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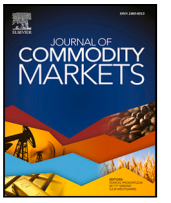

Regular article

Corporate reputational dynamics and their impact on global commodity markets

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ABSTRACT

This research examines investor response to negative Environmental, Social, and Governance (ESG) reputational events across international commodity-related corporations. By distinguishing between G7 and non-G7 nations, we highlight a negative equity market response to such ESG-related reputational events, emphasising the influence of regional, governance and environmental factors alongside corporate reporting practices. The research further assesses the potential of corporate ESG preparedness in mitigating negative market outcomes. It also identifies commodities such as wheat, rice, and cocoa to be notably susceptible to reputational dynamics, whereas commodity markets such as oil and gold present evidence of marked resilience. The findings emphasise the importance of sector-specific regulatory approaches to ensure rigorous governance standards, especially in essential food production sectors.

1. Introduction

The role of corporate reputation in the global financial landscape has gained particular prominence in recent times, where, particularly for international commodity-related corporations, reputation is paramount due to their intricate involvement in vast supply chains and their potential influence on the socio-economic dynamics of nations. The sensitivity of corporate reputation to various events, especially disasters, has observable impacts on investor behaviours and, by extension, international commodity markets and the associated commodity-related companies (Gatzert, 2015). This is further nuanced by the contrasting reactions observed between developed markets, such as the G7 nations with their established financial systems and regulatory environments, and emerging or other non-G7 economies. Therefore, this research aims to provide a deeper understanding of corporate reputational dynamics when considering Environmental, Social, and Governance (ESG) dynamics and their implications for international commodity markets.

Corporate reputational dynamics have become increasingly important, especially when considering several major environmental disasters that have occurred (Xu et al., 2012; Humphrey et al., 2016). Within this context, several prominent research questions arise: first, does the nature and intensity of this corporate reputational response exhibit variation for commodity companies between

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advanced economies, such as those within the G7, and their counterparts in non-G7 nations? Secondly, we extend such analysis to discern whether a corporation's preparedness and adherence to ESG criteria can serve as a buffer, mitigating the potential negative backlash from investors in the wake of reputational downturns. Lastly, we investigate whether such corporate reputational disasters, particularly in the domain of commodity-related corporations, can trigger shocks in international commodity markets.

Addressing such research questions is fundamentally important as understanding these differential reactions can offer insights into the heterogeneity of investor sentiments, risk perceptions, and evaluative mechanisms across varying economic environments while considering the presence of proactive corporate strategies, presenting particular assessment as to whether a robust ESG framework can indeed insulate firms from the adverse market repercussions associated with reputational adversities. Such work provides stakeholders, ranging from policymakers to investors, with particular insights on the potential contagion effects that a single corporate entity's reputational challenges can exert on global market landscapes.

The importance of understanding the dynamics of ESG integration in global markets cannot be overstated, particularly given the present era of rapid socio-economic transformation and heightened public scrutiny. Corporate reputation, a key barometer for ESG compliance, has emerged as a pivotal determinant of market behaviour, influencing investor decisions and commodity price volatility. This importance is magnified in an interconnected global economy where reputational events can manifest in other economic areas through traditional contagion channels. Specifically, within the G7 nations, where corporate reporting standards have matured, the relationship between governance, environmental considerations, and market outcomes presents evidence of a cumulation of regulatory oversight, institutional activism, and shareholder dynamics. Conversely, in nations beyond the G7, where corporate landscapes often contain ambiguity and malfeasance, understanding the primacy of governance mechanisms becomes crucial to bridge trust deficits among investors and stakeholders. Further, commodities pivotal to daily consumption, such as wheat, rice, and cocoa, carry an added layer of complexity. Their market sensitivity to ESG-influenced reputational events underscores the balance between corporate responsibility, consumer sentiment, and global market stability. As a result, this research addresses a significant gap, presenting a granular insight into how varying ESG factors, regional disparities, and commodity-specific sensitivities coalesce to shape market dynamics when considering the stated presence of transparency, accountability, and sustainable growth.

Results indicate the presence of significant variance in equity market responses based on the severity, nature of reputational incidents, and media reach, highlighting how corporate reputation influences investor behaviour and market dynamics across various commodity sectors. In G7 economies, governance and environmental considerations were notably prominent, reflecting mature corporate reporting and a particular intricacy of regulatory structures, stakeholder activism, and environmental structures. Meanwhile, non-G7 nations strongly focused on governance, highlighting the need for robust corporate trust and accountability structures due to past wrongdoing and opaque decision-making patterns. Our findings also highlight a pronounced negative commodity market outcome from corporate reputational events, with commodities such as oil and gold showcasing resilience due to their liquidity and central roles in investment portfolios.[1] However, commodities such as heating oil, wheat, and cocoa exhibited pronounced vulnerabilities, attributed to their deep ties to societal needs and supply-chain intricacies. This underscores the deep-rooted importance and dynamic interplay between corporate reputational dynamics and commodity market behaviours, accentuating the role of regulatory oversight in shaping financial market stability. In particular, sectors with pronounced reputational sensitivities, such as international food production, necessitate stringent governance frameworks to ensure market transparency and resilience. This research contributes significantly to our understanding by systematically analysing the response of commodity-related stocks to corporate reputational events, thereby shedding light on the interplay between corporate reputation management and commodity market fluctuations on a global scale.

The rest of this paper proceeds as follows: Section 2 provides a concise overview of previous work surrounding the interactive effects between corporate reputational disaster and stock market response, with further empirical evidence to underpin the research questions and methodological processes used to analyse. Section 3 provides a thorough explanation of the data and methodologies employed, while Section 4 summarises the key results identified. Section 5 provides an overview of the relevant discussion relating to the results, the key policy and regulatory implications, and several directions for future research. Finally, Section 6 concludes.

2. Previous literature

Reputational risk has emerged as a significant facet of business risk. As highlighted by Christensen and Raynor (2013), a company forges its reputation through several key factors, including long-term financial performance, corporate governance, leadership, social responsibility, workplace culture, fulfilment of commitments to external partners, regulatory compliance, communication practices, and crisis management. Barnett et al. (2006) state that corporate reputation is rooted in assessing a corporation's status, considering its financial, social, and environmental influences. Henceforth, reputational risk exposure is effectively captured by ESG incidents.

Prior studies have extensively documented a positive relationship between firms' ESG ratings, ESG initiatives and characteristics such as firm value, stock prices, or corporate bond ratings (Edmans, 2011; Ramiah et al., 2013; Borghesi et al., 2014; Jiraporn et al., 2014; Dimson et al., 2015; Friede et al., 2015; Gao and Zhang, 2015; Ferrell et al., 2016; Lins et al., 2017; Iliev and Roth, 2021). The literature has also grown rapidly in estimating an ESG-stock relation by examining short-term market reactions to ESG events over the last two decades. Krüger (2015) examines over 2000 positive and negative sustainability events in US firms using the KLD

[1] Substantial research focuses on liquidity differentials across products, regions, and commodity market types. Schroeder et al. (2019) provides a strong analysis of cash markets with a focus on the market for live cattle, through which thinning markets have presented a substantial challenge for price and information flows. In contrast, Doojav et al. (2023) identified that commodity demand shocks have more persistent and robust effects on domestic cycles than commodity supply shocks.

dataset, finding that negative events, especially those related to the environment or communities, lead to strong negative market reactions, while positive events have no significant impact. Other studies draw similar conclusions regarding the effects of negative ESG events on the stock price. Flammer (2013) identify that US companies' environmental practices significantly impacted their stock prices using RepRisk data. Environmentally responsible firms are found to be associated with increased stock prices, while irresponsible ones experience declines. Additionally, Capelle-Blancard and Petit (2019) identified that negative ESG announcements typically lead to a modest decline in market value, particularly for firms in sectors with weaker ESG reputations, highlighting the significant impact of sector reputation on market reactions to ESG events and suggesting that unsustainable corporate practices incur financial costs for shareholders.[2]

The RepRisk database, known for its timeliness and precision, is compiled from public information and media coverage by external observers, reducing potential managerial biases seen in databases reliant on internal corporate documents. It continuously updates, enabling accurate event studies on reputational risk impacts. For example, Kölbel et al. (2017) use RepRisk data for 539 global firms and find a correlation between corporate social irresponsibility (CSI) and increased financial risk. Similarly, Gloßner (2019) investigates 5302 US firms and observes that severe CSI incidents cause significant negative market reactions. Derrien et al. (2021) analyse the impact of negative ESG news on the future profits of 8054 firms from 45 countries, concluding that negative ESG incidents lead to lower profit forecasts, highlighting the importance of ESG factors in financial analysis. Akyildirim et al. (2024) use RepRisk data to assess the implications of the Brexit withdrawal on the investor response to ESG events.

While extensive literature examines ESG aspects in stock and bond markets, few studies have integrated these considerations into commodities. Mensi et al. (2017) found evidence of a modest positive correlation between sustainability stock indices and commodity markets, noting that oil and gold are net receivers of risk spillovers from sustainability indices. Ferrer et al. (2018) assessed return and volatility connectedness among US clean energy stocks and crude oil, finding that most connectedness is short-term. Despite this, no known research has fully explored the impact of ESG attributes on commodity markets or commodity-related companies. Price volatility in commodities primarily stems from actual demand and speculation (Wang et al., 2023), where changes in stock prices of commodity sectors may influence commodity markets in the short term through investor perceptions (Boyd et al., 2018; Fishe and Smith, 2019). Our study addresses this gap by investigating how ESG incidents impact the stock prices of commodity-producing companies and whether these effects extend to commodity prices.

3. Data and methodology

To analyse the effects of reputational disasters upon commodity-related corporations, we utilise data based on events relating to significant corporate reputational disasters from the RepRisk database,[3] which has been used in research to date that has focused on transparency, corporate social responsibility, and investigation of ESG-focused issues, amongst other areas (Akyildirim et al., 2020). Data is obtained along with several related characteristics, presenting the specific analysis of the reputational event's severity, novelty, and reach. Within the RepRisk database, each risk incident is analysed according to three parameters: (1) Severity constitutes the harshness of the risk incident or criticism. The severity is determined as a function of three dimensions: firstly, what are the consequences of the risk incident (e.g., concerning health and safety: no further consequences, injury, death); secondly, what is the extent of the impact (e.g., one person, a group of people, a large number of people); and thirdly, was the risk incident caused by an accident, by negligence, or intent, or even in a systematic way. There are three levels of severity: low severity, medium severity, and high severity[4] (2) Reach of the information source (influence based on readership/circulation as well as by its importance in a specific country), according to RepRisk's rating. All sources are pre-classified by reach: limited reach, medium reach, and high reach. Limited reach sources include local media, smaller NGOs, local governmental bodies, and social media. Medium-reach sources include most national and regional media, international NGOs, and state, national, and international governmental bodies. The few truly global media outlets are high-reach sources; and (3) novelty (newness) of the issues addressed for the company and project, whether it is the first time a company/project is exposed to a specific ESG issue in a specific location. RepRisk data were obtained between 1 January 2007 and 31 December 2022, resulting in 30,446 observations. The frequencies of the included ESG events are presented in Fig. 1, presenting evidence of the growth in the number of corporate reputational disasters by commodity-related corporations as separated by key statistics.

[2] Given these insights, our study focuses on the financial impacts of adverse ESG incidents as proxies for corporate reputational risk in commodity-related companies. Westgaard et al. (2022) provides a strong overview of the common traits that persist across fourteen large commodity trading disasters, providing a strong platform upon which the following research develops.

[3] RepRisk is a global leader and pioneer in data science, specialising in premium ESG and business conduct risk research and quantitative solutions. Since 2006, RepRisk has been leveraging AI and machine learning with human intelligence to translate big data into actionable research, analytics, and risk metrics. With daily-updated data synthesised in 23 languages using a rules-based methodology, RepRisk systematically flags and monitors material ESG risks and violations of international standards that can have reputational, compliance, and financial impacts on a company. The RepRisk ESG Risk Platform is the world's largest database, covering 200,000+ public and private companies and 50,000+ infrastructure projects of all sizes in every sector and market. Leading organisations around the world rely on RepRisk as their key due diligence solution to prevent and mitigate ESG and business conduct risks related to their operations, business relationships, and investments.

[4] Following the RepRisk methodology, our analysis categorises reputational events based on their severity and reaches into three levels: low, medium, and high. While we focus extensively on the impacts of low and high categories in our presentation of results, medium-severity and medium-reach events follow a nuanced pattern that aligns with the gradients of impact outlined by RepRisk. These medium-level events, representing a substantial portion of our data set, are treated with equal analytical rigour, ensuring that the transition in market responses from low to high is smoothly interpolated and thoroughly understood. This treatment allows us to capture and analyse the full spectrum of potential market reactions without focusing on the more extreme impacts crucial for stakeholders' strategic decision-making.

