The Impact of Social Activism on Corporate Nonmarket Performance: Evidence from the Nuclear Power Generation Industry

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Abstract. In this paper, we theorize about nonmarket performance outcomes in contentious environments, i.e. in settings that are characterized by stakeholder disapproval targeting the firm and by social movement mobilization against its activities. More specifically, we posit that firms that are targeted by protests due to their involvement in stigmatized activities should experience worse nonmarket performance outcomes. This is because politicians—and by extension, regulators—depend on public consensus to stay in office, and as such they are especially sensitive to mobilization; for this reason, we argue that they will be less likely to behave favorably towards firms that are overtly opposed by activists in public arenas. We find support for this idea through a study of electric utilities that were involved in nuclear power generation in the United States between 1970 and 1995, using the approval of increased rates of return (ROR) by public utilities' commissions (PUC) as a dependent variable. We also find this effect to be especially strong: 1) when there is ideological alignment between activists and regulatory bodies or between activists and the state's legislative and executive bodies; 2) when the extent of involvement of the firm in controversial activities is greater; 3) when protests targeting the firm's activities are better organized. We discuss the contributions of our results to the literature on nonmarket strategy and elaborate on their implications.

Introduction

Social activism – defined as collective public actions such as protests, boycotts, and media campaigns conducted by individuals with shared objectives – can harm organizations' performance by damaging their reputations and challenging the legitimacy of business practices in the eyes of influential stakeholders (Carberry and King 2012; Hiatt, Grandy and Lee 2015).[1] Customers, suppliers, employees, or shareholders may respond to activist campaigns by ceasing their relationships with targeted organizations or by demanding that they modify their practices, undermining organizations' business models and financial profitability. Activist mobilization is a particular risk for organizations in sectors that society already perceives as controversial (Durand and Vergne 2015, Ingram et al. 2010, King and Pearce 2010): firms operating in industries such as natural resource extraction, tobacco, gambling, and defense often face constant stakeholder disapproval of their activities (Hudson 2008) and repeated activist campaigns. In turn, concerted stakeholder opposition can lead to firms' ostracism from potential exchange partners (Jensen 2006), unfavorable portrayals in the media (Durand and Vergne 2015), and difficulty in accessing new resources (Pfeffer and Salancik 1978).

Scholars have explored the impact of social activism and campaigns on organizational performance in the market environment – where assessments by customers, investors and other market-based stakeholders are paramount (Eesley et al. 2016, King and Soule 2007, Lenox and Eesley 2009, Weber et al. 2009) – and also how firms respond strategically to activist opposition (Eesley and Lenox 2006, Ingram et al. 2010, Julian et al. 2008, Luo et al. 2016, McDonnell and King 2013, Reid and Toffel 2009, Marquis, Toffel and Zhou 2016). However, there has been little consideration of the effect of activism on organizations' performance in the nonmarket environment – the "social, political, and legal arrangements" that govern firms' interactions with a range of stakeholders (Baron 1995: 73, Hadani and Schuler 2013). This gap in the literature is surprising since while activists may seek to directly influence targeted firms'

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[1] Saunders defines activism as "the action that movements undertake in order to challenge some existing element of the social or political system and so help fulfill movements' aims", (Saunders, 2013: 1). See also Kornhauser (1959) and Norris (2009).

practices and strategies, they can also aim to shape the broader regulatory and policy environments within which firms and industries operate. Policymakers are subject to demands and pressures from multiple, often competing, stakeholders, including activist organizations and the firms they oppose (Bonardi et al. 2006, Schuler and Rehbein 2011). Activists' public protests, media campaigns and lobbying can impact legislative, executive and regulatory agency policy decisions, thereby making firms' nonmarket outcomes and performance sensitive to the degree of activist contestation (Funk and Hirschman 2017: 32, Hillman, Keim and Schuler 2004).

In this paper, we draw on the social movement and nonmarket strategy literatures to develop novel hypotheses about firms' nonmarket performance – firm-level outcomes in regulatory, legislative and judicial arenas – in contentious settings characterized by stakeholder disapproval of firm activities and by social movement mobilization. We argue that when firms become targets for oppositional activism due to their involvement in contentious activities, their nonmarket performance will decline because politicians and regulators require a degree of public consensus to remain in office, and as such they are responsive to social activism that can influence public sentiment towards contested firms. We additionally argue that the effect of activism targeting a firm depends on extant political opportunity structures (Amenta et al. 1992, King 2008), specifically the ideological alignment between politicians, regulators and activists, as well as on the resources and capabilities of social movement organizations (SMOs). Furthermore, we expect that the extent to which targeted firms' nonmarket performance declines is a function of the degree of involvement in contentious activities, since the extent of stakeholder disapproval is contingent on the latter (Piazza and Perretti 2015).

We test our predictions using a unique panel dataset that includes an especially precise measure of firm performance in the nonmarket environment, as well as measures of targeted social activism. Our industry context is the U.S. electric utility sector, where firms' operations, investments, retail rates, and financial returns are regulated by state regulatory agencies (Joskow and Schmalensee 1986, Russo 2001). Due to natural monopoly characteristics of the electricity sector, firms' revenues and costs are not governed by market mechanisms, but rather by economic regulators who, *inter alia*, establish firm-specific rates of

return that firms can earn on their assets. Hence, in this industry, firm profitability rests significantly on the ability to have higher financial rates of return approved by state regulators, making the regulated rate of return a valid measure of nonmarket performance (Bonardi et al. 2006). Using archival sources, we construct a complete dataset of PUC decisions on the regulated rate of return, which varies by firm and over time, for each firm in the population of 206 electric utility firms for the period 1970 to 1995. During this time period, nuclear power generation, which was embraced by the electric utility sector, experienced growing public opposition as a societally-acceptable generation technology. In the 1960s, opposition initially took the form of isolated episodes of contention at the local level (Fuller 1975, Wellock 1998), but later coalesced into a national movement, punctuated by hundreds of public protests staged against nuclear power installations and electric utilities across the country (Rucht 1990). This empirical setting therefore provides a unique opportunity to explore statistically whether social activism—in the form of protest events—affects firms' nonmarket performance.

After reviewing the relevant literature, we develop a set of hypotheses and present the specifics of our statistical analysis. We then discuss our data and methodological approach, as well as our results and the robustness of our findings to alternative specifications. Finally, in the concluding section we discuss the implications of our analysis for the literatures on nonmarket strategy and social movement theory, offering suggestions for future research.

Theoretical Framework

Over the past two decades, management scholars have become increasingly cognizant of the role of the broader sociopolitical environment in shaping firm-level outcomes (Fremeth et al. 2016, Hiatt and Sine 2014, King and Pearce 2010, Walker and Rea 2014). Research in this area, however, has largely proceeded along two parallel avenues of inquiry, with only minimal cross-fertilization between them. Social movement theory, which is grounded in sociology, has predominantly been concerned with the effect of social activism on corporate behavior and competitive outcomes (King and Soule 2007, Walker et al. 2008). A separate literature on nonmarket strategy—primarily informed by economics, political science, and

law—has examined how firms interact strategically with nonmarket actors such as politicians, regulators, and courts in order to effect more favorable public policies, improving overall firm performance (e.g. Dorobantu et al. 2017, Greening and Gray 1994). We briefly discuss each in turn, emphasizing how joint consideration can lead to new theoretically-motivated predictions about the impact of social movement action on firms' nonmarket outcomes.

Activism, firm behavior, and performance outcomes. Within this literature, one stream of research has focused on the effects of sociopolitical factors on firm behavior and, by extension, performance. This line of inquiry has emphasized that the pursuit of competitive advantage does not rest solely on internal capabilities or on the level of competition with other firms, but is also a function of a firm's standing within its broader sociopolitical environment. Beginning with Freeman (1984), management theory has argued that firm outcomes depend not only on meeting the expectations of market-based actors and shareholders, but also the needs of a variety of other stakeholders, which include non-governmental organizations, activists, local communities, government entities, industry associations, labor unions, and so on. In the past few decades, research has demonstrated that stakeholder disapproval can have tangible consequences for organizations, and as such it has a discernible impact both on firm behavior (Durand and Vergne 2015, King 2008, McDonnell et al. 2015, McDonnell and King 2013, Piazza and Perretti 2015, Reid and Toffel 2009) and on performance (e.g. Jonsson, Greve, and Fujiwara-Greve 2009, King and Soule 2007, Paruchuri and Misangyi 2015).

