Shareholder Activism and Firms’ Voluntary Disclosure of Climate Change Risks

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March 3, 2021
UK companies face greater scrutiny on climate risks at upcoming AGMs

Investment Association warns it will flag inadequate reporting on global warming to asset managers

*Exxon Denounced as Fossil Fuel ‘Go-Getter’ Over Climate Changes*

**Shareholder Pressure**

Companies trying to get more shareholder scrutiny on climate-related issues

*By* *Gabrielle Davis*

May 31, 2022

Companies are under increased pressure from shareholders to report on climate-related risks in a consistent, clear, and comparable manner. The Investment Association (IA) has warned that it will flag inadequate reporting on global warming to asset managers at upcoming年度股东大会 (AGMs).

The IA said fund managers needed companies to report on climate-related risks "in a consistent, clear and comparable manner." © Olly Scarff/AFP/Getty Images

*Attracta Mooney* FEBRUARY 22 2021
Shareholder activism is on the rise

- Little is known whether this tactic is indeed effective
  - Can shareholder activism elicit greater voluntary climate risk disclosure of portfolio companies?
  - If so,
    - What type of shareholders are most effective?
    - Does this improve firm valuation?
Surge in Climate-Related Shareholder Activism

- **Physical Risks**: Increased risks and costs associated with climate change, regardless of own emission levels (e.g., New York Times, 2018, 2019; Risky Business, 2014)
  - Increased energy demand, damage of coastal property and infrastructure, disruptions in supply chains and operations, etc.

- **Regulatory Risks**: Increased government actions to curb climate change
  - Example: In the 2015 Paris Agreement, 195 nations agreed to limit global warming to < 2°C (United Nations, 2016)
  - (Threat of) stricter environmental regulations can send a strong signal to investors of carbon-intensive companies (Maxwell, Lyon, & Hackett, 2000)
Other climate-related risks: Increased pressure from activist groups to address environmental issues (e.g., Baron & Diermeier, 2007; Den Hond & De Bakker, 2007; McDonnell, King, & Soule, 2015; Soule, 2009)

- Social media facilitates dissemination of information and mobilization of social movements (Van Laer & Van Aelst, 2010)

BlackRock Targeted as Largest Driver of Climate Destruction in New Campaign

Leading climate groups call out world’s largest owner of fossil companies, tell BlackRock CEO to talk

The New York Times

Opinion

Bolsonaro Wants to Plunder the Amazon. Don’t Let Him.

The Brazilian president’s pro-business agenda will be a test of American companies’ commitment to the environment.

By Leila Salazar-López
Ms. Salazar-López is a defender of the Amazon rain forest.
Jan. 29, 2019
Broader Context: Lack of Public Governance

- Lack of mandatory disclosure requirements imposed by government

  ➢ **No mandatory disclosure** of climate risk exposure (and non-financial information more generally) in most countries (including U.S.)

  - E.g., U.S. SEC merely **recommends** that companies disclose their climate change risks, does not mandate it nor offer any guidance how to disclose

  ➔ Companies often

    - **Fail to disclose** their exposure to climate change risks, and non-financial information more generally (Ceres, 2018)
• Climate risk exposure of portfolio companies

- Investors increasingly interested in companies’ disclosure of climate risks exposure and strategies to address these risks (e.g., Ceres, 2018; Ilhan, Krueger, Sautner, and Starks, 2019; Kim and Lyon, 2011; Kolk, Levy, and Pinske, 2008; Krueger, Sautner, and Starks, 2020; Reid and Toffel, 2009)
- Increase in shareholder pressure demanding improvements in corporate environmental responsible practices (Flammer, 2013; 2015)

- Recent survey of 439 institutional investors (Krueger et al., 2020):
  - Majority of respondents believe that climate risk reporting is as important as financial reporting, and
  - One-third believe that climate risk reporting is even more important
Climate Risk Exposure vs. Environmental Footprint

- Climate Risk Exposure vs. Environmental Footprint
  - Firms’ **contribution to** climate change (impact on environment)
    - E.g., Disclosure of greenhouse gas emissions
  - This study: firms’ **exposure to** climate change risks
    - Threat of damage, injury, liability, loss, or any other harm to the company that could be caused by climate-related events
      - Physical risks: e.g., flooding, fierce storms, drought, extreme temperatures
      - Regulatory risks: e.g., current and expected governmental policies related to climate
      - Other climate-related risks: e.g., reputation, changing consumer behavior

