



# From opposition to support : The influence of social movement organizations on firm strategy

Panayiotis Georgallis

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## INTRODUCTION

Although the most common target of social movements has been the state, it was recently identified that social movements increasingly target firms and industries to achieve their goals (den Hond and De Bakker, 2007, Van Dyke *et al.*, 2004). Ample anecdotal examples manifest this trend. From the once frequent protests against Nike for its labor practices, to the anti-GMO movement targeting Monsanto or the universal protests against the oil industry by the environmental movement, it is clear that the relation of firms with civic society is now more complex than ever. Research examining the influence of social movement organizations on firms has started to take off, with a growing number of studies examining how activists trigger changes in corporate policies and results. By using tactics such as boycotts, protests, status threats, lawsuits, or shareholder resolutions, activists and social movement organizations appear in a position to influence both the actions and the outcomes of their target firms (e.g. Baron and Diermeier, 2007; Bartley and Child, 2011; King, 2008; King and Soule, 2007; Palmer, Simons and Mason, 2013; Reid and Toffel, 2009; Vasi and King, 2012; Weber, Rao and Thomas, 2009).

According to this popular view, social movements assume a disciplinary role within civic society, one that keeps businesses in check. Their proponent organizations induce organizational actions by punishing - or threatening to punish - illegitimate conduct. But in order to guide firm behavior social movements may employ a combination of policies that encompass both the 'carrot and the stick': rewards, in addition to punishment. Yet, scholars have tended to build on the assumption that the goals of social movements are always *in opposition to* the strategies of firms, and this research stream developed rather independently from research that examines the role of movements in the creation of new sectors of economic activity (Lee and Sine, 2007; Sine and Lee, 2009; Hiatt, Sine and Tolbert, 2009;



Vasi, 2011; Weber, Heinze and DeSoucey, 2008). As a consequence, despite ample evidence indicating that activists can drive firms away from socially contested practices, we have little knowledge of how the role of social movements in promoting alternative, more socially acceptable sectors, impacts firm strategic behavior.

With this thesis I begin to address these gaps by shedding light on the role of social movement organizations (SMOs) in guiding firms into alternative fields, rather than away from existing ones, and by focusing empirically on an industry that is supported by a prominent movement. Using three distinct but inter-related chapters and by focusing empirically on the solar photovoltaic industry, I attempt to answer the following question: *How do social movement organizations influence firms' strategic behavior?* The findings of this dissertation suggest that SMOs contribute to the legitimation and cognitive acceptance of new industry categories, shape the attention of decision-makers, and influence the economic viability of opportunities favored by activists. As a result, SMOs drive established firms to invest and to commit more to industries that have greater social or environmental value. Moreover, firms operating in these industries benefit from the efforts of SMOs to increase the acceptance and economic viability of their industry and particularly from their influence on government support (an influence which is stronger when more entrepreneurial firms are operating in the focal country).

In departing from the common assumption that social movements and firms have divergent interests (de Bakker *et al.*, 2013:574), this essay contributes to social movement and organization theory. It adds to the literature a theoretical account of the role of social movement organizations in driving firms into new fields, a role rarely explored so far, and contributes to research that examines how organizational characteristics lead firms to respond differently to social movement expectations (King, 2008; Waldron, Navis, and Fisher, 2013;

Weber *et. al.*, 2009). Moreover, it underlines the importance of the social context for firm strategy (Oliver, 1997) and expands our understanding of how geographic heterogeneity in the social cues firms are exposed to shapes their strategic behavior in a substantive manner. Finally this thesis has implications for the literature on institutional theory and our understanding of industry creation and development, especially for industries related to sustainability as these are often endorsed by social movements. First, the influence of social movement organizations on new industries appears not to be limited to accelerating entrepreneurial entry (Sine and Lee, 2009), but extends to an influence on established firms' commitment as well, indicating that the role of SMOs in industry creation is stronger than prior work may have assumed. Second, regulative institutions that are often paramount for maintaining new industries do not arise independently of the firms and movement organizations that favor them; rather, newly formed ventures and the movement that favors them catalyze the institutional change that maintains the new industry.

## BACKGROUND AND OVERVIEW OF THE THESIS

### 1. Theoretical Background

#### 1.1. Defining social movements

Social movements do not embody a precise concept. As with many sociological phenomena, there is no ‘clean’ and commonly accepted way to define them. Thus, no definition in the literature would help circumvent all possible criticism. However, I will begin the discussion by commenting on a recent definition by Sarah Soule, who, after reviewing prior definitions of social movements, arrived at the following definition: “*social movements are collectivities acting with some degree of organization and continuity outside of institutional channels for the purpose of seeking or resisting change in some extant system of authority*” (Soule, 2009:33).

Even if it comes out of a careful review of the literature, this definition itself raises several objections. For example, what makes a movement collective and who counts as a member of the movement? One who regularly participates in demonstrations could inarguably be considered a member of the movement, but how about someone who sporadically participates, or one who donated money to a movement cause once? A second and stronger objection could center on the use of extra-institutional channels, given that many contemporary social movement organizations use lobbying, legal actions, advocacy science, and other institutionalized practices to achieve their goals. Third, that movements attempt to promote or resist change is indisputable, yet it’s not clear if they try to do so in ‘systems of authority’. Some movements (e.g. the anti-racial movement) are targeting public beliefs (Giugni, 1998), rather than a specific system of authority. And what is the system of authority that is targeted by the environmental movement? (Crossley, 2002).

These criticisms notwithstanding, the above definition is invaluable in orienting us towards understanding some common characteristics of movements, even if not *all* of them are present in *all* movements. That social movements are collective enterprises is widely accepted in the literature, as is the presence of some degree of organization, be it formal or informal. The continuity of social movements is also a common characteristic (to distinguish them from single protest events, for example). Other characteristics that have been found to be common among social movements are that they are generally based on shared beliefs and solidarity among movement members, and that there is a cultural element to them, or one based on values, identities, or ideals (Crossley, 2002). Moreover, although the notion that ‘grievances’ or ‘strains’ are preconditions for movement formation has been under attack by many scholars (Jenkins, 1983; McCarthy and Zald, 1977), it is less than clear how a movement would emerge if there were not some form of dissatisfaction. The presence of structural strains is probably not a sufficient precondition of movement formation, but it must be a necessary one. Thus, that social movements emerge out of some form of dissatisfaction is, in my view, another common attribute of movements.

Having the above discussion and typical movement characteristics in mind, I must reiterate that an exact definition that will encompass all possible social movements across different places and time periods is virtually impossible; yet, for the purposes of this thesis I will adopt the following working definition, which will be used throughout this thesis: *Social movements are coalitions that engage in sustained action with a goal of contesting, changing or resisting change of prominent social, cultural or business practices* (adopted from Weber and Soderstrom, 2012; cf Diani, 1992). The primary actors through which social movements have an impact ‘on the ground’ are social movement organizations (SMOs); their staff, volunteers, and supporters. Social movement organizations, conceptualized here as *organizations which identify their goals with the preferences of a social movement and*

*attempt to implement those goals* (see McCarthy and Zald, 1977:1218), act as the organizational carriers of social movements' demands, appeals, and interests (Yaziji and Doh, 2013).

## 1.2. The impact of social movements on firms and industries

Some of the main topics social movement researchers have addressed concern the origins of social movements, the question of who participates in them and why, and their role in bringing about societal changes (Crossley, 2002; Della Porta and Diani, 2009; Goodwin and Jasper, 2009). Especially with the prominence of the latter topic, it is obvious that the most traditional target of social movement actors would be state authorities. Indeed, this has been considered by scholars as their main target, and the literature on social movements has focused mostly on movements' interaction with the state and their effect on policy outcomes (Burstein and Linton, 2002; Soule and Olzak, 2004; Stevenson and Greenberg, 2000). However, this is not the only target of movements. There is evidence that anti-corporate activism has increased during the past few decades (Soule, 2009), as "*the responsibility for addressing a variety of social issues is transferred from the state to the private sector*" (Den Hond and De Bakker, 2007:901).

A study of more than four thousand protest events in the U.S. came to question the longstanding "*state-centered conceptions of social movements*" (Van Dyke *et al.*, 2004:28). For example, while the main target of the environmental movement was indeed the state, 27.5% of their events targeted businesses. This number underlines the fact that movement members may attempt to promote their interests by attacking corporations. Yet, until recently, the increasing importance of the interplay between social movements and businesses has not been matched by research trends at the crossroads of organizational and social movement

theory, as scholars have overemphasized the state as the target of social movements (Schurman, 2004). Fortunately, some scholars have now recognized that much of the social change driven by movements comes through their effects on organizations (e.g. Hiatt, Sine and Tolbert, 2009; King, 2008; King and Pearce, 2010; King and Soule, 2007; Soule, 2009, 2013; Sine and Lee, 2009; Zald *et al.*, 2005; Soule, 2012). Two fruitful streams of research have recently emerged as a consequence of this observation.

### ***Social movements and firms***

A first stream of research has started to examine the impact of social movements on organizations' actions and outcomes. Regarding outcomes, King and Soule (2007) attest to the fact that firms are influenced by secondary stakeholders, as social movement protests are found to negatively influence investors' confidence and eventually shape corporations' stock prices. Den Hond and De Bakker (2007) examine the role of movements in shaping change in organizational practices; specifically corporate social change activities, and Palmer, Simons and Mason (2013) show how social movements can destabilize a firm's dominant marketing strategy. King (2008) studies how social movement actors influence organizational decision making by use of boycotts and finds that corporations do concede to boycotters' demands and make that concession publicly known, depending on firm and boycott characteristics. Reid and Toffel (2009) find that when social movement actors resort to direct appeals to management using shareholder resolutions, a firm is more likely to engage in information disclosure practices consistent with the goals of the movement. More recently, Bartley and Child (2011) found that the anti-sweatshop movement had negative impact on US firms' sales, stock prices and CSR ratings, and Vasi and King (2012) found that activism impacts risk perceptions and the financial performance of firms.

All these studies examining corporate responses or corporate outcomes pertaining to social movement demands appear to be based on a common, implicit assumption: *the assumption that activists and firms have divergent interests*. They focus on how social movement organizations or activists are *in opposition* to (some of) the conditions or business practices that a firm follows, and hence engage in oppositional tactics, tactics designed to cause the cessation or reduction of a specific set of practices that is employed by the focal target-firm. For example, scholars have studied the effects – on firms - of shareholder activism (Davis and Thompson, 1994), boycotts (King, 2008), shareholder resolutions and the threat of government regulation (Reid and Toffel, 2009), status threats (Weber, Rao, and Thomas, 2009), lawsuits and protests (Bartley and Child, 2011; Lee and Lounsbury, 2010), and protests with or without the presence of boycotts (King and Soule, 2007). All these studies contribute to our understanding of the influence of oppositional tactics on firms' actions and outcomes, while the latter study is particularly informative in the sense that it also addresses interactions between different tactics. Despite the invaluable contributions of this research, however, the assumption that firms and social movements have divergent interests is a *narrowing assumption*; one that is guided by the *strong emphasis placed by contemporary research on the confrontational role of social movements*.

As I will discuss in this thesis, social movement organizations, as other social actors, are not “*invariably oriented toward conflict*” (Emirbayer and Johnson, 2008) nor are they *always* directed toward it. Many of the mechanisms by which they influence firms are neither confrontational, nor even in opposition to firm strategies. More specifically, (at least some) SMOs frequently engage in actions that are directed towards *promoting* certain business practices or even industries that are more aligned with their values and identities (Lounsbury and Ventresca, 2003; Sine and Lee, 2009; Weber *et al.*, 2008; Zietsma and Lawrence, 2010). Firms that are involved in these types of practices or industries do not find themselves in

opposition to these organizations; rather, they may even benefit from their presence. However, as research has been primarily grounded on the above assumption and has emphasized the confrontational nature of movement organizations, *we know very little about how social movement organizations impact firms' actions by engaging in tactics that support, rather than combat, an industry's practices.*

### ***Social movements and industry development***

Besides research addressing the influence of social movements on organizations, a complementary stream of research has also emerged recently to examine the role of movements in the development of new industries and market segments. For example, Weber *et al.* (2008) describe the processes by which the grassroots movement motivated producers to enter and persist in the market for grass-fed meat and dairy products in the U.S., and their role in legitimating this market niche and shaping the social organization of its participants. Sine and Lee (2009) investigated the effects of a social movement organization on nascent entrepreneurial activity in the wind power sector, and found that (a) challenging existing practices in the energy industry, and (b) promoting new ones related to renewables, SMOs can contribute to entrepreneurial activity in new sectors. In a similar vein, Hiatt *et al.* (2009) showed how members of a social movement organization were able to determine firm failure rates in the brewery industry and firm foundings in the soft-drinks industry, by promoting behavioral norms, educating the public and lobbying for regulation.

What is common among these efforts to explain the interaction of social movements with emerging sectors is that they emphasize entrepreneurial activity. According to Hiatt *et al.* (2009:644):



“Social movements can affect the likelihood of the *emergence of new organizational forms* through at least three mechanisms. First, they can motivate a class of *entrepreneurs* who share the movement’s values to develop alternatives that are more consistent with the movement’s values than current products ... Second, by motivating consumers to change their consumption patterns, social movement organizations create demand, or market pull for products that are consistent with alternative values and behaviors ... Third, social movement organizations can encourage *entrepreneurial activity* (sometimes inadvertently) by encouraging shifts in resources from one set of activities to new activities.” (2009:644) [italics added]

This work indicates that social movements can indeed resort to non-oppositional actions and be successful in promoting certain industries. For all their value however, the focus of these studies on entrepreneurial entry or at the aggregate level of the industry has led to a *limited understanding of the role of social movement organizations in shaping the strategies of firms that are already present in these industries (industries that activists favor)*. Moreover, although this work provides a useful starting point by which one can understand such mechanisms of social movement influence (by describing for example the role of movements in shaping consumption patterns or regulatory frameworks), it does not provide a unitary conceptual framework under which to theorize these types of movement tactics. Therefore, *we still lack a coherent account of how, using non-oppositional tactics, social movement organizations can direct firms to invest in the business practices or industries they favor*. Such a framework would substantially enrich our understanding of the interplay between social movements and firms, and provide a more complete picture of the mechanisms by which movements exert their influence on business organizations.

Lastly, possibly due to the nascent nature of this research field, the two streams of research reviewed above appear to have developed rather independently. Thus, work that links social movement activity with firm strategy has tended to gloss over the role of movements in promoting alternative industries and institutions, and research that examines

the latter has failed to consider the role of firms in this process. Particularly, it has been suggested that one of the most important means by which movements achieve their goals is by contributing to regulatory shifts favorable to the industries they favor (Lee and Sine, 2007; but also see Burstein 1999 for the impact of movements on public policy in general). But the question of *how firms in these industries align with movements to achieve government endorsement of their sector remains unanswered*. This question is critical, as the presence (or absence) of such firms may enable (or hinder) the success of SMO campaigns to achieve favorable regulatory outcomes.

## 2. Goal and overview of essays

### 2.1. Main research question

The identified research gaps appear to be rather complementary. On the one hand, the literature on the impact of social movements on industry creation has identified SMOs as proponents of new industries or sectors of economic activity (rather than simply as opponents of existing ones), but as it has focused on the industry level, *it has not provided a unifying framework within which to place the mechanisms of movement influence on firm strategy*. On the other hand, research has started to ask questions regarding the interaction of social movement organizations and firms, but has tended to build on the narrowing assumption that the goals of social movements are always in opposition *to* the strategies of firms, and has thus *failed to examine the impact of movement organizations on firms that are involved in sectors activists' promote*. Finally, while evidence suggests that government policy can be influenced by movements, *research has yet to examine how firms may benefit from supportive social movement organizations to receive government support that favors their industry*.

This dissertation attempts to address these research gaps by answering the following question, which serves as the overarching research question of this thesis:

*Baseline research question: **How do social movement organizations influence firms' strategic behavior?***

For the purposes of this dissertation, this question is delimited to the domain of industries that are broadly consistent with the goals of a social movement, and are thus promoted by SMOs. Below I discuss how each of the three research chapters that comprise this thesis addresses different aspects of the abovementioned baseline research question.

## 2.2. Overview of essays

This thesis aims to shed light on the role of social movement organizations in the development of nascent sectors that are aligned with their values, and uncover implications for firm strategy and industry development. It is comprised of three standalone papers, each attempting to tackle a specific research question. The first, theoretical, essay uses renewable energy industries as an illustrative context, and the following essays focus on the European solar photovoltaics (PV) industry as their empirical setting.<sup>1</sup> More specifically:

**Chapter 1:** In the first research chapter I question a dominant assumption and emphasis of research investigating social movement organizations and firms: the assumption that activists and firms have divergent interests, and the emphasis on the confrontational role of social movements. The essay unpacks the mechanisms by which social movement organizations, without resorting to oppositional action, drive firms to invest in practices that are aligned with their goals. Overall, I argue that social movement organizations influence firms'

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<sup>1</sup> Renewable energy in general and solar PV in particular have been largely promoted by the environmental movement. More information on the setting is provided below.

propensity to invest in movement-supported industries via two mechanisms: first, by making opportunities to invest in these sectors salient and shaping the attention of decision-makers, which alters the perceived feasibility of these opportunities and triggers value orientations within firms; and second, by engaging in institution-building work (framing industries as more appropriate, resolving uncertainty, inducing market demand and favorable policies) that renders such sectors economically attractive. These arguments are illustrated using examples from the role of environmental movement organizations (EMOs) in the emergence of the renewable energy sector. The second part of this essay concerns how organizational attributes (namely organizational identity and complementary resources) condition firms' responsiveness to SMOs' expectations. Organizational identity determines whether SMOs' calls will be seen as relevant to and consistent with the *raison d'être* of the organization, and a firm's resources affect the domains within which the firm will search to identify opportunities and its decisions about whether to invest in exploring them once they have been identified.

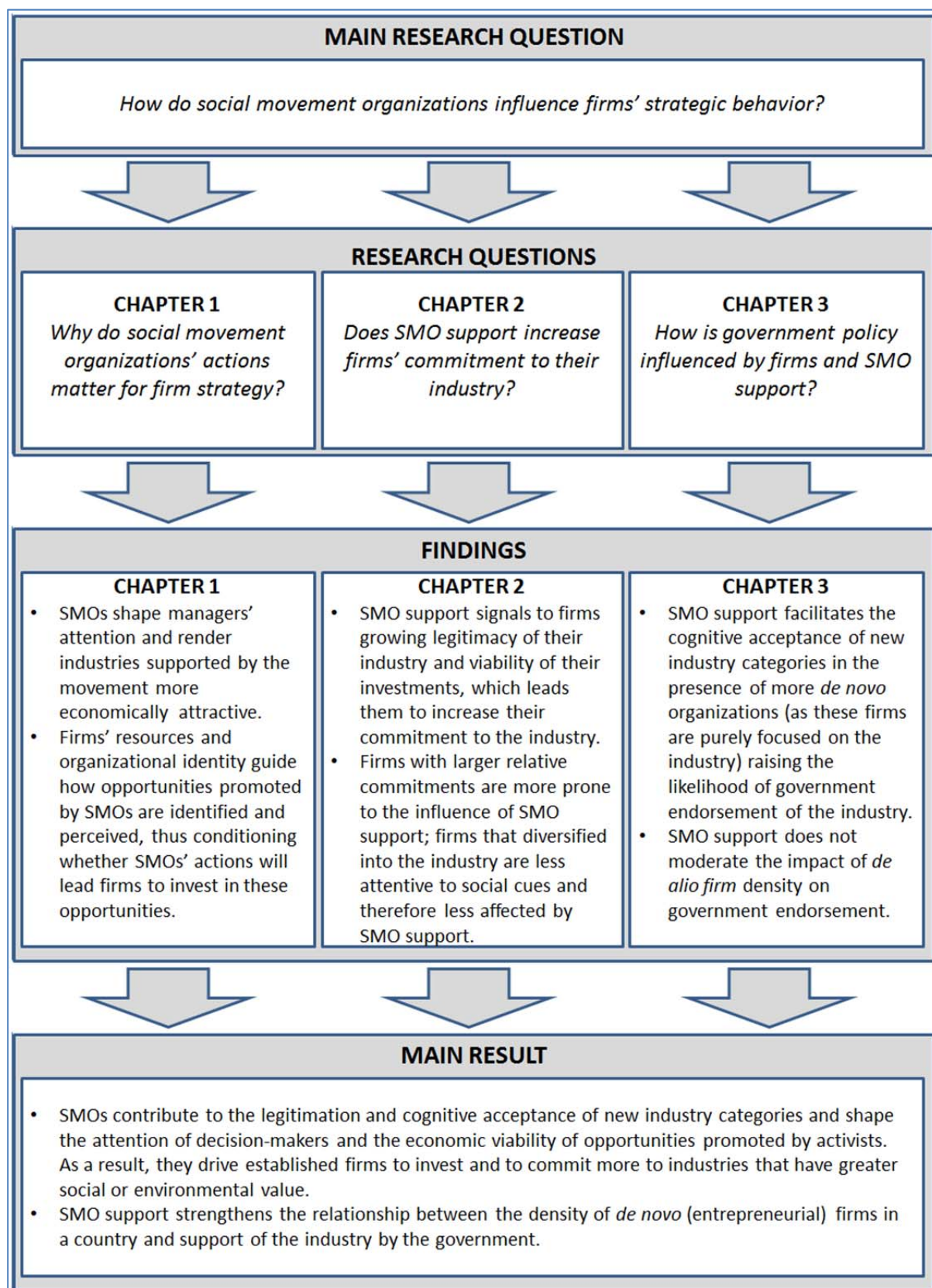
**Chapter 2:** The second essay examines (a) to what extent the local support for SMOs that endorse a specific industry leads industry participants to increase their commitment to that industry, and (b) how firms differ in how much they are influenced by SMO support. We define SMO support as 'the human and financial resources that social movement organizations can mobilize for sustained campaigns' (cf. McCarthy and Zald, 1977), and argue that firms interpret SMO support as *confirmatory proof*, confirmation of the potential of the industry to secure local demand, and consequently of the viability of their ventures. Moreover, SMO support allows these organizations to offer *legitimacy accounts*, framing that legitimizes firms' active participation and commitment into new industries. Firms that have relatively higher past commitments are more likely to see such social cues as proof that their strategy is superior and use them to justify future commitments, and firms that are focused on

the specific industry (*de novo* firms) are expected to be more influenced by these mechanisms compared to *de alio* firms. Evidence from the analysis of a panel dataset of European solar photovoltaic firms is consistent with these arguments, demonstrating that solar cell producers with larger relative commitments are more influenced by SMO support in their subsequent commitments, and that *de alio* producers are less affected by SMO support compared to *de novo* firms.

**Chapter 3:** Lastly, in the third essay we attempt to explain how government endorsement of the solar industry depends on the interaction between different types of solar producers in the country (*de novo* and *de alio* entrants) and support for spatially proximate social movement organizations. The main argument of this essay is that the presence of a greater number of firms in a country enhances the cognitive acceptance of the industry which in turn increases the likelihood of government endorsement. *De novo* firms, being more tightly associated with the nascent industry are more likely to enable its acceptance as a separate category, while *de alio* firms – coming from other industries – contribute less to the cognitive acceptance of the industry. Moreover, SMO support enhances the capacity of firms to achieve government endorsement of their sector, as it enables the cognitive acceptance of the industry. Lastly, as pure solar producers serve as exemplars of how businesses can tackle a social problem and are likely to be favored and share networks with social movement organizations, they are expected to benefit more from the presence of a supportive movement compared to *de alio* entrants. The results from a test on EU countries' solar energy industry are generally consistent with these predictions; the density of solar producers has a positive effect on government endorsement of the industry and the interaction of SMO support with *de novo* density is significant, while its interaction with *de alio* density is not.

How do these three chapters contribute to the baseline research question articulated above? Overall, they outline how social movement organizations promote certain sectors and by doing so shape firm strategic behavior (firms' propensity to invest in these sectors in the case of Chapter 1, and the strategic commitment of firms that are already present in these sectors in Chapter 2). SMOs are able to influence firms' strategies by pointing to certain new industries and framing them as appropriate – thus contributing to the legitimation, cognitive acceptance and (at least perceived) viability of these industries, directing the attention of decision-makers, and modifying the objective benefits that accrue to firms involved in these sectors. Empirically, Chapter 2 provides direct evidence that support for SMOs sympathetic to an industry is linked to increased firm commitment to the industry, in the form of larger expansions. Chapter 3 illustrates one of the ways by which SMOs indirectly influence firm behavior – their role in shaping government policy. The findings are consistent with the idea that SMOs' prognostic framing contributes to the cognitive acceptance of emerging industry categories and to the likelihood of the industry receiving government support, an important mediator of firm strategy.

The table below depicts the main research questions and central findings of each dissertation chapter and the overall thesis.



*Table 1. Graphical overview and structure of the thesis chapters*

### 2.3. Research design

**Setting:** For Chapter 1, which is a conceptual paper, I have benefited from theoretical inquiry but also from anecdotes referring to renewable energy industries, and the actions environmental organizations have taken to promote them. For Chapters 2 and 3, analytical investigation is performed using the solar photovoltaic (PV) industry in the European Union as an empirical setting, and specifically the stage of solar cell manufacturing. This industry was chosen for several reasons. First, it is a good example of an industry favored by a social movement, with the environmental movement being one of its main proponents. Second, data on solar cell producers were available for a long time period, and the profiles of cell producers provided substantial heterogeneity in firm commitment and organizational pre-history, concepts employed by Chapters 2 and 3. Third, support for the environmental movement varies substantially between different EU countries, and despite common pressures by the EU to promote renewables, these countries have exhibited substantial variation in their propensity to adopt policy frameworks that endorse PV.

**Methods:** The empirical papers of this dissertation (Chapters 2 and 3) rely primarily on *quantitative statistical techniques* based on a dataset of solar cell manufacturers that I developed (the individual chapters provide more information on the specific econometric models). Before moving on to a description of the dataset, however, it bears pointing out that in order to develop the arguments that are set forth in the following essay and those tested in Chapters 2 and 3, I have greatly benefited from qualitative investigation of the setting I study. More specifically, this work has benefited from the following *field work*:

*Interviews and PV conferences:* I attempted to get a better understanding of the setting that I study by interviewing relevant stakeholders; these include solar PV professionals, energy professionals, campaigners of environmental NGOs, lobbyists, policy advisors, and highly-



ranked officials of international organizations and trade groups such as the International Energy Agency or the European Photovoltaic Industry Association. More than 20 interviews were conducted over a period of 2 years (the majority during the first half of 2012) either in person or over the phone or skype. Moreover, my understanding was further grounded on participation in industry events and conferences: the *InterSolar 2012 Conference* in Munich, and the *PV Technology Platform* in Amsterdam during the same year.

*Visit to the IISH:* In Chapter 1 I provide illustrations from the role of environmental organizations in promoting renewable energy. This work benefited from a visit to the International Institute of Social History (IISH) in Amsterdam, where I had the opportunity to study the Greenpeace International Archive, and in particular the climate change campaign of the organization. Documents on Greenpeace's solar energy campaign further grounded my contextual understanding and partially motivated some of the empirical investigations that appear in Chapters 2 and 3.

*Study of industry documents:* Lastly, both my awareness of the context and the dataset for this dissertation were based primarily on the study of industry documents discussing the history of solar PV, but most importantly on the archive of PV News. PV News is a newsletter established in the early 80s by Paul Maycock; considered one of the founders of commercial photovoltaics, Maycock served as the editor of PV News until his retirement in 2005. PV News is currently the oldest surviving industry newsletter, and one of the most critical and widespread sources of information on the solar PV industry.

Besides the above field work, an original *dataset* was constructed in the context of this dissertation to investigate the questions of Chapters 2 and 3. This dataset consists of all solar cell producers that appear in the annual list of solar cell producers of PV News and operate in Europe from 1990 to 2011, annual production data from these producers, several

firm, industry, and country attributes, as well as proxies for environmental movement organizations' support using cross-country data on Greenpeace membership. This dataset was relevant for investigating firms' commitment to solar PV and countries' policy choices as a consequence of SMO support (see Chapters 2 and 3 for more details). The following table provides a brief description of the dataset as well as of the main data sources from which the data were collected.

<i>Type</i>	<i>Brief description</i>	<i>Main sources</i>
Sample of firms	Solar cell producers operating in Europe (1990-2011).	PV News annual list of solar cell producers
Producers' data	Annual production data, year of formation, year of entry, mode and type of entry, parent size, performance, age, industry and country of origin.	PV News, IEA PVPS reports, Photon International, corporate websites, reviews of solar PV history, Orbis, Compustat, Mergent Webreports.
Country-level data	Solar PV policies, density of <i>de novo</i> and <i>de alio</i> producers, total production, total demand, solar resources, Greenpeace supporters, energy imports, energy use, electricity prices, interest rates, PV R&D budgets, environmental values, renewable energy production, dependence on fossil fuels, population, GDP, unemployment rate, urbanization, CO2 emissions, political orientation.	PV News, International Energy Agency reports and database, PV-Era Status Reports, Photon International, RES-legal, World Bank, Greenpeace International Archive, Von Stein (2008), European Values Survey, Comparative Political Database, UK Department of Energy and Climate Change, US National Renewable Energy Laboratory.
Industry-wide data	European and world production, density of <i>de novo</i> and <i>de alio</i> producers in the EU, policy diffusion in the EU, EU demand for solar PV.	PV News, Photon International, IEA PVPS reports, EPIA reports, RES-legal, PV-Era Status Reports.

***Table 2 Brief description of the data and the main data sources***

The above table is not exhaustive; where needed and in order to more accurately reflect the theoretical concepts, additional variables were constructed mainly based on the ones mentioned above. The individual chapters specify in more detail the specific variables that are used in the empirical tests.

Now that the background and outline the thesis has been provided, I proceed below with the three research chapters. Chapter 1 delineates the mechanisms by which social

movement organizations - without resorting to oppositional action - drive firms to invest in practices that are aligned with their goals, and identifies when firms will or will not respond according to movement expectations. In Chapter 2 we empirically focus on the solar photovoltaic industry to examine how social movements shape the strategies of firms that are involved in sectors they promote, and to understand which firms are more likely to be influenced by support for SMOs sympathetic to their industry. Next, Chapter 3 investigates the ways in which social movements interact with firms to influence the enactment of policy frameworks favorable to sectors endorsed by movement proponents. Finally, the last section concludes the thesis by discussing its primary contributions and proposing avenues for future research.

CHAPTER 1. *From opposition to support: Firms' investments in industries supported by social movement organizations.*<sup>2</sup>

1. Abstract

This paper develops a theoretical account of the mechanisms by which social movement organizations (SMOs) influence firms' decisions to enter markets supported by movements. The theory suggests that through their campaigns, SMOs shape the range of opportunities that firms are likely to consider and influence the attractiveness of certain industries. Further, the model is enhanced by using formal logic to predict how organizational attributes, namely organizational identity and firms' complementary resources, condition firms' responsiveness to social movement influence. Examples on the role of environmental movement organizations in influencing firms' decisions to invest in renewable energy industries are used to illustrate the theory. The paper aims to redirect research on social movements and firms away from the emphasis on how movements drive firms away from some fields, and towards an examination of their role in leading firms into new ones. This work also contributes to the study of environmental sustainability by providing a theoretical foundation to explain how some of the goals of sustainable development are enacted in the business world.

