

ONLINE APPENDICES

To Article:

Scrutiny, Norms, and Selective Disclosure: A Global Study of Greenwashing

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APPENDIX A. DETAILED SAMPLE DESCRIPTION

TABLE A1. Industry composition of sample

Industry	Firms
SIC 10. Metal mining	88
SIC 13. Oil and gas extraction	193
SIC 15. Building construction, general contractors, and operative builders	83
SIC 16. Heavy construction other than building construction contractors	43
SIC 20. Food and kindred products	160
SIC 26. Paper and allied products	44
SIC 27. Printing, publishing, and allied industries	64
SIC 28. Chemicals and allied products	308
SIC 29. Petroleum refining and related industries	59
SIC 30. Rubber and miscellaneous plastics products	30
SIC 32. Stone, clay, glass, and concrete products	61
SIC 33. Primary metal industries	98
SIC 34. Fabricated metal products, except machinery and transportation equipment	45
SIC 35. Industrial and commercial machinery and computer equipment	200
SIC 36. Electronic and other electrical equipment and components, except computer equipment	282
SIC 37. Transportation equipment	117
SIC 38. Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks	125
SIC 44. Water transportation	56
SIC 45. Transportation by air	64
SIC 47. Transportation services	37
SIC 48. Communications	200
SIC 49. Electric, gas, and sanitary services	232
SIC 50. Wholesale trade—durable goods	109
SIC 51. Wholesale trade—non-durable goods	77
SIC 53. General merchandise stores	55
SIC 54. Food stores	35
SIC 56. Apparel and accessory stores	30
SIC 58. Eating and drinking places	30
SIC 59. Miscellaneous retail	44
SIC 60. Depository institutions	292
SIC 61. Non-depository credit institutions	44
SIC 62. Security and commodity brokers, dealers, exchanges, and services	109
SIC 63. Insurance carriers	162
SIC 65. Real estate	146
SIC 67. Holding and other investment offices	145
SIC 70. Hotels, rooming houses, camps, and other lodging places	31
SIC 73. Business services	324
SIC 79. Amusement and recreation services	43
SIC 87. Engineering, accounting, research, management, and related services	92
Other industries (fewer than 30 companies per industry)	393
Total firms	4,750

TABLE A2. Headquarters composition of sample

HQ country	Firm s	HQ country	Firm s	HQ country	Firm s
Australia	239	Hungary	4	Philippines	20
Austria	25	India	92	Poland	9
Belgium	29	Indonesia	27	Portugal	13
Bermuda	25	Ireland	27	Russia	20
Brazil	52	Israel	24	Singapore	48
Canada	146	Italy	70	South Africa	33
Chile	9	Japan	495	South Korea	116
China	94	Luxembourg	12	Spain	55
Colombia	5	Malaysia	67	Sweden	87
Denmark	38	Mexico	23	Switzerland	66
Finland	48	Netherlands	66	Taiwan	131
France	104	New Zealand	14	Thailand	38
Germany	106	Norway	69	Turkey	14
Greece	28	Pakistan	16	United Kingdom	750
Hong Kong	111	Peru	2	United States	1,283
				Total firms	4,750

APPENDIX B. DETAILED DESCRIPTION OF VARIABLE *SELECTIVE DISCLOSURE MAGNITUDE*

This appendix provides a detailed description of the components used to calculate *selective disclosure magnitude*, which equals *absolute disclosure ratio* minus *weighted disclosure ratio*.

Absolute disclosure ratio measures the proportion of a company's relevant environmental indicators that it publicly discloses in a given year. It is calculated as follows:

- 1) Trucost allocates the company's annual revenues amongst the various industries in which it operated that year (typically from one to a few dozen of a set of 464 industries), using segment-based revenues data from the FactSet Fundamentals database as well as corporate annual reports and regulatory filings such as Form 10-K. Trucost shares these allocations with the companies it profiles; some companies then provide additional segmentation data, which Trucost incorporates into its database.
- 2) Trucost identifies the relevant environmental indicators associated with each of these industries, relying on several pollution release and transfer registries—national databases with inventories of natural resources and/or pollutants from many establishments in various industries (Trucost Plc, 2008). These registries include the US Toxic Release Inventory, the Federal Statistics Office of Germany (Destatis), the UK Environmental Accounts, Japan's Pollutant Release and Transfer Register, Australia's National Pollution Inventory, and Canada's National Pollutant Release Inventory. The environmental indicators associated with each company are selected from the more than 700 that Trucost tracks, including consumption of natural resources (such as water, oil, natural gas, mined materials, and various metals) and emissions of various pollutants to air, land, and water. The number of such environmental indicators relevant to a particular company is the denominator of its *absolute disclosure ratio*.
- 3) Trucost counts the number of such indicators that the company publicly disclosed that year, using each company's annual report, environmental or sustainability report, corporate social responsibility report, website, and other publicly disclosed data. Trucost considers only disclosures that refer to the firm's worldwide operations and are quantitative; for example, specifying how many tons of carbon dioxide emissions result from the company's global operations. The number of such disclosed indicators is the numerator of the company's *absolute disclosure ratio*.
- 4) The *absolute disclosure ratio* is the number of disclosed environmental indicators (from step 3) divided by the number of environmental indicators relevant to the firm's operations (step 2). That is, of the number of environmental indicators the firm could have disclosed, how many did it disclose?

