The Impact of Local Social Norms on Access to Finance: The Case of Environmental Entrepreneurship

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Abstract

Venture capital (VC) is widely considered an effective driver for the development of industries. However, in situations of grand challenges, like environmental protection, VCs may face additional complexity due to a dense web of interactions among actors of different nature. Using a social norms perspective in the green industry, we argue that institutions and people interpret the social norms on environmental protection in different ways. This difference of views creates a clash, which may undermine the propensity of VCs to invest in green initiatives, producing critical consequences for the overall development of the green sector. Our results suggest that the density of environmental non-profit organizations (NPOs) shows an inverted U-shape relation with VC engagement in environmental entrepreneurship. Also, when many environmental NPOs operate in a geographic community, the increased level of bureaucratization and professionalization of the third sector and the presence of a strong environmental sensitivity among the citizenship have relevant effects on the attractiveness of green ventures towards VC financing.
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ABSTRACT

Venture capital (VC) is widely considered an effective driver for the development of industries. However, in situations of grand challenges, like environmental protection, VCs may face additional complexity due to a dense web of interactions among actors of different nature. Using a social norms perspective in the green industry, we argue that institutions and people interpret the social norms on environmental protection in different ways. This difference of views creates a clash, which may undermine the propensity of VCs to invest in green initiatives, producing critical consequences for the overall development of the green sector. Our results suggest that the density of environmental non-profit organizations (NPOs) shows an inverted U-shape relation with VC engagement in environmental entrepreneurship. Also, when many environmental NPOs operate in a geographic community, the increased level of bureaucratization and professionalization of the third sector and the presence of a strong environmental sensitivity among the citizenship have relevant effects on the attractiveness of green ventures towards VC financing.

Keywords: social norms, venture capital, non-profit organizations, environmental entrepreneurship, community
INTRODUCTION

What really works for solving the global environmental crisis? Policy makers, non-profit organizations, incumbents, newcomers, investors, and citizens have become sensitive to climate change. Although an enhanced sensitivity to the topic is positive, the actions undertaken by the wide array of stakeholders could not always obtain the impact they claim, as grand challenges can be approached and understood in multiple ways (Ferraro et al., 2015). Stakeholders in a filed bring with them differing goals, strategies and methods. Thus, multiple, and in some case conflicting, interpretations of the best way to address grand challenges are often present in the same field. What may be legitimated for someone may not be acceptable for others (Webb et al., 2009) as climate change debate is embedded in cultural and economic differences (Berrone et al., 2016; York et al., 2018) and in social norms whose interpretations is subjective and organization-dependent.

The web of actors involved in grand challenges is so dense and articulated that their actions need to be analysed under a choral and comprehensive perspective, able to take into consideration possible interrelations among stakeholders and their effect on the entire ecosystem of actors engaged in addressing grand challenges (Ferraro et al., 2015). However, extant literature has primarily focused on the direct effects of actions undertaken by specific institutions in addressing specific dimensions of the climate challenge, like entrepreneurial entry (York and Lenox, 2014) or technological standard adoption (York et al., 2018), to cite some of them, disregarding the possible generation of side effects. In particular, our paper poses its foundations on the critical role that equity investors play in supporting the creation and growth of green entrepreneurial activities. More precisely, it bases its reasoning on the idea that venture capital investors (VCs) are influenced by the surrounding environment in which they operate to decide about their investments (Chen et al. 2010).

Moving from such considerations, our study intends to provide a step forward in order to address this critical oversight, by investigating the boomerang effect that actions taken by non-
profit organizations (NPOs) may have on VC investment decisions, in the attempt to support
environmental entrepreneurship. Environmental NPOs are defined as those organizations
whose goal (according to the National Center of Charitable Statistics) is the environmental
quality protection and beautification. The broad insight of this study is that the local norms
regarding environmentalism take different paths depending on the actor interpreting these
norms, with critical consequences on other actors operating in the ecosystem in support of
green entrepreneurship. Adopting a multi-actor approach is, thus, critical because it allows to
take into consideration the complex nature of global issue, for which one initiative may solve
one element of the global problem but, as an unsought consequence, may create a new problem.

In this paper, we propose a theoretical framework consisting of two key community-level
dynamics that may influence VC investment decisions. First, we start our investigation by
considering the effect that a proliferation of NPOs may have on VC engagement in
environmental entrepreneurship. Previous studies have shown that the density of NPOs is a
critical factor for understanding the capacity of a community to address societal problems
(Berrone et al., 2015). In our context, we argue that when NPOs are co-located, VC’s evaluation
of NPOs as effectively addressing a social problem is influenced by dynamics of perceived
collaboration and support among them. We suggest an inverted U-shape relation, showing that
in presence of low NPOs’ density, VCs could perceive a weak level of support by those
organizations which constitute a key node within communities for their ability to mobilize
collective action to challenge the structural bases of environmental degradation. On the other
hand, an excessive presence of NPOs may increase the probability to have divergence of goals,
thus hampering the creation of a collaborative context where VCs feel confident to be engaged.

We, then, turn to test two sets of moderators that may influence our main relation and that
reflects different ways to interpret local social norms on environmental issues: (1) NPOs’ level
of bureaucratization and professionalization and (2) citizen sensitivity. In line with the aim of
understanding how VCs react to specific dynamics that occur in their community of reference, we theorize that the bureaucratization and professionalization of the third sector can undermine green entrepreneurial initiatives, in the form of lower levels of VC engagement. At the same time, high levels of citizen’s engagement on environmental issues in areas where NPOs proliferate can spur VC commitment, suggesting a possible substitution effects between citizen’s engagement and environmental NPOs. To sum up, the dominant belief among organizational actors such as NPOs in terms of how to effectively promote the respect of the environment has become more and more a question of being firm alike, efficient, and big in order to have an impact. However, among individuals within a community, the dominant belief regarding how to promote environmental sustainability is that of being personally engaged and develop habits and behaviours at the household level that transcends the presence of NPOs. These diverging interpretations create a misalignment of intents and a tension which may influence how VCs take decisions about their intent to finance green initiatives.

This paper bridges several literatures and contributes to the creation of a more integrative view on the resolution of the grand challenge of environmental degradation. First, for the research area of VC and entrepreneurship (Criscuolo and Menon, 2015; Gaddy et al., 2017; Mrkajic et al., 2018; Petkova et al., 2014), we expand knowledge of how the dynamics in the institutional environment can influence entrepreneurship, by showing how VC investors react to the orientation of NPOs and citizens towards environmental issues in their investment decisions. Our study offers empirical evidence that the institutional environment, and particularly sociocultural factors, influence investors’ engagement in fields with distinct social and environmental implications. Second, we contribute to the literature on the role and effectiveness of environmental NPOs in addressing grand challenges (Berrone et al., 2016; Forbes, 1998, Herman & Renz, 2004, Jenkins, 2006). Rather than focusing on how NPOs’ characteristics impact their ability to address grand challenges, we offer the first study to
examine the impact of NPOs’ actions on a different stakeholder, that is VC investor, which is known to play a critical role in the growth of a field. Third, we extend our knowledge in the area of social norms and entrepreneurship (Meek et al., 2010, York & Venkataraman, 2010). In line with previous studies, our findings suggest that the sociocultural environment is a powerful factor in shaping the growth of entrepreneurial firms seeking to create environmental benefits. Using a social norms perspective we show that different actors interpret the social norms on environmental protections in different ways and this difference can undermine the overall development of a green sector.

