REGULATION AND THE EVOLUTION OF CORPORATE BOARDS: MONITORING, ADVISING, OR WINDOW DRESSING?*

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Abstract

It is generally agreed that boards are endogenously determined institutions that serve both oversight and advisory roles in a firm. While the oversight role of boards has been extensively studied, relatively few studies have examined the advisory role of corporate boards. We examine the participation of political directors on the boards of natural gas companies between 1930 and 1998. We focus on the expansion of federal regulation of the natural gas industry in 1938 and 1954 and subsequent partial deregulation in 1986. Using data sets covering the periods from 1930 to 1990 and 1978 to 1998, we test whether regulation and deregulation altered the composition of companies' boards as the firms' environment changed. In particular, did regulation cause an increase and deregulation a decrease in the number of political directors on corporate boards? We find evidence that the number of political directors increases as firms shift from market to political competition. Specifically, the regulation of natural gas is associated with an increase in the number of political directors and deregulation is associated with a decrease in the number of political directors on boards.

I. Introduction

The basic unit of analysis in corporate governance is the board of directors. Directors monitor, advise, punish, and reward. Given these different tasks, it is not surprising that the typical corporate board includes members with quite diverse backgrounds.[1] April Klein points out that directors typically

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[1] In Germany, for example, corporations have two boards, one to monitor the management of the firm and the second to assist management in the operation of the firm.

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come from other industries (such as banking), medicine, the academy, law, and politics.[2] Neither the advisory role nor the diversity of background that role would seem to produce has been the focus of studies of corporate governance. Instead, most have focused on the role of outside directors (those not having other business ties to the firm), regardless of their backgrounds, in solving agency problems between the chief executive officer (CEO) and shareholders.[3] Only recently have some studies begun to examine the advisory role of boards and its impact on the diversity of directors' backgrounds. These studies generally find that the external environment of the firm (or the firm's "economic needs," to use Klein's terminology) determines the type of outside director chosen by the firm. Most of these studies, however, have been cross-sectional in nature.[4]

Unlike Stacy Kole and Kenneth Lehn or Richard Geddes and Hrishikesh Vinod, who focus on the general adaptation of board structures to regulation and deregulation,[5] this paper examines the advisory role of political directors on corporate boards by examining the effect on board composition of specific changes in the firms' external environment, specifically, changes in regulation.[6] If political directors' value is primarily related to their knowledge of or connections to the regulatory process, we would expect such directors to be more valuable once comprehensive regulation begins and less valuable after deregulation.

We use two data sets to evaluate the role of external environment in determining board composition. The first is derived from *Moody's Industrial Manual* and *Moody's Public Utility Manual* for 1930, 1940, 1950, 1955, 1960, 1970, 1980, and 1990. The second uses annual data that were derived from proxy statements filed with the United States Securities and Exchange Commission (SEC) for the period 1978–98. We test whether the imposition of regulation in 1938 and 1954, and subsequent deregulation in 1986, altered board compositions of firms in the natural gas industry. In particular, did the regulatory events lead firms to increase the number of political directors on

[2] April Klein, Affiliated Directors: Puppets of Management or Efficient Directors? (unpublished manuscript, N.Y. Univ., Ctr. L. & Bus., January 1998).

[3] Benjamin Hermalin & Michael Weisbach, Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature, 9 Econ. Pol'y Rev. 7 (2003), provides a recent survey of the literature on the role and performance of boards of directors.

[4] See Klein, *supra* note 2, and Anup Agrawal & Charles R. Knoeber, Do Some Outside Directors Play a Political Role? 44 J. Law & Econ. 179 (2001), as examples of studies focusing on the advisory role of boards. Klein uses a cross-sectional sample for 1992–93. Agrawal and Knoeber utilize three cross sections from 1987, 1988, and 1999.

[5] Stacy Kole & Kenneth Lehn, Deregulation and the Adaptation of Governance Structure: The Case of the U.S. Airline Industry, 52 J. Fin. Econ. 79 (1999); Richard Geddes & Hrishikesh Vinod, CEO Tenure, Board Composition and Regulation, 21 J. Reg. Econ. 217 (2002).

[6] We use the term "political directors" in a broad sense to include directors whose backgrounds suggest involvement in or access to the political regulatory environment, not just former regulators and politicians. The operationalization of our definition is described in Section III*A infra*.

their boards in the earlier periods and then reduce the number of political directors after deregulation?

In both data sets, we find evidence that some board members serve a political role and that changes in the external environment change the demand for directors. After regulation, the data show a marked increase in the number of political directors. Moreover, the 1986 deregulation of natural gas extraction is associated with a decrease in the number of political directors on the boards of extraction companies, while the number of political directors is unchanged at firms in other industry segments not affected by the deregulation of extraction. The results are confirmed using a fixed-effects model and a model that examines only newly appointed directors. Specifically, we find that political regulators are less likely to be added to a board after deregulation.

The paper proceeds in Section II with a review of the literature on the determinants of corporate board composition and a brief history of regulation in the natural gas industry. In Section III, we discuss the data sources and conduct a preliminary analysis of the data. Section IV presents our predictions and estimation results for both event periods using the *Moody's* data and the proxy statement data. Section V offers some concluding remarks.

II. Deregulation and Board Composition

A. Board Composition and the Firm's External Environment

An operating assumption of much of the corporate governance literature is that boards are endogenously determined institutions.[7] The primary focus of this literature has been on the role of the board in mitigating the agency conflicts between the CEO and shareholders.[8] If boards exist to monitor shirking by the CEO and management, then outside directors should be more effective monitors than employees are.[9] On the basis of this premise, much of this literature focuses on the proportion of outside directors and the link between performance and corporate governance.[10]

Exceptions to this focus are studies by Klein and Agrawal and Knoeber,

[7] See Hermalin & Weisbach, *supra* note 3; and Roberta Romano, Corporate Law and Corporate Governance, 5 Indus. Corp. Change 277 (1996).

[8] See Eugene F. Fama & Michael C. Jensen, Separation of Ownership and Control, 26 J. Law & Econ. 301 (1983).

[9] See Harold Demsetz & Kenneth Lehn, The Structure of Corporate Ownership: Causes and Consequences, 93 J. Pol. Econ. 1155 (1985); Michael Weisbach, Outside Directors and CEO Turnover, 20 J. Fin. Econ. 421 (1988); and Randall Morck, Andrei Shleifer, & Robert Vishny, Alternative Mechanisms for Corporate Control, 79 Am. Econ. Rev. 842 (1989).

[10] See Hermalin & Weisbach, *supra* note 3, and M. Andrew Fields & Phyllis Y. Keys, The Emergence of Corporate Governance from Wall St. to Main St.: Outside Directors, Board Diversity, Earnings Management, and Managerial Incentives to Bear Risk, 38 Fin. Rev. 1 (2003), for reviews of the empirical literature that attempts to measure the performance effects of corporate governance structure.

which focus on the advisory role of the board.[11] Although the monitoring versus advising theories are by no means disparate, the advising literature focuses on the human capital that directors bring to the company. Board members' human capital is important not merely because it may affect board members' effectiveness in detecting shirking by the CEO, but also because it gives the CEO access to independent advice that he or she might not get from full-time employees.[12] In addition, the board may represent part-time employment for highly skilled labor. The company may not need the services of an investment banker or lobbyist on a day-to-day basis, but their presence on the board means the company has placed them on a sort of retainer.[13] In short, the firm's external environment, or "economic needs," determine at least in part who is chosen as a director.

