citation similarity in addition to input/outputs?
- ▶ Consider the positive informational spillovers in terms of innovation

COMMENTS - 3: MINOR

- ▶ Explore (comment on) the classification further
- ▶ The classification is as far as I understand static
- ▶ Is it possible to take into account the potentially dynamic nature of the classification – do firms switch across types in your set-up and if so, how often does that happen
- ▶ *e.g.* A firm may adopt one technology but become an innovator at a later stage - also consider different types of co-existing technologies where firms may be adopters in one but innovators in another

TO CONCLUDE

- ▶ Very interesting paper
- ▶ Novel and very interesting policy implications
- ▶ Good luck and look forward to the final version!