Scholars in this area have explored a variety of topics that pertain to how stakeholder disapproval emerges, how it coalesces into opposition in the form of organized interest groups and social movements, and how both stakeholder disapproval and activism translate into penalties for targeted organizations. For instance, Piazza and Perretti (2015) trace back the behavior of firms that engage in contentious activities to the degree of disapproval of such activities in the media, as well as to firms' relative involvement in them, while Durand and Vergne (2015) show that media disapproval can result in radical responses such as asset divestment, as well as less radical strategies of impression management and adoption of CSR practices (e.g. Hiatt, Grandy and Lee 2015; McDonnell and King 2013). Ingram, Yue and Rao (2010) examine the

strategic interaction between social movements and firms, with an eye to clarifying how firms react to protests and how a history of past contention informs future corporate behavior (see also Yue, Rao and Ingram 2013). Eesley and Lenox (2006) explore the conditions under which mobilization is likely to elicit positive firm responses, while Eesley et al. (2016) examine the strategies that different types of activist groups enact. Finally, scholars belonging to the social movement theory tradition in sociology have been especially concerned with firm outcomes (Giugni 1998), specifically how social movements can achieve their stated goals by shaming corporations into compliance (Bartley and Child 2014) and threatening their financial performance, while shedding light on the conditions under which social movement success is most likely to materialize (King 2008, King and Soule 2007, Luo et al. 2016).

Nonmarket strategy. In parallel with the sociological literature on the effect of activism and stakeholder disapproval on firms, research on nonmarket strategy has examined how firms strategically manage their sociopolitical environments to improve firm-level outcomes (e.g. see Dorobantu, Kaul and Zelner 2017; Hillman et al. 2004). This literature starts from the premise that many firms are affected by, and respond to, "the demands and constraints imposed by various actors in their external environment, including legislators, regulatory agencies, public interest groups, and the media" (Greening and Gray 1994: 467-468). Nonmarket strategies provide opportunities to build competitive advantage over a firm's competitors (Claessens et al. 2008), to buffer the firm from political turbulence (Hillman 2005), and to improve the firm's outlook by securing favorable policy treatment (Fremeth et al. 2016). To this end, firms undertake coordinated actions to influence legislators, regulators, and the courts by providing resources such as campaign finance, information, and constituent political support (Bonardi et al. 2006), as well as by engaging in market actions such as local employment and investment that are valued by nonmarket actors (Funk and Hirschman 2017).

As firms interact with their sociopolitical environment, they participate in what can be conceptualized as a *political market*, consisting of actors that demand or supply policy change (Bonardi et al. 2005). The demand-side of a political market comprises firms and organized interest groups, including social movements, while the supply-side includes state actors such as legislators, regulators, and the

judiciary. The interaction of supply and demand actors shapes public policy through the exchange of resources valued by each party - firms and activists seek policy outcomes that are aligned with their goals, while government officials benefit from receiving resources that support their election or appointment aspirations, or the implementation of ideologically-driven policy agendas.

An important insight from the nonmarket literature is that firms' nonmarket strategies are often motivated in response to competition on the demand-side of the political market – that is, from rival stakeholders or social movements that seek to influence policy outcomes. The underlying assumption is that organized opposition to firms in nonmarket arenas can lead to government policy decisions that harm firm performance, while benefiting that of rivals. There is little systematic empirical evidence, however, about the impact of opposition by activists on firms' nonmarket performance outcomes. On the other hand, a substantial body of research has documented the effect of such opposition on firms' *market* outcomes: King and Soule (2007), for instance, find that activist protests against firms are associated with negative abnormal stock price returns, especially when coupled with greater media attention, which they attribute in part to the impact of protest events on investor expectations about future revenues. More generally, stakeholder disapproval (King 2011) can take manifold forms and is generally assumed to carry a variety of more intangible negative consequences, for instance reputational damage (King 2008), heightened perceptions of risk (Vasi and King 2012), and reduced access to resources (Hiatt and Park 2013, McDonnell and Werner 2016). While the connection between stakeholder disapproval and negative performance outcomes has been theorized and empirically examined, very few studies, however, have explicitly tested the underlying mechanisms that may explain reduced revenues or negative responses by investors. Furthermore, as far as we are aware, no statistical studies have considered the impact of activism on firm performance outside the market environment.

Scholars have also found that firms adapt their market strategies to avoid the performance penalties that are associated with stakeholder disapproval: they may attempt to pre-empt activist campaigns by initially probing and subsequently avoiding investment in adverse markets (Ingram et al. 2010), or by self-regulating contentious market activities (Baron et al. 2016, Eesley and Lenox 2006). Activists and social

movements thus have the ability to harm firms' market-based performance and operations by exerting pressure on targeted stakeholders in the market environment, including customers, suppliers, and shareholders (Devers et al. 2009, King and Pearce 2010).

Activism and nonmarket performance. While the relationships between social activism, firm strategy, and market performance have received substantial scholarly attention, whether and how mobilization impacts firms' *nonmarket* performance are still underexplored questions. Nonmarket performance reflects the ability of firms to attain more favorable policy outcomes, for instance in the form of legislation, regulatory rules and orders, or judicial decisions, which in turn enhance overall financial performance. Given the complexity of the nonmarket environment and also the ubiquity of regulation across many industries, we focus our analysis on the impact of activism on firms' nonmarket performance in regulatory contexts as opposed to legislative settings. Industry regulators are charged with designing regulatory rules and orders that implement policy objectives stated in legislation, and they are typically the central government institution that firms regularly interact with. We thus ask: how does social activism impact a firm's ability to secure favorable regulatory outcomes?

Answering this question requires an understanding of the nature of regulatory institutions and the processes through which nonmarket outcomes are generated. Regulatory agencies are generally established as administrative entities separate from executive and legislative branches of government, but are guided in their policy-making and authority by statute. The broad standard that regulators must adhere to in any industry is that regulations must operate in "the public interest", which affords a level of discretion to regulators in the interpretation of what precisely constitutes the public interest in any specific case. The decision-making processes that agencies follow are usually well defined and highly structured, however, giving less latitude on *how* policy decisions are made. A hallmark of agency processes is that they are information-based, requiring regulators to gather, scrutinize and assess information from affected parties on proposed policies before making a final decision (Aplin and Hegarty 1980, Hillman and Hitt 1999). Due process requirements necessitate that decisions be rationally based on evidence and facts, which guards

against arbitrary or capricious rulings. Agency decisions are typically final and do not afford a role for the executive or legislature to consent or veto, though they are subject to appeal to the courts.

Regulatory agencies are hence structurally designed to regulate firms largely independently from elected branches of government, and to be insulated from short-term political pressures. In this regard, one might expect that social activism and pressures arising from organized public protest may have little effect on agency deliberations, unlike on elected politicians' voting decisions which are often perceived as responsive to the winds of public opinion (Lord, 2000). However, although regulators have a degree of independence, they are not immune to external forces for at least two reasons. First, political institutions control a number of mechanisms that can be used to discipline, incentivize or otherwise influence regulators, directly or indirectly (Ewans and Garber 1988, McCubbins et al. 1987). Regulators are generally appointed for fixed terms by the executive branch, with the consent of the legislature, so career-oriented regulators who wish to be re-appointed will pay heed to political views. Annual agency budgets and appropriations are also politically-determined, another lever of political control (Ferejohn and Shipan 1990, Shipan 2004). Legislative committees can cajole regulators by summoning them to public hearings or by requiring reports that justify their actions—an additional burden. In the extreme, the legislature can enact new legislation that directly overrides or modifies agency rules, or that restricts their future jurisdiction. Recognizing the potential for political reaction, regulators thus have an *ex ante* incentive to take into account political preferences in their policy-making. If social activism against a firm or industry is successful in gaining the sympathy of elected politicians, regulators may thus update their policy positions accordingly, favoring activists at the expense of targeted firms.

Second, even in the absence of political control, regulators may interpret social activism as a powerful informational signal about the public interest. Protests are costly to organize and implement, requiring participants' time and resources, and hence reflect the saliency of an issue for a constituency, such as a local community. While protests often mobilize only a small minority of a local population, they are notable by the fact that they are rare events, potentially signaling shifts in underlying sentiments or preferences of the broader population who are less vocal. Protests also often garner attention from media,

who propagate the issue to a wider audience, encouraging further public mobilization and increasing public awareness of the issue. As public attention to and discourse about a protested issue increases, regulators are more likely to incorporate, explicitly or implicitly, activist viewpoints in regulatory policy, and to adopt orders or rules that disfavor targeted firms.