The rest of the paper is structured as follows. We first develop our theoretical framework by explaining the role of environmental NPOs and VC firms in promoting green entrepreneurship and their interplay in the fight against environmental degradation. We, then, formulate our set of hypotheses. We proceed with the description of our methodology, the results of our analysis and we conclude with a discussion of the contributions for both research and practice.

THEORETICAL DEVELOPMENT

The role of NPOs in green entrepreneurship

The relationship between green companies’ entrepreneurial performance and environmental NPOs has attracted scholarly interest because it informed about the role of NPOs in the development of new, sustainable industries. Some scholars defend the role of NPOs as promoters of green entrepreneurship through advocacy (York and Venkataraman, 2010), others see the evolving structure of NPOs displaying enough flexibility to please the expectations of donors and avoid many of the possible obstacles of the political process (Meyer, 1992). However, in the last years, NPOs have witnessed a metamorphosis that is affecting how their effectiveness is perceived. The process of rationalization (in terms of bureaucratization and professionalization of their activities) has pushed NPOs to look more firm alike, either using
protocols that are typical of the private sector, or recruiting employees from the private sector, or shifting their core activity to the solution of core environmental issues as agents of change rather than as support for private organizations. The change in the essence of traditionally voluntary grassroots organizations has reignited the attention to the relationship between green companies and environmental NPOs. First, it would be reasonable to think that this rationalization process has created a substitution effect may have caused green companies and environmental NPOs to compete for the same objective – i.e. the development of a green industry – rather than collaborate for a superior purpose. Second, the gradual legitimation of the green sector has made the work of environmental NPOs obsolete. Since the world has become more and more sensitive to the problems of the environment, as proved by the attention to the topic paid by world leaders and international organizations, like the United Nations, environmental NPOs that were once at the forefront of advocacy may not be relevant actors as before the “green revolution” of the last years. Consequently, the relationship between environmental NPOs and green companies would describe an old picture of a time when NPOs were a powerful tool for social change, but that now are just relatively powerless entities that struggle to find their role in communities that have moved towards sustainable practices.

Since the third sector has had a phenomenal importance for the development of new industries and, more broadly, for the evolution of our societies, it is critical to understand whether this sector is losing its power in triggering the development of the green sector.

**The interplay between NPOs and VC in green entrepreneurship**

Venture Capital investors (VCs) support risky and new technologies by making investments in early-stage companies in exchange for an ownership stake in the company. The role of VC is well-recognized as central to the development of an entrepreneurial economy. The introduction of several innovations across a spectrum of sectors (i.e. healthcare, IT, nanotechnology) has been driven in large part by the availability of VC for new start-ups
A similar role is essential to enable new businesses growing in environmental technologies (Criscuolo and Menon, 2015; Vedula and York, 2013). However, VC operating in green sectors faces more challenges than other sectors, due to long-term investment period required to realize positive outcomes, risky exit opportunities, regulatory uncertainty (Wustenhagen and Teppo, 2006) and a complex network of stakeholders who play active role in the attempt to move societies towards “green growth”. As far as the last point, NPOs and citizens are recognized as central in shaping the evolution of green sectors (York and Venkataraman, 2010), as previously discussed. Given their critical role, understanding how VCs will be influenced by their behaviours will shed new light on the peculiarities of VC investments in green new ventures if compared to other more traditional sectors. Although the relation between investors providing equity financing, environmental social norms and entrepreneurship is recognized as strongly relevant (Vedula and York, 2013), the topic deserves more attention.

**Green entrepreneurship in communities**

Environmental NPOs, entrepreneurship and VCs have strong connections to the territory where they operate. In the case of the relationship between NPOs, VCs and green entrepreneurship, whether the relationship is observed at the urban and metropolitan level or at the state level plays a critical role in the strength of the relationship.

First, environmental NPOs typically express the will of the local citizenship to promote one topic of relevance for the community. NPOs give voice to their territory and whether they are advocative or commercial, their goal is to increase the relevance of a topic (inequality, the environment, education) that is relevant to their local base. Second, entrepreneurship also arises in a specific area because the local conditions favour one type of entrepreneurship over another. The literature on districts and the more recent literature on the local factors predicting the levels of entrepreneurship reinforce this consideration (Glaeser and Kerr, 2009; Jack and Anderson,
2002; Malecki, 1993). Third, VC industry is affected by geographic dynamics (Chen et al., 2010; Florida and Kenney, 1988; Sunley et al., 2005, Munari and Toschi, 2015). Several studies show that VC investments tend to be concentrated in specific spatial areas, VC managers tend to prefer investing in companies located close to their area of competence for enabling an effective monitoring process (Lerner, 1995), VC syndication pattern follows a regional path and VC policies are more effective if set-up at the local level (Sunley et al., 2005). Since environmental NPOs, investors and entrepreneurship are affected by the territory where they develop, also their relationship is fundamentally shaped by geography, particularly, by their local communities. Communities, defined as metropolitan areas, are the geographical level that best captures the relationship as they offer a more realistic portrait of social, cultural and economic traits than cities (Berrone et al., 2016, Marquis, 2003). By only observing the city level, the major causes of certain city level events could not be understood properly. Areas outside cities are also the loci of innovation, especially in terms of cultural initiatives (McGranahan & Wojan, 2007) that can benefit from such innovativeness.

**HYPOTHESES**

**NPO density and VC engagement in green entrepreneurship**

How prevalent environmental NPOs are within a community may influence VC firms in their investment decisions and, thus, the growth of green ventures in that community. Until few years ago the norm was that the more environmental NPOs in a certain area, the better for the development of a green sector in that area (Sine and Lee, 2009, Weber et al., 2008). However, the situation has changed recently for the reasons discussed in the previous section. In their paper on the community level factors affecting the effectiveness of NPOs in reducing economic inequalities, Berrone and colleagues (2016) suggest that there is a point in which the
density of NPOs in a community becomes too high to be effective, as the level of competition which arises among NPOs becomes deleterious for their success¹. 

NPOs shape the institutional environment in which entrepreneurial activities take place, and VC is one of the most relevant engines for entrepreneurial growth. Our theorizing is rooted in the importance of the interplay between these institutions and its effect on entrepreneurship (Aldrich & Fiol, 1994). In our context, how many environmental NPOs exist in a geographic community can reflect on their capacity to successfully trigger green entrepreneurship. On the one hand, few environmental NPOs may occupy specific niches in the market for green services as support for green companies, either providing them with legal advice or social support. Although few NPOs may show a strong coherence in terms of goals, they are not strong enough to create a supportive environment and VCs have few "partners" with which to exchange information. If the number of NPOs slightly increases, the benefits of the niche are preserved. At the same time, VC investors may rely on a greater critical mass of NPOs which allows them to perceive a collaborative context where different types of supports to green ventures can effectively coexist. However, after a maximum point, the ability of NPOs to differentiate among one another and be useful for the development of the green sector is less evident, with a consequent redundancy of support. Also, too many NPOs could have potential divergence of goals, even if they are strong in number for creating a supportive environment. Additional interactions create cannibalization of efforts and VCs may have problems in interacting with NPOs and relying on an environment with long-term and trust relationships. Thus, at the maximum point characterized by a medium number of NPOs, VCs can rely on both (i) a heterogeneous set of information to use in order to support green ventures and (ii) a supportive environment made of coherence of goals and collaboration. We hence argue that:

¹While the insight by Berrone et al. (2016) applied to welfare NPOs rather than environmental NPOs, it is reasonable to think that such competitive dynamics transcend the sector in which NPOs operate.
Hypothesis 1: The density of environmental NPOs in a community has a curvilinear (inverted u-shape) effect on VC engagement in green entrepreneurship.

