

ASSESSING CANADIAN FIRMS' READINESS FOR CLIMATE DISCLOSURE

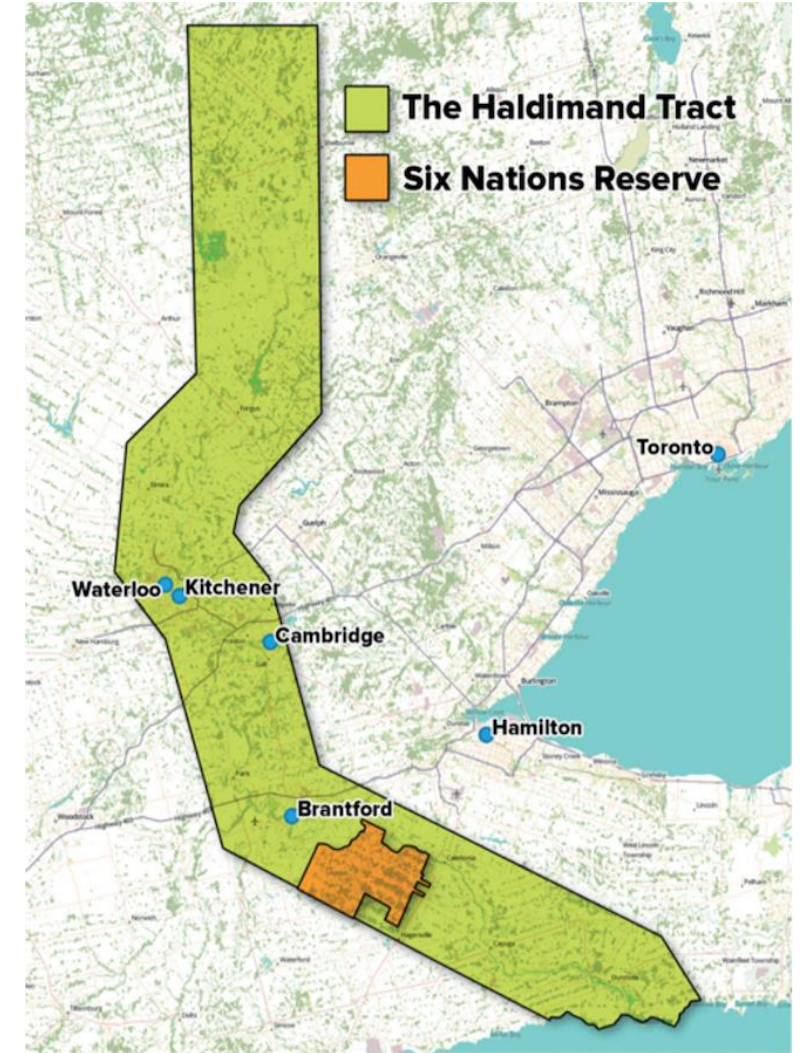
2/27/2026

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School of Environment, Enterprise and Development

Land Acknowledgement

We live and work in the traditional territory of the Neutral, Anishinaabeg, and Haudenosaunee peoples.

This land is part of the Haldimand Tract, which was promised to the Six Nations and includes six miles on each side of the Grand River.



Source: University of Waterloo Engineering

INTRODUCTION

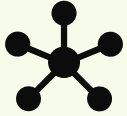
Aims

- To evaluate the readiness of Canadian firms for new climate-related disclosure requirements by:
 - A) Examining how climate risk materiality is conceptualised within accounting and sustainability literature
 - B) How firms' disclosures practices align with their stated materiality perspectives

Approach

- **Integrative Literature Review:** Intersections of materiality and climate disclosure literature
- **Empirical Analysis:** Coherence between materiality claims and climate disclosures

Contributions to Academia and Practice



Advances the climate disclosure literature by synthesising fragmented scholarship to clarify the conceptual foundations and operational role of materiality in climate reporting



Provides empirical evidence on the extent to which firms' stated materiality orientations (single versus double materiality) align with the substance and scope of their climate disclosures.



Identifies a decoupling between firms' stated adoption of double materiality and the substantive content of their climate disclosures, highlighting structural limitations in current disclosure readiness.

Materiality & Climate Change Disclosures

Financial Materiality:
Sustainability issues
impacting company value ¹

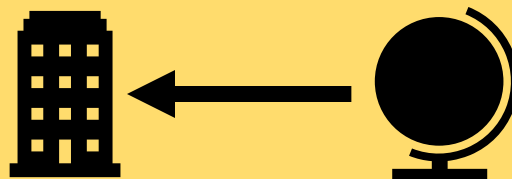
Impact materiality:
Sustainability issues
impacting society,
environment,
and business ²

Single Materiality ³

Narrow group of
stakeholders

Financial or Impact

Outside-in

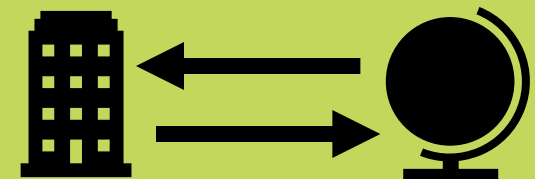


Double Materiality ⁴

Broad group of
stakeholders

Both Financial and Impact

Outside-in and inside-out



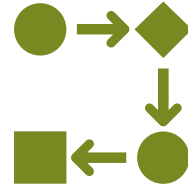
1. Baumüller & Sopp, 2022
2. Panfilo et al., 2025
3. Christensen et al., 2021; Fiandrino et al., 2022; Pizzi et al., 2023
4. Adams et al., 2021

Paper 1 - Understanding Materiality's Landscape



Research Objective

Understand how accounting, management, and climate disclosure literatures conceptualise materiality.