Based on these considerations, we expect that firms whose involvement in contentious activities becomes a target for protests will achieve worse nonmarket performance in regulatory contexts. More formally:

> HYPOTHESIS 1: *Public protests against a firm's contentious activities will lead to decreased nonmarket performance of the firm.*

The role of political opportunity structures. While regulators may respond to the pressures that social movements exert through elected politicians, the channel of influence is not direct but rather conditional on the institutional ability of politicians to distribute rewards and sanctions to bureaucrats (McCubbins et. al, 1987, Moe 1987, Weingast and Moran 1983). The mechanisms that politicians can utilize to influence regulatory behavior—"specific prohibitions on activities, and other means that serve to embarrass agency heads, hurt future career opportunities, and foil pet projects" (Weingast and Moran 1983: 769)—are more credible, and hence more effective, when there is a degree of ideological alignment between legislative and executive branches of government.

Agency appointments, budget decisions, and enactment of new legislation all require common agreement by the legislature and the executive in presidential systems in order to be implemented. Different branches of government are more likely to agree on their approach to regulation if they share a common political ideology. A politically aligned government can expeditiously move legislation through the political system and avoid making concessions to minority parties. In such circumstances, regulators will be particularly attuned to elected politicians' responses to activist protests, recognizing the greater risk of straying too far from political views of the public interest in regulatory policy. The risk of political

intervention in regulatory matters is further heightened when an aligned government's ideology is consistent with that of the activist organizations engaged in protests.

By contrast, when elected branches of government are characterized by ideological divisions, regulators have greater latitude to act independently and will be less concerned about possible political ramifications of enacting regulations that differ from those favored by the legislature or executive. Activist protests will be less effective in shaping regulatory policies if regulators perceive that the policies activist organizations promote do not find a political consensus within government, stymieing political efforts to corral regulatory agencies in a particular direction. Accordingly, when government is divided across party lines, firms' nonmarket performance is more insulated from activist pressures than when government is ideologically unified and sympathetic towards activist causes. Hence:

> HYPOTHESIS 2. *The negative effect of protests on a firm's nonmarket performance will be greater when the dominant political ideologies of the legislature and executive branch of government are aligned with activist causes.*

Regulator ideology. As political appointees, regulators can also have ideological orientations that inform their decision-making on regulatory policy (De Figueiredo and Edwards 2007) and that mediate the influence of social movements (Amenta 2014, Amenta et al. 1992). In the context of a principal-agent relationship, executive actors will pay careful attention to the policy views of prospective regulator candidates. When regulators are intrinsically sympathetic to the goals or positions of activists, activist strategies and tactics can be more effective since "a challenger's action is more likely to produce results when institutional political actors see benefit in aiding the group the challenger represents" (Amenta et al., 2010: 298).

Regulators have several methods for augmenting the influence of activist groups or other stakeholders with whom they share common beliefs. First, regulators can invite selected activist groups to administrative hearings and to provide evidence or testimony on policy proposals, as well as the opportunity to challenge or rebut the claims of regulated firms. By controlling the participation of stakeholders in policy

proceedings, regulators can "stack the deck" in ways that give more prominence and voice to activists (McCubbins et al. 1987). Second, regulators may selectively reference the public arguments and actions of activists to support their conclusions about which policies serve the public interest, while downplaying the arguments of stakeholders with different positions. On the other hand, regulators that are ideologically at odds with the position of an activist group may hold a different interpretation of the public interest and rely on the arguments and evidence offered by other stakeholders in the regulatory process, offsetting the impact of activists. Social activism will thus have a stronger impact on a firm's nonmarket regulatory performance when there is ideological alignment between activists and regulators. Hence:

> HYPOTHESIS 3. *The negative effect of protests on a firm's nonmarket performance will be greater when there is ideological alignment between regulators and activists.*

Firm involvement in contentious activities. Firms differ in the degree to which they are vulnerable to activism in market arenas and, as such, nonmarket penalties are likely to vary as well. Often, protestors do not target the firm *per se*, but rather the firm's involvement in activities that they see as reprehensible, such as arms manufacturing and trade (Vergne 2012), foreign investment in countries tainted by human rights abuses (Meznar et al. 1994, Soule et al. 2014), or financial misconduct (Paruchuri and Misangyi 2015, Wiersema and Zhang 2013). Indeed, one of the strategies that firms can enact to reduce the disapproval they receive from stakeholders is to minimize their involvement in contentious activities (Durand and Vergne 2015, Piazza and Perretti 2015)—a process of *stigma dilution* (Vergne 2012).

In nonmarket arenas, where a firm's performance depends on regulators' evaluation of the firm's activities, firm-level outcomes will vary as a function of the extent to which the firm engages in activities that are condemned by stakeholders. More specifically, because regulators are concerned with preserving the legitimacy they hold within the broader institutional system, we expect that social movement challenges will be especially detrimental to nonmarket performance when the target firm is comparatively more involved in such activities. Hence:

HYPOTHESIS 4. *The negative effect of protests on a firm's nonmarket performance will be greater when the firm has more involvement in contentious activities.*

Activist organization. Activist organizations vary in their resources and their ability to mobilize supportive constituents (McCarthy and Zald 1977), to publicly communicate their messages, and to assemble credible information regarding contested practices —factors which can increase pressure on politicians and regulators. Local community activists, for instance, may mobilize only in response to new infrastructure development proposals that are deemed to be harmful to the community, implying relative inexperience for such *de novo* groups in organizing and resourcing effective protests and public campaigns. The participation of established activist organizations such as Greenpeace, Sierra Club, and Friends of the Earth, on the other hand, can send a strong signal to government policymakers, indicating that the contested practice has achieved wider support than immediate local populations, and that the target firm faces the prospect of a visible, better resourced campaign. Furthermore, when multiple activist organizations collaborate to sponsor a protest, they can draw on a larger resource base, which allows for a more powerful impact (Van Dyke and Amos 2017, Wang et al. 2018, Wang and Soule 2016). Protests involving more activist organizations may also indicate that grievances against a firm are especially salient for citizens, thereby increasing the level of political attention and priority. Hence:

HYPOTHESIS 5. *The negative effect of protests on a firm's nonmarket performance will be greater when activists are better resourced and organized.*

Empirical Context

Electric utility sector in the United States. We test our hypotheses about nonmarket performance using the U.S. electricity sector as an empirical setting since firms in this industry are heavily regulated by government agencies, making performance dependent on the nonmarket environment. The industry has also been characterized by a strong degree of contention from social activists targeting firms' involvement in commercial nuclear power generation.

In the early development stages of nuclear power generation, which originated in the mid-1950s as an offshoot of military weapons programs, nuclear power was viewed largely as a safe and affordable energy source (Gamson and Modigliani 1989), with elite political and scientific establishments at the federal level providing support for technology development through grant funding and enabling legislation.[2] During this period, opposition to nuclear plants tended to be local, driven by community concerns about accident risks, as well as by the expected impact of the plant on local infrastructure and the natural environment. In some instances, such as Pacific Gas and Electric's 1958 proposal for a nuclear plant at Bodega Bay in California, local protests and demonstrations were successful in blocking regulatory permits, though these cases were relatively rare.

In the following two decades, the nuclear industry expanded, with hundreds of new units being proposed,[3] but so too did opposition to nuclear power, which became more organized and vociferous, reflecting growing concerns about public safety and environmental impact. Nuclear accidents at Three Mile Island in 1979 and Chernobyl in 1986 undermined public assumptions about safety and government oversight, and brought the issue of nuclear power into the forefront of national debate (Nelkin 1981, Walker 2006, Walsh 1981, 1986). National protest movements emerged in the late 1970s (Wellock 1998) with the founding of specialized anti-nuclear groups such as the Clamshell Alliance and the Abalone Alliance. Public opinion—once in support of the atom—began to shift (Rosa and Dunlap 1994), and starting in the early 1980s the number of people opposing the construction of nuclear power plants consistently outnumbered those in favor. As a result, the broader patterns of discourse surrounding nuclear power changed: once touted as a safe and affordable energy source, it increasingly came to be depicted in the

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[2] The 1954 Atomic Energy Act facilitated the transfer of military nuclear technology and know-how to the private sector for commercial usage. Subsequently, the Price-Anderson Nuclear Industries Indemnity Act of 1957 provided liability coverage for electric utilities' nuclear power projects, stimulating a wave of private sector investment in new nuclear plants.