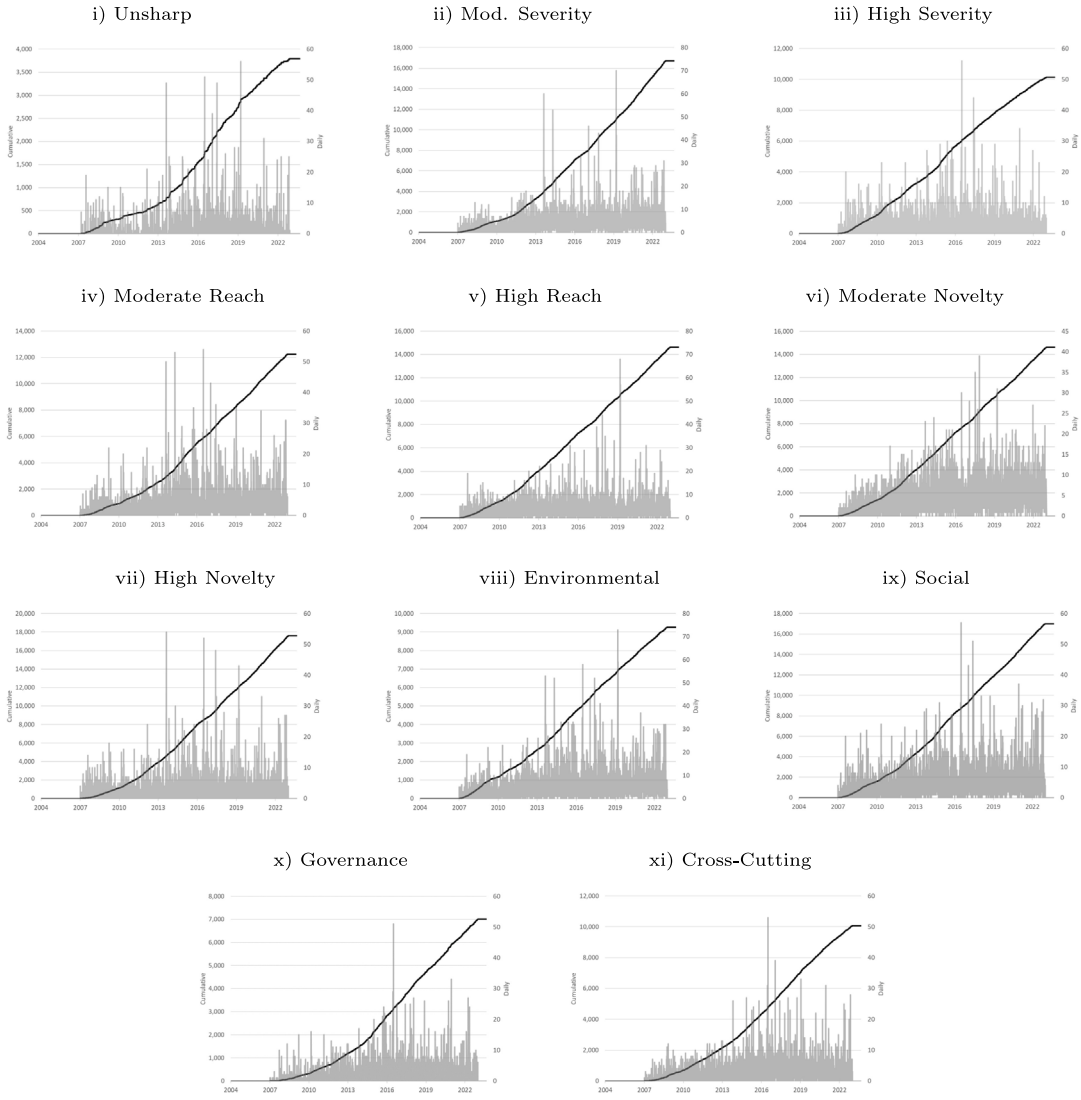


Fig. 1. Frequency of Corporate Reputational Disaster by Event Characteristic.
Note: To analyse the effects of reputational disaster upon commodity-related corporations, we utilise data based on events relating to significant corporate reputational disasters from the RepRisk database. Data is obtained along with several related characteristics, presenting specific analysis as to the severity, novelty, and reach of the reputational event. Within the RepRisk database, each risk incident is analysed according to three parameters: (1) Severity constitutes the harshness of the risk incident or criticism. The severity is determined as a function of three dimensions: firstly, what are the consequences of the risk incident; secondly, what is the extent of the impact; and thirdly, was the risk incident caused by accident, negligence, or intent, or even in a systematic way. There are three levels of severity: low severity, medium severity, and high severity; (2) Reach of the information source (influence based on readership/circulation as well as by its importance in a specific country), according to RepRisk's rating. All sources are pre-classified by reach: limited reach, medium reach, and high reach. Limited reach sources include local media, smaller NGOs, local governmental bodies, and social media. Medium-reach sources include most national and regional media, international NGOs, and state, national, and international governmental bodies. The few truly global media outlets are high-reach sources; and (3) novelty (newness) of the issues addressed for the company and/or project, whether it is the first time a company/project is exposed to a specific ESG issue in a specific location. RepRisk data was obtained between 1 January 2007 and 31 December 2022, resulting in 30,446 observations.

To investigate the effects of ESG-related reputational events upon corporate returns, we first proceed to match events identified from the RepRisk database with each identified ISIN code, where stock data are obtained for the period 1 January 2004 through 31 July 2023, resulting in 5108 daily observations to be used for analysis. Summary statistics relating to each country analysed are presented in Table 1 as separated by G7 nation when compared to all other nations analysed. Stock market data selection was considered within the context of providing a strong sample of data both before and after the events identified and collated through the RepRisk database. Therefore, extended stock market data is obtained to generate a strong sample period of analysis and provide an adequate representation of stock market behaviour before and after the earliest and latest events recorded in our sample. Data is selected after considering the respective TRBC (The Refinitiv Business Classification) sectors surrounding international commodity

Table 1
Summary statistics of return relating to the corporations within the analysed samples separated by geographic region of headquarters.

Country	Mean	Var	Skew	Kurt	Min	Max	Percentile 1%	5%	10%	25%	75%	90%	95%	99%
G7														
Canada	0.0108	0.0027	6.3478	42.4382	−0.0964	0.4663	−0.0273	−0.0151	−0.0102	−0.0031	0.0094	0.0210	0.0377	0.3827
France	0.0004	0.0001	−0.2394	6.4217	−0.1080	0.0851	−0.0323	−0.0183	−0.0129	−0.0058	0.0066	0.0135	0.0192	0.0331
Germany	0.0010	0.0014	2.0832	18.8764	−0.2951	0.5377	−0.0846	−0.0494	−0.0336	−0.0117	0.0064	0.0343	0.0615	0.1403
Italy	0.0001	0.0002	−0.3044	11.8729	−0.1334	0.1440	−0.0370	−0.0191	−0.0134	−0.0061	0.0064	0.0137	0.0189	0.0336
Japan	0.0003	0.0002	−0.1666	7.0497	−0.1004	0.1530	−0.0398	−0.0222	−0.0157	−0.0063	0.0077	0.0155	0.0210	0.0346
United Kingdom	0.0004	0.0001	−0.6734	15.8817	−0.1228	0.0798	−0.0271	−0.0139	−0.0096	−0.0041	0.0049	0.0108	0.0150	0.0271
United States	0.0170	0.0077	6.4152	41.9792	−0.1862	0.8515	−0.0332	−0.0176	−0.0123	−0.0046	0.0108	0.0260	0.0526	0.0616
Non-G7														
Australia	0.0014	0.0002	10.5084	421.1835	−0.1010	0.4763	−0.0295	−0.0151	−0.0098	−0.0037	0.0070	0.0130	0.0170	0.0268
Belgium	0.0002	0.0003	1.5344	32.1543	−0.1397	0.2960	−0.0429	−0.0235	−0.0160	−0.0069	0.0072	0.0162	0.0232	0.0419
China	0.0010	0.0147	3.0647	28.4532	−0.5737	1.1142	−0.3886	−0.1216	−0.0444	−0.0095	0.0065	0.0397	0.0939	0.5645
Colombia	0.0004	0.0008	2.4304	67.7215	−0.3327	0.6204	−0.0749	−0.0378	−0.0216	0.0000	0.0000	0.0240	0.0403	0.0822
Ireland	0.0008	0.0007	2.8600	33.6613	−0.1804	0.4562	−0.0596	−0.0331	−0.0240	−0.0119	0.0106	0.0256	0.0408	0.0841
Jersey	0.0005	0.0004	9.3321	308.1698	−0.1012	0.6948	−0.0438	−0.0239	−0.0167	−0.0079	0.0078	0.0179	0.0258	0.0525
Luxembourg	0.0003	0.0003	0.0620	12.5857	−0.1851	0.1837	−0.0448	−0.0248	−0.0165	−0.0069	0.0076	0.0169	0.0252	0.0494
Mexico	0.0003	0.0007	0.1340	8.0067	−0.1986	0.2279	−0.0717	−0.0372	−0.0265	−0.0097	0.0099	0.0281	0.0406	0.0749
Netherlands	0.0004	0.0003	−0.3355	6.8710	−0.1670	0.1362	−0.0508	−0.0267	−0.0175	−0.0071	0.0083	0.0182	0.0256	0.0478
Singapore	0.0012	0.0010	3.4882	57.6839	−0.2079	0.6749	−0.0776	−0.0405	−0.0249	−0.0104	0.0094	0.0278	0.0500	0.1097
Spain	0.0002	0.0002	−0.2472	7.4871	−0.1407	0.1090	−0.0409	−0.0221	−0.0153	−0.0066	0.0077	0.0153	0.0212	0.0361
Sweden	0.0009	0.0005	1.5988	12.5514	−0.1553	0.2580	−0.0479	−0.0321	−0.0233	−0.0105	0.0102	0.0247	0.0364	0.0721
Switzerland	0.0003	0.0006	0.4587	13.8968	−0.2522	0.2879	−0.0649	−0.0351	−0.0240	−0.0100	0.0106	0.0243	0.0355	0.0674
UAE	−0.0001	0.0009	−2.0713	99.8881	−0.7467	0.4460	−0.0909	−0.0377	−0.0207	0.0000	0.0000	0.0199	0.0391	0.0857
Other	0.0003	0.0017	1.1138	28.5976	−0.7478	0.7100	−0.1012	−0.0497	−0.0315	−0.0078	0.0054	0.0310	0.0535	0.1308
G7	0.0043	0.0018	1.9232	20.6457	−0.2951	0.8515	−0.0402	−0.0222	−0.0154	−0.0060	0.0075	0.0193	0.0323	0.1019
Non-G7	0.0006	0.0015	2.3441	79.3082	−0.7467	1.1142	−0.0806	−0.0365	−0.0215	−0.0072	0.0073	0.0223	0.0368	0.0996

Note: To investigate the effects of corporate reputational disaster upon corporate returns, we first proceed to match events identified from the RepRisk database with each identified ISIN code, where stock data is obtained for the period 1 January 2004 through 31 July 2023, resulting in 5108 daily observations to be used for analysis. Summary statistics relating to each country analysed are presented in the above Table as separated by G7 nation when compared to all other nations analysed.

Table 2
Summary Statistics relating to the EGARCH-estimated Return Differentials due to Corporate Reputational Disaster.

Window	Mean	Var	Skew	Kurt	Min	Max	Percentile 1%	5%	10%	25%	75%	90%	95%	99%
G7														
W_{0-6}	−0.0004	0.0000	−1.4076	65.6213	−0.1720	0.0890	−0.0161	−0.0088	−0.0062	−0.0032	0.0021	0.0056	0.0088	0.0185
W_{0-5}	−0.0005	0.0000	−0.5685	44.0620	−0.1540	0.0768	−0.0180	−0.0093	−0.0066	−0.0035	0.0023	0.0060	0.0092	0.0181
W_{0-4}	−0.0004	0.0001	0.4805	21.8643	−0.1370	0.1110	−0.0199	−0.0105	−0.0075	−0.0038	0.0026	0.0070	0.0104	0.0219
W_{0-3}	−0.0005	0.0001	0.0009	20.8803	−0.1460	0.0980	−0.0237	−0.0120	−0.0085	−0.0045	0.0032	0.0079	0.0118	0.0247
W_{0-2}	−0.0006	0.0001	−0.0875	20.3433	−0.1460	0.1540	−0.0256	−0.0143	−0.0101	−0.0051	0.0037	0.0091	0.0139	0.0264
W_{0-1}	−0.0006	0.0001	−0.4753	19.4200	−0.2430	0.1110	−0.0310	−0.0169	−0.0120	−0.0062	0.0046	0.0113	0.0164	0.0316
W_0	−0.0033	0.0008	0.0517	8.8783	−0.4230	0.0949	−0.0387	−0.0266	−0.0165	−0.0086	0.0015	0.0091	0.0092	0.0205
W_{0+1}	−0.0013	0.0001	0.0408	8.2750	−0.2939	0.0851	−0.0210	−0.0121	−0.0088	−0.0043	0.0035	0.0082	0.0121	0.0211
W_{0+2}	−0.0009	0.0001	−1.2019	116.7043	−0.2780	0.1470	−0.0192	−0.0108	−0.0078	−0.0040	0.0031	0.0072	0.0107	0.0194
W_{0+3}	−0.0005	0.0000	0.6910	39.9302	−0.1300	0.1340	−0.0167	−0.0094	−0.0067	−0.0034	0.0024	0.0059	0.0086	0.0158
W_{0+4}	−0.0005	0.0000	0.4933	8.3325	−0.0608	0.0525	−0.0140	−0.0081	−0.0059	−0.0032	0.0020	0.0051	0.0077	0.0143
W_{0+5}	−0.0005	0.0000	0.2025	5.6018	−0.0376	0.0485	−0.0131	−0.0076	−0.0053	−0.0028	0.0017	0.0046	0.0068	0.0119
W_{0+6}	−0.0005	0.0000	0.1937	4.6816	−0.0197	0.0293	−0.0106	−0.0061	−0.0043	−0.0022	0.0013	0.0034	0.0048	0.0087
Non-G7														
W_{0-6}	0.0000	0.0000	−2.1754	32.9337	−0.1170	0.0372	−0.0207	−0.0095	−0.0060	−0.0026	0.0028	0.0060	0.0089	0.0160
W_{0-5}	−0.0001	0.0000	−0.6899	14.6824	−0.0775	0.0670	−0.0215	−0.0107	−0.0066	−0.0030	0.0031	0.0064	0.0096	0.0181
W_{0-4}	−0.0001	0.0001	−0.5013	8.4941	−0.0642	0.0547	−0.0249	−0.0119	−0.0077	−0.0033	0.0035	0.0072	0.0108	0.0210
W_{0-3}	−0.0001	0.0001	−0.3668	9.8631	−0.0791	0.0829	−0.0288	−0.0135	−0.0091	−0.0039	0.0041	0.0084	0.0124	0.0248
W_{0-2}	−0.0003	0.0001	−0.6300	13.7319	−0.1320	0.0810	−0.0327	−0.0161	−0.0111	−0.0048	0.0049	0.0101	0.0148	0.0279
W_{0+5}	−0.0002	0.0000	−0.6515	9.3861	−0.0491	0.0409	−0.0140	−0.0077	−0.0052	−0.0024	0.0022	0.0047	0.0068	0.0126
W_{0+6}	−0.0004	0.0000	−0.9274	9.6527	−0.0297	0.0278	−0.0108	−0.0058	−0.0041	−0.0021	0.0016	0.0033	0.0046	0.0083

Note: The above Table presents the summary statistics of the respective EGARCH methodologies that were implemented to identify the financial market response differentials due to corporate reputational disaster, where we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event on a weekly basis.

production.[5] The nation of each respective corporation is selected based on the stated headquarters, which has been used to register the publicly traded corporation.

