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EC JRC Sustainable Finance:

Materiality as a Double-Edged Sword: Real Effects of SASB Sustainability Topics



You can find the
paper here!

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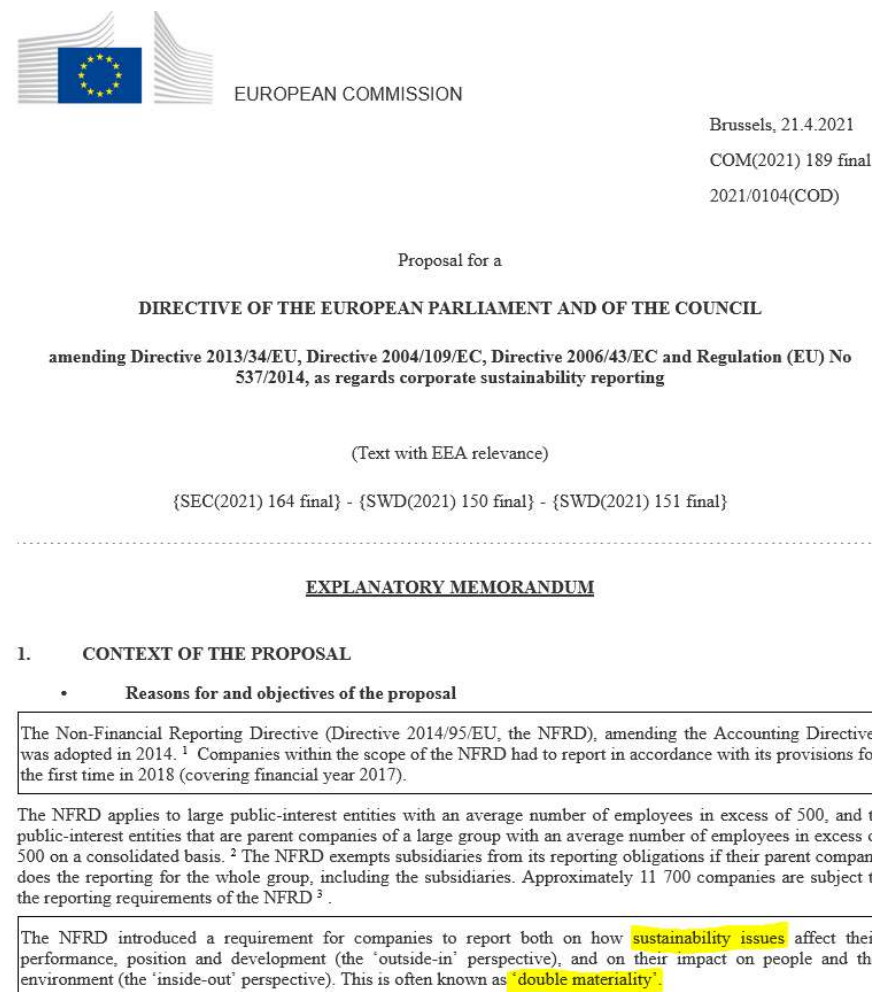
Motivation: Application of Different Materiality Approaches

SEC > Financial Materiality



The screenshot shows the SEC's official website with a press release from March 21, 2022. The headline is "SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors". The text states that the SEC is proposing rule changes to require registrants to include certain climate-related disclosures in their registration statements and periodic reports. It mentions that the proposed rules aim to provide investors with consistent, comparable, and decision-useful information about climate-related risks. The release is signed by SEC Chair Gary Gensler.

EU > Double Materiality



The screenshot shows the European Commission's proposal for a Directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting. The proposal is dated Brussels, 21.4.2021, COM(2021) 189 final, 2021/0104(COD). The document includes an explanatory memorandum and a context of the proposal section. The explanatory memorandum states that the Non-Financial Reporting Directive (Directive 2014/95/EU, the NFRD), amending the Accounting Directive, was adopted in 2014. Companies within the scope of the NFRD had to report in accordance with its provisions for the first time in 2018 (covering financial year 2017). The NFRD applies to large public-interest entities with an average number of employees in excess of 500, and to public-interest entities that are parent companies of a large group with an average number of employees in excess of 500 on a consolidated basis. The NFRD exempts subsidiaries from its reporting obligations if their parent company does the reporting for the whole group, including the subsidiaries. Approximately 11 700 companies are subject to the reporting requirements of the NFRD. The NFRD introduced a requirement for companies to report both on how sustainability issues affect their performance, position and development (the 'outside-in' perspective), and on their impact on people and the environment (the 'inside-out' perspective). This is often known as 'double materiality'.