Local social norms and VC engagement in green entrepreneurship

Social norms are the unwritten norms that regulate the behaviour within a certain group (Elster, 1989), or the shared understandings about actions that are obligatory, permitted, or forbidden (Crawford and Ostrom, 1995). Among sociologists, social norms have been described as informal institutions that take the form of cognitive institutions when they reflect the shared beliefs about socially accepted standards of behaviour (Scott and Meyer, 1991). Differently from legal norms, the sanctions for the person or group that violates social norm are enforced by the group to which the norm applies, not by a designed authority. In the case of social norms, the punishment leads to consequences such as remorse or guild by the violators or gossip and ostracism (Meek et al., 2010). Despite the absence of judicial enforcement, social norms are very powerful ways to direct the conduct of groups (Feldman, 1984).

Local social norms are social norms that operate within a specific area. The geographic focus is relevant because different local areas may display different local norms and what may be accepted in one geographic area may not be accepted in another. In the case of the nationally oriented banks of the U.S., analysed by Marquis and Lounsbry (2007), for example, certain community members, such as local banks, citizens, and activists, strongly opposed the creation of national banks in their communities because such type of organization clashed with their more local orientation.

In this paper, we argue that within a geographical community, social norms can be interpreted in different ways by the different social and economic groups present in the community. Particularly, we argue that environmental NPOs and private citizens may display two different ways to address environmental problems within the same geographical community and their
diverging approaches towards a common problem can have an impact on the promotion of green entrepreneurship through VC engagement.

**Local social norms for NPOs**

We first discuss the effect of *bureaucratization* of NPOs on green entrepreneurship. Environmental NPOs are under constant scrutiny by their supporters and broader stakeholders. To justify their existence, NPOs must effectively prove that their efforts towards the betterment of the environment have positive consequences. Over the decades, the social norms over what was a legitimate behaviour to be adopted by the environmental NPOs to promote ecological issues have changed significantly. It was in the Seventies that the terms “Environmentalism” gained popularity. At that time, the strength of environmentalism was fully demonstrated through the masses, via the mobilization of the citizens. It was during the Seventies when a first iteration of NPOs started to form; they were movement organizations whose objective was to gather the masses around an issue, with the goal to stimulate the governments to develop pro-environment policies. Yet, over time, the social norm among NPOs about what were the right practices to adopt (Luxmore & Hull, 2018) to legitimately protect the environment shifted from mobilizing the masses to the rationalization of the pro-environment movements (Hwang and Powell, 2009). The formalization of NPOs translated in an increase in the level of bureaucracy among NPOs (Grønbjerg, 1993; Smith and Lipsky, 1993). The steady rationalization of the third sector, possibly triggered by the reduction of the amount of government support received (Eikenberry, 2009), has contributed to spread the belief that if NPOs update their structures to better fit into a neo-liberal context, they will better achieve their social goals. This transformation, however, has encountered some opposition: defenders of the traditional grassroots initiatives that emerged from a private, collective need, do not feel

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2 1970 was the year where the “Earth day” was created and on that day twenty million Americans poured in the streets of their cities to ask for a more environmentally sustainable society.

3 The creation of the “Clean water Act”, “the Pesticide Control Act”, “the Endangered Species Act”, and the “Safe Drinking Water Act” - all signed in the seventies - were the result of these mobilizations.
represented by the new market-oriented configuration of NPOs (Eikenberry, 2009). This structural change is particularly evident among environmental NPOs. Instances of this change are the creation of new professional careers in the area of environmental protection, the increasing number of international policies for the regulation of CO₂ emissions (Child et al., 2007), or the creation of policies regulating various aspects of the daily activity of the NPOs. In general, activities that once emerged spontaneously from the base of the organization, now had to be formally regulated to comply with the newly created formal structure of the organization.

When environmental NPOs become more bureaucratic they achieve their goals efficiently but their tactics and goals become more moderate (Jenkins, 1998). Instead of using an aggressive rhetoric and inciting the mobilization, NPOs frame their position as that of mediators, deal makers, and institutional agents that can trigger an improvement of the environment through more moderate procedures than the ones used when the environmental movement begun. This new norm of behaviour regarding how environmental NPOs should behave in order to be considered legitimate bounds their ability to succeed. Their ability to serve as a leverage for green entrepreneurship is jeopardized because more bureaucratic organizations are more likely to distance themselves from their local base; the more bureaucratic the NPOs, the more they are unable to respond to the demands of the citizens of their respective communities. By renouncing their role of advocate of the interests of the masses, NPOs lose their unique positioning as links with the local base. These new organizational form lacks a grassroots element that is critical for social changes insofar as it is the public scrutiny of contested practices that triggers entrepreneurial action (Schneiberg and Soule, 2005; Sine and Lee, 2009; Zald et al., 2005). When public scrutiny cannot occur because NPOs fail to reach their local base, the subsequent entrepreneurial action is inhibited.
From the VC perspective, if we analyse this dynamic in conjunction with the density of NPOs available in a community, when the number of NPOs is small, a bigger size for the few NPOs in the environment may increase the potential support these organizations are able to offer and a constructive dialogue with VCs is still possible. However, an increase in the number of highly bureaucratized NPOs will create more competing dynamics where each NPO will try to make its goals prevailing on the others and VCs cannot rely on a supportive environment anymore. Such mechanism takes place because the more NPOs grow in size, the more detached from the roots they are and the less credible they are to VC because they fail to connect with the grassroots within the community. This intuition relies on a vast body of research linking size of democratic institutions to citizens’ engagement (Andrews, 2017; Indik, 1965; Kelleher & Lowery, 2004): for example Oliver (2000) showed that people in larger cities are less likely to reach out to officials, attend community or organizational meetings, or vote in local elections than people in smaller towns. Similarly, the bigger an organization, the less likely to engage citizens and hence be perceived by other entities such as VCs, as a valuable connection with them. Paradoxically, the social norm that made the NPOs more efficient, is also the one that reduces their credibility towards actors like VCs that do not look for a bureaucratized entity to understand a community but rather one who is close to it. We hence argue that:

*Hypothesis 2a: The level of bureaucratization of the NPOs moderates the curvilinear relationship between the density of environmental NPOs and VC engagement in green entrepreneurship, such that the inverted u-shape will be less pronounced when NPO bureaucratization is high.*

A second element we analyse is the effect of *professionalization* of NPOs on green entrepreneurship. A professionalized organizational environment is one where high levels of education and an orientation to formal knowledge are valued among staff members and
management (Brint, 1994), at the expense of a more informal type of knowledge and management style. Our argument is that professionalized NPOs replace green ventures rather than supporting them, this creates a substitution effect that is not valued by VCs.

One way NPOs trigger green entrepreneurship is by affecting the demand and supply of resources available to entrepreneurs. Sine and Lee (2009) clarify the mechanisms, showing that environmental NPOs can delegitimize some resources and valorise others that had not been acknowledged as valuable resources for entrepreneurs before. NPOs engage in a “cultural work” that enables entrepreneurs to overcome of the liability of newness (Stinchcombe, 1965; Aldrich and Fiol, 1994) and hence create the conditions for ventures to engage in innovative activities. By doing so, NPOs present previously non-acknowledged resources as legitimate, and present these resources as basis for the entrepreneurial process.