Methodology

Integrative Literature Review ⁵

Inductive thematic analysis ⁶

140 peer-reviewed articles



Core Topics

Climate change disclosure

Climate change risks

Materiality

Financial performance

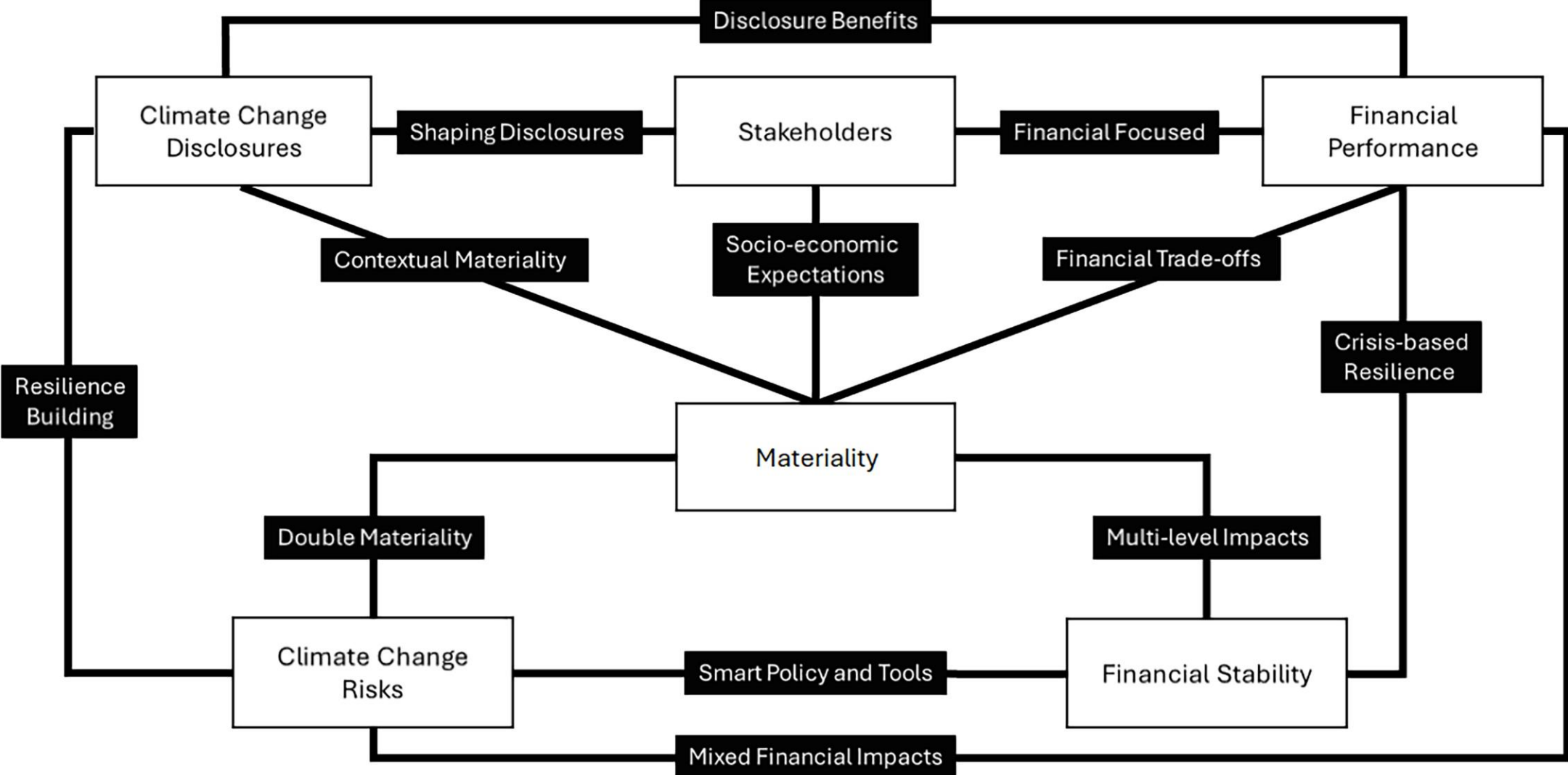
Financial stability

Stakeholders

5. Cronin & George, 2023; Torraco, 2005, 2016

6. Braun & Clarke, 2006; Skjott Linneberg & Korsgaard, 2019

Paper 1 - Key Findings



Paper 1 - Key Findings Con't



Takeaway 1

Climate change disclosure is not merely about compliance; it builds strategic value ⁷



Takeaway 2

Disclosures reflect corporate interests, stakeholder needs, definitions, and political agendas ⁸



Takeaway 3

Climate change disclosure enhances transparency but involves trade-offs for financial performance ⁹



Takeaway 4

Stakeholders are central to the disclosure process and can influence disclosure ¹⁰

