

# **Institutional Investors' Views and Preferences on Climate Risk Disclosure**

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# Importance of Climate Risk Disclosures

- Financial market efficiency relies on timely and accurate information regarding firms' risk exposures.
- An increasingly important risk exposure is related to climate change. (Litterman 2016; Krueger, Sautner, and Starks 2019)
  - \* Natural disasters.
  - \* Government regulation.
  - \* Technological risks.
- Many regulators and investors argue that **climate risk disclosure** is currently **insufficient**.

# Importance of Climate Risk Disclosures



Mark Carney, Governor of Bank of England, called for more to be done *to develop consistent, comparable, reliable and clear disclosure around the carbon intensity of different assets.*

Anne Stausboll, former CEO of CalPERS, argued that *consistent and comparable corporate disclosure of material climate issues is critical [and] investors require better climate disclosure.*



# Importance of Climate Risk Disclosures

Mark Carney, Governor of Bank

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and *clear*  
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Elizabeth Warren

@SenWarren

The Climate Risk Disclosure Act will help investors determine climate-related risks, encourage markets to transition from fossil fuels to cleaner energy sources, & reduce the risks of an environmental and financial catastrophe – all without spending a dime of taxpayer money.

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*material climate issues is  
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# Investor's Views on Climate Risk Disclosures

- Addressing shortcomings in current disclosures takes many different forms:
  - \* Task Force on Climate-related Financial Disclosures.
  - \* CDP on behalf of investor signatories.
  - \* Mandatory disclosure of CO<sub>2</sub> emissions in the U.K. since 2013.
  - \* France requires institutional investors to report carbon footprints of their portfolios since 2016.
- Little systematic evidence exists on how institutional investors view climate risk disclosures.
- Theoretically ambiguous what importance/value investors attribute to climate risk reporting.

# Investor's Views on Climate Risk Disclosures

- Reporting on nonfinancial information can have benefits and costs. (Christensen, Hail, and Leuz 2019)
  - + Improve stock liquidity (Verrecchia 2001).
  - + Reduce cost of capital (Plumlee et al. 2015, Matsumura et al. 2018).
  - + May allow for better pricing and hedging of climate risks.
  - Disclosure may reveal sensitive information to competitors (Ellis et al. 2012).
  - Detailed information may be costly to produce.
  - Reputational costs.
- We directly survey institutional investors about their views and preferences about climate-related disclosures.

# Survey Development and Delivery

- An online and a paper version of the survey through 4 delivery channels, total of 439 responses.
  1. Paper version at four institutional investor conferences: 72 responses
  2. Online version to 1,108 individuals in senior functions at institutions: 320 responses
  3. Emailed invitations to institutional investors that cooperate with a major asset owner through CERES and IIGCC on climate risk topics: 28 responses
  4. Personal contacts at different institutional investors: 19 responses
- Caveat: Potentially biased towards investors with more sophisticated climate-risk policies are larger.
- But they are more likely to shape corporate climate policies, guide future policies and practices.

