



Press release

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## Severe climate disasters can increase businesses' greenhouse emissions intensity by 15.7%, new HEC Paris research finds

*A new paper by academics from top European business school HEC Paris shows that natural disasters can temporarily worsen companies' environmental performance, but firms with strong governance and located in affluent areas can mitigate the impact.*

[New research](#) by Luc Paugam, Professor of Accounting and Forvis Mazars Chair for Purposeful Governance at HEC Paris, and colleagues Rodolphe Durand, Joly Family Professor of Purposeful Leadership at HEC Paris, Lorenzo Dal Maso at Bologna Business School, and Francesco Mazzi of the University of Florence, examines whether climate disasters lead companies to become more environmentally responsible by lowering the intensity of their greenhouse gas (GHG) emissions, but finds that the immediate reaction is often the opposite.

The study analyses the GHG emissions intensity of over 850 publicly listed US companies following climate disasters, including the most severe events such as major hurricanes, flash floods and wildfires. Emissions intensity looks at how much a company emits per unit of output or revenue, and severe climate disasters are natural phenomena that trigger at least three FEMA (US Federal Emergency Management Agency) assistance programmes, including individual assistance, public assistance and hazard mitigation.

The authors found that, on average, **companies' emissions intensity increased by approximately 7% in the year of a climate disaster, followed by a further 6.3% rise the following year.** Although the effect is substantial, the authors also found that it disappears after the second year.

However, Professor Paugam and his colleagues point out that **emissions intensity could rise by as much as 15.7% after severe climate disasters** and warn that the impact varies between companies in line with corporate governance, leadership and access to resources.

On the latter, the authors explain that a disaster typically diverts management attention towards business continuity, using up financial and human resources and resulting in less efficient work pushing emissions up in the short-term. The study also demonstrates that companies' awareness of climate risk is not enough to drive improvement.

According to Professor Paugam: *"Disasters are often assumed to act as a wake-up call. Our evidence suggests the reality is more demanding: awareness alone doesn't lower emissions. A disaster only becomes an opportunity to decarbonise when a company already has the motivation, governance and resources to act; otherwise, the immediate effect is more emissions, not fewer."*

The paper outlines that certain types of companies and others operating under certain conditions are better at responding to natural disasters. For example, firms with long-term ownership and long-tenured CEOs saw a decrease in emissions intensity of 11.8%. Companies operating in areas where education levels and socioeconomic resources are high also saw a decrease of 5.2% in emissions intensity.

Unsurprisingly, businesses with strong liquidity also substantially reduce the post-disaster increase in emissions, suggesting that they have the capacity to fund efficiency investments rather than rely on temporary fixes.

*"A disaster only becomes a decarbonisation opportunity when motivation and capability are already in place at firm level, community level, or both,"* said Professor Paugam. *"Our research shows that firms with adequate long-term preparation and those operating within communities with greater awareness of climate change, higher levels of education and greater economic capital can navigate climate disasters more successfully without altering their commitment to sustainability,"* he added.

The authors argue that these findings hold important implications for policymakers, investors and corporate leaders seeking to accelerate decarbonisation. Rather than assuming greater exposure to climate risk will naturally encourage greener business practices, efforts should focus on strengthening the organisational capabilities that allow companies to act when disruptions occur.

#### **About HEC Paris:**

Founded in 1881 by the Paris Chamber of Commerce, HEC Paris is a leading European business school with the ambition to make a positive impact on both business and society. Its mission is driven by a unique "Think, Teach, Act" approach, aimed at fostering a more inclusive, sustainable, and prosperous world.

With 167 research professors from around the globe, HEC Paris produces and shares cutting-edge knowledge with over 5,000 students from more than 130 countries. Its campus serves as a true laboratory of innovation and dialogue, fully engaged with the world's diversity and global challenges. Guided by its five founding values — Excellence, Curiosity, Entrepreneurial Spirit, Diversity, and Responsibility — HEC Paris offers a comprehensive portfolio of programs designed for tomorrow's leaders: Bachelor's, Grande École, Specialized Masters, MSc, Summer School, MBA, Executive MBA, TRIUM Global Executive MBA, PhD, and a wide range of executive education programs for managers and senior leaders.

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