7. Almaghrabi, 2023; Cosma et al., 2022; Dawkins & Fraas, 2011; de Grosbois & Fennell, 2022; Ooi et al., 2019

8. Badia et al., 2020; De Cristofaro & Gulluscio, 2023; Grauel & Gotthardt, 2016; Raith, 2023

9. Berchicci & King, 2022; Gill et al., 2022; Sichigea et al., 2021

10. Aibar-Guzmán et al., 2023; Cotter & Najah, 2012; Jørgensen et al., 2022; Reimsbach et al., 2020

Paper 2 - Exploring Disclosure Readiness



Research Objective

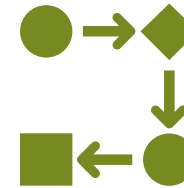
Understand the alignment between the firm's stated materiality and climate information disclosed



Sample & Data

142 Firms from TSX-250

Sustainability & climate disclosures from 2023



Methodology

Directed Content Analysis ¹¹

Signal Fit (Signalling Theory) ¹²

Ordinary Least Squares ¹³

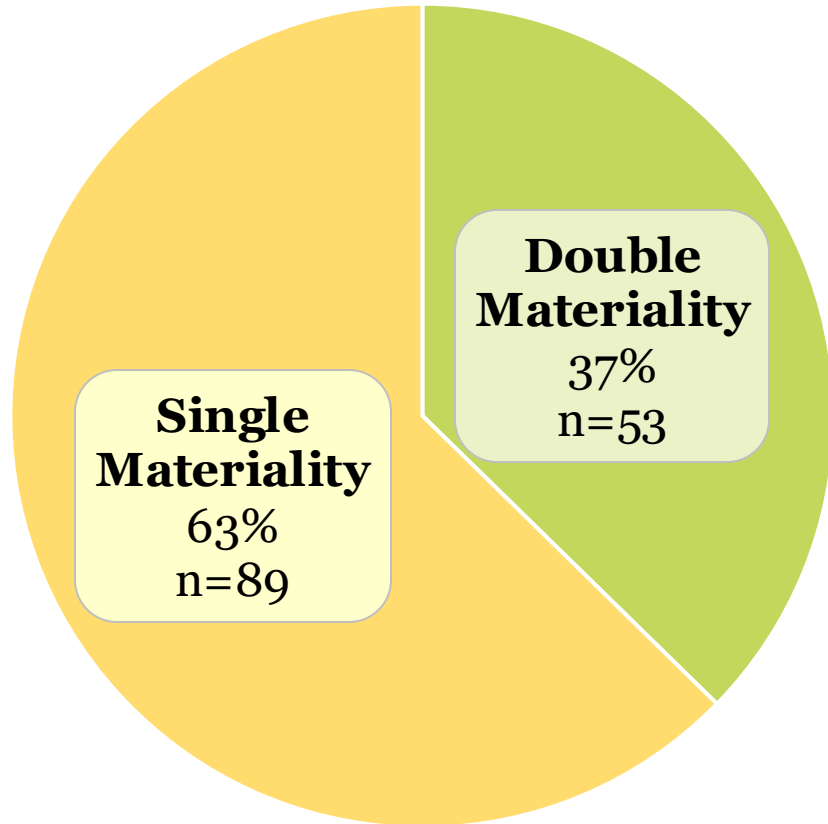
11. Hsieh, 2009; Skjott Linneberg & Korsgaard, 2019

12. Connelly et al., 2011; Spence, 1973

13. Bae et al., 2018; Dey et al., 2025; Panfilo et al., 2025

Paper 2 - Descriptive Statistics

Materiality Usage Within Sample



Percentage of Climate Disclosure per Materiality Type

| Climate Disclosure Topics | Double Materiality (n=53) | Single Materiality (n=89) | Percentage of Total Sample (n=142) |
|---------------------------|---------------------------|---------------------------|------------------------------------|
| Short-term mapping | 13% | 13% | 13% |
| Long-term mapping | 15% | 12% | 13% |
| Scenario analysis | 47% | 30% | 37% |
| Risk Methodology | 62% | 58% | 60% |
| Physical risks | 62% | 55% | 58% |
| Transition Risks | 58% | 51% | 54% |
| Renewable energy | 79% | 64% | 70% |
| Carbon compensation | 17% | 9% | 12% |
| Carbon capture | 21% | 15% | 17% |

Paper 2 - Percentage of Disclosure Topics by Industry

| Disclosure Topics | Industry | | | | | | | | | | |
|---------------------|------------------------|------------------------------|-------------------------|------------------------|---------------|---------------------------|--------------------|-----------------|-------------------|------------------|-----------------|
| | Basic Materials (n=55) | Communication Services (n=2) | Consumer Cyclical (n=7) | Consumer Staples (n=7) | Energy (n=22) | Financial Services (n=10) | Industrials (n=15) | Materials (n=2) | Real Estate (n=8) | Technology (n=8) | Utilities (n=6) |
| Short-term mapping | 15% | 0% | 0% | 14% | 27% | 0% | 20% | 0% | 13% | 0% | 0% |
| Long-term mapping | 18% | 0% | 0% | 14% | 14% | 20% | 20% | 0% | 0% | 0% | 0% |
| Scenario analysis | 44% | 50% | 0% | 29% | 45% | 40% | 20% | 0% | 25% | 25% | 67% |
| Risk Methodology | 69% | 0% | 43% | 43% | 55% | 90% | 67% | 50% | 38% | 50% | 33% |
| Physical risks | 58% | 0% | 43% | 57% | 68% | 70% | 60% | 0% | 63% | 25% | 83% |
| Transition Risks | 56% | 0% | 43% | 57% | 59% | 60% | 53% | 0% | 63% | 38% | 50% |
| Renewable energy | 62% | 50% | 86% | 57% | 77% | 90% | 67% | 100% | 50% | 75% | 100% |
| Carbon compensation | 13% | 0% | 14% | 14% | 23% | 20% | 7% | 0% | 0% | 0% | 0% |
| Carbon capture | 9% | 0% | 0% | 0% | 41% | 40% | 20% | 0% | 0% | 13% | 33% |