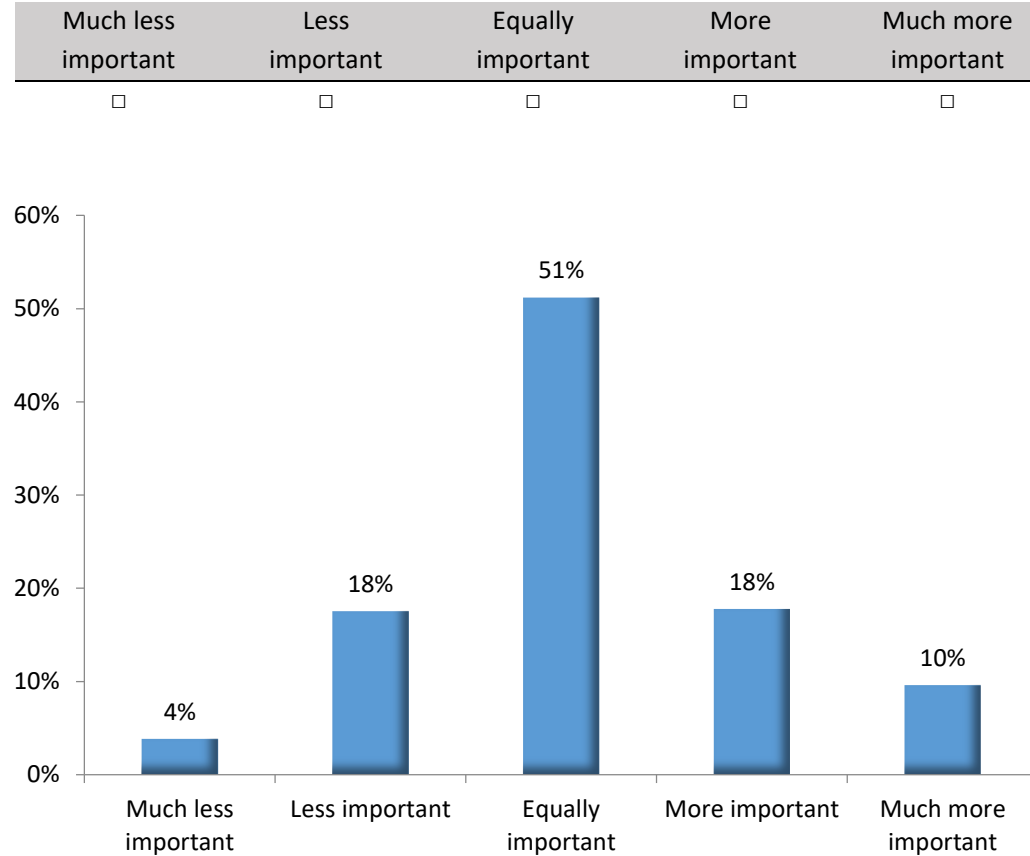
# Respondent Characteristics

| Respondent Position (N=428)         | Percentage | Investor horizon (N=432)      | Percentage |
|-------------------------------------|------------|-------------------------------|------------|
| Fund/Portfolio manager              | 21         | Short (less than 6 months)    | 5          |
| Executive/Managing director         | 18         | Medium (6 months to 2 years)  | 38         |
| Investment analyst/strategist       | 16         | Long (2 years to 5 years)     | 38         |
| CIO                                 | 11         | Very long (more than 5 years) | 18         |
| CEO                                 | 10         | Region (N=429)                | Percentage |
| CFO/COO/Chairman/Other executive    | 10         | United States                 | 32         |
| ESG/RI specialist                   | 10         | United Kingdom                | 17         |
| Other                               | 2          | Canada                        | 12         |
| Institutional investor type (N=439) | Percentage | Germany                       | 11         |
| Asset manager                       | 23         | Italy                         | 7          |
| Bank                                | 22         | Spain                         | 5          |
| Pension fund                        | 17         | The Netherlands               | 4          |
| Insurance company                   | 15         | France                        | 3          |
| Mutual fund                         | 8          | Others (<3%)                  | 9          |
| Other institution                   | 15         | Investment structure          | Mean       |
| Assets under management (N=430)     | Percentage | ESG share (N=415)             | 40.6%      |
| Less than \$1bn                     | 19         | Equity share (N=400)          | 47.00%     |
| Between \$1bn and \$20bn            | 32         | Fixed-income share (N=402)    | 43.10%     |
| Between \$20bn and \$50bn           | 23         | Passive share (N=419)         | 38.20%     |
| Between \$50bn and \$100bn          | 16         |                               |            |
| More than \$100bn                   | 11         |                               |            |



# Importance of Climate Risk Reporting

**B1: How important do you consider reporting by portfolio firms on climate risk compared to reporting on financial information?**



# Importance of Climate Risk Reporting

Ranking of climate risk considerations when making investment decisions relative to:

- Financial risk
- Operating risk
- Governance risk
- Social risk
- Other environmental risk (pollution, recycling, etc.)

|                                     | Importance climate risk disclosure |                   |                   |                   |                   |
|-------------------------------------|------------------------------------|-------------------|-------------------|-------------------|-------------------|
|                                     | (1)                                | (2)               | (3)               | (4)               | (5)               |
| <i>Climate risk ranking</i>         | -0.30***<br>(-4.37)                |                   |                   |                   |                   |
| <i>Regulatory climate risk</i>      |                                    | 0.30***<br>(4.05) |                   |                   |                   |
| <i>Physical climate risk</i>        |                                    |                   | 0.71***<br>(6.58) |                   |                   |
| <i>Technological climate risk</i>   |                                    |                   |                   | 0.53***<br>(6.57) |                   |
| <i>Temperature rise expectation</i> |                                    |                   |                   |                   | 0.34***<br>(2.93) |
| <i>Medium horizon</i>               | -0.22<br>(-0.52)                   | -0.11<br>(-0.21)  | -0.2<br>(-0.33)   | -0.2<br>(-0.48)   | 0.08<br>(0.16)    |
| <i>Long horizon</i>                 | -0.1<br>(-0.20)                    | -0.14<br>(-0.23)  | -0.37<br>(-0.50)  | -0.22<br>(-0.36)  | -0.03<br>(-0.05)  |
| <i>Assets under management</i>      | 0.21***<br>(2.70)                  | 0.23**<br>(2.41)  | 0.18*<br>(1.93)   | 0.23**<br>(2.52)  | 0.25**<br>(2.43)  |
| <i>ESG share (x100)</i>             | 0.83<br>(1.54)                     | 0.88*<br>(1.80)   | 0.66<br>(1.56)    | 0.7<br>(1.56)     | 0.98**<br>(2.37)  |
| <i>Passive share (x100)</i>         | -0.01<br>(-0.03)                   | 0.07<br>(0.18)    | -0.11<br>(-0.24)  | 0.01<br>(0.03)    | -0.22<br>(-0.49)  |
| <i>Independent Institution</i>      | -0.05<br>(-0.17)                   | -0.15<br>(-0.62)  | -0.07<br>(-0.29)  | -0.19<br>(-0.81)  | 0.01<br>(0.04)    |
| <i>HQ Country Norms</i>             | 1.28<br>(1.34)                     | 1.59<br>(1.50)    | 2.48***<br>(3.14) | 2.12**<br>(2.16)  | 1.46<br>(1.00)    |
| Respondent Position FE              | Yes                                | Yes               | Yes               | Yes               | Yes               |
| Distribution Channel FE             | Yes                                | Yes               | Yes               | Yes               | Yes               |
| Obs.                                | 361                                | 370               | 370               | 370               | 326               |
| Pseudo R <sup>2</sup>               | 0.06                               | 0.05              | 0.09              | 0.07              | 0.05              |

# Importance of Climate Risk Reporting

|                                     | <i>Importance climate risk disclosure</i> |                   |                   |                   |                   |
|-------------------------------------|-------------------------------------------|-------------------|-------------------|-------------------|-------------------|
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| <i>Long horizon</i>                 | -0.1<br>(-0.20)                           | -0.14<br>(-0.23)  | -0.37<br>(-0.50)  | -0.22<br>(-0.36)  | -0.03<br>(-0.05)  |
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| Pseudo R <sup>2</sup>               | 0.06                                      | 0.05              | 0.09              | 0.07              | 0.05              |

Financial materiality of 3 components of climate risks.