  - A firm’s carbon footprint is **very different** from its exposure to climate change risks
  - Firms across industries face exposure to climate change risks, **regardless** of their own emission levels
• Temporal separation of potential benefits and downsides

➢ Benefits:

• May help firms to manage and mitigate climate risks in the long run
  - For example:
    1) Transparency can increase firms’ accountability in public’s eye
       >> strengthens firms’ commitment to manage and mitigate these risks going forward
    2) Transparency allows investors, business partners, and other stakeholders to engage with disclosing firms in a more informed fashion
       >> more effective advice in how to manage and mitigate climate risk
    3) Transparency can foster trust
       >> strengthens firm’s relationships with investors and other stakeholders

➢ Disclosure can improve the firm’s governance and long-term value
Downsides:

1) May reveal vulnerabilities that firms would prefer to keep from investors, competitors, customers, etc.
   - For example:
     o Risks related to damage, injury, liability, loss, other climate-related harm to firm
     o Financial risks associated with “stranded assets”

2) Disclosing climate risk information entails direct costs
   - Cost of dedicating human capital to
     o Conduct thorough assessment of climate risk exposure
     o Incorporate assessment into risk management and business plans moving forward
     o Report of climate risk exposure and risk mitigation strategies

3) Adverse reactions may exacerbate firm’s overall climate risk exposure
   o E.g., Investors might use information to inform their investment decisions and rebalance their portfolio, reallocating funds from the disclosing company (Barberis & Shleifer, 2003)
   o Suppliers and corporate clients might switch to more viable business partners with lower risk exposure

Management has incentives not to disclose climate risks, unless mandatory
Climate Risk Disclosure — A Governance Issue

• Reluctance to disclose accentuated by **managerial myopia**
  - Large literature in psychology and economics (e.g., Ainslie, 1975; Thaler & Shefrin, 1981; Loewenstein & Prelec, 1992; Meier & Sprenger, 2010; O’Donoghue & Rabin, 1999; Frederick, Loewenstein, & O’Donoghue, 2002)

  - Common theme: individuals are **“hyperbolic discounters”**
    - Preference for short-term rewards over long-term rewards, even if the latter are substantially higher.
    - Reasons: Cognitive limitations, instant gratification, impatience, etc.

  - For executives, myopic behavior further **reinforced** by
    - Career concerns (e.g., Gibbons & Murphy, 1992)
    - Analyst pressure to meet or exceed analysts’ earnings forecasts (e.g., DeGeorge, Patel, & Zeckhauser, 1999)

  - As a result, myopic managers tend to
    - Favor short-term investments that pay off in short run at expense of long-term investments (e.g., Flammer & Bansal, 2017; Graham et al., 2005; Holmstrom, 1999; Stein, 1988, 1989)
    - **“Time-based agency conflict”:** Managers have an excessive preference for the present, and hence need not act in shareholders’ (long-term) best interest (Flammer & Bansal, 2017)
Implications of “time-based agency conflict” for voluntary climate risk disclosure:

Managers may ...

1) Put more weight on potential short-term downsides of disclosure vs. potential long-term upsides of managing and mitigating climate risks

2) Focus attention on stakeholders that have short-term financial performance implications (e.g., customers, employees) vs. stakeholders who may be financially material in long run, but not necessarily in short run (e.g., environment, communities)
   📋 As managers devote less attention to natural environment, they might just not be aware of the risks climate change poses to their operations

In absence of public governance, firms often fail to disclose their exposure to climate change risks (Ceres, 2018)
Effectiveness of Private Governance?