Paper 2 - Ordinary Least Squares Results

Main Model Results ^a

| Dependent Variable: SFI | | | | 95% Confidence Interval | | P-value |
|-------------------------|-----------------|----------------|---------------|-------------------------|-------|---------|
| Independent Variables | Coefficient (B) | Standard Error | Wald χ^2 | Lower | Upper | |
| Double Materiality | -5.184 | 5.2377 | 0.980 | -15.449 | 5.082 | 0.322 |
| Industry (control) | | | 16.602 | | | 0.084 |

Note(s)

a. Omnibus likelihood-ratio test: $\chi^2(18) = 42.11, p = 0.001$

- a) Firms claiming double materiality do not actually disclose more climate-related information than those using single materiality.
- b) This decoupling between stated materiality approach and actual disclosure practices points to largely symbolic reporting.
- c) As a result, firms appear unprepared to deliver the more substantial, decision-useful climate disclosures required under emerging standards.

Conclusion & Takeaways



Materiality perspectives may shape climate risk disclosure, but they do not fully determine disclosure practices.



Materiality statements do not necessarily translate into coherent climate disclosures



Strengthening climate disclosure readiness requires aligning materiality with the actual content of disclosures

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Phase 2 – Signal Fit Index Con't

Signal Fit Composite Index

$$SFI = 100 - (Max\ score(Awareness\ Signals + Management\ Signals + Mitigation\ Signals)) - (Min\ Score(Awareness\ Signals + Management\ Signals + Mitigation\ Signals))$$

Regression Model

$$SFI_i = \beta_0 + \beta_{Double\ Materiality} Double\ Materiality_i + \sum_{j \in J} \alpha_j I\{Industry_i = j\} + \varepsilon_i, \varepsilon_i \sim N(0, \sigma^2)$$

Paper 2 - Signal Fit Index

| Disclosure Topic | Search Terms of Thematic Topics | Disclosure Topic Weights |
|----------------------------------|--|--------------------------|
| Short-term climate-related risks | Short-term risk(s), present risks, current risks, near-term | 1 |
| Long-term climate-related risks | Long-term risk(s), future risks | 1 |
| Physical risks | Physical risks, natural hazards, extreme weather, acute risk(s), chronic risk(s) | 1 |
| Transitional risks | Transition risks, transitional risks, regulatory risks, policy risk(s), legal risk(s), technological risk(s), technology risk(s), reputational risk(s) | 1 |
| Climate-risk methodology | Risk assessment, risk methodology, assessment method, risk identification | 1 |
| Climate-risk scenario analysis | Scenarios, outlooks, scenario analysis, Representative Concentration Pathway, RCP | 2 |
| Use of renewable energy | Renewable energy, energy mix, fuel consumption | 1 |
| Use of carbon compensation | Carbon offset, carbon credit, carbon credit | 0.5 |
| Use of carbon capture | CO2 capture, carbon capture, carbon removal, CO2 removal | 2 |

Source: Adapted from Andersson and Arvidsson (2023), Canal Vieira et al. (2024), Eleftheriadis and Anagnostopoulou (2017)

Paper 2 - Key outcomes

Main Model Results ^a

| Dependent Variable: SFI | | | | 95% Confidence Interval | | P-value |
|-----------------------------|-----------------|----------------|---------------|-------------------------|--------------|--------------|
| Independent Variables | Coefficient (B) | Standard Error | Wald χ^2 | Lower | Upper | |
| Double Materiality | -5.184 | 5.2377 | 0.980 | -15.449 | 5.082 | 0.322 |
| Reporting Frameworks | | | | | | |
| CDP | 5.665 | 5.4187 | 1.093 | -4.956 | 16.285 | 0.296 |
| GHG Protocol | -5.194 | 5.3345 | 0.948 | -15.649 | 5.261 | 0.330 |
| GRI | -2.498 | 7.2598 | 0.118 | -16.727 | 11.731 | 0.731 |
| IFRS S1 | 2.378 | 10.9541 | 0.047 | -19.091 | 23.848 | 0.828 |
| IFRS S2 | 0.008 | 10.0351 | 0.000 | -19.660 | 19.677 | 0.999 |
| SASB | -17.379 | 7.9706 | 4.754 | -33.001 | -1.756 | 0.029* |
| TCFD | -28.171 | 6.1632 | 20.892 | -40.250 | -16.091 | <0.001*** |
| Industry (control) | | | 16.602 | | | 0.084 |

