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Rising tides, rising funds: Floods and climate mitigation campaigns in equity crowdfunding

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ABSTRACT

Climate change presents an urgent global challenge, increasing the frequency of extreme weather events. This paper contributes to sustainability research by examining the impact of floods on local equity crowdfunding activity in Italy from 2014 to 2023. Our findings reveal that floods significantly increase the probability of launching crowdfunding campaigns focused on climate mitigation initiatives in affected areas. These campaigns raise higher amounts of capital compared to those in unaffected regions. CEM matching confirms the validity of these findings. Overall, this study highlights how localized climate-related shocks influence entrepreneurial and investor behavior, shedding light on the potential of equity crowdfunding to support sustainability and climate resilience efforts.

1. Introduction

Climate change presents an urgent challenge to society, significantly increasing the frequency and intensity of extreme weather events, including floods, hurricanes, droughts, and heatwaves. These events have resulted in growing economic losses and social disruptions (Hoeppe, 2016) and have been shown to influence the behavior of economic agents, acting as catalysts that prompt them to reassess risks and adjust their strategies in anticipation of future climate-related threats (Dessaint & Matray, 2017; Alok et al., 2020; Huang et al., 2022). The increasing occurrence and financial impact of extreme weather events have drawn significant attention from policymakers, governments, and academics (Billio et al., 2024), driving efforts to develop policies and strategies aimed at mitigating the adverse effects of these disasters (Fawzy et al., 2020).

In recent years, equity crowdfunding has emerged as a viable financing option for climate mitigation projects (Maehle et al., 2021; Kragt et al., 2021). Equity crowdfunding is a rapidly growing fundraising model that allows entrepreneurs to raise capital online from a diverse pool of investors (Block et al., 2018). It stands out from other crowdfunding types, such as lending- (Maiolini et al., 2024), donation- or rewards-based models (Cappa et al., 2022; Maiolini and Nasta,2024), because it offers financial returns to investors

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(Troise et al., 2022; 2023;[1] 2024). This democratized financing mechanism has gained importance globally (Butticè and Vismara, 2022), especially in addressing pressing issues like climate change. However, the literature on this subject is still in its infancy, largely based on qualitative and anecdotal evidence (Testa et al., 2019), with a few notable exceptions (e.g., Butticè et al., 2019; Vismara, 2019; Farè et al., 2024). While some quantitative studies exist, they tend to focus on related but distinct topics, such as ESG investing or clean-tech innovation (e.g., Cumming et al., 2024), rather than directly assessing the financing of climate change mitigation projects via crowdfunding. Additionally, most research has explored the potential of crowdfunding as a tool to finance climate-related initiatives, without delving into how climate change itself might influence crowdfunding activity. This leaves an important gap in understanding the dual relationship between climate change and economic systems highlighted above. On the one hand, there is a pressing need to mitigate future climate change by promoting sustainable practices, on the other hand, the current effects of climate change are already altering the behavior of economic agents, including entrepreneurs and investors.

This paper attempts to fill this gap, studying the association between climate change and economic behavior by identifying the climate mitigation crowdfunding campaigns and by analyzing how extreme weather events, specifically floods, influence entrepreneurial and investment decisions related to these campaigns. Equity crowdfunding allows entrepreneurs to raise capital from a large pool of online investors, offering an alternative to traditional financing sources like bank loans or venture capital. This democratized approach is particularly appealing for climate-related projects, as it enables entrepreneurs to engage with a growing base of environmentally conscious investors eager to support innovative climate solutions.