An instance of this cultural work occurs when NPOs implement the activities related to green entrepreneurship. For example, some NPOs choose as their core activity to recycle polluting materials instead of advocating for recycling and supporting ventures whose business is recycling. When NPOs professionalize, they become the actors who use the newly legitimized resources instead of enabling ventures to use them. By doing so they inhibit the development of green initiatives rather than promoting them because they create a substitution effect. In other words, NPOs become competitors of the green ventures. NPOs not only affect the demand and supply of resources by identifying those resources that more effectively could be employed for social change, but they use them in an entrepreneurial fashion. This implies a vertical integration of the third sector into green entrepreneurship. Although this phenomenon may be positive for the reputation and the short-term performance of the NPOs, the substitution effect between NPOs and green ventures ends up undermining the long-term goal of environmental NPOs, that is that of enabling the society to develop more sustainable practices towards the environment.
From the VC perspective, a limited number of professionalized NPOs can still act as an enabler of green initiatives, by offering a valuable support in terms of competences and, at the same time, by avoiding to compete against new ventures in the market. However, when the number of professionalized NPOs increases the substitution effect described above takes place and VCs avoid to invest in that area for not falling in competitive dynamics among organizations of difficult resolution. We hence argue:

_Hypothesis 2b: The level of professionalization of the NPOs moderates the curvilinear relationship between the density of environmental NPOs and VC engagement in green entrepreneurship, such that the inverted u-shape will be less pronounced when NPO professionalization is high._

_Local social norms for individuals_

In this paper, we suggest that social norms can be interpreted differently by organizations – in our case environmental NPOs – and individuals and groups of individuals – in our case citizens. Individuals and groups of individuals are less constrained than NPOs in the expression of their judgment because no formal hierarchy imposes a specific _modus operandi_. It follows that individuals and groups can activate polycentric efforts (Ostrom, 2010) that are guided by their own interpretation of reality rather than follow the instructions of a higher in rank entity.

In a recent study, Ostrom (2010) suggests polycentric efforts as a legitimate complement to global efforts to address environmental problems. These dispersed efforts are also efficient: when citizens in a certain area undertake actions to protect the environment, they not only contribute to the solution of a global challenge but also do so in a way that enforcement by the local governments are less onerous because of citizen’s commitment. Building on Ostrom’s studies, many works have stressed the importance of the private, non-organized or dispersed
initiatives to face social and environmental problems (Irvin & Stansbury, 2004; Elliott, 2011; Yang & Pandey, 2011).

We define the collective will of the citizens of a certain geographic area to engage in activities that protect the environment as *environmental sensitivity*. Environmental sensitivity can take multiple forms but their shared feature is the active engagement; the private initiative to do something for the benefit of the environment without relying on a formal organization like an NPO. The private initiatives to protect the environment through small actions imply a way to rationalize the protection of the environment that diverges from that of environmental NPOs that – as discussed above – opt for the shift to greater professionalization and bureaucratization. The divergence among two agents whose behaviour is critical for the development of the green sector produces effects on the ability of environmental NPOs to create the conditions for the development of a green sector by affecting the relationship between NPOs and VCs. This means that in communities with greater environmental sensitivity, the different interpretation of social norms regarding the protection of the environment at the citizens’ level and at the NPO level determines a fracture in the community that limits the development of green companies, through VC engagement. Given the diverging behaviour of NPOs and citizens, VCs fail to obtain a homogeneous understanding of how to approach an environmental problems and hence limit their engagement with environmental NPOs. On the basis of this argument we hence argue that:

**Hypothesis 3:** *The intensity of environmental sensitivity of the community moderates the curvilinear relationship between the density of environmental NPOs and VC engagement in green entrepreneurship, such that the inverted u-shape will be more pronounced when the intensity of environmental sensitivity of the community is high.*

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4 Examples of environmental sensitivity are the use of public means of transportation, carpooling, and bicycles rather than a personal vehicle and the domestic use of clean energy rather than highly polluting alternatives.
RESEARCH DESIGN AND METHODOLOGY

Data Sources and Sample
To test our hypotheses, we built a dataset of 599 green companies financed by VCs in the period 2006-2015 in the United States.

In order to assess the effect of community level factors, we considered the Metropolitan Statistical Areas (MSAs), defined as a core urban area with a population of at least 50,000 inhabitants (Office of Management and Budget, 2010). This area is a geographical entity, used by the Census Bureau and other agencies, to represent a city or a group of cities and its surrounding built-up and/or economically integrated region. We used the delineations file obtained from the Census Bureau website (https://www.census.gov/programs-surveys/metro-micro.html) to match the investee’s and NPO’s zip code with their respective MSA.

The data used in the analysis come from combining information gathered through different databases: (i) VC financing data of green companies from the Thomson One database; (ii) data of the nonprofit sector from the NCCS dataset, (iii) social characteristics of the community from the yearly American Community Survey (ACS) conducted by the U.S. Census Bureau; (iv) measures related to the regulatory environment from the Database of State Incentives for Renewable Energy and Efficiency (DSIRE) and (v) financial data from Worldscope.

We first gathered data on all green companies financed in the U.S. from 2006 to 2015. We used the technology application “cleantech” indicated in Thomson One in order to identify green investments. For each investee company, we obtained data about the year of their first VC round and their geographical location in order to identify the couple MSA-year and link our list of observations with data at the community-year level from the other datasets.

Given constraints in the availability of data at the MSA level for our main measures of density of environmental NPOs and community environmental sensitivity, we test our hypotheses on a sample 486 green ventures, representing 130 MSAs (corresponding to 34% of all U.S.
MSAs). However, the presence of missing data for the characteristics of the NPOs in some MSAs, our final sample to test hypothesis 2a-2b is of 380 observations.

**Measures**

**Dependent Variable**

In order to measure the level of engagement of VC in green entrepreneurship, we rely on the practice of staging. Staging represents sequential VC decisions on the allocation of capital (Guler, 2007), involving an iterative process of information acquisition. With this practice, VC investor retains the option to abandon an investment if the entrepreneur’s project fails to meet precise targets and, thus, leading to more efficient investment decisions and better investment outcomes (Admati & Pfleiderer, 1994; Gompers, 1995; Kaplan & Stromberg, 2003 and 2004). A stream of literature on VC has adopted this characteristic of the practice of staging to take into consideration the benefit derived by a decrease of uncertainty in the monitoring phase of the VC investment process. In other words, this view is that VC staging is a way to mitigate agency problems (Tian, 2011). Other studies have, instead, directed their attention toward the fact that these subsequent steps of financing are costly for the VC as they imply an incremental commitment of the investor toward a company over a period of time. As a consequence, if the investor decides to proceed with the financing is because it is convinced about the value of the investment. This involvement increases the value added to the investee company along the investment process and, thus, the greater the number of stages, the higher the managerial expertise provided by VCs to the ventures. We adopt this lens and we suggest that a way for capturing how VCs are influenced by external dynamics in their investment decisions is through the practice of staging, which provides high flexibility: if an investee company obtains more rounds of VC financing is because the investor considers its engagement to be of value, otherwise it would terminate the relation with the entrepreneur\(^5\). Following prior

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\(^5\) Other proxies could be used to assess the level of engagement of VCs in entrepreneurial activities, like the amount invested in the investee companies. However, in the context of grand challenges, where the size of
research (i.e. Krohmer et al., 2009; Munari and Toschi, 2015; Tian 2011), our dependent variable, *Staging*, is operationalized as the total number of staged investment rounds in which VCs financed the investee company as of December 2015.