One of the most important aspects of a firm's external environment is the presence or absence of regulation. There are a number of reasons why regulation may change the external environment of the firm, but all suggest that regulation shifts the focus of the firm, at least to some degree, from market competition to political competition. At least since George Stigler's paper on the theory of economic regulation, economists have examined the ways in which regulation can benefit an industry.[14] Sam Peltzman and Richard Posner both model regulation as a competition for rents.[15] Such competition would imply that political directors are added to the board to assist the firm in capturing these regulatory rents. In this context, there are many hypotheses for the appointment of political directors to the corporate board. Pablo Spiller posits that postindustry employment provides the regulator a reward for favorable regulatory treatment.[16] He finds that regulators who preside over more lenient regulatory periods are more likely to receive postindustry employment. Political directors also represent a means of lobbying regulatory agencies.

Rent seeking could also be defensive in nature. Political directors may be added to the board to protect quasi rents from regulation.[17] This theory proposes that regulation has the potential to destroy firm-specific assets.

[11] Klein, *supra* note 2; Agrawal & Knoeber, *supra* note 4.

[12] See R. H. Coase, The Nature of the Firm, 4 Economica 386 (1937); Oliver E. Williamson, Markets and Hierarchies: Analysis and Antitrust Implications (1975); and Harold Demsetz, Theory of the Firm Revisited, in The Nature of the Firm: Origins, Evolution, and Development (Oliver E. Williamson & Sidney Winter eds. 1991).

[13] See Myles L. Mace, Directors: Myths and Reality (1971); and Agrawal & Knoeber, *supra* note 4.

[14] George Stigler, The Theory of Economic Regulation, 1 Bell J. Econ. 3 (1971).

[15] Sam Peltzman, Toward a More General Theory of Regulation, 19 J. Law & Econ. 211 (1976); and Richard A. Posner, Theories of Economic Regulation, 5 Bell J. Econ. 335 (1974).

[16] Pablo Spiller, Politicians, Interest Groups, and Regulators: A Multiple-Principals Agency Theory of Regulation, Or "Let Them Be Bribed," 33 J. Law & Econ. 65 (1990).

[17] Fred S. McChesney, Money for Nothing: Politicians, Rent Extraction, and Political Extortion (1997).

Lobbying is used not to gain monopoly rents but to protect the firm's assets from expropriation or dissipation. In addition, political directors may possess industry-specific knowledge or insight into the political process or the threat of future regulation.[18] This industry knowledge may make former regulators effective monitors of corporate management. Regardless of the motivational intent, each of these theories suggests that regulation produces a need for directors who know something about the political landscape and regulatory horizon to serve on the board in an advisory role.

An alternative to the external environment theory is the theory that a director's background presence is unrelated to the firms' external environment. There are several reasons why firms' external environment might not affect the composition of its board. The first reason is that directors serve only a monitoring function. After all, the board is designed to serve an oversight role, and most companies have access to information from salaried employees. The basic prediction of this alternative theory is that regulation would not affect the likelihood that political directors are present on a board. For example, if former regulators have special industry knowledge or management expertise, that value would not necessarily increase with regulation or dissipate with deregulation.

One other alternative is that many directors are simply window dressing whose sole function is to provide another outside director who will not cause problems for management. Several studies have suggested that regulated firms may be less actively monitored by shareholders than firms in a competitive market.[19] It is possible that political directors are neither more effective monitors than other types of directors nor involved in rent-seeking activities but are on the boards of regulated industries because there is less market pressure to appoint more effective monitors and greater opportunities for shirking by the CEOs of regulated companies. In effect, regulated firms need or simply have less effective monitoring by their boards than firms that are not regulated. If this is the case, political directors are simply window dressing. They are placed on the board for the same reason as relatives of the CEO: they are unlikely to cause trouble for management. For this reason, we also estimate the impact of deregulation on the overall composition of boards and on the proportion of insiders to determine whether other measures of monitoring effectiveness respond to regulatory changes.

[18] Agrawal & Knoeber, *supra* note 4, argues that this background may create a certain human capital value for political directors.

[19] For example, see note 5 *supra*.

B. From Market to Political Competition: A Primer on Natural Gas Regulation

The business environment of natural gas companies has changed dramatically over the history of the industry.[20] The natural gas industry does not truly begin until the mid-1920s, when metallurgical advances allowed for the manufacture of pipe that could withstand the pressure that made long-distance pipelines feasible. By the 1930s, a vast network of pipelines had been created. Federal regulation of the natural gas industry began in 1938 with the Natural Gas Act,[21] which gave the Federal Power Commission (FPC) authority to regulate the prices pipeline companies charged local distribution companies. The act arose to fill a gap in state regulatory control over local utility rates. Because natural gas pipelines crossed state lines, the courts had been reluctant to allow individual states to regulate them. The act originally covered only the prices of natural gas associated with the transportation and sale for distribution to customers. It did not cover wellhead sales by independent producers.

Although the pipeline industry had by all accounts accepted regulation, the period 1938–54 was in fact a period of growing contention surrounding the regulatory process. There are several reasons for this growing contention. The first, and most obvious, was that the pipeline industry's effectiveness in winning entry barriers made lobbying to prevent entry a standard part of the pipeline business. The second major source of political contention in the 1938–54 period was state regulators. A growing conservation movement in the states, where conservation literally meant to restrict supply, had begun to affect producers.

The final source of contention proved the most important. In the period 1938–54, the gas industry expanded dramatically. The number of households using natural gas increased from 8.3 million in 1937 to 21.1 million in 1955.[22] With this rise in consumption came a rise in price so, where transport cost had made up the majority of a customer's bill in 1938, by the 1950s the fuel cost constituted the majority. By the late 1940s, calls were being heard in Congress to extend regulation to producers. Compounding these demands was the regional structure of the natural gas industry that had evolved during the period. As the Appalachian gas fields dried up, production shifted to the Southwest, which pitted the three distinct segments of the industry—production, transport, and distribution—against each other in Congress.

[20] This section draws heavily on the discussion of the natural gas industry found in Robert L. Bradley, Oil, Gas, and Government: The U.S. Experience (1996); Stephen Breyer, Regulation and Its Reform (1982); and M. Elizabeth Sanders, The Regulation of Natural Gas: Policy and Politics 1938–78 (1981).

[21] Natural Gas Act, Pub. L. No. 76–688, 52 Stat. 821 (June 21, 1938).

[22] Sanders, *supra* note 20, at 59–60.

At several points during the late 1940s, the FPC commissioners tried to expand their regulatory authority to include producer prices. The Natural Gas Act of 1938 is ambiguous in its wording and, in theory at least, could be interpreted to allow the FPC to control wellhead prices. Producer states in the late 1940s grew concerned, and on two occasions tried to enact legislation that would clarify that the FPC did not have the authority to regulate the prices charged by independent producers.[23] These bills were favored by producer states (South and West) and opposed by consumer states (North, Midwest, and East). Even before it was established that natural gas regulation extended to the producer, it was obvious that regulation would be redistributive.