Our core hypothesis is that extreme weather events such as floods increase awareness of climate change risks among both entrepreneurs and investors, leading to higher demand for and supply of capital for climate mitigation projects. Italy, a country that has faced a disproportionate number of floods in recent years, provides a suitable context to examine this dynamic. The country's geographical features, along with the rising intensity of weather-related disasters, have made floods a major environmental risk (Faiella and Natoli, 2018). Recently (May 2023), unprecedented rainfall led to severe flooding in the Emilia-Romagna region, with rivers bursting their banks and submerging towns. This event caused fatalities, displaced thousands, and inflicted major agricultural and economic losses. Anecdotal evidence suggests that floods serve as wake-up calls for society, underlining the urgency of addressing climate risks.[1] In this context, we examine how floods alter the behavior of both capital demanders (entrepreneurs) and capital providers (investors) in the equity crowdfunding market, with a particular focus on campaigns aimed at climate change mitigation.

Using a comprehensive dataset of all equity crowdfunding campaigns launched in Italy from 2014 to 2023, we analyze the patterns in campaign launches and capital raised following floods. We employ a combination of coarsened exact matching (CEM) and fixed effects models to compare crowdfunding campaigns launched in flood-affected areas with those in unaffected ones. The results suggest an association between floods and equity crowdfunding activity related to climate mitigation projects. Specifically, our analysis reveals that floods are associated with an increase in the probability of launching climate mitigation crowdfunding campaigns. Furthermore, these campaigns tend to raise more capital than those launched in areas not affected by floods. This suggests that both entrepreneurs and investors are placing a greater emphasis on climate mitigation initiatives in response to extreme weather events.

The implications of this study are twofold. First, our findings suggest a new market equilibrium in which both the demand and the supply of capital for climate mitigation projects are increasing. This reflects a growing recognition of the financial opportunities associated with mitigation of climate change on crowdfunding platforms. Accordingly, by focusing on Italy's flood-prone regions, we shed light on the ways in which localized climate shocks can catalyze broader shifts in both the supply and demand for capital aimed at mitigating the effects of climate change. Second, the results highlight the effectiveness of equity crowdfunding platforms as a means of financing climate-related initiatives, particularly in regions vulnerable to extreme weather events. As climate change continues to intensify, understanding these dynamics will be crucial for developing effective financial strategies that promote climate resilience and sustainability.

The remainder of this paper is organized as follows. Section 2 presents the research design, Section 3 reports the empirical results, and Section 4 concludes the paper.

2. Research design

2.1. Data

Our dataset comprises all equity crowdfunding campaigns launched in Italy between 2014 and 2024. Italy provides a unique context for this study due to its highly developed equity crowdfunding ecosystem and its vulnerability to floods, making it an ideal setting to explore the relationship between extreme weather events and climate-related funding initiatives. Moreover, Italy is interesting country for the specific focus on equity crowdfunding as Italy was the first country in Europe to introduce an ad hoc regulation for ECF (Decreto Legge n. 179/2012 or "Decreto Crescita Bis") as well as a specific registry for ECF operators provided by Consob (Commissione Nazionale per le Società e la Borsa) (Troise et al., 2021; 2013).

[1] E.g. La sfida del rischio idrogeologico: cosa insegnano le alluvioni in Emilia-Romagna (adnkronos.com)

Data were manually collected by tracking every campaign on all equity crowdfunding platforms that were or are still active in Italy.[2] Climate mitigation campaigns were classified based on project descriptions starting from the definition of cleantech companies, identified by Ambrois and colleagues (2023). Within this framework, we narrowed our focus to initiatives specifically targeting climate change mitigation. For sake of example, this more stringent definition includes companies commited to developing renewable energy solutions, while excluding those associated with waste management. Projects descriptions have been independently coded by two researchers, and subsequently validated by the authors. Discrepancies between coders were resolved through discussion until consensus was reached. Flood data were sourced from the Osservatorio Nazionale CittàClima, which documents all flood events in Italy over the same period. The unit of analysis is the NUTS3 geographical areas in Italy (i.e. provinces). We define an area as "treated" if a flood occurred K (= 2,4,6,8,10,12) months prior to the launch of the campaign. Our final sample includes 10,800 firm-year observations over 90 NUTS3 areas (i.e., provinces).

2.2. Empirical model

To investigate the association between floods and the probability of launching climate mitigation crowdfunding campaigns, we employed fixed-effect regressions.