[5] For robustness of selection, we consider the TRBC sectors: Copper Ore Mining, Diversified Mining, Gasoline Stations, Gold (NEC), Gold Mining, Integrated Oil & Gas, LNG Transportation & Storage, Natural Gas Exploration & Production - Onshore, Natural Gas Pipeline Transportation, Nickel Ore Mining, Oil & Gas Drilling (NEC), Oil & Gas Exploration and Production (NEC), Oil & Gas Refining and Marketing (NEC), Oil & Gas Storage, Oil & Gas Transportation Services (NEC), Oil Exploration & Production - Offshore, Oil Exploration & Production - Onshore, Oil Related - Surveying & Mapping Services, Oil Related Equipment, Oil Related Services, Oil Related Services and Equipment (NEC), Petroleum Product Wholesale, Petroleum Refining, Sea-Borne Tankers, Silver Mining, Speciality Mining & Metals (NEC), Unconventional Oil & Gas Drilling, and Unconventional Oil & Gas Production.

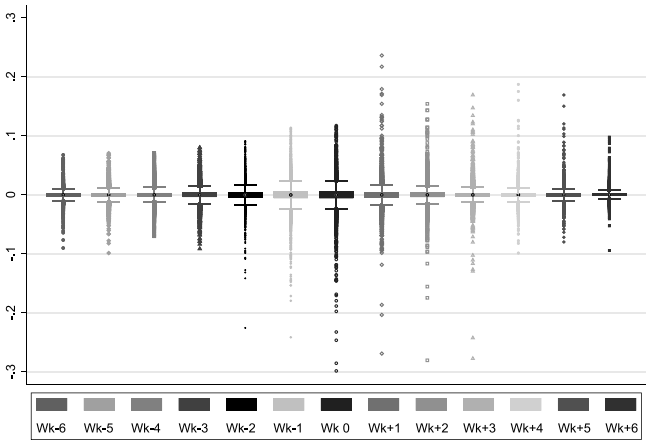


Fig. 2. Stock market response to corporate reputational disasters as separated by event sharpness.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. RepRisk data was obtained between 1 January 2011 and 31 December 2022, resulting in 30,447 observations. Unsharp events (or Direct influence) indicate whether a risk incident is Sharp or Unsharp. Unsharp risk incidents are defined when the entity is mentioned, but the criticism is complex and/or not precisely defined. The corporation is denoted to have been exposed to minimal reputational effect.

We consider various options within the Generalised Autoregressive Conditional Heteroskedastic (GARCH) family models best to understand the influence of these significant reputationally damaging events.[6] We employ an exponential generalised autoregressive conditional heteroscedasticity (EGARCH) model developed by Nelson (1991) to specify the conditional variance (h_t) of the innovations.[7] The EGARCH model has the advantage of ensuring the positivity of estimated conditional variance without any parameter restrictions, in contrast to the alternative GARCH specifications. It also imposes fewer parameter restrictions to guarantee the stationarity of the conditional variance. We focus specifically on the return and volatility of each company through the use of an EGARCH(1,1) methodology, which was selected based on several goodness-of-fit testing procedures. Given natural logarithm returns, $R_{i,t} = ln\frac{P_{i,t}}{P_{i,t-1}}$, we utilise the mean equation of the EGARCH(1,1) methodology as displayed in Eq. (1).

$$r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t, \tag{1}$$

while we express the variance equation of our EGARCH(1,1) model as follows:

$$\ln(h_t^2) = \omega + \alpha\varepsilon_{t-1} + \gamma(|\varepsilon_{t-1}| - E(|\varepsilon_{t-1}|)) + \beta \ln(h_{t-1}^2). \tag{2}$$

We include an additional d_t term in Eq. (1) in our analysis to provide a coefficient relating to the observed return differential for each of our investigated reputationally-damaging events. The volatility sourced within shocks incorporated in the returns of traditional financial markets is therefore considered in the volatility estimation of the selected structure. Eq. (1), r_{t-1} and r_{t-2} represent the lagged values of the observed corporate returns, while I_t represents the returns of the respective international benchmark index upon which the stock is traded, capturing the systematic component of the selected company returns relative to the corresponding domestic market index.[8] To adequately and robustly assess the period surrounding each event, we measure abnormal returns using multiple estimation windows, which are assumed to occur at W_0, across various event windows. We select weeks to represent best the average stock behaviour, particularly when minutely and hourly data can present substantial over-exuberance of market response. In contrast, weekly data allows us to obtain a more balanced view of market response throughout the informational

[6] The multivariate regression approach to event analysis study methodology employed in this paper is pioneered by Binder (1985) and commonly employed in the literature (Doidge and Dyck, 2015; Cornett and Tehranian, 1990). The approach is extended to account for the well-documented presence of heteroskedasticity in stock returns (Engle, 1982; Bollerslev, 1986).

[7] EGARCH exploits information contained in realised volatility measures while providing a flexible leverage function that accounts for return-volatility dependence. While remaining in a GARCH-like modelling framework and estimation convenience, the model allows independent return and volatility shock. This dual shock nature leaves room for establishing a variance risk premium. In our selection, other competitive models included EGARCH, TGARCH, Asymmetric Power ARCH (APARCH), Component GARCH (CGARCH) and the Asymmetric Component GARCH (ACGARCH). The optimal model is chosen according to three information criteria, namely the Akaike (AIC), Bayesian (BIC) and Hannan-Quinn (HQ).

[8] While our study focuses on the influence of ESG considerations on investors' reactions to corporate reputational events, we recognise the potential for endogeneity, particularly the possibility that ESG scores could be endogenously determined with market reactions. To address these concerns, our empirical methodology includes controls for various variables that influence ESG scores and market reactions, such as market-specific variables like international returns that incorporate economic cycles; we aim to isolate the effect of reputational events from the inherent characteristics of the firms. While we acknowledge that these measures do not fully eliminate the potential for endogeneity, they significantly mitigate its impact, providing more robust estimates of the effects we aim to measure.

digestion process. Windows, including four weeks before and six weeks after each event, are considered the most appropriate for identifying investor response to reputationally damaging effects. Multiple other variations of analysis windows were considered; however, for the brevity of the presentation, only those listed above were included. Each number refers to the specific trading week relative to each identified event. Methodological structures are then repeated based on the characteristics being analysed to determine whether the results have been influenced by incident severity, reach, novelty, or whether the event is directly (sharp) or indirectly (unsharp) related to each company. Further testing is conducted based on the year and geographical region in which the analysed event occurred.

To provide additional explanatory value, the presented return differentials resulting from the RepRisk-defined corporate reputational disasters are then considered in a methodology that encapsulates several distinct corporate characteristics. Each selected variable has been considered for various reasons, primarily surrounding corporate ESG-related preparedness. Methodological structures incorporate the Refinitiv ESG Combined Score, an overall corporate score based on the reported information in the environmental, social and corporate governance pillars (ESG Score) with an ESG Controversies overlay. Subsequent methodological structures then incorporate each individual pillar before reconciling through a methodological specification that incorporates each pillar. Specifically, the environmental pillar measures a company's impact on living and non-living natural systems, including the air, land, water, and complete ecosystems.[9] The social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers and society using best management practices.[10] Finally, the corporate governance pillar measures a company's systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders.[11] Specifically, we consider the result surrounding the event window $[W_0,+1]$ to test whether corporate characteristics can explain whether such differential stock market response diminishes or persists in a varying manner due to corporate factors.[12]

To test the final research question surrounding the ability of commodity-related corporate reputational disasters to influence international commodity markets, a range of spot and futures markets are selected, along with several international stock market indices to provide methodological robustness, in the format of an EGARCH specification similar to that presented in Eq. (1). Daily data is used for such analysis, where respective dummy variables surrounding each RepRisk-determined reputational event characteristic are presented in Fig. 1. Significant interaction would indicate that such commodity markets rise or fall due to the severity, reach, novelty, or type of corporate reputational disaster (see Table 2).

4. Results

4.1. Financial market responses to reputational events

To quantify the market response of commodity firms to reputational events, we assess the excess weekly returns over a window stretching from four weeks before the announcement week to six weeks thereafter. Fig. 3 displays the results graphically, showing the distribution of returns over each weekly interval. Notably, over weeks three to six before the announcement, the return distribution is symmetrical and within a tight band between −10% and 10%. We observe a notably larger left tail from two weeks before the announcement date, which points to the increasing influence of reputational events upon returns.[13] The significant negative returns observed one and two weeks before the announcement week could potentially reflect market anticipation or leakage of information regarding upcoming reputational events. Prior studies suggest that market participants might react to rumours or insider information, which could lead to a decline in stock prices even before official announcements are made (Meulbroek, 1992; Lakonishok and Lee, 2001; Fernandes and Ferreira, 2009). Furthermore, this pre-announcement market behaviour could also be attributed to the strategic actions of informed traders who anticipate the impact of such events and adjust their positions accordingly. During the announcement week, the variation in returns is largest, ranging between −30% and 12%, with the distribution strongly skewed towards negative returns. In the weeks after the announcement, this variation return remains, decaying out to the sixth week after. These findings provide preliminary evidence for a market effect on commodity firms from reputational announcements. Next, we quantify the magnitude of the effect size over time.

Table 3 provides estimates of the magnitude of the equity market response to reputational announcements by commodity firms. Results are provided for G7 countries, quantifying the effect size for the largest global economies and other countries (non-G7) representing smaller developing and developed economies. Considering G7 countries first, we find only weak evidence of a market effect before the reputational event announcement date. Over the week of the announcement, commodity stocks have a significant −0.08% return. This effect persists over the following five weeks, ranging from −0.03% to −0.04%. For commodity firms in the non-G7 countries examined, the baseline effect size tends to be marginally stronger but less persistent. No significant negative response

[9] It reflects how well a company uses best management practices to avoid environmental risks and capitalise on environmental opportunities to generate long-term shareholder value.

[10] It reflects the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long-term shareholder value.

[11] It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities by creating incentives and checks and balances to generate long-term shareholder value.

[12] All examined windows of analysis were considered in this secondary analysis; however, for the brevity of presentation, only event window $[W_0,+1]$ are presented. All other results are available from the authors upon request.

[13] We note that Arunanondchai et al. (2020) identified that futures contracts are a better hedging instrument for hedging tail risk in the crude oil and heating oil markets. In contrast, Exchange Traded Funds (ETFs) provide better downside risk protection in the gasoline and natural gas markets

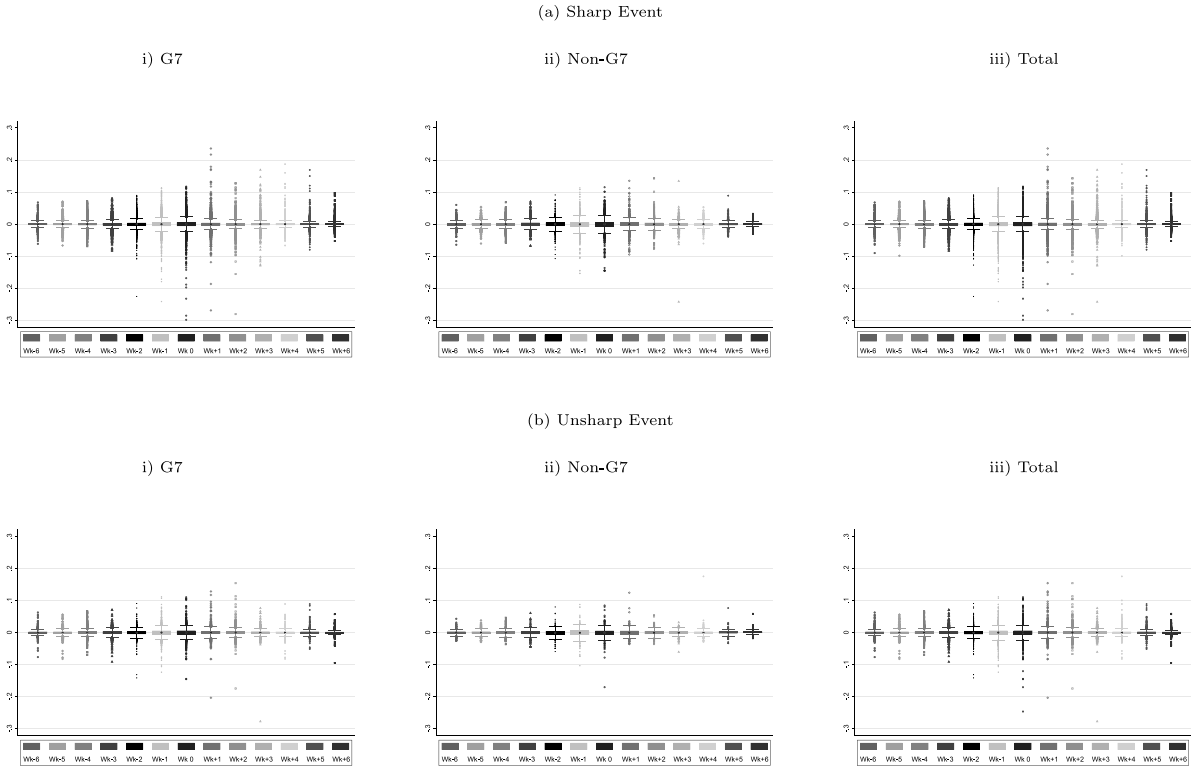


Fig. 3. Stock market response to corporate reputational disasters.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. RepRisk data was obtained between 1 January 2007 and 31 December 2022, resulting in 30,446 observations.