*** p<0.001, ** p<0.01, * p<0.05

Note(s)

a. Omnibus likelihood-ratio test: $\chi^2(18) = 42.11$, $p = 0.001$

Paper 2 - Descriptive Statistics

Framework Adoption

| Reporting Frameworks | Double Materiality Firms | Single Materiality Firms |
|----------------------|--------------------------|--------------------------|
| CDP | 36% | 64% |
| GHG Protocol | 40% | 60% |
| GRI | 42% | 58% |
| IFRS S1 | 38% | 62% |
| IFRS S2 | 25% | 75% |
| SASB | 37% | 63% |
| TCFD | 41% | 59% |

Paper 2 - Descriptive Statistics Con't

Materiality Adoption by Industry

| Industry | Percentage of Industry | |
|------------------------------|------------------------|--------------------|
| | Double Materiality | Single Materiality |
| Basic Materials (n=55) | 38% | 62% |
| Communication Services (n=2) | 50% | 50% |
| Consumer Cyclical (n=7) | 14% | 86% |
| Consumer Staples (n=7) | 29% | 71% |
| Energy (n=22) | 32% | 68% |
| Financial Services (n=10) | 70% | 30% |
| Industrials (n=15) | 27% | 73% |
| Materials (n=2) | 100% | 0% |
| Real Estate (n=8) | 25% | 75% |
| Technology (n=8) | 38% | 63% |
| Utilities (n=6) | 50% | 50% |

Paper 2 - Key outcomes - Industry

Main Model Results ^a

| Dependent Variable: SFI | | | | 95% Confidence Interval | | P-value |
|---------------------------|-----------------|----------------|---------------|-------------------------|--------------|--------------|
| Independent Variable | Coefficient (B) | Standard Error | Wald χ^2 | Lower | Upper | |
| Double Materiality | -5.184 | 5.2377 | 0.980 | -15.449 | 5.082 | 0.322 |
| Industry | | | 16.602 | | | 0.084 |
| Financial Services | -7.492 | 14.6216 | 0.263 | -36.150 | 21.166 | 0.608 |
| Technology | -29.094 | 15.5237 | 3.513 | -59.520 | 1.332 | 0.061* |
| Basic Materials | -29.918 | 12.3890 | 5.832 | -54.200 | -5.636 | 0.016* |
| Communications Services | -22.357 | 23.5032 | 0.905 | -68.422 | 23.709 | 0.341 |
| Consumer Cyclical | -33.355 | 16.7528 | 3.964 | -66.189 | -0.520 | 0.046* |
| Consumer Staples | -36.118 | 15.5403 | 5.402 | -66.577 | -5.660 | 0.020* |
| Energy | -32.532 | 13.5580 | 5.757 | -59.105 | -5.958 | 0.016* |
| Industrials | -40.840 | 13.9260 | 8.600 | -68.134 | -13.546 | 0.003** |
| Materials | -0.701 | 22.8385 | 0.001 | -45.464 | 44.061 | 0.976 |
| Real Estate | -35.038 | 15.6152 | 5.035 | -65.643 | -4.433 | 0.025* |
| Utilities | 0 ^b | | | | | |

*** p<0.001, ** p<0.01, * p<0.05

Note(s)

- Omnibus likelihood-ratio test: $\chi^2(18) = 42.11$, $p = 0.001$
- Set to zero because this is the reference for the Industry control variable



Paper 2 - Single Materiality Firms OLS

Model 2 Results ^a

| Dependent Variable: SFI | | | | 95% Confidence Interval | | P-value |
|---------------------------|-----------------|----------------|---------------|-------------------------|---------|--------------|
| Independent Variables | Coefficient (B) | Standard Error | Wald χ^2 | Lower | Upper | |
| Reporting Frameworks | | | | | | |
| CDP | 5.326 | 6.7867 | 0.616 | -7.976 | 18.628 | 0.433 |
| GHG Protocol | -15.639 | 6.3696 | 6.028 | -28.123 | -3.154 | 0.014* |
| GRI | -4.986 | 8.0270 | 0.386 | -20.718 | 10.747 | 0.535 |
| IFRS S1 | 10.019 | 13.953 | 0.516 | -17.329 | 37.366 | 0.473 |
| IFRS S2 | -12.352 | 11.9477 | 1.069 | -35.769 | 11.066 | 0.301 |
| SASB | -11.672 | 10.3454 | 1.273 | -31.949 | 8.605 | 0.259 |
| TCFD | -30.571 | 7.2800 | 17.635 | -44.840 | -16.303 | <0.001*** |
| Industry (control) | | | 14.186 | | | 0.116 |

*** p<0.001, ** p<0.01, * p<0.05

Note(s)

