

**Bringing the Regulatory Commission Back In:
Firm-to-Government Employee Mobility as Support-Building and Learning**

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ABSTRACT

Revolving door, a type of employee mobility between firms and their regulators, has generally been viewed as a corporate political strategy. Here I suggest that the firm-to-government revolving door (i.e. the movement of employees from firms to regulatory agencies) may serve the strategic purposes of governmental entities, as well. In particular, I argue that regulatory agencies use hiring from regulated industry to learn from it, as well as to build industry support for regulatory initiatives. I find supportive evidence for this in that the firm-to-government revolving door is more likely to occur in the conditions where learning and support-building through hiring are more important, while it is less likely when these factors are less important. Regulatory agencies are more likely to hire from regulated industry when regulatory staff numbers are low, and they are less likely to hire from it when regulatory workloads are low, and there are regulated-industry hires already on board. Future work is needed to examine directly how successful governmental entities are in using the firm-to-government revolving door for their strategic purposes, as well as how their efforts might affect regulation.

Keywords: revolving door, regulatory agency, learning, support-building, regulatory capture

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The interdisciplinary debate surrounding the firm-government revolving door, defined as employee mobility between regulated firms and their regulators, has generally emphasized the potential of this hiring practice to skew regulatory outcomes through the capture of regulators (Cohen 1986; Dal Bó 2006; Stigler 1971). Revolving door has been viewed as a type of corporate political strategy, a form of strategic firm behavior, which attempts to produce more favorable conditions for firms through political means (Hillman 2005; Hillman and Hitt 1999; Hillman, Zardkoohi, and Bierman 1999; Walker and Rea 2014). However, focusing on the regulated firms as the sole driver of the revolving door disregards the agentic role that governments may play in the process. Much like firms, governmental entities also act in self-interested ways (North 1990; Skocpol 1985) and need to actively manage their relationships with various stakeholders (Hiatt and Park 2013).

In attempts to disentangle agentic behavior of firms and governments in the formation of firm-government revolving doors, it is important to consider where the locus of hiring power rests for each of the two directions in employee mobility. For the entry (firm-to-government) revolving door, governmental entities hire former corporate executives from regulated firms, whereas in the case of the exit (government-to-firm) revolving door, corporate decision makers hire former regulators. The different locus of hiring power across the two directions means that, while firms may be able to recruit regulators with a view to furthering favorable outcomes for themselves, they may arguably be less able to place former employees on governmental entities on demand. This is particularly true of high-level political appointees for regulatory positions,

which are the subject of this study. These positions require presidential nominations, as well as congressional approval—and presidents typically select individuals who will “sail through the confirmation process without a minimum of conflict” (Cohen 1985:63). Therefore, interest group attempts to place industry supporters may be curbed by the thorough vetting process of the nominees for regulatory commissioners (Maranto 2005). In this paper, I argue that governmental entities are in the position to exercise agency over the appointments to regulatory agencies (Graham and Kramer 1976), and that they may participate in the revolving door for their own strategic purposes.

Revolving door provides regulatory agencies with an important mechanism for managing the relationship with one of their key stakeholders, regulated firms. First, despite their coercive power (DiMaggio and Powell 1983), regulatory agencies often operate with limited resources and may rely on regulated firms’ cooperation, particularly with voluntary regulatory efforts (Gupta and Lad 1983; MacLauchlan 1977; McConnell and American Farm Bureau Federation 1953). Moreover, withdrawal of support from the regulated industry may jeopardize an agency’s key resource—legitimacy perceptions of other stakeholders (Carpenter 2004; Hiatt and Park 2013). Regulators with regulated industry experience may therefore allow agencies to engage industry members in support-building for regulatory initiatives. Second, employee mobility increases interorganizational knowledge transfers (Almeida and Kogut 1999; Argote and Ingram 2000; Song, Almeida, and Wu 2003). On the exit side of the revolving door, firms value public policy expertise in their new ex-government hires (Hillman, Cannella, and Paetzold 2000; Lester, Hillman, Zardkoohi, and Cannella 2008). On the entry side of the revolving door, staffing regulatory entities with individuals from the regulated industry may also contribute to an easier flow of information across organizational boundaries. Overall, employee mobility from firms to

regulatory agencies may allow governments to create more effective regulation, to monitor firms' compliance (and punish transgression against regulations), as well as to get industry support for regulation.

In this paper, I focus on the regulatory agencies' support-building, as well as learning efforts, through hiring regulators with regulated firm experience. In particular, I examine the conditions under which regulatory agencies are more likely to engage in hiring from regulated firms. First, this allows me to show that the conditions under which governments appoint individuals with previous regulated firm experience to regulatory commissions are consistent with a learning and support-building role of the entry revolving door. Second, this approach solves the empirical problem of the unknown risk set of all firm employees who may possibly be nominated for regulatory positions. Unlike in studies focusing on the exit side of the revolving door (where the full risk set of exit revolvers is known), here the available data necessitate an analysis that focuses on the conditions of the transitioning process, rather than on the individuals who transition.

Specifically, I ask: When are regulatory agencies more or less likely to hire individuals from regulated firms? I suggest that a number of conditions are associated with an increased likelihood of hiring from a regulated firm, including agency newness, increased agency workload, and decreased resources. On the other hand, I also suggest that existing regulators with regulated industry backgrounds will decrease the likelihood of additional hires from regulated industry. I test my theoretical propositions using a novel dataset, based on Nixon's (2005) database of 17 U.S. Independent Regulatory Commissions (IRCs), observed from their founding to year 2000 (or the commission's dissolution, in the case of several IRCs in the data). I find that regulatory agencies are indeed more likely to participate in the revolving door when the

importance of support-building and learning from industry is relatively high—namely, when agency resources are low. Conversely, they are less likely to participate in the revolving door when support-building and learning from industry are less urgent: when they already have a regulated industry revolver on board, and when their workloads are low.

The contribution of this paper is twofold. First, it provides a novel perspective on an important social phenomenon, the revolving door, which is the subject of interest and lively debate by economists (see, for example, Dal Bó (2006)), political scientists (see, for example, Cohen (1986) and Gormley (1979)) and organizational scholars alike (see Etzion and Davis 2008; Haveman, Jia, Shi, and Wang 2014; Hillman, Zardkoohi, and Bierman 1999). By focusing on the other central actor in the revolving door—the government, or more narrowly, the regulatory commission, this study sheds light on the full complexity of the phenomenon. Acknowledging the regulatory commission, and its support-building and learning motives, as another driving force in revolving door participation, importantly supplements the commonly held view of the regulated firms' capture motives as the primary driver of the phenomenon. Second, and even more significantly, this research recognizes the proactive, and often neglected role of the government in firm-government relations. While organizational studies of firms' actions in managing the non-market environment abound (for a review, see Hillman, Keim, and Schuler (2004)), scant attention is paid to the government's attempts to manage corporations, which represent one of its primary stakeholders (Hiatt and Park 2013; Holburn and Vanden Bergh 2002). In an attempt to remedy the relative neglect¹ of public organizations in

¹ While the state is often included as an actor in organizational theory, Kelman (2007) laments the separation that occurred between public management research and mainstream organization studies in the past decades, and the resulting lack of interest in studying key organizational issues in the context of the public sector.

contemporary organizational theory (Kelman 2007), this paper invites further scholarly attention to the government's actions in the non-market arena.