The Concept of Materiality in Sustainability Reporting

- Materiality in general:

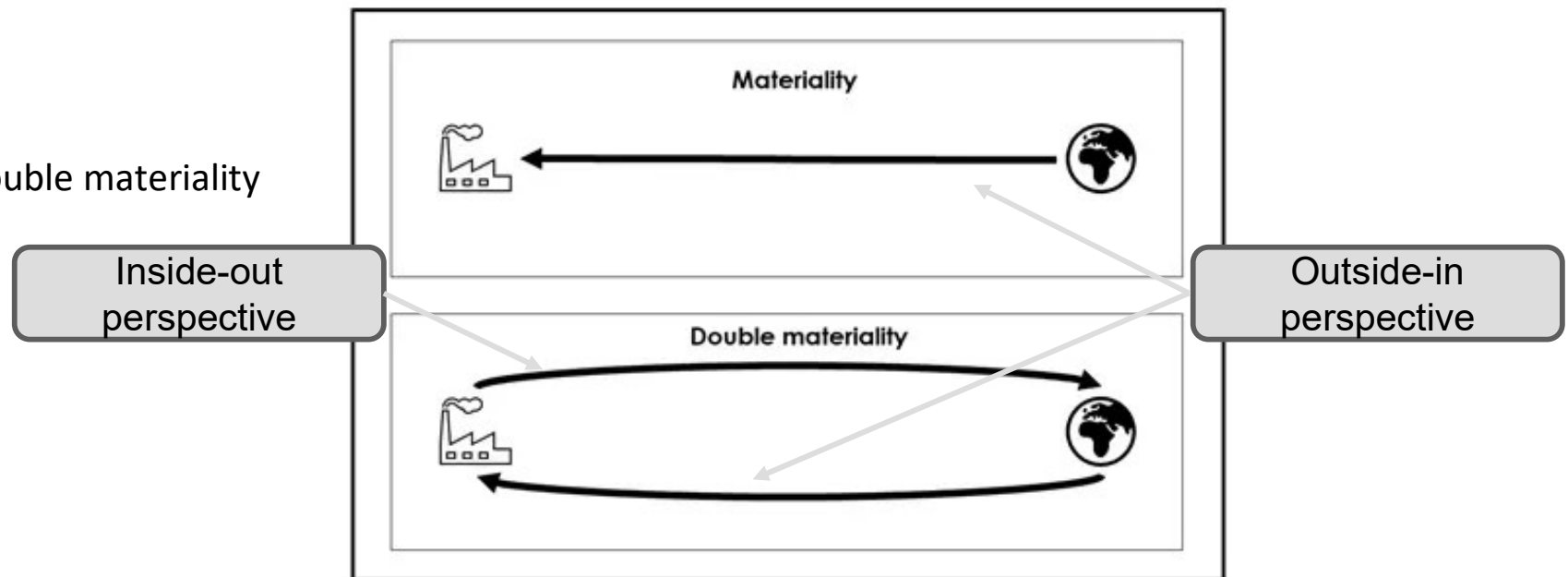
“a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of the information made available”

(U.S. Supreme Court, TSC Industries, Inc. v. Northway, Inc., 1976)

- Materiality is also applicable to corporate sustainability (CS) issues:

- Christensen et al. (2021)
- Bochkay et al. (2023)

- Financial vs double materiality



What are the SASB standards and what is the SASB Materiality Map®?

Sustainability Accounting Standards Board (SASB) Materiality Map®

- 5 Dimensions (Environment, Social Capital, Human Capital, Business Model & Innovation, Leadership & Governance)
- 26 General Issue Categories (GIC)
- 11 Sectors and 77 Sub-sectors
- Focus on financial material issues (outside-in perspective)