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<sup>2</sup> This paper has been presented at the Academy of Management (AoM) annual meeting 2013. An earlier version of this paper was presented in the European Group for Organization Studies (EGOS) annual conference 2011.

## 2. Introduction

Although the interplay between business and society has been a long-lived concern for both scholars and practitioners (Salzmann *et al.*, 2005), sustainable development, the process by which we can “*meet the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987, p. 43), has only lately started to gain momentum in the business literature (Shrivastava, 1995; Sharma and Starik, 2002; Starik and Marcus, 2000; Steurer *et al.*, 2005). At the same time in the business world, increasing social pressure concentrates on steering firms toward practices consistent with the goals of sustainable development. Corporate sustainability has been added to the voluminous research on corporate social responsibility (de Bakker *et al.*, 2005; Montiel, 2008; Kleine and von Hauff, 2009), and the question of whether responding to socio-environmental concerns is the responsibility of firms remains a matter of ongoing dispute. However, as scholars engage in these inherently normative quests, and as widespread acceptance of a business paradigm that identifies with the goals of sustainable development remains a distant ideal, recent shifts in economic institutions indicate that firms do invest in industries consistent with the goals of sustainability. More and more companies now manufacture products based on biodegradable plastics; almost all leading car manufacturers now offer hybrid-electric vehicles; and global investments in renewable energy have exhibited impressive growth, reaching \$244 billion in 2012 alone.<sup>3</sup>

The social forces that drive firms to proceed to such investments are still not well understood. More precisely, very little research has investigated the role of social movement organizations (SMOs) in driving firms into industries and business practices of greater social or environmental value (Sine and Lee, 2009; Weber *et al.*, 2008; Vasi, 2009). Social

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<sup>3</sup> See <http://fs-unep-centre.org/publications/global-trends-renewable-energy-investment-2013>

movements, conceptualized here as *informal coalitions that engage in sustained action with a goal of contesting, changing, or resisting change of prominent social, cultural or business practices* (adopted from Weber and Soderstrom, 2012; cf Diani, 1992), are typically depicted in the literature as forces that simply direct the ‘grievances’ of certain segments of the population and oppose existing practices or conditions (Arjalies, 2010). This view of movements reflects the idea that “*the clearest message that activists can generally send is absolute rejection: no to nuclear weapons, abortion, pesticides or taxes*” (Meyer, 1992: 419). While typically projected in studies of activists’ struggles with the state, this view has been partly inherited by research at the nexus of social movements and organizations, as suggested by the prominence of studies focusing on activists’ demonstrative and confrontational activities against firms (e.g. Baron, 2001; Baron and Diermeier, 2007; Bartley and Child, 2011; King, 2008; King and Soule, 2007; Ingram, Yue and Rao, 2010). Yet, recent findings indicate that movements are also able to provide alternative options for firms by proposing and contributing to the formation of new economic institutions (e.g. Sine and Lee, 2009; Weber *et al.*, 2008), thus refuting the premise that social movements are simply about absolute rejection.

In the environmental sustainability arena, for instance, social movement organizations (SMOs) -*organizations which identify their goals with the preferences of a social movement and attempt to implement those goals* (McCarthy and Zald, 1977:1218) - target companies for their environmentally harmful practices, but at the same time they try to induce firms to invest in alternative and more environmentally-friendly industries. And while research has concentrated on the consequences of the former, the effects of the latter for firm strategy have received limited attention. In this paper, I address the question of how social movement organizations direct firms’ strategies by leading them to invest in industries aligned with sustainability criteria. The main goal is to contribute to a better understanding of *how* social

movement organizations influence firms, and I develop propositions to elucidate this link. More specifically, different causal mechanisms are conceptualized by which SMOs induce firms to invest in movement-supported industries (i.e. industries that are favored by the focal movement). Two broad causal mechanisms are identified: shaping managers attention patterns, and rendering these industries more economically attractive for firms. In the second part of the paper I turn to an examination of how the relationship between the above mechanisms of SMO influence and firm responsiveness to social movement expectations is conditioned by organizational attributes, specifically by a firm's complementary resources and its organizational identity

The immediate goal but also the main contribution of this paper stem precisely from its center of attention: the fact that it does not focus on activists calling for the cessation of existing business practices but on the way movement organizations redirect private investment by attempting to emplace new institutional arrangements. In doing so, this paper sheds new light on the interaction between social movements and firms - one that does not suffer from 'a narrow focus on open confrontation' (Morrill *et al.*, 2003)<sup>4</sup> - and broadens the gamut of causal relationships that researchers can utilize to understand the impact of social movements on firms.

Two words of caution are needed at this point. First, I do not claim to offer an all-encompassing theory of social movements' influence on firms. The explicit focus on how movements drive firms' investments into new sectors, rather than away from existing ones, is not to suggest that the role of social movements in combating contentious practices is not important. On the contrary, a number of scholars have provided valuable contributions to

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<sup>4</sup> Note that the initial use of this quote by Morrill and colleagues was to note that analysts tend to ignore cases of covert political conflict. We utilize it here in a different, albeit similar fashion: to suggest that scholars must also examine the non-confrontational mechanisms by which social movement organizations try to promote their agenda.

both the organizational and the social movement literature by linking movement activity, threats or even potential threats by activists, with change in corporate practices (Baron, 2001; Baron and Diermeier, 2007; Bartley and Child, 2011; Luders, 2006; King 2008; Palmer, Simons and Mason, 2013; Soule, 2009; Weber *et al.*, 2009). It is also very likely that the first step in developing institutional transformation is contributing to the appreciation that certain industries or business practices pose negative externalities (Hiatt *et al.*, 2009; Sine and Lee, 2009). However, in emphasizing how social movements directly target corporations to drive them *away* from controversial business practices, extant research has largely ignored their role in driving firms *into* new business practices or even industries. By focusing on the latter, this paper contributes to a fuller understanding of social movement organizations' influence on firms. It therefore represents an important corrective to the predominantly one-sided attempts to explain such influence, and as such opens up many possible avenues for future research. Lastly, in addition to its analytical value, this essay provides empirical illustrations by discussing how the different mechanisms are manifested in several industries, and in particular the case of environmental movement organizations (EMOs) and their efforts to drive firms to invest in renewable energy industries. In doing so, it offers a theoretical foundation to explain how *some of the goals* of sustainable development are enacted in the business world, and contributes to research on sustainability which is sometimes viewed as 'atheoretical' (Corley and Gioia, 2011).

### 3. Background

Some of the main topics social movement researchers have addressed concern the origins of social movements, the question of who participates in them and why, their tactics and their role in bringing about societal changes (Crossley, 2002; Soule, 2009; Snow *et al.*, 2006). Especially with the prominence of the latter topic, it is obvious that the most



traditional target of social movement actors would be state authorities. Indeed, this has been considered by scholars as their main target, and the literature on social movements has focused mostly on movements' interaction with the state and their effect on policy outcomes (Burstein and Linton, 2002; Soule and Olzak, 2004; Stevenson and Greenberg, 2000). However, this is not the only target of movements. There is evidence that anti-corporate activism has increased during the past few decades (Soule, 2009; Van Dyke *et al.*, 2004), as *"the responsibility for addressing a variety of social issues is transferred from the state to the private sector"* (Den Hond and De Bakker, 2007:901). Yet, until recently, the bulk of social movement research had ignored their influence on business organizations (de Bakker, den Hond, King and Weber, 2013).

During the past decade or so, the number of studies that examine the impact of social movements on organizations' actions and outcomes has increased dramatically. For example, King and Soule (2007) attest to the fact that firms are influenced by outside stakeholders, as social movement protests are found to negatively influence investors' confidence and eventually shape corporations' stock prices. Den Hond and de Bakker (2007) develop propositions concerning the interaction between activist groups and firms, and consider activist groups as an antecedent of the nature and level of corporate social change activities. King (2008) studies how social movement actors influence organizational decision making by use of boycotts and finds that the threats of damage to corporations image and reputation leads firms to concede to boycotters' demands. As another example, Reid and Toffel (2009) find that when social movement actors resort to direct appeals to management using shareholder resolutions, a firm is more likely to engage in information disclosure practices consistent with the goals of the movement.

The findings of these and other related studies (see de Bakker et al., 2013 and Soule, 2012 for two recent attempts to summarize the literature) reveal the ability of social actors to trigger change in corporate practices, and similar insights have been exposed by studies of private politics and work that examines institutional pressures concerning firms' environmental strategy (e.g. Baron, 2001, 2005; Baron and Diermeier, 2007; Delmas and Montes-Sancho, 2010; Delmas and Toffel, 2008; Eesley and Lenox, 2006). Most of this research has emphasized the role of demonstrations, boycotts, lawsuits or other *oppositional tactics* (tactics by which movements push firms to cease or limit their use of certain socially or environmentally irresponsible practices), building on the 'commonplace assumption' in social movement research that "*creating disruptions is often the only effective means to compel change*" (Luders, 2006). Despite its appealing parsimony however, this assumption appears to be limiting when faced with evidence from recent research on the development of new industries or market segments (Lounsbury *et al.*, 2003; Sine and Lee, 2009; Weber *et al.*, 2008); research suggesting that social movement activity can also be steered towards the promotion of fields that are aligned with their values. To the extent that such movement activity is successful in spawning institutional transformation and providing viable alternatives for firms, it has a much overlooked influence on firm strategy. This influence is the focus of the current essay, the scope of which I clarify below.

#### 4. Theory and propositions

A central premise of this paper is that social movement organizations influence firms to invest in industries that are supported by the focal movement by use of non-oppositional actions. The goal of this section is twofold. The first goal is to provide theoretical arguments in support of this premise; that is, to explain why it holds. Two broad types of mechanisms are described in this paper to explain how firms are led to invest in movement-supported

industries under the influence of SMOs. I describe how the action of SMOs can partly determine the attention of managers, which shapes which opportunities firms consider, and eventually firm behavior. Next, I focus on how the presence of SMOs in a firm's institutional environment can render movement-supported industries more attractive, thus providing economic incentives for firms to undertake such investments. The mechanisms proposed here are not assumed to be used by *all* movements at *all* times, but they are expected to appear frequently in different empirical contexts. The second goal of this section is to examine conditions that determine *for which firms the propositions will or will not hold*, by investigating organizational attributes expected to enable or mute the impact of these mechanisms on firms. Therefore, the final model predicts *when* firms' actions will be in line with SMOs expectations, and when they will not.

### ***Shaping decision-makers attention***

While not directly linked to market formation campaigns, movements often elicit social change by use of protests and direct action against their target firms (Baron, 2005; King and Soule, 2007; Soule, 2009). These actions tend to be incorporated in broader deinstitutionalization efforts that challenge or seek to eliminate incumbent practices, forms, or even entire industries (Waldron et al., 2013). Social movement proponents engage in *diagnostic framing*, the identification of a problematic condition and the attribution of blame by identifying culpable agents (Snow and Benford, 1992), as they criticize incumbent systems and point to flaws of established practices. For instance, during the rise of the nouvelle cuisine movement in France, proponents of the movement piggy-bagged on broader societal changes and the events of May 1968 to heavily criticize the lack of autonomy of the chef that was prevalent in classical cuisine (Rao, Monin & Durand, 2003, Rao, 2009). The

temperance (anti-alcohol) movement in the United States educated individuals about the dangers of alcohol consumption and promoted prohibition legislation in order to delegitimize and contribute to the demise of the brewery industry (Hiatt et al., 2009).

Though these efforts do not make alternative markets economically attractive, they do focus public attention on certain problems, which “*creates cognitive space for arguments about possible solutions*” (Rao, 2008) and shapes the range of opportunities that firms consider. At the very extreme, these opportunities are not promoted or may even be unanticipated by activists. The demise of the brewery industry that the temperance movement caused gave rise to unexpected opportunities for soft-drinks producers to supply unmet demand for beverages (Hiatt et al., 2009). More often than not, however, the rise of such opportunities is part of social movements’ goals and their advancement is linked to market formation campaigns that build on *prognostic framing* - suggesting a line of action for resolving the identified problem (Snow and Benford, 1992).

Social movement adherents offer prognostic frames that point to or guide the search for particular solutions (Benford and Snow, 2000; Snow and Benford, 1992). For instance, the cultural codes of authenticity, naturalness and sustainability motivated the search for alternatives to current agricultural practices, which stimulated entry in the grass-fed meat and dairy products market (Weber et al, 2008). By offering renewable energy as a solution to the problems of environmental degradation and climate change, environmental organizations advocated for and influenced entry in the wind energy industry (Sine and Lee, 2009; Vasi, 2009). Social movement organizations promote these solutions as normatively superior alternatives as well as profitable opportunities (York & Lenox, 2013). They stage visible protests, organize public education campaigns, resort to scientific advocacy (MacKay &

Munro, 2012; Soule, 2009), or contribute to the proliferation of successful entrepreneurial stories (Lounsbury & Glynn, 2001) in the mass media and in business circles.

Such prognostic framing can induce market entry for a number of reasons. First, it increases the saliency of potential business opportunities, channelling the attention (Ocasio, 1997) of economic agents towards those possibilities. Attention can help explain ‘when, why and how’ firms react to events, issues, or opportunities in their environments (ibid), as it affects how organizational decision-makers perceive them (Weick 1979; Ocasio 2001; Hoffman and Ocasio, 2001). Increased attention to a market opportunity boosts decision-makers familiarity with it and as a consequence their expectations about its feasibility. Greater exposure confers cognitive legitimacy to new practices and reduces the perception of risk linked to their adoption (Lee and Paruchuri, 2008), thus enhancing their perceived feasibility (Julien *et al.*, 2009) and the likelihood that they will be pursued by economic agents. Thus, insofar as social movements shape the attention focus of decision-makers, they can interfere with firms’ strategic direction and market entry decisions (Kaplan, 2008; Eggers and Kaplan, 2009).

A second way in which prognostic framing campaigns induce market entry is simply via the provision of information. Regardless of its link to attention, information is crucial for opportunity recognition (Autio, Dahlander and Frederiksen, 2013; Ozgen and Baron, 2007). Potential entrants are provided with important information concerning business opportunities by ideologically motivated activists, and this information usually comes at no cost. For instance, agrarian protest social movement organizations like the Grange and the Farmer’s Alliance promoted cooperatives and mutuals as specific organizational forms in the US not only by framing them as alternative solutions to corporate power, but by providing very specific information about how they could be organized, such as “*detailed templates, by laws*

*and operating plans*” (Schneiberg, 2003:62). In essence, social movements’ framing campaigns create exogenous shifts in information (Ekhardt and Shane, 2003) for firms and entrepreneurs. Adherents of the movement act as brokers who provide valuable information to prospective entrants, and SMOs use their extant networks and mobilizing structures in order to disseminate critical information to potentially interested parties (Weber et al., 2008; Vasi, 2011).

Third, the crafting of strategic frames can lead to important shifts in cultural beliefs or logics (Lounsbury et al., 2003; Zald et al., 2005) that form and reflect the context of business activity (Oliver, 1997; Scott, 1995). To the extent that prospective entrepreneurs come to sympathize with the values of a social movement, the framing of certain market opportunities as solutions to social problems increases their propensity to enter those markets. Several individuals were influenced by ideological reasons – as opposed to or in addition to economic concerns - in their decisions to exploit market opportunities, including passionate brewers, non-profit recyclers, wind technology enthusiasts, and grass-fed meat and dairy producers (Carroll & Swaminathan, 2000, Lounsbury, 2003; Vasi, 2009; Weber et al, 2008). Similarly, within existing firms, employees or managers that have internalized the values of a social movement might act as ‘issue champions’ (Anderson and Bateman, 2000; Bansal, 2003) or even ‘internal activists’ (Scully and Segal, 2002) who, through conventional or unconventional channels (Zald and Berger, 1978), seek to align organizational practices to their own views of appropriate or legitimate business conduct. Framing attempts promoting opportunities for entry in new markets can trigger value orientations of managers (Zald et al., 2005), as *“organizational members are more receptive to changes in the organizational agenda, products, and processes if these fit with their own personal values”* (Bansal and Roth, 2000: 731). The perceived feasibility that exposure confers and the dissemination of narratives or stories of successful ventures (Lounsbury and Glynn, 2001) that SMOs

promulgate can offer organizational members the ability to make ‘a business case’ for diversifying into markets congruent with their values (Scully & Segal, 2002) and allow them to marshal internal and external stakeholder support.

To illustrate the theory, consider the context of renewable energy. Environmental movement organizations (EMOs) have attempted to raise the environmental concern of the masses by using organized and collective activities, by employing the media to attract attention, or through educational initiatives targeted at the broad public. Through such actions EMOs have managed to render environmentalism a highly valued attribute (Rucht, 1999), infused markets with moral values (Weber *et al.*, 2008) and altered perceptions about what is an appropriate way of doing business in an industry (Weber & Soderstrom, 2012). By attacking the energy system as inappropriate EMOs invite firms to act upon social problems by offering solutions that are based on renewable energy sources. This in turn, brings attention to the opportunities advanced by activists, encouraging managers to respond to such stimuli (cf. Hoffman & Ocasio, 2001), and triggering value orientations of organizational members (Bansal and Roth, 2000).

In sum, social movements’ campaigns influence the propensity of economic agents to enter a market by shaping the range of opportunities that they are likely to recognize. Movements contribute to the de-legitimation of existing practices, which prompts the search for alternative market opportunities, and advocate solutions, which shapes the attention of economic agents towards particular opportunities, provides them with specific information on how they could be exploited, and sparks ideologically motivated action. To formalize:

*Proposition 1: Social movement organizations positively influence firms’ investments in movement-supported industries by increasing the attention that organizational decision-makers pay to opportunities linked to these industries.*

### ***Rendering industries more attractive***

So far I have discussed how firms may be induced to invest in movement-supported industries with little regard to the benefits that accrue to them if they choose to do so. Yet, central to the argument is that the main means by which social movements can influence these decisions is by making such investments more economically attractive. This was hinted above when I suggested that social movement organizations reduce the costs of pursuing certain opportunities (Zald *et al.*, 2005) by providing information about business solutions and ways to implement them to potential entrants. Social movements also increase the benefits that will accrue to firms if they enter movement-supported markets, making it more likely that established firms and entrepreneurs will decide to enter.

By theorizing these markets as solutions to broader social problems they cultivate a base of support and enable them to achieve legitimacy (David *et al.*, 2013; Lounsbury and Glynn, 2001), the generalized perception that these markets are desirable, proper, and appropriate (Suchman, 1995). Achieving and sustaining legitimacy is important as it facilitates access to resources that are critical for the establishment of new ventures (Aldrich and Fiol, 1994) and the growth of existing organizations (Barron, West and Hannan, 1994), such as talent, capital, technology, or government support (Zimmerman and Zeitz, 2002). By granting and withholding legitimacy, activists participate in the creation of opportunities<sup>5</sup> for potential entrants, enabling the diffusion of organizational forms and practices (Colyvas and Johnson, 2011; Rao *et al.*, 2000; Rao, 2009).

But how do social movements regulate the legitimacy of markets? As discussed above, SMOs articulate claims against incumbent practices and in favor of alternatives,



focusing in part on the normative appropriateness of the promoted business opportunities (York and Lenox, 2013; Navis and Glynn, 2010: 444). They thus contribute to the achievement of *sociopolitical legitimacy* for new ventures, their recognition as appropriate or desirable within the context of broader social norms and belief systems (Aldrich and Fiol, 1994; Bitektine, 2011; Deephouse, 1996). For instance, US environmental organizations sought to educate the public and offer evidence that wind power and green buildings are more appropriate than conventional sources of power and usual building techniques, respectively, due to lower environmental footprint and potential to stimulate local employment (Sine and Lee, 2009; York and Lenox, 2013). In France, challengers of mainstream financial practices penetrated asset management organizations and managed to confer legitimacy to the use of environmental, social and governance criteria in investment decisions (Arjalies, 2010). The US microbrewery movement mobilized to attack ‘Big Beer’ and promote instead an alternative form of organizations, one that relies on traditional ingredients and artisanal production practices and cares about consumers and local communities, stimulating the legitimacy of microbreweries (Carroll and Swaminathan, 2000; Rao, 2009).

Social movements also contribute to the attainment of *cognitive legitimacy*, which is particularly critical for markets in a flux or at formative stages (Kennedy, 2008; Colyvas and Jonnson, 2011; Navis and Glynn, 2010). Cognitive legitimacy relates to the comprehensibility of a market category and of producers participating in the market; based on spread of knowledge about the market and its boundaries, it refers to its acceptance as understandable, real, or taken for granted (Aldrich and Fiol, 1994; Bitektine, 2011; Kennedy, 2008; Navis and Glynn, 2010; Suchman, 2005). Activists bestow meaning to markets by linking them to a social cause, facilitating producers’ theorization of their purpose and making claims about the distinctiveness of the market more convincing. They bring attention to particular product markets (O’ Rourke, 2005) and offer narratives or stories (Lounsbury

and Glynn, 2003; Wry et al., 2011) that enable producers to form a collective identity and demarcate clear boundaries around which their market or niche is formed. For instance, in the forestry industry in British Columbia, a coalition led by environmentalist and aborigine groups managed to redefine the ways by which harvesting was practiced, and created boundaries around which new forestry practices were created and legitimized (Zietsma and Lawrence, 2010). The creation of boundaries around experimental spaces and the ability of challengers to form new solutions and frames to promote them allows audiences to make sense of markets, reduces uncertainty, and guides understandings of what market opportunities are permissible to pursue (Kennedy, 2008; Zuckerman, 1999; Glynn and Navis, 2013). In sum, social movements confer sociopolitical and cognitive legitimacy to markets, which furthers interest by potential entrants and stimulates demand by consumers (Rao, 2009; Kennedy and Fiss, 2009; Glynn and Navis, 2013).

Shifts in demand and subsequent interest from producers can ensue also more directly as an outcome of movement mobilization. Two examples can help illustrate this point. First, in the formative years of the German solar photovoltaic market, members of local grassroots associations often associated with the green movement formed a very particular user profile that made the technology visible and set the seeds for future market growth (Dewald and Truffer, 2012). These adherents of the movement comprised the early adopters of the technology, as they installed solar panels on their roofs to “demonstrate their protest against nuclear power” by “publicly supporting an alternative energy vision” (Dewald and Truffer, 2012: 412). Thus, social movement adherents can induce demand by being themselves the consumers or users of products endorsed by the movement. A second example suggests that social movements can also shift demand patterns by enlisting sympathetic bystanders or even outsiders to their cause. In a campaign that aimed at “transforming the way the US market produces paper” (Paper Campaign 2002, quoted in O’ Rourke, 2005: 119), a coalition of

NGOs mobilized to educate consumers about forestry and paper production practices. The coalition also managed to enlist corporate customers of Staples, the leading US retailer of paper and office supplies and first target of this campaign, to its cause. Several universities and more than 30 large US companies, including IBM, Dell, Nike, Microsoft and AT&T, agreed to stop using old-growth wood and paper as a result of this campaign (O' Rourke, 2005). The 'paper campaign' resulted in increased interest by individual and business customers in alternatives and aided the rise of a new market segment for post-consumer recycled paper (ibid).

Attaining legitimacy and ensuring an adequate level of demand is important for market opportunities to be viewed as attractive. However, entrepreneurs and companies contemplating entry face another central challenge: how to mobilize and assemble resources from their environment in order to pursue a particular opportunity (Barron, West and Hannan 1994; Carroll & Hannan, 2000: 218). A corollary limitation that is amplified in the case of new markets is the lack of infrastructure enabling resources to be mobilized and companies' products to reach consumers, such as networks of exchange between consumers and producers, a skilled labor force, knowledge of and trust in the technology, or favorable regulation (Aldrich and Fiol, 1994; Lee and Struben, 2014; Lounsbury and Glynn, 2001).

Social movements collectively forge industry infrastructure and facilitate the acquisition of resources through mobilizing structures (McCarthy and Zald 1997; McAdam et al., 1996) which may range from formal social movement organizations to informal networks of friendship (Rao et al., 2000). Although building industry infrastructure is of benefit to many actors, the costs of building it are usually greater for an individual economic agent than are the benefits that accrue to that particular agent, forming a collective action problem. In most industries, early entrants incur those costs (Lieberman and Montgomery, 1988), but it is

often the work of activists to mobilize resources and coordinate action to mitigate this problem (Rao et al., 2000).

A telling example of how a social movement can help build market infrastructure and as a consequence induce entry comes from the recycling industry. While recycling was not inherently efficient (Lounsbury et al., 2003), mobilizing structures provided by non-profit recyclers and national environmental organizations (Lounsbury, 2001; Lounsbury et al., 2003) were fundamental in “institutionaliz[ing] a set of understandings and practices among consumers and communities about how to recycle” (Lounsbury et al., 2003: 87). This induced entry by for-profit recyclers because they “were able to piggyback on the fact that non-profit recycling centres had already trained large numbers of people to wash and sort recyclables” (ibid).

To make the above points clear, consider again the case of renewable energy. The campaigns of environmental NGOs were crucial in legitimizing renewable energy (Jacobsson and Lauber, 2006; Sine and Lee, 2009). Moreover, they were able to induce demand for green energy. For example, in the late 70s in Denmark, idealistic purchasers who held pro-environmental values were willing to accept higher prices for independently produced electricity, and thus maintained demand at a stage when the wind turbine industry was not yet profitable (Heymann, 1998). In the mid-90s, consumers in the island of Crete started expressing an interest in installing solar systems after a Greenpeace campaign during which activists toured the island with Cyrus, the world's largest – at the time - mobile solar generator, organized solar-powered concerts, and presented a photovoltaic guide for houses (Greenpeace archive, 1997). As these examples clearly illustrate, social movements are able to induce demand, or create a ‘market pull’ (Hiatt *et al.*, 2009) for their favored markets. In addition, EMOs helped build market infrastructure by linking innovators, entrepreneurs, and

managers, filling gaps in firms' knowledge, and even innovating themselves in areas that they consider technology should be directed. For example, Erik Grove-Nielsen, one of the most prominent wind energy entrepreneurs in Denmark, started as an anti-nuclear activist to become a founding member of OVE (the 'Organization for Renewable Energy') an organization that turned out to be critical for disseminating technical information regarding wind turbine manufacturing in Denmark (Vasi, 2010, p.142-145). Environmental organizations created renewable power companies, organized technical conferences, funded scientific research, financed demonstration studies and lobbied governments, contributing to greater visibility of the technology, reduced uncertainty, and a more favorable regulatory environment for solar and wind energy ventures (Jacobsson, Andersson and Bangers, 2004: 23; Lauber, 2005; Sine and Lee, 2009; Vasi, 2009, 2010). Such collective efforts create opportunities for potential entrants by reducing the costs and increasing the benefits that they are likely to encounter (cf. Zald et al., 2005).

To summarize, social movements influence the propensity of economic agents to enter an industry by making it more attractive. Activists confer sociopolitical and cognitive legitimacy to markets, which facilitates the acquisition of resources by potential entrants' and increases their survival chances (Aldrich and Fiol, 1994; Meyer and Rowan, 1977; Suchman, 1995). They strategically evoke, and often invoke, "exogenous shifts in culture" (Ekhardt and Shane, 2003: 343), increasing demand for products that they favor, such as those that are greener, cleaner, or sweat-free (O'Rourke, 2005). And they mobilize to enable the establishment of industry infrastructure, which paves the way for economic agents to step in and take advantage of more attractive market opportunities. Therefore:

*Proposition 2: Social movement organizations positively influence firms' investments in movement-supported industries by increasing the expected economic benefits that accrue to firms operating in these industries.*

### ***Heterogeneity in firm responsiveness; the conditioning role of organizational attributes***

The focus so far has been on discussing two mechanisms by which social movements can lead firms to invest in their preferred industries: *shaping the attention of decision-makers*, and *rendering these industries economically attractive*. I now turn to a consideration of how these two mechanisms of influence may play out for different types of firms. Assuming social movements are successful in one of the above or both, the following question is examined: *when will firms' responses be in line with movements' expectations?* Perhaps more importantly I also ask: *when will firms not respond to social movement expectations?*<sup>6</sup> The focus is on particular firm attributes that are expected to strongly condition firms' responsiveness to the above SMO influence mechanisms. Responsiveness could be manifested in many different ways; for the sake of consistency with the discussion in the previous section, it is expressed here as firms' decision to invest in industries favored by the focal social movement (e.g. in renewable energy industries that are promoted by EMOs).

Of course, institutional expectations do not translate to firm action irrespectively of the characteristics of the focal firm (Oliver, 1997). That is, institutional conditions cannot be

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<sup>6</sup> The fact that I expect the answer to these two questions to be different indicates a departure from the dominant correlational 'net-effects thinking' (Delbridge and Fiss, 2013; Ragin, 2008) that implies symmetry in causal relations (Fiss, 2007; 2011). This essay assumes asymmetric causality, which is 'arguably pervasive' but often neglected in organizational research (Fiss, 2011). Causal asymmetry suggests that if an outcome is linked to the presence of certain conditions (variables), one cannot immediately conclude that the absence of the outcome will be linked to the absence of these conditions. Rather, the same conditions may interact in different ways to lead to both the *presence* and the *absence* of an outcome, and different conditions may influence one but not the other.

predictive of the responsiveness of all firms in the same way; rather, organizational characteristics act as filtering devices that modify the behavior of firms operating in similar environments. For instance, not all firms will find the forms of activist action discussed in the previous section relevant to their organization and the opportunities to invest in movement-supported industries akin to action. In particular, the strategic cognition view of issue salience is suggestive of two organizational attributes that will strongly condition firms' responsiveness: *"those issues that speak to the raisons d'être and core competencies of the organization will be seen as more attractive to the organization and as more legitimate targets for action"* (Bundy, Shropshire and Buchholtz, 2013:361, references omitted). Two powerful organizational 'filtering devices' that are relevant to the question of when firms will or will not respond to social movement expectations are suggested by this quote; we discuss each below in turn.

The idea of 'raisons d'être' evokes the notion of organizational identity. This concept is frequently defined as what is central and enduring about the organization, but is better understood as the answer to the question 'Who are we as an organization?' (Whetten, 2006). The answer to this question, and the essence of identity claims, stems from two important functioning properties of organizational identity: first, to define the category to which the organization belongs (a 'grouping function'), and second, to allow the organization to appear as distinctive by emphasizing the central properties that make it different from other firms within the same category ('a separating function'). Both are important in forming organizational identity (Corley *et al.*, 2006). Regarding the former, it is argued that identification requires proper classification; categorization of organizations in distinctive social categories (Whetten, 2006:223, cf Czarniawska, 1997). Identity is not necessarily

defined by product or industry classifications, but by socially constructed self-classification<sup>7</sup> of organizations in ways that imply categorical distinctions. It is manifested in arguments about what the organization is, which also implies what it is not - e.g. “*we are a credit union, not a bank*” (Whetten, 2006). It can also be defined at the same taxonomical levels (supermarket versus convenience store), or different ones (grocery store versus convenience store) - see Porac and Thomas, 1994. Consider for instance a firm, Company A, that operates in petroleum refining and distribution, and sees itself as *an oil company*. Another firm (Company B) that performs the same activities may instead identify itself as *an energy company*. The former will see social movement actions that promote renewable energy as irrelevant to its core identity, while the latter may see them as relevant<sup>8</sup> and respond to these actions differently. With regard to the second role of organizational identity, firms try to appear as distinct from their peers in order to achieve differentiation (King, Clemens and Fry, 2011) by emphasizing their unique characteristics, such as for example their values, mission, or strategy. But as above, not all firms will attend equally to SMOs’ prognostic campaigns. For instance, a firm that builds its identity on the notion of being a ‘sustainable company’ will find renewable energy opportunities relevant, as opposed to one who’s identity is built on being a ‘reliable producer’, or a ‘low-cost manufacturer’.