- **Role of Private Governance**
  - In absence of public governance, can private governance—in the form of shareholder activism—elicit greater disclosure of firms’ exposure to climate change risks and how they manage those risks?
  - If so,
    - What type of shareholders are most effective?
    - What are the **valuation implications**?
1. Introduction
2. Data
3. Methodology
4. Results
5. Robustness
6. Conclusion
Climate Change Risk Disclosure

• Climate change risk disclosure
  ➢ Source: Carbon Disclosure Project (CDP)
    o Non-profit organization based in London, UK
    o Scope: Each year, CDP surveys large public companies to disclose information about
      • Risks and opportunities posed by climate change
      • Which strategies they pursue to address them
      • Extent of greenhouse gas (GHG) emissions
    o In 2017, 63% of S&P500 companies responded and voluntarily disclosed at least some portion of requested information
    o Period: 2010—2016
Climate Change Risk Disclosure

• In this paper:

➢ Focus on climate change risk disclosure (question CC5.1)
  o Regulatory climate change risks:
    • Current and expected (local, national, or global) governmental policy related to climate change.
    • E.g., imposition of emissions limits, energy efficiency standards, and carbon trading schemes.
  o Physical climate change risks:
    • Extreme weather events or subtle changes in weather patterns
  o Other climate change risks:
    • E.g., changing consumer behavior, induced changes in human and cultural environments, reputation, fluctuating socio-economic conditions, and increasing humanitarian demands

➢ Dependent variable: disclosure of climate change risks
  o Counts how many climate change risks firm discloses (ranges from 0 to 3)
  o In auxiliary analysis: examine each risk category separately
Shareholder Activism

- Environmental Shareholder Activism
  - **Source:** Institutional Shareholder Services (ISS) database
    - **Scope:** Compiles information about shareholder proposals submitted to S&P 1,500 companies
    - **Information:**
      - Firm identifiers
      - Date of annual meeting
      - Proposal description
      - Sponsor of proposal
      - Voting requirement
    - **Period:** 1997—2017
  - **Independent variable:** *environmental shareholder activism*
    - Counts of environment-related proposals submitted to firm in given year (ranges from 0 to 5)
Final Sample

- Final sample
  - Merging ISS data and CDP data for each firm and year
  - Sample: **1,110 firm-year observations**
    - 26% environment-related shareholder proposals
    - 74% others
  - Period: **7 years** (January 1, 2010—December 31, 2016)
Shareholder Activism and Firms’ Voluntary Disclosure of Climate Risks

Caroline Flammer (Boston U)
Methodology

- Starting point: **OLS Regression**

\[
\text{disclosure of climate change risks}_{it} = \alpha_i + \alpha_t + \beta \times \text{environmental shareholder activism}_{it-1} + \gamma'X_{it-1} + \varepsilon_{it}
\]

- **disclosure of climate change risks}_{it}**: counts how many climate change risks firm discloses (ranges from 0 to 3)
- **\(\alpha_i\)**: firm fixed effects
- **\(\alpha_t\)**: year fixed effects
- **environmental shareholder activism}_{it-1}**: counts of environmental proposals submitted to firm (ranges from 0 to 5)
- **\(X\)**: vector of controls (size, ROA, market-to-book, leverage, cash holdings)
- **\(\varepsilon_{it}\)**: error term (standard errors clustered at SIC division-level)
Methodology

- Caveat of OLS Regression:
  - Environmental shareholder activism likely endogenous with respect to firm’s decision to disclose climate change risks.

\[
\text{disclosure of climate change risks}_{it} = \alpha_i + \alpha_t + \beta \times \text{environmental shareholder activism}_{it-1} + \gamma'X_{it-1} + \varepsilon_{it}
\]

Unobservables?

Better governed firms may be more likely to report climate risks. At the same time, they encourage active shareholder engagement.

Reverse causality story: Because companies disclose climate risks, the more likely shareholders demand further improvements in climate risk management.

- Ideally, need an instrument for environmental shareholder activism.
• **Instrument: “Wave” of shareholder activism**
  - Shareholder activism often comes in “waves”
    - A given shareholder (e.g., BlackRock, CalPERS) adopts an agenda and submits *same proposal to multiple portfolio companies* (e.g., Gillian & Starks, 2007; Yermack, 2010)
    - Targeting firms across industries, geographies, and motives orthogonal to firm-specific characteristics
  ➔ Shareholder proposals submitted as part of a “wave” more likely to be **exogenous** w.r.t. any specific firm characteristics
  ➔ Instrumental variable: *environmental activist wave* = 1 if same proposal submitted to ≥ 5 companies by same shareholder in same proxy season
    - Results robust if using different thresholds (see Flammer & Bansal (2017) for similar instrument for submission of long-term compensation proposals)
Two-Stage Least Squares (2SLS) Methodology