Our main model takes the following form:

$$Ln\left(Y_{imy}\right) = b_0 + b_1 * Flood_{imy} + b_2 * X_{iy} + d_m + d_y + g_i + e_{imy} \quad (1)$$

where $Ln(Y_{imy})$ is the number of climate mitigation campaigns (in logarithm) launched in province i in month m of year y, or, alternatively, the total amount raised (in logarithm) by those campaigns. The variable $Flood_{imy}$ is a treatment dummy variable that takes the value of one for provinces affected by a flood within k months prior (in month m, year y) and zero otherwise. We estimate Eq. (1) for k = 2, 4, 6, 8, 10 and 12 months. If $Ln(Y_{imy})$ changes identically in the treatment and control groups, then there will be no effect associated with the floods and $\beta_1 = 0$. We control for a vector of province-level variables, X, which includes population density (in year y), GDP per capita (in year y) and the average target capital of climate mitigation campaigns launched in province i in month m and year y. In addition, δ_m, δ_y, and γ_i are province, month, and year FEs, respectively.

Additionally, we replaced the number of climate mitigation campaigns with a dummy taking value 1 if at least one climate mitigation campaign was launched in province i in month m of year y. In this case, we estimate a probit model with standard errors clustered by province.

3. Empirical results

3.1. Descriptive statistics

Table 1 presents the descriptive statistics of the main variables used in the study.

In Fig. 1a, we reported the floods that occurred in Italy in the time span of our study, while in Fig. 1b their trend over time. Overall, data show that floods have involved most of the Italian provinces. The provinces most severely hit are located in Southern and Northwest Italy. On average the number of floods is equal to 15.5 at the national level, with a peak of 31 events in 2019.

Fig. 2a provides information on the ratio of climate mitigation crowdfunding over the total number of campaigns launched in each province, while Fig. 2b refers to the trend over time. Interestingly, the share of climate mitigation crowdfunding campaigns is increasing over time, with a peak of one campaign out of three related to climate mitigation in 2019.

3.2. Results

Tables 2 and 3 present the results of our analysis examining the number of climate mitigation campaigns and the probability of launching climate mitigation across different geographical areas, respectively. We do not find any correlation between floods and the number of crowdfunding campaigns launched afterwards in the same province. Instead, we find a statistically significant positive association (p-value < 0.05) between the likelihood of launching a climate mitigation campaign and the occurrence of a flood within the same area, specifically for floods that occurred in the prior 2, 10, or 12 months. While the results for other time windows are not statistically significant, they remain qualitatively consistent, suggesting a persistent trend. These findings suggest both short- and long-term effects of floods on the demand for capital aimed at climate mitigation projects. Importantly, the statistical significance observed in specific time windows aligns with the nature of crowdfunding dynamics, where immediate responses to disasters often peak within short intervals, and subsequent campaigns reflect sustained awareness or planning. The qualitative consistency across all time frames further reinforces the robustness of the observed patterns and strengthens our confidence in the underlying relationship between flood

[2] The comprehensive list of crowdfunding platforms include: 200 Crowd, 2meet2biz, Action Crowd, Activant, BacktoWork24, Bildap, Brick Up, Build Around, Cofyp, Concrete, CrowdFundMe, CrowdInvest Italia, Doorway, Ecomill, EquityStartUp, Extrafunding, Finnexta, Forcrowd, Foxcrowd, Fundera, FundYourJump, Hensoo, House4Crowd, Idea Crowdfunding, Investi-Re, LifeSeeder, Lita.co, MamaCrowd, Mediterranea, Crowd Muum Lab, MyBestInvest, MyRestartUp, NEstMoney, Next Equity, OPStart, Puzzle Funding, Re-Anima, Smarthub, StarsUp, The Best Equity, Unica, Seed, UpsideTown, Walliance, WeAreStarting, Yeldo Crowd.

Table 1
Descriptive statistics.