The second idea expressed by Bundy *et al.*’s quote above is quite simpler; it reminds us that a firm’s core competences, resources and capabilities largely influence its strategic behavior, as they delimit what decision-makers see as relevant to the organization’s

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<sup>7</sup> While categorization of organizations is important from an audience perspective ( i.e. audiences external to the firm classify it as belonging to a particular category of organizations), it is not independent of how managers in the firm perceive it as a member of one or another category. This essay concentrates on what actions the firm will proceed to rather than how these actions will be assessed and evaluated by audiences, and thus emphasizes self-referential meaning (Albert and Whetten, 1985), or self-classification (how organizational decisions-makers classify the firm), as the perception of decision-makers is what ultimately drives organizational actions.

<sup>8</sup> Note that for the sake of theoretical clarity I do not consider here activities that oppose conventional energy (e.g. oil-fired electricity production); those can be seen as relevant by both these organizations.



performance (Ashforth and Mael, 1996; Bundy *et al.*, 2013). These concepts have been evoked to explain firm performance, but also to address the question of which new opportunities organizations will pursue (e.g. Montgomery, 1994; Penrose, 1995; Silverman, 1999; Wernerfelt, 1984). Their importance in explaining where firms will decide to invest has been linked to notions of relatedness, proximity, or complementarity (Klepper and Simons, 2000; Markides and Williamson, 1994; Mitchell, 1989, 1991; Silverman, 1999). As the literature is replete with definitions of the abovementioned concepts, to ensure theoretical consistency this essay will focus on a broad conception of resources, defined as “*the tangible and intangible assets firms use to develop and implement their strategies*” (Ray, Barney and Muhanna, 2004), one that encompasses competences and capabilities under the same umbrella term. Moreover, we will emphasize the importance of complementarity. Complementary resources are seen as those resources that the organization possesses and can effectively apply to pursue new opportunities. Complementarity in this sense is defined in relation to the specific opportunity (Klepper and Simons, 2000; Mitchell, 1989), rather than in relation to partner organizations (Dyer and Singh, 1998). As complementary resources regulate which opportunities firms will consider and pursue among many alternatives, they will be influential in determining how a firm will respond to the opportunities advanced by activists.

Using these two basic ideas as a point of departure, predictions are now developed concerning different combinations of causal conditions by which firms may be led to invest in movement-supported industries. These causal paths are not to be taken as purely deterministic (when X holds, then Y must *always* hold), but as suggestive of the configurations of conditions that need to be present for a firm to invest in movement-supported industries when SMOs have been successful in (one or both of) the above influence mechanisms. I also consider under what conditions these mechanisms will *not* be sufficient to

lead firms to invest. The different combinations of conditions considered are summarized in a truth table (see Fiss, 2007 for an introduction to the use of truth tables in management research), Table 1.

---- *Insert Table 1 about here* ----

In the first row of Table 1 SMOs are unsuccessful at shaping the attention of firm decision-makers and at rendering their favored industry or business activity attractive. Although one cannot assume that firms will not invest for other reasons (e.g. to respond to protest activities, or because of internally produced innovations that can be applied to these industries), I discard this case as irrelevant for my purposes. The goal of this section is not to explain all conditions that will lead firms to invest in movement-supported industries or practices; rather, it is to understand *under what conditions the identified SMO influence activities will lead organizations to respond to social movement expectations*. Therefore, the interest of this study lies in cases where at least one of the above influence mechanisms is successful.

Let us now turn to rows 2-5 of Table 1. Here it is assumed that SMOs are successful at shaping the attention of firm decision-makers, but not at rendering their favored industry or business activity attractive. I expect attention to be translated to organizational outcomes only insofar as movement expectations are consistent with the core identity of the organization. Continuing one of the above examples, for Company B, which identifies itself as an energy company, movement expectations about investments in renewable energy will be consistent with its organizational identity. Insofar as opportunities to invest have been made salient, the firm is likely to undertake such investments (this expectation is expressed in rows 3 and 5 of table 1). Company A, on the other hand, will not invest in renewable energy, even if its decision-makers do pay increased attention to renewable energy or even hold pro-

environmental values. Such an investment would be at odds with the identity of the organization, their view of ‘who they are as a firm’, in this case ‘an oil company’. Therefore, organizational identity acts as a powerful filter through which manager’s values are translated into organizational outcomes: when it is at odds with these values (rows 2 and 4), firms will not invest in movement-supported industries.

The second case to consider is when SMOs are successful at rendering activists’ favored industry attractive, but not at shaping the attention of firm decision-makers. This is the case in rows 6-9 of the above table. In this situation, since decision-makers attention is not triggered, consistency of movement expectations with organizational identity alone cannot lead to firm responsiveness. For firms to even consider investments in movement-supported industries, these opportunities must be brought to decision-makers’ attention via different paths. Specifically, I argue that they will receive such attention insofar as they fall within firms’ strategic field of vision, since firms tend to scan their competitive environment for use of their resources, to determine cause-effect relationships that will benefit their performance (Bundy *et al.*, 2013). For instance, firms that possess complementary resources that can be applied to renewable energy may consider investing in this sector. Firms that do not possess such resources will not consider these opportunities (even if they have been rendered attractive by social movement activity) as decision-makers will not attend to them when they scan their competitive environment for potential opportunities. The latter prediction is expressed in rows 6 and 7 of Table 1.

The next row (8), however, calls for a less straightforward prediction. What happens when an industry has been rendered attractive by a social movement in the firm’s environment, the firm does possess the resources and capabilities that would allow it to operate in this sector, but such investments are at odds with its organizational identity? I take

here the position that, even if firms do consider them, they will not proceed to such investments as they are inconsistent with ‘who they are’ as an organization.<sup>9</sup> Instead, if they are consistent and the industry has been rendered attractive, then firms will proceed to such investments (Row 9).

Finally, I turn to the last four rows of the table, where social movement activity is successful at both shaping the attention of firm decision-makers and rendering activists’ favored industry attractive. Again, as per the above discussion, I expect firms to respond positively to these social movement influence actions only if doing so is in consistent with their organizational identity (rows 11 and 13). The expectations that are outlined in Table 1 can be represented in the following Boolean form<sup>10</sup>:

Statement 1:	$ATTEN \cdot \sim ATTR \cdot IDENT + \sim ATTEN \cdot ATTR \cdot COMPRES \cdot IDENT + ATTEN \cdot ATTR \cdot IDENT \rightarrow InvMSI$
Statement 2:	$ATTEN \cdot \sim ATTR \cdot \sim IDENT \cdot \sim ATTEN \cdot ATTR \cdot (\sim COMPRES + COMPRES \cdot \sim IDENT) + ATTEN \cdot ATTR \cdot \sim IDENT \rightarrow \sim InvMSI$
, where:	
$\sim$	: negation ( $\sim A$ is true when $A$ is false)
$\cdot$	: logical conjunction ( $A \cdot B$ is true when both $A$ and $B$ are true)
$+$	: logical disjunction ( $A+B$ is true when either $A$ or $B$ or both are true)
$\rightarrow$	: if-then statement ( $A \rightarrow B$ : means if $A$ is true then $B$ is true)
<i>InvMSI</i> :	<i>investment in movement-supported industries (denotes firm responsiveness to SMOs expectations)</i>
<i>ATTEN</i> :	<i>social movement organizations have been successful at shaping the attention of decision-makers</i>
<i>ATTR</i> :	<i>social movement organizations have been successful at rendering investments in renewable energy economically attractive</i>

<sup>9</sup> This view sees organizational identity as a very powerful attribute of the organization; one that guides organizational choices in pressing ways. This is not to suggest that “an organization’s identifying features can’t or don’t change. It just means that relative to features that are significantly less central, enduring, and distinctive, they are less likely to change—to think otherwise is to operate outside of identity theory’s core focus on the need for actors to avoid acting in uncharacteristic, unrecognizable, inconsistent ways.” (Whetten et al., 2009). I elaborate on this assumption and its implications in the discussion.

<sup>10</sup> See Fiss (2007) for the use of logical statements and Boolean algebra manipulations in management research. See also Durand (2002) for a related discussion of the use of formal logic in research on competitive advantage.

*IDENT: the firm's organizational identity is consistent with movements' expectations to invest in renewable energy*

*COMPRES: the firm possesses complementary resources, i.e. its resources are applicable to an industry supported by the movement*

Further, the above Boolean statements can be minimized to the following:

St.1:  $ATTEN \cdot IDENT + \sim ATTEN \cdot ATTR \cdot COMPRES \cdot IDENT \rightarrow InvMSI$

St.2:  $ATTEN \cdot \sim IDENT + \sim ATTEN \cdot ATTR \cdot (\sim COMPRES + COMPRES \cdot \sim IDENT) \rightarrow \sim InvMSI$

These statements suggest a preeminent role of organizational identity in conditioning the non-oppositional influence of SMOs on firms' choice to invest in movement-supported industries. In fact, it appears that organizational identity consistent with movements' expectations is a necessary condition to render these influence activities effective. As for complementary resources, this condition is an INUS condition, an "*Insufficient but Necessary part of a condition which is itself Unnecessary but Sufficient for the result*" (Mackie, 1965, quoted in Durand, 2002); in the second causal path of St.1 we see that COMPRES is insufficient for the result as it needs to be accompanied by three other conditions ( $\sim ATTEN$ ,  $ATTR$  and  $IDENT$ ); it is further a necessary part of that condition, which itself is sufficient for the result - but not necessary, as another causal path ( $ATTEN \cdot IDENT$ ) exists that can produce the same result.

On the other hand, an identity that is at odds with movement expectations does not appear as necessary to lead firms to the opposite choice (not to invest), as the second causal path of St.2 suggests. An inconsistent identity ( $\sim IDENT$ ) appears as an INUS condition in shaping the outcome 'non-investment in movement-supported industries'. Lastly, both complementary resources (COMPRES) and their absence ( $\sim COMPRES$ ) are INUS

conditions, as they both appear in configurations that lead to this outcome (see the second and third causal paths of Statement 2, expressed by the two parts of the parenthesis).

Using the above statements one can derive the following propositions regarding (i) the conditions under which the identified social movement influence activities lead firms to invest in movement-supported industries, and (ii) the conditions under which these social movement influence activities fail to lead to investments in in movement-supported industries:

*Proposition 3a: When SMOs are successful in shaping the attention of decision-makers, a firm will invest in a movement-supported industry when such an investment is consistent with the firms' organizational identity.*

*Proposition 3b: When SMOs are not successful in shaping the attention of decision-makers, a firm will invest in a movement-supported industry when the movement has rendered the industry economically attractive, the firm possesses complementary resources, and such an investment is consistent with the organizations' identity (all must hold).*

*Proposition 4a: When SMOs are successful in shaping the attention of decision-makers, a firm will NOT invest in a movement-supported industry when such an investment is at odds with the organizations' identity.*

*Proposition 4b: When SMOs are successful only in rendering renewable energy economically attractive, a firm will NOT invest in a movement-supported industry when either of the following holds: (a) the firm does not possess complementary*

*resources, or (b) it does possess complementary resources but such an investment is at odds with the organizations' identity.*

## 5. Discussion and conclusions

This essay suggests that by contributing to the birth of new industry segments, social movement organizations have an impact on business organizations' strategies. They exert their influence on firms by making alternative fields more attractive and by changing the perceptions and attitudes of organizational members. Managerial cognition is predicted to determine decisions to invest in movement-supported industries, and SMOs role is critical in directing managers' attention to alternative opportunities and industries such as renewable energy. The attractiveness of these industries to current and potential employees provides firms with an incentive to invest, as does the resolution of uncertainty and the market demand that social movements contribute to, in combination with the role of these organizations in shaping policy frameworks. Lastly, this theory also suggests the conditions under which the non-oppositional mechanisms of social movement influence will succeed or fail to lead to the desired (by movements) response. Firms' responses are conditioned by the two organizational attributes that we consider in a non-symmetric manner. Organizational identity and complementary resources are theorized to facilitate firms' decisions to invest in movement-endorsed industries in quite similar ways; however, they operate differently with regard to firms' decisions not to invest, with organizational identity appearing more powerful in its constraining role.

### ***Methodological strategies***

This last point requires further clarification. As discussed in a footnote above, the predictions are based on the strong contention of identity that is assumed in this essay. Yet, this does not mean that the above propositions will need to be modified to account for weaker or unformed identities. A fuzzy conception of organizational identity is proposed (King, Clemens and Fry, 2011), one that allows for different grades of membership in a set that is defined by the identity of the organization (e.g. the set of ‘responsible companies’ or the set of ‘credit unions’). As per this view, certain organizations have full membership in a specific set; other firms clearly do not belong to it; and yet others may lie at different positions in between these two extremes (cf. Hsu, Hannan and Kocak, 2009), either because they are still in their formative years, or because they have simply never established a strong organizational identity. Therefore, the impact of identity is allowed to vary depending on a firm’s grade of membership in an identity cluster or category. Firms whose organizational identity determines them as full members of a category will find it extremely hard to act in ways inconsistent with that category, as opposed to firms that have not clearly defined ‘who they are’. Similarly, whether firms have the resources that are complementary and can be applied to a certain industry can rarely be inferred unambiguously; these blurred boundaries can be accounted for by placing firms in different positions with regard to a fuzzy set (Zadeh, 1965) of resource complementarity (with firms having differing grades of membership in the set).

Importantly, this approach does not call for dichotomous variables, as the propositions of this paper seemingly call for. Rather, using fuzzy sets, which do not restrict set membership to binary values of 0 or 1 (consistent versus inconsistent identity; complementary versus unrelated resources; successful versus not successful SMO influence;



responsiveness versus non-responsiveness) one can define set membership scores between these two extremes (see Fiss, 2007 for a more detailed explanation). Rigorous empirical testing of logical propositions can be achieved using configurational methods, in particular fuzzy-set Qualitative Comparative Analysis (Fiss, 2007, 2011; Ragin, 1987; Schneider and Wagemann, 2012), a technique that is especially appropriate for examining synergistic or conditional effects (Fiss, 2007; Ragin and Sonnet, 2004) such as the ones that appear in Propositions 3a-4b.

## **Contributions**

This study speaks to the observations by Lounsbury *et al.* (2003) that contemporary organizational analysis is rather disconnected from the study of the broader society and that little work examines how social movement organizations contribute to shifts in economic organization. It suggests that the attention of organizational members can be shaped by social movement actors, and thus lead to changes in business strategy. Moreover, it is argued that consumer demand for products or services aligned with movement goals and favorable regulatory frameworks do not appear in a vacuum; they result out of SMOs' struggles to shift extant institutional arrangements in order to deliver economic systems that contribute to their goals. The first part of the paper, by considering the means by which SMOs influence firms, directly addresses questions of 'how', contributing to a better theoretical understanding (Bacharach, 1989; Davis and Marquis, 2005) of the mechanisms by which social forces bear upon business agendas. It thus advances recent research examining the impact of social movements and activists on organizations (e.g. Davis *et al.*, 2008; de Bakker and den Hond, 2007; Hiatt *et al.*, 2009; Ingram, Yue and Rao, 2010; King and Soule, 2007; Soule, 2009; Reid and Toffel, 2009;), and reveals some of the forces that lead to change in the economic

institutions of our time. Eventually, this study contributes to our understanding of how historical socio-economic shifts marked by increasing concerns about sustainable development have their impact ‘on the ground’ (Lounsbury and Ventresca 2002; Davis and Marquis, 2005).

Most importantly, in departing from the common assumption that social movements and firms have divergent interests (de Bakker *et al.*, 2013:574), this essay contributes to social movement theory. It adds to the literature a theoretical account of the non-oppositional role of social movements; a role that has received limited attention in analyses of social movements’ impact on firms. Moreover, it underlines the importance of the social context for firm strategy (Oliver, 1997) and contributes to the current literature on how organizational characteristics lead firms to respond differently to social movements. Reid and Toffel (2009) recently called for more research examining “*when and how firms respond [to activist pressures]*” (p.1157), and some work has already appeared to address this call (King, 2008; Waldron, Navis, and Fisher, 2013; Weber *et. al.*, 2009). This research has examined how organizational characteristics shape the responses of firms that are targeted by activist campaigns, or those of non-targeted firms that are engaged in similar contentious practices. We add to this stream of research by identifying organizational attributes as conditions that activate or mute the impact of non-oppositional activist actions; actions that are not directed against firms for contentious practices, but that are meant to garner attention, elicit value orientations, and promote the economic viability of sectors that are favored by social movement actors.

Lastly, this paper brings social movement research closer to the study of sustainability. It examines some of the social forces that lead private business organizations to invest in industries that contribute to socio-economic shifts; shifts that do not undermine

the environment at the expense of economic prosperity. While research on business and sustainability has taken off (e.g. Gladwin *et al.*, 1995; Shrivastava, 1995; Steurer *et al.*, 2005), a central message of the sustainability paradigm that firms have a responsibility to attend to environmental (and more widely social) needs besides economic ones (Gladwin, 1992) is contested and still not widely embraced in the business world (Margolis and Walsh, 2003). However, this work shows that even under the current regime firms do invest in environmentally sustainable industries, and explicates some of the mechanisms by which social movement organizations drive them to do so.

### **Limitations and future research**

In this paper we have set out to explore how the attempts of social movement organizations to promote new economic sectors are linked to firm responsiveness, in the form of investments in those sectors. It is important to recognize that, as one of the first attempts to explain this relationship, this essay has several limitations that point to additional questions. First and foremost, this paper does not encompass the full range of social movement activity. For reasons discussed above, the focus was on the role of movements in directing firms into new practices rather than away from existing ones. Moving away from the disruptive nature of social movements and a perception of movement organizations as carriers of ‘placards and bumper stickers’ and ‘absolute rejection’ (Meyer, 1992), I hope to redirect the focus of research on social movements and business organizations and spur further research in this area. A fruitful direction for future work is the incorporation of the non-confrontational tactics of social movement organizations, and specifically the tactics they utilize to promote practices consistent with their goals. There is ample space for such research endeavors, as

these types of tactics have been largely ignored by work that examines how movements lead to corporate change.

A second limitation of this paper is the treatment of responsiveness to social movement expectations as a monolithic concept. This analytical choice does not reflect a belief that responsiveness does not take different forms; instead, to limit the scope of the paper we assumed away the degree of responsiveness (e.g. the level of investments in movement-supported industries) and the level of procedural commitment to movement expectations (Philippe and Durand, 2011). While the extent of responsiveness can be directly assessed empirically using a fuzzy-set approach - as discussed above, further research could investigate the role of procedural commitment to social movement expectations and illuminate how SMOs campaigns may trigger different forms of responsiveness. Similarly, this essay has not touched upon the issue of whether firms respond substantively or conform symbolically (Fiss and Zajac, 2004; Meyer and Rowan, 1997; Westphal and Zajac, 2001). We suspect that symbolic behavior would be more linked to the disciplinary role of SMOs whereby they target firms or entire industries for detrimental practices. Firms will be less likely to engage in symbolic behavior in response to non-oppositional actions, as they are not faced with threats but with opportunities that they may decide to exploit or not, depending on their organizational attributes. This, however, remains a speculative argument and in reality social movement organizations provide both opportunities for firms and perform a disciplinary role. Therefore, in the context of a fuller theory of social movement influence on firms, discovering when firms engage in symbolic or substantive action could provide valuable insights.

Third, while this paper is important for illuminating how different firms respond to similar socio-institutional expectations, it has only scratched the surface of the conditions that

may moderate SMOs' influence on firm behavior. Organizational identity and firms' resources are assumed central for our understanding of which opportunities firms will identify, consider relevant, or eventually attempt to exploit. Therefore, they have an important impact on how firms will act in response to non-oppositional SMO influence. Besides these two attributes, however, other firm characteristics may be important in conditioning firms' responses. But an identification of *all* possible such contingencies is beyond the scope of this essay and perhaps exceedingly complex for a single study to investigate. As we advance scholarly understanding of the interaction between movement organizations and firms, we hope that future theoretical accounts and cumulative empirical evidence will provide us with a fuller appreciation of these contingencies. Similarly, the theoretical investigation of SMO characteristics that can explain further variation in the power of movements to shape firms' strategies presents itself as a fruitful avenue for future research.

The mechanisms described herein are assumed to have broad generality, and social movement organizations are expected to influence firms' decisions to invest into fields that are aligned with their goals in diverse areas of business conduct. The boundaries of this theory will be determined chiefly by the extent of interest of SMOs for the development of new business practices or industry segments and their ability to act. But future research is needed to empirically test our arguments and determine its precise boundaries. Some of the issues we have discussed have general acceptance by the public. For instance, the protection of the environment is a widely accepted goal in modern society (Rucht, 1999). Complementary insights could be gained if scholars examine whether our predictions hold when SMOs support causes that face greater opposition. Studies could consider, for instance, the influence of SMOs promoting religious rights in the workplace. Similarly, scholars could design studies where opposition is more prominent even within the field of renewable energy.

The presence of strong environmental organizations has been positively linked to the development of the wind energy industry (e.g. Sine and Lee, 2009; Vasi, 2011), but in many cases the goals of the broader movement are in conflict with those of local NIMBY (not-in-my-back-yard) movements or of NGOs dealing with the protection of birds. Examining such cases at the local level constitutes one way to extend this theory and consider the role of both movements and counter-movements in shaping firm behavior.

## **Conclusion**

The central message of this essay is that social movement organizations are able to induce firms to invest in new practices by contributing to the formation of economic institutions aligned with their goals. Surely, a claim that the propositions of this essay constitute the complete agenda for explaining SMOs' influence on firms would not do justice to the complexity and richness of this topic. However, the goal is not to be exhaustive; it is to offer a starting point for future research and to highlight the benefits of moving away from the punitive role of social movement organizations and placing more emphasis on their non-oppositional character. Organizations that align themselves with the goals of a social movement often attempt to influence regulation and consumer preferences, struggle to bring attention to socio-environmental issues, educate entrepreneurs, innovators and managers, to contribute eventually to shifts in business strategies and to the formation of new industries and market segments. The tactics by which they do so remain largely unexplored, and the efficacy of these tactics compared to traditional confrontational activities directed against existing business practices poses an intriguing puzzle for scholarship in this area.

## 6. Figures and Tables

Row #	Social influence mechanisms		Organizational attributes		Predicted outcome
	Shaping the attention of decision-makers	Rendering movement-supported industries attractive	Organizational identity	Complementary resources	Investment in renewable energy industries
1	No	No	Not considered		
2	Yes	No	Inconsistent	No	No
3	Yes	No	Consistent	No	Yes
4	Yes	No	Inconsistent	Yes	No
5	Yes	No	Consistent	Yes	Yes
6	No	Yes	Inconsistent	No	No
7	No	Yes	Consistent	No	No
8	No	Yes	Inconsistent	Yes	No
9	No	Yes	Consistent	Yes	Yes
10	Yes	Yes	Inconsistent	No	No
11	Yes	Yes	Consistent	No	Yes
12	Yes	Yes	Inconsistent	Yes	No
13	Yes	Yes	Consistent	Yes	Yes

***Table 1 – Truth table for hypothetical combinations of conditions and predicted outcome***

## 1. Abstract

This paper investigates the strategies of firms operating in industries favored by social movement organizations. We theorize that the local support for social movement organizations that endorse a specific industry leads firms to increase their commitment to that industry. Firms interpret social movement organizations' support as a signal of local social preferences, i.e. a confirmatory proof that the sector is promising, and are influenced by the legitimacy accounts produced by these organizations. Using a longitudinal dataset of solar photovoltaic producers operating across European Union countries we find support for these predictions. Our analyses demonstrate that producers increase their commitment to the industry more under the influence of environmental movement organizations' support. This finding suggests that social movement organizations are often able to reinforce firms' strategies, and that they can elicit firm responses that go well beyond symbolic adherence. Further, their effect is found to be stronger for firms with larger relative past commitments and weaker for diversifying entrants, uncovering important differences in how firms are shaped by social movement organizations. We discuss the implications of our findings for the literature on social movements and organizations and for strategic management research.

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<sup>11</sup> This paper is co-authored with Professor Rodolphe Durand. Previous versions of this paper have been presented at the Alliance for Research on Corporate Sustainability (ARCS) annual conference 2013, the Academy of Management (AoM) annual meeting 2013, and the Strategic Management Society (SMS) annual conference 2013.



## 2. Introduction

In 1992, Greenpeace Germany obtained orders from 70,000 people for an alternative refrigerator that did not use greenhouse gases, encouraging a manufacturer to actually bring it to the market.<sup>12</sup> In the late 1990s, Greenpeace Netherlands was able to collect the names of 15,000 people willing to buy solar photovoltaic (PV) modules in a campaign to promote the industry. In Spain, environmental activists toured the country with a solar-powered caravan to demonstrate to the public that solar electricity works. In 2001, Greenpeace partnered with the European Photovoltaic Industry Association (EPIA) to produce a report forecasting the long-term future of solar energy, a report that received a great deal of attention within industry circles and led to many subsequent reports by the two organizations in the years that followed.<sup>13,14</sup> As these examples illustrate, social movement organizations, “*organizations which identify their goals with the preferences of a social movement and attempt to implement those goals*” (McCarthy and Zald, 1977:1218), often endorse particular sectors, thus providing benefits to producers operating in these industries and potentially supporting their strategies. Yet, prior research has provided limited insights into the ways by which social movement organizations (SMOs) reinforce firms’ existing strategies. In this paper we examine to what extent the local support for SMOs that endorse a specific industry leads industry participants to increase their commitment to that industry. We further hypothesize that some firms will increase their commitment to the industry more than others, even if they operate in the same local institutional environments.

The question of how social movements impact firms has received considerable attention in recent years (Davis, McAdam, Scott and Zald, 2005; Davis, Morril, Rao and

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<sup>12</sup> Source: <http://www.greenpeace.org/usa/Global/usa/binaries/2009/4/greenfreeze-in-europe-and-asia.pdf>

<sup>13</sup> Source: Photon International.

<sup>14</sup> Murray Cameron (EPIA’s secretary general at the time) later called the 2001 joint EPIA-Greenpeace report one of the highlights of his stewardship (source: Photon International, 2002/10).

Soule, 2008; Soule, 2009). A number of studies have focused on the impact of activists and social movement organizations as they engage in direct confrontation with firms (e.g. den Hond and de Bakker, 2007; King, 2008; King and Soule, 2007; McDonnel and King, 2013; Lenox and Eesley, 2009; Ingram, Yue and Rao, 2010; Weber, Rao and Thomas, 2009), while some scholars have also investigated the indirect influence of activism on non-targeted firms (Reid and Toffel, 2009; Waldron, Navis and Fisher; Yue, Rao and Ingram, 2013). Much knowledge has been gained about why firms respond to social movement actions. Direct operational costs due to activist action, as well as negative media coverage and uncertainty or threats linked to corporate reputation and legitimacy appear to be the primary mechanisms by which activist groups influence firms (Lenox and Eesley, 2009; King, 2008; King and Soule, 2007). At the same time, a related research stream has started to examine how social movement organizations bring about social change by ‘framing’ solutions or creating meaningful categories that foster entrepreneurial activity, shape political institutions and enable the emergence of new industries (Hiatt, Sine and Tolbert, 2009; Lounsbury, Ventresca and Hirsch, 2003; Sine and Lee, 2009; Vasi, 2009, 2011; Weber, Heinze and DeSoucey, 2008). The findings of these studies also suggest that geographic heterogeneity in the support (e.g. in terms of membership) for social movement organizations shapes how influential they will be (Hiatt *et al.*, 2009; Kassinis and Vafeas, 2006; Lee and Sine, 2007; Schneiberg, King and Smith, 2008; Sine and Lee, 2009; York and Lenox, 2013).

Despite these valuable contributions, however, an important area of inquiry remains largely unaddressed; namely, the investigation of how firms operating in industries supported by movements are influenced by SMOs. We see two reasons that have contributed to the lack of studies in this area. First, the emphasis of prior research on confrontation between SMOs and firms (Morrill, Zald and Rao, 2003; Waldron, Navis and Fisher, 2013) has naturally warranted limited attention to firms that are engaged in industries *consistent* with the goals of

a social movement. Second, the studies that focus on how SMOs contribute to the development of new industry sectors have emphasized activists' role in framing these solutions as viable alternatives (e.g. Lounsbury *et al.*, 2003; Weber *et al.*, 2008; ) and triggering entrepreneurial activity (e.g. Sine and Lee, 2009). While this focus has led to important insights on the effects of social movement organizations at the state (Hiatt *et al.*, 2009; Sine and Lee, 2009) and country level (Vasi, 2009; 2011), given the level of analysis of these studies we still know little about how existing firms are influenced by SMOs supportive to their industry and how this influence may differ across firms (York and Lenox, 2013).

In this paper we contend that firms operating in an industry favored by SMOs both interpret SMO support as a signal of local social preferences, i.e. a confirmatory proof that the sector is promising, and are influenced by the legitimacy accounts produced by SMOs. Both factors lead them to increase their commitments to the industry. SMO support functions as evidence of legitimation of the industry and confirms the potential of the industry to secure local demand, and consequently the viability of firms' ventures. These two mechanisms combine and on average, the higher the support for SMOs, the more firms will increase their commitment to the industry. However, firms will not be uniformly affected by these two mechanisms. First, we argue that revealed social preferences will not activate a confirmatory proof mechanism independently of a firm's prior commitments. As the degree of a firm's past commitment to the industry relative to competitors increases, the firm will be more likely to see such social cues as proof that its strategy is superior and use them to justify future commitments. We thus hypothesize a reinforcement effect whereby the higher the firm's relative commitment, the more SMO support will fuel new commitments. Second, whereas SMO support reinforces commitments due to convincing legitimacy accounts, this effect will be less important for diversified (*de alio*) producers than for *de novo* firms. Diversified firms – as they operate in other areas as well - do not attend only to legitimacy cues linked to the

focal industry, nor is their survival completely dependent on the industry and its legitimacy, in contrast with *de novo* producers (York and Lenox, 2013).

We examine these ideas in the context of the solar photovoltaic (PV) industry and based on the analysis of a longitudinal dataset of solar cell producers operating across European Union countries. This industry provides a good setting to test our hypotheses as it is one championed by the environmental social movement - perhaps “*the most comprehensive and influential movement of our times*” (Castells 1997: 67) and a movement that was critical in shaping corporate practices and in facilitating the formation of renewable energy industries (Weber and Soderstorm, 2012; Vasi, 2011; Sine and Lee, 2009). Importantly, support for environmental organizations – which we proxy by the number of individual members who contribute financially to local bureaus of a popular international pro-environmental organization - exhibits considerable differences across European countries (Della Porta, Kriesi and Rucht, 2009). Moreover, both *de novo* and *de alio* firms have been active in the industry, and firms have exhibited varying degrees of commitment. These characteristics render this setting appropriate for an empirical test of our hypotheses.

The findings of this paper support our predictions and are consistent with the confirmatory proof and legitimacy account mechanisms. First, we find evidence of a residual effect of SMO support on firms’ increase in commitment to the solar PV industry once other local conditions have been accounted for. Second, our results show that solar cell producers with larger relative commitments are more influenced by SMO support in their subsequent commitments, and that *de alio* producers are less affected by SMO support compared to *de novo* firms.