• **1<sup>st</sup> Stage:**
  - Instrument environmental shareholder activism with “wave” of proposals

  \[
  \text{environmental shareholder activism}_{it} = a_i + a_t + b \times \text{environmental activism wave}_{it} + c'X_{it-1} + e_{it}
  \]

• **2<sup>nd</sup> Stage:**
  - Regress climate risk disclosure on instrumented environmental shareholder activism

  \[
  \text{disclosure of climate change risks}_{it} = \alpha_i + \alpha_t + \beta_{2SLS} \times \text{environmental shareholder activism (instrumented)}_{it-1} + \gamma'X_{it-1} + \epsilon_{it}
  \]

  - In spirit, 2<sup>nd</sup> stage regression is similar to the OLS regression, but using the “exogenous component” of environmental shareholder activism instead of environmental shareholder activism.
1. Introduction
2. Data
3. Methodology
4. Results
5. Conclusion
### Disclosure of Climate Change Risks (OLS)

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Disclosure of climate change risks, $\tau$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental shareholder activism, $\tau - 1$</td>
<td>0.103** (0.045)</td>
</tr>
<tr>
<td>Size, $\tau - 1$</td>
<td>-0.206 (0.280)</td>
</tr>
<tr>
<td></td>
<td>(1.616)</td>
</tr>
<tr>
<td></td>
<td>0.024 (0.021)</td>
</tr>
<tr>
<td></td>
<td>(0.989)</td>
</tr>
<tr>
<td>Cash, $\tau - 1$</td>
<td>1.443 (0.989)</td>
</tr>
</tbody>
</table>

- Climate risk disclosure improves by $0.101/2.2 = 4.6\%$ per proposal.
## Disclosure of Climate Change Risks (2SLS)

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>First stage</th>
<th>Second stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental shareholder activism(_{t-1})</td>
<td>0.911*** (0.113)</td>
<td>0.337*** (0.148)</td>
</tr>
<tr>
<td>Environmental activism wave(_{t-1})</td>
<td>0.913*** (0.109)</td>
<td>0.350*** (0.126)</td>
</tr>
<tr>
<td>Size(_{t-1})</td>
<td>-0.003 (0.083)</td>
<td>-0.196 (0.227)</td>
</tr>
<tr>
<td>ROA(_{t-1})</td>
<td>-0.234 (0.506)</td>
<td>0.553 (1.389)</td>
</tr>
<tr>
<td>Market-to-book(_{t-1})</td>
<td>0.016 (0.016)</td>
<td>0.020 (0.018)</td>
</tr>
<tr>
<td>Leverage(_{t-1})</td>
<td>-0.069 (0.545)</td>
<td>1.020** (0.464)</td>
</tr>
<tr>
<td>Cash(_{t-1})</td>
<td>0.249 (0.717)</td>
<td>1.435* (0.834)</td>
</tr>
<tr>
<td>Firm fixed effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Industry \times year fixed effects</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>F-statistic (instrument)</td>
<td>85.55</td>
<td>91.90</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.47</td>
<td>0.46</td>
</tr>
<tr>
<td># Observations</td>
<td>1,110</td>
<td>1,110</td>
</tr>
<tr>
<td># Firms</td>
<td>265</td>
<td>265</td>
</tr>
</tbody>
</table>
# Robustness Tests

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Disclosure of climate change risks (_t)</th>
<th>Dynamics</th>
<th>Broader ISS sample</th>
<th>Poisson regression</th>
<th>2SLS – Activism wave based on 4+ proposals</th>
<th>2SLS – Activism wave based on 6+ proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental shareholder activism (_{t+1})</td>
<td>-0.002</td>
<td>(0.066)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental shareholder activism (_t)</td>
<td>0.060</td>
<td>(0.064)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental shareholder activism (_{t-1})</td>
<td>0.114**</td>
<td>(0.044)</td>
<td>0.064*</td>
<td>(0.032)</td>
<td>0.043***</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Environmental shareholder activism (_{t-2})</td>
<td>0.050</td>
<td>(0.038)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental shareholder activism (instr.) (_{t-1})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.235***</td>
<td>(0.053)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.331*</td>
<td>(0.195)</td>
</tr>
</tbody>
</table>