Table 3
Corporate return differentials due to reputational disaster.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
G7	−0.0001	−0.0001	0.0001	−0.0002*	−0.0008***	−0.0004***	−0.0003***	−0.0003**	−0.0003**	−0.0003**	−0.0003**
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Non-G7	0.0000	0.0000	−0.0005**	−0.0012***	−0.0013***	−0.0005***	−0.0001	0.0002**	−0.0003	0.0000	0.0002***
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Note: To identify the financial market response differentials due to corporate reputational disaster, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Alternative methodological specifications and windows of analyses were omitted for brevity of presentation but are available from the authors upon request. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

was found in the four weeks up to week three before the announcement. Returns are negative and significant in the two weeks before the announcement. The magnitude of the response during the announcement week is larger than that found for G7-based companies, at −0.13%. Negative returns, however, only persist for one week after the announcement, with some level of reversion found in the weeks after. These differences may result from particular characteristics associated with reputational losses, which we will examine in more detail next.

RepRisk defines event sharpness as a measure of whether or not the firm is mentioned, but the criticism is complex and not precisely defined. In Table 4 and Fig. 2, we display return differentials for reputational events where the criticism is direct and unambiguous. For G7 countries, the effect size magnitude is substantially larger, at −0.88%, than that documented for the baseline findings. A substantial negative effect is evident during the announcement week, followed by six additional weeks of negative returns. This highlights the central role of media coverage of reputational events, particularly when the reporting is less speculative and more precise. In contrast to the baseline results, the financial market response for non-G7 countries is also more negative than that observed in the baseline results at −0.21%. While the aggregate effect lasts three weeks, this is shorter than that found for the G7 countries. These findings indicate that in G7 countries, the market perception of clear wrongdoing is more severe, perhaps a consequence of the economic reliance of these countries on commodities, alongside their well-developed financial markets and stringent regulatory systems.

The severity of the reputational incident might be expected to influence the strength of the resultant market response. RepRisk assesses whether each event has low, medium, or high severity by grading it as a function of the alleged violation of national laws

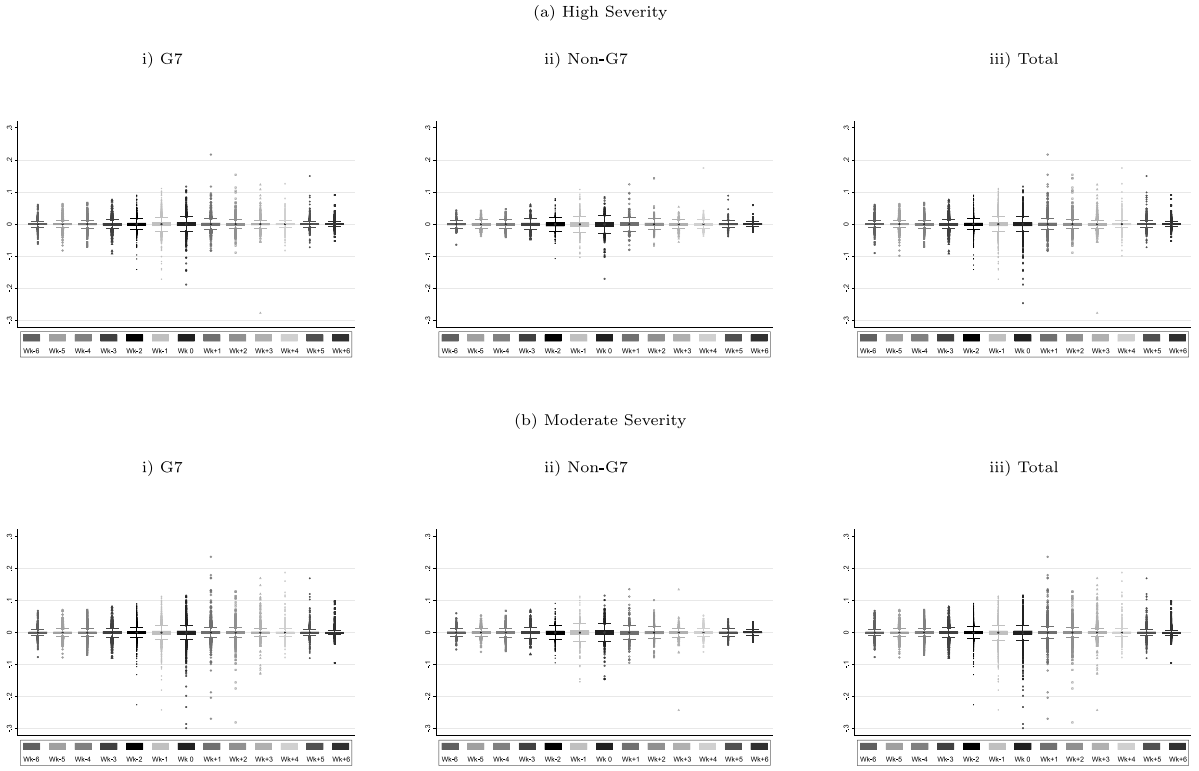


Fig. 4. Stock market response to corporate reputational disasters as separated by event severity.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. RepRisk data was obtained between 1 January 2011 and 31 December 2022, resulting in 30,447 observations. As per RepRisk, "Severity (harshness) of the risk incident or criticism. The severity is determined as a function of three dimensions: firstly, what are the consequences of the risk incident (e.g., with respect to health and safety: no further consequences, injury, death); secondly, what is the extent of the impact (e.g., one person, a group of people, a large number of people); and thirdly, was the risk incident caused by an accident, by negligence, or intent, or even in a systematic way. There are three levels of severity: low severity, medium severity, and high severity.

Table 4
Corporate return differentials as separated by event sharpness.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
						G7					
Direct	−0.0002	−0.0005	−0.0006	−0.0039***	−0.0088***	−0.0039***	−0.0004*	−0.0004*	−0.0003*	−0.0004**	−0.0005***
	(0.0004)	(0.0004)	(0.0005)	(0.0005)	(0.0005)	(0.0003)	(0.0004)	(0.0003)	(0.0003)	(0.0002)	(0.0002)
Constant	−0.0003*	−0.0002*	−0.0008***	−0.0012***	−0.0005**	−0.0004***	−0.0005***	−0.0003**	−0.0006***	−0.0005***	−0.0003**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
						Non-G7					
Direct	0.0000	0.0001	0.0001	−0.0011***	−0.0021***	−0.0015***	−0.0003*	0.0001	−0.0002*	0.0000	0.0000
	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0004***	−0.0005***	−0.0005***	−0.0006***	−0.0004***	−0.0004***	−0.0004***	−0.0006***	−0.0005***	−0.0005***	−0.0005***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0000)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Unsharp events (or Direct influence) indicate whether a risk incident is Sharp or Unsharp. Unsharp risk incidents are defined when the entity is mentioned, but the criticism is complex and/or not precisely defined. The corporation is denoted to have been exposed to minimal reputational effect. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

and international standards, accounting for the incident's consequences, extent, and cause.[14] Table 5 and Fig. 4 contrast findings for low and high-severity events. For G7 countries, the effect size and significance are similar for low- and high-severity events, although they last longer for low-severity events. Findings for non-G7 countries are in sharp contrast. The baseline findings are replicated for high-severity events, albeit with higher magnitude, showing negative returns for three weeks from the announcement

[14] Our findings indicate that medium-severity and medium-reach events, as defined by RepRisk, exhibit a distinct but less pronounced impact than high-severity and high-reach events. This observation is consistent with RepRisk's categorisation, where medium-level events typically do not trigger the same intensity of market reaction as the extremes but still influence investor behaviour and market performance noticeably. These results underscore the complexity of market responses to reputational events and highlight the importance of a nuanced approach to managing corporate reputation across different severity and reach thresholds.

Table 5
Corporate return differentials as separated by event severity.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
						G7					
High Severity	0.0001	0.0001	−0.0003*	−0.0005**	−0.0021***	−0.0015***	−0.0001	0.0002*	0.0002*	0.0001	0.0002*
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0005***	−0.0006***	−0.0006***	−0.0006***	−0.0005***	−0.0005***	−0.0005***	−0.0005***	−0.0006***	−0.0006***	−0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Low Severity	−0.0001	−0.0001	−0.0003*	−0.0007***	−0.0020***	−0.0018***	−0.0002**	0.0001*	−0.0002**	−0.0001*	−0.0002**
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0003	−0.0005**	−0.0010***	−0.0011***	−0.0001	−0.0003*	−0.0003*	−0.0003*	−0.0006***	−0.0004***	−0.0002**
	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
						Non-G7					
High Severity	0.0000	0.0000	0.0000	0.0000	−0.0024***	−0.0022***	−0.0004*	−0.0001	0.0001	0.0000	−0.0002
	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0003**	−0.0003***	−0.0003***	−0.0005***	−0.0002	−0.0002*	−0.0004***	−0.0006***	−0.0004***	−0.0005***	−0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Low Severity	−0.0001	0.0002	0.0012***	0.0026***	0.0020***	−0.0004*	0.0005**	0.0006***	−0.0001	0.0002	0.0002
	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0005**	−0.0006**	−0.0016***	−0.0013***	−0.0004*	−0.0002	−0.0006**	−0.0006***	−0.0005***	−0.0006***	−0.0004***
	(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. As per RepRisk, "Severity (harshness) of the risk incident or criticism. The severity is determined as a function of three dimensions: firstly, what are the consequences of the risk incident (e.g., with respect to health and safety: no further consequences, injury, death); secondly, what is the extent of the impact (e.g., one person, a group of people, a large number of people); and thirdly, was the risk incident caused by an accident, by negligence, or intent, or even in a systematic way. There are three levels of severity: low severity, medium severity, and high severity. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

period. We find evidence of a positive market response for low-severity events, which lasts from two weeks before the event until the announcement week. This positive market response indicates confidence that companies with low-severity events have better systems and processes and will be less prone to severe events in the future. Contrasting corporations from G7 nations with those from non-G7 countries, post-event dynamics offer a divergent picture. G7 corporations demonstrated sustained negative outcomes in the week following a reputational disaster. Such persistent declines can be attributed to several factors. Primarily, the highly informed and analytical investor base of G7 nations may further evaluate the event's long-term implications, leading to protracted adjustments. Additionally, G7 markets, under constant scrutiny by many stakeholders, including regulators, media, and analysts, could face heightened post-event scepticism, exacerbating negative sentiments.

The next event characteristic considered is media reach, which is the RepRisk estimate of the influence or readership of the source in which the risk incident was published. Low reach indicates that the event was captured primarily by local media, while high reach implies that international media covered the event. Focusing first on companies from G7 countries in Table 6 and Fig. 5, the effect size is larger than for the non-G7 countries examined for low and high-reach events. For high-reach events with international coverage, the market response is negative from one week before the event until five weeks after. The magnitude of the response is considerable at −0.66% for the announcement week and −0.71% for the week after. For events well-covered in the international media, the implication is that the market reaction is decisive and strong, suggesting that markets are discounting future repercussions, such as fines or additional announcements, which will impact the cash flows from the company. For low-reach events, the response is of lower magnitude and more compressed. These results are akin to the findings of Huang (2015), where market under-reaction was found for companies with lower media coverage. For reputational events in non-G7 countries, the magnitude and locus of the market response are comparable, with negative excess returns observed for one week before and two weeks after the incident announcement for both low and high-reach events. The magnitude of the coefficient is also substantially lower than that observed for G7, highlighting a more muted response, regardless of the event reach. The presented divergence in findings can be ascribed to several unique features intrinsic to G7 nations. Given their pivotal role in the global economic landscape, these nations possess highly developed financial markets, rendering them more receptive to information dissemination. Consequently, the robust and instantaneous dissemination networks in these markets amplify the effects of high-reaching media announcements. Moreover, the intricate intertwining of G7 economies with global financial systems means that negative news or reputational damages are more likely to have cascading effects, resonating more extensively within investor communities. When considering non-G7 nations, the presented muted reaction can be attributed to multiple factors. One plausible explanation is the relative information asymmetry prevalent in less developed financial markets of non-G7 nations, where the diffusion of news might be less comprehensive. Furthermore, investors in these regions might exhibit a distinct risk perception conditioned by unique regional and local economic dynamics. The potential for reduced investor sensitivity to media events, possibly due to a history of more pronounced economic shocks or informational lags, can further moderate the impact of reputational disasters.