This study has important implications for strategy research as well as for research on the interaction of social movements and organizations. First, our results emphasize the embeddedness of organizations in their social context (Oliver, 1997; Weick, 1996) and

underline the continued relevance of geographic heterogeneity and local influences for understanding firm behavior (Marquis, Davis and Glynn, 2011; Rivera, 2011; cf. Lounsbury, 2007). Second, our study contributes to scholarship on social movements and organizations by explaining some of the heterogeneity in how firms are marked by social movement influence (King, 2008; McDonnell and King, 2013; Waldron, Navis and Fisher, 2013; Weber *et al.*, 2009). Third, contrary to popular beliefs, we demonstrate that corporate practices can be consistent with the expectations of SMOs, and that the latter can reinforce, rather than constraint, firms' current strategies. Critically, our measure of how firms extend their commitment to the solar PV industry – production expansions – suggests that SMO support can lead firms to actions that go beyond merely symbolic adherence (Fiss and Zajac, 2006; Meyer and Rowan, 1977; Oliver, 1991; Westphal and Zajac, 1998) to movement expectations. This influence does not only appear to be substantive, but it may hold important implications for firms' long-term strategy and performance.

### **3. Social movements, firms, and industry creation**

Until recently, the increasing importance of the interplay between social movements and businesses has not been matched by research at the crossroads of organizational and social movement theory, as scholars have overemphasized the state as the target of social movements (Andrews and Caren, 2010; Schurman, 2004; Van Dyke, Soule and Taylor, 2004:28). But scholars now recognize that that much of the social change achieved by such movements comes via their effects on organizations (Soule 2009). We follow this work in identifying social movement organizations as 'carriers' of institutional pressures that exert influence on business organizations (Hiatt *et al.*, 2009; Kassinis and Vafeas, 2007; Weber, Rao and Thomas, 2009; Zald, Morrill and Rao, 2005).

Two streams of literature can serve as a point of departure for this study. The first one

concerns the impact of activists and social movement organizations on corporations, either directly or indirectly. Studies in this realm have examined the effects of shareholder activism, boycotts, lawsuits, protests and threats of government regulation (Bartley and Child, 2011; Davis and Thompson, 1994; King, 2008; King and Soule, 2007; Reid and Toffel, 2009; Yue *et al.*, 2013), and suggest that despite their relative lack of resources and formal control over firms, social movements are often effective at triggering organizational change. This work has mostly focused on cases where activists directly target firms to drive them away from contested corporate practices, and contributes to a better understanding of how social movements impact firms' actions. Firms targeted by social movement organizations respond to movement appeals to avoid operating costs, negative media coverage and drops in reputation. Moreover, firms respond to activist action that is targeted against other firms, insofar as they consider target firms to be representative of their industry and depending on whether they perceive activist campaigns as opportunities or legitimacy threats (Waldron *et al.*, 2013).

The second stream of research that is relevant to this study has taken a different perspective, one that does not emphasize social movement organizations as opposing firms. Rather, this research stream examines the influence of social movement organizations on the emergence of new industries and describes how they help create market spaces for new practices that have greater social value than existing technologies. For example, research has described the role of social movement organizations such as the Woman's Christian Temperance Union and the Sierra Club in promoting behavioral norms, educating people, and lobbying for regulation (Hiatt *et al.*, 2009; Sine and Lee, 2009) which eventually drive entrepreneurial entries and exits in sectors linked with broader societal concerns. Studies of the grass-fed meat and dairy products market and the forestry industry by Weber *et al.* (2008) and Zietsma and Lawrence (2010) respectively describe the mechanisms via which social

movement organizations operate as institutional entrepreneurs, forming and promoting new solutions and frames and thus fostering the creation of new markets by shaping boundaries around experimental spaces.

Moreover, social movement organizations can be highly influential in gaining and shaping public attention (Andrews and Caren, 2010; Vasi and King, 2012) as they are “*actively engaged in a social constructionist process as framing agents*” (Snow and Benford, 2009: 38; cf. Benford and Snow, 2000) in their efforts to influence public discourse and sentiments. Framing refers to “*the signifying work or meaning construction engaged in by movement adherents [...] relevant to the interests of movements*” (Snow, 2007). By using framing, social movement organizations can not only diagnose and highlight the problems associated with ill-favored business practices and delegitimize certain organizational practices (Hiatt et al., 2009; Weber et al. 2009), but they can also promulgate solutions which are then materialized as alternative technologies that are more in line with activists’ values and identities (Weber et al., 2008; Sine and Lee, 2009; Vasi, 2011). They frame these solutions as “*necessary, valid and appropriate*” (Rao, 1998), thus contributing to the legitimization of these practices and to greater confidence in their potential. However, our understanding of how this - less confrontational - role of social movement organizations shapes the behavior of firms engaged in industries endorsed by the focal movement is quite limited. Given that the campaigns and framing attempts of some of these groups are highly visible and receive attention not only by the public, but also by industry participants, it is very likely that they will exert ‘real’ influence on firms in these industries. We thus aim to contribute to scholarship in the area of social movements and organizations by investigating the role of environmental movement organizations in shaping the strategies of firms active in solar cell production, an industry favored by the environmental movement. Although in the rest of the paper we refer to a sub-class of SMOs, Environmental movement organizations

(EMOs), as per our empirical setting, our theory is applicable to SMOs more generally.

#### **4. Environmental movement organizations and increased commitment to solar PV**

EMOs drive and orient technological innovation, legitimize new industries and develop positive reputations for firms that address their concerns (Weber and Soderstorm, 2012). Their ability to do so depends largely on the support they can garner – EMO support is defined here as the human and financial resources that environmental movement organizations can mobilize for sustained campaigns (cf. McCarthy and Zald, 1977). To the extent that their support allows, environmental groups promote energy-saving or non-depleting energy technologies by mobilizing coalitions of advocacy (Jacobsson and Lauber, 2006), engaging consultants to write impact reports, coordinating policy papers (Koopmans, 1999), educating the public (Hiatt *et al.*, 2009; Sine and Lee, 2009), linking consumers to producers (Weber *et al.*, 2008), and articulating the technologies' benefits in the mass media. For instance, in discussing the evolution of the German solar cells industry, Jacobsson, Andersson and Bangers note “*the key role of organizations that articulate underlying values in favor of solar cells, and other renewable energy technology, and legitimate the new technology*” (2004: 23).

Although many of the issues addressed by the environmental movement transcend national frontiers, substantial differences exist between nations in terms of the support for environmental organizations (Koopmans, 2009; Marks and McAdam, 2009). These cross-national differences are so striking that they led Rootes to argue that speaking about ‘the’ environmental movement or ‘the global environmental movement’ is “*a triumph of abstraction or of aspiration over experience*” (Rootes, 2007: 632). Therefore, we suggest that cross-country variations in the support that EMOs sympathetic to PV industry can garner will shape how influential they will be at leading firms to increase their industry commitments, as



such support both indicates social preferences to justify commitment (Weber and Soderstorm, 2012) and enhances EMOs' capacity to frame perceptions and legitimize opportunities (McCarthy, Smith and Zald, 1996).

First, EMO support can be considered by firms a signal of social preferences relative to the new sectors. Where there is more support for alternative production (e.g. organic food or non-fossil energy), the demand for these new production will be higher than elsewhere (Hiatt *et al.*, 2009; Weber *et al.*, 2008). The greater the support for movement organizations, the more likely it is that firms will take this support as evidence of social preferences aligned with their industry and as an indication that their ventures and investments in the industry have potential. EMO support acts as a confirmatory proof that demand exists and helps justify greater commitment targeted at new production.

Second, as EMO support increases, so does the capacity of EMOs to develop legitimacy accounts that, by modifying public discourse and the social context in which firms operate, influence how managers of firms active in movement-supported industries perceive their industry. By accentuating and highlighting some issues more than others (Snow, 2007), EMOs' legitimacy accounts modify the cues to which decision-makers attend and alter how they perceive opportunities in their industry (Hoffman and Ocasio, 2001; Kennedy and Fiss, 2009; Ocasio and Joseph, 2005). EMOs tend to be selective in their discourse and employ an optimistic rhetoric of change (Gamson and Meyer, 1996), praise 'green champions' while ignore or condemn other firms, and tout successful initiatives. The greater the EMO support, the more convincing is the framing that legitimizes firms' active participation and commitment into new industries, and the more likely firms will commit further.

In sum, we propose that firms will increase their commitment to industries sponsored by EMOs more if they operate in countries where these organizations receive more support. Such support - and the corresponding ability of EMOs to engage in campaigns promoting the

industry - signals to firms social preferences in favor of their industry (confirmatory proof) and provides legitimacy accounts for the new industry. Therefore:

*H1: The greater the local support for environmental movement organizations sympathetic to the solar PV industry, the more solar PV producers will increase their commitment to the industry.*

EMO support captures two mechanisms, confirmatory proof and legitimacy accounts, that combine their effects to explain an increase in a firm's commitment. To evidence their effects independently, we consider how their impact varies depending on certain firms' characteristics. Indeed, we shall not expect that all industry participants are likely to modify their commitment identically in presence of identical levels of EMO support. EMO support functions as an indicator of local social preferences, what we call a confirmatory proof that the industry is promising. If this is correct, firms with higher needs to justify their actions will be more sensitive to consider EMO support as a confirmatory proof. As such, firms with higher prior commitment in the industry relative to competitors are in more need to justify their investments in new sectors, and will tend to take EMO support as an evidence that their prior investments in the new industry - PV in our case - are justified. Therefore, the effect of EMO support on future commitments in the PV industry will be, *ceteris paribus*, greater for firms with relatively higher prior commitments in the industry.

*H2: The greater a solar PV producer's past relative commitments to the industry, the more local EMO support will fuel new commitments by the producer.*

The second mechanism captured by EMO support denotes legitimacy accounts, which affect firms differently depending on their own focus in the industry and subsequent propensity to be influenced by social movement organizations. While some organizations are dedicated only to the new markets, other firms get involved by diversifying from existing

industries (York and Lenox, 2013). The latter, often called *de alio* firms, are less devoted to the specific industry compared to *de novo* firms, whose attention will be focused only on the industry they have been established to operate in. As attention structures in organizations govern “the values, legitimacy, and relevance accorded to the various issues and answers” (Ocasio, 1997: 201), firms which are focused on a specific industry are – *ceteris paribus* - more likely to attend to stakeholders that are salient to that industry. *De alio* firms, having more complex modes of coordination and hierarchical control structures (Bradley, Aldrich, Shepherd and Wiklund, 2011; Carroll *et al.*, 2010) which make them less focused on the industry, but also having more dubious relationships with activist groups, will be less attentive and sensitive to EMO framing strategies and legitimacy accounts (York and Lenox, 2013). For example, news items and reports by environmental organizations that reflect the increasing public support for renewable energy and the growing demand for solar production are more likely to be filtered-in by the attention structures of *de novo* firms, compared to *de alio* ventures.

In addition, the legitimacy accorded to industry participants by the actions of supportive social movements is more important for *de novo* firms. As new kinds of organizations, these ventures require ‘legitimizing accounts’ (Creed, Scully and Austin, 2002; David, Sine and Haveman, 2013), to which supportive social movements contribute (Sine and Lee, 2009; Weber and Soderstrom, 2012). Legitimacy allows firms to obtain resources more easily or under more favorable terms (Barron, West and Hannan, 1994; Deephouse, 1999; Desai, 2008), and these accounts tend to be more critical for *de novo* firms (Zimmerman and Zeitz, 2002). These firms are typically more dependent on outsiders as they lack access to resources, stable relationships with resource-granting agents, and the cognitive acceptance that *de alio* ventures possess (Baum and Oliver, 1991; Khessina and Carroll, 2008). Firms that are part of larger and established organizations can often rely on subsidies from their

origin firm when seeking financing or other resources in order to expand (Brüderl, Preisendörfer and Ziegler, 1992; Carroll *et al.*, 1996). As a consequence, *de novo* firms are not only more likely to attend to EMOs and be led to increase their commitment to the industry accordingly, but they are also more in need of the legitimating actions of these organizations in order to access resources and realize their expansion plans. In sum, we expect that *de alio* ventures will be less likely than *de novo* firms to increase their commitment to the industry as a function of EMO support.

*H3: De alio solar PV producers will increase their commitment in response to the influence of EMO support less than de novo producers.*

## 5. Setting, data and variables

**Setting.** We test our theory in the European solar photovoltaic production industry, using a unique dataset of solar cell producers operating in European Union (EU) countries from 1990-2011. Several criteria guided our choice of setting. First, the solar photovoltaic industry has grown into a very important sector of economic activity; today an US\$ 80 billion industry<sup>15</sup>, in 2011 it became the first renewable technology to surpass conventional energy technologies in terms of new installed capacity in the EU<sup>16</sup>. In the midst of continuous disputes between firms, environmental activists, regulators, and the public, the PV industry has recorded double-digit global growth rates almost every year since the early 90s - and, until recently, European companies have been responsible for a substantial share of this impressive growth. Second, our motivation for this study stemmed from an interest in uncovering the influence of social movement organizations on established firms'

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<sup>15</sup> [www.pvgroup.org/sites/pvgroup.org/files/docs/SEMI-PVGrp\\_WhPpr\\_MnfctrngSlrPV.pdf](http://www.pvgroup.org/sites/pvgroup.org/files/docs/SEMI-PVGrp_WhPpr_MnfctrngSlrPV.pdf)

<sup>16</sup> Based on data presented at the Intersolar 2012 Conference by the European Photovoltaic Industry Association.

commitment to emerging industries. It follows that the chosen industry must be of some interest to a social movement. Anecdotal evidence suggest that environmental movement organizations have championed solar energy and attempted to promote photovoltaic technology despite its cost disadvantages over many years (see Jacobsson *et al.*, 2004; Jacobsson and Lauber, 2006). The increased socio-environmental benefits that are linked to the use of solar energy as opposed to other technologies (EPIA, 2008; EPIA and Greenpeace, 2001; Flamos, Georgallis, Doukas and Psarras, 2009; Jäger-Waldau, 2007) have rendered solar PV one of the industries most favored by the environmental movement. Third, our interest in studying the influence of environmental movement organizations across countries calls for an industry with firms operating in countries which exhibit varying levels of support for such groups – as is the case in EU countries (Kousis, Della Porta and Jiménez, 2008). Finally, EMOs’ activities receive attention from industry participants, as reflected in the specialized business press. For instance, during the past decade, many of the monthly issues of Photon International (a leading trade magazine specialized in the solar photovoltaic industry) included references to Greenpeace, WWF, or Friends of the Earth. The bulk of these references were not to report confrontational activities by these NGOs, but to discuss tactics intended to promote the PV industry (such as the ones described at the outset of this paper). Thus, overall, the EU solar PV cells industry provided a very good setting to test our hypotheses.

**Data.** We use a sample of all solar cell producers that are listed as operating in the EU according to the annual lists of solar cell producers of *PV News*, for the period 1990 to 2011<sup>17</sup>. *PV News* is the world’s oldest surviving solar PV industry newsletter. Interviews with industry experts suggested it as a highly reliable and complete source of information on solar

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<sup>17</sup> We focused on firms in the European Union (in particular countries that were EU-members from the beginning of our observation period) to ensure homogeneity in the transnational environment that firms face while retaining cross-country differences in EMO support (these are discussed below).

cell production activity worldwide, and the only source available with such a long coverage. Data availability reasons led us to focus on solar cell producers: one of the most capital-intensive stages in the solar PV value chain, solar cell production is a multi-billion dollar sector. While this leads to the limitation that relatively few firms were active in this field, it also provides a benefit in reducing the possibility that certain firms would enter for merely symbolic reasons (Tolbert and Zucker, 1983). Concerning the period of analysis, although PV News started to issue the annual lists of solar cell producers earlier, we began our observation period from 1990 because data on our main independent variable were unavailable before that year. The window of observation ends in 2011, the last year with available data. Our final dataset is an unbalanced panel of 315 observations corresponding to 51 firm/country dyads that are present in our sample for an average of 6.17 years and appeared in 8 different EU countries<sup>18</sup> during our observation period (1990-2011).

**Dependent variable: production expansion.** Firms' increase in commitment was proxied by their production expansion, i.e. the year-to-year change (growth) in their production. We first coded firms' annual production of solar PV cells in Megawatts (MW) in each country as it appeared in the *PV News* archive<sup>19</sup>. The dependent variable was then constructed as the firms' production increase in year  $t$  relative to year  $t-1$  for each country where it operates (and hence can take both positive and negative values). Thus, our dependent variable is a firms' *Production expansion* in a given country and year, with the unit of analysis being the firms' operations in a given country and the unit of observation being the firm/country/year triad.

**Independent variables.** To account for cross-country variation in EMO support we follow prior research, which relies on patterns of membership in prominent environmental

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<sup>18</sup> Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, and the UK.

<sup>19</sup> The reliability and completeness of the production information reported by PV News was verified by consulting industry professionals and interviewing the current and the former (founding) editor of PV News. We also cross-checked the data against a survey of another industry journal, PHOTON International, from a randomly chosen year (2001) - virtually all firms' reported production figures for that year were similar in the two industry magazines.

organizations (Hiatt *et al.*, 2009; Lee and Sine, 2007; Sine and Lee, 2009; Schneiberg, King and Smith, 2008), and employ cross-country data on Greenpeace supporters. One of the benefits of using data from the same transnational environmental organization is that it facilitates cross-national comparison, eliminating concerns about NGOs' divergent definitions of 'membership' (Rootes, 2007: 626).

We chose to focus on Greenpeace because, despite being often depicted as a radical activist group, it employs a wide range of tactics that promote alternative practices or industries as solutions to environmental problems. Greenpeace has kept rather steady and comparatively high membership rates in Europe over the last two decades, and has been the most prominent supporter of solar energy among Europe's large NGOs. The organization has set the transformation of the energy field – or the 'Energy [R]evolution' (Greenpeace, 2011) – as one of its top priorities. Greenpeace began a dedicated solar energy campaign in the early 90s, and its campaigns for promoting solar energy have been numerous, with leafleting, presenting at conferences, issuing scientific reports, radio broadcasting, or installing PV panels itself being only few of the tactics employed. An additional benefit of using Greenpeace membership data stems from the fact that this organization is characterized by a highly centralized organizational structure (Lahusen, 2009), which again facilitates cross national comparison. Despite large variation in the numbers of members, staff, or budgets in different national branches, the organization's agenda is typically defined by Greenpeace International, leaving the national offices with little leeway in shaping the priority of their campaigns – so they have very similar goals, but substantially varied resources with which to try to achieve them. Lastly, while in our definition of SMO support we speak about human and financial *resources*, more precise longitudinal data on financial strength were not available. However, using data for the period 1994-1996 that we collected from the Greenpeace International archive we found a high correlation ( $>0.8$ ) of the number of paying

supporters in a country with both the number of employees and the total budget of the corresponding national Greenpeace branch.

We used three sources to construct our *Greenpeace support* measure. First, one of the authors was granted access to the Greenpeace International archive of the International Institute of Social History, located in Amsterdam, where he coded information on the number of paying Greenpeace supporters across several countries and years. As these data were incomplete, we combined them with data on Greenpeace supporters from a study on the ratification of the Kyoto protocol that was published by the Journal of Conflict Resolution (Von Stein, 2008). The exact sources used for the latter study could not be found and we were thus not completely confident of the reliability of the dataset; we compared the data for the countries and years for which information was available in both sources and observed a correlation greater than 99%. We found these sources more reliable and complete than alternatives, such as the Encyclopedia of Associations, which we also consulted. We therefore combined these two sources with data from annual reports of Greenpeace national branches to construct the variable *Greenpeace support* as the number of paying Greenpeace supporters in a focal country. A few values were still missing after this procedure, which we imputed using linear interpolation (cf. Sine and Lee, 2009; York and Lenox, 2013).

The second hypothesis suggests an interactive effect between movement support and firms' relative commitments. We expect that the higher the relative commitment of solar cell producers, the greater will be influence of Greenpeace support. We created the variable *production share*, which measures the ratio of a firm's production over the total PV industry production for the focal year (as reported in *PV News*). To test hypothesis 2, we multiplied this variable by the corresponding value of *Greenpeace support*. The third hypothesis refers to de alio vs. de novo firms. To create our variable, we relied primarily on PV News to determine the organizational pre-history (Sosa, 2013) of PV producers and hence distinguish



*de novo* from *de alio* ventures. When we could not find evidence of a firm having a presence in any industry prior to its entry in solar PV (assuming it was a *de alio* entrant), we consulted other industry trade journals, reports by the International Energy Agency Photovoltaic Power Systems Program, solar producers' corporate websites, and documents on the history of solar PV. Firms were classified as *de novo* only when this search was completed and no evidence was found on the firm engaging in other activities. Finally, after classifying all producers we created a dummy variable which takes the value of 1 if a producer is a *de alio* firm and zero otherwise. This variable is interacted with *Greenpeace support* to test hypothesis 3.

**Control variables.** In addition to the variables used to test our hypotheses, we included in the model several producer characteristics, country-level variables, as well as market characteristics. First, as our dependent variable is the expansion of a firms' production in a given year, we expect that firms having large solar PV operations will tend to expand more than their rivals. We therefore control for solar producers' *size*, i.e. the size of the firm's current PV production in the focal country. We also control for producers' *tenure in the industry*: the cumulative number of years the firm has been active in producing solar PV cells in each country, as it may influence their propensity or even their ability to expand. Moreover, to account for potential competitive effects or expansion bandwagons we control for the total *expansion of rivals* in the firm's country.

Country characteristics may also influence firms' commitment to the PV industry. We control, for instance, for the *population* of each country, as larger countries naturally tend to have a greater number of supporters for environmental groups. We also include a variable to account for *electricity prices*, since demand for renewables tends to be greater where electricity prices are higher and environmental movement activists may find it easier to promote renewable energy in such countries. To account for the fact that greater governmental investments in solar PV research, development and demonstration (RD&D)

may create favorable resource conditions for the industry to flourish in certain countries, we control for *governmental RD&D support*, the per capita budget of a country on research, development and demonstration for solar PV. The data for this variable were taken from the International Energy Agency, and missing values for some years were imputed using stata's *ipolate* command. Lastly, public policies may be very important for shaping firms' commitment to the industry. The most influential and widely used mechanism for the promotion of solar PV in Europe has been the feed-in-tariff (FiT) scheme (Flamos *et al.*, 2009; Jacobsson and Lauber, 2006), a support scheme by which governments guarantee to purchase electricity produced from renewable energy at a premium rate, or tariff, for a specific number of years. The primary characteristics of the FiT scheme are the price of the tariff and the duration. These two were highly correlated, but since prices exhibited substantial within-country variation we used the *feed-in-tariff duration* in each country to control for the effect of the policy environment.

Clearly, demand growth can have a positive impact on increases in commitment (Gilbert and Lieberman, 1987; Henderson and Cool, 2003a), and higher growth may also provide a 'framing tool' for social movements to draw attention to solar PV and portray the industry as a viable opportunity. Following prior research (cf. Henderson and Cool, 2003a, 2003b; Pacheco-de-Almeida, Henderson and Cool, 2008), we use a region's (here the EU is the relevant region) 4-year historical compound annual rate of production growth (CAGR) as a proxy for *demand growth*. Additionally, although demand for solar cells grew every year during our observation period, this increase was highly uncertain from year to year. As greater uncertainty about growth in demand could have deterred companies' expansion plans, we created the variable *growth uncertainty*, using the standard deviation of the 4-year CAGR in demand growth.

## 6. Models and Results

The results of a Breusch-Pagan / Cook-Weisberg test rejected the null hypothesis of constant variance ( $p\text{-value} < 0.01$ ), indicating the presence of heteroskedasticity. Moreover, the Wooldridge test for autocorrelation in panel data suggested the presence of serial correlation ( $p\text{-value} < 0.05$ ). Therefore, we could not use OLS to test our hypotheses, and opted for a Generalized Least Squares (GLS) model. As one of our main explanatory variables did not exhibit variation across time for each firm, we estimated a random effects GLS model with heteroskedasticity robust standard errors adjusted for clustering on our unit of analysis. Note that we also performed the same analyses using country level clustering and confirmed the robustness of our findings (see section ‘additional tests’). To account for the fact that temporal precedence is one of the main requirements for testing causality, the dependent variable is measured a year after the predictor variables.

Table 1 reports descriptive statistics of all the variables. As some pairs of variables exhibit relatively high absolute correlations, we standardized the continuous predictor variables before running the models to remove non-essential collinearity (Aiken and West, 1991; Dalal and Zickar, 2012), a process that does not influence statistical conclusions, but reduces multicollinearity and facilitates comparison among the sizes of the different variables’ effects (Dalal and Zickar, 2012).

--- Insert Tables 1 & 2 about here ---

Table 2 presents the results of the random effects GLS model. In Model 1 *production expansion* is regressed on the control variables. As the model shows, absent the independent variables, four of the control variables are statistically significant. Electricity prices appear as the most powerful predictor of a firm’s expansion in solar PV production. In countries with high electricity prices solar producers tend to increase their production more as they view this as a growth opportunity. Moreover, as we predicted, demand growth and uncertainty have

positive and negative – respectively – significant coefficients. Lastly, firms with longer tenure in the industry tend to expand less than others, as the coefficient of tenure is negative and marginally significant. Surprisingly, our proxy for the regulatory environment, *Feed-in-tariff duration*, was insignificant. We suspected that this is because the main function of favorable policies is to promote demand for renewable energy, and since we account for demand growth, the effect of FiT duration is absorbed. Indeed, in additional tests we found that this variable is significant when we exclude demand growth.

To test our theory we add the variable *Greenpeace support* in Model 2. Its coefficient is positive and significant, providing strong support for Hypothesis 1. Greater support for environmental movement organizations leads solar PV manufacturers to larger production increases. Our second hypothesis postulates that the impact of environmental movement organizations' support is stronger for firms with higher relative commitments. The variable *production share* is added in Model 3, and the corresponding interaction term is added in Model 4. This interaction term is positive and significant<sup>20</sup>, which confirms our expectation that firms with a larger production share will increase their commitment to investments that coincide with environmental movements' orientations more, supporting H2. Figure 1 gives a graphical representation of the impact of *Environmental movement support* on PV production expansion for low and high values of production share (-1 and +1 standard deviation, respectively), and shows that the slope is steeper for firms with greater production share.

To test hypothesis 3 we include the *de alio* dummy in Model 5, and in Model 6 we also add its interaction with *Greenpeace support*. The results show that being a *de alio* producer does not, ceteris paribus, lead to significantly lower expansions (the coefficient is negative but not significant or just marginally so in Model 7). However, we find that the

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<sup>20</sup> Given that the production size of the firm is highly correlated with production share, there was a remaining concern that this result is affected by the presence of multicollinearity. Re-estimating Models 3 and 4 without this control variable did not have a substantive influence on the results, and post-estimation analyses (calculation of variance inflation factors) indicated no evidence of multicollinearity.

effect of the SMO support on firms' expansion is lower for *de alio* firms than for *de novo* producers, as the interactive term is negative and significant. To clarify this finding, observe the lower order terms in Model 6. The coefficient of *Greenpeace support* appears much higher than in the other models. This is because once we have added the interaction terms this coefficient takes on a different meaning (Brambor, Clark and Golder, 2006). While before it would be interpreted as the unconditional marginal effect of Greenpeace support on expansion, now it accounts for that effect conditional on the *de alio* dummy being zero (that is, the company is a *de novo* firm). The interaction between the social movement proxy and the *de alio* dummy suggests that an increase of *Greenpeace support* by one standard deviation above its mean would lead *de alio* firms to expand by roughly 11MW less than *de novo* firms. This confirms hypothesis 3 and demonstrates that the type of the firm conditions social movement organizations' attempts to bolster firms' commitment to their favored technologies. The final model in Table 2 (Model 7) includes all relevant control and independent variables, and confirms the support for all three hypotheses.

--- Insert Figure 1 about here ---

**Additional tests.** Table 3 presents the results of a series of additional tests we conducted to assess the robustness of our findings and eliminate alternative explanations. First, given our sample size, we were concerned about outliers that could exhibit excessive influence on the results and drive the conclusions of our study. To ensure that this is not the case, we excluded observations where either the dependent variable or the main independent variable had values greater (lower) than the median plus (minus) 3.5 mean absolute deviations (Leys, Ley, Klein, Bernard and Licata, 2013). This led to the exclusion of 14 observations. We re-estimated the full model with the remaining 301 observations (see Table 3, Model 8) and the results were unchanged. Second, given that some unobserved country characteristics may influence firms' propensity to expand, we reran the full model using clustering at the level of the country

(Model 9), a test that accounts for unobserved factors that vary between countries. We found no drop in the significance of the hypothesized coefficients. Finally, we ran additional sensitivity analyses, including the use of a generalized estimating equation (GEE) model to test our hypotheses. GEE is a population average method appropriate for data in which repeated measures may be correlated within subjects (Ballinger, 2004), which allows for non-normally distributed dependent variables, and indirectly accounts for other firm-level factors that might affect the dependent variable but are not included as controls. Analyzing our data using GEE with a first-order autoregressive correlation structure produced no substantive differences in the results (see Model 10).

Besides the overall robustness of the results, one finding that we wanted to investigate further concerns the impact of social movement support on different types of firms. Our result regarding hypothesis 3 could be attributed to the fact that some of the *de alio* firms come from industries that are actually targeted by environmental organizations as responsible for environmental wrongdoings. One alternative explanation could be that these firms are in the industry only symbolically, in response to direct targeting by activists; and if mere participation in the industry is enough for them to retain legitimacy in the eyes of the public, they will not be influenced by EMOs in their expansion choices, or at least they will be less influenced compared to other firms. To investigate this possibility we created a dummy variable that takes the value of 1 if a producer belongs to a firm involved in any of the following industries (industries from which some firms in our sample originated and are frequent targets of environmental activism): '*Oil and Gas Extraction*', '*Electric Power Generation, Transmission, and Distribution*', and '*Petroleum and coal product manufacturing*', and zero otherwise. We included this variable in the models and also interacted it with *Greenpeace support* (Model 12). In Model 11 the coefficient of this variable is negative and marginally significant, suggesting that firms that are from targeted

industries tend to increase their commitment to PV less than other firms. In Model 12 however, the interaction term is not significant, and all the coefficients that correspond to the hypothesized relationships remain significant. Therefore, this explanation cannot account as an alternative for the differences we find in how *de novo* and *de alio* firms are influenced by EMO support.

Finally, it is clear that the presence of a strong environmental movement and the support for environmental groups is often empirically confounded with a citizenry that holds pro-environmental values, and untangling the two is not always possible. A valid concern is that firms' choices may be driven by such unobserved underlying values, which also increase participation in environmental movement organizations. If these underlying values of the population are assumed unchanged then our second robustness test, where we indirectly accounted for country-specific unobserved variables, should eliminate any concerns. However, as we are looking at a long period of time with possible changes in people's attitudes towards the environment, we make an attempt to examine whether the influence that we find in this study can correctly be attributed to support for social movement organizations and is not merely an outcome of the underlying norms or values that are prevalent in a specific country. To do so, we regress the number of Greenpeace supporters on a series of known predictors of environmental values, and use the residual from this regression as the impact of the movement *above and beyond* the unobserved environmental values of the citizenry.