FIRM-TO-GOVERNMENT EMPLOYEE MOBILITY AS SUPPORT-BUILDING AND LEARNING

As noted, extant research on revolving door exclusively focuses on the agentic role of the firm. The non-market strategy literature primarily emphasizes the hiring of former regulators and government employees as a corporate political strategy (Cohen 1986). In this scenario, firms offer jobs to these individuals as a form of “covert bribe” (Dal Bó 2006: 214) and in exchange, they may receive more favorable outcomes (Grace and Phillips 2008; Haveman, Jia, Shi, and Wang 2014; Hillman 2005). Additionally, even in the other, firm-to-government direction of the revolving door, it has been argued that firms may try to place their former employees on regulatory bodies in order to ensure more favorable regulation (Cohen 1986; Project on Government Oversight (POGO) 2013). In all these accounts, regulated firms are viewed as the driving force behind the formation of the revolving door, and employee mobility between the public and the private sectors is portrayed as being in the service of the regulated private sector. In order to truly understand the drivers and the consequences of the revolving door, however, it is crucial to also recognize the agentic role of the government in this process. Governmental entities, such as regulatory agencies, may pursue their own interests, rather than act strictly in the interest of the public (North 1990; Skocpol 1985). Prior work has shown that regulatory agencies may try to increase their budgets (Niskanen 1971), as well as their staff numbers (Weatherby 1971). In this paper, I argue that governmental hiring of regulated firm executives serves a learning and support-building function: through this type of employee mobility, regulatory

agencies may learn how to regulate more effectively, as well as how to manage relationships with the regulated firms in their jurisdiction.

The Relationship between Regulators and the Regulated

Organizational scholars widely acknowledge the existence of a resource dependence relationship between firms and the government (Pfeffer and Salancik 1978). Most studies, however, emphasize the firms' attempts to manage this resource dependence with the government through corporate political strategy, but governments, too, have to actively manage this relationship. Despite the well-documented coercive power that the state has at its disposal (DiMaggio and Powell 1983), much like other organizations, governmental entities depend on their stakeholders for support. In the case of regulatory agencies, some of the key stakeholders include regulated firms, colleges and universities, the media, consumer groups, social movements, and the general public. Regulatory agencies may act in strategic ways to maintain their legitimacy, and to ensure their stakeholders' support (Hiatt and Park 2013).

Support-Building

Hiring well-connected individuals from a regulated industry is one way to achieve support for regulatory efforts among the key constituents. For example, in his historical account of the Securities and Exchange Commission's founding, McCraw (1984) detailed how the commission hired a former banker to enlist the support of his industry colleagues for major banking regulation. In general, social ties acquired during an individual's career history are an important source of that individual's value to a new employer (Dokko and Rosenkopf 2010; Godart, Shipilov, and Claes 2014; Somaya, Williamson, and Lorinkova 2008). Much like private

organizations, governmental entities may rely on their new hires' ties to former corporate employers in order to gain support for their activity.

Despite their ability to apply coercive power, agencies often attempt to develop cooperative relationships with the firms they regulate. Having a cooperative relationship with regulated firms not only allows regulatory agencies to maintain their perceived legitimacy in the eyes of their various stakeholders, but it also allows for an easier regulatory process in the face of limited agency budgets. Regulatory agencies often have limited resources with which to execute their tasks of creating and enforcing anti-trust, economic and social regulation (Hillman, Zardkoohi, and Bierman 1999), and as such, they may rely on firms to self-regulate (Gupta and Lad 1983). For example, despite its legal authority in setting financial reporting standards, the Securities and Exchange Commission (SEC) has historically relied on industry bodies, including the American Institute of Certified Public Accountants and the Financial Accounting Standards Board, to accomplish this task (Gupta and Lad 1983). Similarly, agencies often rely on regulated firms to voluntarily provide them with technical information (MacLauchlan 1977). Regulated industry may even be consulted in the process of policy crafting and implementation, such as in the example of the United States Department of Agriculture reliance on farm organizations to interpret New Deal provisions for agriculture (McConnell and American Farm Bureau Federation 1953). Given the limited resources with which regulatory agencies have to execute their missions, the support of regulated industry enables a variety of regulatory mechanisms, such as self-regulation, which are crucial to the agencies' functioning more efficiently.

Learning

In addition to ensuring support from regulated firms, as well as their cooperation with various regulatory initiatives, regulatory agencies need to learn how to create and enforce

regulation effectively. Reducing information asymmetry between firms and their regulators reduces the cost of regulation (Fremeth and Holburn 2012), and may increase its effectiveness. In order to reduce the asymmetry, regulatory agencies must acquire knowledge about their regulated industries. Having individuals with regulated industry experience serve on regulatory commissions is one way to acquire the relevant knowledge. Employee mobility is, of course, recognized as an important mechanism in increasing knowledge transfers across organizations (Almeida and Kogut 1997; Argote and Ingram 2000; Song, Almeida, and Wu 2003). Industry professionals bring a wealth of expertise about the industry's inner workings, which is particularly helpful for monitoring against any otherwise concealed wrongdoing (Masters 2012). In the words of Franklin Delano Roosevelt, the former banker Joseph Kennedy was tapped for the SEC because the president thought it best to "set a thief to catch a thief" (Moe 2013:78).

Of course, regulatory agencies have a variety of ways to learn about the regulated industry. However, a number of these learning efforts are external to the organization, in that they require interacting with the regulated industry. In general, knowledge internal to an organization is relatively easy to access and use (Cyert and March 1963), and managers prefer to use readily-available, local knowledge (Neale 1984; Tversky and Kahneman 1973). An internal source of industry knowledge, such as a regulator with previous regulated industry experience, could act as a substitute for other learning mechanisms that are more external in nature. For example, rather than having to rely on extensive meetings with industry representatives to learn about the industry in order to determine how to best implement regulations, an agency could tap its revolver's knowledge of existing industry practices in order to define the most effective regulatory solutions. Moreover, even in the cases where revolvers do not have access to specific requisite industry information, they may be able to reach out to their social networks within the

regulated industry in order to locate it. Furthermore, much like with support-building, the importance of learning through hiring may be particularly high when regulatory agency resources, such as budgets and staff, are limited. Under resource constraints, regulatory agencies' attempts to acquire industry information may have to shift from the costly and time-consuming interactions with the regulated industry in favor of utilizing the revolving regulators' knowledge, which comes at no additional cost beyond the regulators' wages.

Finally, learning by hiring is certainly acknowledged as an important mechanism in the government-to-firm direction of the revolving door. Hillman, Cannella, and Paetzold (2000) argued that former government officials are an important source of intimate knowledge about public policy to their new corporate employers. Empirically, previous work has demonstrated that governmental officials' expertise, and their social and human capital in general, are predictive of their likelihood of transitioning to the private sector (Katic 2015; Lester, Hillman, Zardkoohi, and Cannella 2008). In this paper, I suggest that learning by hiring may also be at work in the firm-to-government direction of the revolving door. In the next section, I outline my specific hypotheses.

Hypotheses

As argued above, having individuals with prior regulated sector experience on board of regulatory agencies facilitates support-building with the regulated industry, as well as learning from it. The suggested support-building and learning motives may be particularly powerful under a set of organizational conditions, which I identify below.