The final characteristic examined is event novelty, which captures whether the particular type of event is new to the company or is a re-occurring issue. In keeping with previous characteristics, for G7 countries, the effect is negative (see Table 7 and Fig. 6).. It lasts from the announcement week to five weeks post-announcement, with little difference in the magnitude of the effect. Such uniformity in investor response in G7 nations can be ascribed to the advanced financial ecosystem, where sophisticated financial markets, backed by robust regulatory frameworks, often have mechanisms to absorb shocks and mitigate their cascading effects. Furthermore, given the frequency and diversity of corporate events in these markets, investors might have become somewhat acclimated, resulting in muted differentiation based on event novelty. For the non-G7 countries examined, the persistency in the effect size is similar, stretching from announcement week to week three. However, the magnitude of the effect is much larger for high-novelty events than for low-novelty events. During the announcement week, high (low) novelty events are associated with returns of −0.53% (−0.08%), followed by returns of −0.34% (−0.09%) in the following week. This indicates that the market pays much greater attention to new

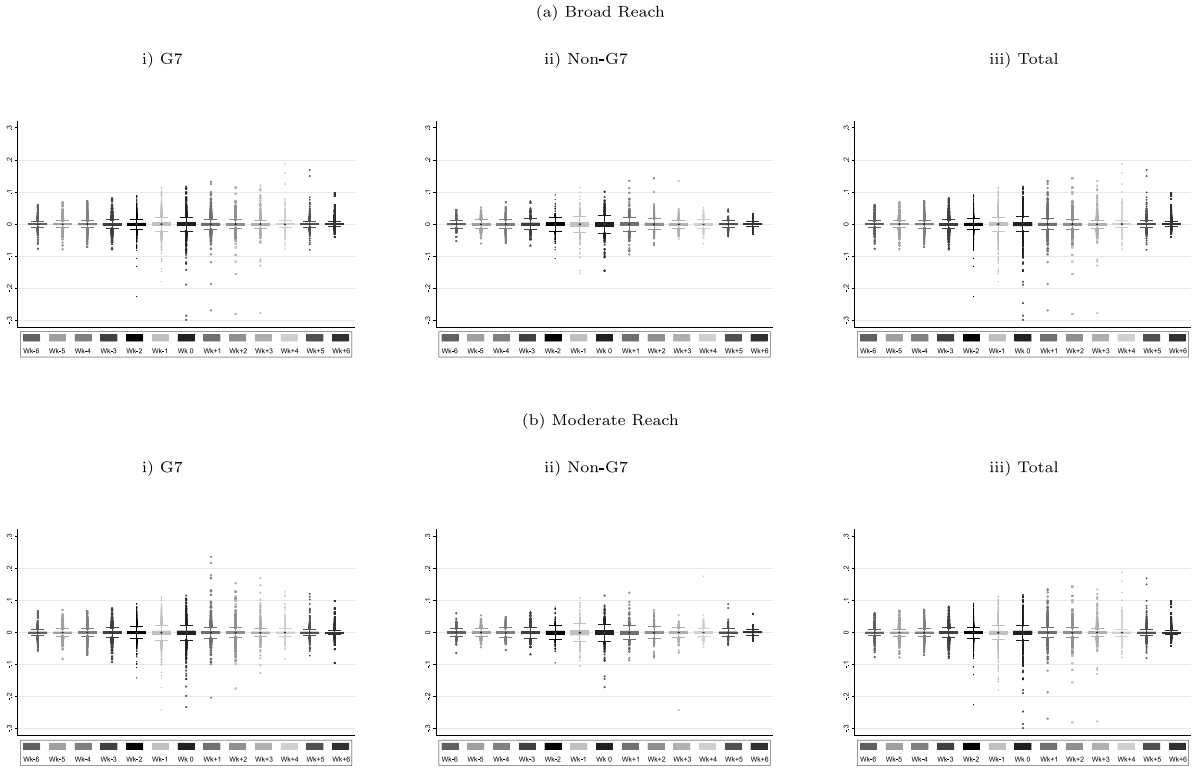


Fig. 5. Stock market response to corporate reputational disasters as separated by event reach.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. RepRisk data was obtained between 1 January 2011 and 31 December 2022, resulting in 30,447 observations. Reach the information source (influence based on readership/circulation and by its importance in a specific country) according to RepRisk's rating. All sources are pre-classified by reach: limited reach, medium reach, and high reach. Limited reach sources include local media, smaller NGOs, local governmental bodies, and social media. Medium-reach sources include most national and regional media, international NGOs, and state, national, and international governmental bodies. High-reach sources are the few truly global media outlets.

Table 6
Corporate return differentials as separated by event reach.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
						G7					
High Reach	−0.0002	0.0000	−0.0002	−0.0011***	−0.0066***	−0.0071***	−0.0026***	−0.0005*	−0.0005**	−0.0003*	−0.0002
	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0001	−0.0003*	−0.0002*	−0.0004*	−0.0004*	−0.0003*	−0.0003*	−0.0003*	−0.0002	−0.0005***	−0.0004***
	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)
Low Reach	−0.0001	0.0001	0.0000	0.0004	−0.0029***	−0.0024***	0.0002	0.0000	0.0000	−0.0002	0.0000
	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0004***	−0.0004***	−0.0004***	−0.0004***	−0.0006***	−0.0004***	−0.0003***	−0.0003***	−0.0006***	−0.0005***	−0.0005***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
						Non-G7					
High Reach	0.0000	−0.0001	−0.0001	−0.0004***	−0.0005***	−0.0011***	−0.0004***	0.0002**	−0.0001*	−0.0001*	0.0000
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0003	−0.0005***	−0.0009***	−0.0011***	−0.0001	−0.0001	−0.0005**	−0.0004**	−0.0006***	−0.0004***	−0.0002
	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Low Reach	0.0001	0.0001	0.0000	−0.0011***	−0.0011***	−0.0007***	−0.0005***	−0.0001*	0.0001*	0.0001*	0.0000
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0005***	−0.0007***	−0.0005***	−0.0007***	−0.0005***	−0.0005***	−0.0006***	−0.0005***	−0.0006***	−0.0006***	−0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Reach the information source (influence based on readership/circulation and by its importance in a specific country) according to RepRisk's rating. All sources are pre-classified by reach: limited reach, medium reach, and high reach. Limited reach sources include local media, smaller NGOs, local governmental bodies, and social media. Medium-reach sources include most national and regional media, international NGOs, and state, national, and international governmental bodies. High-reach sources are the few truly global media outlets. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

events, where there is greater uncertainty about future repercussions. In contrast, for low novelty events, the market has learned the extent of potential outcomes from past events and can better discount the relevant future cash flows. in particular, while growing, financial markets in non-G7 countries might still grapple with relative information asymmetry and less entrenched risk management practices. When confronted with a novel reputational event, the paucity of precedence can amplify uncertainty, triggering a more pronounced flight to safety and, thereby, steeper declines. Conversely, repeated exposures offer some historical context, allowing

Table 7
Corporate return differentials as separated by event novelty.

W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
					G7					
High Novelty	0.0002*	0.0003*	−0.0003*	−0.0027***	−0.0023***	−0.0003**	−0.0004***	−0.0002**	−0.0003***	0.0002**
	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0006***	−0.0007***	−0.0006***	−0.0005***	−0.0006***	−0.0005***	−0.0006***	−0.0006***	−0.0006***	−0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Low Novelty	−0.0001*	−0.0001	−0.0001	−0.0027***	−0.0018***	−0.0002**	−0.0004***	−0.0002**	−0.0003***	−0.0002*
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0004**	−0.0007***	−0.0010***	−0.0006***	−0.0006***	−0.0007***	−0.0002***	−0.0007***	−0.0006***	−0.0003***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
					Non-G7					
High Novelty	−0.0002	−0.0003	−0.0002	−0.0053***	−0.0034***	−0.0009***	−0.0004**	0.0003*	0.0003*	0.0002
	(0.0002)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0003***	−0.0003***	−0.0003***	−0.0001	−0.0002*	−0.0003***	−0.0004***	−0.0003**	−0.0003**	−0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Low Novelty	0.0001	−0.0001	0.0000	−0.0008***	−0.0009***	−0.0004*	−0.0004**	0.0001	0.0000	−0.0002
	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0003*	−0.0003*	0.0000*	−0.0002	−0.0002	−0.0002	−0.0005**	−0.0007***	−0.0004**	−0.0002*
	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Novelty (newness) of the issues addressed for the company and/or project, i.e., whether it is the first time a company or project is exposed to a specific ESG Issue in a certain location. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 8
Corporate return differentials as separated by environmentally-related event type.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
						G7					
Environmental	−0.0003	−0.0004*	0.0000	−0.0038***	−0.0021***	−0.0014***	−0.0006***	−0.0001	−0.0001	0.0000	0.0001
	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Constant	0.0000	0.0001	−0.0009***	−0.0006***	−0.0001	−0.0001	−0.0001	−0.0003*	−0.0005***	−0.0005***	−0.0004***
	(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0001)
						Non-G7					
Environmental	0.0000	−0.0001	−0.0002	−0.0014***	−0.0011***	−0.0006***	0.0000	−0.0002*	−0.0001*	0.0000	0.0001*
	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0004***	−0.0007***	−0.0006***	−0.0008***	−0.0005***	−0.0005***	−0.0005***	−0.0006***	−0.0006***	−0.0006***	−0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Data based on reputational events regarding the analysed financial institutions is obtained from the RepRisk database. RepRisk is a global leader and pioneer in data science, specialising in premium ESG and business conduct risk research and quantitative solutions. Since 2006, RepRisk has been leveraging the combination of AI and machine learning with human intelligence to translate big data into actionable research, analytics, and risk metrics. With daily-updated data synthesised in 23 languages using a rules-based methodology, RepRisk systematically flags and monitors material ESG risks and violations of international standards that can have reputational, compliance, and financial impacts on a company. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 9
Corporate return differentials as separated by socially-related event type.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
						G7					
Social	−0.0004	−0.0004	−0.0001	−0.0054***	−0.0051***	−0.0023***	−0.0005*	0.0002	−0.0005**	−0.0003*	−0.0001
	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Constant	0.0001	0.0001	−0.0009***	−0.0005**	0.0001	−0.0001	−0.0002	−0.0004*	−0.0003*	−0.0003*	−0.0002
	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0002)
						Non-G7					
Social	0.0001*	0.0002**	0.0003**	−0.0006***	−0.0034***	−0.0030***	−0.0004***	−0.0003**	−0.0003***	−0.0004***	−0.0003***
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0005***	−0.0008***	−0.0007***	−0.0007***	−0.0007***	−0.0007***	−0.0006***	−0.0007***	−0.0007***	−0.0008***	−0.0007***
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Data based on reputational events regarding the analysed financial institutions is obtained from the RepRisk database. RepRisk is a global leader and pioneer in data science, specialising in premium ESG and business conduct risk research and quantitative solutions. Since 2006, RepRisk has been leveraging the combination of AI and machine learning with human intelligence to translate big data into actionable research, analytics, and risk metrics. With daily-updated data synthesised in 23 languages using a rules-based methodology, RepRisk systematically flags and monitors material ESG risks and violations of international standards that can have reputational, compliance, and financial impacts on a company. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

investors to gauge potential impacts better and, in turn, respond with relative restraint. Furthermore, the investor base in non-G7 nations, influenced by regional economic dynamics and perhaps less diversified portfolios, might manifest heightened sensitivity to uncharted corporate events.

When considering differential response due to ESG-denoted factors, analyses are separated to identify specific influential effects. Environmentally-denoted events are presented in Table 8, separated by G7 and non-G7 nations. Results indicate the existence of significant shocks due to environmentally denoted corporate reputational disasters, a result further verified in Fig. 7, where significant differentials are identified. Specifically, for G7 nations, the influence of environmentally-denoted corporate reputational disasters for commodity-sector-related corporations generates significant influence in the week preceding W_0, where corporate

Table 10
Corporate return differentials as separated by governance-related event type.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
						G7					
Governance	−0.0002*	0.0000	−0.0003*	−0.0005**	−0.0030***	−0.0021***	−0.0005***	−0.0002*	−0.0003**	−0.0004***	−0.0004***
	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0003**	−0.0005***	−0.0004***	−0.0006***	−0.0003**	−0.0003**	−0.0004***	−0.0005***	−0.0004***	−0.0005***	−0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
						Non-G7					
Governance	−0.0001	−0.0001	−0.0002	−0.0006	−0.0023***	−0.0024***	−0.0011***	−0.0004	0.0000	−0.0006***	−0.0007***
	(0.0004)	(0.0004)	(0.0005)	(0.0005)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0003**	−0.0004**	−0.0010***	−0.0011***	−0.0003*	−0.0004**	−0.0006***	−0.0004***	−0.0006***	−0.0006***	−0.0004***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Data based on reputational events regarding the analysed financial institutions is obtained from the RepRisk database. RepRisk is a global leader and pioneer in data science, specialising in premium ESG and business conduct risk research and quantitative solutions. Since 2006, RepRisk has been leveraging the combination of AI and machine learning with human intelligence to translate big data into actionable research, analytics, and risk metrics. With daily-updated data synthesised in 23 languages using a rules-based methodology, RepRisk systematically flags and monitors material ESG risks and violations of international standards that can have reputational, compliance, and financial impacts on a company. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 11
Corporate return differentials as separated by cross-cutting event type.