[3] By the early 1970s, there were over 90 new units planned for construction, and the number of operational units more than tripled between 1970 and 1980. The outlook changed drastically starting in the late 1970s, however; while the number of reactors in operation continued to rise, orders plummeted and cancellations increased. Ultimately, 48 percent of all nuclear units proposed by the mid-1990s were cancelled (Piazza and Perretti 2015), and since the early 1990s only one new reactor has come into service.

media as costly, dangerous and unreliable (Gamson and Modigliani 1989), resulting in increased hostility and skepticism among the general public.

By the early 1980s, a network of geographically dispersed, loosely coordinated anti-nuclear activist organizations had been created; in turn, these organizations tapped into a larger reservoir of supporters by forming alliances with other SMOs such as Greenpeace, championing environmental causes, nuclear disarmament, and peace. Bolstered by contextual factors, such as the rapid cost escalation of nuclear power plant construction, the anti-nuclear movement emerged as powerful opposition for the nuclear power industry, contesting firms publicly through protests and the media, as well as in government arenas, exerting pressure on politicians and regulators for changes in policies governing the sector (Daubert and Moran 1985).

Political divisions also emerged in this time period. While nuclear power enjoyed bipartisan support in the late 1950s, in the following decades the Democratic Party became increasingly opposed to nuclear power. For instance, in one of the earliest episodes of contention between activists and electric utilities surrounding the proposed plant at Bodega Bay in northern California, activists succeeded in mobilizing prominent Democratic politicians in opposition to the plan, including California Assemblyman and future San Francisco mayor Willie Brown (Wellock 1998). This shift was eventually reflected in the official platform of the Democratic Party at the national level: while in 1972 the national Democratic Party had advocated for greater research and development efforts in the field of nuclear power, by 1980 the Democratic platform called for nuclear power to eventually be phased out.[4] Conversely, the Republican Party remained a strong supporter of nuclear power ever since the Atoms for Peace program was started in 1955 by President Eisenhower, a Republican. Even in the wake of the Three Mile Island accident in 1979, Republicans remained steadfastly committed to nuclear power, with the party platform for the 1980

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[4] This Democratic Party's 1980 platform stated "Through the federal government's commitment to renewable energy sources and energy efficiency, and as alternative fuels become available in the future, we will retire nuclear power plants in an orderly manner." The platform is available at http://www.presidency.ucsb.edu/ws/index.php?pid=29607.

elections supporting "accelerated use of nuclear energy" and declaring nuclear power generation as having the "highest priority".[5]

Nonmarket environment. Firms in the U.S. electric utility sector are primarily regulated by independent state regulatory agencies, Public Utility Commissions (PUCs*)*, who control multiple dimensions of firm operations and performance, including the rates they can charge customers, allowable capital investments, and the financial rate of return (ROR) firms can earn on their assets. While the Nuclear Regulatory Commission, a specialized federal agency, oversees technical standards and operating procedures for nuclear generators, state PUCs have an economic remit – to set consumer rates that are "just and reasonable" but that also allow firms to earn a fair return on their investments (Joskow 1974). PUCs establish regulations through periodic rate reviews, which are generally requested by firms after periods of cost growth so that rates can be reset. Rate reviews are quasi-judicial administrative processes that incorporate evidence and testimony from different stakeholders, including firms and organized interest groups such as consumer advocates, on appropriate rate levels, costs, and the allowable financial rate of return. Following public hearings and internal review, PUC commissioners make final decisions on regulations, including rates and RORs, subject to appeal to state courts. PUCs have some discretionary flexibility in setting the regulated rate of return, and stakeholders often present differing positions on the 'reasonable' level, with firms typically advocating for higher levels than opposing stakeholders.[6] Because RORs are established for individual firms and represent the target level of financial return that firms can earn, they are an important indicator of a firm's performance in the nonmarket environment (Bonardi et al. 2006), and they allow comparisons to be made across all firms in the industry, facilitating statistical analysis.

Although PUCs are constituted as regulatory institutions that operate separately from legislative and executive branches of government, they are not immune to political and public pressures. First, PUCs,

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[5] The Republican Party's 1980 platform is available at http://www.presidency.ucsb.edu/ws/index.php?pid=25844 .
[6] The average rate of return that PUCs permitted firms to earn was 9.89% in our sample. The average difference between the rate of return that firms proposed during rate reviews and that PUCs allowed was 60 basis points (0.6 percent).

like other regulatory bodies, derive their mandates and authority to regulate from enabling legislative acts, which may be modified or curtailed by the state legislature and executive in the form of new legislation. PUCs also depend on annual appropriations granted by the state legislature and governor to cover their operating costs, and PUC commissioner appointments are generally made by the state governor with the consent of the senate.[7] Threats of budget and appropriations cuts, or of non-reappointment, can be powerful tools though which political entities encourage PUCs to adhere to political institutions' agendas in their decision-making. Second, PUC legitimacy in the public sphere relies on crafting regulatory policies that are deemed socially acceptable to a range of stakeholders and that achieve a broad level of societal support (Hyman 2000). Yet societal values and the meaning and interpretation of what constitutes the 'public interest' – the primary criterion for regulation – can shift over time, making PUCs sensitive to external cues from stakeholders about the acceptability of new policy decisions. Hence, while PUCs are formally independent, they are nonetheless sensitive to political pressures, which are likely to affect both their incentives in formulating regulatory policies and the way in which they interpret the public interest. As a result, the presence of social movement opposition and contention surrounding nuclear power generation may influence firms' regulatory outcomes.

Data and Methods

Sample. To test our hypotheses we compiled a panel dataset for the population of investor-owned utilities in the U.S. electricity industry, containing information on the regulated rate of return for each firm, the role of nuclear technology in the firm's power generation asset base, and the incidence of geographically proximate public protests against nuclear power during the 26 year period from 1970 to 1995.[8] The dataset

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[7] PUCs are generally led by three to five commissioners who are appointed for staggered terms of five years. In 10 states PUC commissioners are elected by the citizenry but budgets and governing legislation remain under the control of the executive and legislative branches.

[8] During our period of study, electric utilities operated as geographic monopolies with no retail or wholesale power competition. We acquired data on utilities' rate reviews and regulated rates of return from several sources, notably Regulatory Research Associates, a specialist consulting firm that tracks rate reviews in the utilities sector, and from annual volumes of the National Association of Regulatory Commissions (NARUC). For the 1970s we collected rate review documents directly from state PUC archives.

covers 206 firms, creating a potential sample of 5,356 firm-year observations, which is reduced to 5,101 observations after accounting for missing values on some variables and also due to merger and acquisition activity within the sector.

The data includes regulatory decisions on the regulated rate of return for each of the 1,886 rate reviews conducted by PUCs during the sample period. Firms requested rate reviews on average approximately every three years. More than 400 reactor units were publicly announced before the 1980s although, partly as a consequence of the anti-nuclear movement, only 241 were actually ordered and almost half of these were cancelled before completion (Komanoff 1982, Piazza and Perretti 2015). We control for the different stages of nuclear plant development in our empirical model – pre-construction, construction, and operation – since we expect that opposition and negative public sentiment is likely to be most intense during the pre-construction stage, when firms are seeking regulatory permits.

Method. In order to statistically identify the impact of social protest events on firms' nonmarket performance, we leverage the panel structure of our data by using a fixed effects regression model with firm and time fixed effects (Angrist and Pischke 2009). A fixed effects model enables us to control for unobserved firm characteristics that are time-invariant and that might be correlated with the level of social movement activism or characteristics of the nonmarket environment, which could otherwise bias our coefficient estimates. Robust standard errors are clustered by firm in all models to address potential autocorrelation in the panel.

Since rate reviews do not occur randomly but are requested by utilities when they wish to increase rates, coefficient estimates on variables in a linear regression model of the regulated rate of return may be biased if these variables also influence utilities' decisions to request a rate review. We thus implement a Heckman selection model, which uses a probit model to estimate the likelihood of observing a rate review, and then corrects coefficient estimates in the linear regression for potential sample selection bias using the inverse Mills ratio (Heckman 1979). Coefficients in both equations and the selection parameter are estimated jointly through maximum likelihood, which yields consistent and unbiased estimates, assuming

a normal error distribution. A statistically significant estimate of the inverse Mills parameter can indicate a sample selection process exists (Certo et al. 2016, Shaver 1998, Wooldridge 2002).