Variable	Description	N	Mean	Std. Dev.	Min	Max
LN climate campaigns		10,800	0.031	0.185	0	2.079
LN amount raised climate		10,800	0.419	2.315	0	15.909
Dummy climate		10,800	0.032	0.176	0	1
Average target capital		10,800	0.381	2.105	0	15.202
Average climate campaigns		10,800	0.011	0.073	0	0.693
Population density		10,800	0.297	0.402	0.038	2.611
GDP per capita		10,800	27,362	7191	14,800	59,900

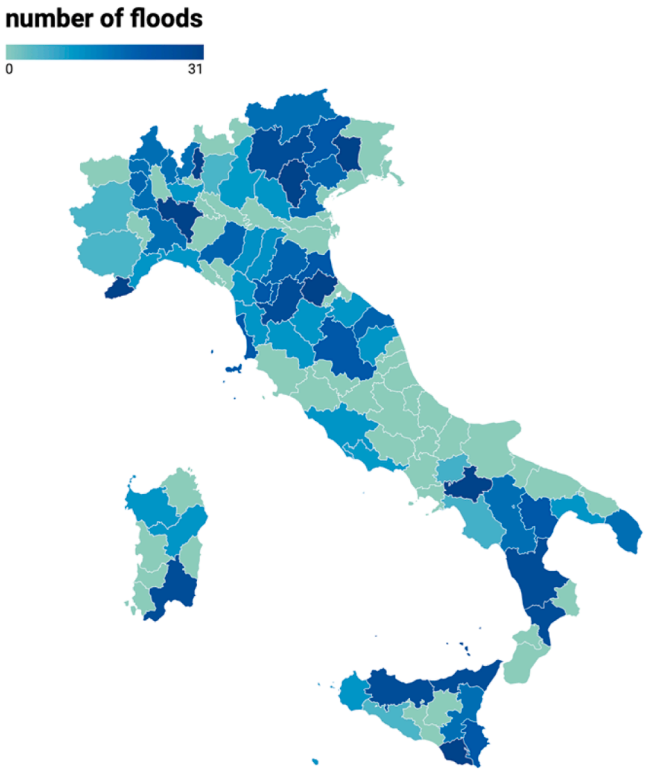

Fig. 1a. Floods in Italy in the period 2014–2023. NUTS3 breakdown.

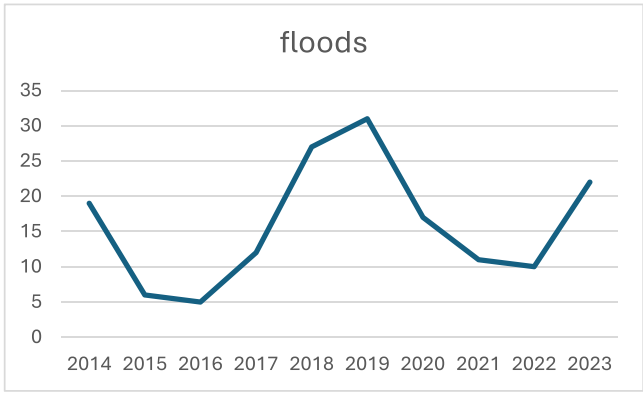

Fig. 1b. Floods in Italy in the period 2014–2023. Trend over time.