**Independent Variables**

Our main independent variable, *Density of Environmental NPOs*, was calculated, for each MSA in which the investee company is located, as the number of environmental NPOs per 10,000 inhabitants in the year of the first VC investment received by the investee company. We gathered data for the nonprofit sector from the National Center for Charitable Statistics (NCCS) (2015) at the Urban Institute (i.e. Berrone et al., 2016; Marquis et al., 2013), which uploads annually Core Files for those organizations which report gross receipts of at least $50,000 and that were required to file Form 990 or Form 990-EZ ([http://nccs.urban.org/](http://nccs.urban.org/)). To define the sample of environmental NPOs, we selected only those organizations categorized as type C (“Environmental Quality, Protection, and Beautification”), according with the codes of the National Taxonomy of Exempt Entities (NTEE). We also limited our sample to those organizations which do not belong to an affiliated group, as for affiliated groups some variables (i.e. number of employees) refer to the entire organizations including subsidiaries which could be located in different MSAs. In a second step, we aggregated the number of environmental NPOs by community (i.e. MSA).

**Moderator Variables**

We have two moderator variables capturing organizational features of the NPOs. To measure the level of bureaucratization of the NPOs, we referred to the size of the NPO (*NPO Size*) assessed, for each MSA in which the investee company is located, as the average number of employees of the environmental NPOs in the MSA in the year of the first VC investment.
received by the investee company. We gathered the number of employees for each NPO from the NCCS dataset.

The second NPO-level moderator variable, \textit{Core NPO}, intends to measure the professionalization of the NPOs. We relied on the NTEE classification to differentiate organizations whose core activity is to protect the environment from organizations whose core activity is to support organizations that protect the environment. The first group includes organizations whose actions intend to directly address environmental issues. On the other hand, the second group represents NPOs acting as ancillary organizations by providing assistance, advocacy or consulting services to organizations directly engaged in addressing environmental challenges. The types of core and support NPOs included in our sample are detailed in Table 1. We coded each NPO through a dummy variable to distinguish between core and support environmental NPOs and, then, for each MSA in which the investee company is located, we assessed the average value of these dummies in the MSA in the year of the first VC investment received by the investee company.

\begin{center}
\hspace{10cm}
\textbf{Insert Table 1 about here}
\end{center}

The moderator variable capturing local values of citizens (\textit{Community Environmental Sensitivity}) is based on data gathered from the U.S. Census (i.e. York and Lenox, 2014) and is assessed in the MSA of the investee company and in the year of the first VC investment received by the company. This represents the average value of four normalized indicators available on the ACS. Carpooling measures the share of workers aged 16 or more (over the total number of inhabitants) that share the drive to work with one or more people. Solar house heating fuel measures the share of household units using solar energy as heating fuel (over the total number of household units). Public transportation measures the share of workers aged 16 or more (over the total number of inhabitants) that use public transportation or walk to work.
Finally, Environmental employment measures the share of people with a job in an environmental sector (over the total number of working people).

**Control Variables**

As controls, we add several factors at the investee-, investor- and environmental-level that could influence the involvement of VCs in deciding to finance green entrepreneurship. At the company level, we controlled for company age and stage of development as two proxies for evaluating the portfolio company's need for capital. Younger companies and operating in the seed or startup stages of development are generally associated with higher uncertainty. *Company Age* is the time in years between the founding and the financing of the green company. *Company Early Stage* is, instead, a dummy variable equal to 1 for investee companies receiving the first VC investment in the seed/start-up/early-stage phase (0 otherwise). We also included industry dummies to control for heterogeneity related to VC attractiveness and other unobserved determinants specific to each sector in terms of green technologies.

At the investor-level, we controlled for VC firm age, experience, type, and location in respect to the investee company, as these attributes may influence VC investment decisions. To assess these variables, we identified for each investee companies the lead investor. We decided to focus on the lead investor, instead of assessing average variables among the syndicated investors, as differently from limited partners who only provide capital to the venture funds, the lead investor has significant control over the decision of the company and more actively monitors the company through broad managerial support (Gompers, 1996). For each investee company, we have identified the lead investor as that investor that owns the largest equity stake at the first round (Barry et al., 1990). *Lead Investor Age* (i.e., number of years from the founding year of the VC to the first VC investment received by the investee company) captures the accumulated experience of the VC. *Lead Investor Reputation* is expressed as total number
of companies financed by the lead investor from the founding year to the first VC investment received by the investee company. These two variables can have a significant impact on VC engagement in clean-tech as higher experience and reputation may increase the likelihood to invest in emerging sectors like the green one (Petkova et al., 2014). We also controlled for VC firm type, because corporate VC investors (CVC) make investments primarily for strategic reasons (Wadhwa and Kotha, 2006) and may have different motivations for making investments in the green sector than those of traditional VC firms. We, thus include a dummy variable for CVC Lead Investor (as reported on Thomson One), which equals 1 if the firm is a corporate VC and 0 otherwise. Finally, we controlled for VC located in the same MSA of the investee company (Company-Investor Colocated), as the geographic distance between the VC and the investee company may have a significant impact on the propensity of the investor to finance the firm using a larger number of financing rounds (Tian, 2011).

The last group of controls take into consideration factors at the geographical (USA, state and MSA) level. We controlled for the hotness of the VC market in the U.S. (Higgins and Gulati, 2003), measured as the total equity invested in startups by VC firms in the focal investment year, which reflects the propensity of VC firms to invest in any startup (USA Hot Market). USA MSCI is the Morgan Stanley Capital International Index equity return (USA) in the first VC investment year received by the investee company and represents a measure of market sentiment. It allows to take into consideration the possible different VC involvement dynamics during boom periods than during normal periods (Kortum and Lerner 2000; Kanniainen and Keuschnigg, 2003). State Environmental Policies controls for the regulatory environment in the state of the investee company. We gathered data from the public DSIRE database which lists state-level policies that support green industry. Our final variable consisted of the cumulative count of environmental policies in place in the state of the investee company up to the first VC investment year (York and Lenox, 2014). Finally, to control for differences in
green entrepreneurial activity by MSA, we included the overall level of green entrepreneurship in a MSA (*MSA Green Entrepreneurial Dynamism*), assessed as the total number of green companies financed by VC investors in the MSA of the investee company up to the first VC investment year.

A comprehensive list of the variables used in our empirical analyses are reported in Table 2.

------------------------
Insert Table 2 about here
------------------------

**Statistical Model**

The aim of the paper is to explain how the different interpretation of environmental local norms by NPOs and community citizens may impact VC behavior and engagement towards green entrepreneurship. This is achieved by investigating the relationship between green VC investment and environmental initiatives at the MSA level. The following equation is estimated.

\[
VC \ Staging_i = \alpha + \beta_1 NPO \ Density_i + \beta_2 NPO \ Density_i^2 + \beta_3 NPO \ Size_i + \beta_4 Core \ NPO_i + \beta_5 Community \ Sensitivity_i + \beta_6 Controls + \epsilon_i
\]

In our equation, the dependent variable is the total number of VC financing rounds obtained by investee company i. The coefficients \( \beta_1 \) and \( \beta_2 \) represent the effect of *Density of Environmental NPOs* on our \( y \). Controls represents a vector of our control variables as previously specified. We then allow the effect of *Density of Environmental NPO* to vary systematically as follows:

\[
\beta_1 = \beta_{11} + \beta_{12} NPO \ Size_i + \beta_{13} Core \ NPO_i + \beta_{14} Community \ Sensitivity_i
\]

\[
\beta_2 = \beta_{21} + \beta_{22} NPO \ Size_i + \beta_{23} Core \ NPO_i + \beta_{24} Community \ Sensitivity_i
\]

In the systematic varying parameter model, the coefficient \( \beta_{12}, \beta_{13} \) and \( \beta_{14} \) represent the degree to which *NPO Size*, *Core NPO* and *Community Environmental Sensitivity* respectively
moderates the linear relationship between environmental NPO density and staging. $\beta_{11}$ and $\beta_{21}$ represent the conditional effects of environmental NPO density, that is, the effect of environmental NPO density when $NPO Size$, $Core NPO$ and $Community Environmental Sensitivity$ equal zero. $\beta_{22}$, $\beta_{23}$ and $\beta_{24}$ represent the degree to which $NPO Size$, $Core NPO$ and $Community Environmental Sensitivity$ respectively moderates the curvilinear relationship between environmental NPO density and staging.