# Importance of Climate Risk Reporting

|                                     | <i>Importance climate risk disclosure</i> |                   |                   |                   |                   |
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Investigate how climate change expectations help explain the importance of climate risk reporting.

# Importance of Climate Risk Reporting

Perhaps surprisingly, we do not find that investor horizon matters for the perception of the importance of climate risk reporting.

Investors with more AUM believe climate risk reporting to be more important.

More *ESG-oriented* investors and investors *from more climate-conscious countries* generally regard climate risk reporting as more important.

|                                     | <i>Importance climate risk disclosure</i> |                   |                   |                   |                   |
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# Investors' Views on Current Disclosure Practice

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|                                  |                                                                                             | % with 5 ("strongly agree") score | Mean score |
|----------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------|------------|
| Views on climate risk disclosure |                                                                                             | (1)                               | (2)        |
| (1)                              | Management discussions on climate risk are not sufficiently precise                         | 20.8%                             | 3.78       |
| (2)                              | Firm-level quantitative information on climate risk is not sufficiently precise             | 19.4%                             | 3.77       |
| (3)                              | Standardized and mandatory reporting on climate risk is necessary                           | 26.9%                             | 3.91       |
| (4)                              | There should be more standardization across markets in climate-related financial disclosure | 27.4%                             | 3.92       |
| (5)                              | Standardized disclosure tools and guidelines are currently not available                    | 21.3%                             | 3.64       |
| (6)                              | Mandatory disclosure forms are not sufficiently informative regarding climate risk          | 17.8%                             | 3.70       |
| (7)                              | Investors should demand that portfolio firms disclose their exposure to climate risk        | 27.6%                             | 3.90       |

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# Investors' Views on Current Disclosure Practice

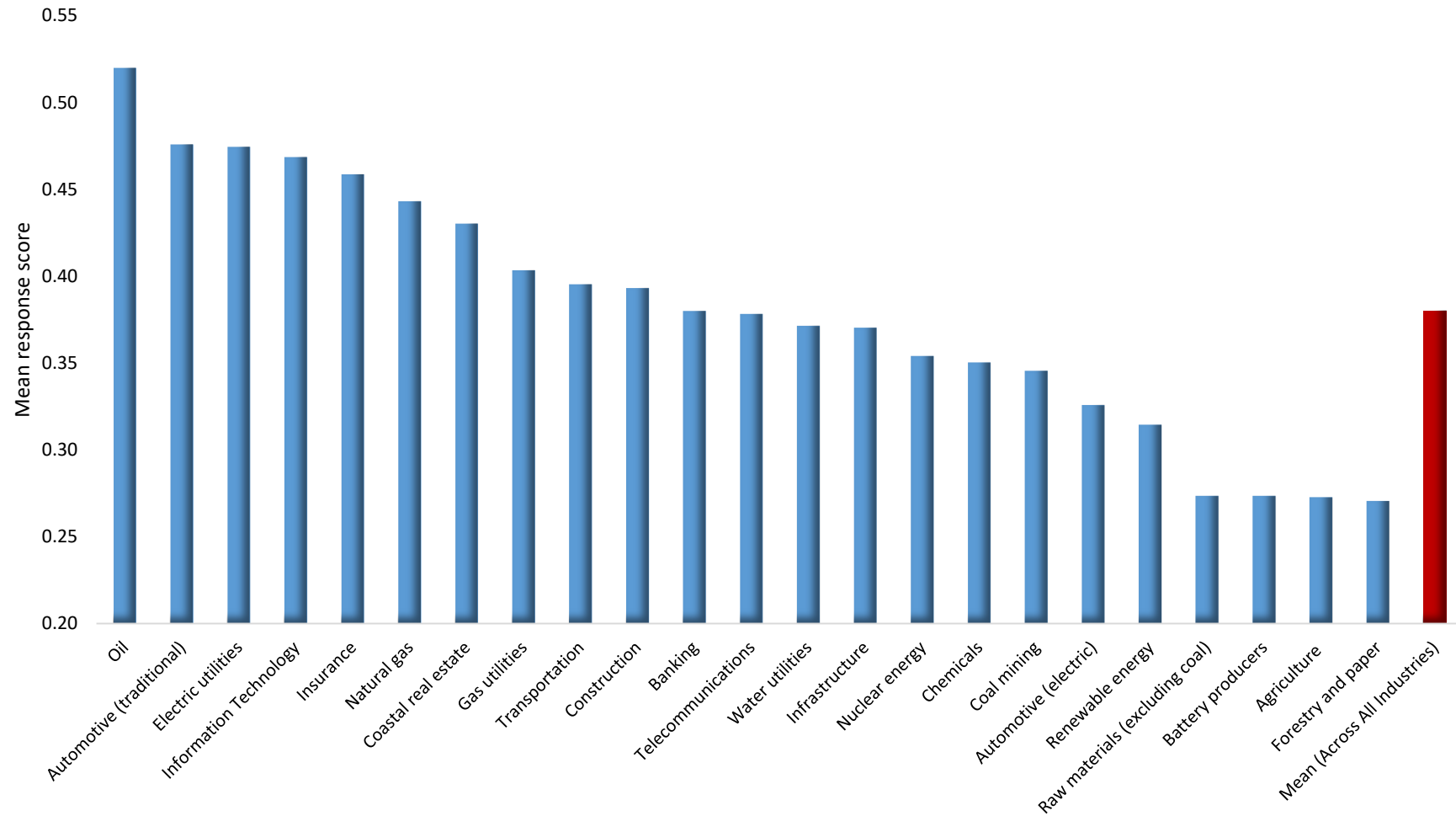
|                                   | <i>Management discussions imprecise</i> | <i>Quant. information imprecise</i> | <i>Stand. and mandatory reporting necessary</i> | <i>More standardization</i> | <i>Disclosure tools not available</i> | <i>Disclosure forms not informative</i> | <i>Demand more disclosure</i> |
|-----------------------------------|-----------------------------------------|-------------------------------------|-------------------------------------------------|-----------------------------|---------------------------------------|-----------------------------------------|-------------------------------|
|                                   | (1)                                     | (2)                                 | (3)                                             | (4)                         | (5)                                   | (6)                                     | (7)                           |