	W_{0-4}	W_{0-3}	W_{0-2}	W_{0-1}	W_0	W_{0+1}	W_{0+2}	W_{0+3}	W_{0+4}	W_{0+5}	W_{0+6}
						G7					
Cross-cutting	0.0000	0.0001	−0.0001	0.0001	−0.0021***	−0.0004*	−0.0003*	−0.0001*	0.0000	−0.0002*	−0.0002*
	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Constant	−0.0004***	−0.0006***	−0.0005***	−0.0006***	−0.0003**	−0.0004***	−0.0004***	−0.0006***	−0.0005***	−0.0005***	−0.0005***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
						Non-G7					
Cross-cutting	−0.0002	−0.0002	−0.0001	−0.0009*	−0.0038***	−0.0008***	−0.0001	−0.0002	0.0001	0.0001	0.0001
	(0.0004)	(0.0004)	(0.0005)	(0.0005)	(0.0005)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0002)	(0.0002)
Constant	−0.0003*	−0.0004*	−0.0009***	−0.0010***	−0.0002*	−0.0003**	−0.0004**	−0.0004**	−0.0006***	−0.0005***	−0.0003***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Some events are identified as a combination of ESG-related, with a further category denoted as cross-cutting, which is defined as a risk incident or ESG event relating to at least two pillars relating to environmental, social, or governance simultaneously. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

returns are found to be −0.38% below respective domestic market indices when accounting for international factors. Such negative returns are found to persist for three weeks thereafter. For non-G7 nations, significant negative returns of −0.14% are identified, 24 basis points below comparable G7 corporations, where results are found to dissipate more rapidly. Several factors offer insights into these observed discrepancies. G7 nations, typically characterised by mature financial markets, possess many environmentally-conscious investors. Consequently, any environmentally attributed corporate reputational disasters might activate more pronounced sell-off behaviours, exacerbated by the extensive media coverage and potential regulatory repercussions. Conversely, non-G7 nations, while growing in environmental awareness, may not yet fully internalise or react to environmentally-linked corporate malfeasance with the same intensity. Further, socially denoted incidents present the most significant impact on commodity-producing corporations. In contrast, in Table 9, in G7 nations, returns persist at approximately −0.50% below the market average. Interestingly, non-G7 nations do not present evidence of return differentials in advance of W_0; however, negative returns of −0.34% are identified during the announcement week. In Fig. 8, such substantial differentials are evident, particularly when considering the depth of the return differential for G7 nations and the immediate return to positive returns at W_{0+1}, while non-G7 nations present more moderated differential behaviour. Such divergences can be rationalised by the heightened emphasis on social responsibility within G7 nations, spurred by investor activism and stringent regulatory mandates. The immediacy of the downturn followed by a rapid recovery may reflect an initial overreaction, tempered by subsequent corporate remediation efforts or investor re-calibrations. Non-G7 markets, while not immune to the effects of socially denoted reputational catastrophe, may be buffered by other macroeconomic factors or a comparatively weaker emphasis on social responsibility (Lozano and Martínez-Ferrero, 2022).

In Table 10 and Fig. 9, results indicate a response similar to the baseline findings for governance-related corporate reputational disasters in G7 nations. Considering non-G7 nations, significant negative returns of −0.23% are found at W_0, persisting for two weeks after that. When considering cross-cutting events comprising at least two pillars relating to environmental, social, or governance simultaneously, further evidence of persistent negative abnormal outcomes is presented at time W_0, where non-G7 nations present more negative direct outcomes (−0.38%) when compared to G7 nations (−0.21%) (see Table 11 and Fig. 10). Such results can be explained when considering the maturity of financial markets and institutional frameworks in G7 nations, which may provide a buffer against external shocks. These nations typically possess advanced risk-management tools, robust regulatory oversight, and greater market transparency. Such elements can attenuate the impact of negative events, rendering the financial systems in these countries less susceptible to abrupt market corrections. The institutional resilience inherent to G7 nations thus contributes to the observed outcome discrepancy at W_0.

Furthermore, the composition of market participants in G7 nations differs notably from that in non-G7 countries. Institutional investors, who often dominate investment in G7 financial markets, might have access to diversified portfolios and hedging strategies that could lessen the negative impacts of such adverse reputational events. Conversely, in non-G7 nations, where retail investor participation might be relatively higher, the rapidity of market reactions can be accentuated, leading to more substantial negative outcomes. Additionally, the broader socioeconomic and regulatory landscape can shape market responses. G7 nations, with their longstanding commitment to ESG principles, have integrated these considerations into their corporate cultures, regulatory

Table 12
Corporate reputational disaster return differentials as a function of ESG preparedness.

	Model 1	Model 2	Model 3	Model 4
			Total	
ESG Score	0.0016*	0.0026***	0.0009***	0.0039***
	(0.0008)	(0.0007)	(0.0005)	(0.0012)
Env Pillar	0.0011***			0.0021***
	(0.0001)			(0.0008)
Soc Pillar		0.0020**		0.0020*
		(0.0007)		(0.0007)
Gov Pillar			0.0004**	0.0003*
			(0.0004)	(0.0004)
			G7	
ESG Score	0.0023*	0.0024**	0.0008	0.0036
	(0.0014)	(0.0011)	(0.0007)	(0.0023)
Env Pillar	0.0017			0.0020
	(0.0013)			(0.0014)
Soc Pillar		0.0017		0.0021*
		(0.0011)		(0.0011)
Gov Pillar			0.0015**	0.0012*
			(0.0007)	(0.0007)
	Non-G7			
ESG Score	0.0007	0.0011	0.0022**	0.0002
	(0.0018)	(0.0015)	(0.0009)	(0.0021)
Env Pillar	0.0013			0.0023
	(0.0019)			(0.0020)
Soc Pillar		0.0006		0.0014
		(0.0014)		(0.0015)
Gov Pillar			0.0015**	0.0018**
			(0.0008)	(0.0008)

Note: To provide additional explanatory value, the presented return differentials resulting from the RepRisk-defined corporate reputational disasters are then considered in a methodology that encapsulates several distinct corporate characteristics. Each selected variable has been considered for various reasons, primarily surrounding corporate ESG-related preparedness. Methodological structures incorporate the Refinitiv ESG Combined Score, which is defined as an overall corporate score based on the reported information in the environmental, social and corporate governance pillars (ESG Score) with an ESG Controversies overlay. Subsequent methodological structures then incorporate each ESG pillar. Specifically, we consider the result surrounding the event window $[W_0,+1]$ to test whether corporate characteristics can explain whether such differential stock market response diminishes or persists in a varying manner due to corporate factors. All examined analysis windows were considered in this secondary analysis; however, for the brevity of presentation, only the event window $[W_0,+1]$ is presented. All other results are available from the authors upon request. Corresponding placebo group procedures represent dummy variables that utilise analysis windows based on dummy variables that are re-considered when progressed six months into the future from the original identified date of a significant corporate reputational disaster. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

frameworks, and public sentiment. This cultural and regulatory backdrop can produce a more measured market response to ESG-related events. On the other hand, non-G7 nations in the early stages of ESG integration might be undergoing a steeper learning curve. Consequently, the markets in these countries could display heightened sensitivity to cross-cutting ESG events, resulting in the observed sharper decline. Further, information dissemination and its subsequent assimilation by market participants play a pivotal role. G7 nations, endowed with advanced information infrastructures, ensure rapid and comprehensive data dissemination, enabling investors to make informed decisions swiftly. In contrast, any lag or asymmetry in information dissemination in non-G7 nations might result from poor analyst coverage, exacerbating market reactions and pushing outcomes further into the negative (Chan and Hameed, 2006).

4.2. Can ESG preparedness minimise the negative effects of corporate reputational disaster?

In Table 12, we investigate whether corporate ESG-preparedness can mitigate negative effects associated with reputational disaster. Methodological structures are designed to investigate the specific influence of corporate environmental, social, and governance-related performance using data obtained from Refinitiv. Specifically, such methodological structures reflect how well a company uses best management practices to avoid environmental risks, how a company's reputation and the health of its license to operate, and through its use of best management practices to direct and control its rights and responsibilities through the creation

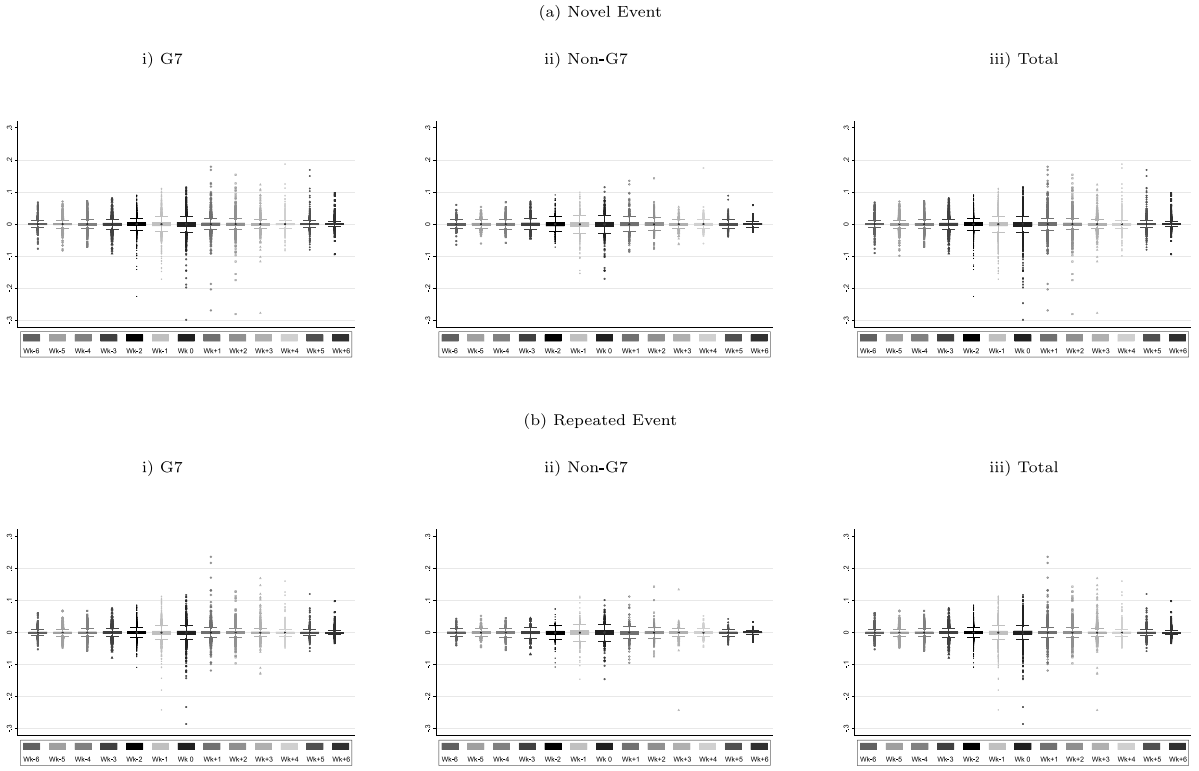
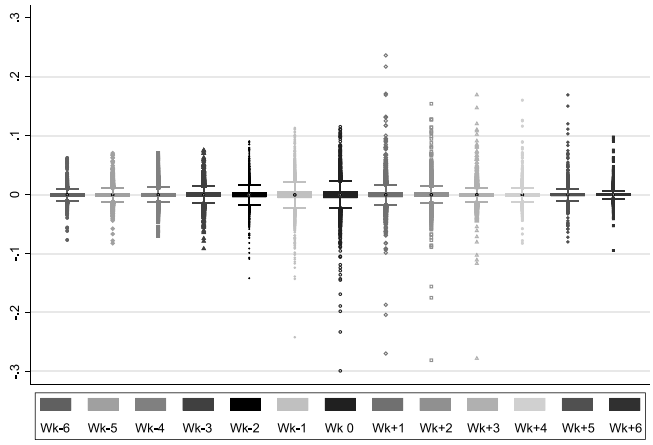


Fig. 6. Stock market response to corporate reputational disasters as separated by event novelty.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. RepRisk data was obtained between 1 January 2011 and 31 December 2022, resulting in 30,447 observations. Novelty (newness) of the issues addressed for the company and/or project, i.e., whether it is the first time a company or project is exposed to a specific ESG Issue in a certain location.

of incentives, as well as checks and balances to generate long-term shareholder value. Results indicate a significant influence on corporate ESG performance when considering the severity of investor response to corporate reputational disaster. Specifically, environmental and socially driven preparedness are the most substantiative shock mitigating factors when considering all analysed corporations. However, when focusing on G7 nations compared to all other analysed nations, differential influential factors are identified, where social and governance-related preparedness are key mitigating factors for corporations in G7 nations. In contrast, governance pillars are most significant in all other considered nations.

The differential significance of ESG pillars across G7 nations versus non-G7 nations, as detailed in Table 12, raises questions regarding the intricate interplay between corporate ESG performance and regional economic contexts. At the outset, G7 nations, historically more developed and mature in their market structures, have demonstrated a progressive evolution towards holistic corporate responsibility, giving equal, if not more, emphasis to both the social and governance pillars. The salience of the social pillar in these nations could be attributed to greater public consciousness about social inequalities, rights, and inclusivity. Coupled with stringent regulatory frameworks, corporations are under greater scrutiny when adopting and reporting socially responsible practices. Concurrently, the governance pillar's prominence underscores the importance of board structures, ethical leadership, and transparency in corporate decision-making within these nations. This dual prominence may reflect the maturity of corporate reporting standards and market participants' expectations in G7 countries. In contrast, for the broader set of nations beyond the G7, the pre-eminence of the governance pillar alone warrants attention. It is plausible that in these countries, the initial stages of ESG integration are primarily directed towards creating robust governance mechanisms. As these markets evolve, one might anticipate a gradual shift where environmental and social pillars gain incremental significance. At the present juncture, however, the heightened significance of governance perhaps underscores a more immediate market need for transparent leadership and decision-making. Collectively, these findings highlight the heterogeneous nature of ESG integration across global markets, underscoring the importance of contextualising ESG metrics within regional socio-economic and regulatory landscapes. This heterogeneity offers a nuanced perspective for investors, suggesting that a one-size-fits-all approach to ESG evaluation may overlook critical regional specificity that drives corporate ESG performance.