Firstly, I consider agency newness. In a study of regulatory agencies' life cycles, Bernstein (1955:79) found that in their earliest gestation stage, agencies "lack administrative experience, [their] policy and objectives are vague or unformed, [their] legal powers are unclear

and untested, and [their] relations with Congress are uncertain.” In the early period, regulatory agencies may therefore have low legitimacy with their stakeholders. The lack of legitimacy that organizations experience in their early life may expose them to increased risk of adverse consequences, including failure (Freeman, Carroll, and Hannan 1983). As such, obtaining the support of the regulated industry may be particularly important in order to avoid the “liability of newness” while agencies are in their infancy (Stinchcombe 1965). Moreover, young organizations may have an increased need for learning through hiring. Previous research documented the importance of learning through employee mobility for early stage start-ups (Almeida, Dokko, and Rosenkopf 2003) and other nascent organizations. Thus, in order to address the issues of low legitimacy and lacking industry knowledge, I suggest that, while they are in their early post-founding stages, commissions will be more likely to hire from regulated industry. In other words, I make the following prediction:

*Hypothesis 1: Regulatory agency **newness** will have a positive effect on the likelihood of hiring a regulator with regulated industry experience.*

Secondly, the workload of a regulatory agency may also impact appointment patterns. Although higher workloads generally may increase hiring, hiring decisions in regulatory commissions are subject to more constraints than those in private corporations. In particular, IRCs have fixed numbers of commissioners over time, and so for them, the hiring decision is a question of whom, rather than how many individuals to hire. Moreover, I argue that the reason why we might see increased hiring of individuals with industry experience has to do with learning and industry-support motives.

Increased regulatory activity may meet with resistance from regulated industry, which would render support-building through hiring individuals with regulated industry background

even more important. Further, as regulatory activity increases, internal knowledge about the industry may also become more valuable. For example, following the introduction of new legislation regarding an industry, a regulatory agency has to interpret the new legislation in order to develop rules. An internal source of knowledge, in the form of an ex-industry regulator, may play a very helpful role in the process of determining how best to craft rules. Given that agency workload may impact both the agency's need for industry support, as well as its need for industry-specific knowledge, I predict the following:

*Hypothesis 2: Regulatory agency **workload** will have a positive effect on the likelihood of hiring a regulator with regulated industry experience.*

Thirdly, agency resources may influence both the commissions' needs for industry support, as well as their learning needs. When a commission is allocated a relatively low budget and/or a low staff count, it becomes resource constrained and may not be able to fulfill all its regulatory duties. Rather than being self-reliant in their regulatory efforts, IRCs may have to rely more on regulated industries to volunteer technical information (MacLauchlan 1977), as well as to self-regulate (Gupta and Lad 1983). In other words, the support of industry becomes especially important under resource constraints due to the increased reliance on industry cooperation. Similarly, a low budget and/or staff count may prompt commissions to use learning-by-hiring of regulators with regulated industry experience as a substitute for other kinds of learning through direct, but more costly interactions with the industry. Such interactions may include sending out IRC staff to gather information about regulated firms and their actions, in order to design more effective regulation and monitor against misconduct. In the absence of funds or staff required to launch such external learning initiatives, IRCs will rely on in-house

knowledge possessed by its own commissioners and staff. Having commissioners with previous experience in the regulated industry may be a cost-effective way of learning about the industry.

I therefore make the following hypothesis:

*Hypothesis 3: Regulatory agency **resources** will have a negative effect on the likelihood of hiring a regulator with regulated industry experience.*

Finally, I suggest that the present need for industry knowledge may be influenced by previously acquired industry knowledge. In other words, having regulators with regulated industry experience (i.e. revolvers) on board should reduce the likelihood of hiring more such individuals in the future. I argue that the goal of learning about the regulated industry may be achieved with a single revolver, and that adding more revolvers would provide redundant knowledge, as well as redundant ties to industry. In other words, ex-industry regulators may be considered structural equivalents (Burt 1992), and as such, any additional ex-industry hires may not provide advantages over those afforded by such existing hires. Previous research has shown that knowledge transfers are more likely to occur following the hiring of individuals with non-redundant backgrounds to that of the hiring firm (Corredoira and Rosenkopf 2010). Therefore, it stands to reason that redundant hires would not increase knowledge flows to regulatory agencies.

Studies of employee mobility confirm that redundant hires have diminishing marginal utility. Dokko and Rosenkopf (2010) found that tie redundancy negatively moderated the relationship between hiring new personnel and the firm's social capital. It then stands to reason that increasing ex-industry presence on regulatory agencies' boards would not necessarily expand the reach of the agencies' social capital, and it would therefore not allow agencies further support-building efforts among regulated firms. Even if agencies were able to get additional boosts in their support-building by being connected, via the revolving door, to more than one

regulated firm in the industry, those marginal benefits would have to be weighed against the reputational damage of being perceived as captured by the industry. Namely, having multiple revolvers on a regulatory commission may attract scrutiny and disapproval from other stakeholders, such as the general public, thereby risking damage to organizational legitimacy. As such, I suggest that commissions do not hire multiple revolvers in order to maximize the reach of their support building campaign. In sum, I predict the following:

*Hypothesis 4: **Revolver redundancy** will have a negative effect on the likelihood of hiring an (additional) regulator with regulated industry experience.*

EMPIRICAL CONTEXT

17 U.S. Independent Regulatory Commissions (IRCs) represent the empirical context for this study. As noted, in order to become commissioners, individuals have to be nominated by the President, and confirmed by Congress—a potentially political process that includes a number of interested parties. In their analysis of the appointment process at the FCC and the FTC, Graham and Kramer (1976: 378) identified the stakeholders in the process as “the regulated industries and their spokesmen, the Congress, the party structure, the chairman of the particular agency, and of course, the President’s advisers.” Generally, individuals interested in agency positions come forward themselves, and may be quite aggressive in campaigning for positions (Cohen 1985; Graham and Kramer 1976; Maranto 2005). A successful candidate’s name usually does not originate from regulated industry, although the industry may later express support or opposition to a specific candidate (Graham and Kramer 1976). The most crucial actors in the nomination process are Congress, the White House, as well as the agency itself (Graham and Kramer 1976). Presidents often wield influence over the nomination, and Congress members

may sponsor individuals for the regulatory posts, as well. Agencies participate in the process through their Chairman, who advocates for the agency's needs.

Controversial nominations are, by and large, avoided. Graham and Kramer (1976) suggest that the appointment of a regulator who is friendly to industry, rather than from the industry, may be a more effective way to achieve industry-favoring regulation. Arguably, if the regulated industry attempted to actively place individuals on board of IRCs, it may be easier to escape detection or lengthy investigations of the potential candidate, by avoiding ex-industry individuals in favor of those that may simply hold pro-industry views on regulation. This would suggest that any instances of the firm-to-government revolving door may, in fact, be driven by government, rather than by industry. Although the influence of other interest groups cannot be ruled out entirely (and needs to be accounted for empirically), governmental entities, including the regulatory agencies themselves, do play a major role in IRC appointments. As such, they are able to pursue these appointments with their own strategic goals in mind, suggesting that the revolving door is not simply a reflection of corporate political strategy.