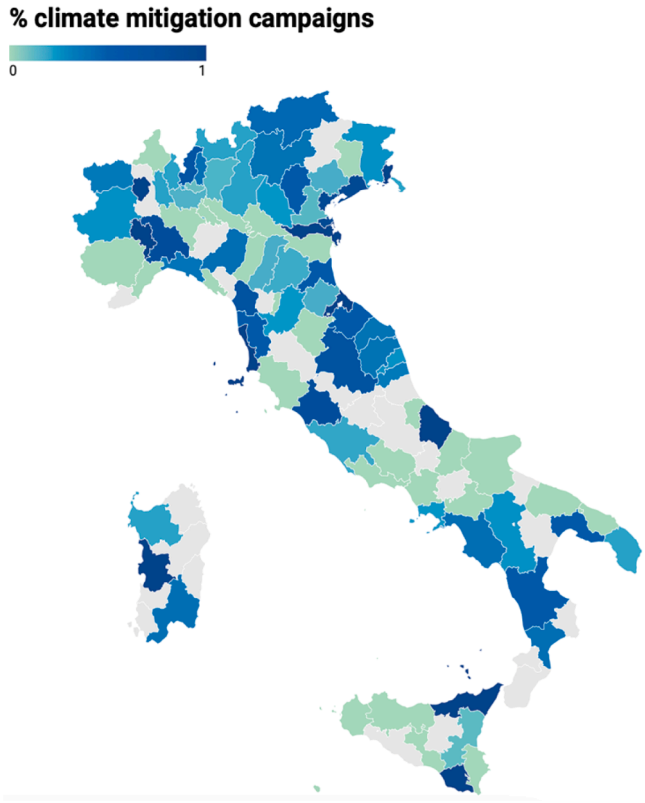

Fig. 2a. Climate mitigation campaigns in Italy in the period 2014–2023. NUTS3 breakdown.

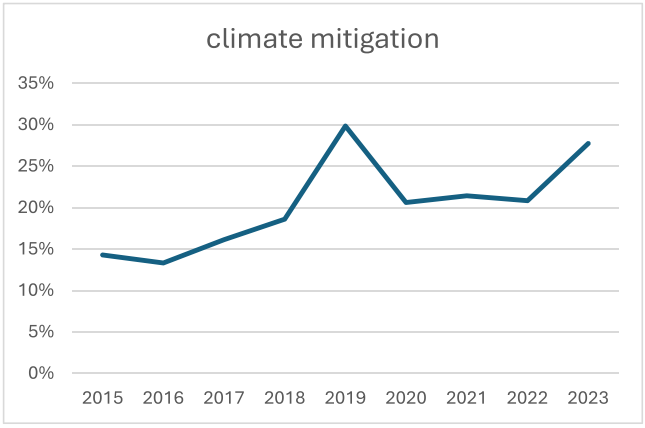

Fig. 2b. Climate mitigation campaigns in Italy in the period 2014–2023. Trend over time.

events and climate action.

Table 4 provides an analysis of the total amount of capital raised by crowdfunding campaigns focused on climate mitigation by province. The results suggest that areas experiencing a flood in the previous 2, 6, or 8 months experience an increase in the total funds raised by climate mitigation campaigns. Although the results for other time windows are not statistically significant, they remain qualitatively similar. This indicates a short-term impact of floods on the capital raised for climate mitigation projects.

Finally, Table 5 presents the same analysis on the total capital raised using a restricted sample obtained through Coarsened Exact Matching (CEM) performed on provinces' geographical and demographic features (i.e., a categorical variable indicating if the province belongs to Northern, Central or Southern Italy, population density and GDP per capita). CEM results in the exclusion from the analysis of 15 untreated provinces (over different years-months), which do not match the above-mentioned features of treated provinces. The results are consistent with the findings described above.

Table 2
Floods and number of regional climate mitigation campaigns.

	(1)	(2)	(3)	(4)	(5)	(6)
k	**2 months**	**4 months**	**6 months**	**8 months**	**10 months**	**12 months**
Flood	0.008	-0.000	0.000	0.001	0.001	-0.000
	(0.005)	(0.004)	(0.002)	(0.002)	(0.002)	(0.003)
Average target capital	0.074***	0.074***	0.074***	0.074***	0.074***	0.074***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Population density	2.479	2.482	2.481	2.479	2.479	2.483
	(1.670)	(1.672)	(1.671)	(1.671)	(1.667)	(1.673)
GDP per capita	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dummy year	yes	yes	yes	yes	yes	yes
Dummy month	yes	yes	yes	yes	yes	yes
Province FE	yes	yes	yes	yes	yes	yes
Log-Likelihood	15,557.717	15,555.932	15,555.934	15,556.015	15,556.051	15,555.939
Obs	10,800	10,800	10,800	10,800	10,800	10,800
N province	90	90	90	90	90	90

Table 3
Floods and probability of launching climate mitigation campaigns.