Building on insights from research that examines variation in environmental values or orientations<sup>21</sup> and using data from the Comparative Political Dataset (Armingeon *et al.*, 2013; Armingeon and Careja, 2004) and the World Bank Database, we regressed Greenpeace

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<sup>21</sup> See, for example, Curtis, Grabb and Baer, 1992; Curtis, Baer and Grabb, 2001; Dalton, 2005; Dekker and Van den Broek 1998; Fransson and Garling, 1999; Franzen and Meyer, 2010; Nesbit and Gazley, 2012; Samdah and Robertson, 1989; Van Liere and Dunlap, 1980.

membership at the country level on the following predictors: the population of the country, the degree of urbanization, the GDP per capita adjusted for purchasing power parity (as a proxy for affluence), the country's unemployment rate, the percentage of females in the labor force, the percentage of people enrolled in tertiary education, the country's per capita CO2 emissions (as an inverse proxy for environmental quality), the percentage of people with access to the internet (to tap into access to information on global environmental problems), and the seats of center and left parties as a percentage of total cabinet posts (as a proxy for the political orientation of the citizenry). The regression yielded an adjusted R-square of 0.604 (further details are available from the authors). We used the residual from this regression as the *unexpected impact of Greenpeace support above and beyond what would be predicted based on the environmental values of the citizenry* to re-test our hypotheses. The results appear in Table 3, model 13. The findings are very similar to the baseline results, except that the main effect is now weaker. When taken independently (unreported model) the unconditional effect of *Greenpeace support* on expansion is weaker (2.85 instead of 4.35 in model 2) and significant at the 10% level. The full model (Model 13) shows a similar pattern of results as full model 7, supporting our hypotheses. Overall, it appears that the impact of EMO support is only weakly subdued when we take into account the underlying values of the citizenry, and the differences in how firms respond to movement influence remain robust. In sum, the main models and the additional tests confirm our theoretical expectations.

## 7. Discussion

While scholarship typically views social movement organizations as opponents of firms' strategies, their role is rather different for firms that participate in sectors favored by social movement organizations. Relying on the fact that the support for SMOs varies across countries, we developed hypotheses linking EMO support to firms' increased commitment to



an industry promoted by the environmental movement, the solar photovoltaic industry. In particular, we expected that in countries with greater EMO support firms will be led to larger increases in their commitment to solar PV, as support for social movement organizations can be interpreted by firms as proof that their investments in the industry have potential, and EMOs provide legitimacy accounts to industry participants. Based on these premises, we also predicted that firms with larger prior relative commitments will be more affected by EMO support – as confirmatory proof that justifies their strategies, and diversifying entrants would be less affected by EMO support - as they are less sensitive to EMOs legitimacy accounts compared to *de novo* producers. Analysis of expansion data from European Union solar PV cell manufacturers for the period 1990-2011 lends support to all our hypothesized relationships. In countries with greater EMO support, solar cell producers expand more, and this influence is stronger for firms with greater past production share and weaker for *de alio* producers.

### ***Contributions***

This paper contributes to the literature on social movements and organizations and to strategic management research. First, as mentioned above, most research examining the influence of social movements on organizations has focused on activists' attempts to limit the negative externalities associated with corporate activity; much less attention has been paid to how social movements encourage firms' existing strategies and no study – to our knowledge – has previously linked support for social movement organizations to firms' expansion in a sector favored by activists. By revealing the influence of EMO support on solar PV firms, we extend recent work on the role of social movements as promoters of new practices (Weber *et al.*, 2008; Zietsma and Lawrence, 2010) rather than as vilifying firms' behavior (King, 2008). Our results suggest that the influence of social movement organizations on industry

development is not limited to their impact on entrepreneurial entry or regulation (Hiatt *et al.*, 2009; Lee and Sine, 2007; Sine and Lee, 2009). SMOs can also shape established organizations' decisions, and lead companies to greater commitments to emerging sectors that have positive (or less negative) social or environmental externalities.

Second, our study contributes to the nascent but growing stream of research that examines variation in how firms are affected by social movements and activist groups (King, 2008; McDonnell and King, 2013; Waldron, Navis and Fisher, 2013; Weber *et al.*, 2009). This line of work suggests that even when faced with identical social movement pressures, firms are likely to respond differently to activist influence. We extend this research by offering evidence that firms are not uniformly affected by SMO support that favors their industry. Firms are more sensitive to these organizations' influence if they are 'pure' (*de novo*) industry participants or have already invested in larger - compared to competitors - commitments to the industry.

Third, while prior studies have suggested the power of activist groups to shape corporate outcomes, some of the organizational responses studied - such as public expressions of conformity (King, 2008) or information disclosure (Reid and Toffel, 2009) - are not necessarily indicators of important shifts in firm strategy. While responding in these ways does signal that corporations take social movement demands seriously, it does not exclude the possibility that such responses could be symbolic, rather than substantive, acts of conformity to movement appeals. Recent work has started to alleviate this concern, by showing for example that boycotts can lead to increases in the number of corporate social initiatives by firms (McDonnell and King, 2013), inarguably a more costly response and less likely to be merely symbolic. By demonstrating the link between EMO support and firms production expansions - a variable that is at the core of firms' strategic considerations - this paper provides even stronger evidence that movement actions can have a substantive impact

on firm strategy.

Moreover, this study complements research on expansion decisions by putting firms' social contexts squarely in the center of attention. Research suggests that the strategies firms adopt are partly molded by their country contexts (Rivera, 2010; Rivera, Oetzel, DeLeon, and Starik, 2009). Most studies of expansion decisions tend to focus on firm and industry characteristics (e.g. Henderson and Cool 2003a, 2003b; Pacheco-de-Almeida *et al.*, 2008) and have glossed over the role of firms' social contexts in determining their expansion choices. We contribute to this research by showing that firm expansion in the solar PV industry is positively linked to EMO support, and begin to answer the question of how social movement agendas are incorporated into managerial strategies (Zald *et al.*, 2005). Thus, this study stresses both the importance of the social context for firms (Oliver, 1997; Weick, 1996), and the continued relevance of geographic heterogeneity for understanding firms' strategic choices (Marquis, Davis and Glynn, 2011; cf. Lounsbury, 2007).

Empirically, our study contributes to the literature in two ways. First, the number of cross-country studies investigating the outcomes of social movement activity is quite limited compared to that of studies of single-country movements. Research of movement outcomes has been even narrower, generally overemphasizing government policy as an outcome of social movements' actions (see Giugni, 1998 for a more elaborate discussion of these two literature gaps). This paper responds to these gaps - and to a recent call by King and Soule (2007) for research on activist influence across a variety of contexts - by examining the impact of EMO support on firms that operate in different countries. Our findings reveal that concerns about the lack of such research are fully warranted: cross-country heterogeneity in social movement organizations' support can offer insights into the behavior of business organizations, one of the most prominent targets of SMOs (den Hond and de Bakker, 2007; Soule, 2009). Second, this study is among the first to examine the impact of SMO support

above and beyond the underlying norms or values of the citizenry (cf. York and Lenox, 2013). We demonstrate that SMO support matters even after we account for the underlying values of the population, albeit to a slightly lesser extent. While this finding appears to be reassuring for the empirical research on social movements and organizations that has not taken norms or values explicitly into account (e.g. Hiatt, Sine and Tolber, 2009; Schneiberg, King and Smith, 2008), we believe that future empirical work should incorporate values more centrally to better isolate the effect of social movement organizations on firms and industries.

### ***Limitations and future research***

Clearly, our work cannot be generalized to every setting. The results of this study on solar PV producers, combined prior findings (Lee and Sine, 2007; Sine and Lee, 2009; Vasi, 2009, 2011) on the wind power sector, are indicative of the impact of social movements on renewable energy industries. The broad scope of these studies gives us confidence about the external validity of their findings, which point to related conclusions in different geographical areas and levels of analysis; while our work focuses on established firms in the EU, Sine and Lee's (2009) study focuses on entrepreneurial activity in the US, and Vasi's cross-country studies investigate the influence of social movements on industry creation worldwide. Besides these sectors, we expect the conclusions of our research to be generalizable to other fields where social movements operate by trying to direct firms' investments towards technologies of greater social or environmental value. Future research could identify the boundaries of our theory in terms of its generalization to other industrial settings.

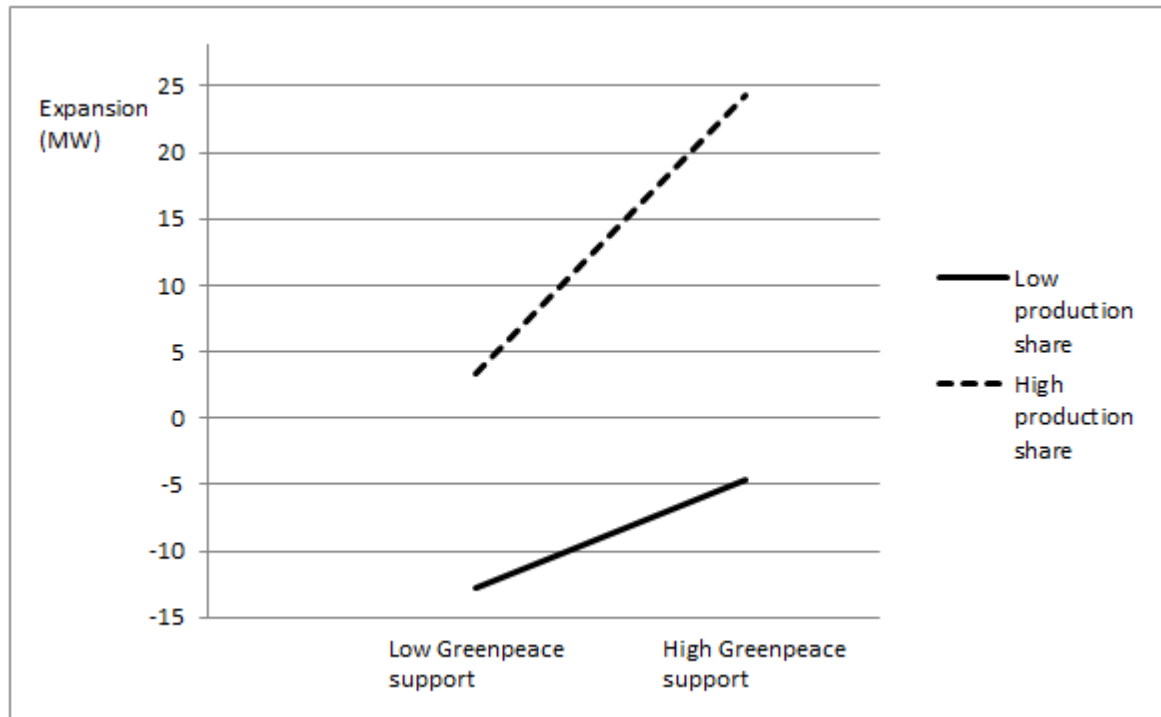
Additionally, while we have theorized about the relationship between SMO support and firms' strategies and the results are consistent with our theory, we could only observe the two mechanisms – confirmatory proof and legitimacy accounts – indirectly. We found systematic evidence that firms expected to be more sensitive to these mechanisms are more

greatly affected by SMO support, contributing to the “*search for mechanisms-oriented accounts of movement phenomena*” (McDonnell and King, 2008). In addition to the evidence from our longitudinal study, however, future research could attempt to offer more direct evidence of these two mechanisms. For instance, scholars could rely on experiments or case studies to verify that decision-makers are more likely to consider SMO support as evidence of their industry’s viability when their firm is more ingrained in it, and that they are more sensitive to SMOs legitimacy accounts when their firm is a *de novo* member of the industry.

Finally, while this study provides evidence that social movements matter for firms in a relatively nascent industry, we know little about how their role changes as industries become more mature. Future research could investigate the “*temporal variations in movements' power to affect corporations*” (Weber *et al.*, 2009:122). Moreover, given that this study demonstrates a substantive influence of SMO support on firm strategy, further research is needed to uncover the implications of our findings for firm performance (Bartley and Child, 2011; King and Soule, 2007). The fact that some ‘sticky’ firm attributes make companies more or less sensitive to social movement organization support suggests that important path-dependencies may be at play, which leads us to expect that movement influence may account for variations in firms’ performance as well. While this paper has offered novel insights on how social movement organizations influence firms’ strategic choices, the need to understand their impact on firm performance presents an important opportunity for future work.

## 8. Figures and Tables

**Figure 1. Interaction plot of Greenpeace support and Firm production share <sup>a</sup>**



<sup>a</sup> The figure shows the impact of Greenpeace support on PV production expansion for low and high values of production share (mean  $-1$  and mean  $+1$  standard deviation, respectively), plotted based on Model 4. The upward slope, which indicates increase in commitment (increased expansion or decreased contraction), is steeper for firms with higher production share.

**Table 1. Descriptive Statistics and Correlation Matrix \***

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Expansion	1.00												
2 Greenpeace support	0.20	1.00											
3 Production share	0.23	-0.03	1.00										
4 <i>De alio</i>	-0.18	-0.20	0.06	1.00									
5 Size	0.24	0.27	0.31	-0.24	1.00								
6 Tenure in the industry	-0.14	-0.33	0.08	0.28	-0.05	1.00							
7 Rivals' expansion	0.22	0.45	-0.07	-0.26	0.65	-0.24	1.00						
8 Electricity prices	0.29	0.35	-0.09	-0.21	0.46	-0.20	0.62	1.00					
9 Population (thousands)	0.14	0.50	0.09	0.04	0.21	0.00	0.41	0.32	1.00				
10 Governmental RD&D support (x10 <sup>6</sup> )	0.08	0.55	-0.16	-0.05	0.20	-0.20	0.25	0.25	-0.09	1.00			
11 Demand growth	0.20	0.16	-0.09	-0.14	0.25	0.04	0.29	0.20	0.17	0.17	1.00		
12 Growth uncertainty	-0.15	-0.06	-0.02	0.05	-0.07	0.14	-0.09	-0.26	-0.01	-0.06	-0.14	1.00	
13 Feed-in-tariff duration	0.22	0.33	-0.01	-0.16	0.37	0.05	0.47	0.38	0.46	0.05	0.64	-0.20	1.00
Mean	8.67	319705	0.02	0.53	31.75	12	269.08	8.72	61900	0.53	25.93	4.31	10.46
S.D.	28.86	248936	0.02	0.50	71.00	8	543.97	2.04	22800	0.39	11.03	2.88	9.88
Min	-132.00	10000	0.00	0.00	0.00	1	0.00	5.30	5206	0.00	-0.09	0.83	0.00
Max	181.20	827650	0.10	1.00	570.40	31	2182.00	13.72	82500	2.22	39.38	13.69	25.00

\* Absolute values above 0.14 are significant at the 1 percent level.

**Table 2. Results of GLS regression models estimating production expansion <sup>a</sup>**

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Greenpeace (GP) support		4.350*	4.225*	4.045*	3.753*	10.783**	11.601**
		(1.742)	(1.817)	(1.832)	(1.872)	(2.858)	(3.007)
Production share			8.754**	8.085**			8.144**
			(2.782)	(2.196)			(2.143)
GP support * prod. share				6.440**			6.698**
				(2.484)			(2.445)
<i>De alio</i>					-5.145	-4.975	-5.942+
					(3.200)	(3.084)	(3.523)
GP support * <i>de alio</i>						-11.127**	-13.081**
						(3.527)	(3.923)
Control variables							
Size	3.598	3.300	-4.428	-8.755	2.939	2.245	-10.310
	(8.168)	(8.199)	(7.679)	(7.815)	(8.173)	(8.053)	(7.673)
Tenure in the industry	-3.931+	-2.988	-2.218	-3.186	-2.306	0.136	0.399
	(2.107)	(2.259)	(2.204)	(2.366)	(2.134)	(2.029)	(2.198)
Rivals' expansion	-3.371	-3.482	0.325	4.596	-3.650	-4.677	3.544
	(5.365)	(5.386)	(4.705)	(4.781)	(5.387)	(5.351)	(4.653)
Electricity prices	7.825**	7.960**	10.406**	9.385**	7.589**	8.759**	10.042**
	(2.133)	(2.158)	(2.451)	(2.266)	(2.153)	(2.313)	(2.410)
Population	2.307	0.023	-2.356	-4.159*	1.274	2.896	-1.101
	(1.966)	(1.743)	(1.698)	(1.813)	(2.092)	(2.508)	(2.537)
Governmental RD&D support	-0.888	-4.581	-2.915	-3.742	-3.783	-4.599	-3.583
	(2.340)	(3.294)	(3.195)	(3.042)	(3.364)	(3.290)	(3.104)
Demand growth	4.242**	4.288**	5.062**	3.270*	3.949*	3.405*	2.170
	(1.543)	(1.555)	(1.664)	(1.478)	(1.565)	(1.540)	(1.462)
Growth uncertainty	-1.936*	-1.840*	-1.016	-0.291	-1.921*	-1.827*	-0.266
	(0.882)	(0.862)	(0.821)	(0.844)	(0.881)	(0.897)	(0.854)
Feed-in-tariff duration	0.579	0.327	1.290	1.483	0.119	-0.836	0.129
	(1.378)	(1.408)	(1.433)	(1.445)	(1.427)	(1.508)	(1.502)
Intercept	6.331**	5.499*	4.962*	5.775**	8.071**	6.202*	6.916*
	(2.208)	(2.285)	(2.335)	(2.231)	(3.011)	(2.862)	(2.847)
Observations	315	315	315	315	315	315	315
R-square	0.131	0.136	0.195	0.223	0.141	0.157	0.245

<sup>a</sup> Robust standard errors adjusted for clustering in parentheses: \*\* p<0.01, \* p<0.05, + p<0.1. Non-dummy variables are standardized.



**Table 3. Robustness tests <sup>a</sup>**

VARIABLES	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
	Test for outliers	Country-level clustering	GEE model <sup>b</sup>	Tests for firms active in targeted industries		Disentangling GP support from values <sup>c</sup>
Greenpeace (GP) support	12.537** (3.247)	11.601* (5.675)	7.534* (3.427)	14.239** (3.642)	14.608** (4.183)	9.467** (3.168)
Production share	8.203** (2.151)	8.144** (0.614)	7.481** (1.569)	8.300** (2.151)	8.315** (2.170)	8.465** (2.433)
GP support * prod. Share	7.018** (2.501)	6.698** (0.620)	5.986** (1.665)	6.614** (2.452)	6.653** (2.489)	5.145** (1.891)
<i>De alio</i>	-5.873+ (3.310)	-5.942+ (3.338)	-5.411 (3.347)	-2.232 (4.195)	-2.665 (3.793)	-6.937* (3.396)
GP support * <i>de alio</i>	-12.820** (3.957)	-13.081* (5.181)	-7.940* (3.553)	-15.753** (4.263)	-15.640** (4.149)	-12.386** (3.669)
Firm in targeted industry				-8.771+ (5.159)	-8.376* (3.743)	
GP support * Firm in targeted ind.					-0.804 (4.135)	
Control variables						
Size	-10.097 (7.739)	-10.310** (0.886)	-7.797** (2.992)	-11.014 (7.618)	-11.222 (7.604)	-7.960 (7.647)
Tenure in the industry	0.768 (2.230)	0.399 (2.805)	0.108 (1.983)	0.277 (2.145)	0.368 (2.252)	-0.095 (2.037)
Rivals' expansion	4.154 (4.666)	3.544 (2.824)	5.364+ (3.022)	3.531 (4.587)	3.591 (4.526)	2.199 (4.550)
Electricity prices	9.160** (2.344)	10.042 (6.166)	8.574** (2.458)	10.956** (2.488)	10.846** (2.563)	10.228** (2.528)
Population	-1.965 (2.373)	-1.101 (2.501)	-1.194 (2.781)	-2.924 (2.652)	-2.963 (2.693)	0.392 (2.167)
Governmental RD&D support	-3.878 (3.385)	-3.583 (4.180)	-2.616 (3.629)	-3.680 (3.053)	-3.676 (3.081)	-1.452 (3.143)
Demand growth	2.204 (1.489)	2.170* (0.968)	2.318 (2.134)	2.074 (1.439)	2.040 (1.442)	4.081** (1.550)
Growth uncertainty	-0.751 (0.980)	-0.266 (0.578)	-0.334 (1.935)	0.089 (0.804)	0.094 (0.803)	-0.450 (0.848)
Feed-in-tariff duration	-0.257 (1.567)	0.129 (1.203)	0.578 (2.294)	0.423 (1.452)	0.445 (1.452)	-0.823 (1.643)
Intercept	7.160** (2.614)	6.916** (2.472)	7.729** (2.460)	8.605** (2.813)	8.714** (3.037)	7.804** (2.732)
Observations	301	315	308	315	315	315
R-square	0.254	0.245	-	0.262	0.261	0.239

<sup>a</sup> Robust standard errors adjusted for clustering in parentheses: \*\* p<0.01, \* p<0.05, + p<0.1. Non-dummy variables are standardized.

<sup>b</sup> Seven producers were omitted from the GEE model as they had only one observation. The *stata* package does not calculate an R-Square after GEE. The Wald Chi-Square is reported as a goodness of fit measure of the GEE model and is: *Wald chi2 = 107.8 (Prob > chi2 = 0.0000)*.

<sup>c</sup> GP support in Model 13 refers to the residual from a regression of Greenpeace membership on several

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known predictors of environmental values, and stands for the *unexpected impact of Greenpeace support above and beyond what would be predicted based on the environmental values of the citizenry*.

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CHAPTER 3. *Shine on me: Firm density, social movement support, and government endorsement of nascent industries*'.<sup>22</sup>

1. Abstract

In this paper we examine how the density and type of firms involved in a nascent industry enhance the likelihood of the industry being endorsed by state action. We treat regulative institutions as dependent on firm populations, and argue that firm density signals legitimacy and growing acceptance of nascent sectors, which in turn increases the likelihood of positive state action. We further disentangle the influence of two different types of entry – by *de novo* and *de alio* firms – on government endorsements, and consider the role of supportive social movements in augmenting the influence of *de novo* and *de alio* density on the establishment of favorable regulation. Analyses of the feed-in-tariff policy support scheme across the European Union suggest that government endorsement depends on the density of firms in a country, and that support for social movement organizations sympathetic to the industry increases the effect of *de novo* firm density on government endorsement.

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<sup>22</sup> This paper is co-authored with Professors Glen Dowell and Rodolphe Durand. It has been presented at the 2014 ARCS, EURAM, and AoM Annual Conferences.

## 2. Introduction

The idea that firms and industries are deeply embedded in social and political environments has been a mainstay in organizational research (Aldrich, 1979; DiMaggio and Powell, 1983; Powell, 2007). But why in the first place do new industries receive cognitive acceptance by public, and most importantly for the purposes of this paper, sociopolitical endorsement by state actors (Aldrich and Fiol 1994; Scott 1995)? In nascent sectors, firms lack recognition due to their novelty and relative small numbers and thus need to collectively ‘prove’ that the new industry has the ‘right to exist’ (Aldrich and Fiol, 1994; Sine, Haveman and Tolbert, 2005). Whereas the bulk of research devotes attention to the facilitating or impairing effects of regulation on firms’ creation and industry development (e.g. Dobbin and Dowd, 1997; Hiatt, Sine and Tolbert, 2009; Wade, Swaminathan and Saxon, 1998; York and Lenox, 2013), more research is in order to understand how the number (density) and characteristics of firms forming nascent sectors influence industry recognition (e.g. Kennedy, 2008) and government endorsements. Moreover, although collective actors such as social movements contribute to new sectors’ recognition (Weber and Soderstorm, 2011) and influence regulatory regimes (Lee and Sine, 2007), we still have limited understanding of how the presence of such actors interacts with firm density to shape economic regulation in those sectors.

In response to this oversight, we investigate whether the density of firms in a nascent industry affects cognitive acceptance of the industry and translates into government endorsement (i.e. sociopolitical recognition). Moreover, we investigate whether the type of firms that comprise the entrants in the new industry matter. Our context is feed-in-tariffs for solar energy, a support scheme that has been established by many governments across the EU in their efforts to

combat climate change by inducing demand for solar energy. We show that feed-in-tariffs did not appear in a vacuum; rather, the growing number of solar cell producers and support for the industry by collective actors led to a process of growing institutionalization and subsequent government endorsement of the sector. Moreover, we find that *de novo* density was more likely than *de alio* density to lead to the enactment of feed-in-tariffs, as the involvement of these firms increases focus and the understanding of the nascent industry by external audiences, conferring greater cognitive acceptance to the new sector.

This research contributes to organizational scholarship and studies of industry emergence (e.g. Sine and Lee, 2009; Hiatt, Sine and Tolbert, 2009; Sine *et al.*, 2005; York and Lenox, 2013) by showing that organizational populations are not simply policy-takers (Fremeth, 2009) and answers calls to investigate regulatory action as an outcome variable (Madsen, 2008; Wholey and Sanchez, 1991). We find that the market promise that is demonstrated by early entrants has twofold advantages for a new industry. While prior theory suggests that density directly contributes to an industry's cognitive acceptance, we find that it also benefits the industry indirectly; by shaping regulatory frameworks in ways that advance the interests of industry participants. Second, our study contributes to research on organizations and the environment. Some of the goals of this stream of research have been to explain the emergence of renewable energy industries (Russo, 2001; Sine and Lee, 2009; Vasi, 2009), and the interaction of firms and regulative institutions in sectors linked to environmental concerns (e.g. Delmas and Toffel, 2008; Delmas and Montes-Sancho, 2012; Lyon and Yin, 2007; Sharma and Henriques, 2005). We advance this research by providing a further explanation for the sources of political interventions that have contributed to growing demand for renewable energy. Lastly, while our focus is not at

the firm level but on the collective role of an industry's proponents in influencing government policy, we contribute to non-market strategy research by showing that the influence of entrepreneurial entrants on government endorsements is different than that of *de alio* firms.

### 3. Theoretical background

The notion that organizations and industries are profoundly shaped by the environments in which they are embedded has been a central pillar of organizational theory for at least three decades (Aldrich, 1979; Hannan and Freeman, 1977; Meyer and Rowan, 1977; Thompson, 1967; Pfeffer and Salancik, 1978; Randall, 1973). While different theoretical perspectives vary in their emphasis on structure versus agency, one can hardly debate that organizations' forms, strategies, and fates are influenced by their institutional environments. For example, pressures by environmentalists, the growth of green consumerism, and the rapid diffusion of government environmental regulations have shaped the costs and benefits of operating in certain industries (Rugman and Verbeke, 1998; Henriques and Sadorsky, 1999), influenced firms' environmental performance (Kassinis and Vafeas, 2006) and market value (Dowell, Hart and Yeung, 2000), or even fostered the creation of new sectors of economic activity (Sine and Lee, 2009; Weber, Heinze and DeSoucey, 2008, Vasi, 2009).

One aspect of the environment that has taken a prominent place in contextual explanations of organizational phenomena has been government regulation. Typically viewed as constraints to firms' actions (DiMaggio and Powell, 1983) regulatory institutions have stimulated organizations to change - among others - their structures, employment practices, safety control procedures, and environmental strategies (Dobbin and Sutton, 1998; Rugman and Verbeke,

1998; Tolbert and Zucker, 1983). Further studies – albeit considerably fewer - have also investigated the impact of regulation on organizational populations, pointing out the importance of public policies in determining resource flows and eventually firm entry, exit, and industry structure (Dobbin and Dowd, 1997; Wade *et al.*, 1998; Wholey and Sanchez, 1991). Recently, and in line with such theoretical expectations, public policies were critical for the emergence of new industries such as alternative energy (Flamos, Georgallis, Doukas and Psarras, 2009; Hoffmann 2007; Sine *et al.*, 2005). However, while research has shown that these regulatory schemes affect individual firms and entire industries, the converse – how the firms in these industries and supportive organizations affect the regulations – is less well understood.

Firms and industries are not only shaped, but also shape their environments (Baum and Singh, 1994; Durand, 2006; Aldrich and Ruef, 2010). Yet, organizational scholarship has typically treated regulatory regimes as exogenous factors (e.g. Astley, 1985; Ginsberg and Buchholtz, 1990; Ranger- Moore, Banaszak-Holl, and Hannan 1991; Dobbin and Dowd, 1997; but see Edelman, Uggen and Erlanger, 1999; Madsen, 2008). In their review of the legal environment of organizations, Edelman and Suchman discuss the critical role that regulatory frameworks play for organizations, but also note that “*few (if any) regulatory regimes actually emerge independently of the organizational actors whom they ostensibly govern*” (1997: 488). Materialist perspectives have viewed regulation as being shaped by firms and industries through complex power-dependence relations or even “buy-offs”, while cultural perspectives would see particular frameworks as being promoted by organizations through a process of collective sense-making and social construction (see Edelman and Suchman, 1997 for a review).

Aligned with the latter perspective would be the expectation that the social appropriateness of a new sector (Suchman, 1995) conferred by initial increases in the number of firms may influence the likelihood of positive government intervention. But while central to accounts of new industry creation (Aldrich and Fiol, 1994; Baum and Oliver, 1992; Sine *et al.*, 2005; Hannan and Carroll, 1995), the dynamics of organizational populations have rarely been evoked to explain the enactment of regulatory frameworks (cf. Hannan and Carroll, 1995:540; see also Madsen, 2008). This may be due partly to the primacy – at least in organizational research – of the assumption that regulation is an exogenous and *ex ante* force, and partly to the fact that research examining regulation as a dependent variable has focused on mature or regulated industries<sup>23</sup>, rather than on new sectors where regulative institutions are still undeveloped (Lindberg and Campbell 1991; Sine *et al.*, 2005). But how are regulatory schemes governing emerging sectors established in the first place? What is the role of firm density in leading to government endorsement of new sectors? And do new firm foundings impact regulatory frameworks in the same way as *de alio* entries? We examine these questions in the following section, and further consider how support for spatially proximate social movement organizations that favor the industry conditions the influence of *de novo* and *de alio* density on regulatory frameworks.

#### 4. Theory and hypotheses

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<sup>23</sup> This observation can also be made with regard to the related literature on the determinants and outcomes of firms' corporate political activity (e.g. Holburn and Vanden Bergh 2008; Schuler, 1996; see Oliver and Holzinger, 2008 for a recent review).



As new industries comprise few members (Aldrich and Fiol, 1994; Baum and Oliver 1992; Sine *et al.*, 2005), they are initially not taken for granted as ‘natural’ or ‘valid’ fields of economic activity. These firms need to “*carve out a new market, raise capital from skeptical sources, recruit untrained employees*” and “*build a reputation of the new industry as a reality*” (Aldrich and Fiol, 1994:645 & 657). Until these firms manage to prove the technical feasibility of their products and demonstrate the market promise of the new sector, their social validity is largely questioned. Moreover, as opposed to mature fields, firms in emerging fields have not yet defined stable relationships, coalitions, and perhaps common interests (David, Sine and Haveman, 2013) that would allow them to promote their sector as a distinct category of organizations.

As more firms enter a new sector, the cognitive acceptance of both the firms and the sector is enhanced (Hannan, Polos, and Carroll, 2007). Increases in the number of firms (density) reflect growing recognition of the new category and enhance the capacity of firms to secure resources (Baum and Oliver, 1992; Hannan *et al.*, 2007, Chap 1). The growing density of firms in a region and the associated visibility and spread of knowledge about the sector function as ‘evidence’ (Sine, David and Mitsuhashi, 2007) or ‘social proof’ (Rao, Greve and Davis, 2001) of the sectors’ viability, providing cognitive acceptance to the new field (Wry, Lounsbury and Jennings, forthcoming). Moreover, a greater number of organizations operating in a new sector facilitates firms’ theorization of their form as a solution to external problems (David *et al.*, 2013), which in turn aids their legitimation attempts (Dowell, Swaminathan and Wade, 2002). Growing density allows firms to act as institutional entrepreneurs that coalesce to achieve

audiences understanding of their fields as legitimate: “*desirable, proper, and appropriate*” (Suchman 1995, p. 574; Kennedy, 2008).