Size \(_{t-1}\) | -0.332 | -0.058 | -0.088 | -0.201 | -0.197 |
| | (0.306) | (0.205) | (0.117) | (0.237) | (0.226) |
ROA \(_{t-1}\) | -0.735 | -0.402 | 0.345 | 0.515 | 0.547 |
| | (2.032) | (1.572) | (0.621) | (1.413) | (1.372) |
Market-to-book \(_{t-1}\) | 0.033 | 0.012 | 0.012* | 0.022 | 0.021 |
| | (0.019) | (0.009) | (0.007) | (0.019) | (0.017) |
Leverage \(_{t-1}\) | 0.809 | 0.916 | 0.391* | 1.006** | 1.018** |
| | (0.534) | (0.526) | (0.216) | (0.465) | (0.467) |
Cash \(_{t-1}\) | 1.504 | 0.770 | 0.794* | 1.439* | 1.436* |
| | (0.918) | (0.917) | (0.450) | (0.841) | (0.837) |
Firm fixed effects | Yes | Yes | Yes | Yes | Yes |
Year fixed effects | Yes | Yes | Yes | Yes | Yes |
R-squared | 0.769 | 0.733 | – | 0.751 | 0.751 |
# Observations | 997 | 1,631 | 1,110 | 1,110 | 1,110 |
# Firms | 254 | 346 | 265 | 265 | 265 |
## Types of Climate Change Risk Disclosure

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Disclosure of regulatory climate change risks $\tau$</th>
<th>Disclosure of physical climate change risks $\tau$</th>
<th>Disclosure of other climate change risks $\tau$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental shareholder activism $\tau$</td>
<td>0.028* (0.015)</td>
<td>0.039** (0.014)</td>
<td>0.035* (0.019)</td>
</tr>
<tr>
<td>Size $\tau$</td>
<td>-0.038 (0.102)</td>
<td>-0.100 (0.113)</td>
<td>-0.068 (0.101)</td>
</tr>
<tr>
<td>ROA $\tau$</td>
<td>0.278 (0.541)</td>
<td>0.310 (0.387)</td>
<td>-0.117 (0.759)</td>
</tr>
<tr>
<td>Market-to-book $\tau$</td>
<td>0.011** (0.004)</td>
<td>0.006 (0.008)</td>
<td>0.007 (0.011)</td>
</tr>
<tr>
<td>Leverage $\tau$</td>
<td>0.452* (0.217)</td>
<td>0.262 (0.205)</td>
<td>0.275 (0.231)</td>
</tr>
<tr>
<td>Cash $\tau$</td>
<td>0.399* (0.215)</td>
<td>0.447 (0.345)</td>
<td>0.597 (0.576)</td>
</tr>
<tr>
<td>Firm fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.734</td>
<td>0.742</td>
<td>0.738</td>
</tr>
<tr>
<td># Observations</td>
<td>1,110</td>
<td>1,110</td>
<td>1,110</td>
</tr>
<tr>
<td># Firms</td>
<td>265</td>
<td>265</td>
<td>265</td>
</tr>
</tbody>
</table>
Shareholder Pressure by Shareholder Type (OLS)

<table>
<thead>
<tr>
<th>Environmental shareholder activism by...</th>
<th>Disclosure of climate change risks,(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>non-institutional shareholders,(t-1)</td>
<td>0.062</td>
</tr>
<tr>
<td>institutional shareholders,(t-1)</td>
<td>0.118**</td>
</tr>
<tr>
<td>institutional shareholders with long-term horizon,(t-1)</td>
<td>0.151**</td>
</tr>
<tr>
<td>institutional shareholders with short-term horizon,(t-1)</td>
<td>-0.011</td>
</tr>
<tr>
<td>institutional shareholders with unknown temporal horizon,(t-1)</td>
<td>0.286</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(t-1)</th>
<th>(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>-0.201</td>
</tr>
<tr>
<td>(0.282)</td>
<td>(0.283)</td>
</tr>
<tr>
<td>ROA</td>
<td>0.502</td>
</tr>
<tr>
<td>(1.626)</td>
<td>(1.662)</td>
</tr>
<tr>
<td>Market-to-book</td>
<td>0.024</td>
</tr>
<tr>
<td>(0.021)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Leverage</td>
<td>1.011*</td>
</tr>
<tr>
<td>(0.559)</td>
<td>(0.560)</td>
</tr>
<tr>
<td>Cash</td>
<td>1.450</td>
</tr>
<tr>
<td>(0.999)</td>
<td>(0.975)</td>
</tr>
<tr>
<td>Firm fixed effects</td>
<td>Yes</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.67</td>
</tr>
<tr>
<td># Observations</td>
<td>1,110</td>
</tr>
<tr>
<td># Firms</td>
<td>265</td>
</tr>
</tbody>
</table>
### Shareholder Pressure by Shareholder Type (2SLS)