	(1)	(2)	(3)	(4)	(5)	(6)
k	**2 months**	**4 months**	**6 months**	**8 months**	**10 months**	**12 months**
Flood	0.255**	0.167	0.158	0.120	0.203**	0.242**
	(0.124)	(0.114)	(0.097)	(0.094)	(0.094)	(0.102)
Population density	0.342***	0.342***	0.341***	0.341***	0.336***	0.336***
	(0.128)	(0.129)	(0.128)	(0.128)	(0.125)	(0.124)
GDP per capita	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dummy year	yes	yes	yes	yes	yes	yes
Dummy month	yes	yes	yes	yes	yes	yes
Province FE	no	no	no	no	no	no
Log-Likelihood	-1161.268	-1161.728	-1161.494	-1161.945	-1159.800	-1157.984
Obs	10,800	10,800	10,800	10,800	10,800	10,800
N province	90	90	90	90	90	90

Table 4
Floods and regional amount raised by climate mitigation campaigns.

	(1)	(2)	(3)	(4)	(5)	(6)
k	**2 months**	**4 months**	**6 months**	**8 months**	**10 months**	**12 months**
Flood	0.021*	0.007	0.013**	0.011**	0.008	0.006
	(0.011)	(0.006)	(0.006)	(0.004)	(0.006)	(0.005)
Average target capital	1.096***	1.096***	1.096***	1.096***	1.096***	1.096***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
N climate campaigns	-0.336	-0.337	-0.338	-0.337	-0.337	-0.338
	(0.490)	(0.491)	(0.491)	(0.491)	(0.491)	(0.491)
Population density	3.273	3.273	3.259	3.254	3.257	3.260
	(2.619)	(2.617)	(2.609)	(2.606)	(2.605)	(2.612)
GDP per capita	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dummy year	yes	yes	yes	yes	yes	yes
Dummy month	yes	yes	yes	yes	yes	yes
Province FE	yes	yes	yes	yes	yes	yes
Log-Likelihood	5238.350	5236.781	5238.203	5238.064	5237.392	5237.134
Obs	10,800	10,800	10,800	10,800	10,800	10,800
N province	90	90	90	90	90	90

4. Conclusion

This study explores the relationship between floods and local equity crowdfunding activity, with a focus on campaigns addressing climate mitigation. By combining a comprehensive dataset of equity crowdfunding campaigns launched in Italy between 2014 and 2023 with flood data from the same period, we examine how localized extreme weather events influence crowdfunding dynamics. Our findings indicate a notable rise in the probability of launching climate mitigation campaigns following floods, alongside an increase in the capital raised by these campaigns. This suggests heightened awareness of climate change mitigation among both capital seekers

Table 5
Floods and regional amount raised by climate mitigation campaigns. CEM results.

k	(1) **2 months**	(2) **4 months**	(3) **6 months**	(4) **8 months**	(5) **10 months**	(6) **12 months**
Flood	0.021*	0.005	0.011*	0.008*	0.005	0.004
	(0.011)	(0.007)	(0.006)	(0.004)	(0.005)	(0.006)
Average target capital	1.092***	1.092***	1.092***	1.092***	1.092***	1.092***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
N climate campaigns	-0.273	-0.274	-0.275	-0.274	-0.275	-0.275
	(0.472)	(0.472)	(0.473)	(0.472)	(0.472)	(0.472)
Population density	8.061***	8.060***	8.038***	8.033***	8.041***	8.047***
	(2.189)	(2.185)	(2.179)	(2.178)	(2.175)	(2.188)
GDP per capita	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dummy year	yes	yes	yes	yes	yes	yes
Dummy month	yes	yes	yes	yes	yes	yes
Province FE	yes	yes	yes	yes	yes	yes
Log-Likelihood	4578.241	4576.692	4577.625	4577.333	4576.858	4576.692
Obs	9900	9900	9900	9900	9900	9900
N province	86	86	86	86	86	86

and investors.