The FPC's authority was greatly expanded following *Philips Petroleum Co. v. Wisconsin,* which granted the commission authority to regulate the price at which field producers sold gas to pipelines.[24] The Court's ruling overturned an FPC decision that it could not regulate unaffiliated producers. Consequently, the FPC post *Philips* controlled prices all the way from extraction to the sale of gas to local distribution companies. Prior to *Philips,* the FPC had authority over a few hundred pipelines. Post *Philips,* it controlled the prices charged by thousands of independent producers. The *Philips* decision was regulatory redistribution via the courts, and Congress quickly sought to reverse it. In 1955, William Fulbright and Oren Harris introduced a deregulation bill. Although the 1955 bill was less far reaching (it allowed some regulatory controls on producer prices), the vote mirrors the geographic interests in earlier votes. In the end, however, the bill was vetoed.[25]

The rates charged in the 1950s seem to have been influenced by the Republican control of Congress, with prices favoring producers. By the Kennedy and Johnson administrations, however, the FPC was attempting systematic reductions in prices, and the redistribution had begun in force. The rate-hearing process involved considerable discretion for regulators and frequently ended in federal court. M. Elizabeth Sanders and Stephen Breyer argue that the system began to unravel by the late 1960s when gas shortages began to emerge in the Northeast.[26] During the "oil crisis" of the early 1970s, the shortage problem became particularly acute as the rate-setting process failed to keep prices in line with inflation, let alone natural gas demand.

Congress responded with the Natural Gas Policy Act of 1978, which stipulated the gradual decontrol of prices for new gas wells (those drilled after

[23] The first of these was the Moore-Rizley bill in 1947; the second, the Harris-Kerr bill, passed in 1949.

[24] Phillips Petroleum Co. v. State of Wisconsin, 347 U.S. 672, 681–84 (1954).

[25] The reason given for the Eisenhower veto was that South Dakota senator Francis Chase claimed in a speech that a Washington lawyer in the employ of the oil producers offered him a $2,500 contribution in exchange for his vote. Eisenhower claimed he could not tolerate the scandal and vetoed the bill.

[26] See note 20 *supra*.

TABLE 1

DATES OF CHANGES IN THE REGULATION OF NATURAL GAS

Industry Segment	Type of Regulation	Beginning Year	Ending Year
Exploration	No price regulation	. . .	. . .
Extraction/production	Federal regulation of wellhead prices	1954	1986
Pipelines	Federal regulation of prices charged to distributors	1938	Not deregulated
Distribution	Local regulation of distribution prices	Throughout the sample period	

NOTE.—The two federal regulatory events, which cover pipelines and extraction, are the focus of this study. As discussed in the text, the primary event is the 1954 regulation and subsequent deregulation in 1986 of production and wellhead prices.

1977) and let prices grow at the rate of inflation.[27] Deregulation of extraction companies did not proceed quickly. Prices for new deep wells were deregulated in 1979. Not until 1985 were all new wells deregulated. Finally, all extraction was deregulated in 1986 by Federal Energy Regulatory Commission (FERC) Order 451, which set the regulated price above the market-clearing price.[28] In July 1989, President Bush signed the Natural Gas Wellhead Decontrol Act, which ended rate regulation by the federal government.[29] The distribution of natural gas and its transportation by pipeline remains regulated.[30]

The long history of regulation detailed above suggests one fact quite clearly: as early as 1938, and by at least 1954, the business environment of natural gas producers encompassed information not only about gas fields and customers but also about Washington, D.C. If Klein and Agrawal and Knoeber are correct and the composition of boards responds to the external needs of the firm, regulatory changes between 1938 and 1986 should alter the composition of boards to include political directors.[31]

C. Defining Regulation

Given the different types and durations of regulatory regimes in the natural gas industry, we must be careful to clearly identify the particular regulatory events on which we focus. Table 1 presents a summary of the different forms

[27] Natural Gas Policy Act of 1978, Pub. L. No. 95–621, 92 Stat. 3350 (November 9, 1978).

[28] Federal Energy Regulatory Commission Order No. 451, 51 Fed. Reg. 22168 (June 18, 1986).

[29] Natural Gas Wellhead Decontrol Act of 1989, Pub L. No. 101–60, 103 Stat. 157 (July 26, 1989).

[30] In addition, and partly in response, to federal price deregulation, the natural gas industry also experienced a disintegration between the production, transportation, and distribution stages in the early 1990s. These changes occurred after the deregulatory events of interest here. For a thorough discussion, see Paul MacAvoy, The Natural Gas Market: Sixty Years of Regulation and Deregulation (2000).

[31] See note 4 *supra*.

of regulation that affect the various stages of natural gas production and distribution and the periods of the various regulatory regimes. The regulatory expansions concern different dimensions of production. Local distribution is regulated by the states throughout the entire sample period, while exploration is never regulated during the period. The 1938 act imposed federal price regulation on pipelines that continues throughout the period. The 1954 *Philips* decision extended federal price regulation to the wellhead, or production level, which regulation was gradually removed between 1978 and 1986. In our first data set, the identification of regulation's effect on board composition comes from the 1938 regulation of pipelines and the 1954 *Philips* decision concerning natural gas extraction. In the second data set, identification comes from the 1986 deregulation of natural gas extraction.

One concern is that we may be confounding the effects of state and local regulation by treating the effects of pipeline and wellhead price regulation (which is federal) as identical to distribution price regulation (which is conducted at the state level). The nature of our sample mitigates that concern. The sample, detailed below, focuses on those gas companies listed in *Moody's Industrial Manual* and a sample of interstate pipeline companies in *Moody's Public Utility Manual*. As a result, the sample is primarily made up of extraction companies and pipeline companies, with a few holding companies that have gas properties and a small number of exploration companies that do not extract gas themselves. In a few cases, a firm also has distribution assets; however, in each of those cases the firm's involvement in distribution spans the sample period and is therefore not subject to changes in regulatory exposure.[32] Consequently, we are estimating the effect of changes in the federal regulatory environment. We construct our proxy statement sample to mirror the *Moody's* sample.

A related problem is identifying when a company becomes regulated. Many of the companies in our sample are diversified. For example, a number of our extraction companies have smaller pipelines, some of which cross state lines. It is possible they are covered by the 1938 act. Our solution to this problem is to treat companies as regulated if they have a line of business in any industry segment regulated by the federal government. Thus, for the *Moody's* sample, we define a firm as regulated in a given year if (1) it lists one of its lines of business as owning a pipeline in any year after 1938 and/or (2) it lists production as a line of business in the 1955–80 period. We construct a categorical variable equal to one if the firm has a regulated line of business in a given sample year and zero otherwise. Note that this definition biases our results toward zero; pipeline ownership does not necessarily mean the firm is regulated, since the pipeline may not cross state boundaries. The alternative to coding pipeline holdings as regulated after 1938 is to simply

[32] Even when firms with distribution assets are removed from the sample entirely, the results are substantively unchanged.

code all firms as regulated in 1954 and deregulated after 1986. This produces results similar to the above definition.