Weighted disclosure ratio takes absolute disclosure ratio a step further, incorporating the materiality of these disclosures by factoring in financial estimates of the environmental harm associated with each environmental indicator. It is calculated as follows:

- 1) For every dollar of economic output associated with each industrial sector, Trucost estimates the emissions released and natural resources consumed for each environmental indicator, based on the pollution release and transfer registries described above. In other words, how many tons of carbon dioxide are emitted per dollar of activity in the automotive assembly sector? How many liters of water are used per dollar of activity in the agricultural sector? Multiplying each physical-factor-per-unit-revenue in each industry by the company's revenues in that industry yields an estimate of each emission released and each natural resource consumed by that company that year.

- 2) These physical quantities are then multiplied by *environmental damage cost factors*; for example, \$31 of environmental impact per ton of greenhouse gas emitted (Trucost Plc, 2008: 5). These damage cost factors are drawn from academic research on the pricing of environmental externalities. This weighted sum is the denominator of *weighted disclosure ratio*.
- 3) The numerator of *weighted disclosure ratio* is the sum of the products of the quantity and the environmental cost factor of each disclosed indicator.
- 4) The *weighted disclosure ratio* is calculated as the proportion of the firm's *environmental damage cost* (step 2) for which the company disclosed quantitative global figures (step 3).

Selective Disclosure Example 1

Suppose a company's revenues from various sectors in a given year indicate that the company has only two relevant environmental indicators: greenhouse gas emissions and releases of arsenic to waterways. Further suppose that the company that year publicly discloses its tons of global greenhouse gas emissions but not its tons of arsenic released to waterways.

- 1) *Absolute disclosure ratio*: The denominator of *absolute disclosure ratio* would be 2 because the company has two relevant environmental indicators. The numerator would be 1 because it disclosed one of those two indicators. Thus, *absolute disclosure ratio* for that company-year would be 0.5, indicating that the company had disclosed worldwide quantitative figures for 50 percent of its relevant environmental indicators. Had the company also disclosed that it released arsenic into waterways, but not how much, the ratio would be the same because a non-quantitative disclosure would not count as a disclosure.
- 2) *Weighted disclosure ratio*: For the same hypothetical company, suppose Trucost estimated the company's total environmental damage cost that year to be \$1 million, the sum of \$700,000 from releases of arsenic to waterways and \$300,000 from greenhouse gas emissions. Because the company disclosed quantitative figures for its worldwide greenhouse gas emissions but not for its arsenic releases, its weighted disclosure ratio would be 0.3 (calculated as $\$300,000 \div \$1,000,000$), implying that its disclosures accounted for 30 percent of its environmental damage cost that year. Had the company disclosed its arsenic release but not its greenhouse gas release, its absolute disclosure ratio would still be 0.5 (one of two indicators disclosed) but its weighted disclosure ratio would be 0.7.
- 3) *Selective disclosure magnitude*: This equals *absolute disclosure ratio* minus *weighted disclosure ratio*. In this example, if the company disclosed its greenhouse gas emissions but not its arsenic release, *selective disclosure magnitude* would equal 0.2, calculated as 0.5 minus 0.3. If it disclosed its arsenic release but not its greenhouse gas emissions, *selective disclosure magnitude* would equal -0.2, calculated as 0.5 minus 0.7. The lower (negative) number indicates less selective disclosure; that is, the company still disclosed one indicator and withheld another, but it disclosed the more important one rather than the less important one.

Selective Disclosure Examples 2 and 3: Extreme Cases

As an extreme example, suppose there are 100 environmental indicators relevant to the industries in which a company operates and that a company discloses 99 of them. Suppose further that the environmental damage cost associated with the one undisclosed indicator is 10,000 times the cost associated with each of the 99 that were disclosed.

- 1) *Absolute disclosure ratio* would be a (deceptively) impressive 0.99, calculated as $99 \div 100$. The company would appear to have disclosed practically everything.
- 2) *Weighted disclosure ratio* would be a most unimpressive 0.01, calculated as $[(99 \times 1) \div [(99 \times 1) + (1 \times 10,000)]]$. The company disclosed many numbers but very little of the environmental impact it had actually caused.

- 3) *Selective disclosure magnitude* would be the extremely high value of 0.98 (0.99 – 0.01), nearly the maximum possible value of +1.

If, instead, the company disclosed the one really damaging indicator but not the other 99, its *absolute disclosure ratio* would be 0.01, calculated as $1 \div 100$, but its *weighted disclosure ratio* would be 0.99, calculated as $([1 \times 10,000] \div [(99 \times 1) + (1 \times 10,000)])$. Thus, its selective disclosure magnitude would be -0.98 (calculated as $0.01 - 0.99$), nearly the minimum possible value of -1. This scenario reflects a company disclosing the sole indicator that mattered most in terms of environmental harm.