| → <i>Climate risk materiality</i> | 0.65**<br>(2.34)                        | 0.47**<br>(2.28)                    | 0.55***<br>(3.73)                               | 0.81***<br>(3.98)           | 0.59*<br>(1.90)                       | 0.51***<br>(2.60)                       | 0.90***<br>(3.88)             |
| <i>Medium horizon</i>             | 0.83<br>(0.95)                          | -0.37<br>(-0.46)                    | 0.64<br>(0.79)                                  | 0.14<br>(0.15)              | 0.58<br>(0.84)                        | -0.58<br>(-0.83)                        | -0.65<br>(-0.72)              |
| <i>Long horizon</i>               | 1.08<br>(1.26)                          | 0.12<br>(0.16)                      | 0.75<br>(1.00)                                  | 0.18<br>(0.34)              | 0.57<br>(1.04)                        | -0.69<br>(-0.88)                        | -0.99<br>(-1.20)              |
| <i>Assets under management</i>    | 0.11<br>(1.20)                          | 0.02<br>(0.16)                      | -0.13<br>(-1.44)                                | -0.08<br>(-0.85)            | 0.23*<br>(1.81)                       | 0.15***<br>(3.46)                       | -0.04<br>(-0.94)              |
| → <i>ESG share (x100)</i>         | 1.67***<br>(3.73)                       | 1.01**<br>(2.14)                    | 1.47***<br>(3.15)                               | 0.45<br>(0.96)              | 1.19**<br>(2.21)                      | 1.14***<br>(2.78)                       | 0.32<br>(0.52)                |
| <i>Passive share (x100)</i>       | -0.46<br>(-0.71)                        | 0.41<br>(1.04)                      | 0.67<br>(1.01)                                  | -0.00<br>(-0.01)            | 0.63<br>(1.32)                        | -0.65<br>(-0.99)                        | 0.80<br>(1.26)                |
| <i>Independent institution</i>    | 0.29<br>(0.51)                          | 0.11<br>(0.35)                      | -0.30<br>(-1.55)                                | -0.42<br>(-1.25)            | 0.53**<br>(2.20)                      | 0.33<br>(1.23)                          | -0.14<br>(-1.04)              |
| <i>HQ Country Norms</i>           | 2.49<br>(1.38)                          | -1.38<br>(-0.82)                    | -0.16<br>(-0.12)                                | -0.80<br>(-0.53)            | 0.55<br>(0.32)                        | 0.35<br>(0.20)                          | 0.06<br>(0.04)                |
| Respondent Position FE            | Yes                                     | Yes                                 | Yes                                             | Yes                         | Yes                                   | Yes                                     | Yes                           |
| Distribution Channel FE           | Yes                                     | Yes                                 | Yes                                             | Yes                         | Yes                                   | Yes                                     | Yes                           |
| Obs.                              | 369                                     | 369                                 | 369                                             | 369                         | 369                                   | 369                                     | 369                           |
| Pseudo R <sup>2</sup>             | 0.13                                    | 0.09                                | 0.11                                            | 0.11                        | 0.10                                  | 0.11                                    | 0.15                          |