Regulation is similarly defined in the proxy data sample. For the proxy sample, it is also important to date when deregulation occurred for extraction companies. Clearly, the 1978 act deregulated some portion of production. It appears, however, that most extraction companies held wells that were still regulated into the 1980s. Since we do not know the exact point at which each company's operations were completely deregulated, we treat deregulation as having occurred in 1986 for all firms. Because this would tend to bias our results toward zero (any company that held no regulated wells may have made its governance changes earlier), we interpret our estimates as lower bounds.

One additional concern is that all of the natural gas producers in the early portion of our sample, and a majority of firms in later periods, also produce oil. The oil industry was also subject to regulatory expansion during our sample period. The oil industry experienced import quotas from 1959 until 1973 and price regulation from 1973 to 1980. In one sense, this does not confound the estimation strategy, since regulation of the natural gas industry begins earlier than import quotas and ends after oil price deregulation[33] and, in the case of interstate pipelines, continues after the end of our sample. The larger issue, however, is that during the whole period starting with the New Deal there is a rise in the scope of regulation and that scope is reduced in the 1980s. Therefore, some care should be taken in attributing the rise in political directors to the advent of natural gas regulation in particular. It may instead reflect an overall shift in the external regulatory environment of firms in the industry.

III. Director Classification and Trends

A. Moody's *and* Marquis, *1930–90*

To create our sample of corporate boards we identify all the natural gas companies listed in *Moody's Industrial Manual*. *Moody's* begins near the turn of the century and is one of the most comprehensive industry guides in existence. It provides varying amounts of information on all firms listed on the New York Stock Exchange and the American Stock Exchange (the vast majority of publicly traded companies even in the early period of the sample). Periodically, usually every 10 years in the early part of the sample period, *Moody's* lists all the firms in the directory by industry. We include all firms listed by *Moody's* that identify themselves as producing natural gas. We constructed the sample of directors with 10-year increments because of

[33] See Bradley, *supra* note 20, for a discussion of the timing of import restrictions relative to the regulation and deregulation of the natural gas industry.

TABLE 2

SAMPLE SUMMARY: *MOODY'S-MARQUIS* SAMPLE

		LOCATED DIRECTORS		
YEAR	TOTAL DIRECTORS	*N*	% Located	FIRMS
1930	390	280	71.79	42
1940	976	699	71.62	113
1950	847	671	79.22	92
1955	849	669	78.8	92
1960	1,522	1,068	70.17	156
1970	1,109	786	70.87	110
1980	1,646	1,081	65.67	179
1990	1,155	705	61.04	121

NOTE.—The firms listed for 1955 are taken from the 1950 *Moody's Industrial Manual*, hence the same number of firms in those 2 years. The Located Directors columns refer to those directors listed by *Moody's* for whom we are able to collect biographical data from *Marquis Who's Who in Commerce and Industry* or *Who's Who in Finance and Industry*.

the difficulty of identifying the directors' biographies. Although *Moody's* was published prior to 1930, we limit ourselves to 1930–90 because of data availability issues described below. We also include 1955, given the mid-decade expansion of regulation. Thus constructed, our sample consists of eight observation-years of data. There is no similar list of natural gas companies in the companion volume, *Moody's Public Utility Manual*. To construct a sample of interstate pipeline companies we use M. Elizabeth Sanders's listing of the 51 major natural gas pipelines in 1947.[34] We then construct the sample by finding these pipeline companies in the 1930–90 *Public Utility Manuals*.

The chief advantage of *Moody's* is that it lists the names of the directors and major officers of the corporation. We are able to identify 8,494 directors in the sample period. Table 2 contains a breakdown of the sample. The major problem is that *Moody's* provides no biographical information for directors and executives prior to the 1980s. To obtain this information for the earlier years, we utilize a second data source, *Marquis Who's Who in Commerce and Industry*, and its continuation, *Who's Who in Finance and Industry*. The *Marquis* directory begins in 1938 and is fairly extensive in its coverage. However, it is produced at irregular intervals. As shown in Table 2, between the two sources we are able to construct a sample that includes biographical data on more than 60 percent of the directors in any given observation year.

Using the biographical information in *Marquis*, we broadly classify directors along two lines. First, we categorize directors by their professional background. Directors are classified as Washington lawyers (those indicating that they practice in Washington, D.C., or are members of the Washington

[34] See Sanders, *supra* note 20, at 62.

bar), non-Washington lawyers, politicians (elected representatives from either state or national government and nonelected officials not associated directly with regulation such as ambassadors and agency heads), and former regulators (defined as former FPC or FERC employees or employees of public service commissions or congressional oversight committees).

We are also interested in whether regulation induces other changes in board composition because such changes also offer evidence on the importance of regulation in determining board composition. For example, finding a growing diversity of backgrounds among board members (that is, more of other nonpolitical director types) caused by regulation might suggest that the demand for regulators is not unique to their regulatory background. For this reason, we also classify directors as academics, accountants, bankers (either investment bankers, commercial bankers, or private investors), CEOs of independent companies with 5 or more years of experience in the gas industry, consultants, and engineers (if they have backgrounds in engineering, chemistry, or geology). We also indicate that a director has gas industry experience if his or her primary occupation for at least the previous 5 years was in the natural gas or oil industry. The background classifications are similar to those used by Klein and by Agrawal and Knoeber.[35]

We also indicate the board member's business relation to the firm. The corporate finance literature typically classifies directors as insiders, outsiders, or "gray." Gray directors are not employees of the firm but have some type of business relation with the firm in addition to their board position (for example, as an outside legal counsel or investment banker). Unfortunately, such gray affiliations are not uniformly indicated in *Marquis* or on the earlier proxy statements (see below). Consequently, we classify nonindependent directors (1) as insiders if they are employees of the firm, (2) as retirees of the firm, or (3) as relatives of the current CEO.

Finally, different types of political directors may well be substitutes for one another (for instance, a Washington lawyer may be as effective as a former regulator), and political backgrounds are not necessarily exclusive (about half the Washington lawyers are also former regulators). To allow for this sort of substitution, we construct several composite categories that include the number of directors falling under one or more of various political classifications.

One problem with the *Moody's-Marquis* data is that we are limited to those directors we can identify in *Marquis*. While there is no obvious reason why the *Marquis* sample should be biased, a nontrivial proportion of the total number of directors must be omitted from any analysis. We would like some method of verifying our results with a more complete sample of biographical data.

[35] See Klein, *supra* note 2; Agrawal & Knoeber, *supra* note 4.

TABLE 3

SAMPLE SUMMARY: PROXY STATEMENT SAMPLE

Year	Firms	Directors
1978	4	26
1979	16	135
1980	17	148
1981	23	197
1982	25	210
1983	29	243
1984	32	268
1985	29	235
1986	27	228
1987	29	232
1988	27	246
1989	45	414
1990	43	421
1991	44	421
1992	45	472
1993	43	435
1994	46	466
1995	43	418
1996	44	412
1997	41	380
1998	33	319

NOTE.—The table shows the number of firms identified in COMPUSTAT as operating in the natural gas industry for which proxy statements could be obtained with information on board directors and the number of individual directors.