(a) G7



(b) Non-G7

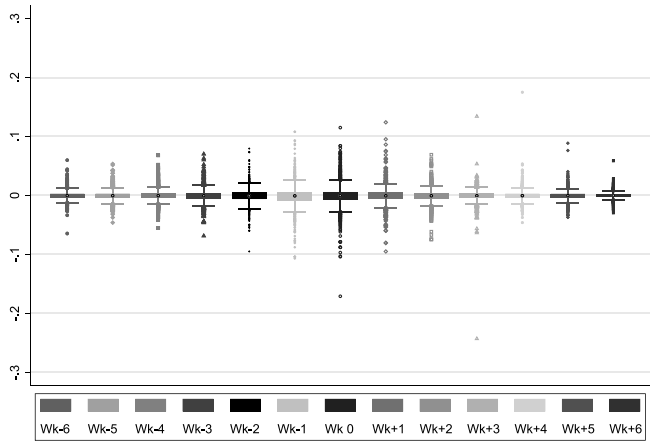
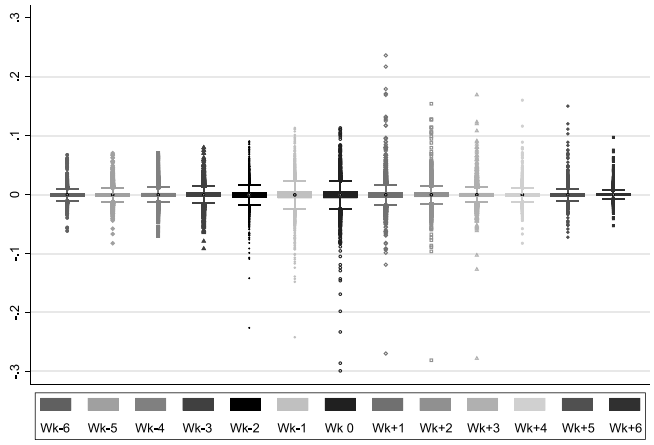


Fig. 7. Stock market response to corporate reputational disasters defined to be environmentally-related in nature.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. RepRisk data was obtained between 1 January 2011 and 31 December 2022, resulting in 30,447 observations. Data based on reputational events regarding the analysed financial institutions is obtained from the RepRisk database. RepRisk is a global leader and pioneer in data science, specialising in premium ESG and business conduct risk research and quantitative solutions. Since 2006, RepRisk has been leveraging the combination of AI and machine learning with human intelligence to translate big data into actionable research, analytics, and risk metrics. With daily-updated data synthesised in 23 languages using a rules-based methodology, RepRisk systematically flags and monitors material ESG risks and violations of international standards that can have reputational, compliance, and financial impacts on a company.

4.3. Can corporate reputational disaster influence commodity market prices?

Finally, when investigating whether corporate reputational disasters can influence commodity market prices, results are presented in Table 13 when considering several international spot and futures markets. The sharpness of such events is found to present no significant influence, or those events relating to incidents categorised to be of moderate severity. A novel result is presented when considering the effects of severe reputational events, where associated significant, negative outcomes are identified in the markets for heating oil (−0.38%), natural gas (−0.97%), wheat (−0.17%), rice (−0.33%), cocoa (−1.01%), silver (−0.16%), platinum (−0.14%), and palladium (−0.60%). Similar interactive effects are identified when considering reach and novelty, where larger markets such as oil and gold present no evidence of significant market response in parallel with corporate reputational disaster. A differential response is also identified when considering the influence of separated ESG effects. Environmentally-related reputational disasters

(a) G7



(b) Non-G7

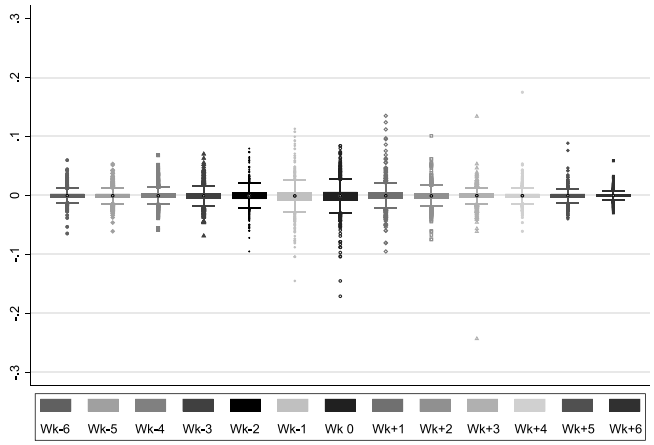
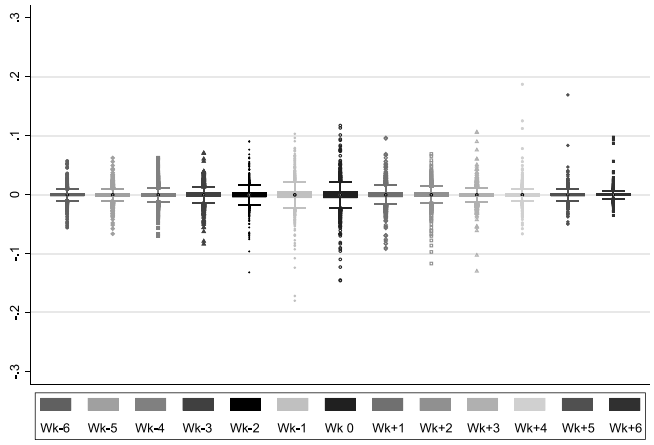


Fig. 8. Stock market response to corporate reputational disasters defined to be socially related in nature.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \epsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. RepRisk data was obtained between 1 January 2011 and 31 December 2022, resulting in 30,447 observations. Data based on reputational events regarding the analysed financial institutions is obtained from the RepRisk database. RepRisk is a global leader and pioneer in data science, specialising in premium ESG and business conduct risk research and quantitative solutions. Since 2006, RepRisk has been leveraging the combination of AI and machine learning with human intelligence to translate big data into actionable research, analytics, and risk metrics. With daily-updated data synthesised in 23 languages using a rules-based methodology, RepRisk systematically flags and monitors material ESG risks and violations of international standards that can have reputational, compliance, and financial impacts on a company.

are found to present limited direct influence; however, significant negative effects are presented when considering socially-denoted events in markets for heating oil, natural gas and silver, and for governance-denoted reputational disasters as experienced in the markets for wheat, rice and cocoa. Such results indicate significant pass-through effects exist in international commodity markets after severe, high-reaching reputational disasters. As presented through several international stock market indices, robustness testing presents no evidence of significant effects when considering each series analysed. Such a result indicates that the influence of corporate reputational disasters is specific to the analysed commodity markets.

Such results present evidence of a nuanced interrelation between severe corporate reputational events and their subsequent market repercussions. Notably, distinct markets such as heating oil, natural gas, wheat, rice, cocoa, silver, platinum, and palladium suggest that markets for these commodities might be inherently more sensitive to reputational dynamics, possibly due to the confluence of supply-chain vulnerabilities, consumer sentiment, and investor perceptions that intertwine with the core value proposition of these commodities (Cavanaugh and Penick, 2018; Iwatsubo et al., 2018; Zhou et al., 2023). Interestingly, large

(a) G7



(b) Non-G7

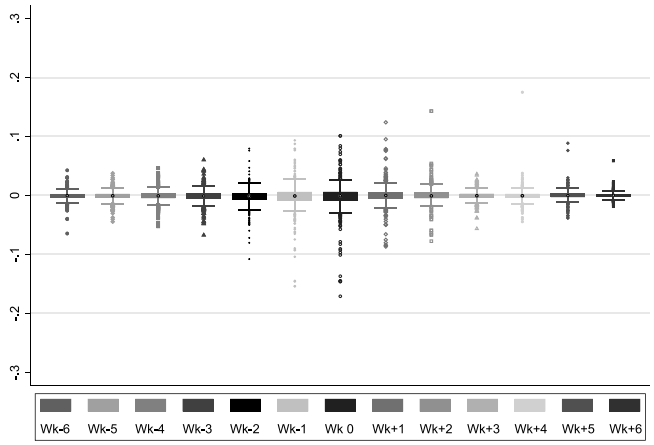
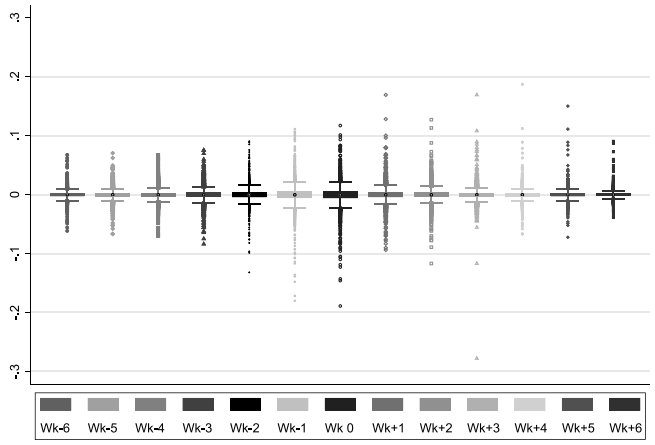


Fig. 9. Stock market response to corporate reputational disasters defined to be governance-related in nature.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Data based on reputational events regarding the analysed financial institutions is obtained from the RepRisk database. RepRisk is a global leader and pioneer in data science, specialising in premium ESG and business conduct risk research and quantitative solutions. Since 2006, RepRisk has been leveraging the combination of AI and machine learning with human intelligence to translate big data into actionable research, analytics, and risk metrics. With daily-updated data synthesised in 23 languages using a rules-based methodology, RepRisk systematically flags and monitors material ESG risks and violations of international standards that can have reputational, compliance, and financial impacts on a company.

markets like oil and gold remain impervious to corporate reputational disaster. One might postulate that the global nature, along with the sheer volume and liquidity inherent in these markets and their fundamental significance in global economic structures, insulates them from transitory reputational shocks (Kuck and Schweikert, 2017; He et al., 2019; Indriawan et al., 2021; Carpantier, 2021). Their pivotal role in hedging and diversification strategies might further fortify them against exogenous shocks. Further granularity is added to this discourse when the segmented effects of ESG components are considered. While environmentally-based reputational disasters appear to exert negligible direct impact, social- and governance-related events present a discernible influence on specific markets; the pronounced adverse effects in the wake of socially marked events on heating oil, natural gas, and silver markets might be indicative of the heightened societal scrutiny these sectors are subjected to, given their direct implications for community welfare and environmental sustainability. On the other hand, governance-driven reputational impairments adversely affecting wheat, rice, and cocoa markets can reflect the criticality of transparent and ethical business practices in sectors directly impacting human sustenance and well-being.

(a) G7



(b) Non-G7

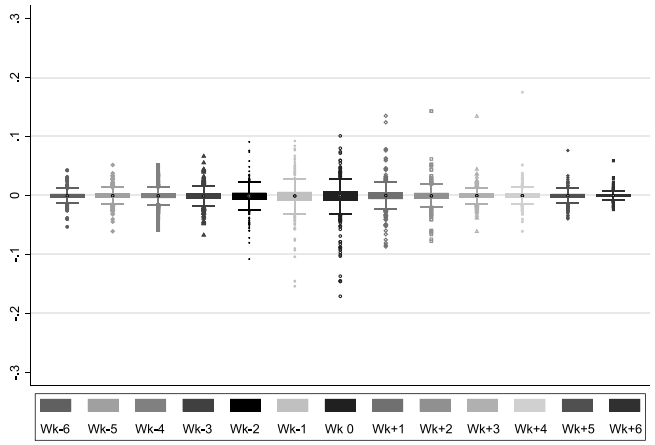


Fig. 10. Stock market response to corporate reputational disasters defined to be cross-cutting in nature.
Note: To identify the financial market response differentials due to corporate reputational disasters, we utilise the mean equation of the EGARCH(1,1) methodology $r_t = a_0 + b_1 r_{t-1} + b_2 r_{t-2} + b_3 I_t + b_3 d_t + \varepsilon_t$, where the term d_t represents a dummy variable that takes a value of unity during the analysed window surrounding each respective reputational event. Some events are identified as a combination of ESG-related, with a further category denoted as cross-cutting, which is defined as a risk incident or ESG event relating to at least two pillars relating to environmental, social, or governance simultaneously.

5. Related discussion, policy implications and directions for future research

The results presented provide evidence of an intricate relationship between corporate ESG dynamics and their influence upon G7 and non-G7 corporations. Within the G7 countries, it is evident that both environmental and governance pillars are held in high regard. This dual emphasis can be attributed to the maturity of corporate reporting standards and the heightened expectations of market participants. The prominence of these two pillars highlights the intertwined nature of sustainable practices and corporate governance within advanced economies. Moving beyond G7 nations, the governance pillar stands out singularly, emphasising its foundational role in ESG integration. This suggests a phased integration approach, where initial stages prioritise establishing robust governance structures, perhaps in response to historical challenges with corporate transparency. Effective governance is vitally important when ensuring corporate accountability and provides support against risks that can erode investor confidence. As these economies evolve, it is plausible to expect an upward trajectory in the significance attributed to environmental and social considerations. However, the current emphasis on governance underscores an immediate market need, highlighting the imperative of transparent leadership and accountable decision-making.

Table 13
Commodity market response to corporate reputational disasters.