		Consumer Goods	Extractives & Minerals Processing	Financials	Food & Beverage	Health Care	Infrastructure	Renewable Resources & Alternative Energy	Resource Transformation	Services	Technology & Communications	Transportation
Dimension	General Issue Category	Click to expand	Click to expand	Click to expand	Click to expand	Click to expand	Click to expand	Click to expand	Click to expand	Click to expand	Click to expand	Click to expand
Environment	GHG Emissions											
	Air Quality											
	Energy Management											
	Water & Wastewater Management											
	Waste & Hazardous Materials Management											
Social Capital	Ecological Impacts											
	Human Rights & Community Relations											
	Customer Privacy											
	Data Security											
	Access & Affordability											
Human Capital	Product Quality & Safety											
	Customer Welfare											
	Selling Practices & Product Labeling											
	Labor Practices											
	Employee Health & Safety											
Business Model & Innovation	Employee Engagement, Diversity & Inclusion											
	Product Design & Lifecycle Management											
	Business Model Resilience											
	Supply Chain Management											
	Materials Sourcing & Efficiency											
Leadership & Governance	Physical Impacts of Climate Change											
	Business Ethics											
	Competitive Behavior											
	Management of the Legal & Regulatory Environment											
	Critical Incident Risk Management											
	Systemic Risk Management											

Related Literature and Research Gap

Real Effects (of Sustainability Reporting)

- Typically conducted in single-country settings where a disclosure mandate is introduced and focused on **specific sustainability topics**, e.g.:
 1. Greenhouse gas (GHG) emissions (e.g., Downar et al. 2021, UK Companies Act 2006 Regulations 2013)
 2. Workforce accidents (e.g., Christensen et al. 2017, Section 1503 of the Dodd-Frank Act “Mine Safety”)
- Fiechter et al. (2022, JAR) **expand** the single country and **single sustainability issue scope**

SASB Studies

- Stock price informativeness (Grewal et al., 2021)
- Earning calls (Bochkay et al., 2021),
- Investors’ reweighting of (im)material ESG issues (Spandel et al. 2022)

- However, these studies **do not answer** whether **materiality disclosure standards** also **entail real effects** (i.e., positive impacts on the environment and society)



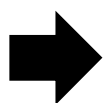
Research gap: There is a need to study how market-wide materiality standards affect companies’ management of sustainability issues and whether this effect translates into real effects (for the environment and society; i.e., the outside-in perspective)

[illegible]

Dependent variable – How to measure real effects?

■ RepRisk Index (RRI)

- **Rules-based methodology:** the scores are updated daily by screening **over 100,000 public sources** (e.g., print and online media, newsletters, and government bodies) in **23 languages**
- RRI covers **28 ESG issues** spanning over the **ESG pillars**
- Each incident is evaluated based on **three parameters: severity, reach, and novelty**
- RRI is a score that **ranges from zero to 100**, where **zero is the best** possible performance (i.e., there were no ESG incidents for a respective firm) while **100 is the worst** (i.e., current and severe incidents with far reach).
- RRI is **alignable** to the SASB Standards



We can observe (SASB) material and immaterial RRI (i.e., ESG incidents)

Environment	Social		Governance
Environmental Footprint <ul style="list-style-type: none"> Climate change, GHG emissions, and global pollution Local pollution Impacts on landscapes, ecosystems, and biodiversity Overuse and wasting of resources Waste issues Animal mistreatment 	Community Relations <ul style="list-style-type: none"> Human rights abuses, corporate complicity Impacts on communities Local participation issues Social discrimination 	Employee Relations <ul style="list-style-type: none"> Forced labor Child labor Freedom of association and collective bargaining Discrimination in employment Occupational health and safety issues Poor employment conditions 	Corporate Governance <ul style="list-style-type: none"> Corruption, bribery, extortion, money laundering Executive compensation issues Misleading communication Fraud Tax evasion Tax optimization
Cross-cutting Issues <ul style="list-style-type: none"> Controversial products and services Products (health and environmental issues) Supply chain issues Violation of national legislation Violation of international standards 			



Data and Empirical Design

Data source

- 1,691,475 daily **RepRisk** ESG incidents observations, thereof 73,950 ESG incidents for 797 large U.S. firms (2007-2020)
- Table 1 is based on monthly data

Example RRESG score:

Assume two incidents are reported for a firm in the Apparel, Accessories & Footwear industry. One incident is in the category Local Pollution (e.g., the production site of the firm is polluting a nearby lake); the other is in the category Product Quality (e.g., toxic fibers are used in the production process). Based on the RepRisk parameters of severity, reach, and novelty⁹, the lake incident score is 19, and the toxic fibers incident score is 27. Given that the Product Quality topic is material according to the SASB standards in the Apparel, Accessories & Footwear industry, whereas the Water Quality topic is immaterial, the RRESG, matRRESG, and immatRRESG scores are 46, 27, and 19, respectively.