B. The Proxy Statement Sample

Given the limitations of the *Moody's-Marquis* data, we supplement our analysis with an additional sample that consists of 96 natural gas firms. Table 3 gives the breakdown by firm-year and total number of directors. The sample was constructed by taking the first 150 firms on a list extracted from COMPUSTAT of all firms in natural-gas-related Standard Industrial Classification (SIC) codes for the years 1978–98 and removing those exclusively in the pipeline or distribution segment of the industry. Copies of proxy statements were obtained for each of the firms for all available years of operation between 1978 and 1998. During this period, firms typically provided information on board members' previous employment and relational ties to the firm (such as relatives).[36] If all 96 firms had the full 20 years of data, we would have a total of 1,920 firm-years. We fall short of this total because (1) several firms have missing proxy statements for several years, making it impossible to construct the board, and (2) the majority of firms operated only for a subset of the sample period. In fact, we never have more

[36] Rule 14a-3(8) of the Securities Exchange Act of 1934 requires proxy statements to furnish current information about nominees for directorships; see Klein, *supra* note 2, for a discussion.

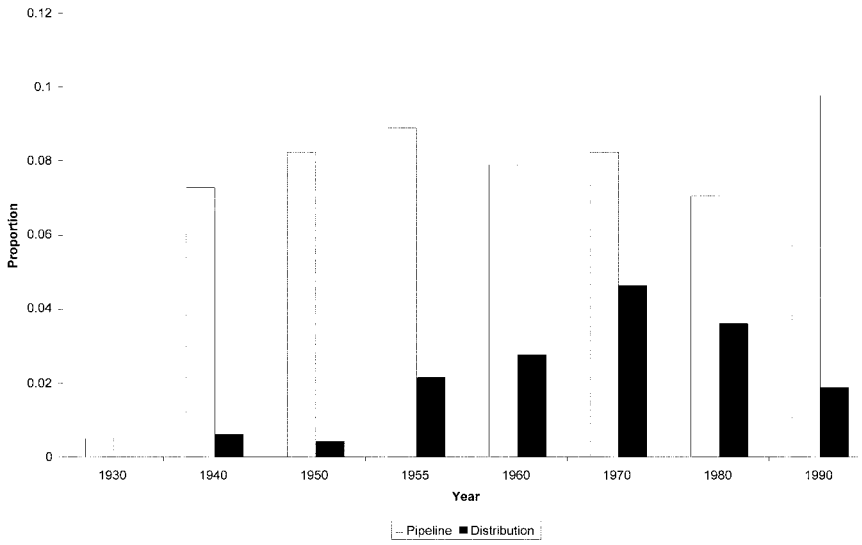

FIGURE 1.—Average board share of directors classified as Washington lawyers for natural gas pipeline and natural gas production companies in the *Moody's* sample by observation period.

than 46 firms in any given year between 1978 and 1998; for 1978 we have only four firms.[37]

The proxy data set has several advantages over the *Moody's-Marquis* sample and one major disadvantage. The major advantages are that it is easier to collect, and hence we are able to utilize annual data, and that it contains complete biographical information on all directors as well as their tenure of service and their holdings of the firm's stock. The major disadvantage is that the data extend back only to 1977. For this reason, we analyze both data sources independently.[38]

C. Preliminary Data Analysis

Figure 1 presents the proportion of directors that are Washington lawyers by year and industry segment. Of the 80 directors listed in *Marquis* for production companies in 1930, we find none fitting our definition of Wash-

[37] The number of firms in the sample increases after 1988 when the SEC began to require broader use of electronic filings. Prior to 1988, the number of electronic filings is dramatically lower and paper copies of filings are not readily available, even from the SEC itself.

[38] Although proxy statements exist prior to 1978, our efforts to obtain them from the SEC met with limited success. We decided to confine the analysis of proxy statements to the post-1978 period after receiving several blank sheets of paper from the SEC with "Best Available Copy" stamped on them.

ington lawyers, while a small fraction of pipeline company board members are Washington lawyers. For pipeline companies, the number of Washington lawyers rises dramatically in 1940 and remains around 8 percent throughout the remainder of the sample period. For production companies, the number of Washington lawyers rises until 1970 and begins to fall thereafter. At its peak in 1970, over 4 percent of the identified board members fit our definition of Washington lawyers. Given that production companies are deregulated beginning in 1978, this rise and fall is consistent with the external environment hypothesis that regulation requires firms to focus attention on the political process. The trends for regulators and the composite indices are similar. Overall, the preliminary evidence in Figure 1 suggests that the function of political directors is in part dependent on the regulatory process. In the next section, we control for firm- and industry-specific factors by including other variables.

IV. Estimation and Results

A. *Control Variables for the* Moody's *Data Set*

Moody's provides firm-specific data that we use as controls given previous findings in the literature. *Moody's* contains consistent information on the firm's sales, its line(s) of business, and the size of its board. Because sales numbers may not be directly comparable from decade to decade, we construct a dummy variable equal to one if the firm was in the bottom quartile of sales for a given year and a similar variable for firms in the top quartile. We also include the size of the board, as the opportunity cost of a given director type is likely to change as the board size grows. It is not obvious that, as a board increases in number, the new additions will be of any particular type, but adding a political director (or any type) to a board consisting of four members may involve a greater cost than adding such a director to a board of 20.

We construct a series of nonexclusive dummy variables equal to one if the firm is a holding company (that is, owns other companies and hence would be covered by the 1935 act), engages in exploration for natural gas or production of natural gas, operates a natural gas pipeline, and/or engages in the distribution of natural gas to retail or residential customers. We also include a control for firms that hold leases that are produced by other firms. These variables control for the general economic environment common to all firms in a specific segment of the industry.[39]

Finally, we use the dichotomous regulatory variable as defined above to indicate whether the firm is subject to regulation. We define a dichotomous categorical regulation variable, coded as one for production operations in

[39] Ideally, we would like to have some performance measures, but *Moody's* data are limited in their stock information for all but the largest companies. We have far better performance measures for our proxy statement sample.

firm years from 1955 to 1980 and zero otherwise. As noted above, for holding companies or firms with pipeline operations, we code the regulation variable as one after 1938. Companies engaged solely in exploration activities are coded zero throughout the sample. The summary statistics are given in the top section of Table 4.

B. Control Variables for the Proxy Data Set

The independent variables for the proxy data set come from both the firms' proxy statements and COMPUSTAT. In general, we follow the existing literature on board composition in choosing our controls.[40] We include controls for the general characteristics of the board, such as the average age of the board, the average years of service of the board, and the concentration of ownership among board members. We also include return on equity and CEO tenure. Finally, we include the firm's debt-to-asset ratio to account for external financial pressures and sales as a proxy for firm size.

Our primary measures of the firm's external regulatory environment are, as with the *Moody's* data, the firm's line of business and whether the firm is regulated.[41] We again define a dichotomous categorical regulation variable for each line of business. Production operations are coded one in firm-years prior to deregulation (pre-1986) and zero afterward. Pipeline operations are coded one and exploration activities are coded zero throughout the sample period. As before, the firm's regulation variable is coded one if any of its lines of business is regulated in the observation year. The lower section of Table 4 contains summary statistics of the sample.