# Investors' Views on Climate Risk Mispricing

- An important role for climate risk disclosure is in correcting potential mispricing that may be present in the equity markets.
- Hong, Li, and Xu (2019) document that markets underreact to climate-related risks and argue for the value of more climate risk disclosures to mitigate this.
  - \* Lack of disclosure leads to inefficient markets.
- Daniel, Litterman, and Wagner (2017) develop a model in which uncertainty about the effect of CO<sub>2</sub> emissions on temperature rise is resolved over time.
  - \* Climate risk disclosures can help remove these uncertainties.
- We ask investors whether they believe current equity valuations correctly reflect risks related to climate change.



# Investors' Views on Climate Risk Mispricing



# Investors' Views on Climate Risk Mispricing

*Demand more disclosure* is 1 when investors believe there is a lack of disclosure related to climate risks.

|                                           | <i>Climate risk underpricing</i> |                   |                   | <i>Climate risk mispricing</i> |                   |                    |
|-------------------------------------------|----------------------------------|-------------------|-------------------|--------------------------------|-------------------|--------------------|
|                                           | Average across all sectors       |                   |                   | Average across all sectors     |                   |                    |
|                                           | (1)                              | (2)               | (3)               | (4)                            | (5)               | (6)                |
| <i>Demand more disclosure</i>             | 0.20***<br>(4.29)                |                   |                   | 0.16***<br>(3.28)              |                   |                    |
| <i>Quantitative information imprecise</i> |                                  | 0.24**<br>(2.84)  |                   |                                | 0.24***<br>(4.79) |                    |
| <i>Management discussions imprecise</i>   |                                  |                   | 0.22***<br>(3.53) |                                |                   | 0.19***<br>(3.98)  |
| <i>Climate risk materiality</i>           | -0.01<br>(-0.43)                 | -0.01<br>(-0.14)  | -0.01<br>(-0.16)  | 0.02<br>(0.73)                 | 0.02<br>(0.64)    | 0.02<br>(0.70)     |
| <i>Medium horizon</i>                     | -0.03<br>(-0.27)                 | -0.04<br>(-0.30)  | -0.07<br>(-0.54)  | 0.01<br>(0.12)                 | 0.01<br>(0.06)    | -0.02<br>(-0.15)   |
| <i>Long horizon</i>                       | -0.00<br>(-0.04)                 | -0.04<br>(-0.39)  | -0.06<br>(-0.54)  | 0.03<br>(0.28)                 | -0.01<br>(-0.05)  | -0.02<br>(-0.18)   |
| <i>Assets under management</i>            | 0.03<br>(1.59)                   | 0.03<br>(1.34)    | 0.03<br>(1.36)    | 0.00<br>(0.06)                 | 0.00<br>(0.00)    | -0.00<br>(-0.17)   |
| <i>ESG share (x100)</i>                   | 0.29***<br>(3.60)                | 0.28***<br>(3.09) | 0.26**<br>(2.48)  | 0.19***<br>(3.01)              | 0.18**<br>(2.52)  | 0.16*<br>(2.03)    |
| <i>Passive share (x100)</i>               | -0.02<br>(-0.21)                 | -0.00<br>(-0.05)  | 0.01<br>(0.08)    | -0.05<br>(-0.49)               | -0.03<br>(-0.34)  | -0.02<br>(-0.18)   |
| <i>Independent institution</i>            | -0.03<br>(-0.47)                 | -0.04<br>(-0.58)  | -0.05<br>(-0.82)  | -0.03<br>(-0.49)               | -0.04<br>(-0.59)  | -0.04<br>(-0.82)   |
| <i>HQ Country Norms</i>                   | -0.20<br>(-1.63)                 | -0.16*<br>(-1.82) | -0.29*<br>(-2.10) | -0.30*<br>(-2.11)              | -0.26<br>(-1.68)  | -0.37**<br>(-2.25) |
| Respondent Position FE                    | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Distribution Channel FE                   | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Obs.                                      | 343                              | 343               | 343               | 343                            | 343               | 343                |
| Adjusted R <sup>2</sup>                   | 0.06                             | 0.07              | 0.06              | 0.03                           | 0.05              | 0.03               |

# Investors' Views on Climate Risk Mispricing

*Demand more disclosure* is 1 when investors believe there is a lack of disclosure related to climate risks.

*Quant. Information imprecise* is 1 when investors believe the quantitative information is of poor quality.

|                                           | <i>Climate risk underpricing</i> |                   |                   | <i>Climate risk mispricing</i> |                   |                    |
|-------------------------------------------|----------------------------------|-------------------|-------------------|--------------------------------|-------------------|--------------------|
|                                           | Average across all sectors       |                   |                   | Average across all sectors     |                   |                    |
|                                           | (1)                              | (2)               | (3)               | (4)                            | (5)               | (6)                |
| <i>Demand more disclosure</i>             | 0.20***<br>(4.29)                |                   |                   | 0.16***<br>(3.28)              |                   |                    |
| <i>Quantitative information imprecise</i> |                                  | 0.24**<br>(2.84)  |                   |                                | 0.24***<br>(4.79) |                    |
| <i>Management discussions imprecise</i>   |                                  |                   | 0.22***<br>(3.53) |                                |                   | 0.19***<br>(3.98)  |
| <i>Climate risk materiality</i>           | -0.01<br>(-0.43)                 | -0.01<br>(-0.14)  | -0.01<br>(-0.16)  | 0.02<br>(0.73)                 | 0.02<br>(0.64)    | 0.02<br>(0.70)     |
| <i>Medium horizon</i>                     | -0.03<br>(-0.27)                 | -0.04<br>(-0.30)  | -0.07<br>(-0.54)  | 0.01<br>(0.12)                 | 0.01<br>(0.06)    | -0.02<br>(-0.15)   |
| <i>Long horizon</i>                       | -0.00<br>(-0.04)                 | -0.04<br>(-0.39)  | -0.06<br>(-0.54)  | 0.03<br>(0.28)                 | -0.01<br>(-0.05)  | -0.02<br>(-0.18)   |
| <i>Assets under management</i>            | 0.03<br>(1.59)                   | 0.03<br>(1.34)    | 0.03<br>(1.36)    | 0.00<br>(0.06)                 | 0.00<br>(0.00)    | -0.00<br>(-0.17)   |
| <i>ESG share (x100)</i>                   | 0.29***<br>(3.60)                | 0.28***<br>(3.09) | 0.26**<br>(2.48)  | 0.19***<br>(3.01)              | 0.18**<br>(2.52)  | 0.16*<br>(2.03)    |
| <i>Passive share (x100)</i>               | -0.02<br>(-0.21)                 | -0.00<br>(-0.05)  | 0.01<br>(0.08)    | -0.05<br>(-0.49)               | -0.03<br>(-0.34)  | -0.02<br>(-0.18)   |
| <i>Independent institution</i>            | -0.03<br>(-0.47)                 | -0.04<br>(-0.58)  | -0.05<br>(-0.82)  | -0.03<br>(-0.49)               | -0.04<br>(-0.59)  | -0.04<br>(-0.82)   |
| <i>HQ Country Norms</i>                   | -0.20<br>(-1.63)                 | -0.16*<br>(-1.82) | -0.29*<br>(-2.10) | -0.30*<br>(-2.11)              | -0.26<br>(-1.68)  | -0.37**<br>(-2.25) |
| Respondent Position FE                    | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Distribution Channel FE                   | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Obs.                                      | 343                              | 343               | 343               | 343                            | 343               | 343                |
| Adjusted R <sup>2</sup>                   | 0.06                             | 0.07              | 0.06              | 0.03                           | 0.05              | 0.03               |

# Investors' Views on Climate Risk Mispricing

*Demand more disclosure* is 1 when investors believe there is a lack of disclosure related to climate risks.