a. Omnibus likelihood-ratio test: $\chi^2(16) = 36.271$, $p = 0.003$

Paper 2 - Single Materiality Firms OLS Con't

Model 2 Results ^a

| Dependent Variable: SFI | | | | 95% Confidence Interval | | P-value |
|-------------------------|-----------------|----------------|---------------|-------------------------|---------|--------------|
| Independent Variable | Coefficient (B) | Standard Error | Wald χ^2 | Lower | Upper | |
| Industry | | | 14.186 | | | 0.116 |
| Financial Services | -29.381 | 23.204 | 1.603 | -74.860 | 16.097 | 0.205 |
| Technology | -52.842 | 20.206 | 6.839 | -92.445 | -13.240 | 0.009** |
| Basic Materials | -46.504 | 16.588 | 7.859 | -79.017 | -13.992 | 0.005** |
| Communications Services | -30.298 | 32.179 | 0.887 | -93.367 | 32.772 | 0.346 |
| Consumer Cyclical | -54.878 | 21.194 | 6.705 | -96.417 | -13.339 | 0.010* |
| Consumer Staples | -59.643 | 20.065 | 8.836 | -98.969 | -20.316 | 0.003** |
| Energy | -56.706 | 17.912 | 10.023 | -91.812 | -21.600 | 0.002** |
| Industrials | -54.210 | 18.114 | 8.957 | -89.712 | -18.707 | 0.003** |
| Materials ^c | N/A | N/A | N/A | N/A | N/A | N/A |
| Real Estate | -50.900 | 20.3974 | 6.227 | -90.878 | -10.921 | 0.013* |
| Utilities | 0 ^b | | | | | |

*** p<0.001, ** p<0.01, * p<0.05

Note(s)

- Omnibus likelihood-ratio test: $\chi^2(16) = 36.271$, $p = 0.003$
- Set to zero because this is the reference for the Industry control variable
- There were no associated firms for the Materials sector



Paper 2 - Double Materiality OLS

Model 3 Results ^a

| Dependent Variable: SFI | | | | 95% Confidence Interval | | P-value |
|---------------------------|-----------------|----------------|---------------|-------------------------|---------|--------------|
| Independent Variables | Coefficient (B) | Standard Error | Wald χ^2 | Lower | Upper | |
| Reporting Frameworks | | | | | | |
| CDP | 4.593 | 8.7412 | 0.276 | -12.540 | 21.725 | 0.599 |
| GHG Protocol | 21.294 | 8.6669 | 6.036 | 4.307 | 38.281 | 0.014* |
| GRI | 12.844 | 21.6194 | 0.353 | -29.530 | 55.217 | 0.552 |
| IFRS S1 | -18.086 | 15.1922 | 1.417 | -47.862 | 11.690 | 0.234 |
| IFRS S2 | 35.631 | 15.8454 | 5.056 | 4.575 | 66.687 | 0.025* |
| SASB | -37.421 | 11.7025 | 10.225 | -60.358 | -14.485 | 0.001** |
| TCFD | -16.061 | 10.8379 | 2.196 | -37.303 | 5.181 | 0.138 |
| Industry (control) | | | 14.225 | | | 0.163 |

*** p<0.001, ** p<0.01, * p<0.05

Note(s)

a. Omnibus likelihood-ratio test: $\chi^2(17) = 32.075$, $p = 0.015$

Paper 2 - Double Materiality OLS Con't

Model 3 Results ^a

| Dependent Variable: SFI | | | | 95% Confidence Interval | | P-value |
|-------------------------|-----------------|----------------|---------------|-------------------------|--------|--------------|
| Independent Variable | Coefficient (B) | Standard Error | Wald χ^2 | Lower | Upper | |
| Industry | | | 14.186 | | | 0.116 |
| Financial Services | 7.308 | 16.0583 | 0.207 | -24.166 | 38.781 | 0.649 |
| Technology | -3.848 | 21.2044 | 0.033 | -45.408 | 37.712 | 0.856 |
| Basic Materials | -10.734 | 15.9806 | 0.451 | -42.055 | 20.587 | 0.502 |
| Communications Services | -3.934 | 29.5313 | 0.018 | -61.814 | 53.947 | 0.894 |
| Consumer Cyclical | -3.968 | 25.7038 | 0.024 | -54.347 | 46.410 | 0.877 |
| Consumer Staples | 10.250 | 20.7776 | 0.243 | -30.473 | 50.973 | 0.622 |
| Energy | -7.165 | 18.3328 | 0.153 | -43.097 | 28.766 | 0.696 |
| Industrials | -36.445 | 18.8035 | 3.757 | -73.299 | 0.409 | 0.053 |
| Materials | 23.430 | 21.5820 | 1.179 | -18.870 | 65.730 | 0.278 |
| Real Estate | -20.672 | 26.1733 | 0.624 | -71.971 | 30.627 | 0.430 |
| Utilities | 0 ^b | | | | | |

*** p<0.001, ** p<0.01, * p<0.05

Note(s)

- Omnibus likelihood-ratio test: $\chi^2(17) = 32.075$, $p = 0.015$
- Set to zero because this is the reference for the Industry control variable



Paper 2 - Materiality Coding Criteria

Single Materiality

- Focused on enterprise value or business relevance

and/or

- Presented stakeholder priorities without an externally focused impact assessment