			Severity		Reach		Novelty					
		Sharp	Moderate	High	Moderate	High	Moderate	High	Env	Soc	Gov	Cross
Brent Fut ICE	LCOc1	0.0011	0.0022	0.0039	0.0016	0.0048	0.0014	0.0068	0.0040	0.0004	0.0036	0.0014
Copper Fut	HGc1	−0.0012	0.0032	0.0004	0.0013	0.0021	−0.0033	0.0105	0.0018	−0.0001	0.0078	−0.0009
Corn Fut	Cc1	0.0034	0.0047	0.0052	0.0010	−0.0004	0.0045	0.0068	0.0046	0.0088	−0.0033	0.0073
Cotton Fut	CTc1	0.0063	0.0000	0.0011	−0.0005	0.0058	−0.0011	0.0130	0.0014	0.0026	−0.0014	0.0011
Gold Fut	GCc1	0.0029	0.0014	0.0006	0.0006	0.0020	0.0002	0.0033	0.0022	0.0011	0.0011	0.0002
Heating Oil Fut	HOc1	0.0007	−0.0016	−0.0038***	−0.0020	−0.0031***	−0.0044***	0.0003	−0.0016	−0.0070***	−0.0012	0.0074
Light Sweet Cr. Fut	CLc1	0.0013	0.0054	0.0007	0.0007	0.0009	0.0074	0.0069	0.0071	0.0093	−0.0014	0.0020
Natural Gas Fut	NGc1	0.0034	−0.0036	−0.0097***	0.0011	−0.0130***	−0.0041***	−0.0070***	−0.0029	−0.0052***	0.0011	0.0058
RBOB Gas	RBc1	0.0002	0.0014	0.0006	0.0010	0.0011	0.0073	0.0179	0.0065	0.0046	0.0020	0.0021
Silver Fut	SIc1	0.0050	0.0011	−0.0038	−0.0033***	0.0019	−0.0050***	−0.0045***	0.0030	−0.0026***	0.0051	−0.0032
Soybean Fut	Sc1	−0.0024	0.0045	0.0006	0.0034	0.0066	0.0070	0.0021	0.0034	0.0062	−0.0009	0.0030
West Texas Int.	WTCLc1	0.0011	−0.0046	0.0000	0.0014	0.0011	0.0113	0.0016	−0.0025	0.0078	−0.0166	0.0013
Wheat	Wc1	0.0002	0.0037	−0.0017***	−0.0009	0.0057	−0.0007	0.0062	0.0041	0.0037	−0.0070***	0.0044
Rice	RRc1	0.0006	0.0010	−0.0033***	0.0021	−0.0030***	0.0020	0.0038	0.0025	0.0013	0.0029***	0.0081
Coffee	KTc1	0.0017	−0.0022	0.0004	−0.0029	−0.0029***	−0.0022	0.0046	0.0061	−0.0014	−0.0129	0.0032
Cocoa	CJc1	−0.0008	−0.0071	−0.0101***	−0.0030	−0.0108***	−0.0100***	−0.0059***	−0.0061	−0.0049	−0.0010***	−0.0086
Gold	XAU=	0.0059	0.0032	0.0043	0.0010	0.0045	0.0013	0.0069	0.0035***	0.0046***	0.0050	0.0024
Silver	XAG=	0.0075	−0.0021	−0.0016***	−0.0039***	0.0002	−0.0004	0.0025	0.0009	−0.0015	0.0006	−0.0029
Platinum	XPT=	−0.0014	0.0000	−0.0014***	−0.0013	−0.0002	−0.0029	0.0058	−0.0006	0.0008	0.0055	0.0013
Palladium	XPD=	0.0081	0.0012	−0.0060***	−0.0019***	0.0075	0.0118	0.0081	0.0098	0.0083	0.0086	0.0062
							Robustness					
CAC 40 Fut	FCEc1	0.0062	0.0037	0.0033	0.0042	0.0037	0.0014	0.0075	0.0036	0.0034	0.0040	0.0069
DAX Future Eurex	FDXc1	−0.0002	−0.0022	−0.0040	−0.0032	−0.0028	−0.0049	−0.0004	−0.0017	−0.0023	−0.0031	−0.0035
DJ EURO STOXX 50	STXEc1	−0.0015	0.0016	−0.0046	−0.0009	0.0009	0.0008	0.0033	−0.0001	−0.0003	0.0006	−0.0002
FTSE 100 Fut	FFIc1	−0.0093	0.0008	0.0027	−0.0002	−0.0030	−0.0011	0.0057	0.0025	0.0021	0.0009	0.0040
Hang Seng Fut	HSIc1	−0.0023	−0.0041	−0.0065	−0.0012	−0.0001	−0.0078	0.0026	−0.0045	−0.0048	−0.0046	−0.0015
NASDAQ 100 E-mini	NQc1	0.0046	0.0021	0.0025	0.0022	0.0008	0.0016	0.0025	0.0028	0.0017	0.0001	0.0027
Nikkei 225 Fut Osaka	JNIc1	−0.0109	0.0042	−0.0033	−0.0016	0.0022	−0.0004	0.0087	−0.0008	−0.0002	0.0032	0.0022
S&P 500 E-mini	ESc1	0.0007	0.0015	0.0008	−0.0011	−0.0022	0.0016	−0.0021	−0.0015	−0.0017	−0.0023	−0.0026

Note: To test the final research question surrounding the ability of commodity-related corporate reputational disasters to influence international commodity markets, a range of spot and futures markets are selected, along with several international stock market indices to provide methodological robustness, in the format of an EGARCH specification similar to that presented in Equation 1. Daily data is used for such analysis, where respective dummy variables surrounding each RepRisk-determine reputational event characteristic as presented in Fig. 1.

Investigating whether the impact of corporate reputational disasters on commodity market prices reveals further complexity. The insensitivity of certain large markets, such as oil and gold, to reputational shocks might be attributed to their substantial volume and inherent liquidity. These markets' foundational role in global economic structures possibly offers them a buffer against transient reputational disturbances. Furthermore, the differential responses observed based on the nature of the ESG components underscore the significance of sector-specific considerations. For instance, the notable negative effects stemming from socially denoted events in markets such as heating oil and natural gas perhaps resonate with these sectors' heightened public scrutiny due to their direct ties with environmental sustainability and population welfare. Considering the consequences of corporate reputational disasters upon commodity market valuations reveals several intricate relationships and consequential dynamics. A striking observation is the apparent resilience of large, liquid commodity markets, notably oil and gold. Such insusceptibility can be explained through several characteristics. First, the substantial trading volumes in these markets, supported by global demand and trading frequency, grant these markets an intrinsic level of robustness. This vast liquidity dampens the impact of external shocks. Further strengthening this resilience is the strategic significance of these commodities and central positioning therein. Oil and gold, with dual roles as a consumer good and an investment, possess demand-supply dynamics, where the entrenched positions of these commodities in fiscal and monetary policies and investment portfolios present substantial market depth.

The variance in market reactions when considering ESG components offers further insights into market psychology and operational intricacies. Sectoral specifics emerge as crucial determinants. For example, heating oil and natural gas are central to modern energy needs and environmental conservation, an area under intense societal and regulatory spotlight. Adverse events in such sectors, particularly those tinged with social implications, are not merely viewed through financial prisms; they become emblematic of broader concerns, such as climate change or community health. This heightened scrutiny can amplify market reactions, as seen in the negative effects. Conversely, the governance-led reputational impacts on commodities intrinsic to food production, such as wheat, rice, and cocoa, underscore the intricate ties between market perception, ethical corporate governance, and basic human needs. Such markets are not just trade platforms; they represent global food security and socio-economic stability. Consequently, any reputational damage stemming from governance lapses presents a potential threat to food supply chains and ethical business conduct, magnifying its market ramifications.

This research's findings bear significant implications for policymakers and regulatory authorities, particularly considering financial market regulation and corporate governance. At its core, the evidence emphasises the intricate linkage between corporate reputational dynamics and commodity market behaviour. Such a connection necessitates a particular focus on shaping policy frameworks that ensure transparent reporting and ethical conduct within corporates, given the cascading impacts these can have on broader economic structures. One pivotal implication is the need for enhanced regulatory oversight of corporate governance, especially within sectors that have shown pronounced sensitivity to reputational events. As illustrated by the differential impacts on commodities such as wheat, rice, and cocoa, sectors influencing international food production require policies that uphold stringent governance standards. This is to protect investors and safeguard broader societal interests by ensuring stable, transparent market ecosystems that remain resilient to reputational shocks. Furthermore, the resilience of markets like oil and gold to reputational disturbances underscores the importance of market liquidity and depth in buffering against exogenous shocks. By ensuring that corporations in these sectors adhere to robust ESG standards, policymakers can potentially mitigate the adverse market reactions to reputational events. Further, observing significant market movements before official announcements raises questions about market

efficiency and the possibility of insider trading. This phenomenon underscores the need for stringent monitoring and regulation to ensure fair trading practices and to maintain investor confidence in financial markets.

The findings of this research also carry significant practical implications for corporate practitioners, particularly those operating in commodity-related industries. Understanding the interplay between ESG preparedness and market reactions to reputational events enables firms to prioritise strategic investments in ESG practices as a form of risk mitigation. Practitioners should focus on developing robust governance structures, as these were shown to be pivotal in mitigating adverse market impacts, especially in regions with less developed financial systems. Furthermore, the evidence of differential market responses to ESG incidents suggests the need for tailored communication strategies when addressing stakeholders following a reputational event. Firms must also recognise the critical role of proactive ESG integration in reducing volatility and preserving shareholder value during crises. By aligning their risk management frameworks with sector-specific sensitivities, particularly in essential industries such as food production and energy, practitioners can better navigate reputational risks while contributing to long-term market stability.

Future research should consider a deeper focus surrounding sector-specific sensitivities to reputational disturbances, enabling a comprehensive understanding of why certain sectors, products and regions are more susceptible to reputational challenges than others. Furthermore, the observed resilience of markets such as oil and gold to reputational shocks raises several pertinent questions. Future research might ascertain the precise factors contributing to this resilience. Focusing on liquidity and market depth would be a central focus, along with testing whether underlying structural and strategic factors are at play, which would be important. Additionally, the differentiation observed in market responses based on the nature of the ESG components suggests that the ESG framework itself warrants deeper scrutiny. Investigating the relative weights and interdependencies of the Environmental, Social, and Governance pillars within varying market contexts can refine the understanding of their individual and collective impacts on market behaviour.

6. Conclusions

This research presents a comprehensive examination of the multifaceted dynamics underpinning the integration of ESG aspects within global financial markets, focusing specifically on corporate reputational disasters within international commodity-related corporations. The results comprehensively show how ESG factors intertwine and vary, contingent upon regional attributes, market characteristics, and the ESG pillars' inherent nuances. Specifically, in the advanced economies of the G7, a distinct dual emphasis on governance and environmental dimensions is evident. This prominence can be attributed to the maturity of corporate reporting standards in these countries and to a more sophisticated interplay of regulatory oversight, institutional activism, and shareholder expectations. The emergence and consistent focus on these facets, particularly in the G7, can also be seen as a consequence of increased public scrutiny, environmental challenges, and a demand for greater corporate transparency in decision-making. Conversely, governance stood out as the predominant concern when broadening the scope to nations beyond the G7. This heightened attention to governance perhaps signifies the necessity of establishing a foundation of trust and corporate accountability. This is especially crucial in countries where the corporate landscape might have been less developed or subjected to many repeated instances of malfeasance along with a lack of clarity in corporate decisions, leading to an inherent trust deficit among investors and stakeholders.

Further, the research focuses on the interactions of such corporate responses while considering ESG preparedness. Specifically, we consider the granularities of ESG components and their distinct market influences, where the limited market repercussions from environmentally anchored reputational events present evidence of existing market myopia or perhaps the prolonged timelines associated with environmental outcomes. However, the substantial negative impacts from socially pertinent events in markets such as heating oil and natural gas signify the sectors' front-line position in societal and environmental discourses. Similarly, the influence of governance-centric reputational events on markets integral to food production, such as wheat, rice, and cocoa, underscores the need for elevated corporate transparency, ethical conduct, and robust governance mechanisms in these sectors. Notably, the imperviousness of dominant markets, exemplified by commodities such as oil and gold, to these corporate reputational disasters is intriguing. Their innate resilience can be attributed partly to their elevated levels of liquidity, and their strong position within central traditional financial market portfolios lends them a certain immunity against transient reputational fluctuations. Yet, such resilience does not extend across all commodity markets. A pronounced sensitivity was observed in markets associated with heating oil, natural gas, wheat, rice, and cocoa. Such vulnerability to reputational dynamics, especially when underscored by ESG considerations, accentuates a confluence of factors. These markets, perhaps more directly tied to everyday consumer consumption, face the brunt of supply-chain disruptions, shifts in consumer sentiment, and nuanced investor evaluations. Their position in the global economic web, closely tethered to societal well-being and environmental considerations, amplifies their exposure to reputational risks.

In light of these research findings, it becomes evident that ESG considerations, while globally relevant, manifest with varying magnitudes across distinct financial landscapes. The differentiated emphasis across markets and regions underscores corporate practices' intricate adaptability and evolution in response to stakeholder demands and environmental, social, and governance challenges. The significance of governance outside the G7 suggests a pressing global narrative of the urgency for transparent, ethical, and accountable corporate conduct. Such governance practices are vital to ensure corporations' broader commitment to comprehensive ESG objectives. As regions converge on governance standards, one might anticipate a cascading emphasis on environmental and social considerations, heralding a more holistic global approach to ESG integration. Furthermore, the resilience of certain markets to reputational disturbances highlights an intriguing dynamic: the balance between intrinsic market strengths and the overarching power of reputation in shaping market outcomes. However, the susceptibility of other essential commodity markets to ESG-induced fluctuations reaffirms the crucial interplay between global sentiment, corporate reputation, and market stability.

In practical terms, our findings suggest several strategic implications for corporate practitioners operating within global commodity markets. Recognising corporate reputation as a valuable intangible asset, companies should invest in robust reputation management strategies that align closely with stakeholder expectations. Specifically, our study highlights the importance of transparent communication, consistent corporate behaviour, and proactive engagement with ESG issues as pivotal elements of effective reputation management. Practitioners can leverage these insights to enhance decision-making processes, improve risk management practices, and strengthen stakeholder relationships, thereby better navigating the inherent volatility of commodity markets. Moreover, the demonstrated impact of regional differences and ESG factors on reputation-related market dynamics underscores the need for a tailored approach in different market environments. Companies should consider regional and sector-specific nuances in designing their reputation management practices to maximise effectiveness and ensure sustainable market performance.

Conclusively, the study emphasises that as the global financial landscape continues to evolve, ESG considerations will remain pivotal, warranting dynamic strategies and adaptive frameworks. The challenge lies in fostering an environment wherein ESG practices are both reactive to current demands and proactive in anticipating future challenges. Global markets can strive for sustainability, stability, and genuine societal impact through a dual approach.

CRediT authorship contribution statement

Iris Li: Writing – review & editing, Writing – original draft, Software, Methodology, Investigation, Formal analysis, Conceptualization. **Erdinc Akyildirim:** Writing – review & editing, Writing – original draft, Validation, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Thomas Conlon:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Shaen Corbet:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

We have no conflicts of interest to disclose.

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Data availability

The authors do not have permission to share data.

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