*Quant. Information imprecise* is 1 when investors believe the quantitative information is of poor quality.

*Management discussions imprecise* is 1 when investors believe soft information related to climate risks are lacking.

|                                           | <i>Climate risk underpricing</i> |                   |                   | <i>Climate risk mispricing</i> |                   |                    |
|-------------------------------------------|----------------------------------|-------------------|-------------------|--------------------------------|-------------------|--------------------|
|                                           | Average across all sectors       |                   |                   | Average across all sectors     |                   |                    |
|                                           | (1)                              | (2)               | (3)               | (4)                            | (5)               | (6)                |
| <i>Demand more disclosure</i>             | 0.20***<br>(4.29)                |                   |                   | 0.16***<br>(3.28)              |                   |                    |
| <i>Quantitative information imprecise</i> |                                  | 0.24**<br>(2.84)  |                   |                                | 0.24***<br>(4.79) |                    |
| <i>Management discussions imprecise</i>   |                                  |                   | 0.22***<br>(3.53) |                                |                   | 0.19***<br>(3.98)  |
| <i>Climate risk materiality</i>           | -0.01<br>(-0.43)                 | -0.01<br>(-0.14)  | -0.01<br>(-0.16)  | 0.02<br>(0.73)                 | 0.02<br>(0.64)    | 0.02<br>(0.70)     |
| <i>Medium horizon</i>                     | -0.03<br>(-0.27)                 | -0.04<br>(-0.30)  | -0.07<br>(-0.54)  | 0.01<br>(0.12)                 | 0.01<br>(0.06)    | -0.02<br>(-0.15)   |
| <i>Long horizon</i>                       | -0.00<br>(-0.04)                 | -0.04<br>(-0.39)  | -0.06<br>(-0.54)  | 0.03<br>(0.28)                 | -0.01<br>(-0.05)  | -0.02<br>(-0.18)   |
| <i>Assets under management</i>            | 0.03<br>(1.59)                   | 0.03<br>(1.34)    | 0.03<br>(1.36)    | 0.00<br>(0.06)                 | 0.00<br>(0.00)    | -0.00<br>(-0.17)   |
| <i>ESG share (x100)</i>                   | 0.29***<br>(3.60)                | 0.28***<br>(3.09) | 0.26**<br>(2.48)  | 0.19***<br>(3.01)              | 0.18**<br>(2.52)  | 0.16*<br>(2.03)    |
| <i>Passive share (x100)</i>               | -0.02<br>(-0.21)                 | -0.00<br>(-0.05)  | 0.01<br>(0.08)    | -0.05<br>(-0.49)               | -0.03<br>(-0.34)  | -0.02<br>(-0.18)   |
| <i>Independent institution</i>            | -0.03<br>(-0.47)                 | -0.04<br>(-0.58)  | -0.05<br>(-0.82)  | -0.03<br>(-0.49)               | -0.04<br>(-0.59)  | -0.04<br>(-0.82)   |
| <i>HQ Country Norms</i>                   | -0.20<br>(-1.63)                 | -0.16*<br>(-1.82) | -0.29*<br>(-2.10) | -0.30*<br>(-2.11)              | -0.26<br>(-1.68)  | -0.37**<br>(-2.25) |
| Respondent Position FE                    | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Distribution Channel FE                   | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Obs.                                      | 343                              | 343               | 343               | 343                            | 343               | 343                |
| Adjusted R <sup>2</sup>                   | 0.06                             | 0.07              | 0.06              | 0.03                           | 0.05              | 0.03               |

# Investors' Views on Climate Risk Mispricing

*Demand more disclosure* is 1 when investors believe there is a lack of disclosure related to climate risks.

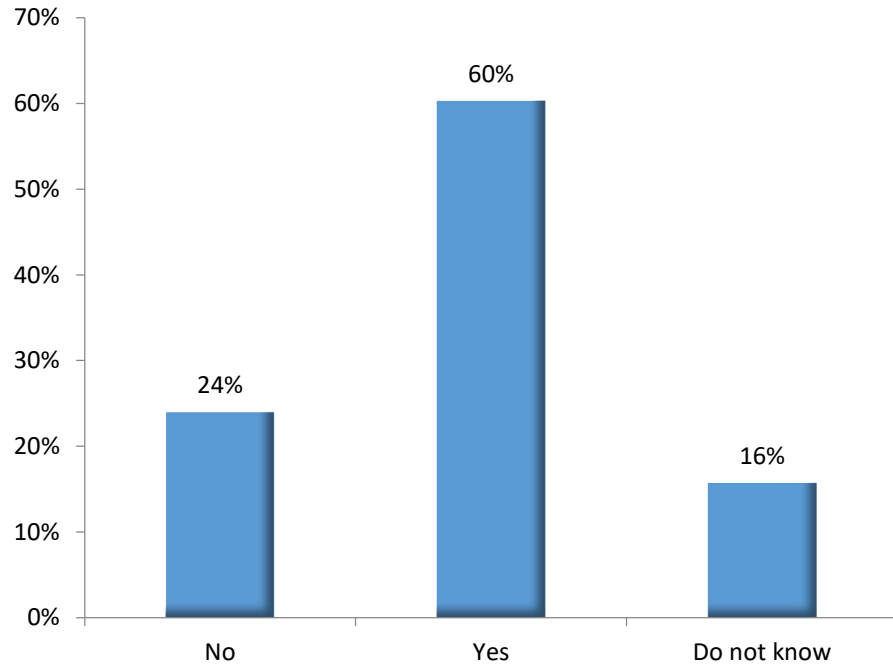
*Quant. Information imprecise* is 1 when investors believe the quantitative information is of poor quality.