To test our hypotheses, we are interested in whether the coefficient estimates are different from zero. The null hypothesis is that some or all of the coefficients are equal to zero, which implies that the $Density of Environmental NPOs$ does not impact $VC Staging$, and/or $NPO Size$, $Core NPO$ and the level of $Community Environmental Sensitivity$ do not moderate this relationship.

Our dependent variable takes only integer values greater or equal to 1. Given its count nature and the strong skewness to the right of the data, OLS regression would be inappropriate. Furthermore, even if Poisson models could be used to deal with count data, in our case the variance is about 3 times the mean, thus suffering from over-dispersion (Cameron and Trivedi, 1998). Also, the large values for chi-square in the tests of the Poisson goodness-of-fit and the value of the alpha parameter significantly different from zero in the test of over-dispersion reinforce that the Poisson distribution is not appropriate. We, thus, estimated our equation via a negative binomial model.

**RESULTS**

**Descriptive Statistics**

Table 3 reports the descriptive statistics and pairwise correlation matrix of the variables used in our study. On average, a green entrepreneurial firm receives 3.6 rounds of VC financing. This value is in line with previous studies on VC staging (Tian, 2011). As far as nonprofit organizations, the density of environmental NPOs in the MSA of the investee companies is 2.6, on average they have 75.47 employees and 82.5% are core NPOs. Finally,
the average level of environmental community sensitivity is 0.023. As far as investee company characteristics, on the date when the firm receives the first round of VC financing, about half of them are 5 years old and 63.2% are at the early development stage of their life cycles. Switching to investor characteristics, at the first round of financing received by the green company, VCs have, on average, 16 years of experience and have invested in 184 companies. Only 5.6% are corporate investors and about 32% of VCs invest in companies located in their same MSA. To check rigorously for multi-collinearity problems, we calculated the variance inflation factor (VIF), whose value was 1.63, which is well below the threshold of 10, indicating no multicollinearity bias.

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Insert Table 3 about here
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Regression Results

Table 4 shows the results of the negative binomial regression estimates. Model 0 includes only control variables. In Model 1, we include the Density of Environmental NPOs and its quadratic term. In Models 2a, 2b and 3, we include, one by one, the moderator variables. Before analysing the effects of our main explanatory variables, we focus on the control variables. At the investee-level, we confirm the results of previous studies suggesting that younger entrepreneurial companies and companies in earlier-stage of development tend to receive more financing rounds (Tian, 2011). In terms of industries, we find that green companies operating in the biotechnology industries receive more VC rounds and this relation is statistically significant. This result also shows that investor-level controls play a marginal role in explaining VC engagement in green entrepreneurship. The age of the lead investor does not explain its stronger involvement through more financing rounds, while, the relationship between VC reputation and staging results positive and significant, even if not in all models.
Also, environmental variables measuring the hotness of the equity market are positive and significant, confirming that VCs are influenced, in their investment decisions, by market conditions. Finally, the presence of environmental policies in the state of the investee companies plays a negative role for VC staging. Environmental regulation may influence market dynamics by shaping entrepreneurship. York and Lenox (2014), for instance, show that regulatory environment impacts on the entry of new companies and diversified incumbents. Similarly, the presence of regulations could limit the involvement of VC in a particular geographical area.

Model 1 shows that the coefficient for the main effect of Density of Environmental NPOs is positive and statistically significant (p < 0.05), while the coefficient for the squared term is negative and statistically significant (p < 0.05). This is consistent with an inverted U-shaped relationship between environmental NPO density and VC staging, thus providing strong support for Hypothesis 1. Figure 1 illustrates this non-linear relationship: VC staging increases as environmental NPO density increases up to a point, and then VC staging starts decreasing.

In the next two regressions (Models 2a-2b), we investigate the effect of the interactions of bureaucratization (NPO size) and professionalization (core versus support activity) of environmental NPOs with NPO density and staging. Model 2a tests for the negative moderator effect of NPO size and provides highly significant support for Hypothesis 2a. Indeed, the interaction between NPO density and NPO size is negative and statistically significant (p < 0.001), while the interaction with the squared term is positive and significant (p < 0.001). To facilitate interpretation, we plot in Figure 2a the relationship between NPO density and VC staging at a higher (one standard deviation above the mean) and a lower (one standard deviation below the mean) level of NPO size, respectively. In the case of small NPOs, NPO density yields the highest VC staging. For big NPOs, the line representing the relationship between NPO density and VC staging is flatter, indicating that NPO density has relatively little impact on VC
staging in contexts of highly bureaucratized NPOs. As Figure 2a illustrates, at average levels of NPO density, small NPOs are more successful than big ones in encouraging the involvement of VC. Only for minimum and maximum levels of NPO density, the presence of big NPOs perform better in terms of VC involvement. At the minimum level, a bigger size for the few NPOs operating in the context increases their influence on VCs regarding the importance of green investments, as NPOs are able to give a not fragmented and well-aligned signal to investors. However, an increase in the number of big NPOs will create competing dynamics where each NPO will try to make its goals prevailing on the others, with a consequent detrimental effect on VC involvement. This negative dynamic will not expire if not for very high levels of big NPOs.

Turning to the results for our hypothesis about NPO professionalization, Model 2b shows that the interaction between NPO density and core NPO is positive and significant (p < 0.1), while the interaction with the squared term is negative and significant (p < 0.1). This relationship, which is highlighted in Figure 2b, supports also Hypothesis 2b. As the prevalence of core NPOs increases, the inverted U-shaped relationship between NPO density and VC staging becomes less pronounced. For contexts with more support NPOs, the relationship between NPO density and VC staging amplifies that in our main effect hypothesis, while when NPOs become more professionalized (becoming core environmental NPOs), the relation becomes flatter. In other words, in presence of core NPOs, the level of VC staging is low. In respect to the previous case of bureaucratization, however, when the density of NPOs substantially increases, being core NPOs encourages more than in the case of support NPOs the involvement of VC staging. In other words, a dense context of core NPOs has a positive effect on the VC involvement in green entrepreneurship for the clear and strong imprinting given by these organizations.
We then proceed to test the moderator effects of community actors (Hypothesis 3). The results are reported in Model 3. In this case, the negative and significant (p < 0.05) coefficient of the linear term of Community Environmental Sensitivity and the positive and significant (p < 0.01) coefficient for its quadratic term support our hypothesis. Figure 3 also shows that when the beliefs and attitudes that citizens in a MSA hold toward environmental issues are consolidated and diffused, the effect of NPO density on VC staging decreases. This means that the dialogue between different interpretations of social norms by formal organizations (i.e. NPOs) and informal communities (i.e. citizens) creates conflicts. This effect implies a lower support to green entrepreneurship by VCs, which, thus, are less inclined to finance green ventures.