Variables. Our dependent variable, *Rate of Return*, is the percentage financial return a firm is permitted to earn on its assets, as determined by the PUC during a regulatory rate review, and gauges a firm's nonmarket performance. PUCs are required to establish "reasonable" rates of return though, in the absence of a specific definition, PUCs have a degree of discretion to award higher or lower returns. For instance, in 1985, while the average Rate of Return across all rate reviews was 11.86 percent, the maximum was 13.57 percent and the minimum was 9.59 percent. Over our entire sample, the average Rate of Return was 9.89 percent with a standard deviation of 1.59 percent.

To measure the degree of public contestation and protest against nuclear power generators – our focal independent variable – we create the variable *Protests*, based on the count of reported protest events within the geographic vicinity of a firm's nuclear power plant(s). Protest information was drawn from Stanford University's Dynamics of Collective Action Project database, which contains detailed data on anti-nuclear protest events reported in the *New York Times* between 1960 and 1995. We compared the *New York Times* report data to a sample of protest events reported by other local newspapers in the regions in which nuclear power plants were located, and found no major differences in terms of coverage.

Since we wish to test whether protests affect regulatory decisions on a firm's regulated rate of return (Hypothesis 1), we match protest events to nuclear plants (proposed, under construction, or operating) in the same geographic area. Specifically, we count the number of protests that occurred each year, and in the preceding year, within 100 miles of a firm's nuclear plant (we used a 100 mile radius as most protests occurred in nearby urban areas rather than at the actual sites of nuclear power plants).[9] We were able to construct information on each firm's nuclear generation portfolio, including unit and plant names, location (nearest town), megawatt capacity, year of announcement, construction dates (if applicable), and operation dates (if applicable), from the Nuclear Regulatory Commission's Agency-wide

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[9] We test the robustness of our statistical findings to alternative radius distances (e.g. 50 miles) and find similar results.

Documents Access and Management System and from the Power Reactor Information System online database maintained by the International Atomic Energy Agency.

Two variables capture the political environment in which regulatory institutions in the electricity sector operate, which we argue in Hypotheses 2 and 3, affects the sensitivity of policy decisions to public protests. Given the differences between the two major political parties on nuclear power policy, we assume that Democratic-controlled government institutions were more sympathetic towards activist organizations protesting nuclear power than were Republican-controlled institutions. Accordingly, *Democratic Governor and Legislature* is a binary variable equal to one if the state executive (Governor's office), House, and Senate were all controlled by the Democratic party, and zero otherwise. *Democratic Regulator* is measured as the percentage of PUC commissioners who were members of the Democratic Party. We collected party affiliation information from individual PUC websites, the National Association of Regulatory Utility Commissioners, local newspapers reports, and directly from PUC offices. We predict that protests will have a greater negative impact on a firm's regulated rate of return when there is ideological alignment between the anti-nuclear movement and the dominant political ideology (i.e. Democratic) of government within state institutions.

To test Hypothesis 4, which argues that the impact of activism is likely to be stronger for firms with greater relative involvement in contentious activities, we construct *Nuclear Proportion*, the number of operating nuclear power plants divided by the total number of generating plants owned by the firm.[10] For Hypothesis 5, which distinguishes between well-resourced, experienced social movement organizations, we identified which protests were reported as involving named SMOs such as the Sierra Club, Greenpeace, or the Clamshell Alliance, and those protests that were organized by unnamed activist groups. Our assumption is that named SMOs, on average, will have more extensive experience, capabilities and resources than unnamed groups. Hence, we expect that protests organized by named SMOs will have a greater impact on regulatory decisions on a firm's regulated rate of return.

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[10] Data on each firm's generation profile, including the type of technology, were collected for each year from the Energy Information Administration.

In addition to the focal independent variables used to test our hypotheses, we control for firm-level and state-level economic and political time-varying factors that may influence a firm's regulated rate of return. First, we include the number of *Nuclear Plants in Pre-Construction Stage*, which acts as a proxy for the overall degree of stakeholder contestation that a firm is likely to confront in regulatory contexts. Social opposition to proposals to construct new infrastructure facilities tends to be especially intense during regulatory assessment and public hearing periods, when regulators invite affected stakeholders to provide input and testimony before making a decision. Firms with a larger number of nuclear plants in the pre-construction stage are at risk of greater opposition and of receiving a lower regulated rate of return. However, once nuclear plants have been approved by the regulator and are under construction, firms must raise significant amounts of financial capital. Given the scale and complexity of nuclear plant construction and operation, access to capital markets requires nuclear power generators to earn a higher rate of return. We include the number of *Nuclear Plants in Construction Stage*, which we expect to be associated with a higher regulated rate of return.

Competition between political parties for control of state government may make elected politicians, and indirectly, regulators, more sensitive to policies such as utility rates that affect a large share of the electorate (Levy and Spiller 1994). We construct the variable *Legislature Rivalry*, which is equal to $1 - \frac{|Total\ Democrats - Total\ Republicans|}{Total\ Legislators}$ for the state legislature where the firm is located, to capture political party competition. It has a value of zero when one party controls 100 percent of the legislature (minimal competition) and a value of one (maximum competition) when the Democrats and Republicans have an equal number of seats in the legislature. We create a similar variable, *Governor Rivalry*, which indicates the level of competition between candidates in the more recent gubernatorial election: the variable equals one if the winning vote margin (i.e. winner's share of the vote minus the runner-up's share of the vote) was less than five percent – indicating a close election – and zero otherwise. We anticipate that higher values of these variables, reflecting more intense political competition and greater political demand for voter-friendly regulations, will lead to lower regulated rates of return.

We include several measures of consumer stakeholder organization, which prior research has identified as influencing PUC decisions (Fremeth et al. 2014). *Consumer Advocate* is a dummy variable equal to one in states and years where the government had enacted legislation creating a publicly-funded, independent advocate to represent consumer interests in regulatory proceedings (Holburn and Vanden Bergh 2006).[11] Industrial consumers tend to be relatively organized stakeholders in regulatory arenas, either individually or through industry associations, so we construct *Industrial Consumers* based on the annual industrial class share of electricity consumption in each state.[12] We expect both variables to be associated with lower regulated rates of return. We also control for the duration of PUC commissioners' experience in office since existing research has argued that regulatory agencies with more experienced commissioners tend to allow lower rates of return (Fremeth et al. 2014): *Regulator Experience* is the average number of years that the commissioners of the state Public Utility Commission have been in office.[13]

Finally, we control for the economic context within which regulatory policies are formulated. *Change in Gross State Product* is the annual percentage change in gross state product, measured using data from the Bureau of Economic Analysis, and captures the impact of the local business cycle on PUC regulation. We predict that higher levels of local economic growth will facilitate PUC approval of utility firm requests for higher rates of return and infrastructure investment, and dampen potential contestation from stakeholders. Similarly, *Change in Interest Rate*, the change in the federal interest rate on ten-year Treasury bills since the firm's last rate review, measures exogenous fluctuations in the financial environment for the firm. *Change in Fuel Cost* is the percentage change in a utility firm's average fuel costs (on a per megawatt hour unit basis) since the last rate review, and is driven mainly by external commodity market forces.[14] Increases in the cost of utilities' financial capital or fuel purchases directly

[11] This measure varies over time since most states created advocates during the 1970s and 1980s, our sample time period. Information on state consumer advocates was gathered from the National Association of State Utility Consumer Advocates (NASUCA) and state government websites.
[12] Data on electricity consumer by consumer class was obtained from the Energy Information Administration.
[13] To construct this variable we gathered the names and appointment dates of all PUC commissioners in each state from 1960 onwards from internet and archival sources.
[14] We use state-level average utility fuel costs to construct this variable and also *Fuel Cost* since utility-level fuel cost data is not available for the 1970s period. Utility fuel cost data was obtained from the Energy Information Administration.

reduce profits, prompting utilities to argue for rate increases. We also include the absolute level of a utility firm's fuel costs with the variable *Fuel Cost* since firms with higher cost structures may trigger greater levels of regulatory scrutiny and stakeholder contestation, reducing regulated rates of return. To satisfy the exclusion requirement of the Heckman selection model we include the variable *Nuclear Plants Operating*, defined as the number of a firm's operational nuclear plants, in the probit model but not in the Regulated Rate of Return regression (Cameron and Trivedi 2005).[15]

Table 1 provides descriptive statistics for all the variables in our analysis, as well as the correlation matrix.