However, this study has limitations. While we explore various time frames following floods, our design cannot conclusively establish a causal link between floods and crowdfunding activity. Despite applying CEM to balance treated and control groups of provinces, there remains the potential for endogeneity. Unobserved characteristics of the geographical areas may still impact the results. Additionally, this study focuses solely on equity crowdfunding, which may not capture the full spectrum of responses to extreme weather events. Future research could expand this work by investigating other forms of crowdfunding, such as donation-based crowdfunding, which often plays a critical role in post-disaster recovery and community support. Exploring how different types of crowdfunding respond to extreme weather events could provide a more comprehensive understanding of the dynamics between climate shocks and alternative finance. Additionally, the role of sustainable energy transition (Cariola et al, 2020; La Rocca et al., 2023) in mitigating climate risks merits further investigation, particularly how crowdfunding platforms could facilitate investment in renewable energy infrastructure and clean technology solutions at the local level.

Despite these limitations, our findings have significant implications for entrepreneurs, investors, researchers, and policymakers. For firms and investors, the results point to a new market equilibrium, consistent with a growth of both demand and supply for climate mitigation projects. This suggests a unique opportunity for businesses to align profitability with sustainability goals, while enabling investors to diversify their portfolios with impact-driven investments. For policymakers, they underscore the role crowdfunding platforms can play in financing projects related to climate mitigation. Policymakers can also use these insights to design interventions that amplify the role of crowdfunding in vulnerable regions, such as providing incentives for climate-focused campaigns or enhancing regulatory support. Lastly, for researchers, this study highlights how climate change in general, and extreme weather events like floods in particular can reshape financial market behavior. These findings open avenues for future research to explore the broader economic ripple effects of extreme weather on alternative finance, including the potential for regional and sectoral variations in response to climate shocks.

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CRediT authorship contribution statement

Monica Billio: Writing – original draft, Validation, Supervision, Funding acquisition, Conceptualization. **Vincenzo Butticè:** Writing – original draft, Validation, Project administration, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization. **Francesca Di Pietro:** Writing – original draft, Validation, Funding acquisition, Data curation, Conceptualization. **Francesca Tenca:** Writing – original draft, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Silvio Vismara:** Writing – original draft, Validation, Supervision, Funding acquisition, Conceptualization.

Conflict of interest statement

All authors declare that they have no conflicts of interest.

Data availability

The authors do not have permission to share data.

References

Alok, S., Kumar, N., Wermers, R., 2020. Do fund managers misestimate climatic disaster risk. Rev. Financ. Stud. 33 (3), 1146–1183.

Ambrois, M., Butticè, V., Caviggioli, F., Cerulli, G., Croce, A., De Marco, A., ... & Zinilli, A. (2023). Using machine learning to map the European Cleantech sector (No. 2023/91). EIF Working Paper.

Billio, M., Murgia, M., Vismara, S., 2024. Sustainable and climate finance: an integrative framework from corporates to markets and society. Rev. Corp. Finance 4 (1–2), 1–16.

Block, J.H., Colombo, M.G., Cumming, D.J., Vismara, S., 2018. New players in entrepreneurial finance and why they are there. Small Bus. Econ. 50, 239–250.

Butticè, V., Colombo, M.G., Fumagalli, E., Orsenigo, C., 2019. Green oriented crowdfunding campaigns: their characteristics and diffusion in different institutional settings. Technol. Forecast. Soc. Change 141, 85–97.

Butticè, V., Vismara, S., 2022. Inclusive digital finance: the industry of equity crowdfunding. J. Technol. Transf. 47 (4), 1224–1241.