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Insert Table 4 about here

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DISCUSSION AND CONCLUSIONS

This study had the goal to better understand the relationship between the presence and nature of environmental NPOs and VC’s engagement in green entrepreneurship within a local geographic area. While previous research had shown that when too many NPOs are present in a geographic area their success could be compromised (Berrone et al., 2016), it is still unclear what factors are responsible for the failure to promote a fruitful dialogue among the actors involved in the grand challenge of protecting the environment. In the context of environmental entrepreneurship, we have shown that when many environmental NPOs operate in a geographic community, three factors can reduce the development of the green sector: The increased level of bureaucratization of the third sector (Hwang and Powell, 2009), the professionalization of the third sector (Maier et al., 2016), and the presence of a strong environmental sensitivity among the citizenship.
Together, these insights suggest that organizations (in our study NPOs) and individuals interpret local norms in different ways: the socially accepted behaviour to promote environmental protection is different among NPOs and individuals in such a way that NPOs promote greater bureaucratization and professionalization to become more efficient in the protection of the environment, while individuals distance themselves from hierarchically organized initiatives to protect the environment, favouring personal engagement. These two conflicting ways to interpret the most appropriate path to protect the environment create a complexity that impacts VCs propensity to invest in the green sector.

Despite our efforts, this study presents some limitations that we may interpret as opportunities to develop further research. One limitation is our hampered ability to explain the mechanisms by which environmental NPOs influence the propensity of VCs to finance green initiatives. Our theoretical setup presents the relationship between environmental NPOs and entrepreneurship as one where social norms produce an effect on the behaviour of VCs such that certain features of the NPOs in a geographic area become so dominant that create informal rules of behaviour that shape the decisions of the VCs. However, we still lack an operationalization of this mechanism. To reduce this problem, we could extend the methodological scope of this study and carry out interviews with both VC and NPO managers in order to clarify their interactions. Another limitation is our measure of environmental sensitivity; individual initiatives to protect the environment are becoming prevalent in our societies but the availability of data to cover the vast area of these actions is still limited. While we are confident that new data will emerge on environmental sensitivity, we could improve the rigor of our analysis by further narrowing down the type of private initiative and observe how it relates to a specific type of green venture development. Finally, in this work we consider the effect of the interplay between different actors on VC staging. The VC literature, however, suggests that there are other elements taken into consideration in the VC decision making
process. For instance, future research could consider the level of syndication among VCs, the amount of funding received or other investee company-level dimensions like the exit routes of green companies. Also, there is room for contributing to the VC literature by analysing differences between green ventures and other ventures belonging to other industries in order to better disentangle the studied dynamics in different contexts.

In terms of policy implications, we believe that this paper has a good potential to inform multiple actors involved in the solution of the grand challenge of environmental deterioration. This paper provides useful insights for governments, NPOs and VCs; national and local governments could invest in understanding the demands of their local communities to better shape policies that reflect their will to engage in the fight for a better environment. For example, local governments realizing that each geographic community is different could promote different initiatives depending on the issue that is more relevant for the citizens of the specific area. NPOs should deeply care about the insights of this paper in order to acknowledge the distancing of their local base and implement strategies to find a better balance between rationalization and ability to respond to the local demands. Ultimately, VCs can interpret our results as a stimulus to engage more intensely with environmental NPOs – that are not the dispersed and unstructured entities that used to be prevalent when the environmental movement started, but reliable and professionalized interlocutors, willing to cooperate to solve the grand challenge of environmental degradation.

Overall, this study unveils a dynamic that may prove to be very common in the context of grand challenges (Ferraro et al., 2015); while a complex problem such as the deterioration of the environment is indisputably a liability, what is the best way to solve it can be very controversial. Different actors, such as individuals and NPOs fundamentally care about solving the challenge, but their conflicting views on how to do so could ultimately lead to a sub-optimal situation. We believe our findings contribute to further clarify how the institutional structure operating
in a geographic area may affect entrepreneurial initiatives (Meek et al. 2010; O’Neil and Ucbasaran 2016).
REFERENCES


Elliott, K.C., 2011. Is a little pollution good for you?: Incorporating societal values in environmental research. OUP USA.


### TABLE 1

NTEE codes for Core and Support NPOs

<table>
<thead>
<tr>
<th>NTEE Subcode</th>
<th>NTEE Description</th>
<th>NTEE Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01</td>
<td>Alliances &amp; Advocacy</td>
<td>Core</td>
</tr>
<tr>
<td>C03</td>
<td>Professional Societies &amp; Associations</td>
<td>Core</td>
</tr>
<tr>
<td>C20</td>
<td>Pollution Abatement &amp; Control</td>
<td>Core</td>
</tr>
<tr>
<td>C27</td>
<td>Recycling</td>
<td>Core</td>
</tr>
<tr>
<td>C30</td>
<td>Natural Resources Conservation &amp; Protection</td>
<td>Core</td>
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<tr>
<td>C32</td>
<td>Water Resources, Wetlands Conservation &amp; Management</td>
<td>Core</td>
</tr>
<tr>
<td>C34</td>
<td>Land Resources Conservation</td>
<td>Core</td>
</tr>
<tr>
<td>C35</td>
<td>Energy Resources Conservation &amp; Development</td>
<td>Core</td>
</tr>
<tr>
<td>C36</td>
<td>Forest Conservation</td>
<td>Core</td>
</tr>
<tr>
<td>C40</td>
<td>Botanical, Horticultural &amp; Landscape Services</td>
<td>Core</td>
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<td>C41</td>
<td>Botanical Gardens &amp; Arboreta</td>
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<td>C42</td>
<td>Garden Clubs</td>
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<td>C50</td>
<td>Environmental Beautification</td>
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<td>C60</td>
<td>Environmental Education</td>
<td>Core</td>
</tr>
<tr>
<td>C02</td>
<td>Management &amp; Technical Assistance</td>
<td>Support</td>
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<td>C11</td>
<td>Single Organization Support</td>
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<tr>
<td>C12</td>
<td>Fund Raising &amp; Fund Distribution</td>
<td>Support</td>
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<td>C19</td>
<td>Support N.E.C.</td>
<td>Support</td>
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<tr>
<td>C05</td>
<td>Research Institutes &amp; Public Policy Analysis</td>
<td>Support</td>
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### TABLE 2
Variable definitions and data sources