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Disclosure of climate change risks, t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental shareholder activism by…</td>
<td></td>
</tr>
<tr>
<td>… non-institutional shareholders (instr.), t-1</td>
<td>0.115 (0.120) 0.125 (0.131)</td>
</tr>
<tr>
<td>… institutional shareholders (instr.), t-1</td>
<td>0.203** (0.093)</td>
</tr>
<tr>
<td>… institutional shareholders with long-term horizon (instr.), t-1</td>
<td>0.329*** (0.105)</td>
</tr>
<tr>
<td>… institutional shareholders with short-term horizon (instr.), t-1</td>
<td>-0.290** (0.117)</td>
</tr>
<tr>
<td>… institutional shareholders with unknown temporal horizon (instr.), t-1</td>
<td>-0.100 (0.081)</td>
</tr>
<tr>
<td>Size, t-1</td>
<td>-0.194 (0.236) -0.173 (0.224)</td>
</tr>
<tr>
<td>ROA, t-1</td>
<td>0.545 (1.375) 0.817 (1.399)</td>
</tr>
<tr>
<td>Market-to-book, t-1</td>
<td>0.022 (0.018) 0.021 (0.020)</td>
</tr>
<tr>
<td>Leverage, t-1</td>
<td>1.032* (0.495) 1.120** (0.495)</td>
</tr>
<tr>
<td>Cash, t-1</td>
<td>1.451 (0.850) 1.443* (0.795)</td>
</tr>
<tr>
<td>Firm fixed effects</td>
<td>Yes</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>Yes</td>
</tr>
<tr>
<td>F-statistics (instruments)</td>
<td>32.37</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.67</td>
</tr>
<tr>
<td># Observations</td>
<td>1,110</td>
</tr>
<tr>
<td># Firms</td>
<td>265</td>
</tr>
</tbody>
</table>
### Value Implications

Stock prices increase by **0.92%** to **1.21%** following shareholder-induced disclosure.

<table>
<thead>
<tr>
<th>Window</th>
<th>Market model (1-factor model)</th>
<th>Fama-French (3-factor model)</th>
<th>Fama-French-Momentum (4-factor model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAR</td>
<td>p-value</td>
<td>CAR</td>
</tr>
<tr>
<td>[-50, -11]</td>
<td>0.39%</td>
<td>0.500</td>
<td>-0.26%</td>
</tr>
<tr>
<td>[-10, 10]</td>
<td>1.21%</td>
<td>0.001***</td>
<td>0.92%</td>
</tr>
<tr>
<td>[11, 50]</td>
<td>0.44%</td>
<td>0.399</td>
<td>0.41%</td>
</tr>
</tbody>
</table>
Key Findings & Implications

• Can shareholder activism induce management to voluntarily disclose climate change risks?

   ➢ Yes, it can. Particularly effective if initiated by
     o Institutional investors
     o Long-term institutional investors
   ➢ Increase in valuation for firms that voluntarily disclose climate change risks following environmental shareholder activism
   ➢ Active shareholders can elicit greater climate risk disclosure and hereby improve governance of portfolio companies
Key Findings & Implications

- Implications for practice:
  - In absence of mandatory disclosure requirements, this *greater ability implies greater responsibility* of investors—particularly of long-term institutional investors—to be *active owners* and engage with management to elicit greater climate risk disclosure.
  
  - **Caution**: While private governance is effective in eliciting greater climate risk disclosure, it is *unlikely a substitute for public governance* (see also Ho, 2018; Light & Orts, 2015; Vandenbergh, 2013).
    - Public governance likely more effective in:
      - Improving quantity and quality of disclosure
      - Fostering standardization of disclosure
      - Ultimately achieving progress in fight against climate change
  
  - Long-term institutional investors may find it worthwhile to *pursue both shareholder activism* and *engage with government* to impose mandatory climate change risk disclosure.
Thank You!

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