DATA AND METHODS

The IRC database is used as the primary source of the data here (Nixon 2005). This database compiles information on each individual who served on 17 U.S. Independent Regulatory Commissions. The IRCs included in this study are: Civil Aeronautics Board (CAB) (1938-1984²), Consumer Product Safety Commission (CPSC) (1972-2000), Equal Employment Opportunity Commission (EEOC) (1965-2000), Federal Communications Commission (FCC)

² The years in parentheses denote the period of observation for each commission. For each commission, the period of observation starts with the commission's founding, and ends either with the commission's dissolution, or the year 2000, whichever comes sooner.

(1934-2000) and its predecessor Federal Radio Commission (FRC) (1926-1934), Federal Election Commission (FEC) (1975-2000), Federal Energy Regulatory Commission (FERC) (1977-2000) and its predecessor Federal Power Commission (FPC) (1930-1977), Board of Governors of the Federal Reserve (BGF) (1935-2000) and its predecessor, Federal Reserve Board (FED) (1913-1935), Federal Trade Commission (FTC) (1914-2000), Interstate Commerce Commission (ICC) (1887-1995), National Labor Relations Board (NLRB) (1935-2000), National Transportation Safety Board (NTSB) (1967-2000), Nuclear Regulatory Commission (NRC) (1974-2000) and its predecessor Atomic Energy Commission (AEC) (1946-1974), and Securities and Exchange Commission (SEC) (1934-2000). These commissions regulate private activity in a range of fields, including labor (NLRB, EEOC), election financing (FEC), transportation by rail, truck, pipeline, ship or airplane (CAB, ICC, NTSB), credit, banking (FED/BGF), securities on and off exchanges (SEC), trade practices (FTC) and consumer safety (CPSC), communications such as radio, television, telegraph, and telephone (FCC/FRC), as well the development, sale and distribution of electric and nuclear power (FERC/FPC, NRC/AEC) (The Commission on Organization of the Executive Branch of the Government 1949).

The database includes information on each commissioner's career history, biographical information, as well as on the circumstances of regulatory appointment. In this paper, I rely on the information about regulatory appointments. In particular, I use the commissioners' nomination and departure dates from their regulatory appointments, their career histories, as well as their educational backgrounds. However, the original variables from the IRC database are recoded from the individual commissioner's level (as they originally appear in the IRC database) to commission level, for the needs of this paper. These commission-level data cover the period from each commission's founding to its dissolution, or year 2000, which is the end of data

coverage for the IRC database. For commissions that were dissolved before 2000, such as the AEC, FED, FPC, and FRC, their successor commissions are included in the data.

Further, I also collected information on major legislative acts and commission rules affecting each of the 17 IRCs, using the commissions' websites and their histories. These sources readily identify, and label as such, the key pieces of legislation passed by Congress, as well as the major rules passed by the commissions themselves. In addition, I use several publicly available sources of historical data. Information on national gross domestic product (GDP) growth is included from the U.S. Department of Commerce's Bureau of Economic Analysis, which compiles and publishes annual GDP statistics (Bureau of Economic Analysis (BEA) 2015). I also include the government share of GDP (Teorell, Charron, Dahlberg, Holmberg, Rothstein, Sundin, and Svensson 2013), as well as budget and staff data for a subset of the IRC-years for which these data are compiled (Weidenbaum Center et al. 2015). Finally, I use historical data on the political leanings of Congress and (Poole and Rosenthal 2015), as well as on the Presidents' ideology (The White House 2015). Compustat data on firm revenues were also used in the calculation of the Herfindahl-Hirschman Index (HHI) by IRC. Lastly, I used the typology of regulatory agencies from Dudley and Warren (2003).

Dependent Variable

The dependent variable is *directly regulated firm hire*, a 0/1 dummy, where 1 denotes that in a given year, a given commission nominated a commissioner with previous work experience in a directly regulated firm, and 0 otherwise. In the original IRC database (Nixon 2005), which represents the basis of the data used here, an individual is coded as having previous work experience in a directly regulated firm if one (or more) of his four positions held immediately prior to the regulatory position were with a directly regulated firm. For each commission, a

directly regulated firm is one whose activity is under the regulatory jurisdiction of the commission.

Independent Variables

In order to operationalize regulatory agency newness (H1), I include a continuous measure of *IRC age* in years. In order to test the workload hypothesis (H2), I include *lagged major legislation*, which is a 0/1 dummy variable with the value of 1 when major legislation was passed in the previous year, and 0 otherwise. This variable is lagged to account for the delay in the IRC's implementation of the legislation or rule. The median delay in the promulgation of regulation by regulatory agencies is estimated to be about 12 months (Yackee and Yackee 2012). In a test of H3, I include a measure of *IRC staff*, operationalized as the yearly count of staff members employed by each IRC. IRC budget (in millions of constant 2009 dollars) is also available as an alternative operationalization of IRC resources. As the two measures are highly correlated, I proceed with the staff count, as it is a theoretically superior measure of IRC resources, specifically in terms of manpower available to each IRC. For the redundancy hypothesis (H4), I include a measure of previously hired individuals with directly regulated firm experience. More specifically, *lagged revolvers on board* captures the count of individuals with directly regulated firm experience who were on board of an IRC on December 31st of the year prior.

Control Variables

In order to control for the technical expertise needs of the regulatory commissions, I include PhD count, which is the number of individuals with Ph.D. degrees nominated for the focal commission in a given year. Furthermore, controlling for any firm efforts at strategically placing individuals on commissions is very important for the soundness of the analysis.

However, accounting for such covert firm behavior is also challenging, as it is “difficult to pinpoint the role of the regulatory industry in the [commissioner] selection process” (Graham and Kramer 1976:378). Here, I employ the count of regulator exits directly to the regulated industry in a given year as a measure of industry attempts at regulatory capture. Namely, regulated firms’ hiring of former regulators may be considered a proxy for corporate political activity through hiring: to the extent that firms are participating in the exit revolving door by hiring former regulators, they may also be actively trying to place individuals on the regulatory commission. Thus, for each commission in a given year, I include exit to directly regulated firm, as the count of regulators who took their first post-IRC job within the directly regulated industry.

Importantly, in the main analysis, I include IRC and year fixed effects, which preclude the inclusion of variables that vary only by commission or only by year. However, in a subset of the analyses, I drop the year fixed effects, in order to include control variables that vary only by year, and not by IRC. Specifically, I include GDP percent change, government share of GDP, Senate ideological leaning, ideological leaning of the House of Representatives and presidential ideology, which are all measured on the national level for the United States, and would therefore be collinear with the year dummies. GDP percent change represents the annual U.S. economic growth (in percentage). Government share of GDP measures government spending per year, expressed as a function of the total size of the U.S. economy. Congressional ideology variables are variables from the NOMINATE data by Poole and Rosenthal (2015), which have negative values if the Senate or the House average voting pattern was liberal/Democratic, and positive values if the Senate or the House had conservative/Republican voting pattern in a given year. Finally, presidential ideology is captured by the presidency variable (1 if the president is Republican in a given year, 0 otherwise).

Analysis

Given the binary nature of the dependent variable, I adopt a logit model for my main analysis here. Observations are on the level of the IRC-year. To account for the unobserved heterogeneity across IRCs, as well as across time, the model includes IRC and year fixed effects. Descriptive statistics are presented in Table 1.