Table 1. Sample description and summary statistics

Panel A. Sample distribution by year

	2013	2014	2015	2016	Total
No. of observations	5,854	6,130	6,194	6,230	24,408

Panel B. Sample distribution by sector

Sector	No. of observations	Percentage
Consumer goods (CG)	2,849	11.67
Extracting & Minerals Processing (EM)	2,683	10.99
Food & Beverage (FB)	2,833	11.61
Financials (FN)	2,596	10.64
Health care (HC)	2,165	8.87
Infrastructure (IF)	3,182	13.04
Renewable resources (RR)	144	0.59
Resource Transformation (RT)	2,652	10.87
Services (SV)	1,323	5.42
Technology (TC)	2,776	11.37
Transportation (TR)	1,205	4.93
Total	24,408	100.00

Panel C. Summary statistics main analysis– monthly data

Statistic	No. obs.	Mean	St. Dev.	Min	Pctl (25)	Pctl (75)	Max
RepRisk scores							
<u>matRRESG</u>	24,408	20.90	17.64	0.00	0.35	34.17	73.41
<u>immatRRESG</u>	24,408	11.44	11.65	0.00	1.45	19.06	59.52
Accounting data							
<i>Inst. Ownership (%)</i>	24,408	79.34	19.90	0.00	79.34	91.75	100.00
<i>ROA (%)</i>	24,408	5.16	8.17	-85.47	1.52	8.45	137.22
<i>Total Assets \$US000</i>	24,408	57,713	203,717	103	4,963	36,188	2,572,274
<i>Sales Growth (%)</i>	24,408	4.51	24.85	-85.32	-3.42	9.67	387.23

Data and Empirical Design

Event study (quasi-natural experiment)

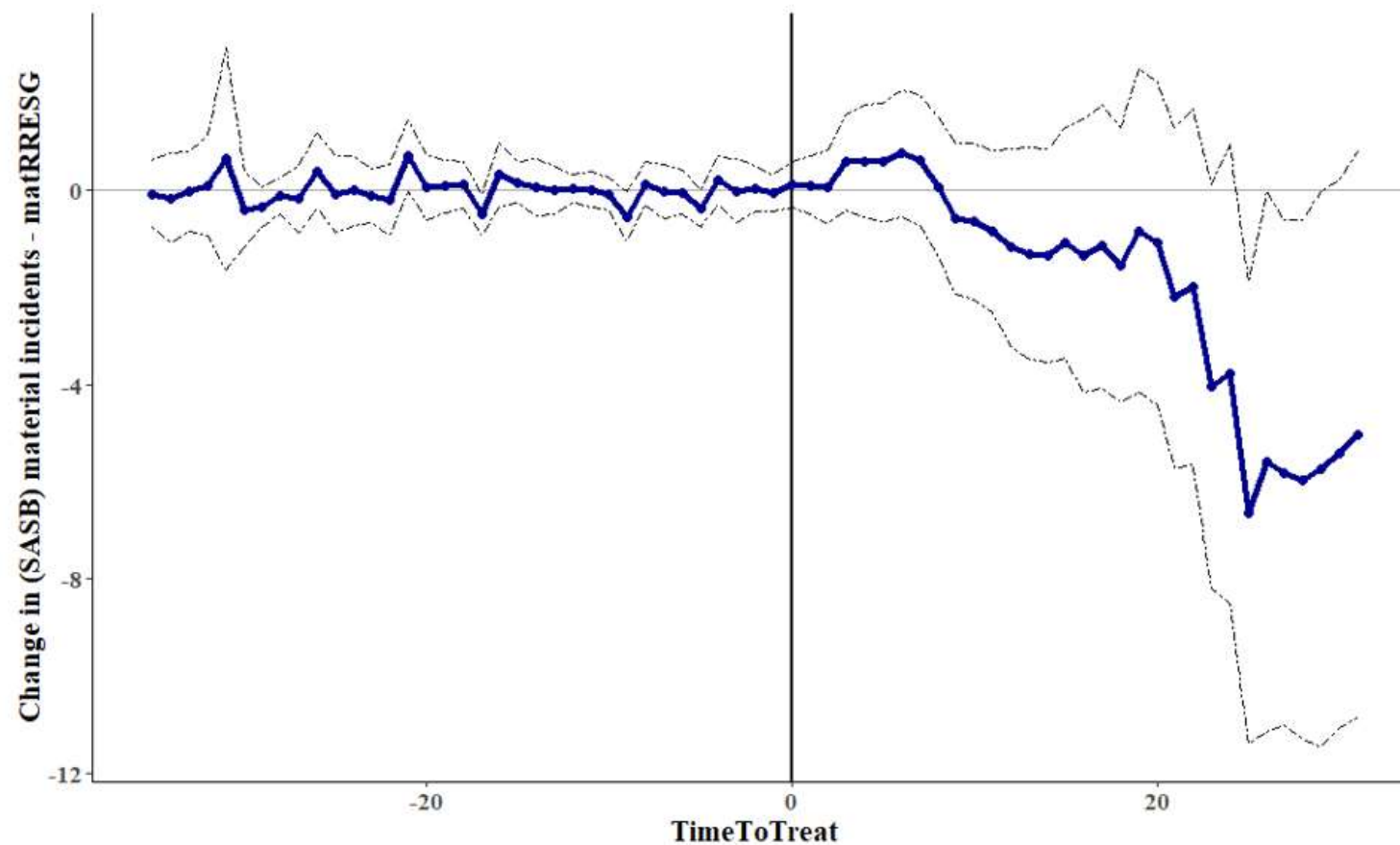
- We exploit the staggered release of the SASB standards as an **exogenous shock** to conduct a quasi-natural experiment (Grewal et al. 2021)
- However, (dynamic) two-way fixed effects DiD regressions are problematic here:
 - all firms are treated (no never-treated firms) and
 - “bad comparison” problem (Callaway and Sant’Anna, 2021; Goodman-Bacon, 2021)
- We use Callaway and Sant’Anna (2021) method → allows for heterogeneity in the average effect for the treated units across industries and over time:

$$ATT(g, t) = \mathbb{E}[Y_t(g) - Y_t(0) \mid G_g = 1]$$

- $ATT(g, t)$ is the average effect of treated group g in time t
- G_g is a binary variable, which equals 1 if the g is treated at time t
- $Y_t(g)$ is the respective outcome variable (i.e., material or immaterial RepRisk ESG score) for each unit in group g at t
- $Y_t(0)$ is the not yet treated unit’s potential outcome at t
- We can look at different exposure lengths (e.g., 5 or 10 months after a specific SASB standard publication, but are especially interested in the average overall treatment effect)
- We use “doubly robust” estimation procedure conditioned on the covariates stored in the vector of controls, X_i
- X_i includes time varying controls at the firm level (Total Assets, ROA, Sales Growth, Inst. Ownership)

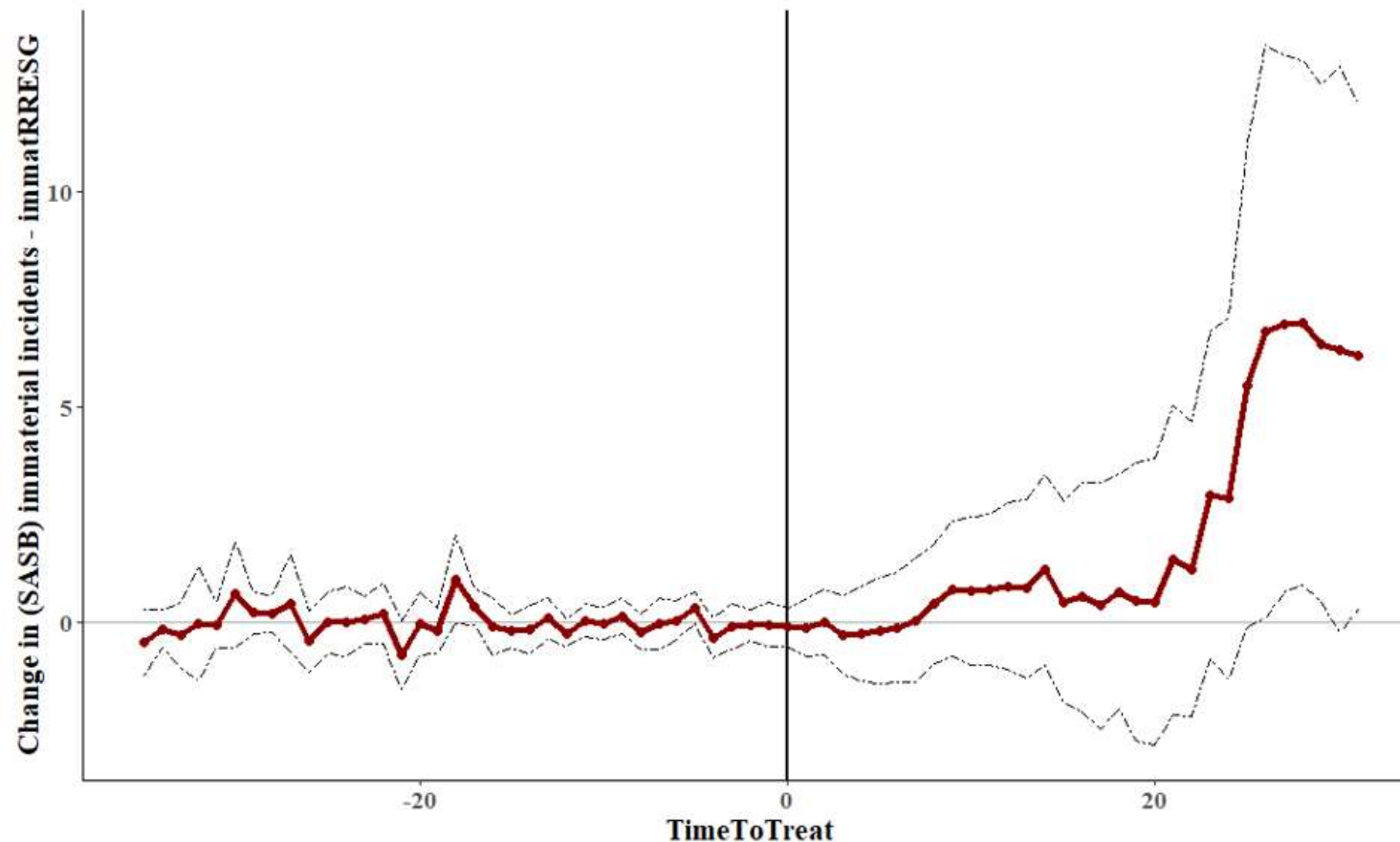
Results

- Treated firms reduce their material negative sustainability incidents (*matRRESG*), i.e., **increase material sustainability performance** four years after the **SASB standard releases** (Support for H1).



Results

- However, immaterial negative sustainability incidents (*immatRRESG*) increases over the same period, i.e., **sustainability performance focusing on immaterial topics decreases** (Support for H2).



