Do Banks Care About ESG? Firm Capital Structure in the Green Era

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Overview
- Bank CEOs emphasize their commitment to ‘stakeholders’
- For instance, JP Morgan claimed to provide $280 bln toward sustainable businesses in 2021
- **Question**: Relative to bond markets, are bank loans sensitive to ESG? If policymakers forced banks to internalize ESG preferences, how would lending outcomes change?
- **Finding**: Higher ESG firms increasingly use bonds relative to bank loans
- Bond yields are more sensitive than loan rates to ESG scores
- **Importance**: I provide a benchmark externality adjustment and trace out the counterfactual effects on bank lending volumes

Literature Backdrop
- ESG and the ‘greenium’ ([Hong and Kacperczyk, 2009], [Bolton and Kacperczyk, 2021])
- Isolate a bank-bond greenium
- Capital Structure ([Petersen and Rajan, 1994])
- Study capital structure trade-offs once financiers care about ESG
- ESG-based capital requirements ([Oehmke and Opp, 2022])
- Provide an estimate of loan flows under ESG capital requirements

Data
- Refinitiv ESG scores (2011 - 2021)
- Compustat financial statements
- Merger FISD bond / Dealscan syndicated loan issuance
- **Key variables for firms**:
  - Loan Share \( \frac{\text{Loan}_t}{\text{Debt}_t} \)
  - Loan-Bond Spread \( \frac{Y_{\text{loan},t} - Y_{\text{bond},t}}{\text{Debt}_t} \)

Facts about ESG and Debt Capital Structure
- **Fact 1**: Higher ESG firms use relatively less bank debt
- **Fact 2**: Higher ESG firms obtain cheaper bonds v. loans

Higher ESG \( \Rightarrow \) Less Loan Usage
- I test the ESG-debt relationship using controls, including credit risk
  \[
  Y_t = \beta ESG \text{ Bin}_t + \gamma X_t + \alpha_C + \alpha_r + \epsilon_t
  \]
  \[\text{(1)}\]

- **Simple OLS likely underestimates**: error-in-variables bias
- Along lines of ([Berg et al., 2022]), I construct an IV that consists of firms’ competitors to de-noise firm-level estimates

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
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</thead>
<tbody>
<tr>
<td>ESG Bucket</td>
<td>(-1.324^{\ast\ast})</td>
<td>(-1.220^{\ast})</td>
</tr>
<tr>
<td>Comp. ESG</td>
<td>(0.081^{\ast\ast})</td>
<td>(0.017)</td>
</tr>
<tr>
<td>Controls</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Firm FE</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Year FE</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Observations</td>
<td>6505</td>
<td>7243</td>
</tr>
<tr>
<td>Method</td>
<td>First Stage</td>
<td>OLS</td>
</tr>
</tbody>
</table>

**Magnitude**: A one \( \sigma \) in ESG \( \Rightarrow \) 18 % \( \uparrow \) bond share

Higher ESG \( \Rightarrow \) Relatively Cheaper Bonds
- Match syndicated loan yields to secondary market bond yields
- Controlling for credit risk, how does ESG score relate to Loan-Bond spreads?

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<tbody>
<tr>
<td>L-B Spread</td>
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</tr>
<tr>
<td>ESG Score</td>
<td>(1.902^{\ast\ast})</td>
<td>(1.040^{\ast})</td>
</tr>
<tr>
<td>(0.867)</td>
<td>(0.508)</td>
<td>(0.603)</td>
</tr>
<tr>
<td>Maturity Diff</td>
<td>(72.961^{\ast\ast\ast})</td>
<td>(47.552^{\ast\ast})</td>
</tr>
<tr>
<td>(5.542)</td>
<td>(31.350)</td>
<td>(13.590)</td>
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<tr>
<td>Controls</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
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<tr>
<td>Firm FE</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
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<tr>
<td>Credit Rating FE</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
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<tr>
<td>Year FE</td>
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<td>✓ ✓ ✓</td>
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<tr>
<td>Observations</td>
<td>2572</td>
<td>2561</td>
</tr>
<tr>
<td>(R^2)</td>
<td>0.432</td>
<td>0.650</td>
</tr>
<tr>
<td>Sample</td>
<td>All All Closest Mat</td>
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</tbody>
</table>

**Magnitude**: A one \( \sigma \) in ESG \( \Rightarrow \) 18-20 bps \( \uparrow \) L-B spread

Mechanism Discussion
- What drives the higher elasticity for bond markets?
  - Bank deposits are ESG insensitive \( \Rightarrow \) banks are ESG ‘arbitrators’
  - Bonds offer better price ESG growth options at firms
  - High ESG firms have lower willingness to pay for financing continuity, but effect remains after controlling for credit risk

Approaching Counterfactual Loan Volumes
- Assuming policymakers had the perfect tool to force banks to internalize the greenium, how would credit flows change?
- Assume regulators optimally set capital requirements \( k_{ESG} \) to offer \( r^*_f(ESG_f) = r_f + \text{Greenium}_f(ESG_f) \)
- Assume for simplicity banks respond elastically
- I calibrate firm price elasticity of demand externally using ([Diamond et al., 2020]; \( \epsilon = -519 \))
- Use greenium estimates at firm level (median firm gets 0)

\[
\% \text{ Change}_{\text{ESG}} = \epsilon \times \text{Greenium}_{2021}(ESG_{2021}) \times \text{Loan Share}_{2021} (2)
\]

Conclusion
- Loan volumes would decline by 22% for construction firms (lower ESG) and increase by 16% for manufacturing firms (high ESG)

- Higher ESG firms utilize bond markets more than banks to finance their projects
- One SD increase in ESG scores leads to around 18-20 bps cheaper bonds relative to loans, controlling for credit ratings
- The Loan-Bond Greenium provides a benchmark for regulators when considering the design of enhanced capital requirements
- The greenium regulatory cost could introduce potentially distortionary effects and are sensitive to ESG rating stability