Insert Table 1 about here

The logit model specification is:

$$\log \frac{p(Y=1)}{1-p(Y=1)} = \alpha_i + \alpha_t + X\beta,$$

where α_i represents the IRC fixed effect, α_t represents the year fixed effect, X refers to the matrix of independent and control variables, and β is the matrix of regression coefficients. As mentioned, a subset of the analyses drops the year fixed effects.

RESULTS

Table 2 presents the results of the main analysis. Model 1 includes control variables, as well as IRC and year fixed effects. Model 2 additionally includes three of my four independent variables: newness, workload and revolver redundancy. In subsequent models, I show the results of Model 2 in two subsamples: before (Model 2a) and after 1970 (Model 2b). Finally, I include the fourth independent variable, IRC resources: operationalized as IRC staff in Model 3, and IRC budget in Model 3b. Including the fourth variable, IRC resources, results in a much smaller number of observations, so I show the results for the first three separately in Models 2/2a/2b, and then Model 3 uses all four independent variables together. Given the small size of the dataset, I report statistically significant findings, as well as those that are marginally significant ($p < 0.1$).

Insert Table 2 about here

Control Variables' Effects

Model 1 in Table 2 reports the effects of control variables on the likelihood of an IRC nominating an individual from the directly regulated industry in a given year. In this particular model, exits to directly regulated industry in the same year are not significantly related to the dependent variable. However, the effect is positive, and reaches significance ($p < 0.05$ or $p < 0.1$) in a few other models, most notably in Model 8 in Table 4, run on imputed data. In other words, regulated firms' hiring of former regulators may be related to the regulatory commissions' appointing of former industry executives, suggesting that both the hiring of former regulators and placing former employees on regulatory boards may be examples of corporate political strategy.

Furthermore, the count of nominated Ph.D. holders in a year is positively albeit not significantly associated with the likelihood of hiring a revolver. In other words, I do not find statistical support for the idea that technical expertise (as operationalized by PhD-holding nominees) and professional expertise (as operationalized by the dependent variable, directly regulated firm hires) may act as complements in the nomination process.

Independent Variables' Effects

Model 2 introduces three independent variables: newness, workload and revolver redundancy, testing Hypotheses 1, 2, and 4. IRC age is not significantly associated with the likelihood of hiring an industry revolver, indicating lack of support for H1.

Next, contrary to H2, I find that major legislation or rule passed in the previous year significantly ($p < 0.05$) decreases the likelihood of hiring an individual from the regulated industry in a given year. However, this surprising finding may be explained by the differential content of these acts. Namely, legislation acts and commission rules do not always increase regulatory

burdens on firms. In fact, acts or rules may be deregulatory in nature, such as the Railroad Revitalization and Reform Act in 1976, which started the deregulation of railroad transportation (Peoples 1998). Therefore, in order to better specify the effect of agency workloads, I account for the different regulatory eras by modeling the deregulatory movement, which started in the 1970s in the United States (Crain 2007). I run Model 2 on two subsamples: one before 1970 (Model 2a), and one after (Model 2b). Here I find that major legislative acts or rules have a non-significant (albeit positive) effect before 1970, and a significant ($p < 0.01$) and negative effect after 1970. In other words, after 1970, when regulatory workloads are decreasing due to deregulation, major acts and rules do have a negative effect on the likelihood of hiring industry revolvers, but the same is not true when regulatory workloads are being increased by legislative acts and rules. Viewed this way, these results may offer partial support for Hypothesis 2.

As predicted in H4, revolver redundancy has a significant negative effect on the likelihood of hiring an industry revolver in Model 2. In other words, the count of industry revolvers at the close of the previous year significantly ($p < 0.05$) reduces the likelihood of hiring additional revolvers in the current year. This finding supports the idea that additional hires from the regulated industry are redundant, and do not bring additional opportunities for the regulatory agency to engage in support-building or learning from industry.

Finally, Model 3 includes the fourth independent variable, IRC resources, operationalized as IRC staff number. Here I find that the greater an IRC's staff is in a given year, the less likely the IRC is to hire an industry revolver, as suggested by H3. This result, however, is significant only at the $p < 0.1$ level. Furthermore, in the alternative specification of IRC resources as the commission's budget, the coefficient is not significant, albeit negative. This suggests that, when agency staff numbers are constrained, but not when agency budgets are low, hiring individuals

with regulated firm experience may become a valuable substitute for external learning and support building initiatives involving the regulated industry.

Robustness Checks

I also conduct a number of different robustness checks for my main analysis. First, I include a variety of national level control variables, while dropping year fixed effects in order to avoid collinearity. Table 3 presents Model 3 for comparison purposes, along with Model 4, which includes additional controls.

Insert Table 3 about here

The new set of control variables includes GDP growth, government share of GDP, Senate and House of Representatives political leaning, as well as presidential ideology. I include these variables as they may influence commissions' hiring patterns. However, I find that none of these additional variables are significant. Thus, these additional controls do not add much information to the main analysis. Moreover, Model 4, including these control variables, has a much worse fit relative to Model 3, which has year fixed effects instead. As such, I proceed with Models 1-3 as my main results.

Second, in Table 4, I show a variety of models, which test the robustness of my main analysis. Again, Model 3 is shown for comparison purposes.

Insert Table 4 about here

Model 5 uses a different dependent variable. Instead of using a dummy variable for the IRC hiring an industry revolver, it uses a count of industry revolvers hired by an IRC in a given year. Due to the different dependent variable, I adopt OLS regression as my method of analysis in this model. This approach allows me to check whether model specification affects my results. I find that model specification does not influence the results greatly, although in this

specification, I do find support for the effect of IRC age being negatively related to the likelihood of nominating an industry revolver to an IRC. Also, the effect of staff number becomes non-significant in this specification. However, all the results remain directionally the same as in the main models.

Model 6 also uses a different operationalization of the dependent variable. Rather than using an individual's four jobs held before the regulatory appointment, here I use just the first job before regulatory appointment to define *directly regulated firm hires, first order*. Similar to directly regulated firm hire used in the main analysis, this dummy variable has the value of 1 if, in a given year, an IRC hired an individual whose last job before the regulatory appointment was in the regulated industry. In this model, I also use a lagged measure of the first order (lagged) revolver count (instead of the lagged measure of the revolver count of individuals who had held at least one of their four previous jobs in the regulated industry). Here I test the idea that different processes may be driving the hiring of an individual with industry experience in general and the hiring of someone transitioning immediately from the industry. From the perspective of a governmental entity, the goals of industry support-building and learning may be achieved by hiring an individual with industry experience in general. In fact, individuals transitioning straight from industry jobs may be met with controversy by the general public. On the other hand, if a firm were interested in placing an individual on a regulatory body for strategic purposes, it may be easier to incentivize a current employee (relative to a former one) to transition to public service (POGO 2013).

In Model 6, I find that the two types of hires (including those with regulated firm experience, and those coming directly from a regulated firm) may work very similarly. In fact, the effects of the variables that tap into the learning and support-building motivations for hiring

(including workload, redundancy, and resources) show the same patterns of significance and direction. This finding further strengthens the idea that hiring of individuals with regulated firm experience is not driven by the firms themselves, somehow placing their former employees into regulatory roles. If that were the case, one might expect to see different patterns for those transitioning from an industry job immediately before, as they would be potentially easier to incentivize, via accelerated stock option vesting, to participate in such a corporate political strategy (POGO 2013). The lack of differences between Models 3 and 6, then, supports the idea of this direction of the revolving door being driven by governmental entities.