*Management discussions imprecise* is 1 when investors believe soft information related to climate risks are lacking.

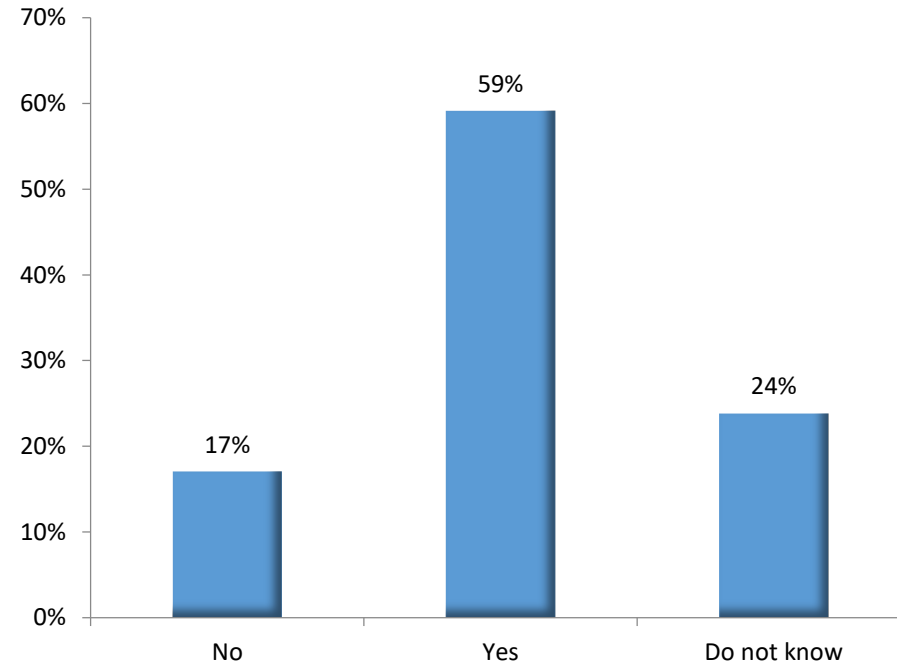
|                                           | <i>Climate risk underpricing</i> |                   |                   | <i>Climate risk mispricing</i> |                   |                    |
|-------------------------------------------|----------------------------------|-------------------|-------------------|--------------------------------|-------------------|--------------------|
|                                           | Average across all sectors       |                   |                   | Average across all sectors     |                   |                    |
|                                           | (1)                              | (2)               | (3)               | (4)                            | (5)               | (6)                |
| <i>Demand more disclosure</i>             | 0.20***<br>(4.29)                |                   |                   | 0.16***<br>(3.28)              |                   |                    |
| <i>Quantitative information imprecise</i> |                                  | 0.24**<br>(2.84)  |                   |                                | 0.24***<br>(4.79) |                    |
| <i>Management discussions imprecise</i>   |                                  |                   | 0.22***<br>(3.53) |                                |                   | 0.19***<br>(3.98)  |
| <i>Climate risk materiality</i>           | -0.01<br>(-0.43)                 | -0.01<br>(-0.14)  | -0.01<br>(-0.16)  | 0.02<br>(0.73)                 | 0.02<br>(0.64)    | 0.02<br>(0.70)     |
| <i>Medium horizon</i>                     | -0.03<br>(-0.27)                 | -0.04<br>(-0.30)  | -0.07<br>(-0.54)  | 0.01<br>(0.12)                 | 0.01<br>(0.06)    | -0.02<br>(-0.15)   |
| <i>Long horizon</i>                       | -0.00<br>(-0.04)                 | -0.04<br>(-0.39)  | -0.06<br>(-0.54)  | 0.03<br>(0.28)                 | -0.01<br>(-0.05)  | -0.02<br>(-0.18)   |
| <i>Assets under management</i>            | 0.03<br>(1.59)                   | 0.03<br>(1.34)    | 0.03<br>(1.36)    | 0.00<br>(0.06)                 | 0.00<br>(0.00)    | -0.00<br>(-0.17)   |
| <i>ESG share (x100)</i>                   | 0.29***<br>(3.60)                | 0.28***<br>(3.09) | 0.26**<br>(2.48)  | 0.19***<br>(3.01)              | 0.18**<br>(2.52)  | 0.16*<br>(2.03)    |
| <i>Passive share (x100)</i>               | -0.02<br>(-0.21)                 | -0.00<br>(-0.05)  | 0.01<br>(0.08)    | -0.05<br>(-0.49)               | -0.03<br>(-0.34)  | -0.02<br>(-0.18)   |
| <i>Independent institution</i>            | -0.03<br>(-0.47)                 | -0.04<br>(-0.58)  | -0.05<br>(-0.82)  | -0.03<br>(-0.49)               | -0.04<br>(-0.59)  | -0.04<br>(-0.82)   |
| <i>HQ Country Norms</i>                   | -0.20<br>(-1.63)                 | -0.16*<br>(-1.82) | -0.29*<br>(-2.10) | -0.30*<br>(-2.11)              | -0.26<br>(-1.68)  | -0.37**<br>(-2.25) |
| Respondent Position FE                    | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Distribution Channel FE                   | Yes                              | Yes               | Yes               | Yes                            | Yes               | Yes                |
| Obs.                                      | 343                              | 343               | 343               | 343                            | 343               | 343                |
| Adjusted R <sup>2</sup>                   | 0.06                             | 0.07              | 0.06              | 0.03                           | 0.05              | 0.03               |

# Investors' Views on Recent Trends

- We asked investors whether:
  - \* They disclose or plan to disclose the carbon footprints of their portfolios (as mandated in France by Article 173 since 2016).