While in many cases governmental intervention is required to encourage a new field to develop (Wholey and Sanchez, 1991), governments are unlikely to endorse new sectors that have not yet achieved at least a moderate level of cognitive acceptability (cf. Deephouse, 1996). In the early stages of a population’s growth, governments are not willing to allocate public resources to the new sector, as the viability of these ventures is still doubtful and public acceptance of the sector low. Rather, industry-friendly measures follow after the public and other relevant audiences come to see the sector as a viable and taken-for-granted sphere of economic activity. As “*regulators and regulatees operate within the same institutional fields*”( Edelman and Suchman, 1997), the density of firms operating in a sector and the related legitimation that it confers is not only important in encouraging further foundings (Baum and Oliver, 1992; Hannan and Freeman, 1989), but it also raises the likelihood of government endorsement of the sector. Moreover, as density increases, firms seek to shape their environment and access societal resources (Zucker, 1983) by engaging in collective action with similar others. They establish supportive networks, mobilize adherents, and cultivate social ties (Oliver and Holzinger, 2008) to induce the government to incorporate their requests into policy schemes. Naturally, a government’s receptivity to such action and the likelihood that it will allocate public resources to support a sector will be greater when a critical mass of foundings indicates the sectors’ public approval and conformity to social expectations (Aldrich and Fiol, 1994; Meyer and Rowan, 1977).

Thus, contrary to popular accounts suggesting that governmental actions are ex ante drivers of founding rates (see Carroll and Khessina (2005) for a brief discussion) we propose that government protection can be itself determined by the same industry actors it is set up to govern. More specifically, growing firm density induces the country's policy-makers to provide endorsements to a new sector by facilitating its cognitive acceptance.

*Hypothesis 1: The likelihood of government endorsement of an emerging industry increases with the number of firms operating in the country.*

While the effect of firm density on the acceptability of new organizational forms is well-established, prior research provides less consistent guidance as to how *de alio* or *de novo* entries influence a sector's government endorsement. A number of important differences exist between start-up firms and diversifying entrants into new industries, such as differences in experience, access to resources, size, visibility, power, flexibility, or identity (Carroll, Bigelow, Seidel, Tsai, 1996; Khessina and Carroll, 2008; Klepper and Simons, 2000; McKendrick, Jaffee, Carroll and Khessina, 2003; Mitchell, 1994). Given the survival advantages that literature has attributed to *de alio* entrants and the commonly accepted link between legitimation and survival, we would expect that *de alio* density would be more positively associated with a new sectors' cognitive acceptance. Yet, prior work has questioned this assertion (McKendrick and Carroll, 2001) by indicating that the non-focused identity of diversifying entrants may not contribute to the acceptance of an emerging industry as a distinct category (Hannan *et al.*, 2007; Hsu, Hannan and Koçak, 2009; Durand and Paoletta, 2012; Vergne and Wry, 2013) .

McKendrick and Carroll (2001) provide qualitative evidence to suggest that disk array producers did not constitute an organizational form. They argue that *de novo* density is more associated with legitimation of a new form than *de alio* density. However, they call for caution in interpreting their qualitative evidence, as it contradicts the expectation that legitimation is enhanced by the presence of large, powerful organizations. *De alio* entrants, being already established in their industries have already acquired cognitive taken-for-grantedness (Scott, 1995; Suchman, 1995). For example, when the German start-up Q-Cells entered the solar photovoltaic industry in the 1990s, critical stakeholders such as customers, financiers, employees, etc. were unfamiliar with the venture. Lacking institutional linkages (Baum and Oliver, 1992), the firm would had to prove to its audience that it has the ‘right to exist’ and compete in the new sector (Aldrich and Fiol, 1994). When Siemens entered the field, it had no such obligation. Its social validity was already unquestioned; a more than one-century-old company, Siemens had already acquired ‘an aura of inevitability’ (Hannan and Freeman, 1984).

Despite the above observation, evidence on whether *de alio* entry positively influences a new forms’ acceptance is unclear (McKendrick *et al.*, 2003). Why is that so? While entries of *de alio* firms such as Siemens, BP, R.W.E., or Schott in solar PV cell production could be viewed as a signal that the emergent solar PV industry is taken seriously by powerful actors, it is unclear whether it contributes to the cognitive acceptance of the solar PV industry. The presence of an engineering firm, an oil company, a utility, and a glass manufacturer are unlikely to contribute to ‘internally consistent stories’ (Aldrich and Fiol, 1994) about what the new activity is, and eventually to solar PV being viewed as a distinct form of economic activity. This is precisely one

of the points that McKendrick and Carroll make in their discussion of disk array producers<sup>24</sup>, and consistent with more recent research on organizational categories (e.g. Hsu *et al.*, 2009; Negro, Hannan and Rao, 2011 - see Durand and Paoletta (2012) and Vergne and Wry (2013) for recent reviews).

This discussion points to an interesting extension of the theory by Aldrich and Fiol (1994), who suggest that entrepreneurial organizations in new industries face greater challenges in achieving cognitive acceptance. Specifically, while *de novo* firms are less likely to be cognitively legitimate than *de alio* entrants, ironically, they will have a more critical role in legitimating their industry (Wry *et al.*, forthcoming). In contrast to the presence of *de alio* firms such as Siemens, RWE or Schott in the German solar PV industry, the presence of similar and focused organizations such as Q-Cells, WorldSolar or Evergreen Solar increases outsiders' familiarity and general understandings of solar PV firms as a coherent community of organizations. *De novo* density more strongly contributes to the taken-for-grantedness of an emerging industry than *de alio* density, as the identities that these firms project are more clearly focused on the new industry (Khessina and Carroll 2008). As increases and shared definitions of the sector emerge in response to more entries by *de novo* firms, the industry category becomes more widely accepted. Furthermore, while regulators are remarkably sensitive to economic development (Rabe, 2004), their willingness to 'build an industry' relates to their understandings of whether it is indeed an industry. This is linked not only to the expected viability of the

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<sup>24</sup> "the disk array producer organizational form has not taken hold because disk array producers come from a heterogeneous set of origin industries and often retain operations in those industries, perhaps still deriving the bulk of their revenue therein. By this view, the problem resides in the identity basis of firms: So long as firms in the disk array market derive their primary identities from other activities, and so long as there are few highly focused firms deriving their primary identity from disk arrays, then the disk array producer identity seems unlikely to cohere into a code or form of its own." (McKendrick and Carroll, 2001: 675)

emergent industry, but also to their understandings about the distinctiveness of this (alleged) industry. “*Legitimacy and acceptance often seem to come less from inclusiveness than from the boundaries erected to separate the new field or discipline from others*” (Bozeman, 2013). Therefore, while increases in overall firm density may function as signals of the industry’s viability, *de novo* firms contribute more to understandings of the industry’s distinctiveness than *de alio* entrants. Consequently, *de novo* density will have a greater impact on the acceptance - and endorsement (cf. Deephouse, 1996) - of the industry by social actors such as government regulators. Hence:

*Hypothesis 2: The influence of de novo density on government endorsement of an emerging industry is greater than the influence of de alio density.*

The likelihood of an industry receiving regulatory endorsement by the government depends not only on the growing number of *de novo* or *de alio* firms in a country, but will vary markedly with the institutional context that the industry faces in each country. Social contexts not only constrain firms, but can also create opportunities (David *et al.*, 2013; Hiatt *et al.*, 2009; Sine and Lee, 2009). For instance, the movement for grass-fed products helped create a new market segment by infusing the market with moral value and helping producers establish a collective identity that formed the basis of differentiation of the field (Weber *et al.*, 2008). In renewable energy, firms’ struggles for regulatory endorsement were favored by environmental organizations operating in their respective countries or states (Jacobsson and Lauber, 2006; Lee and Sine, 2007; Sine and Lee, 2009). When collective actors such as social movement organizations favor a specific form of economic activity, they can ‘create’ linkages between this activity and the values of the broader population, or even mobilize their adherents to support

such activities, enhancing the likelihood that the emergent industry will receive support from the government.

We argue that social movement organizations' support, defined as the human and financial resources that social movement organizations can mobilize for sustained campaigns (cf. McCarthy and Zald, 1977) increases the impact of firm density on government endorsements. This expectation is based on at least three premises. First, greater support for a social movement organizations that favor an emergent industry signals a fit between broader socio-cultural norms and general understandings of what is 'necessary, valid, and appropriate' (Rao, 1998). Such a fit, in combination with a growth in the number of firms operating in the industry, increases its cognitive legitimacy, the extent to which "*key stakeholders, the general public, key opinion leaders, or government officials accept a venture as appropriate and right given existing norms and laws*" (Aldrich and Fiol, 1994). Moreover, insofar as this fit reflects the underlying values and preferences of the broader population in a country, an emergent industry aligned with these social preferences will be better received by policy-makers, who rely on public opinion and votes to achieve re-election (Bonardi, 2011), and thus the likelihood that the industry will gain favorable policy rulings will be increased.

Second, collective actors help foster the establishment of favorable regulative institutions by spreading knowledge about new sectors (Sine *et al.*, 2005) and promoting them to relevant audiences (Weber *et al.*, 2008; Lee and Sine, 2007). Both technology evolution and regulatory regimes do not only depend on concrete technological advances or economic indicators, but they are also shaped by processes of social construction, as coalitions form to advance certain technologies or policy choices through theorization and meaning-making (Dowell *et al.*, 2002;

Edelman *et al.*, 1999; Jacobsson and Lauber, 2006; Heymann, 1998; Rosenkopf and Tushman, 1994). Social movements act as framing agents (Snow and Benford, 2009) that increase public knowledge about the sectors they favor, and promote them as normatively superior alternatives. The achievement of cognitive acceptance by a nascent industry is facilitated by social movement organizations that increase the salience of the new industry's social benefits, help decrease uncertainty regarding the potential viability of the firms involved (Sine *et al.*, 2005), and assist in the emergence of shared definitions of the industry. At the same time, the greater the number of firms operating in the industry, the easier is the work of movement supporters to develop common understandings of the industry, argue in favor of its potential viability, and promote it to regulators as an industry that could, if supported, lead to economic and social development. That is, the presence of firms in a nascent industry can focus a social movement's prognostic framing (Benford and Snow 2000), by creating a means by which to solve a social ill.

Third, affiliates of social movement organizations facilitate interaction among producers and help them engage in coalition building that serves as "*as a social infrastructure through which information and resources flow*" (Sine and Lee, 2009: 127; cf. Weber *et. al.*, 2008). Collective action is difficult to organize in new industries (Aldrich and Fiol, 1994; cf. David *et al.*, 2013), and social movement organizations act as brokers to help firms overcome this barrier. For instance, in explaining the emergence of wind power production in Denmark, Heymann (1998) finds that strong supportive networks between environmentalists, turbine manufacturers, and turbine users influenced national policy in favor of wind power by facilitating "*information exchange, cooperation, and political lobbying*". Thus, in addition to advancing regulation that is consistent with their values (David *et al.*, 2013), social movement supporters enhance firms'



capacity to build and sustain supportive networks that result in ‘institutional-legitimizing events’ (Aldrich and Fiol, 1994), as well as their ability to band together and seek governmental endorsement of their industry.

In sum, support for a social movement organizations sympathetic to the industry will have a reinforcing effect on the relationship between density and regulatory endorsement, as it signals a fit between the industry and broader cultural values, indicates the presence of actors that can facilitate social construction processes in favor of the industry, and allows coalition-building among firms and movement proponents that legitimizes the industry and shapes regulation to the industry’s advantage. More formally:

*Hypothesis 3: The positive effect of firm density on government endorsement of an emerging industry is stronger in countries where there is more support for social movements sympathetic to the industry.*

Lastly, although all types of firms will benefit from SMO support, *de novo* firms are more likely to be part of coalitions promoting the industry. These organizations have fewer alternatives (*de alio* firms may have already formed networks of support in their industries of origin) but also greater motivation to be part of such coalitions, as they are more dependent on the industry. Their survival is strictly linked to the legitimation of the industry, while *de alio* firms may be deriving the bulk of their revenues from other fields (McKendrick and Carroll, 2001), and their survival is not necessarily at stake. Moreover, while social movement organizations are often willing to support entrepreneurs in the industries they favor, their

relationship with big businesses is typically one of confrontation, and their willingness to coalesce with large firms entering from other industries is, at best, doubtful. Therefore:

*Hypothesis 4: The effect of the interaction between firm density and social movement support on regulatory endorsement will be stronger for de novo density than for de alio density.*

## 5. Empirical setting and data

To examine the above arguments we focus on the enactment of feed-in-tariffs (FiTs) for solar energy across European Union countries for the period 1990 to 2011. Rapid industrial development is often linked to government intervention that incentivizes local investment (Lazzarini, 2013), and the European solar industry is a characteristic example of an industry whose fate has been highly dependent on policy support (Haley and Schuller, 2011; Hoppmann, Peters, Schneider and Hoffman, 2013). The promotion of this economic sector by regulators across European countries has been typically traced in the energy policy literature (e.g. Flamos *et al.*, 2009; Doukas, Karakosta and Psarras, 2009; Jacobsson and Bergek, 2004) to three primary motivations: first, to address mounting sustainability concerns linked to fossil fuel-based energy technologies; second, to reduce energy dependency on foreign resources; and third, to enable local investment and the development of the domestic industry. This last factor leaves open the possibility that—contrary to the idea that policy support for solar energy is exogenously created (Hoppmann *et al.*, 2013:995)—the decision of regulators to endorse this sector is influenced by the density of firms in the industry. Moreover, while concerns for sustainability are global, the

saliency of these concerns at the country level and of proposed solutions to address them partly depends on the support that the environmental movement can garner in a country.

A number of other policy schemes have been utilized by EU countries to promote solar energy at different points in time. Yet, none has been as common and as important as the feed-in-tariff scheme. This policy scheme has been promoted by industry participants and environmental organizations as the most efficient support mechanism for the solar industry (see for example EPIA and Greenpeace, 2011), and identified by students of energy policy as the most successful renewable energy policy measure (Flamos *et al.*, 2009; Jacobsson and Lauber, 2006). In the EU, FiT regulations began in the early 1990s and by 2012, 22 out of the (currently) 28 EU-member states had established a FiT scheme in their efforts to endorse the sector, and this policy was enacted by several other countries worldwide (REN21 2012).

***Sample and dependent variable:*** To empirically test our hypotheses we will use the sample of all EU countries from 1990 to 2011<sup>25</sup> and focus on the presence of a feed-in-tariff scheme for solar energy as the dependent variable. The data for this variable were collected from the International Energy Agency (IEA) Photovoltaic Power Systems Program (PVPS) Reports, the IEA ‘Policies & Measures’ section (<http://www.iea.org/policiesandmeasures/renewableenergy/>), and the PV-Era Status Reports. As these sources were only available after the mid-1990s, we collected information for the earlier years from the industry newsletter PV News, by searching for the terms ‘feed’ and ‘tariffs’. Lastly, when possible (mostly for recent years), the information for the presence of feed-in-tariffs for solar PV was corroborated using the Res-legal website (legal text

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<sup>25</sup> Not all countries in our sample were EU members from the beginning of our observation period. To take that into consideration we rerun all our analyses and included countries only after they entered the EU. The results were similar to those reported below, and somewhat stronger. We therefore report the more conservative results.

for renewable energy sources in the EU, providing summaries as well as direct access to countries' renewable energy regulations: <http://www.res-legal.eu/>). Based on these sources we created a dummy variable for the presence/absence of a FiT scheme in each country for all years up to 2011.

***Independent variables:*** The main independent variables are the density of solar cell producers for each country in our dataset, as well as the density of *de novo* and that of *de alio* producers. These are based on counts of firms from the archive of PV News, one of the most widespread industry newsletters and the only one that tracks the industry so far back (the archive of the newsletter goes back to the early 80s, but unavailability of data on other variables restricted our observation period to start from 1990). Based on global surveys of all solar cell manufacturers that were published annually by PV News, we developed a measure of the density of producers in each of the current EU member countries for our observation period. We relied on PV News to determine the organizational pre-history of PV producers and hence distinguish *de novo* from *de alio* firms. When we could not find evidence of a firms' pre-history (assuming it was a *de alio* entrant), we consulted other industry trade journals, reports by the International Energy Agency PVPS Program, solar producers' corporate websites, and documents on the history of solar PV. Overall, we are confident that all producers were correctly classified as *de novo* or *de alio* firms.

To examine SMO support in the context of the environmental movement in each country, we use membership data from Greenpeace as a proxy, i.e. the number of paying Greenpeace supporters as a percentage of the country's population. Membership in social movement organizations is frequently used as a proxy for the regional strength of social movements, including the environmental movement (Hiatt, Sine and Tolbert, 2009; Lee and Sine, 2007; Sine

and Lee, 2009; Schneiberg, King and Smith, 2008). Using data from one social movement organization facilitates transnational comparison, and interviews with environmentalists and solar industry professionals suggested that Greenpeace was the most influential of the large environmental NGOs promoting solar energy in Europe. The organization first started promoting renewable energy in the 1980s under its ‘Atmosphere and Energy Campaign’ and later continued to do so under its ‘Climate Campaign’. In the early 90s, following increased concern for the environment and a number of anti-nuclear referendums that occurred in European countries, Greenpeace strengthened its efforts to promote a change in the energy system and began a dedicated solar campaign. While sometimes depicted as a radical activist group focused on confrontational action, Greenpeace has been actually engaged in many activities that promote industries such as solar energy, including lobbying, public information campaigns, coalition-building, issuing policy reports, etc.<sup>26</sup> For instance, as a Greenpeace campaigner pointed out:

*“Mainly we were campaigning in favor of feed-in laws so you get a guaranteed price. [...] we highlight what the problem is but we also highlight the solution for the problem. [...] we did, in many countries, campaigns where we were asking for signatures from people who were saying they’d buy solar equipment, a solar generator, under those conditions or for this particular price or policy in place. We showed there is a potential market and then it’s basically a mix of political action in order to secure that market”.*

Besides its active involvement in the industry, cross-national patterns of Greenpeace membership match the findings of prior research on the strength of the environmental movement across

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<sup>26</sup> We obtained information on the organization’s solar energy campaign from internal Greenpeace International documents available at the International Institute of Social History.

European countries. Overall European membership levels have been relatively stable after a sharp increase in membership in the late 80s - early 90s, yet the levels and trends in support for Greenpeace are substantially different across countries. The number of supporters in northern European countries is substantially larger than in the south, which is consistent with prior work by Kousis (1999) and Rootes (1999; 2003) on the European environmental movement, and supports the validity of the number of Greenpeace supporters as a proxy for SMO support, and more broadly for the strength of the movement. Lastly, longitudinal data were available for this variable. These were collected from the Greenpeace International archive, a prior study by Von Stein (2008) and annual reports from national Greenpeace branches and Greenpeace International. We combined these sources and population data from the World Bank to create our *SMO support* variable: the number of paying Greenpeace supporters in a country as a percentage of its population.

***Control variables:*** A number of control variables are included in the model. First, we add a variable to account for the possibility that governments may choose different types of policy support to achieve the same goals. As mentioned above, feed-in-tariffs have been the most widespread industrial policy scheme for solar energy (and renewable energy more broadly), but some European governments have enacted other measures as well. We include a control variable that takes the value of one if a country has established any of the following policies: quota obligations (with green certificate schemes), tender systems, tax incentives, and direct financial subsidies. Insofar as these policies are considered by regulators as – at least partial – substitutes for feed-in-tariffs, this variable should have a negative influence on the likelihood of our FiT enactment.

Moreover, governments' propensity to have such policies in place depends on the current status of the development of renewables in their country. In countries with an already established renewable energy sector policy-makers may not see these schemes as necessary, as opposed to the case of countries with low penetration of renewables, where policies in favor of solar energy may be necessary to kick-start the industry. Therefore, we control for each country's electricity production from renewable sources excluding hydroelectricity, using data from the World Bank Database. We expect this variable to have a negative impact on our dependent variable.

From the same database we source four additional control variables. First, since we expect countries that rely more on imports for electricity production to be more open to energy sources that can increase local production, we control for the energy imports of each country in our dataset. The variable we use is net energy imports as a percentage of energy use. Net energy imports are estimated as energy use less production, both measured in oil equivalents. The greater the value, the more a country imports electricity. A negative value indicates that the country is a net exporter. Second, we control for energy use (logged, measured in Kg of oil equivalent), as countries with greater energy use may be more inclined to invest in alternative energy to fulfill electricity demand. Lastly, we control for change in gross domestic product (in billion USD) and for unemployment share to account for the economic conditions in a country, which may influence governments' decisions to implement industrial policy initiatives.

We control also for solar radiation in each country; solar resources may explain why some countries are more favorable to the solar PV industry and thus more likely to endorse the sector. We include the country-level average annual solar radiation. This is a non-time varying categorical variable that for EU countries takes values from 3 to 8; it reflects solar radiation in

kWh/m<sup>2</sup>/day, and was constructed using the worldwide map of solar radiation available at: [http://maps.nrel.gov/global\\_re\\_opportunity](http://maps.nrel.gov/global_re_opportunity).

Regulators may choose to endorse renewable energy industries to accommodate underlying values of the population - public opinion that is supportive to the environment. The presence of a favorable (to pro-environmental matters) public opinion could in fact be correlated, and confounded with the presence of a supportive environmental movement in a country. We thus control for the underlying values of the population in each country in our dataset using data from the European Values Survey (EVS), which is part of the World Values Survey (WVS). This survey is the largest cross-national values survey, and has been previously used in studies in sociology, political science, and other disciplines (e.g. Curtis, Grabb and Baer, 1992; Inglehart and baker, 2000; Granato, Inglehart and Leblang, 1996). The survey has proceeded in four 'waves', with roughly a decade passing between each wave. The data that we use are from the second, third, and fourth wave of the EVS, which were conducted for the countries in our sample between 1990-1993, 1999-2001, and 2008-2010 respectively (the precise year differs per country). We focus on the Surveys' part B – Environment, where respondents are asked whether they would agree to give part of their income for the environment. We estimate the percentage of respondents answering positively to this question for each country and wave; we then interpolate the missing values for the missing years between surveys and extrapolate them for the few years after the last EVS wave to create our final variable of environmental values.

Despite several country level and transnational pressures for the promotion of renewable energy, countries are also likely to be influenced by interest groups that oppose the development of such technologies. The presence of a powerful traditional power industry, manifested in heavy



dependence on fossil fuels, may lower the likelihood that governments will adopt feed-in-tariffs for solar energy. We thus control for countries' electricity production from fossil fuel sources as a percentage of their total production, to account for this effect. We further consider the influence of political ideology in each country, as parties with a center-left political orientation tend to be more favorable to supporting renewable energy policies (Lyon and Yin, 2010). We control for the number of seats held by center and left parties as a percentage of total cabinet posts (as defined by Armingeon and Careja (2004) and Armingeon *et al.* (2013)).

Moreover, although no consensus exists among scholars as to the main determinants of policy diffusion across countries (Dobbin, Simmons and Garrett, 2007), there is little doubt that countries' propensity to adopt certain policies increases with the number of prior adoptions. To control for such transnational diffusion effects we include a variable with the number of EU countries that had a FiT scheme established prior to the focal year, as it may increase a country's propensity to establish a feed-in-tariff scheme.

## 6. Models and results

As our dependent variable is binary, we used a probit model to test our hypotheses, as the model allows for unobserved factors to be correlated over time (Train, 2009) (note however that a logit model produced very similar results). We utilized a random effects specification to account for the clustering of errors at the level of the country. All independent variables were lagged by one year as temporal precedence is as a necessary condition for causality (this, along with missing data on some control variables reduced our sample to N=491 observations). In Table 1 we report descriptive statistics and correlations for the variables used in the models.

Since some variables are moderately-to-highly correlated, we centered the continuous predictors to reduce non-essential collinearity (Aiken and West, 1991). The variance inflation factors in all reported models were well below the rule of thumb of 10, suggesting that multicollinearity is not an issue in our analyses. In what follows, we first present tests of the impact of overall density, *de novo* and *de alio* density on government endorsement. We then report tests of how density is moderated by social movement organizations' support by including the data on Greenpeace supporters. The results are reported in Tables 2 and 3 respectively.

----- Insert Tables 1 and 2 about here -----

In Model 1 we include the control variables. An already established renewable energy sector appears to deter government endorsement via feed-in-tariffs, as its coefficient is negative and significant. Energy use is also significantly (and positively) linked to our dependent variable, although this effect drops after we add the density of firms. Solar radiation has a positive effect, with countries with better solar resources more likely to enact feed-in-tariffs. Fossil fuel dependence has a negative coefficient but it is only weakly significant in one model. Finally, the number of countries that have adopted feed-in-tariffs acts as a powerful driver for their adoption, suggesting strong diffusion effects.

In Model 2 we add firm density. The effect of density on the likelihood of government endorsement is positive and highly significant, which provides support for H1. Before proceeding to test the following hypotheses, we conducted additional robustness tests to ensure that the effect that we find is correctly attributed to firm density. First, while our theory suggests that density effects operate at the country level (with regulators influenced by the presence of firms in their country), prior research has found that industry legitimization is driven by density at

a broader geographical level (Hannan *et al.*, 1995). We thus added an additional variable for the density of producers in the EU (Model 3). This variable was not significant, and had no impact on the other results; therefore, we did not include it in further analyses. Second, we added an industry clock to ensure that we are not simply capturing time effects by which density increases with time, and at the same time the likelihood of establishing feed-in-tariffs also increases. Surely, it would be odd to attribute explanatory power to time; but other, non-observed, characteristics of the industry may be confounded with time. The coefficient of this variable (Model 4 onwards) is significant, but otherwise the results are robust to its inclusion. Overall, these analyses provide strong support for our first hypothesis.

To examine the second hypothesis, instead of overall density, we included in Model 5 the two variables for *de novo* and *de alio* density. Our analyses support our expectation that government endorsement is more linked to *de novo* rather than *de alio* density. The coefficients of both variables are positive and significant; *de novo* density is significant at the 0.1% level, and *de alio* density is significant at the 5% level. The ratio of the coefficients  $\beta_1/\beta_2$  for *de novo* over *de alio* density is  $3.53/1.85=1.91$  and this difference is significant at the 10% level (Chi-Sq=2.85, p-value=0.09). This suggests that a one-unit increase in *de novo* density has roughly two times the effect of a unit increase in *de alio* density. In other words, consistent with H2, *de novo* density plays a more important role in shaping government endorsement of the solar industry compared to *de alio* density.

As a robustness test, we also expanded our sample to the period before 1990. Although many of our control variables were not available for that period, data on density of firms in the industry was available since 1982. We therefore run two models (6 and 7) using a limited set of

control variables (the ones for which data were available for this period). The results regarding both the control variables and our variables of interest are strikingly similar. The only difference is that in this extended sample *de alio* density does not have a statistically significant effect (the coefficient of *de novo* density remains highly significant). While the lack of appropriate control variables somewhat limits the conclusions to be drawn from this additional analysis, it does provide evidence for the robustness of the above findings and in support of the first two hypotheses.

--- Insert Table 3 about here ---

We now turn to Table 3 and the evaluation of the last two hypotheses. Model 1 includes all the control variables and SMO support. We then add density (Model 2) and progressively add the interaction of SMO support with overall, *de novo*, and *de alio* density (Models 3-5). The full model (Model 6) includes together the two types of density and their interactions with SMO support. The first conclusion we can draw from these analyses is that SMO support does not, on its own, impact the enactment of feed-in-tariffs, as its coefficient in Model 1 is not significant (and becomes significant only when we include *de novo* density in the model). From Model 3 we see that its interaction with overall density is not significant. Therefore, Hypothesis 3 is not supported. It appears though that the rejection of H3 can be attributed to differences between *de novo* and *de alio* density in how they interact with social movement support. Only the interaction of SMO support with *de novo* density has a positive and significant coefficient; its interaction with *de alio* density is insignificant and negative. The difference in the coefficients of the two interaction terms in Model 6 is highly significant (Chi-Sq=5.90, p-value=0.015), providing strong support for the last hypothesis. Clearly, the interaction of SMO support with *de novo*

density has a strong impact on government endorsement, while its interaction with *de alio* density does not have an effect.

## 7. Discussion

In this paper, we have argued that institutional environments are not independent of the organizational populations that inhabit them (Aldrich and Ruef, 2010; Durand, 2006; Madsen, 2008). We test our arguments by modeling solar energy feed-in-tariffs (FiT) as a function of the number of solar producers, the nature of those companies, and the strength of pro-environmental social movements in a given nation. Our results suggest that FiTs are indeed more likely to be enacted when there are more solar producers already operating, that this effect is stronger when those producers are *de novo* firms formed explicitly to produce clean energy rather than diversifying entrants, and that the effect of these *de novo* firms is stronger when there is greater support from a pro-environmental social movement in the country.

Our results have implications for research in the area of institutional entrepreneurship as well as social movement research (David *et al.*, 2013; Hiatt *et al.*, 2009; Sine *et al.*, 2005; Sine and Lee, 2009; Vasi, 2011; Weber *et al.*, 2008; Weber and Soderstorm, 2011). For institutional theory, prior research has tended to treat the regulatory environment as exogenous or has emphasized the role of entrepreneurs and social movements in creating new industries. For instance, Dobbin and Dowd (1997), Swaminathan (1995), and York and Lenox (2013) have stressed the role of regulation in increasing founding rates in industries as diverse as railroads, specialist wineries, and green building. Sine and Lee (2009), on the other hand, focus on the interplay between social movement actors and entrepreneurs in the formation of the wind energy

industry in the United States, and show that greater participation in environmental social movement organizations and government regulation in a given state increased entrepreneurial activity in the wind power sector. Our results extend such findings by suggesting that the combination of entrepreneurial activity and social movement participation increase the likelihood of legislation that supports the nascent industry.

For social movement research, we have two significant findings. First, we demonstrate that the impact of social movements is felt most strongly when there is a greater density of *de novo* organizations present. We argue that these new entrants are most consistent with the goals of the environmental social movement, as they are better categorized as pure organizations focused on clean energy. Thus, these *de novo* firms are more consistent with environmental movement organizations' goals than are the diversifying (*de alio*) firms, which often come from the very industries that activists have targeted as environmental culprits.

Second, we do not find that social movement activity alone has an effect on the formation of FiT regulations. In this 'non-finding', we provide an opportunity for future research to consider the limitations of social movement organizations in affecting institutional fields. When do social movements have an impact and what are the catalyzing structures that allow them to do so? Here, we suggest that the presence of *de novo* firms in the nascent industry magnifies the effect of the social movement message (and vice versa). Future research can attempt to untangle other factors that interact with social movements to either magnify or dampen their effect.

In addition, although our focus is not at the firm level, our theory is complementary to non-market strategy research which suggests that firms influence public policy by engaging in various forms of political activity, often directed at multiple political institutions (e.g. Bonardi

2011; Holburn and Vanden Bergh, 2008). We propose here that in emerging sectors favorable policy outcomes can be achieved in more nuanced ways, as increased firm density facilitates the cognitive acceptance of the new field and enhances the likelihood that it will be endorsed by the government. Our findings are consistent with this view, as they indicate that the effect of *de alio* firms in shaping the institutional environment for a new industry is limited compared to that of entrepreneurial entrants.