Results

- Treated firms reduce their material RRESG (*matRRESG*) four years after the SASB publication
- However, immaterial RRESG (*immatRRESG*) increases over the same period

	<i>matRRESG</i>	<i>immatRRESG</i>
	(1)	(2)
Overall treatment effect: $\theta^{Overall}$ for all $e > 0$	-1.9221*	1.9187*
	(0.7028)	(0.7626)
Dynamic treatment effect: $\theta(e)$ with $e = -35$	-0.0662	-0.4666
	(0.2240)	(0.2450)
Dynamic treatment effect: $\theta(e)$ with $e = -25$	-0.0708	0.0040
	(0.2643)	(0.2440)
Dynamic treatment effect: $\theta(e)$ with $e = -15$	0.1603	-0.2017
	(0.1319)	(0.1235)
Dynamic treatment effect: $\theta(e)$ with $e = -5$	-0.3755	0.3372
	(0.1187)	(0.1262)
Dynamic treatment effect: $\theta(e)$ with $e = +5$	0.5903	-0.1756
	(0.3770)	(0.4095)
Dynamic treatment effect: $\theta(e)$ with $e = +15$	-1.0797	0.4794
	(0.8821)	(0.7855)
Dynamic treatment effect: $\theta(e)$ with $e = +25$	-6.6350*	5.4928*
	(1.6144)	(1.7824)
Dynamic treatment effect: $\theta(e)$ with $e = +30$	-5.4228	6.3358*
	(1.8368)	(2.0486)
Dynamic treatment effect: $\theta(e)$ with $e = +31$	-5.0331	6.1993
	(1.8409)	(2.0798)
Controls	Yes	Yes
Firm-fixed effects	Yes	Yes
Time-fixed effects	Yes	Yes
Firm clustered standard errors	Yes	Yes