Cappa, F., Franco, S., Ferrucci, E., Maiolini, R., 2022. The impact of product and reward types in reward-based crowdfunding. IEEe Trans. Eng. Manag. 70, 3050–3061.

Cariola, A., Fasano, F., La Rocca, M., Skatova, E., 2020. Environmental sustainability policies and the value of debt in EU SMEs: empirical evidence from the energy sector. J. Clean. Prod. 275, 123133.

Cumming, D., Meoli, M., Rossi, A., Vismara, S., 2024. ESG and crowdfunding platforms. J. Bus. Ventur. 39 (1), 106362.

Dessaint, O., Matray, A., 2017. Do managers overreact to salient risks? Evidence from hurricane strikes. J. Financ. Econ. 126 (1), 97–121.

Faiella, I., & Natoli, F. (2018). Natural catastrophes and bank lending: the case of flood risk in Italy. Bank of Italy occasional Paper, (457).

Farè, L., Meoli, M., Vismara, S., 2024. Sustainable crowdfunding and cultural contexts: evidence from a longitudinal multi-country analysis. Financ. Res. Lett., 106345

Fawzy, S., Osman, A.I., Doran, J., Rooney, D.W., 2020. Strategies for mitigation of climate change: a review. Environ. Chem. Lett. 18, 2069–2094.

Hoeppe, P., 2016. Trends in weather related disasters–consequences for insurers and society. Weather. Clim. Extrem. 11, 70–79.

Huang, Q., Lin, M., 2022. Do climate risk beliefs shape corporate social responsibility? Glob. Fin. J. 53, 100739.

Kragt, M.E., Burton, R., Zahl-Thanem, A., Otte, P.P., 2021. Farmers' interest in crowdfunding to finance climate change mitigation practices. J. Clean. Prod. 321, 128967.

La Rocca, T., La Rocca, M., Fasano, F., Cariola, A., 2023. Does a country's environmental policy affect the value of small and medium sized enterprises liquidity in the energy sector? Corp. Soc. Responsib. Environ. Manag. 30 (1), 277–290.

Maehle, N., Otte, P.P., Huijben, B., de Vries, J., 2021. Crowdfunding for climate change: exploring the use of climate frames by environmental entrepreneurs. J. Clean. Prod. 314, 128040.

Maiolini, R., Cappa, F., Franco, S., Quaratino, G.R., 2024. The impact of sustainable development goals in lending-based prosocial crowdfunding: a topic modeling analysis on the kiva platform. Int. Rev. Financ. Anal. 95, 103441.

Maiolini, R., Nasta, L., 2024. Crowdfunding for sustainability: how environmental activism moderates support for B2B and B2C campaigns. Financ. Res. Lett. 69, 106207.

Testa, S., Nielsen, K.R., Bogers, M., Cincotti, S., 2019. The role of crowdfunding in moving towards a sustainable society. Technol. Forecast. Soc. Change 141, 66–73.

Troise, C., Battisti, E., Christofi, M., van Vulpen, N.J., Tarba, S., 2023. How can SMEs use crowdfunding platforms to internationalize? The role of equity and reward crowdfunding. Manag. Int. Rev. 63 (1), 117–159.

Troise, C., Giovando, G., Jabeen, F., Bresciani, S., 2024. Unveiling the role of entrepreneurial teams in the equity crowdfunding journey. Small Bus. Econ. 1–22.

Troise, C., Matricano, D., Sorrentino, M., Candelo, E., 2022. Investigating investment decisions in equity crowdfunding: the role of projects' intellectual capital. Eur. Manag. J. 40 (3), 406–418.

Troise, C., Tani, M., Dinsmore Jr, J., Schiuma, G., 2021. Understanding the implications of equity crowdfunding on sustainability-oriented innovation and changes in agri-food systems: insights into an open innovation approach. Technol. Forecast. Soc. Change 171, 120959.

Vismara, S., 2019. Sustainability in equity crowdfunding. Technol. Forecast. Soc. Change 141, 98–106.