In Model 7, I restrict my analysis only to the years where at least one nomination actually occurred for the focal IRC. While individuals may hypothetically be nominated in any year (whether because there is a vacancy on the IRC board, or because the President has the power to replace regulators), here I check whether restricting my sample to just the nomination years affects my results. Although all the relevant coefficients for workload, redundancy and resources maintain their direction, I do find that redundancy and resources lose their statistical significance. Given that the results remain directionally the same, I consider that the lack of significance may be due to the large drop in the number of observations, rather than the sample restriction per se.

Finally, in order to check that data missingness does not affect my results, I also impute variables with missing observations. I use Stata's mi impute routine, which utilizes variables with full observation sets to generate missing values. Model 8 is run on imputed data, raising the number of observations to 560, as some observations are dropped in the analysis. I find a significant and negative effect of lagged major legislation ($p < 0.05$), and a significant negative

effect of the lagged count of revolvers on board ($p < 0.05$). However, the effect for IRC staff count becomes non-significant.

Thus, I conclude that the effects of agencies' workload and revolver redundancy find generally robust support across models, while the significance of the effect for the agencies' resources is less robust in some specifications.

Supplementary Analysis

Next I conduct a supplementary analysis, in which I investigate whether the learning and support-building motives are affected by regulatory commission type, industry concentration and the political ideology of Congress and the President. Here I compare the effects of independent variables found in different subsamples, in order to improve our understanding of the main effects and the mechanisms driving them. Table 5 below shows the results of the supplementary analysis.

Insert Table 5 about here

Commission Type

First, I consider two important commission characteristics: whether the IRC is a single-industry regulator, or a cross-sectoral one, and whether the regulation it creates is primarily economic or social in nature. I suggest that the dependence of an IRC on one of its main stakeholders, the regulated firms, may be greater if those firms are all concentrated in a single industry. That would increase the importance of generating industry support for regulatory initiatives. In fact, what I find in Model 9, run on the single-industry IRCs, is that the effects of several of my independent variables, including workload and redundancy, increase both in terms of statistical significance and effect sizes, compared to Model 3. Interestingly, however, the

count of IRC staff changes sign and becomes significant and positive, suggesting that commission manpower may be a complement, rather than a substitute for revolver hires, for these single-industry IRCs. Given the low number of observations in the other subsample of the analysis, and the fact that some of the variables are omitted, and most are not significant, I do not discuss the results of Model 10, conducted on the cross-sectoral IRCs.

Next, I consider the type of regulation created by a commission. Here I consider IRCs that produce economic (in Model 11) vs. those that produce social regulation (in Model 12). Economic regulation may arguably be more technical, and may require a deeper knowledge of the regulated industries to craft. As such, I would expect the effects of learning to be stronger in Model 11. The results generally follow that expectation, in that the coefficients on workload and redundancy are both greater in size than in Model 3, and also reach higher significance than those in Model 12, conducted on the social regulatory IRCs. The effect of staff, however, is positive and marginally significant for the economic regulatory IRCs, which may mean that the learning motive is so important for these commissions, that staff simply cannot act as a substitute for revolvers, and both internal and external learning tactics are employed.

Industry Concentration

As mentioned before, when industry concentration is high, market power is consolidated by a few large firms. As such, high industry concentration may increase the need for building industry support via hiring revolvers. Thus, here I conduct my subsample analysis to see whether the main effects of workload, resources, and redundancy are stronger for IRCs that regulate highly concentrated industries ($HHI \geq 1800$, in Model 14) compared to those that regulate less concentrated ones ($HHI < 1800$, in Model 13). That is exactly what I find—the coefficients for those three variables in Model 14 are larger and mostly reach greater statistical significance.

Interestingly, while the effect of staff numbers is highly significant ($p < 0.001$) and negative in Model 14, it is positive and significant ($p < 0.05$) in Model 13. A possible explanation might lie in the redundancy mechanism. When firms in the regulated industry are less consolidated, it is possible that the redundancy mechanism is not at play. Due to relatively larger number of firms from which to learn and with whom to network, the redundancy effect may be reversed in order to fulfill those needs through any capacities possible.

Congressional and Presidential Ideology

Finally, I examine whether Congressional and Presidential ideologies moderate the main effects of this study. As Congress and the President may affect the nomination process itself (Graham and Kramer 1976), their political leanings may be expressed through the process. Moreover, the political ideology of Congress and the President may affect the workload and resources assigned to the IRCs, which would in turn affect whom the IRCs wish to hire. In general, when Congress and the President are Republican, we might expect a constriction of government spending, as well as of regulatory activity. The opposite might be true in times of Democratic Congress and Presidency. In other words, the coefficients on major legislation and staff should be more negative when government leans Republican (Models 16 and 18). While I find support for a more negative effect of major legislation when the Senate is more Republican in its voting preferences, and when the President is Republican, I do not find any differences when it comes to the effect of staff across subsamples.

Overall, I do find that commission type, industry concentration and Congressional and Presidential ideologies moderate the effects of agency workload, redundancy and resources. Generally, when learning and industry support-building become more pressing, the results become statistically stronger and often amplified in their magnitude. Future research should

investigate these moderators in greater detail, in order to better understand the mechanisms of the relationship between the IRCs' learning and support-building motives and their participation in the entry revolving door. In particular, further supplementary analysis could be used in order to separate the two motives, in order to understand when learning from industry becomes more important, compared to support-building, and vice versa.

DISCUSSION

What factors drive the hiring of former regulated industry employees for regulatory commissioners? Here I suggest that, much like firms use the revolving door for their own corporate political agenda, regulatory agencies use it in order to gain the support of regulated industry, as well as to learn how to regulate effectively. In particular, I investigate the conditions under which 17 U.S. Independent Regulatory Commissions are more or less likely to hire individuals with regulated firm experience, and I find evidence that suggests hiring may represent IRCs' attempts at support-building and learning. Regulatory agencies are less likely to hire regulated industry revolvers when their regulatory workloads are low (although they are not significantly more likely to hire them when the workloads are high), when there are industry revolvers on board already, and when IRC staff counts are low.

Moreover, these effects are of a sizeable magnitude. Having five revolvers on board reduces the likelihood of hiring another one by 12 percent. After 1970, when the deregulatory era begins, the occurrence of major legislative acts or rules decreases the likelihood of hiring a revolver by eleven percent. Finally, increasing the IRC staff from its minimum occurring in the sample (35) to close to its maximum (3,000) decreases the likelihood of hiring a revolver by 21 percent. Thus, revolver redundancy, as well as agency budgets and workloads, importantly affect the regulatory agencies' hiring patterns.

In contrast to the widely assumed role of the revolving door in corporate political strategy, here I shed light on the conditions under which governments may be more or less likely to participate in the revolving door. This paper supplements our understanding of the revolving door as a non-market strategy—but one that may serve both types of participants in it: firms, as well as governmental entities. Consequently, I bring governmental entities, such as regulatory agencies, back to center stage. Despite their importance, regulatory agencies are relatively neglected in organizational scholarship (Hiatt and Park 2013). This study seeks to correct some of that oversight, as well as to improve our understanding of the agentic, self-interested role governments may play in the non-market arena, more generally.