[Insert Table 1 about here]

Results

In Table 2 we present the results of several Heckman models that estimate the statistical relationship between public protests and electric utility firms' regulated financial rates of return. Model 1 contains the results of the rate review initiation probit model, finding that anti-nuclear activist protests and Democratic-dominated regulatory agencies have a negative association with the likelihood of a firm initiating a rate review. The estimated coefficients on *Protests* and *Democratic Regulator* are negative (as expected) and statistically significant at the 5 percent confidence level. Economic factors also appear to influence the incidence of rate reviews: increases in interest rates and fuel costs since a firm's previous rate review increase the likelihood of a new rate review as firms request higher rates to offset cost increases. Similarly, the positive and statistically significant coefficient on *Nuclear Plants in Construction Stage* indicates that once new plants have received regulatory approval and are under construction, firms seek approval through rate reviews for compensating rates. Firms with higher average fuel costs are generally less likely to initiate rate reviews, consistent with anticipated greater levels of regulatory scrutiny and stakeholder opposition towards firms that are perceived to be less efficient. While the rate review selection model is not the focus

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[15] Firms with more nuclear units are likely to have higher operating costs due to nuclear power's greater technological complexity, requiring more frequent rate reviews to offset cost inflation through PUC-approved higher rates. All else equal, the number of operating nuclear plants is not expected to affect the firm's ROR.

of our analysis, the results are consistent with our expectations and indicate the impact of focal variables on a firm's strategic decision to initiate regulatory review. In addition, the statistically significant coefficient on the Inverse Mills Ratio (in Model 2) demonstrates the importance of controlling for selection effects in the rate of return regression.

Models 2a to 2d contain the results of the regulated Rate of Return regression models, controlling for selection, rotating in the primary independent variables used to test the hypotheses. Model 2a includes all the variables except the interaction terms used for testing Hypotheses 2-4. The coefficient on *Protests* is negative and statistically significant at the 1 percent confidence level, and it is also economically meaningful: a one standard deviation increase from the mean in the number of protests (about 9 additional protests) is associated with a seven basis point (0.07 percentage points) decrease in the regulated rate of return. This is equivalent to 12 percent of the average difference between the firm's requested rate of return and the PUC's determination of the regulated rate of return during rate reviews. This provides strong support for our first hypothesis and for the fact that protests targeting firms' contentious activities lead to a decrease in firms' nonmarket performance.

Models 2b-d in Table 2 include interaction terms for testing the second, third and fourth hypotheses. Interpreting the statistical significance of variables included in interaction terms is challenging since statistical significance varies, depending on the values of the underlying variables – meaning that the estimated statistical significance of a single variable coefficient is not necessarily an indicator of overall statistical significance (Brambor et al. 2006). We therefore estimate the statistical significance of *Protests x Democratic Regulator, Protests x Democratic Governor and Legislature,* and *Protests x Nuclear Proportion of Plants* at different values of the focal variables. To facilitate interpretation of the models with interaction terms, we calculate in Table 3 the estimated marginal effects of an additional protest on the regulated rate of return.

[Insert Tables 3 and 4 about here]

In Table 3a we assess the interaction between *Protests* and *Democratic Governor and Legislature,* which tests Hypothesis 2, and present the marginal effect of an additional protest. As predicted, the marginal impact of anti-nuclear protests on the regulated rate of return is greater when the state government is controlled by Democrats. When the value of *Democratic Governor and Legislature* equals one, the marginal effect of *Protests* increases by more than five times compared to environments where the government is politically divided or controlled by the Republican Party. Increasing the number of protests by one standard deviation from the mean value (another 9 protests) during a period of Democratic control is associated with a reduction of 10 basis points (0.1 percent) from the baseline average. We thus find strong statistical support for Hypothesis 2: firms' nonmarket performance deteriorates when there is ideological alignment between executive and legislative branches of government and also with activists, in opposition to contentious activities of the firm, creating credible pressure on administrative agencies to adopt regulatory policies that are consistent with the government's views.[16]

Table 3b presents evidence in support of Hypothesis 3, that anti-nuclear protests had a substantially greater negative impact on a firm's regulated rate of return when the regulatory agency was dominated by commissioners affiliated with the Democratic Party. Interestingly, there is no statistically discernible impact of protests when agencies were controlled by Republican commissioners (i.e. for values of *Democratic Regulator* less than 50 percent) but the coefficient estimates are negative and statistically significant for values of *Democratic Regulator* greater than 50 percent. The magnitude of the marginal estimate for *Protests* increases with *Democratic Regulator*: if the regulatory agency was completely controlled by Democrats (*Democratic Regulator* =100 percent), the marginal impact of protests is more than three times the amount if the agency was evenly divided between Democrats and Republicans. In this situation, increasing *Protests* by one standard deviation from its mean value is associated with a reduction in the

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[16] We also estimated the same model but interacted *Protests* with an indicator variable for Republican control of the Legislature and Governor's office in place of Democratic control. The coefficient estimate was not statistically significant, which is consistent with Republican-controlled governments offsetting or negating any impact of activist protests on regulatory agencies.

firm's regulated rate of return of 17 basis points (0.17 percentage points). These findings offer strong statistical support for Hypothesis 3.

Table 3c contains the results of Model 2d, which estimates the impact of anti-nuclear protests depending on the extent to which firms were engaged in nuclear power generation, thereby testing Hypothesis 4. The coefficient estimates for *Protests* are negative and statistically significant for almost the entire range of observed values of *Nuclear Proportion of Plants*. Consistent with our prediction, the magnitude of the coefficient estimate for *Protests* increases with greater levels of firm involvement in nuclear generation. Moving from the minimum to maximum values of *Nuclear Proportion of Plants* multiplies the coefficient on *Protests* by almost four times. At the maximum observed value (70 percent), a one standard deviation increase in the number of protests is associated with a 17 basis point reduction in the regulated rate of return. In other words, firms with greater involvement in nuclear power were much more susceptible to the negative consequences of social protest movements on regulatory policies. Hypothesis 4 is thus supported.

To test Hypothesis 5, which predicts that better organized and resourced protests will have a more negative impact on firms' nonmarket performance, we distinguish between protests involving named social movement organizations – such as Greenpeace, Friends of the Earth, Union of Concerned Scientists, and Sierra Club – and protests where no named activist organizations were recorded as participating. In our sample, approximately 45 percent of protests involved a named SMO. We estimate the same model as in Model 2a but recode the *Protests* variable for two sub-models, which we report in Table 4. In Models 3a and 3b of Table 4, we set *Protests* equal to one only when a named SMO was reported as participating, and in Models 3c and 3d *Protests* equals one just for protests where unnamed SMOs participated. The coefficient estimate on *Protests* in Model 3b is substantially greater than in Model 3d, and a chi-squared test reveals the difference is statistically significant at the one percent confidence level. All else equal, a one standard deviation increase in the number of named SMO protests correlates with a reduction in the regulated rate of return of 7 basis points, while the equivalent increase in unnamed protests is associated

with a decrease of 3 basis points (although not statistically significant at conventional levels). We hence find strong statistical evidence in support of Hypothesis 5.

In addition to the results for our focal independent variables, we note that results on several control variables are indicative of the effect of social contestation on firms' performance in regulatory arenas. Specifically, the negative and statistically significant coefficient estimates *for Nuclear Plants in Pre-Construction Stage* are consistent with heightened stakeholder opposition to firms during periods when new nuclear plants are being considered but have yet to be approved by regulatory agencies: if firms initiate rate reviews during these developmental periods they run the risk that stakeholder opposition during rate hearings to the firm's nuclear generation proposals will negatively affect PUC decisions on the firm's regulated rate of return. However, once nuclear plants gain regulatory approval, there is less incentive for anti-nuclear groups to participate in subsequent rate reviews. Accordingly, the positive coefficient on *Nuclear Plants in Construction Stage* indicates that firms are able to obtain higher regulated rates of return to finance the significant construction costs of approved new nuclear facilities.

Discussion and Conclusion

In this paper we examine the impact of social activism—in the form of public protests against contentious business practices—on firms' performance in nonmarket regulatory contexts. While social activism is often associated with 'private politics' campaigns that seek to influence market outcomes for targeted firms – through customer, supplier or investor boycotts, for example – activist campaigns can also impact government interpretations and perceptions of the public interest, potentially triggering changes in industry regulations and public policies – i.e. nonmarket outcomes – that adversely affect firms. We argue that firms engaged in practices that society already views as contentious are particularly at risk of the negative consequences of activist protests on regulatory outcomes, since protests can affirm government beliefs about underlying public attitudes around the social unacceptability of a specific practice, justifying more stringent regulation. We further argue that protests will have a greater negative impact on firms' regulatory outcomes when political institutions that oversee regulatory agencies are aligned in their policy

views, when regulators are sympathetic towards activist goals and ideologies, when activist organizations are better resourced, and when firms are more heavily involved in targeted practices.