Finally, this last finding is also aligned with the discussion of McKendrick and Carroll (2001), who suggest that *de alio* firms do not contribute as strongly to the identification of new organizational forms as do the *de novo* entrants. Overall, we believe that there are two potential explanations for the limited impact of the diversifying entrants on policy. First, these entrants may be less likely to actually seek favorable legislation, at least initially, since their survival is less dependent upon such legislation. In fact, to the extent that legislation helps some *de novo* firms survive and grow to be strong competitors, the *de alio* firms might actually oppose the legislation. Second, even if they do desire legislation that would help the industry, their participation in multiple industries might confuse their efforts, especially for those firms that participate both in the nascent industry and in one which the industry challenges (e.g. the utility sector, or the oil and gas sector). British Petroleum, for example, had a solar business, but it is unlikely that the BP lobbyists spent significant resources attempting to foster regulation that would favor that unit over its much larger traditional energy concerns. For other diversifying entrants such as engineering or electronics firms, the conflict is less severe, but it is likely that at least at first, the solar industry provided much smaller benefits than other sectors in which they participated, so their concern with supporting regulations was significantly smaller.

Nascent industries, and the firms that populate them, are vulnerable. Lacking cognitive acceptance from stakeholders (David *et al.*, 2013; Hannan *et al.*, 2013), and sometimes founded in direct opposition to entrenched industries, they struggle to establish and maintain a presence. Favorable institutional environments can help them to take root. We argue here that such environments do not emerge independently of the entrepreneurial activity they support. The newly formed ventures and the social movement that favors them catalyze the institutional change that maintains the new industry.



## 8. Figures and Tables

**Table 1. Correlation matrix <sup>\*</sup> and descriptive statistics**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Feed-in-tariff scheme	1.00																
2 Other regulation	0.40	1.00															
3 Renewable el. production	0.33	0.22	1.00														
4 Environmental values	-0.27	-0.23	-0.32	1.00													
5 Energy imports	0.11	0.11	0.05	-0.14	1.00												
6 Energy use (logged)	0.15	0.15	0.35	-0.26	-0.11	1.00											
7 Solar radiation	0.09	-0.08	-0.06	0.20	-0.20	-0.29	1.00										
8 GDP change	0.08	0.06	0.12	-0.10	-0.01	0.27	-0.03	1.00									
9 Unemployment	0.04	-0.07	0.05	-0.09	0.20	0.15	-0.01	-0.05	1.00								
10 Fossil fuel dependence	0.03	0.01	-0.06	0.09	0.29	-0.17	0.26	0.00	-0.09	1.00							
11 Center-left party seats	0.08	-0.08	0.10	-0.12	-0.08	0.08	0.13	0.00	-0.07	0.00	1.00						
12 EU countries with FiTs	0.63	0.65	0.40	-0.32	-0.03	0.02	0.00	0.03	0.01	-0.10	-0.10	1.00					
13 Industry clock	0.57	0.60	0.35	-0.39	-0.05	0.00	0.00	0.04	0.04	-0.11	-0.07	0.89	1.00				
14 Social movement support	0.10	0.16	0.08	0.00	0.03	0.13	-0.26	0.04	-0.33	0.05	0.22	0.07	0.13	1.00			
15 Firm density	0.29	0.08	0.58	-0.36	0.04	0.48	-0.04	0.25	0.09	0.04	0.19	0.07	0.11	0.10	1.00		
16 De novo density	0.25	0.02	0.60	-0.35	-0.02	0.34	-0.08	0.19	0.02	0.04	0.16	0.07	0.11	0.06	0.91	1.00	
17 De alio density	0.28	0.14	0.41	-0.27	0.10	0.54	0.00	0.27	0.16	0.03	0.18	0.05	0.08	0.12	0.86	0.56	1.00
<i>Mean</i>	0.32	0.35	4.44	0.63	53.28	10.14	4.96	16.84	8.82	79.31	59.58	8.54	47.50	0.43	0.70	0.28	0.42
<i>Std. Dev.</i>	0.47	0.48	11.12	0.13	30.59	1.46	1.57	75.39	4.28	15.31	38.69	7.70	6.93	0.86	1.81	1.17	0.85
<i>Min</i>	0.00	0.00	0.00	0.30	-65.73	6.50	3.00	-465.07	0.60	31.74	0.00	0.00	36.00	0.00	0.00	0.00	0.00
<i>Max</i>	1.00	1.00	115.38	0.93	100.00	12.77	8.00	421.06	25.00	99.94	100.24	21.00	59.00	5.45	12.00	9.00	5.00

\* Absolute values above 0.11 are significant at the 1 percent level.

**Table 2. Predicting Feed-in-tariffs: Firm density, *de novo* density and *de alio* density**

VARIABLES	Models with full set of controls					Models with restricted set of controls (extended dataset)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Other regulation	0.025 (0.778)	0.292 (0.921)	0.131 (0.897)	-0.371 (0.910)	-0.432 (0.918)	-0.532 (0.838)	-0.706 (0.957)
Renewable el. production	-0.318*** (0.046)	-0.348*** (0.050)	-0.320*** (0.048)	-0.364*** (0.085)	-0.391*** (0.080)	-0.340*** (0.056)	-0.399*** (0.074)
Environmental values	-9.873 (6.937)	-10.590 (7.776)	-6.719 (7.888)	3.035 (9.207)	7.281 (9.542)		
Energy imports	0.036 (0.040)	0.044 (0.038)	0.043 (0.040)	0.043 (0.042)	0.052 (0.042)	0.033 (0.032)	0.038 (0.038)
Energy use (logged)	2.414* (1.027)	1.161 (1.087)	1.155 (1.029)	1.319 (1.083)	1.779 (1.116)	1.448+ (0.780)	2.254+ (1.321)
Solar radiation	1.632+ (0.850)	2.198** (0.805)	1.725* (0.844)	1.577+ (0.889)	1.621+ (0.881)	1.583* (0.667)	1.936* (0.758)
GDP change	-0.003 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.003 (0.003)	-0.002 (0.002)	-0.003 (0.002)
Unemployment	-0.052 (0.084)	-0.040 (0.102)	-0.006 (0.112)	0.002 (0.132)	-0.023 (0.136)	0.037 (0.107)	0.016 (0.121)
Fossil fuel dependence	-0.049 (0.053)	-0.091+ (0.051)	-0.070 (0.049)	-0.070 (0.048)	-0.074+ (0.044)		
Center-left party seats	-0.005 (0.008)	-0.010 (0.009)	-0.010 (0.009)	-0.013 (0.011)	-0.013 (0.011)		
EU countries with FiTs	0.813*** (0.122)	0.968*** (0.149)	0.909*** (0.144)	0.452+ (0.233)	0.522* (0.239)	0.409+ (0.212)	0.563* (0.248)
Firm density		2.360*** (0.511)	2.153*** (0.507)	2.666*** (0.762)		1.748*** (0.463)	
De novo density					3.533*** (0.934)		2.249*** (0.613)
De alio density					1.852* (0.767)		1.111 (0.830)
EU density			0.091 (0.153)				
Industry clock				0.782* (0.384)	0.821* (0.375)	0.742** (0.273)	0.768** (0.294)
Intercept	-5.233*** (1.342)	-7.436*** (1.668)	-6.961*** (1.560)	-9.946*** (2.737)	-10.582*** (2.645)	-9.777*** (2.035)	-10.431*** (2.280)
Observations	491	491	491	491	491	669	668
Number of countries	27	27	27	27	27	28	28

Standard errors clustered by country in parentheses: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1

**Table 3. Predicting Feed-in-tariffs: Interaction of density with social movement support**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Other regulation	-0.499 (0.817)	-0.595 (0.968)	-0.584 (0.925)	-0.889 (1.341)	-0.447 (1.030)	-0.678 (1.136)
Renewable el. Production	-0.335*** (0.048)	-0.381** (0.144)	-0.389*** (0.089)	-0.605*** (0.098)	-0.445*** (0.045)	-0.495*** (0.086)
Environnemental values	-3.566 (7.431)	0.745 (11.242)	1.086 (11.568)	9.314 (14.670)	-9.264 (13.543)	8.303 (9.307)
Energy imports	0.030 (0.052)	0.038 (0.052)	0.032 (0.039)	0.090* (0.045)	0.042 (0.042)	0.075 (0.046)
Energy use (logged)	2.457* (1.010)	1.176 (1.332)	1.020 (1.052)	3.142* (1.363)	3.861*** (1.163)	2.903* (1.271)
Solar radiation	2.013+ (1.209)	2.161* (1.083)	2.825** (0.998)	3.233*** (0.913)	2.321** (0.869)	2.531** (0.894)
GDP change	-0.003 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.007+ (0.004)	-0.003 (0.003)	-0.007+ (0.004)
Unemployment	-0.007 (0.105)	0.026 (0.145)	0.031 (0.147)	0.054 (0.201)	-0.010 (0.125)	0.038 (0.144)
Fossil fuel dependence	-0.064 (0.062)	-0.090+ (0.052)	-0.110 (0.070)	-0.146* (0.070)	-0.116* (0.048)	-0.106+ (0.058)
Center-left party seats	-0.006 (0.009)	-0.015 (0.015)	-0.014 (0.012)	-0.021 (0.015)	-0.012 (0.011)	-0.014 (0.013)
EU countries with FiTs	0.542** (0.183)	0.490+ (0.258)	0.492+ (0.265)	0.675* (0.338)	0.753** (0.254)	0.539* (0.263)
Industry clock	0.445+ (0.243)	0.797 (0.495)	0.789* (0.370)	1.191* (0.552)	0.481 (0.324)	0.955* (0.425)
SMO support	1.697 (1.366)	1.923 (1.392)	2.098 (1.476)	6.846*** (1.988)	2.546 (1.783)	6.017** (2.137)
Firm density		2.753* (1.209)	2.758** (0.848)			
Firm density * SMO support			2.121 (2.109)			
De novo density				5.233** (1.826)		4.181* (1.669)
De novo density * SMO support				17.496*** (4.906)		17.162** (6.487)
De alio density					0.237 (0.878)	-0.625 (1.326)
De alio density * SMO support					-0.052 (0.829)	0.069 (2.270)
Intercept	-7.232*** (1.813)	-10.544* (4.116)	-11.188*** (3.304)	-15.383*** (3.522)	-8.556*** (2.053)	-12.113*** (2.516)
Observations	491	491	491	491	491	491
Number of countries	27	27	27	27	27	27

## CONCLUSIONS

This dissertation began by noting that our field has emphasized the contentious character of the interaction between social movements and firms. This is certainly understandable, as much – perhaps most – of what movements do is motivated by conflicting interests and manifested in contentious actions. However, social movement organizations, the key vehicle by which movements exercise their influence on society, do not only engage in confrontational tactics. The focus of current research on their contentious character (Waldron *et al.*, 2013) strikes me as disproportional to the importance of this aspect of their activities compared to their overall importance. A more complete perspective of social movements and a more elaborate framework of their influence on firms must also take into account their non-oppositional role. This dissertation both motivates and begins to develop such a framework, by delimiting itself to the domain of industries that are promoted by SMOs to address the following research question: *How do social movement organizations influence firms' strategic behavior?*

What insights from this thesis can allow us to provide answers to this broad research question? I describe below how each essay contributes towards answering it, and finally note what we can conclude from this dissertation as a whole.

**Essay I:** Firm's strategic behavior is examined first in Chapter 1, which asks why social movement organizations' actions matter for firm behavior. Specifically, this paper conceptualizes how social movements induce firms to invest in their preferred industry sectors using non-oppositional actions. Two mechanisms are identified: (a) shaping managers' attention (March and Simon, 1958; Ocasio, 1997) which alters the perceived feasibility of the opportunities advanced by activists and triggers value orientations within firms that lead to a more favorable view of these opportunities, and (b) rendering these

industries more attractive (Weber et al., 2008; Sine and Lee, 2009), which alters the objective benefits that can accrue to firms if they act in ways consistent with social movement expectations. Then, the essay explores the boundary conditions of this theory, by investigating how organizational identity (Albert and Whetten, 1985; Whetten, 2006) and resource complementarity (Klepper and Simons, 2000; Markides and Williamson, 1994; Mitchell, 1989) condition the relationship between the above mechanisms of social movement influence and firm responsiveness to social movement expectations. An organizational identity consistent with the opportunities advanced by activists is theorized to be a necessary condition for firms to invest in these opportunities. The possession of complementary resources by a firm is INUS (Insufficient but Necessary part of a condition that is itself Unnecessary but Sufficient) for leading firms to invest in industries favored by activists. Finally, both organizational identity and resource complementarity are INUS conditions for the opposite outcome, non-investment in industries supported by the movement. This essay thus explores not only why non-oppositional actions by SMOs matter for firm behavior, but also when they matter, and when they don't.

**Essay 2:** Chapter 2 continues to examine firms' strategic behavior, this time empirically, and by asking whether SMO support increases firms' commitment to their industry. The paper posits that firms interpret social movement organizations' support as a signal of local social preferences, i.e. a confirmatory proof that the sector is promising, and are influenced by the legitimacy accounts produced by these organizations. To examine this theory we analyze a longitudinal dataset of firms operating in the solar photovoltaic industry across different countries – countries that vary in terms of the support that environmental movement organizations can garner for sustained campaigns. Our analyses demonstrate that producers increase their commitment to the industry more under the influence of environmental

movement organizations' support. Moreover, firms with larger prior relative commitments are more affected by EMO support – as confirmatory proof that justifies their strategies, and diversifying entrants are less affected by it - as they are less sensitive to EMOs legitimacy accounts compared to *de novo* producers. These findings suggest that social movement organizations are often able to reinforce firms' strategies, and that they can elicit firm responses that go well beyond symbolic adherence. Further, they uncover important differences in how firms are shaped by social movement organizations and consequently point to the relevance of the two proposed mechanisms- confirmatory proof, and legitimacy accounts. Overall, this study contributes to our understanding of how SMOs influence firms' strategic behavior.

**Essay 3:** The first essay has posited that social movement organizations matter for firm behavior by rendering the industries promoted by activists more attractive, and that one way by which they do so is by shaping government policy. Using again the solar PV industry as the empirical setting, this last essay investigates how firms benefit from the presence of social movements supportive to their industry by examining the determinants of government support of an industry. More specifically, it studies how firms interact with SMO support to influence government endorsement of the solar PV industry, the enactment of a policy framework favorable to the industry. We theorize that the presence of more firms in a country will have a positive effect on the likelihood of government endorsement of their sector, and that this effect will be magnified in countries with a stronger supportive movement. Results show that social movement support only magnifies the influence of *de novo* firm density, but not that of *de alio* firm density, on government endorsement. This evidence indicates that SMOs are able to contribute to the cognitive acceptance of the solar PV industry category, but only insofar as they are in a country with a great number of *de novo* producers – as these

firms are purely focused on the industry and facilitate framing it as a new industry category. Thus, firms' strategy may be influenced by SMO support in non-intuitive ways. As policy is an important mediator of companies' strategic decisions, firms strategic behavior will depend on the composition of firms (*de novo* versus *de alio*) and on SMO support in their countries.

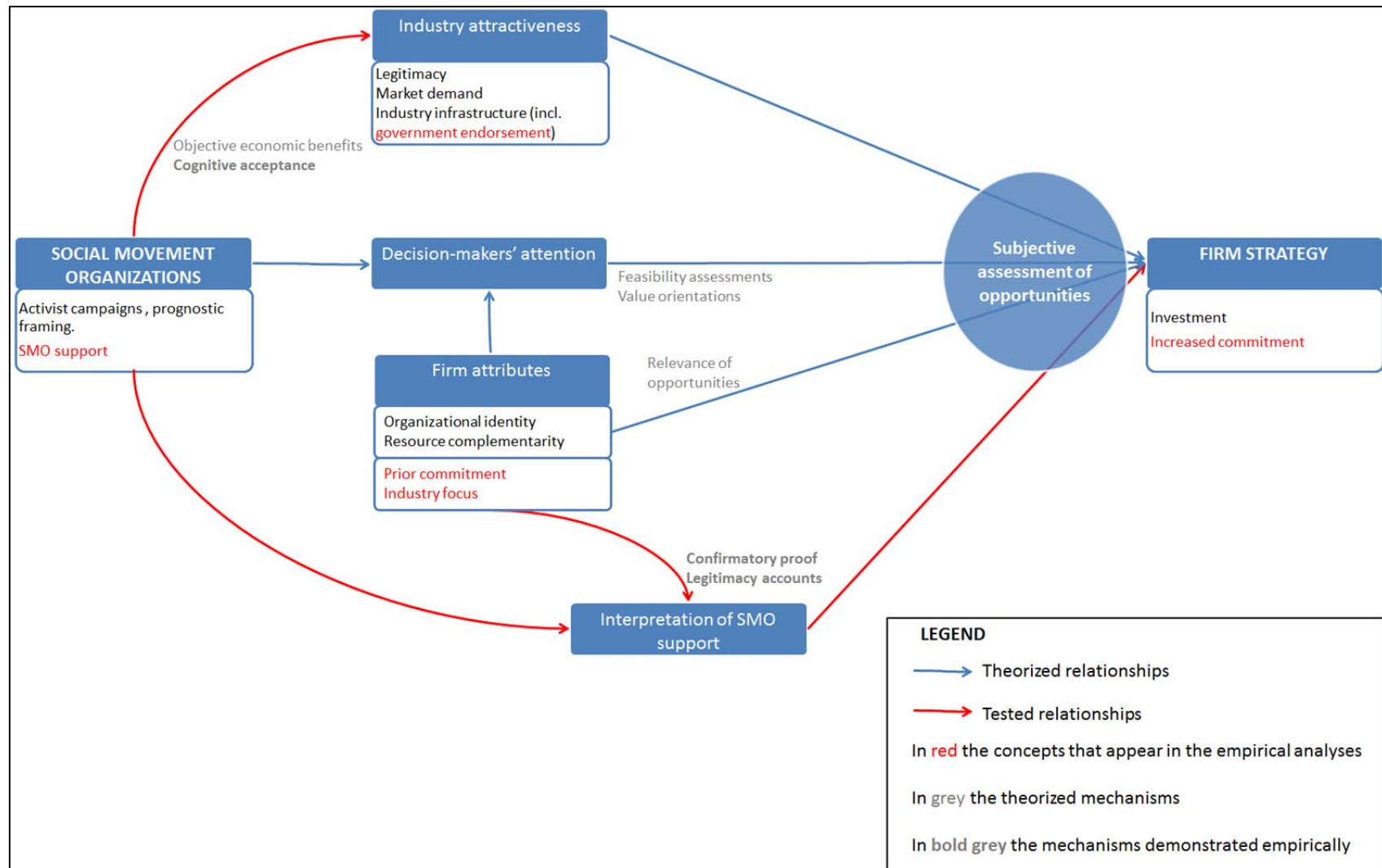
What can we conclude from this dissertation as a whole? Broadly speaking, SMOs shape the strategies of firms by contributing to the cognitive acceptance and economic viability of their favored sectors, and by bringing opportunities regarding these sectors to the attention of firms' managers. Firms, in turn, are faced with *objectively different* opportunities than they would have faced absent SMO activity, and are also more likely to form different *subjective assessments* of these opportunities (cf. Penrose's (1995) notion of perceived opportunities, 1995). Opportunities to invest in movement-supported industries are objectively different because SMOs' campaigns help resolve uncertainty, induce demand, render these industries more attractive to employees, and contribute to favorable policy shifts. These opportunities are also likely to be *perceived* differently, because firms pay more attention to them and take the support for SMOs as a cue of the industry's legitimacy and future potential.

Social movement organizations matter for firm strategy, even in industries consistent with activists goals. SMOs can influence the strategic behavior of firms in ways that are consistent with the movement's goals. Therefore, cross-country (or other inter-regional) differences in SMO support have significant impact on the strategic choices of firms operating in the same industry. Yet, opportunities that activists point to are differentially evaluated by firms, and thus not all firms in a country are affected by SMOs in the same way. Firms' idiosyncratic characteristics - their resources, organizational identity, prior

commitment, and industry focus - make some firms more sensitive to the influence of social movement organizations than others.

The figure below depicts how SMOs come to influence firm strategy according to the theory and empirical results of the current thesis.





**Overview of the relationships, concepts, and theorized mechanisms**

## 1. Contributions to research

### *Literature on social movements and organizations*

By challenging the common assumption that social movements and firms have divergent interests, this dissertation contributes to social movement theory in several ways. First, studies have so far tended to ignore the non-oppositional role of movements, and focused on activists' attempts to limit the negative externalities associated with corporate activity. In fact, even studies that have explored business-NGO collaboration did so by looking at such collaboration as a form of conflict management, retaining the above assumption (see De Bakker *et al.*, 2013:574). The first paper of this dissertation provides instead a theoretical account of how, without necessarily resorting to oppositional action, SMOs can shape firms' strategies, and offers a conceptual framework that can form a point of departure for scholarship to further explore the non-contentious character of social movements. I argue that in order to understand the mechanisms of SMOs' influence on firms, we need to clarify how these mechanisms shape the objective opportunities that activists promote, as well as their the attention and subjective assessment by organizational decision-makers. Similarly, the second essay demonstrates that social movements can in fact encourage firms' existing strategies, that is, lead them to commit further to certain industries. It thus extends work on the role of social movements as promoters of new practices (Weber *et al.*, 2008; Zietsma and Lawrence, 2010) beyond entrepreneurial entry (Sine and Lee, 2009), by providing systematic evidence that SMOs can also shape established organizations' decisions.

Second, this dissertation suggests that firms are not uniform in whether and how much they are influenced by social movement organizations (Waldron *et al.*, 2013). Organizational attributes that tend to shape whether opportunities will be attended to and whether firms will respond to them – such as organizational identity and resource complementarity - are

important filters of firm responsiveness to the calls of activists. The second essay provides further credence to the idea that firms' strategy is heterogeneously affected by SMOs, as it demonstrates that firms with greater prior commitments and industry focus tend to be more influenced by SMOs. The need of firms to justify their commitments and the attention firms' pay to legitimacy accounts linked to the industry drive these differences. These findings extend research on social movements and firms by jointly investigating the role of SMOs and firm attributes in shaping firm behavior and thus uncovering some of the reasons for the variance in firm responses to similar movement appeals. While research that attempts to explain such variance (King, 2008; Waldron *et al.*, 2013; Weber *et. al*, 2009) has so far looked at how company characteristics shape the response of firms to contentious activist actions, this dissertation explicates and confirms their importance in modifying the reaction of firms to SMO support as well.

A third contribution of this dissertation stems from its cross-national empirical setting. Social movement scholarship has been criticized both for being US-centric (Pilati, 2013) and for eliciting only few cross-country movement studies, compared to case studies of single-country movements (Giugni, 1998). The findings of this study are quite informative of the influence of SMOs in a much more inclusive context; it responds to this criticism by presenting an empirical cross-national study of the impact of environmental movement organizations on firms that operate across different countries (Chapter 2), and a second empirical study of their impact on policy on all EU countries (Chapter 3). In this way, it also responds to a recent call by King and Soule (2007) for research on activist influence across a variety of contexts. The findings suggest that – as discussed above –heterogeneity in the support that SMOs can garner across different countries are important for explaining variation in firms' strategic behavior.

## ***Strategic management research***

This dissertation underlines the importance of social context for firm strategy (Oliver, 1997). It suggests that firm behavior can be shaped by social actors that do not appear to have a stake in the firm. In fact, firms may well be influenced (as this research indicates) by social movement actions that are not even targeted at them (cf. Waldron *et al.*, 2013). The attention of decision-makers appears as one mechanism through which movements can shape firm strategy, and so do activities that render activists' favored industries more attractive (see Chapter 1) or that frame them so as to appear as legitimate (see Chapter 2). Importantly, activist influence is – contrary to prior research – theorized and empirically shown to be consistent with firms' existing strategies. More broadly, in uncovering the influence of SMOs on firms, this work contributes to our understanding of the importance of firms' audiences (Durand, Rao and Monin, 2007; Kennedy, 2008; Zuckerman, 1999) and to the cross-fertilization between strategy research and sociological approaches of organizational theory (Durand, 2012).

Finally, by empirically focusing on production expansion (Essay 2) as one of the ways by which SMO support can influence firm strategy, this dissertation makes two additional contributions. First, it contributes to research on firms' expansion choices (e.g. Henderson and Cool 2003a, 2003b; Pacheco-de-Almeida *et al.*, 2008), which tends to focus on firm and industry characteristics, and has paid little attention to the social environment of organizations. Second, it illustrates that firms' responses to social movement appeals are not limited to symbolic actions. They can be quite costly and substantive (see also McDonnel and King, 2013), and - as the results on firm's expansion show - often at the core of firms' strategic considerations about committing to new industries.

### ***Research on industry creation***

Lastly, this dissertation extends the literature that examines industry formation for sectors that have social, besides economic, value (e.g. Hiatt *et al.*, 2009; Lounsbury *et al.*, 2003, Sine and Lee, 2009; Weber *et al.*, 2008; York and Lenox, 2013). Given that this line of research has largely emphasized entrepreneurial activity, the current thesis contributes to and extends this work by looking at the role of movement actors in shaping *existing* firms' behavior. As in most industries *de alio* firms tend to “*enter at a larger scale than de novo firms, and have higher rates of survival*” (Helfat and Lieberman, 2002), considering how social movement organizations can shape their behavior can help us better understand the processes of industry creation and evolution in certain sectors.

Moreover, this thesis contributes to research on industry creation by showing that a growth in *de novo* firm density is not only related to an industry's cognitive acceptance (Hannan *et al.*, 2007), but as a consequence it also helps shape public policy to the advantage of industry participants. Our understanding of the emergence of subsidized or ‘protected’ sectors must be modified to take into account that such regulation is not exogenous (Madsen, 2008); on the contrary, the density of firms in an industry – and the support firms’ garner from collective actors – can shape the enactment of such regulation. As a side note, one result from the last essay – that density contributes to favorable policy, and that *de novo* density does so more than *de alio* density - suggests that firms may benefit from the presence of competitors in their country, and more so by the presence of *de novo* competitors. This effect is even more important in countries with greater social movement support. Therefore, the composition of firms in a country and the support for social movement organizations promoting an industry must be taken into account when studying the creation and development of such sectors.

## 2. Practical implications

What are the guidelines that this dissertation can offer to practitioners? First, the separation between the objective benefits that accrue from the presence and actions of SMOs and their subjective assessment by decision-makers can offer insights to firm managers in designing their strategies. Essay 1 suggests that both matter, and Essay 2 finds that the same opportunities may be viewed differently for different types of firms - leading them to expand more in response to SMO influence, although we have no reason to believe that these firms will derive more benefits. Managers must pay close attention to what SMO support means, and particularly to what extent it is indicative of future demand for the products of their firms and of the industry's potential. Moreover, the findings of the last essay discussed in the previous section suggest that in an industry's early stages, firms may want to encourage the presence of competitors in their country, and particularly *de novo* competitors as these firms are more linked to the decision of governments to endorse the sector. Of course, they will have to carefully weigh the costs and benefits of favorable policies versus competition. Finally, firms diversifying into nascent industries that will likely receive endorsement by governments may want to adopt a wait-and-see strategy (Mitchell, 1989), by which they anticipate the enactment of policies after startups get involved, and then enter the industry to reap the benefits that favorable policies allow. Again, these benefits would have to be weighed against other strategic considerations, such as early-entry advantages (Lieberman and Montgomery, 1988). Yet, for the case of solar PV, given the rapid pace at which this industry develops, early entrants are unlikely to derive first mover advantages (Suarez and Lanzolla, 2007).

Strategy and more generally management scholars are often accused of producing research of little relevance (Kieser and Leiner, 2009). These claims are often directly linked

to the inability (due to actual lack of relevance or due to poor ‘translation’ of academic research findings) of firms’ managers to act upon research findings. Yet, we often forget that firms, business organizations, are not the only type of organizations in society, and that other organizations need to be managed and to formulate strategies. Social movement organizations are increasingly important in modern society in general and in the business world in particular (Soule, 2009), but strategy scholars have provided much less guidance to the campaigners of these organizations. It is my hope that this dissertation can provide at least some insights relevant to SMOs’ members and campaigners. For instance, the relationships outlined in the first essay ‘could inform these individuals on the specific ways in which their activities can ultimately impact firms’<sup>27</sup>. Understanding the nature of these relationships, how they work, and how SMOs actions are likely to be interpreted by managers, may allow SMO campaigners to make more informed choices and design better strategies. Moreover, the conditional effects outlined by the first two essays could help them anticipate which firms are likely to respond to their calls, and which ones are less likely to do so.

Finally, the last essay suggests that the influence of SMOs on public policy is stronger in countries with more *de novo* firms participating in the industry that activists favor. This presents a dilemma for SMOs. Should they place more efforts in countries that have few startups and hence favorable policies are less likely to emerge? Or should they put more effort in countries that have more startups, taking advantage of the role of these organizations in facilitating the cognitive acceptance of the industry and eventually its endorsement by the government? Any answer to this question would be premature as it is not based on concrete

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<sup>27</sup> This verbatim is in quotes as it was directly borrowed from the response of an anonymous reviewer of the 2013 Academy of Management Meeting, who alerted me of the relevance of this work to SMO members, and whom I wish to thank.

evidence, but I will claim here that they should choose the latter. The strong diffusion effects that we see in cross-country policy studies (Dobbin *et al.*, 2007) and in this dissertation (note the significance of the coefficient for diffusion in both tables of Essay 3) suggest that it may be wiser for SMOs to try to achieve favorable policies first in some countries (perhaps where it is easier to do so) and expect that other countries will eventually follow.

### 3. Limitations and future research directions

As all research projects, this dissertation has its limitations. I discuss them below, mostly in light of the research avenues that they uncover.

#### ***Mechanisms and movement tactics***

This dissertation has pointed to the significance of SMOs in influencing firm strategy and public policy in substantive ways, and in ways consistent with movement calls. However, while the mechanisms could be inferred from the results and attempts were made to eliminate alternative explanations, they were not directly observed. The methodological choice of focusing on a cross-country sample of firms over roughly two decades made it virtually impossible to capture the precise mechanisms. First, precise information on SMO tactics over such long periods and geographical regions were unavailable<sup>28</sup>. Second, capturing managers' cognition and their interpretations of SMOs' actions would be impossible directly and would require substantially more time and resources to be done indirectly. I made the usual assumption that most quantitative researchers make: that statistical significance and consistency of findings across several models and robustness tests provides enough evidence

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<sup>28</sup> Some information was actually available in internal Greenpeace documents that I found at the Greenpeace International archive in Amsterdam, but it was clearly not systematically collected, and very sparse in terms of its country and year coverage (e.g. documents were available only up to the early 2000s').



to claim that these results are non-random. The lack of direct observation of mechanisms, however, is acknowledged as an important limitation of this thesis.