Additional Analyses – Mechanism I

- Do firms change their **internal sustainability policies** after SASB standard releases?
- Pressure would be especially high for firms with *matRRESG* (or *immatRRESG*) below the industry median (Fiechter et al. 2022) → high-exposure firms

$$Outcome = \beta_0 + \sum \beta_m TimeToTreat \times Mechanism + \sum \beta_i X_i + \sum \beta_j FixedEffects_j + \varepsilon.$$

- Outcome* = Refinitiv material and immaterial ESG Policy Score
- Mechanism* = 1 if pre-SASB (mat and immat)RRESG is below sector median

Table 6. Changes in firms' internal material and immaterial sustainability policies

	<i>materialESGpol</i>	<i>immaterialESGpol</i>
	(1)	(2)
<i>TimeToTreat1</i> × <i>preSASBexp</i>	1.734*	1.744
	(1.023)	(1.202)
<i>TimeToTreat2</i> × <i>preSASBexp</i>	4.071***	3.313**
	(1.377)	(1.392)
<i>TimeToTreat3</i> × <i>preSASBexp</i>	6.540***	5.006***
	(1.574)	(1.704)
<i>TimeToTreat4</i> × <i>preSASBexp</i>	9.322***	5.850***
	(1.720)	(1.791)
Controls	Yes	Yes
Firm-fixed effects	Yes	Yes
Time-fixed effects	Yes	Yes
Firm clustered standard errors	Yes	Yes
Observations	2,542	2,542
Adjusted R ²	0.090	0.080
F Statistic	10.594***	9.271***

Panel A. Identified Refinitiv ESG policies

Environment (E)	Social (S)	Governance (G)
Targets Emissions	Policy Child Labor	Policy Fair Competition
Policy Water Efficiency	Policy Forced Labor	Policy Bribery and Corruption
Policy Energy Efficiency	Policy Data Privacy	Policy Business Ethics
Environment Management Team	Policy Customer Health & Safety	Board Specific Skills
	Health & Safety Policy	

Panel B. SASB materiality map: Mapping from SASB topics to Refinitiv ESG policies

SASB	Refinitiv	CG	EM	FN	FB	HC	IF	RR	RT	SV	TC	TR
GHG Emissions	Emission Targets	X	X		X	X	X	X	X		X	X
Water Management	Water Efficiency	X	X		X	X	X	X	X	X	X	
Energy Management	Energy Efficiency	X	X		X	X	X	X	X	X	X	X
Human Rights	Child Labor		X		X			X	X			
Human Rights	Forced Labor		X		X			X	X			
Customer Privacy	Data Privacy	X		X					X	X	X	
Product Safety	Custom Health Safety	X		X	X	X		X	X	X	X	X
Employee Health	Health Safety Policy		X		X	X		X	X	X	X	X
Physical Impact CC	Env Mgt Team		X	X		X	X		X			
Business Ethics	Business Ethics		X	X		X	X		X			X
Competitive Behavior	Fair Competition		X					X	X	X	X	X
Legal Environment	Bribery Corruption		X					X	X			
Systematic Risk Mgt	Board Skills		X			X					X	

Additional Analyses – Mechanism II

- Does shareholder pressure on sustainability issues lead to firm reactions?
- Shareholder activism increases managers' awareness of sustainability topics and related threats and opportunities
(Cunat et al., 2012; Diaz-Rainey et al., 2023; Dimson et al., 2015; Flammer et al., 2021)

$$Outcome = \beta_0 + \sum \beta_m TimeToTreat \times Mechanism + \sum \beta_i X_i + \sum \beta_j FixedEffects_j + \varepsilon.$$

- Outcome* = matRRESG or immatRRESG
- Mechanism* = 1 if pre-SASB at least one ESG shareholder proposal was filed at the last AGM before the respective SASB standard release

Table 7. Shareholder pressure and changes in sustainability performance

	<i>matRRESG</i>	<i>immatRRESG</i>
	(1)	(2)
<i>TimeToTreat1</i> × <i>preSASBprop</i>	0.271 (1.133)	-1.037 (0.899)
<i>TimeToTreat2</i> × <i>preSASBprop</i>	-2.596* (1.396)	0.864 (1.062)
<i>TimeToTreat3</i> × <i>preSASBprop</i>	-3.317* (1.807)	1.068 (1.239)
<i>TimeToTreat4</i> × <i>preSASBprop</i>	-4.024*** (1.438)	2.213** (0.991)
Controls	Yes	Yes
Firm-fixed effects	Yes	Yes
Time-fixed effects	Yes	Yes
Firm clustered standard errors	Yes	Yes
Observations	2,310	2,310
Adjusted R ²	0.041	0.033
F Statistic	4.208***	3.298***