Our statistical analysis, which draws on a unique database of anti-nuclear protests and electric utilities' regulated financial rates of return from 1970-1995, provides empirical support for our predictions. Nuclear power technology experienced significant social movement opposition beginning in the 1960s, with public protests by organized activist groups occurring across the country as nuclear power was adopted as a new generation technology by many utilities. We found that anti-nuclear protests that occurred in close geographic proximity to firms with operating or proposed nuclear power generation plants were associated with those firms subsequently achieving lower rates of return in rulings by independent regulators, controlling for a host of firm-level and state-level factors. Protests had a larger negative impact on regulated rates of return for firms that were more reliant on nuclear power in their generation portfolios, consistent with greater levels of public disapproval.

This primary finding contributes to research on the impact of organized social movements, which—despite their status as extra-institutional stakeholders—can have a powerful influence on firm outcomes. Prior statistical studies have focused on identifying social movements' effects on market-based outcomes such as firms' geographic location decisions (Ingram et al. 2010), infrastructure investments (Piazza and Perretti 2015), and stock price returns (King and Soule 2007). This literature suggests that public protests can be effective since they have the potential to change the behavior of the firms' primary stakeholders, though some scholars have argued that boycott campaigns are often ineffective in changing consumer purchase patterns (Vogel 2005). Our analysis here points to another important mechanism that helps explain *why* social movements have an impact in the ways described by these studies – namely, through prompting adverse government actions and public policies. Firms whose practices are targeted by organized protests are less likely to be successful in gaining favorable treatment by regulatory agencies, who may face public backlash if they concede to firms' policy requests for permits, rates or other regulatory approvals. The anticipation of unfavorable regulations that constrict firms' expected future cash flows may be one reason

why investors react negatively to public protests against listed companies, triggering relative stock price declines (King and Soule 2007).

Our findings highlight the importance of the sociopolitical environment within which public protests occur in further shaping firms' regulatory outcomes. Regulators appear to be especially sensitive in their decision-making to organized protests when elected political institutions also have a majority or consensus position that opposes the firm's contested practice. In our industry context, a political divide developed during the 1970s and 1980s between Democrats, who opposed development of the nuclear power industry, and Republicans, who supported it. One interpretation of this result is that regulators become more concerned about safeguarding their public legitimacy – thereby adopting rules and regulations that penalize protested firms – when there is a greater risk of political sanctions in the form of non-reappointments or budget cuts, should they ignore organized social movements. Another interpretation is that social movements choose their protest locations and timing strategically, selecting jurisdictions with elected governments that implicitly or explicitly support their positions. In this case, protests do not necessarily change political or regulatory viewpoints, but rather increase the visibility or salience of a policy issue, so that regulators are pressured to respond.

Protests can also be particularly effective in harming firms' regulated performance when they align with regulators who have an ideological disposition against the contested practice. Social movements often do not participate in formal regulatory hearings and processes in the same way as firms and other organized stakeholders do, but their extra-institutional protests can signal the views of the broader public, providing some justification or cover for an aligned regulator to rule against the firm. Hence, overall our results indicate that even if regulators do not formally interact with social movements, organized protests can nonetheless exert an influence on their regulatory decisions, especially when social movements have common ground with the formal institutions of government.

A central contribution of our study is that we develop new arguments and empirical evidence about the antecedents of firms' performance in the nonmarket environment, a topic that has received little scholarly attention to date, partly due to the challenge of measuring and collecting data on firm-level

nonmarket outcomes for large samples of firms. In our industry context we have a unique measure of firm nonmarket performance that is available for the whole population of firms in the industry as well as over several decades, permitting statistical testing of causal predictions. As far as we are aware, our results are the first to show statistically that public protests can have a material negative impact on firm performance in regulatory settings, as well as the political and firm-level conditions under which the effect varies. While our focus in on explaining firm performance, a limitation of the study is that we are unable to incorporate direct measures of nonmarket strategy or tactics (such as lobbying) that firms may use to improve regulatory outcomes. However, to the extent that such actions partially offset the negative effect of organized protests on regulatory outcomes, the estimated coefficients in the empirical model will understate the magnitude of the true impact.

Our arguments and empirical findings also contribute to nonmarket strategy scholarship by integrating the analyses of 'private politics' and 'public politics', two streams of research that have largely developed separately with little cross-fertilization. 'Public politics' strategy research has focused on how government institutions shape firms' lobbying, election campaign contribution, and stakeholder mobilization strategies – in pursuit of more supportive public policies – while the more recent 'private politics' strategy literature has explored strategic interactions between firms and social activists, much of it focusing on how firms can manage the impact of activist campaigns that aim to disrupt their business operations. Our study identifies important interdependencies between these two research perspectives since social movements can exert their influence in public as well as private politics arenas. Recognizing this linkage raises new questions about firms' nonmarket strategies that could be addressed by future research. For instance, how can firms strategically manage or offset the negative impact of activist protests and campaigns on regulatory policies? Some recent studies have found that firms attempt to bolster their public reputations through making pro-social claims following boycott campaigns (McDonnell and King 2013), but such actions are not specifically targeted at regulators or politicians. Future research could also examine the conditions when activist protests are more harmful to firms through their impact on public policies or else through their effect on primary stakeholder relationships (e.g. consumers, suppliers or investors).

There are naturally a variety of limitations to our analysis, which should lead to some caution in drawing general conclusions. First, our empirical investigation is centered on firms in a single industry, electric utilities, which is arguably more susceptible to public and political pressures than other industries. While most industries are subject to some degree of government regulation, virtually all citizen voters are also consumers of electricity services, which are deemed essential for modern day living – making issues around electricity sector development and pricing particularly salient for both consumers and politicians. As such, social activism and public protests may be more impactful on firms' regulatory outcomes in this industry context than in others that assume a lower priority on political agendas. A second drawback, due to data availability constraints, is that we are unable to control for firms' pre-existing public reputations or the extent of all media coverage of public protests, both of which may moderate the influence of social activism (King and Soule 2007). Accounting for these factors may generate more nuanced predictions.

In conclusion, this study develops new insights for research on the determinants of firm performance in the nonmarket environment – an important issue for firms in many industries but one that has been empirically underexplored – and specifically also on the influence of social movements on formal regulatory institutions. We hope that future work will address the limitations of our analysis and further develop its theoretical arguments.

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Table 1 Descriptive Statistics and Correlation Matrix

		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Rate Review	0.343	0.475																		
2	Rate of Return	9.893	1.594	-0.13																	
3	Protests	2.148	9.039	0.04	0.16																
4	Protests by a named SMO group	0.919	3.929	0.05	0.12	0.94															
5	Nuclear Plants in Pre-Construction Stage	0.164	0.488	0.10	-0.28	0.02	0.07														
6	Nuclear Plants in Construction Stage	0.239	0.508	0.11	0.02	0.28	0.29	0.39													
7	Nuclear Plants Operating	0.498	0.909	0.01	0.14	0.44	0.44	0.18	0.35												
8	Nuclear Proportion of Plants	0.046	0.099	0.02	0.09	0.26	0.25	0.09	0.21	0.64											
9	Democratic Governor and Legislature	0.364	0.481	0.00	0.02	0.10	0.11	-0.04	0.03	0.01	0.02										
10	Democratic Regulator	0.548	0.278	0.04	0.01	0.02	0.02	-0.04	0.02	-0.11	-0.02	0.43									
11	Consumer Advocate	0.446	0.497	-0.04	0.32	0.17	0.17	-0.07	0.04	0.23	0.17	0.07	-0.05								
12	Industrial Consumers	37.077	11.804	0.01	0.00	-0.15	-0.15	-0.01	0.02	-0.31	-0.18	0.00	0.09	-0.23							
13	Legislature Rivalry	0.673	0.253	-0.04	0.00	-0.02	-0.02	0.07	0.02	0.04	-0.03	-0.56	-0.43	0.03	-0.13						
14	Governor Rivalry	0.165	0.371	0.07	-0.02	-0.05	-0.04	0.04	0.11	-0.05	-0.04	-0.14	-0.06	-0.08	0.17	0.13					
15	Regulator Experience	3.883	2.935	-0.01	-0.17	-0.07	-0.07	-0.03	0.00	-0.04	0.04	-0.01	0.15	-0.13	-0.06	-0.09	-0.13				
16	Change in GSP	0.082	0.044	0.08	-0.18	0.10	0.09	0.07	0.08	-0.09	-0.06	0.11	0.18	-0.18	0.04	-0.14	0.08	0.00			
17	Change in Interest Rate	7.885	32.907	0.19	-0.31	0.05	0.03	0.08	0.03	-0.14	-0.11	-0.02	0.06	-0.27	0.15	-0.08	0.06	-0.05	0.31		
18	Change in Fuel Cost	22.415	67.937	0.07	-0.16	0.00	0.01	0.10	0.01	-0.12	-0.11	0.06	0.11	-0.20	0.18	-0.13	0.08	-0.06	0.23	0.57	
19	Average Fuel Cost	1.384	0.869	-0.05	0.57	0.27	0.22	-0.16	0.05	0.15	0.06	0.09	0.03	0.26	-0.18	-0.13	0.00	-0.08	-0.09	-0.17	-0.01