At the same time, this limitation points to the need to ‘directly capture’ the mechanisms by which SMOs influence firms and industries. There is ample space for such research endeavors. This is especially true for the non-oppositional tactics of SMOs, which have been largely ignored by work that examines how movements lead to corporate change (cf. Waldron *et al.*, 2013:398). Besides the influence on regulation and consumer preferences (Hiatt *et al.*, 2009, Sine and Lee, 2009), movements attempt to build new industries by linking entrepreneurs, innovators and managers, innovating in areas that they consider technology should be directed and filling gaps in firms’ knowledge using conferences, conventions and publications. Advocacy science, or the use of “*a policy or scientific study to bring attention to a given issue*” (Soule, 2009) is an especially critical such activity, as is the role of movements in directing innovation by governments, universities and potentially even for-profit-organizations.

### ***Theoretical and empirical integration of the different roles of SMOs***

One of the explicit choices I made was to focus on how movements lead firms into new fields. It was pointed out at the beginning that this shift of focus was an analytical choice; it does not reflect a dismissal of the importance of SMOs’ contentious role. Rather, it is recognized that both are important, and the theory that this thesis advances is surely only partial. Future attempts could reflect on both these two roles of social movements and theorize how they interact to influence firms. Similarly, empirical studies examining two or more movement tactics are in great need, as there is little knowledge of what it is that SMOs should do in order to have a greater impact on firms’ decisions. Are non-oppositional

activities equally effective as contentious practices? Or are they more or less effective? An elucidation of the differential effects of various types of tactics appears crucial to the understanding of the mechanisms by which social movements influence firms.

### ***Necessity, sufficiency, and interactive effects***

The discussion (Essay 3) on the role of public policy set up to assist the emergence of new fields, and the common perception that exists in the energy policy literature that feed-in-tariffs have been quintessential for market formation (e.g. Campoccia *et al.*, 2009; Jacobsson and Lauber, 2006 ; Flamos *et al.*, 2009), raises one important question: Is public policy sufficient for driving private investment in a new industry? Or is it necessary? If this is true, then social movement activists may want to keep targeting the state in order to impact corporate practices. A similar question of course is implicitly answered in Essay 1 with regard to the results of social movement organizations' actions: are the identified mechanisms of influence sufficient for getting firms to invest in an industry? The answer is that they are not, as they are only effective under certain conditions. But while this essay brings theoretical insights concerning such questions and recognizes the "*importance of careful, conditional theorizing*" (Bartley and Child 2011:426), empirically, few studies investigate questions of sufficiency and necessity in organizational research, as these are outside the scope of mainstream correlational analysis (Fiss, 2007). This is true also of the empirical studies of this essay, which pay close attention to conditional effects (of firm attributes in Essay 2 and of the composition of firms in the industry in Essay 3) but do not examine necessity or sufficiency, and assume that only two-way interactions are at play. This was done for two reasons. First, as this dissertation is among the first to examine how movements lead firms into new fields, I considered it important to first establish these effects

(particularly the main effect in essay 2) and interactions with prominent conditions, before proceeding to investigate more complex interactions and questions. Second, the relatively small dataset but also the high correlation between different variables limits the possibility of including higher-order interactions without facing multicollinearity issues that would jeopardize the conclusions of the empirical studies.

Fiss (2007) recommends that scholars make more use of set-theoretic methods, and this dissertation also points to this need. First, such methods can help us understand conditional effects (which include necessity and sufficiency) such as the ones theorized in Essay 1. Moreover, given that this dissertation has uncovered several attributes that modify the influence of social movement organizations, and other studies (Sine and lee, 2009; Vasi, 2009) have identified institutional conditions, the complexity of these interactions is perhaps greater than we have assumed thus far. It is very likely that firm characteristics such as industry focus and organizational identity, or resource complementarity and prior commitment, interact not only with each other but also with country-level conditions, to shape firms choices. If that is the case, then empirically exploring these complex interactions becomes virtually impossible for statistical techniques, which are plagued by multicollinearity issues when three-way or higher-order interactions are included (Fiss, 2007). Set-theoretic methods such as Qualitative Comparative Analysis, for which multicollinearity is not an issue (Schneider and Wagerman, 2012), are well-positioned to explore complex contingencies that include several variables at different levels of analysis.

### ***Temporal variation and change in the role of social movements***

Regarding movement influence on corporations and industries, studies of “*markets fueled by movements*” (Weber *et al.*, 2008: 563) have focused on the early stages and on

attempts of movements to legitimize emerging fields. This essay is no exception, as it is focused on a relatively nascent sector that was growing for the period under investigation. Therefore, there is little knowledge of how movement activities and outcomes change as industries become more mature, as - to my knowledge - the call by Weber *et al.* (2009) for research on “*the role of temporal variations in movements' power to affect corporations*” (p.122) has not been acted upon. Also critical is the diachronic role of movements in shaping governmental budgets and policies. For example, how do social movement organizations attempt to keep favorable policies in place as an industry develops? In the field of renewable energy, given that the cost of feed-in-tariffs and other support schemes promoted by the movement rises as these technologies diffuse, how can SMOs convince governments to keep them in place? Recent subsidy cuts and reductions in FiTs undertaken by several European governments in response to the financial crisis provide an excellent setting to examine the reactions of SMOs towards policy changes.

### ***Firm performance and the dynamics of industry creation***

In certain sectors, including the one studied here, it is expected that social movement organizations can lead firms into fields of economic activity that are favored by the focal movement. But what does this mean for firms' bottom line? This is a question that this dissertation has not focused on, and one that I believe is important for future research to tackle. While firms operating in different countries face heterogeneous influences by social movement organizations and different policy environments, they often compete internationally. How, then, do these institutional factors, varying mostly *at the country level*, influence the fates of firms that are competing *across borders*? These are central questions for our understanding of how firms are shaped by their institutional environments, and they

become even more important if we consider that firm attributes interact with social movement influences to create further heterogeneity in the strategic behavior of firms. Second, and as a consequence of the above question: What are the intended and unintended consequences of SMO support and government endorsement for the spatial and temporal dynamics of industries that are supported by movements and policy-makers? As SMO support appears to influence firms' commitment (Essay 2) and public policy (Essay 3), it partly determines *where* the industry will flourish. Whether such effects will prove to be enduring will depend on how persistent the influence of SMOs on firms and policies is, which again points to the need to understand temporal variations in the role of social movement organizations in shaping firm strategy and industry development.

These are just some of the possible avenues for future research identified as following from this dissertation, as the links between firms and movements have only now started to gain significant attention by social movement and strategy scholars (Davis *et al.*, 2008). This dissertation has been one of the first steps towards understanding how firms are influenced by social movement organizations that promote, rather than combat, an industry's practices. SMOs actions and support modify both the objective benefits for firms engaged in sectors that are consistent with movement goals, and the interpretation of these opportunities by decision-makers. They are thus able to encourage firms' active participation and commitment to industries of greater social or environmental value, and promote government policy that favors such industries. This dissertation has important implications for the study of social movements and firms, yet much remains to be done. Scholars can take up the opportunity to contribute to our understanding of the link between social forces, firms and industries by undertaking the above or other related research endeavors.

## SUMMARY OF FINDINGS AND CONTRIBUTIONS

<i>How do social movement organizations influence firms' strategic behavior?</i>		
CHAPTER 1	CHAPTER 2	CHAPTER 3
<i>Why do social movement organizations' actions matter for firm strategy?</i>	<i>Does SMO support increase firms' commitment to their industry?</i>	<i>How is government policy influenced by firms and SMO support?</i>
<b>Theoretical propositions</b>	<b>Empirical results</b>	<b>Empirical results</b>
<ul style="list-style-type: none"> <li>• SMOs contribute to the economical attractiveness of certain sectors and increase the attention of decision makers to opportunities in these sectors</li> <li>• Firms whose organizational identity is inconsistent with opportunities promoted by SMOs do not respond to the influence of SMOs</li> <li>• Firms with complementary resources respond to the influence of SMOs only if their organizational identity is consistent with these opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Firms operating in the solar PV industry proceed to larger production expansions if they are located in countries with greater SMO support</li> <li>• The impact of SMO support is larger for firms with relatively higher prior commitments to the industry</li> <li>• Firms that diversified into the industry are less affected by SMO support</li> </ul>	<ul style="list-style-type: none"> <li>• The greater the density of solar PV firms in a country, the higher the likelihood that the industry will receive government endorsement</li> <li>• The density of <i>de novo</i> firms has a stronger impact on government endorsement than the density of <i>de alio</i> firms</li> <li>• The impact of the <i>de novo</i> firm density on government endorsement is higher in countries with greater SMO support</li> </ul>
<b>Theoretical contributions</b>		
<ul style="list-style-type: none"> <li>• SMOs lead firms into new industries that are consistent with activists' goals</li> <li>• The impact of SMOs on firms is not uniform. It is conditioned by attributes that influence the identification of opportunities and their interpretation as (ir)relevant to the firm</li> <li>• SMOs act as 'carriers' of institutional pressures, and as one of the social forces that lead firms to invest in industries consistent with the goals of sustainability</li> </ul>	<ul style="list-style-type: none"> <li>• SMO support has a substantive influence on firms' strategies</li> <li>• SMO support is interpreted by firms as proof that their industry is viable. Firms that are more in need to justify their past commitment to the industry are more sensitive to the influence of SMOs</li> <li>• SMOs provide legitimacy accounts that encourage firms' increased commitment to the industry. Firms that are less attentive to such legitimacy cues are less influenced by SMOs</li> </ul>	<ul style="list-style-type: none"> <li>• Firm density contributes to the cognitive acceptance of a new industry, increasing the likelihood that it will receive support by the government</li> <li>• <i>De novo</i> firms provide evidence of industry distinctiveness and are more strongly linked to its cognitive acceptance compared to <i>de alio</i> firms</li> <li>• <i>De novo</i> firms are better categorized as pure organizations focused on an industry consistent with movement goals. Hence, their presence enhances SMOs' ability to influence public policy</li> </ul>
<b>Main findings and guiding insights for future research</b>		
<ul style="list-style-type: none"> <li>• The role of social movements in the business arena is not limited to contestation. Social movement organizations lead firms into new industries and reinforce established firms' strategies</li> <li>• Firm strategy is influenced by geographic heterogeneity in the support for social movement organizations, and by idiosyncratic firm attributes that determine whether a firm will attend to SMOs' calls and how firm managers will interpret SMO support</li> <li>• Even in nascent sectors with very few firms, regulative institutions do not appear exogenously. They are linked to the density of firms in a country and the social movement that favors the industry</li> </ul>		

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**De l'opposition au soutien:**  
**L' influence des organisations de mouvements sociaux sur la stratégie d'entreprise**<sup>29</sup>

**Contexte**

Pour servir leurs objectifs, les mouvements sociaux s'en prennent de plus en plus fréquemment aux entreprises et aux industries (Den Hond and De Bakker, 2007, Van Dyke *et al.*, 2004). De nombreux exemples anecdotiques illustrent cette tendance. Des fréquentes protestations envers les méthodes de travail de Nike aux mouvements anti-OGM visant Monsanto ou encore à la contestation générale des mouvements écologistes contre l'industrie pétrolière, il apparaît clairement que la relation entre les entreprises et la société civile n'a jamais été aussi complexe que de nos jours. En faisant appel à des stratégies telles que le boycott, les manifestations, les menaces, les poursuites ou encore les résolutions des actionnaires, les activistes et mouvements sociaux semblent en mesure d'avoir une influence à la fois sur les actions et sur les résultats des entreprises ciblées (Baron and Diermeier, 2007; King, 2008; King and Soule, 2007; Reid and Toffel, 2009; Vasi and King, 2012; Weber, Rao and Thomas, 2009).

D'après ce point de vue couramment accepté, les mouvements sociaux jouent un rôle disciplinaire au sein de la société civile en maintenant un certain contrôle sur les entreprises; leurs organisations partisans agissant en vue de punir ou menaçant de punir les actions illégitimes. Les analystes des interactions entre entreprises et organisations de mouvements sociaux (SMO) ont tendance à se reposer sur l'hypothèse que les objectifs des mouvements sont toujours *en opposition* avec les stratégies des entreprises, en faisant abstraction du fait

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<sup>29</sup> This summary was prepared by a translator who is not a professional researcher. For an accurate representation, please contact the author to request the original (English) version of this summary.

que les SMO ne sont pas “nécessairement belliqueuses” (Emirbayer and Johnson, 2008) et qu’elles peuvent soutenir voir même encourager certaines initiatives commerciales. Cet axe de recherche s’est plutôt développé de façon relativement indépendante par rapport aux courants de recherche s’intéressant au rôle des mouvements dans la création de nouveaux secteurs d’activité économique (Sine and Lee, 2009; Hiatt, Sine and Tolbert, 2009; Vasi, 2011; Weber, Heinze and DeSoucey, 2008). Par conséquent, malgré les nombreuses indications montrant que les activistes peuvent pousser les entreprises à ne pas faire appel à certaines pratiques socialement contestées, nous ne possédons que peu de connaissances de l’impact sur le comportement stratégique des entreprises que peut avoir la promotion par les mouvements sociaux de secteurs alternatifs socialement plus acceptables.

## **Cadre de la thèse**

Un aperçu plus complet des mouvements sociaux et un cadre plus détaillé de leur influence sur les entreprises ne doivent pas se contenter de prendre en considération la façon dont ils peuvent inciter les entreprises à abandonner certaines pratiques existantes, mais doivent également s’intéresser à la façon dont ils les amènent à en utiliser de nouvelles. Ce mémoire questionne et développe le sujet. En trois chapitres distincts mais interdépendants, un théorique et deux empiriques, je m’efforce de répondre à la question suivante: *Comment les organisations de mouvements sociaux<sup>30</sup> peuvent-elles avoir une influence sur le comportement stratégique des entreprises?* Dans le cadre de ce mémoire, la question se limite aux entreprises qui sont globalement en phase avec les objectifs des mouvements sociaux.

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<sup>30</sup> Les SMO sont définies comme étant des ‘organisations qui calquent leurs buts sur les orientations d’un mouvement social et tentent de mettre en oeuvre ces buts’ (McCarthy and Zald, 1977:1218),

Chacun des trois chapitres qui composent cette thèse s'intéresse à un aspect séparé de cette question de recherche de référence. Le premier chapitre se concentre sur comment et dans quelles conditions les SMO peuvent influencer la décision des entreprises à entrer sur des marchés davantage en adéquation avec les objectifs de viabilité sociale ou environnementale. Bien qu'il s'agisse d'un essai théorique, je fais référence à des exemples dans le domaine des énergies renouvelables pour illustrer ma théorie. Les deux chapitres suivants sont des articles empiriques qui étudient l'influence que subissent les entreprises par la présence de SMO correspondant à leurs stratégies (Chapitre 2), et dans quelles conditions les mouvements partisans peuvent aider une entreprise à obtenir une approbation de leur industrie par le gouvernement (Chapitre 3). Je propose ci-dessous un cours résumé de chacun des trois chapitres ainsi qu'un aperçu des conclusions et des contributions de cette thèse.

### **Résumé des trois chapitres**

Chapitre 1: Ce chapitre examine comment et dans quelles conditions les organisations de mouvements sociaux peuvent apporter l'impulsion nécessaire pour amener les entreprises à entrer sur des marchés soutenus par les activistes. La première partie de l'essai décortique deux mécanismes utilisés par les SMO pour influencer la propension des entreprises à investir dans des industries soutenues par le mouvement. Tout d'abord les campagnes des SMO façonnent l'éventail des opportunités que les entreprises sont enclines à reconnaître. Elles contribuent à la délégitimation des pratiques existantes, ce qui pousse à la recherche d'opportunités économiques alternatives (Rao, 2008) pour trouver des solutions et qui attire l'attention des agents économiques sur des opportunités particulières (Hiatt et al., 2009; Sine and Lee, 2009), leur apporte des informations spécifiques sur comment les exploiter et peut mener au déclenchement d'actions idéologiques (Scully & Segal, 2002; Weber et al, 2008).

Les SMO peuvent également avoir une influence sur la propension des agents économiques à entrer sur un marché en rendant les opportunités d'investissement plus attractives. Les activistes confèrent une légitimité sociopolitique et cognitive aux marchés, ce qui facilite l'acquisition de ressources par les entrants et améliore leurs chances de survie (Aldrich & Fiol, 1994; Meyer & Rowan, 1977; Suchman, 1995). Stratégiquement ils suscitent et souvent invoquent des “changements exogènes de culture” (Ekhardt and Shane, 2003: 343), augmentant la demande envers les produits approuvés tels que ceux qui sont plus écologiques, plus sains et non clandestins (O'Rourke, 2005). Ils ont également une action mobilisatrice envers la création d'infrastructures industrielles, ouvrant la voie aux agents économiques pour mettre un pied dans et profiter d'opportunités sur un marché plus attractif.

La seconde partie de ce chapitre cherche à révéler l'hétérogénéité au niveau organisationnel de la façon dont les entreprises sont impactées par ces deux mécanismes liés à l'influence des SMO. Plus précisément, on soutient que l'identité d'une organisation et les ressources complémentaires d'une industrie conditionnent sa réactivité à l'influence des mouvements sociaux. L'identité d'une organisation détermine si les appels de la SMO seront considérés comme pertinents et cohérents avec la “raison d'être” de l'organisation; les ressources de l'entreprise déterminant les domaines dans lesquels les entreprises rechercheront des opportunités (Tripsas, 2009; Gavetti & Levinthal, 2000) ainsi que la perception des gestionnaires sur la capacité de l'entreprise à les exploiter une fois identifiées. En me basant sur la logique formelle et l'algèbre booléenne (cf. Durand 2002; Fiss, 2007) j'en viens à la conclusion que l'identité d'une organisation en accord avec les opportunités avancées par les activistes est une condition nécessaire pour que les entreprises investissent dans ces opportunités. Le fait qu'une entreprise possède des ressources complémentaires influence également cette décision, bien que cela ne soit ni nécessaire ni suffisant. Au

contraire, il s'agit d'une condition INSN (partie Insuffisante mais Nécessaire d'une condition qui est elle-même Suffisante mais Non-nécessaire) pour amener les entreprises à investir dans des industries favorisées par les activistes. Finalement, l'identité d'une organisation et la complémentarité des ressources sont des conditions INSN pour le résultat inverse, le non-investissement dans des industries soutenues par le mouvement. Cet essai s'intéresse non seulement à la raison pour laquelle les actions de non-opposition des SMO sont importantes pour le comportement des entreprises, mais également aux raisons qui font qu'elles sont ou ne sont pas importantes. Des exemples sur le rôle d'organisations de mouvements écologistes ayant eu une influence sur la prise de décision des entreprises à investir dans les énergies renouvelables sont utilisés pour illustrer cette théorie, et des stratégies méthodologiques pour le tester empiriquement sont proposées.

Chapitre 2: Le second essai s'intéresse à quel point le soutien local pour les SMO qui appuient une industrie spécifique peut mener les acteurs de l'industrie à développer leur engagement envers cette industrie, et à quel point les entreprises peuvent avoir un degré de sensibilité différente face au soutien des SMO. Le soutien des SMO se définit comme étant 'les ressources financières et humaines qu'une organisation de mouvement social peut mobiliser pour soutenir des campagnes' (cf. McCarthy and Zald, 1977), et il est argumenté que les entreprises interprètent le soutien des SMO comme une preuve confirmant le potentiel de l'industrie à assurer une demande locale et par conséquent la viabilité de leurs entreprises. De plus un meilleur soutien des SMO permet aux activistes d'avoir des comptes légitimes, un cadre pronostique légalisant la participation active des entreprises et leur engagement dans de nouvelles industries. Ainsi, dans le contexte de l'industrie photovoltaïque, il est supposé que les entreprises pourront augmenter leur engagement à l'égard de l'industrie si elles opèrent dans des pays où les organisations de mouvements environnementaux sont très présentes. De

plus, deux hypothèses découlent de cette théorie. Premièrement, étant donné que les acteurs ont tendance à se fier à des signaux confirmant leurs convictions, leurs attentes (Nickerson, 1998) ou leurs repères actuels (Tversky and Kahneman, 1974), il est plus probable que les entreprises aux importants engagements passés perçoivent le soutien des SMO comme une indication sociale que leur stratégie est supérieure, justifiant de nouveaux engagements. Deuxièmement, en diversifiant les entrants, elles apparaissent comme étant moins centrées sur l'industrie centrale en comparaison aux entreprises *de novo* (les startups) mais elles entretiennent également des relations plus incertaines avec les groupes activistes, et elles seront moins attentives et sensibles aux cadres pronostiques et aux comptes légitimes des SMO (York and Lenox, 2013). Par conséquent on s'attend à ce qu'elles subissent moins l'influence du soutien des SMO en comparaison aux entreprises *de novo*.

Afin de tester ces prédictions, j'ai compilé un nouveau fichier de données de producteurs photovoltaïques ayant opéré dans l'Union Européenne de 1990 à 2011. L'analyse des données par la méthode des Moindres Carrés Généralisés en vue de prédire le développement des entreprises (en tant que proxy d'un engagement plus marqué) a donné des résultats largement cohérents avec les hypothèses, démontrant que les producteurs de cellules photovoltaïques dont l'engagement relatif est plus important sont plus fortement influencés par le soutien des SMO dans le choix de leurs engagements ultérieurs, et que les producteurs *de alio* sont moins affectés par le soutien des SMO que les entreprises *de novo*. Des tests de robustesse – prenant en considération des facteurs non observés, des explications alternatives ainsi qu'une possible endogénéité du soutien des mouvements sociaux sur des valeurs sous-jacentes de la population – ont confirmé les modèles théoriques.

Chapitre 3: Le troisième essai s'intéresse à la façon dont les mouvements sociaux et les entreprises sont capables d'influencer une éventuelle approbation gouvernementale d'une

industrie. Plus particulièrement, il tente d'expliquer comment l'approbation gouvernementale de l'industrie photovoltaïque dépend de l'interaction des différents types de producteurs photovoltaïques d'un pays (entrants *de novo* et *de alio*) et soutient des organisations de mouvements sociaux spatialement proches. La présence d'un nombre plus important d'entreprises dans un pays est supposé améliorer la légitimité et l'approbation des industries naissantes (Hannan, Polos, and Carroll, 2007), car une densité croissante d'entreprises dans une région, la visibilité qui y est liée ainsi que la diffusion des connaissances sur le secteur sont des 'preuves' (Sine, David and Mitsuhashi, 2007) ou des 'évidences sociales' (Rao, Greve and Davis, 2001) de la viabilité du secteur. En contrepartie ceci devrait augmenter les chances d'une approbation gouvernementale (comme en témoigne la création de politiques favorables à l'industrie). Les entreprises *de novo*, étant plus fortement liées aux industries naissantes ont probablement plus de chances d'obtenir leur approbation dans une catégorie différente, tandis que les entreprises *de alio* – issues d'autres industries – apportent moins à l'approbation cognitive de l'industrie (York & Lenox, 2013). De plus les organisations de mouvements sociaux soutenant l'industrie améliorent la capacité des entreprises à obtenir leur légitimité et l'approbation gouvernementale. Enfin, étant donné que les producteurs photovoltaïques purs sont de bons exemples de la façon dont des hommes d'affaires peuvent s'attaquer à un problème social et ont plus de chances d'être préférés et de partager des réseaux communs avec les organisations de mouvements sociaux, on s'attend à ce qu'ils bénéficient davantage de la présence d'un mouvement de soutien que des entrants *de alio*.

Ces prédictions sont de nouveau testées dans le contexte de l'industrie photovoltaïque de l'Union Européenne (UE) sur la période 1990-2011. Des analyses statistiques utilisant à la fois des modèles probit et logit ont servi à évaluer les possibilités d'une approbation gouvernementale, représentée par la présence d'une politique de tarifs d'achats, la politique

la plus importante et la plus répandue des politiques de promotion de l'énergie solaire (Flamos et al., 2009; Jacobsson and Lauber, 2006; REN21 2012). Les résultats des analyses sont généralement cohérents avec ces prédictions. La densité de producteurs photovoltaïques a un effet positif sur l'approbation gouvernementale d'une industrie, et les effets de la densité d'entreprises *de novo* semblent plus importants que ceux de la densité des entreprises *de alio*. Bien que nous n'ayons pas trouvé d'interaction positive entre le soutien des SMO et la densité globale des entreprises, il est intéressant de noter que les résultats montrent que l'interaction du soutien des SMO avec la densité des *de novo* est significative alors que l'interaction avec la densité des *de alio* ne l'est pas.

### ***Discussion et conclusions***

Ce mémoire est un premier pas pour répondre à la question 'Comment les organisations de mouvements sociaux peuvent-elles avoir une influence sur le comportement stratégique des entreprises?' dans le contexte où les activistes supportent les industries. J'ai suggéré que les campagnes des SMO attirent l'attention des preneurs de décision et déterminent les opportunités qui leur sont proposées, qu'elles influencent la viabilité des mouvements soutenus par les industries en suscitant de la demande, en favorisant la construction d'infrastructures industrielles ainsi qu'en contribuant à la légitimation et à l'acceptation cognitive de nouveaux secteurs industriels. Par conséquent, les SMO amènent les entreprises établies à investir et à s'engager plus envers les industries ayant une valeur sociale ou environnementale supérieure. Cependant l'influence des SMO sur les entreprises n'est pas homogène mais dépend des caractéristiques de l'organisation telles que les ressources de l'entreprise, son identité, ses précédents engagements et le domaine concerné. Pour finir, les entreprises opérant dans des industries soutenues par les activistes bénéficient



des efforts déployés par les SMO pour améliorer l'approbation et la viabilité économique de leur industrie, et plus précisément de par leur influence sur le soutien gouvernemental, une influence d'autant plus importante qu'il y a d'entreprises novatrices opérant dans le pays cible.

Cette thèse apporte une contribution certaine à la recherche sur les organisations sociales et mouvements sociaux, aux bourses de gestion stratégique, à la recherche sur la durabilité, à la théorie institutionnelle et aux études sur le développement des entreprises. *Tout d'abord*, en s'écartant de de l'hypothèse couramment acceptée selon laquelle les mouvements sociaux et les entreprises ont des intérêts divergents (de Bakker et al., 2013:574), cet essai soutient la théorie des organisations et mouvements sociaux. Il apporte à la littérature une partie théorique sur la façon dont les organisations de mouvements sociaux amènent les entreprises à investir dans de nouveaux domaines, une question peu traitée jusqu'à ce jour, et contribue à la recherche sur les caractéristiques organisationnelles pouvant amener les entreprises à répondre différemment aux attentes des mouvements sociaux (King, 2008; Waldron, Navis, and Fisher, 2013; Weber et. al., 2009). De plus, répondant à l'appel récent de King and Soule (2007) pour approfondir la recherche sur l'influence des activistes dans des contextes variés, cette thèse élargit le champ empirique des bourses sur les mouvements sociaux critiqués pour être limitées aux US (Pilati, 2013). *Deuxièmement*, cette thèse contribue à la gestion stratégique en soulignant l'implication des organisations dans leur contexte social (Oliver, 1997; Weick, 1996) et élargissant notre compréhension sur la façon dont l'hétérogénéité géographique des signes sociaux des entreprises peut avoir un rôle déterminant dans leur comportement stratégique. *Troisièmement*, alors qu'une partie croissante de la recherche sur la viabilité environnementale a montré que les attentes institutionnelles des acteurs externes de façon générale ou de celles des activistes

environnementaux en particulier sont importantes pour les entreprises (e.g. Delmas and Toffel, 2008; Kassinis and Vafeas, 2006; Sharma and Henriques, 2005), cette thèse amène une compréhension plus nuancée des mécanismes par lesquels les campagnes des activistes se traduisent par des actions des entreprises. *Pour finir*, cette thèse a des répercussions sur la littérature portant sur la théorie institutionnelle et notre compréhension de la création et du développement des industries. L'influence des organisations de mouvements sociaux sur les nouvelles industries ne semble pas se limiter à un accroissement de la création d'entreprises (Sine and Lee, 2009; Hiatt, Sine and Tolbert, 2009), mais a également une influence sur l'engagement d'entreprises établies, ce qui indique que les SMO jouent un rôle plus important dans la création d'entreprises que ce que des études antérieures avaient laissé supposer. De plus les institutions de régulation qui jouent généralement un rôle primordial dans le maintien des nouvelles industries ne sont pas établies de façon indépendante des entreprises et des organisations de mouvement qui les favorisent (Scott, 1995); au contraire, les nouvelles entreprises et les mouvements qui les ont favorisées catalysent les changements institutionnels permettant de maintenir la nouvelle industrie.

**From opposition to support:  
The influence of social movement organizations on firm strategy**

**Abstract.** With one theoretical and two empirical research chapters that utilize a unique longitudinal dataset of European solar photovoltaic producers, this thesis investigates how social movement organizations (SMOs) influence firms' strategic behavior and industry conditions, in the context of industries supported by activists. The thesis suggests that SMO campaigns shape the attention of decision-makers and the set of opportunities they are exposed to, and influence the viability of movement-supported industries by inducing demand, helping build industry infrastructure, and contributing to the industry's legitimation and cognitive acceptance. As a result, SMOs drive established firms to invest and to commit more to industries that have greater social or environmental value. However, their influence on firms is not homogenous, but depends on organizational characteristics such as firms' resources, identity, prior commitments, and industry focus. Finally, firms operating in industries promoted by activists benefit from the efforts of SMOs to increase the acceptance and economic viability of their industry and particularly from their influence on government support, an influence which is stronger when more entrepreneurial firms are operating in the focal country. This dissertation contributes to research on social movements and organizations, strategic management scholarship, sustainability research, institutional theory, and studies of industry creation.

**Keywords.** Social movement organizations; Social movements; Firm strategy; Firm commitment; Renewable energy; Solar photovoltaics; Public policy; Industry creation

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**De l'opposition au soutien:  
L' influence des organisations de mouvements sociaux sur la stratégie d'entreprise**

**Abstract. Résumé.** Constituée d'un chapitre théorique et de deux chapitres de recherche empiriques utilisant un fichier longitudinal unique de données portant sur les producteurs photovoltaïques européens, cette thèse s'intéresse à l'influence que les organisations de mouvements sociaux (SMO) peuvent avoir sur le comportement stratégique des entreprises et la situation de leur secteur d'activité, dans le contexte où les activistes soutiennent les industries. La thèse suggère que les campagnes des SMO attirent l'attention des preneurs de décision et déterminent les opportunités qui leur sont proposées, qu'elles influencent la viabilité des mouvements soutenus par les industries en suscitant la demande, en encourageant la construction d'infrastructures pour l'industrie et en contribuant à la légitimation et à l'approbation cognitive de l'industrie. Par conséquent, les SMO amènent des entreprises établies à investir et à s'engager plus envers les industries ayant une valeur sociale ou environnementale supérieure. Toutefois leur influence sur les entreprises n'est pas homogène, mais dépend des caractéristiques de l'organisation telles que les ressources de l'entreprise, son identité, ses précédents engagements et le domaine concerné. Finalement, les entreprises opérant dans des industries soutenues par les activistes bénéficient des efforts déployés par les SMO pour améliorer l'approbation et la viabilité économique de leur industrie, et plus précisément de par leur influence sur le soutien gouvernemental, une influence d'autant plus importante qu'il y a d'entreprises novatrices opérant dans le pays cible. Cette thèse apporte une contribution certaine à la recherche sur les organisations sociales et mouvements sociaux, aux bourses de gestion stratégique, à la recherche sur la durabilité, à la théorie institutionnelle et aux études sur le développement des entreprises.

**Keywords.** Organisations de mouvements sociaux; Mouvements sociaux; Stratégie d'entreprise; Engagement d'entreprise; Energie renouvelable; Energie solaire photovoltaïque; Politique publique; Création d'industrie