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables</strong></td>
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</tr>
<tr>
<td>Staging</td>
<td>Number of staged investment rounds in which VCs financed the investee company as of December 2015</td>
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<tr>
<td><strong>Explanatory variables</strong></td>
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<tr>
<td>Density of Environmental NPOs</td>
<td>For each MSA in which the investee company is located, the number of environmental NPOs per 10,000 inhabitants in the year of the first VC investment received by the investee company</td>
<td>NCCS</td>
</tr>
<tr>
<td><strong>Moderator variables</strong></td>
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<td></td>
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<td>NPO Size</td>
<td>For each MSA in which the investee company is located, the average number of employees of the environmental NPOs in the MSA in the year of the first VC investment received by the investee company</td>
<td>NCCS</td>
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<td>Core NPO</td>
<td>For each MSA in which the investee company is located, the average number of core environmental NPOs in the MSA in the year of the first VC investment received by the investee company.</td>
<td>NCCS</td>
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<td>Community Environmental Sensitivity</td>
<td>For each MSA in which the investee company is located, the normalized value of four indicators (carpooling, use of solar energy, use of public transportation of walk to go to work, environmental employment)</td>
<td>Census.gov</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
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<td>Company Age</td>
<td>Number of years from the founding year to the first VC investment received by the investee company</td>
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<td>Company Early Stage</td>
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<td>Dummy equal to 1 for investee companies operating in the biotechnology industry according with the VEIC micro classification (0 otherwise)</td>
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<td>Dummy equal to 1 for investee companies operating in the medical industry according with the VEIC micro classification (0 otherwise)</td>
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<td>Dummy equal to 1 for investee companies operating in the semiconductor industry according with the VEIC micro classification (0 otherwise)</td>
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<td>Lead Investor Age</td>
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<td>Lead Investor Reputation</td>
<td>Total number of companies financed from the founding year to the first VC investment received by the investee company</td>
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<td>CVC Lead Investor</td>
<td>Dummy equal to 1 for investee companies financed by a CVC as lead investor (0 otherwise)</td>
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<td>Company-Investor Colocated</td>
<td>Dummy equal to 1 if the investee company and the lead investor are located in the same MSA (0 otherwise)</td>
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<td>USA Hot Market</td>
<td>Total equity invested in companies in all the sectors by VC investors in the year of the first VC investment of the investee company</td>
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<td>Morgan Stanley Capital International Index (MSCI) equity return (USA) in the first VC investment year</td>
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<td>State Environmental Policies</td>
<td>Total number of environmental policies available in the state of the investee company up to the first VC investment year</td>
<td>DSIRES</td>
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<tr>
<td>MSA Green</td>
<td>Total number of green companies financed by VC investors in the MSA of the investee company up to the first VC investment year</td>
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<td>Entrepreneurial Dynamism</td>
<td></td>
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</table>
### TABLE 3
Descriptive statistics and correlations (n=599)

| Variable                        | Mean  | Std. Dev. | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---------------------------------|-------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 VC Stageing                   | 3.612 | 3.012     | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2 Density of Environmental NPOs| 2.517 | 2.557     | 0.0071 | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3 NPO Size                      | 75.47 | 101.12    | -0.1404* | 0.4023* | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4 Core NPOs                     | 0.825 | 0.258     | -0.0641 | 0.0204 | 0.2078* | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5 Community Environmental Sensitivity | 0.023 | 0.1804 | -0.0506 | 0.8016* | 0.5045* | 0.0841 | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6 Company Age                   | 5.146 | 7.623     | -0.0391 | -0.3346 | -0.3547 | -0.0540 | -0.0808* | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7 Company Early Stage           | 0.032 | 0.483     | -0.1249* | 0.1812* | 0.1718* | 0.0903 | 0.1270* | -0.0322* | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8 Biotech                       | 0.0625 | 0.242     | 0.1324* | -0.0328 | -0.0500 | -0.0070 | -0.0413 | -0.0225 | 0.0186 | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9 Communication                 | 0.003 | 0.053     | -0.0283 | 0.0310 | 0.0092 | 0.0071 | 0.0501 | 0.0471 | -0.0144 | -0.0136 | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10 Computer                     | 0.021 | 0.156     | -0.0090 | 0.0055 | 0.0289 | -0.0753 | -0.0285 | -0.0262 | -0.0069 | -0.0413 | -0.0085 | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11 Medical                      | 0.001 | 0.053     | -0.0107 | -0.0360 | -0.0332 | 0.0302 | -0.0246 | 0.0030 | -0.0144 | -0.0136 | -0.0024 | -0.0085 | 10.000 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12 Semiconductor                | 0.144 | 0.352     | 0.0621 | -0.0284 | -0.0303 | 0.0861 | 0.0445 | 0.0316 | -0.0715 | -0.1061* | -0.0217 | -0.0058 | 0.0217 | 10.000 |    |    |    |    |    |    |    |    |    |    |    |
| 13 Lead Investor Age            | 0.003 | 0.1829    | 0.0031 | 0.0216 | 0.0716 | 0.0846 | 0.0039 | 0.0065 | 0.0613 | -0.0398* | -0.0041 | 0.0192 | -0.0225 | -0.0319 | 10.000 |    |    |    |    |    |    |    |    |    |    |
| 14 Lead Investor Reputation     | 183.855 | 257.032 | 0.0260* | 0.2069* | 0.0646 | 0.0946* | 0.0665* | -0.0260 | 0.0409 | -0.0499 | -0.0009 | -0.0204 | 0.0214 | 0.5985* | 10.000 |    |    |    |    |    |    |    |    |    |    |
| 15 CVC Lead Investor            | 0.0516 | 0.0229    | -0.0111 | 0.0567 | 0.0145 | -0.0484 | 0.0664 | -0.0029 | 0.0664 | 0.0135 | -0.0124 | 0.0000 | -0.0128 | -0.0211 | -0.0000 | -0.0619* | 10.000 |    |    |    |    |    |    |    |    |    |
| 16 Company-Investor coLeaked    | 0.0316 | 0.463     | 0.0532 | 0.2963* | 0.0671 | 0.0609 | 0.2264* | -0.1047* | 0.1340* | -0.0340 | 0.0219 | 0.0064 | 0.0219 | 0.0527 | 0.1658* | -0.0760 | -0.0323 | 10.000 |    |    |    |    |
| 17 USA Hot Market               | 29943.99 | 7770.617 | 0.1276* | 0.0093 | -0.0086 | 0.0519 | 0.0977 | -0.0331 | 0.0239 | -0.0358 | -0.0211 | 0.0042 | 0.0986* | 0.0039 | 0.0053 | 0.0146 | 0.0554 | 0.0288 | 10.000 |    |    |    |
| 18 USA MSCI                     | 4.73 | 28.631 | 0.0138 | 0.0141 | 0.0041 | 0.0319 | -0.0309 | 0.0443 | -0.0359 | -0.0089 | -0.0079 | 0.0455 | 0.0087 | 0.0171 | 0.0040 | 0.0398 | -0.2295* | 10.000 |    |    |    |    |
| 19 State Environmental Policies | 11.26 | 49.431 | -0.2087 | 0.5055* | 0.1576* | -0.0515 | 0.0142 | -0.0643 | 0.0117 | 0.0450 | 0.0068 | 0.0277 | -0.0226 | 0.0047 | 0.0245 | 0.0020 | 0.0109 | 0.1216* | 0.0710 | 0.0565 | 10.000 |    |    |
| 20 MSA Green Entrepreneurial Dynamism | 9.011 | 7.686 | 0.0259 | 0.4162* | 0.0621 | 0.1107* | 0.2579* | -0.1172* | 0.1658* | -0.0467 | 0.0531 | 0.0231 | -0.0027 | 0.0266 | 0.0662 | 0.0278 | 0.2084* | -0.0666 | -0.1087* | 0.4912* | 10.000 |    |    |

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### TABLE 4

Negative binomial regressions (* p < 0.1, **p < 0.05, *** p < 0.01)

<table>
<thead>
<tr>
<th>Model</th>
<th>Only controls</th>
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<th>H π2</th>
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<td>Model 2b</td>
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<td>(0.000629)</td>
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<td>(0.000629)</td>
<td>0.000198**</td>
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<td>(0.014)</td>
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<td>(0.014)</td>
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Model diagnostics

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FIGURE 1
Curvilinear relationship between Density of Environmental NPOs and VC Staging
FIGURE 2
Interaction of (a) NPO Size and (b) Core NPO with Density of Environmental NPOs on VC Staging

a - Bureaucratization (NPO Size)

b - Professionalization (Core NPO)
FIGURE 3
Interaction of Community Environmental Sensitivity with Density of Environmental NPOs on VC Staging