Table 2 Heckman Two-Stage Regression Models of Impact of Protests on Regulated Rate of Return

	Model 1 Rate Review	Model 2a Rate of Return	Model 2b Rate of Return	Model 2c Rate of Return	Model 2d Rate of Return
Protests (H1)	-0.004**	-0.008***	-0.002	0.009*	-0.005
	(0.002)	(0.002)	(0.003)	(0.005)	(0.004)
Democratic Regulator	-0.211**	-0.243**	-0.224**	-0.152	-0.235**
	(0.105)	(0.102)	(0.080)	(0.132)	(0.117)
Democratic Governor and Legislature	-0.032	-0.092	-0.063	-0.091	-0.089
	(0.058)	(0.062)	(0.061)	(0.062)	(0.063)
Nuclear Proportion of Plants	0.306	1.556***	1.544***	1.514**	1.583**
	(0.360)	(0.603)	(0.633)	(0.622)	(0.636)
Protests * Democratic Governor and Legislature (H2)			-0.009**		
			(0.003)		
Protests * Democratic Regulator (H3)				-0.027***	
				(0.006)	
Protests * Nuclear Proportion of Plants (H4)					-0.021**
					(0.009)
Nuclear Plants in Pre-Construction Stage	-0.042	-0. 210***	-0.201***	-0.199***	-0.208***
	(0.056)	(0.064)	(0.063)	(0.064)	(0.064)
Nuclear Plants in Construction Stage	0.168***	0.365***	0.364***	0.350***	0.358***
	(0.062)	(0.072)	(0.071)	(0.070)	(0.072)
Consumer Advocate	0.057	0.283***	0.286***	0.289***	0.283***
	(0.077)	(0.095)	(0.095)	(0.095)	(0.095)
Industrial Consumers	-0.002	-0.016	-0.016	-0.015	-0.016
	(0.008)	(0.011)	(0.011)	(0.010)	(0.011)
Legislature Rivalry	-0.169	-0.196	-0.214	-0.209	-0.193
	(0.212)	(0.196)	(0.196)	(0.197)	(0.196)
Governor Rivalry	0.137***	0.103	0.092	0.099	0.103
	(0.056)	(0.085)	(0.085)	(0.083)	(0.085)
Regulator Experience	0.001	-0.001	-0.004	-0.004	-0.002
	(0.009)	(0.012)	(0.012)	(0.012)	(0.012)
Change in Gross State Product	-1.379	-0.651	-0.617	-0.567	-0.644
	(0.631)	(0.733)	(0.736)	(0.735)	(0.732)
Change in Interest Rate	0.003**	0.002	0.001	0.002	0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
Change in Fuel Cost	0.001*	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Average Fuel Cost	-0.083*	0.085	0.093	-0.098**	0.086
	(0.044)	(0.059)	(0.058)	(0.056)	(0.058)
Nuclear Plants Operating	-0.059				
	(0.055)				
Inverse Mills Ratio		1.567***	1.488***	1.452***	1.554***
		(0.445)	(0.446)	(0.449)	(0.446)
Constant	-0.683	4.649***	4.698***	4.700***	4.662***
	(0.528)	(0.811)	(0.809)	(0.810)	(0.809)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	5101	1886	1886	1886	1886
Pseudo R-Squared	0.172	0.852	0.854	0.853	0.851

Notes: Robust Standard Errors clustered by firm in parentheses. * $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 3a Marginal Impact of Protests on Regulated Rate of Return, Conditional on Value of Democratic Governor and Legislature

Democratic Governor and Legislature	*Protests* Coefficient (Model 2c)
0 (Not Democrat controlled)	-0.002
1 (Democrat controlled)	-0.011***

Notes: * *p*<0.1; ** *p*<0.05; *** *p*<0.01.

Table 3b Marginal Impact of Protests on Regulated Rate of Return, Conditional on Value of Democratic Regulator

Democratic Regulator	*Protests* Coefficient (Model 2b)
0%	0.009*
10%	0.006
20%	0.003
30%	0.001
40%	-0.002
50%	-0.005*
60%	-0.008***
70%	-0.011***
80%	-0.013***
90%	-0.016***
100%	-0.019***

Notes: * *p*<0.1; ** *p*<0.05; *** *p*<0.01.

Table 3c Marginal Impact of Protests on Regulated Rate of Return, Conditional on Value of Nuclear Proportion of Plants

Nuclear Proportion of Plants	*Protests* Coefficient (Model 2d)
0%	-0.005
10%	-0.006*
20%	-0.009***
30%	-0.011***
40%	-0.013**
50%	-0.015**
60%	-0.017*
70%	-0.019*

Notes: * *p*<0.1; ** *p*<0.05; *** *p*<0.01.

Table 4 Heckman Two-Stage Regression Model – Protests by Named and Unnamed SMOs

	Protests with Named SMO		Protests without Named SMO	
	Model 3a	Model 3b	Model 3c	Model 3d
	Rate Review	*Rate of Return*	*Rate Review*	*Rate of Return*
Protests	-0.009**	-0.017***	-0.005	-0.006
	(0.004)	(0.005)	(0.004)	(0.007)
Democratic Regulator	-0.214**	-0.241**	-0.211**	-0.240**
	(0.103)	(0.117)	(0.102)	(0.118)
Democratic Governor and Legislature	-0.029	-0.091	-0.030	-0.091
	(0.059)	(0.062)	(0.058)	(0.062)
Nuclear Proportion of Plants	0.308	1.538***	0.302	1.526**
	(0.359)	(0.620)	(0.359)	(0.621)
Nuclear Plants in Pre-Construction Stage	-0.038	-0. 198***	-0.042	-0.206***
	(0.056)	(0.063)	(0.056)	(0.064)
Nuclear Plants in Construction Stage	0.168***	0.361***	0.167***	0.361***
	(0.062)	(0.072)	(0.062)	(0.072)
Consumer Advocate	0.056	0.276***	0.056	0.276***
	(0.077)	(0.094)	(0.077)	(0.095)
Industrial Consumers	-0.003	-0.016	-0.003	-0.016
	(0.008)	(0.011)	(0.008)	(0.010)
Legislature Rivalry	-0.160	-0.190	-0.168	-0.208
	(0.212)	(0.197)	(0.211)	(0.196)
Governor Rivalry	0.135***	0.092	0.135***	0.094
	(0.051)	(0.085)	(0.056)	(0.085)
Regulator Experience	0.001	-0.001	0.001	-0.001
	(0.009)	(0.012)	(0.009)	(0.012)
Change in Gross State Product	-1.449**	-0.729	-1.426**	-0.705
	(0.636)	(0.751)	(0.636)	(0.742)
Change in Interest Rate	0.003**	0.001	0.003**	0.001
	(0.001)	(0.002)	(0.001)	(0.002)
Change in Fuel Cost	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Average Fuel Cost	-0.085**	0.080	0.083**	0.084
	(0.041)	(0.059)	(0.041)	(0.059)
Nuclear Plants Operating	-0.059		-0.058	
	(0.055)		(0.054)	
Inverse Mills Ratio		1.533***		1.556***
		(0.059)		(0.454)
Constant	-0.662	4.744***	-0.667	4.691***
	(0.527)	(0.809)	(0.528)	(0.812)
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	5101	1886	5101	1886
Pseudo R-Squared	0.173	0.852	0.156	0.845

Notes: Robust Standard Errors clustered by firm in parentheses. * $p<0.1$; ** $p<0.05$; *** $p<0.01$