While the evidence here is suggestive of the role of the entry revolving door in support-building and learning efforts of the regulatory agencies, this study does not directly show the effect of the revolving door on industry support enjoyed by the agencies, or the industry knowledge accumulated through this type of employee mobility. Future work might gather direct measures of success for the entry revolving door, in terms of strategic outcomes it helps regulatory agencies achieve. One such study could examine the effects of hiring industry revolvers on regulatory speed, quality, or volume, as well as on the relationship between regulatory firms and IRCs. Research in this vein would deepen our understanding of how regulatory agencies may be able to use hiring from regulated industry as their own strategy.

Further, studies may also probe the role of regulated firms in the entry revolving door. It has been previously suggested that regulated firms may try to place their former employees on regulatory commissions, in order to have them advocate for more favorable outcomes for the firms (Cohen 1986; POGO 2013). In my analysis, the variable representing the regulated industry's use of exit revolving doors, arguably a corporate political strategy, has a positive

although not consistently significant effect across models. This finding suggests that the role of the firm in the entry revolving door may be limited. Moreover, the commissioner nomination process is a highly political one, with many parties arguably playing a more important role in it than firms (Graham and Kramer 1976). However, future work may delve into the pre-nomination process, and examine how the odds of securing a nomination are affected by having regulated industry support. Such a study would, of course, require complete rosters of individuals put forward for commissioner positions in the early stages of the pre-nomination process, but would allow us to have a more definitive answer regarding the role of the regulated firms in the entry revolving door.

As I have argued here, revolving door formation is shaped by firms (primarily in the exit direction) and governmental agencies (in the entry direction). Another interesting and important aspect of this employee mobility regards the employees themselves. On the individual level, little is known about the motivations of individuals who participate in the revolving door. While on the exit side of the revolving door, individual regulators may be drawn to the private sector due to the more lucrative pay (Cohen 1986), the entry side of the revolving door is less well explained. Suggestions have been made of possible financial incentives, such as accelerated vesting of firm stock options upon transition to high-level governmental positions, which firms may use to incentivize these transitions. For our complete understanding of the revolving door phenomenon, it is crucial to shed light on how the motivations of the different actors, on different levels of observation, add up to create the phenomenon. As such, future studies might examine whether financial incentives are the reason why individuals transition from the regulated private to the public sector. For example, one could use the introduction of restrictions on revolving doors, particularly those introducing limitations on stock options from the regulated

industry. As the regulations surrounding the revolving door tightened over time, it would be interesting to see whether the patterns of hiring changed as a result. Interviews with former regulators may also be helpful in determining the individual level motivations for participation in the revolving door.

As for the practical implications of this study, my results indicate that governmental agencies may use the hiring of regulated industry professionals as a way to learn and build support with the industry. This finding casts a positive light on the entry direction of the revolving door phenomenon. However, any positive effects need to be balanced with the potential negative consequences. Namely, even putting aside any regulators potentially placed on regulatory commissions by their former employers, revolvers may exhibit a bias towards their former employers due to cognitive capture (Rajan 2010). The fact that individuals may have positive affect and loyalty towards former employers, as well as sympathy for their regulatory issues (Makkai and Braithwaite 1992), may cause differential regulatory outcomes for these specific firms, and may even bias a regulator's stance towards an entire industry. Regulation prohibiting individuals from working on issues related to former employers specifically may alleviate this problem, but the issue of being pro-industry in general may remain. However, much like commissions are designed to be bipartisan, they could also be designed to have a split of individuals with industry experience, career bureaucrats, as well as consumer group representatives. Given that revolving door regulations' provisions are often difficult to monitor and effectively enforce, and prohibiting the revolving door outright might lower the quality of regulators, ensuring that commission design gives voice to multiple interested parties may be a more effective way to safeguard against one interest group prevailing against others on regulatory commissions.

In conclusion, this paper provides a novel perspective on the revolving door by focusing on the role that this type of employee mobility may serve for governmental entities' strategic goals. Despite the controversial role of the revolving door, often perceived to be exclusively a corporate political strategy, this exchange of employees may contribute to important governmental goals of learning about regulated industries and maintaining cooperative relationships with them. In the words of a former senator, commenting on the selection of a former broadcaster to the FCC: "I can't escape the feeling that if I have pneumonia, I want a doctor, and that the person most likely to know something about broadcasting is a broadcaster" (Graham and Kramer 1976:399). While this paper sheds some light on the agentic role of governmental entities in the revolving doors, it also invites direly needed future inquiry into the phenomenon—and its antecedents and consequences for economies and societies alike.

TABLES

TABLE 1. Descriptive Statistics (Including Variables Used in Robustness Checks and Supplementary Analysis)

Variable	Obs	Mean	Std. Dev.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
(1) directly regulated firm hire (0/1)	794	0.134	0.340	0	1																			
(2) directly regulated firm hire (count)	794	0.160	0.456	0	5	0.93																		
(3) directly regulated firm hire, first order (0/1)	794	0.052	0.221	0	1	0.64	0.67																	
(4) exits to directly regulated firm (count)	794	0.088	0.305	0	2	0.06	0.06	0.04																
(5) PhD hire (count)	794	0.128	0.412	0	3	0.09	0.12	0.14	0.19															
(6) IRC age	794	30.064	23.738	0	108	-0.12	-0.11	-0.03	0.08	-0.06														
(7) major legislation	794	0.156	0.363	0	1	-0.08	-0.08	0.01	-0.01	0.02	0.16													
(8) revolvers on board (count)	794	0.932	1.103	0	5	0.40	0.43	0.27	0.04	0.19	-0.02	0.01												
(8) revolvers on board, first order (count)	794	0.276	0.537	0	4	0.27	0.29	0.40	0.00	0.29	0.06	0.07	0.63											
(9) IRC budget	467	155.649	160.429	0	967	0.02	0.02	-0.01	0.05	0.09	-0.21	0.04	0.09	0.05										
(10) IRC staff	469	1369.561	922.311	35	3498	-0.06	-0.08	-0.11	0.09	-0.10	0.08	0.10	-0.08	-0.22	0.76									
(11) GDP growth (%)	714	7.473	6.114	-23.1	28.3	0.01	0.05	0.00	-0.05	-0.03	-0.07	0.03	-0.09	-0.16	-0.02	-0.02								
(12) government spending (% of GDP)	565	10.280	2.451	6.13	16.09	-0.01	-0.02	-0.01	-0.12	-0.05	-0.14	-0.22	-0.10	-0.15	-0.33	-0.24	-0.08							
(13) political leaning of the Senate	794	0.003	0.067	-0.21	0.16	0.08	0.06	0.06	0.04	0.02	0.11	0.07	0.18	0.24	0.25	0.16	-0.28	-0.63						
(14) political leaning of the House	794	0.024	0.070	-0.17	0.17	0.00	-0.03	0.00	0.07	0.02	0.12	0.02	0.05	0.16	0.23	0.14	-0.51	-0.53	0.77					
(15) Republican President (0/1)	794	0.535	0.499	0	1	0.12	0.12	0.08	-0.01	0.04	0.01	0.03	0.22	0.17	-0.05	-0.05	0.00	0.04	0.10	-0.33				
(16) cross-sectoral IRC (0/1)	794	0.275	0.447	0	1																			
(17) social regulatory IRC (0/1)	794	0.278	0.448	0	1	0.12	0.10	0.07	-0.05	0.12	-0.52	-0.15	0.15	0.11	0.45	-0.01	-0.01	-0.13	0.10	0.08	0.02			
(18) Herfindhal-Hirschman Index for IRC (obs=296)	363	1761.845	2070.652	166.57	10000.00	-0.06	-0.08	-0.06	0.03	-0.19	0.12	0.03	-0.29	-0.20	-0.25	0.03	0.01	0.30	-0.21	-0.17	-0.04			-0.14