C. Estimation Procedure

Because the dependant variable is a count of the number of directors of each type on the board, ordinary least squares will be biased and inconsistent. Following Benjamin Hermalin and Michael Weisbach,[42] we estimate a Poisson model. If we define λ to be $\log(\lambda) = X\beta$, where X is the independent variables and β are the coefficient estimates, then the probability of n board

[40] In particular, we follow Klein, *supra* note 2; Michael C. Jensen, The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems, 48 J. Fin. 831 (1993); and David Yermack, Higher Valuation of Companies with a Small Board of Directors, 40 J. Fin. Econ. 185 (1996), in specifying our control variables.

[41] The proxy statements and COMPUSTAT SIC codes do not identify companies that hold leases for other production companies or holding companies independently from the other categories.

[42] Benjamin Hermalin & Michael Weisbach, The Determinants of Board Composition, 19 RAND J. Econ. 589 (1988).

members being of director type i is $[\exp(-\lambda) \times \lambda^n]/(n_i!)$. Thus, the likelihood function is

$$L(\beta) = \sum_{j=1}^{N} \sum_{t=1}^{T} [C_i - \exp(X_{jt}\beta) + n_{ijt} X_{jt}\beta],$$

where C_i is a constant, n_{ijt} is the number of directors of type i at firm j in period t, N is the total number of firms, and T is the total number of years.

D. *Results from the* Moody's *Data*

The cross-sectional results of the regulation effect for the *Moody's-Marquis* sample are presented in the top section of Table 5. We find that regulated firms have on average 1.2 more Washington lawyers on their boards than unregulated firms. Given an average board size of around nine, this represents a sizable increase. We find no significant effect for non-Washington lawyers. Former regulators are also more common on the boards of regulated companies. Regulated companies have .876 more regulators than nonregulated firms. Consistent with our preliminary data analysis, there is no significant difference in the number of former politicians between regulated and unregulated periods. Not surprisingly, the composite measures are generally significant. Composite 1 (all four political director types), composite 2 (Washington lawyers, politicians, and regulators), and composite 4 (Washington lawyers and regulators) are statistically significant. Only composite 3 (politicians and regulators) is not significantly different across regulated and unregulated boards.

1. Results of *Moody's* Panel Estimation

Following Hermalin and Weisbach,[43] we also estimate the model using fixed effects because there may be firm-specific characteristics that do not change over time but are not captured by the dependent variables.[44] With fixed effects, the log likelihood becomes

$$L(\beta) = C_2 - \sum_{j=1}^{N} \sum_{t=1}^{T} n_{ijt} \log \left\{ \sum_{s=1}^{T} \exp[-(X_{jt} - X_{js})\beta] \right\},$$

where C_2 is a constant and X_{js} is the within-firm average of the dependent variables.

Table 5 also presents the fixed-effects estimation for the *Moody's* data. The fixed-effects estimation is problematic given the criteria for firm obser-

[43] Hermalin & Weisbach, note 42 *supra*.

[44] One might ask why we include both cross-sectional and panel results. The simple answer is that the cross-sectional results allow us to explore the possibility that firms entering the market after deregulation may have fewer political directors than incumbent and/or exiting firms.

TABLE 4

DESCRIPTIVE STATISTICS

Variable	Mean	Standard Deviation
Moody's-Marquis sample:		
Board director characteristics:		
Number of Washington lawyers (a)	.2565217	.577261
Number of non-Washington lawyers (b)	.615942	.9356856
Number of former politicians (c)	.184058	.4783023
Number of former regulators (d)	.1913043	.5036122
Composite 1 (a, b, c, and d)	.8971014	1.186336
Composite 2 (a, c, and d)	.4797101	.8348504
Composite 3 (c and d)	.3072464	.6564006
Composite 4 (a and c)	.3782609	.7271172
Number of bankers	.7173913	1.054324
Number of outside experienced chief executive officers	.5318841	.9236441
Number of engineers or geologists	.5753623	.8791911
Number of consultants	.0942029	.3509821
Number of retirees of the company	.0550725	.2636884
Number of relatives of the chief executive officer	.0666667	.32086
Number of accountants	.4072464	.5933396
Number of academics	.1463768	.4822178
Board characteristics:		
Number of insiders	3.604348	2.009768
Number of board members	9.3	4.080628
Firm characteristics:		
Regulated	.7550725	.4295122
Bottom sales quartile for the current year	.3111882	.4623471
Top sales quartile for the current year	.1936853	.3950503
Proportion of company years as holding company	.0594203	.2365811
Proportion of company years holding land leases developed by other companies	.4442374	.4967032
Proportion of company years in exploration	.5888889	.4918188
Proportion of company years in extraction	.8869565	.3214233
Proportion of company years operating a pipeline	.2697723	.4433791
Proportion of company years in distribution	.4132505	.4920675
Proxy statement sample:		
Board director characteristics:		
Number of Washington lawyers (a)	.4554745	.7233491
Number of non-Washington lawyers (b)	.870073	1.04114
Number of former politicians (c)	.5153285	1.145222
Number of former regulators (d)	.3737226	.8292241
Composite 1 (a, b, c, and d)	1.544526	1.774532
Composite 2 (a, c, and d)	.8627737	1.308486
Composite 3 (c and d)	.589781	1.182059
Composite 4 (a and c)	.6525547	1.019767
Number of bankers	1.90073	1.773443
Number of outside experienced chief executive officers	.979562	1.153252
Number of engineers or geologists	.6394161	1.150855
Number of consultants	.7927007	1.01492
Number of retirees of the company	.2277372	.5359489
Number of relatives of the chief executive officer	.2262774	.5157278
Number of accountants	.4248175	.7228296
Number of academics	.4452555	.8387518

TABLE 4 (*Continued*)

Variable	Mean	Standard Deviation
Board characteristics:		
Number of insiders	2.626277	1.670315
Number of board members	9.255474	4.638431
Average years of service of board	9.123122	4.402134
Average age of the board	59.19626	6.530359
% Equity held by board	9.992701	20.51411
Chief executive officer tenure	11.05715	9.779333
Firm characteristics:		
Proportion of regulated firm-years	.4686131	.4993785
Proportion of company years in extraction	.7532847	.4314146
Proportion of company years in exploration	.2773723	.4480289
Proportion of company years operating a pipeline	.2058394	.4046091
Proportion of company years in distribution	.1270073	.3332245
Rate of return on equity	−3.325007	194.1794
Debt/assets	.297738	.2334445
Sales	895.908	2,771.406

NOTE.—The pooled *Moody's-Marquis* data set includes 4,340 director observations from 615 firm-years over the period 1930–90. The proxy statement sample includes annual data from 1978–98 for 685 firm-years and 6,326 director observations.

vations: a firm must exist in at least two periods, those periods must cover a regulatory event (namely, regulation or deregulation), and the firm must have at least one of the director types in question during the sample period. The last criterion is particularly problematic, as we know from the preliminary data analysis that a number of unregulated firms simply do not have certain director types on their boards. The reduction in sample size is evident in the number of observations and number of companies. For example, in the case of Washington lawyers, only 51 of the 412 firms in the *Moody's* sample meet the criteria, leaving us with 187 observations. Nevertheless, the models that estimate the number Washington lawyers and former regulators are statistically significant, which indicates that regulation resulted in a given firm adding .74 more Washington lawyers and .876 more former regulators to its board. Results for all of the other political directors, although not significant, are positive. The composite measures are more precisely estimated owing to larger sample sizes. For all composites, we find statistically significant increases, on the order of .286 to .876 additional political directors, when a firm is regulated. Thus, even when we control for firm-specific effects, we find evidence that regulation induces a shift toward political directors on the boards of the same firms.