- \* They plan to engage or plan to engage portfolio firms to report according to the recommendations of TCFD.



# Investors' Views on Recent Trends

Investors who believe climate risks are more material are more likely to take the matter in their own hands.

|                                 | <i>Carbon footprint</i> | <i>TCFD</i>       |
|---------------------------------|-------------------------|-------------------|
|                                 | (1)                     | (2)               |
| <i>Climate risk materiality</i> | 0.31***<br>(3.71)       | 0.23*<br>(1.69)   |
| <i>Medium horizon</i>           | -0.72*<br>(-1.87)       | -0.21<br>(-0.44)  |
| <i>Long horizon</i>             | -1.03*<br>(-1.79)       | -0.24<br>(-0.61)  |
| <i>Assets under management</i>  | 0.28*<br>(1.73)         | 0.04<br>(0.23)    |
| <i>ESG share (x100)</i>         | 1.07***<br>(2.81)       | 2.36***<br>(2.95) |
| <i>Passive share (x100)</i>     | 1.00<br>(0.95)          | 0.23<br>(0.46)    |
| <i>Independent Institution</i>  | 0.29<br>(1.15)          | -0.08<br>(-0.35)  |
| <i>HQ Country Norms</i>         | 0.62<br>(0.36)          | 6.75***<br>(4.81) |
| Respondent Position FE          | Yes                     | Yes               |
| Distribution Channel FE         | Yes                     | Yes               |
| Obs.                            | 306                     | 275               |
| Pseudo R <sup>2</sup>           | 0.07                    | 0.11              |

# Investors' Views on Recent Trends

Investors who believe climate risks are more material are more likely to take the matter in their own hands.

Larger and more ESG-oriented investors are more likely to disclose carbon footprints and engage portfolio firms.

|                                 | <i>Carbon footprint</i> | <i>TCFD</i>       |
|---------------------------------|-------------------------|-------------------|
|                                 | (1)                     | (2)               |
| <i>Climate risk materiality</i> | 0.31***<br>(3.71)       | 0.23*<br>(1.69)   |
| <i>Medium horizon</i>           | -0.72*<br>(-1.87)       | -0.21<br>(-0.44)  |
| <i>Long horizon</i>             | -1.03*<br>(-1.79)       | -0.24<br>(-0.61)  |
| <i>Assets under management</i>  | 0.28*<br>(1.73)         | 0.04<br>(0.23)    |
| <i>ESG share (x100)</i>         | 1.07***<br>(2.81)       | 2.36***<br>(2.95) |
| <i>Passive share (x100)</i>     | 1.00<br>(0.95)          | 0.23<br>(0.46)    |
| <i>Independent Institution</i>  | 0.29<br>(1.15)          | -0.08<br>(-0.35)  |
| <i>HQ Country Norms</i>         | 0.62<br>(0.36)          | 6.75***<br>(4.81) |
| Respondent Position FE          | Yes                     | Yes               |
| Distribution Channel FE         | Yes                     | Yes               |
| Obs.                            | 306                     | 275               |
| Pseudo R <sup>2</sup>           | 0.07                    | 0.11              |



# Investors' Views on Recent Trends

Investors who believe climate risks are more material are more likely to take the matter in their own hands.

Larger and more ESG-oriented investors are more likely to disclose carbon footprints and engage portfolio firms.

|                                 | <i>Carbon footprint</i> | <i>TCFD</i>       |
|---------------------------------|-------------------------|-------------------|
|                                 | (1)                     | (2)               |
| <i>Climate risk materiality</i> | 0.31***<br>(3.71)       | 0.23*<br>(1.69)   |
| <i>Medium horizon</i>           | -0.72*<br>(-1.87)       | -0.21<br>(-0.44)  |
| <i>Long horizon</i>             | -1.03*<br>(-1.79)       | -0.24<br>(-0.61)  |
| <i>Assets under management</i>  | 0.28*<br>(1.73)         | 0.04<br>(0.23)    |
| <i>ESG share (x100)</i>         | 1.07***<br>(2.81)       | 2.36***<br>(2.95) |
| <i>Passive share (x100)</i>     | 1.00<br>(0.95)          | 0.23<br>(0.46)    |
| <i>Independent Institution</i>  | 0.29<br>(1.15)          | -0.08<br>(-0.35)  |
| <i>HQ Country Norms</i>         | 0.62<br>(0.36)          | 6.75***<br>(4.81) |
| Respondent Position FE          | Yes                     | Yes               |
| Distribution Channel FE         | Yes                     | Yes               |
| Obs.                            | 306                     | 275               |
| Pseudo R <sup>2</sup>           | 0.07                    | 0.11              |

Perhaps surprisingly, investors with longer horizons are less likely to disclose carbon footprints.

# Conclusion

- A large majority of institutional investors believes that climate risk reporting is important and financially material.
- Investors view disclosure to be more important for assessing physical and technological risks, and less so for regulatory risks.
- A wide-spread belief that climate risk disclosure is of poor quality both in quantitative and qualitative forms.
- Many investors see mispricing of climate risks, especially when they find climate risk disclosures insufficient.
- Most investors plan to engage portfolio firms to follow TCFD recommendations in reporting and plan to disclose carbon footprints of their portfolios.