TABLE 2. Main Analysis

Independent variables	DV: Directly regulated firm hire	Model 1	Model 2	Model 2a	Model 2b	Model 3	Model 3b
Controls	Exit to directly regulated firm	0.562 (0.36)	0.841* (0.40)	1.567* (0.62)	0.767 (0.59)	0.824 (0.57)	0.863 (0.57)
	PhD hire	0.441 (0.29)	0.278 (0.30)	0.982+ (0.56)	-0.212 (0.46)	-0.257 (0.42)	-0.314 (0.42)
Newness	IRC age		-0.373 (0.71)	0.408 (1.21)	-0.589 (0.73)	-0.626 (0.73)	-0.618 (0.74)
Workload	Major legislation (lagged)		-1.008* (0.44)	0.433 (0.72)	-2.261** (0.73)	-1.889** (0.66)	-1.838** (0.66)
Redundancy	Revolvers on board (lagged)		-0.337* (0.16)	-0.640* (0.30)	-0.250 (0.22)	-0.477* (0.21)	-0.464* (0.21)
Resources (1)	IRC staff count					-0.001+ (0.00)	
Resources (2)	IRC budget (2009 constant \$)						-0.003 (0.00)
	Constant	-12.419 (955.04)	19.070 (37.03)	-8.870 (27.21)	17.513 (760.77)	34.454 (37.98)	34.616 (38.26)
	Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
	IRC fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
	N	576	560	218	297	369	369
	Pseudo R2	0.21	0.23	0.27	0.20	0.20	0.20

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

TABLE 3. Analysis Including Additional Controls

Independent variables	DV: Directly regulated firm hire	Model 3	Model 4
Controls	Exit to directly regulated firm	0.824 (0.57)	0.500 (0.45)
	PhD hire	-0.257 (0.42)	-0.103 (0.35)
	GDP growth (%)		0.152 (0.10)
	Government share of GDP		0.405 (0.26)
	Senate political leaning		5.098 (6.59)
	House political leaning		-4.516 (6.94)
	Presidential ideology		0.562 (0.49)
	Newness	IRC age	-0.626 (0.73)
Workload	Major legislation (lagged)	-1.889* (0.66)	-1.332* (0.58)
Redundancy	Revolvers on board (lagged)	-0.477* (0.21)	-0.400* (0.19)
Resources	IRC staff count	-0.001+ (0.00)	-0.000 (0.00)
	Constant	34.454 (37.98)	-8.540+ (4.54)
	Year fixed effects	Yes	No
	IRC fixed effects	Yes	Yes
	N	369	437
	Pseudo R2	0.20	0.14

+ p<0.10, * p<0.05

TABLE 4. Robustness Checks

		Model 3	Model 5	Model 6	Model 7	Model 8
Independent variables	DV	Directly regulated firm hire (0/1)	Directly regulated firm hire (count)	Directly regulated firm hire, first order (0/1)	Directly regulated firm hire (0/1)	Directly regulated firm hire (0/1)
Controls	Exit to directly regulated firm	0.824 (0.57)	0.090 (0.07)	-0.342 (1.18)	0.738 (0.63)	0.839* (0.40)
	PhD hire	-0.257 (0.42)	0.009 (0.05)	0.160 (0.96)	-1.343* (0.53)	0.263 (0.31)
Newness	IRC age	-0.626 (0.73)	-0.007* (0.00)	0.914 (1.50)	0.237 (0.85)	-0.379 (0.71)
Workload	Lagged major legislation	-1.889* (0.66)	-0.143* (0.06)	-2.946* (1.40)	-1.846* (0.76)	-1.008* (0.44)
Redundancy	Revolvers on board (lagged)	-0.477* (0.21)	-0.047+ (0.03)		-0.352 (0.26)	-0.337* (0.16)
Redundancy	Revolvers on board, first order (lagged)			-2.115* (0.73)		
Resources	IRC staff	-0.001+ (0.00)	-0.000 (0.00)	-0.003* (0.00)	-0.001 (0.00)	-0.000 (0.00)
	Constant	34.454 (37.98)	0.944* (0.27)	-36.052 (72.96)	-8.611 (43.99)	
	Year fixed effects	Yes	Yes	Yes	Yes	Yes
	IRC fixed effects	Yes (17)	Yes (17)	Yes (17)	Yes (17)	Yes (17)
	Method	logit	OLS	logit	logit	logit, imputed data
	Sample restriction	No	No	No	nomination years	No
	N	369	465	127	221	560
	Pseudo R2/R2	0.20		0.35	0.24	N/A

+ p<0.10, * p<0.05

TABLE 5. Supplementary Analysis

Independent variables	DV: Directly regulated firm hire	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18
Controls	Exit to directly regulated firm	1.996** (0.76)	0.000 (.)	1.786+ (0.95)	0.938 (1.38)	4.225** (1.37)	-5.113+ (2.65)	0.163 (0.81)	3.000* (1.40)	4.100* (1.66)	0.384 (0.79)
	PhD hire	-0.652 (0.49)	0.000 (.)	-0.586 (0.57)	2.604* (1.28)	-0.695 (0.70)	0.000 (.)	-0.860 (0.60)	0.388 (0.76)	-1.187 (1.06)	0.169 (0.53)
Newness	IRC age	-0.535 (1.82)	-0.338 (1.10)	0.096 (1.04)	1.452 (1.85)	-2.391 (2.26)	-0.871 (1.02)	-1.530 (1.56)	-0.308 (0.75)	-0.521 (0.88)	0.875 (1.40)
Workload	Lagged major legislation	-2.748** (0.84)	-21.786 (780.96)	-2.488** (0.97)	-3.383+ (1.79)	-3.624** (1.28)	-5.078* (2.07)	-1.933* (0.87)	-4.091* (1.85)	0.522 (1.20)	-3.851** (1.20)
Redundancy	Revolvers on board (lagged)	-0.988** (0.30)	-13.013+ (7.39)	-0.913* (0.38)	-0.672 (0.49)	-1.515** (0.49)	-2.995** (1.07)	-0.924** (0.31)	0.080 (0.47)	-2.642* (1.11)	-0.482+ (0.28)
Resources	IRC staff	0.002* (0.00)	-0.020+ (0.01)	0.002+ (0.00)	-0.002* (0.00)	0.005* (0.00)	-0.005*** (0.00)	-0.001 (0.00)	-0.000 (0.00)	-0.001 (0.00)	-0.001 (0.00)
	Constant	28.727 (92.08)	72.462 (78.22)	-12.259 (66.38)	-70.472 (93.34)	121.582 (114.23)	66.131 (66.07)	76.818 (74.19)	18.779 (48.42)	34.667 (46.13)	-39.097 (65.54)
	Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	IRC fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	N	247	29	173	81	128	114	197	97	90	212
	Pseudo R2	0.28	0.67	0.26	0.25	0.32	0.45	0.20	0.32	0.28	0.27

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

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