and/or

- Absence of an impact-materiality lens

Double Materiality

- Explained that enterprise value and socio-ecological issues were considered

and/or

- Stakeholder priorities presented alongside external impact assessment

and/or

- Provided a double materiality-related definition

Percentage of Disclosure Topics by Industry and Materiality Type

| Industry | Materiality Type | Disclosure Topic | | | | | | | | |
|------------------------------|---------------------------|--------------------|-------------------|-------------------|------------------|----------------|------------------|------------------|---------------------|----------------|
| | | Short-term mapping | Long-term mapping | Scenario analysis | Risk Methodology | Physical risks | Transition Risks | Renewable energy | Carbon compensation | Carbon capture |
| Basic Materials (n=55) | Double Materiality (n=21) | 10% | 14% | 52% | 71% | 52% | 52% | 67% | 10% | 10% |
| | Single Materiality (n=34) | 18% | 21% | 38% | 68% | 62% | 59% | 59% | 15% | 9% |
| Utilities (n=6) | Double Materiality (n=3) | 0% | 0% | 100% | 0% | 67% | 67% | 100% | 0% | 67% |
| | Single Materiality (n=3) | 0% | 0% | 33% | 67% | 100% | 33% | 100% | 0% | 0% |
| Real Estate (n=8) | Double Materiality (n=2) | 0% | 0% | 50% | 50% | 100% | 100% | 0% | 0% | 0% |
| | Single Materiality (n=6) | 17% | 0% | 17% | 33% | 50% | 50% | 67% | 0% | 0% |
| Energy (n=22) | Double Materiality (n=7) | 57% | 29% | 43% | 43% | 86% | 71% | 86% | 29% | 43% |
| | Single Materiality (n=15) | 13% | 7% | 47% | 60% | 60% | 53% | 73% | 20% | 40% |
| Industrials (n=15) | Double Materiality (n=4) | 25% | 25% | 25% | 75% | 75% | 50% | 75% | 25% | 25% |
| | Single Materiality (n=11) | 18% | 18% | 18% | 64% | 55% | 55% | 64% | 0% | 18% |
| Consumer Cyclical (n=7) | Double Materiality (n=1) | 0% | 0% | 0% | 0% | 100% | 100% | 100% | 100% | 0% |
| | Single Materiality (n=6) | 0% | 0% | 0% | 50% | 33% | 33% | 83% | 0% | 0% |
| Technology (n=8) | Double Materiality (n=3) | 0% | 0% | 33% | 67% | 33% | 67% | 100% | 0% | 0% |
| | Single Materiality (n=5) | 0% | 0% | 20% | 40% | 20% | 20% | 60% | 0% | 20% |
| Financial Services (n=10) | Double Materiality (n=7) | 0% | 29% | 57% | 100% | 86% | 71% | 100% | 29% | 43% |
| | Single Materiality (n=3) | 0% | 0% | 0% | 67% | 33% | 33% | 67% | 0% | 33% |
| Communication Services (n=2) | Double Materiality (n=1) | 0% | 0% | 100% | 0% | 0% | 0% | 100% | 0% | 0% |
| | Single Materiality (n=1) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Materials (n=2) | Double Materiality (n=2) | 0% | 0% | 0% | 50% | 0% | 0% | 100% | 0% | 0% |
| | Single Materiality (n=0) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Consumer Staples (n=7) | Double Materiality (n=2) | 0% | 0% | 0% | 50% | 50% | 50% | 100% | 50% | 0% |
| | Single Materiality (n=5) | 20% | 20% | 40% | 40% | 60% | 60% | 40% | 0% | 0% |



References

- Adams, C., Alhamood, A., He, X., Tian, J., Wang, L., & Wang, Y. (2021). *The double materiality concept: Application and issues* [Project Report]. Global Reporting Initiative. <https://www.globalreporting.org/media/jrbntbyv/griwhitepaper-publications.pdf>
- Aibar-Guzmán, B., Raimo, N., Vitolla, F., & García-Sánchez, I. (2023). Corporate governance and financial performance: Reframing their relationship in the context of climate change. *Corporate Social Responsibility and Environmental Management*. <https://doi.org/10.1002/csr.2649>
- Almaghrabi, K. (2023). Climate change exposure and firm performance: Does managerial ability matter? *Sustainability*, 15(17). <https://doi.org/10.3390/su151712878>
- Andersson, F., & Arvidsson, S. (2023). Understanding, mapping and reporting of climate-related risks among listed firms in Sweden. *Climate Policy*, 23(8), 945–958. <https://doi.org/10.1080/14693062.2022.2116383>
- Badia, G., Cortez, M., & Ferruz, L. (2020). Socially responsible investing worldwide: Do markets value corporate social responsibility? *Corporate Social Responsibility and Environmental Management*, 27(6), 2751–2764. <https://doi.org/10.1002/csr.1999>
- Bae, S. M., Masud, Md. A. K., & Kim, J. D. (2018). A Cross-Country Investigation of Corporate Governance and Corporate Sustainability Disclosure: A Signaling Theory Perspective. *Sustainability*, 10(8), 2611. <https://doi.org/10.3390/su10082611>
- Baumüller, J., & Sopp, K. (2022). Double materiality and the shift from non-financial to European sustainability reporting: Review, outlook and implications. *Journal of Applied Accounting Research*, 23(1), 8–28. <https://doi.org/10.1108/JAAR-04-2021-0114>
- Berchicci, L., & King, A. (2022). Material sustainability and stock return: Faith is not enough. *Journal of Financial Reporting*, 7(2), 41–42. <https://doi.org/10.2308/JFR-2022-011>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Canal Vieira, L., Longo, M., & Mura, M. (2024). Responding to a wicked problem: How time, sense of place, and organisational boundaries shape companies' decarbonisation strategies. *Organization & Environment*, 37(1), 6–31. <https://doi.org/10.1177/10860266241229226>