2. Newly Appointed Directors

The evidence presented above suggests that regulation induces firms to retain political directors. Both the fixed-effects and cross-sectional models

TABLE 5

IMPACT OF REGULATION ON THE NUMBER OF POLITICAL BOARD MEMBERS BY TYPE: *MOODY'S-MARQUIS* DATA, 1930–90

	Washington Lawyers (1)	Non-Washington Lawyers (2)	Former Politicians (3)	Former Regulators (4)	Composite 1 (5)	Composite 2 (6)	Composite 3 (7)	Composite 4 (8)
Cross-sectional estimation ($N = 867$):								
Regulated firms	1.440**	.306**	−.032	1.059**	.347**	.733**	.452**	1.215**
	(.266)	(.117)	(.188)	(.253)	(.096)	(.143)	(.156)	(.191)
Firm-specific fixed effects:								
Regulated firms	1.185**	.257+	−.014	.971**	.299*	.679**	.536*	.994**
	(.321)	(.135)	(.264)	(.301)	(.119)	(.190)	(.215)	(.235)
Observations (N)	354	491	292	344	524	450	399	430
Companies	79	122	62	75	135	108	92	101
Cross-sectional estimation, new directors only ($N = 541$):								
Regulated firms	1.534**	.402	.272	.977*	.654**	1.125**	.772*	1.140**
	(.555)	(.266)	(.358)	(.448)	(.199)	(.287)	(.307)	(.332)
Firm-specific fixed effects, new directors only:								
Regulated firms	1.713*	.289	.318	1.406*	.807**	1.580**	1.296**	1.587**
	(.679)	(.289)	(.549)	(.623)	(.252)	(.398)	(.454)	(.467)
Observations (N)	216	292	181	194	329	285	255	259
Companies	49	72	43	44	85	70	62	61

NOTE.—Values are the results of a Poisson model that estimates the number of board members of each political director type and the four composite measures. The four composite types are defined as follows: composite 1 includes all four political types; composite 2, Washington lawyers, politicians, and regulators; composite 3, politicians and regulators; and composite 4, Washington lawyers and regulators. Each cross-sectional specification includes controls for line of business (exploration, production, pipeline, distribution, and holding company), board size, and firm size (dummy variables for firms in the bottom quartile of sales for the sample year and the top quartile of sales for the sample year). For the sake of brevity, only the coefficient on regulation is presented. In the cross-sectional models, board size is uniformly positive and significant at the 1 percent level, and small firms (those in the bottom quartile of sales) are uniformly negative and significant at least at the 5 percent level. Otherwise, none of the explanatory variables is consistently significant across director types. Detailed results are available from the authors upon request. Robust standard errors are in parentheses. For non-fixed-effects estimation, standard errors are clustered on firm.

+ Significant at the 10% level.

* Significant at the 5% level.

** Significant at the 1% level.

suppose that a political director can be removed from the board in any year. There are, of course, reasons why a company might wish to retain political board members even if their political connections are no longer valuable for the firm. Directors may have developed firm-specific knowledge over their tenure on the board that warrants their retention. In addition, board members are frequently elected to multiple-year terms and are not likely to be dismissed midterm. To control for this we reestimate the above models examining only newly appointed directors. In the *Moody's* sample, we determine new directors by examining the board in the first year the company appears in the data (say 1960), and we assume that all directors are continuing. We then move to the next period (1970) and code all directors not on the board in the previous period as new. With this definition, and given the number of firms that appear only once, the number of new directors is relatively small, and our sample size is reduced to 391.[45] In addition, we include the existing stock of directors of the new director's type who already sit on the board at the time of the new appointment. The stock variable controls for the fact that if a company already has one or two Washington lawyers, for example, an additional Washington lawyer may not be as valuable.

The results, presented in Table 5, indicate that regulated firms appoint more non-Washington lawyers and former regulators to be new directors. On average, the regulated firms appoint .923 new Washington lawyers, .519 more non-Washington lawyers, and .905 more former regulators to new directorships. Again, the composite measures are positive and generally significant. Only composite 3 (former regulators and politicians) is not statistically significant.

The last rows of Table 5 present results of the new-director model using firm-specific fixed effects. Washington lawyers are more common. The model indicates that for a given regulated firm, 2.558 more Washington lawyers are newly appointed. Again, the composite measures are more precisely estimated, with all but composite 3 being statistically significant and positive. In all other cases, newly appointed political directors are more common on the boards of regulated firms.

3. Regulation and Other Director Types

Table 6 presents the results for the other types of directors in the *Moody's* sample. We find little or no evidence that regulation affects the selection of other types of directors. The only statistically significant differences are that bankers and consultants are more common on regulated boards. It is also important to note that the number of insiders and size of the board do not differ significantly across regulated and unregulated firms. In addition, the

[45] Note that our technique for identifying new directors means that all directors are classified as continuing the first year the firm appears in our data.

TABLE 6

IMPACT OF REGULATION ON THE NUMBER OF OTHER BOARD MEMBERS BY TYPE

	Insiders (1)	Board Size (2)	Bankers (3)	Outside CEO with Experience (4)	Engineers (5)	Consultants (6)	Retirees (7)	Relatives (8)	Accountants (9)	Academics (10)
Moody's-Marquis data, 1930–90 ($N = 867$):[a]										
Regulated firms	.008	.035	.290**	.107	.039	1.330**	.179	.404	−.344**	.163
	(.046)	(.038)	(.107)	(.157)	(.108)	(.406)	(.375)	(.369)	(.128)	(.265)
Proxy statement data, 1978–98 ($N = 619$):										
Regulated firms	−.147	−.169*	−.332[+]	−.464*	.048	−.386	−.068	.071	−.115	−.345
	(.131)	(.074)	(.184)	(.199)	(.391)	(.269)	(.444)	(.411)	(.279)	(.686)

NOTE.—Values are the results of a Poisson model that estimates the number of board members of each nonpolitical director type, as well as the number of insiders and overall board size. For the sake of brevity, only the coefficient on regulation is presented. The specifications reported for the *Moody's-Marquis* data include controls for line of business (exploration, production, pipeline, distribution, and holding company), board size, and firm size (dummy variables for firms in the bottom quartile of sales for the sample year and the top quartile of sales for the sample year). In each of the director type specifications, board size is uniformly positive and generally significant at the 5 percent level or better. Board size itself appears positively and significantly related to firm size (measured by the quartile dummies). Otherwise, none of the explanatory variables is consistently significant across director types. For the proxy statement data, each specification includes controls for line of business (exploration, production, pipeline, and distribution), board characteristics (board size, members' average age, average tenure, and percentage of stock ownership), chief executive officer (CEO) tenure, firm sales, return on equity, and debt-to-asset ratio. None of these control variables is consistently significant across director types. Detailed results are available from the authors upon request. Robust standard errors clustered on firms are in parentheses.