Additional Analyses – Mechanism III

- Does sustainability-linked compensation drive our main results?
- Conflicting recent findings in Cohen et al. (2023), who find a positive effect of linked-compensation on sustainability performance and Bebachuk and Tallarita (2023, p. 37) who state: “the use of these [sustainability-linked compensation] metrics could well ultimately hurt, not serve, aggregate stakeholder welfare”.

$$Outcome = \beta_0 + \sum \beta_m TimeToTreat \times Mechanism + \sum \beta_i X_i + \sum \beta_j FixedEffects_j + \varepsilon.$$

- Outcome* = *matRRESG* and *immatRRESG*
- Mechanism* = 1 if a firm initiated a compensation plan in one of the four years after SASB standard release

Table 8. Sustainability-linked compensation and sustainability performance

	<i>matRRESG</i>	<i>immatRRESG</i>
	(1)	(2)
<i>TimeToTreat1</i> × <i>CompInitiator</i>	0.433	-1.268*
	(0.736)	(0.712)
<i>TimeToTreat2</i> × <i>CompInitiator</i>	-1.286	-0.613
	(0.978)	(0.943)
<i>TimeToTreat3</i> × <i>CompInitiator</i>	-1.871	0.068
	(1.176)	(1.095)
<i>TimeToTreat4</i> × <i>CompInitiator</i>	-2.525**	0.209
	(1.190)	(1.017)
Controls	Yes	Yes
Firm-fixed effects	Yes	Yes
Time-fixed effects	Yes	Yes
Firm clustered standard errors	Yes	Yes
Observations	2,297	2,297
Adjusted R ²	0.042	0.032
F Statistic	4.238***	3.153***

- In our main sample, sustainability-linked compensation decrease *matRRESG*

Additional Analyses – Mechanism III

- Does sustainability-linked compensation lead to stronger firm reactions?
- Following Bebchuk & Tallarita (2023), we focus on S&P 100 firms and use the hand-collected compensation data provided in their paper

$$Outcome = \beta_0 + \sum \beta_m TimeToTreat \times Mechanism + \sum \beta_i X_i + \sum \beta_j FixedEffects_j + \varepsilon.$$

- Outcome* = *matRRESG* and *immatRRESG*
- Mechanism* = 1 if a S&P 100 firm initiated a compensation plan in one of the four years after SASB standard release

Table 9. S&P100 sustainability-linked compensation and sustainability performance

	<i>matRRESG</i>	<i>immatRRESG</i>
	(1)	(2)
<i>TimeToTreat1</i> × <i>ESGCompS&P100</i>	-0.468 (1.418)	-0.055 (1.230)
<i>TimeToTreat2</i> × <i>ESGCompS&P100</i>	-1.177 (1.939)	0.500 (1.712)
<i>TimeToTreat3</i> × <i>ESGCompS&P100</i>	-1.010 (1.941)	0.776 (1.668)
<i>TimeToTreat4</i> × <i>ESGCompS&P100</i>	-4.142* (2.370)	4.675** (1.836)
Controls	Yes	Yes
Firm-fixed effects	Yes	Yes
Time-fixed effects	Yes	Yes
Firm clustered standard errors	Yes	Yes
Observations	433	433
Adjusted R ²	0.110	0.092
F Statistic	2.234***	1.1837***

- Our results build a bridge between Bebchuk & Tallarita (2023) and Cohen et al. (2023) as we show that the effect of sustainability-linked compensation resides mostly in material sustainability performance, and that firms' non-investor stakeholders bear the costs

Conclusion

Besides our contribution to academic literature, we see important implications for regulators/policy makers:

Static (single) materiality classifications (outside-in perspective) designed for investors may **harm other stakeholder groups** such as those with non-pecuniary interests in the firm.

In other words:

Financial materiality (e.g., as conducted by the SEC, and now by ISSB) is **not enough to solve current global challenges** (e.g., climate crisis, poverty, and inequality).

Thank you very much for your attention!

*Your questions and
comments are very welcome!*



You can find the
paper here!