References Con't

- Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of Accounting Studies*, 26(3), 1176–1248. <https://doi.org/10.1007/s11142-021-09609-5>
- Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management*, 37(1), 39–67. <https://doi.org/10.1177/0149206310388419>
- Cosma, S., Principale, S., & Venturelli, A. (2022). Sustainable governance and climate-change disclosure in European banking: The role of the corporate social responsibility committee. *Corporate Governance-the International Journal of Business in Society*, 22(6), 1345–1369. <https://doi.org/10.1108/CG-09-2021-0331>
- Cotter, J., & Najah, M. (2012). Institutional investor influence on global climate change disclosure practices. *Australian Journal of Management*, 37(2), 169–187. <https://doi.org/10.1177/0312896211423945>
- Cronin, M. A., & George, E. (2023). The why and how of the integrative review. *Organizational Research Methods*, 26(1), 168–192. <https://doi.org/10.1177/1094428120935507>
- Dawkins, C., & Fraas, J. (2011). Coming clean: The impact of environmental performance and visibility on corporate climate change disclosure. *Journal of Business Ethics*, 100(2), 303–322. <https://doi.org/10.1007/s10551-010-0681-0>
- De Cristofaro, T., & Gulluscio, C. (2023). In search of double materiality in non-financial reports: First empirical evidence. *Sustainability*, 15(2). <https://doi.org/10.3390/su15020924>
- de Grosbois, D., & Fennell, D. (2022). Determinants of climate change disclosure practices of global hotel companies: Application of institutional and stakeholder theories. *Tourism Management*, 88. <https://doi.org/10.1016/j.tourman.2021.104404>

References Con't

- Dey, S. K., Bose, S., Luo, L., & Shams, S. (2025). Impact of Corporate Climate Change Performance on Information Asymmetry: International Evidence. *Journal of International Accounting Research*, 24(1), 13–45. <https://doi.org/10.2308/JIAR-2022-057>
- Eleftheriadis, I., & Anagnostopoulou, E. (2017). Measuring the level of corporate commitment regarding climate change strategies. *International Journal of Climate Change Strategies and Management*, 9(5), 626–644. <https://doi.org/10.1108/IJCCSM-09-2016-0145>
- Fiandrino, S., Tonelli, A., & Devalle, A. (2022). Sustainability materiality research: A systematic literature review of methods, theories and academic themes. *Qualitative Research in Accounting and Management*, 19(5), 665–695. <https://doi.org/10.1108/QRAM-07-2021-0141>
- Gill, S., Kohli, M., & Satija, P. (2022). Materiality in sustainability disclosures and investment portfolio performance in the Indian context. *Journal of Sustainable Finance & Investment*. <https://doi.org/10.1080/20430795.2022.2086844>
- Grauel, J., & Gotthardt, D. (2016). The relevance of national contexts for carbon disclosure decisions of stock-listed companies: A multilevel analysis. *Journal of Cleaner Production*, 133, 1204–1217. <https://doi.org/10.1016/j.jclepro.2016.05.182>
- Hsieh, N. (2009). Corporate social responsibility and the priority of shareholders. *Journal of Business Ethics*, 88(S4), 553–560. <https://doi.org/10.1007/s10551-009-0314-7>
- Jørgensen, S., Mjos, A., & Pedersen, L. (2022). Sustainability reporting and approaches to materiality: Tensions and potential resolutions. *Sustainability Accounting, Management and Policy Journal*, 13(2), 341–361. <https://doi.org/10.1108/SAMPJ-01-2021-0009>

References Con't

- Ooi, S., Amran, A., Yeap, J., & Jaaffar, A. (2019). Governing climate change: The impact of board attributes on climate change disclosure. *International Journal of Environment and Sustainable Development*, 18(3), 270–288.
- Panfilo, S., Scarpa, F., & Canestraro, N. (2025). Reporting for change: Does the adoption of double materiality influence ESG risk management? *Management Decision*. <https://doi.org/10.1108/MD-10-2024-2436>
- Pizzi, S., Principale, S., & de Nuccio, E. (2023). Material sustainability information and reporting standards. Exploring the differences between GRI and SASB. *Meditari Accountancy Research*, 31(6), 1654–1674. <https://doi.org/10.1108/MEDAR-11-2021-1486>
- Raith, D. (2023). The contest for materiality. What counts as CSR? *Journal of Applied Accounting Research*, 24(1), 134–148. <https://doi.org/10.1108/JAAR-04-2022-0093>
- Reimsbach, D., Schiemann, F., Hahn, R., & Schmiedchen, E. (2020). In the eyes of the beholder: Experimental evidence on the contested nature of materiality in sustainability reporting. *Organization & Environment*, 33(4), 624–651. <https://doi.org/10.1177/1086026619875436>
- Sichigea, M., Siminica, M., Cristea, M., Noja, G., & Circiumaru, D. (2021). Materiality conditions in the interplay between environment and financial performance: A graphical modeling approach for EEA oil and gas companies. *Complexity*, 2021. <https://doi.org/10.1155/2021/7380759>
- Skjott Linneberg, M., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative Research Journal*, 19(3), 259–270. <https://doi.org/10.1108/QRJ-12-2018-0012>
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355. <https://doi.org/10.2307/1882010>
- Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, 4(3), 356–367. <https://doi.org/10.1177/1534484305278283>
- Torraco, R. J. (2016). Writing integrative literature reviews: Using the past and present to explore the future. *Human Resource Development Review*, 15(4), 404–428. <https://doi.org/10.1177/1534484316671606>