[a] $N = 883$ for accountants.

[+] Significant at the 10% level.

* Significant at the 5% level.

** Significant at the 1% level.

numbers of company retirees and relatives on the board are also unaffected by regulation. These suggest that, at least on these margins, regulated firms do not appear to have weaker monitoring boards than unregulated firms. These results further reinforce the idea that political directors are placed for their knowledge of the regulatory environment rather than as mere window dressing.

E. Proxy Statement Sample

Table 7 presents results of the models using the proxy statement data for the period 1978–98. The first rows contain the cross-sectional results. Consistent with the *Moody's* data, we find that Washington lawyers are more common on the boards of regulated firms. On average, the boards of regulated firms have .925 more Washington lawyers than nonregulated firms. Non-Washington lawyers are also more common, with an average .377 more on the boards of regulated firms. The coefficient on regulators is positive but not significant. In addition, composites 1 and 4 are statistically significant, which indicates between .259 and .752 additional political directors depending on the measure.

As with the *Moody's* data, the fixed-effects model requires a greatly reduced sample size (ranging from 179 to 535, depending on political category, versus 619 in the cross-sectional model). Nevertheless, we find that Washington lawyers are more common on boards of regulated companies. We also find that composites 1 and 4 are statistically significant and positive, which indicates about .24 and .485 more directors who are either Washington lawyers and/or former regulators on the boards of regulated firms.

Finally, the last rows present results for the model examining only newly appointed directors. Here again we find that Washington lawyers are more commonly appointed as new directors to the boards of regulated versus unregulated firms. Likewise, composites 1 and 4 show a similar statistically significant increase in the number of newly appointed political directors when the company is regulated.

The last rows of Table 6 present results on the determinants for other director types using the proxy statement data. In general, the results indicate little difference between the boards of regulated companies and unregulated companies in the numbers of other director types. Boards of regulated companies are smaller, which is generally seen as indicating more effective monitoring, and have fewer outside CEOs with experience in the industry. As with the *Moody's* sample, the numbers of retirees and relatives, other signs of poor monitoring, are unaffected by regulation.

V. Conclusions

In this paper, we examine the role of political directors on the boards of regulated companies. There are three possible explanations for the presence

TABLE 7

IMPACT OF REGULATION ON THE NUMBER OF POLITICAL BOARD MEMBERS BY TYPE: PROXY STATEMENT DATA, 1978–98

	Washington Lawyers (1)	Non-Washington Lawyers (2)	Former Politicians (3)	Former Regulators (4)	Composite 1 (5)	Composite 2 (6)	Composite 3 (7)	Composite 4 (8)
Cross-sectional estimation ($N = 619$):								
Regulated firms	.925**	.377*	−.265	.544	.259^{+}	.319	−.061	.752*
	(.331)	(.180)	(.464)	(.444)	(.150)	(.295)	(.422)	(.297)
Firm-specific fixed effects:								
Regulated firms	.706**	.174	−.201	−.172	.240^{+}	.294	−.094	.485*
	(.260)	(.185)	(.300)	(.460)	(.139)	(.193)	(.278)	(.236)
Observations (N)	277	425	235	179	535	359	255	303
Companies	28	49	24	20	58	38	26	33
Cross-sectional estimation, for new directors only ($N = 619$):								
Regulated firms	.828*	.433*	−.280	.322	.305*	.345	−.066	.675*
	(.331)	(.176)	(.437)	(.480)	(.150)	(.297)	(.421)	(.301)

NOTE.—Values are the results of a Poisson model that estimates the number of board members of each type of political director. The four composite types are defined as follows: composite 1 includes all four political types; composite 2, Washington lawyers, politicians, and regulators; composite 3, politicians and regulators; and composite 4, Washington lawyers and regulators. Each cross-sectional specification includes controls for line of business (exploration, production, pipeline, and distribution), board characteristics (board size, members' average age, average tenure, and percentage of stock ownership), chief executive officer tenure, firm sales, return on equity, and debt-to-asset ratio. For the sake of brevity, only the coefficient on regulation is presented below. In the cross-sectional models, firm size (measured by sales) is uniformly positive and generally significant at the 5 percent level or better. Otherwise, none of the explanatory variables is consistently significant across director types. Detailed results are available from the authors upon request. Robust standard errors are in parentheses. For non-fixed-effects estimation, standard errors are clustered on firm.

$^{+}$ Significant at the 10% level.

* Significant at the 5% level.

** Significant at the 1% level.

of these directors. The first explanation is that these directors play an advisory role, providing information, expertise, and/or political access to resources relative to the firm's external environment. The second explanation is that political directors serve the same function as other directors, namely, to monitor the CEO. They simply have different backgrounds than other directors. Finally, it is possible that political directors are on the boards of regulated firms as window dressing—they are poor monitors and unlikely to challenge the CEO. If this is the case, political directors are associated with regulation because regulated firms may be subject to less managerial discipline.

We test these hypotheses using data from *Moody's Industrial Manuals*, *Moody's Public Utility Manuals*, and *Marquis Who's Who in Commerce and Industry*, which cover the period 1930–90. We examine the regulation of natural gas pipelines in 1938 and natural gas producers in 1954 and the 1986 deregulation of natural gas wellhead prices. We also estimate the effects of wellhead price deregulation using data from annual proxy statements covering the 1978–98 period. We estimate the effect of regulation on the number of political directors using both cross-sectional and fixed-effects comparisons of regulated and unregulated firms. We also analyze the number of directors with political backgrounds who are newly appointed to boards of regulated and unregulated firms.

The results presented in this paper are consistent with the hypothesis that political directors are added to boards primarily for their regulatory expertise, whether it is used for rent-seeking purposes, to protect the firm's quasi rents from regulation, or simply to advise management as it navigates its regulatory environment. Directors with a political background, such as Washington and non-Washington lawyers, former politicians, and former regulators are all, by various measures, more likely to serve on boards of firms that are subject to regulation and become less likely to serve on boards of firms when regulation is removed.

We do find evidence of broader changes in the composition of corporate boards in the 1930–90 sample period. For example, the number of inside directors on corporate boards falls during the 1930–90 period. The link between these changes and regulation is tenuous at best. Finally, our conclusions stand up to the argument that political directors are simply management stooges that can be afforded under less-competitive, regulated environments. We examine the possibility that regulated firms are simply less effectively monitored and hence have more directors with political backgrounds simply because they are less effective monitors than other types of directors. By a variety of traditional corporate finance measures, we find no evidence that regulated companies are less effectively monitored than nonregulated firms. Thus, the value of individuals with political backgrounds as directors appears tied to the presence of regulation, not to their general monitoring ability.

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