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Politically Connected Boards of Directors and The Allocation of Procurement Contracts

EITAN GOLDMAN[1], JÖRG ROCHOLL[2] and JONGIL SO[3]
[1]*Indiana University;* [2]*ESMT European School of Management and Technology and* [3]*Korea University*

Abstract. This article analyzes whether political connections of the board of directors of publicly traded companies in the USA affect the allocation of government procurement contracts. It focuses on the change in control of both House and Senate following the 1994 election and finds that companies with boards connected to the winning (losing) party experience a significant and large increase (decrease) in procurement contracts after the election. The results remain significant after controlling for industry classifications as well as for several other company characteristics. The findings highlight one of the main avenues through which corporate political connections add value to US companies.

JEL Classification: G32, G34, G38

1. Introduction

The theoretical literature on the role of the board of directors has traditionally focused on the board as a monitor (e.g., Jensen, 1993) and the board as an internal advisor to the firm (e.g., Raheja, 2005; Adams and Ferreira, 2007).[1] More recently, several empirical papers have highlighted a potential additional role played by board members and that is to use the director's personal connections to further shareholders' interests (e.g., Güner, Malmendier, and Tate, 2008; Goldman, Rocholl, and So, 2009; Cai and Sevilir, 2012).

In this study, we focus on one important type of personal connections—the political connections of board members—and analyze whether these political connections impact the allocation of government procurement contracts across the largest US publicly traded companies. Thus, our article also adds to the growing body of research, such as Fisman (2001); Faccio (2006); Jayachandran (2006); and Knight (2007), who analyze the impact of other types of political connections on stock returns of firms in countries

[1] See Adams, Hermalin, and Weisbach (2009) for a recent survey of the literature on board governance.

with high levels of corruption. Our article, in contrast, highlights the importance of the political connections of board members at the largest firms in the USA and demonstrates one direct cash flow channel through which these political connections impact firm value. The issues we study are particularly relevant in light of the increased interaction between the political system and the corporate sector following the recent financial and economic crisis.

Government procurement contracts total more than $3.1 trillion over the period between 1990 and 2004, and hence the allocation of these contracts is perhaps the most direct way in which political connections of the board may influence company values in the USA. We hypothesize that if political connections of the board of directors do influence the awarding of government contracts, then companies that have board connections to a political party will receive more government contracts during periods in which that political party has greater control relative to periods in which that party has less control. In contrast, companies that are connected to the opposing party will receive fewer contracts. Thus, the empirical approach we take is to analyze changes in contracts following changes in the political landscape.

To provide a specific example, consider the case of Phillips Petroleum and Occidental Petroleum, two S&P500 companies that receive government procurement contracts during the period 1990s and which are both in the Petroleum and Natural Gas industry.[2] Table I shows that Phillips Petroleum has several former Republicans on its board of directors and no former Democrat, whereas Occidental Petroleum has several former Democrats on its board and no former Republican. For example, Phillips Petroleum has on its board James Edwards who was the Energy Secretary under President Reagan for a period between 1981 and 1982. Occidental Petroleum has on its board Albert Gore who was a Tennessee Senator with the Democratic Party until 1971. For our study, we define Phillips Petroleum as connected to Republicans and Occidental Petroleum to Democrats.

What happens then to the government contracts that these companies receive once there is a change in the political landscape around the 1994 midterm election in which control of the House and Senate changes from the Democratic to the Republican Party? Table I shows that Philips Petroleum's government procurement contracts increase from a total of $120.0 million during the 1990–93 period to a total of $289.3 million in the period between 1995 and 1998. In contrast, Occidental Petroleum experiences a decrease in contracts from $169.5 million during the 1990–93 period to $143.7 million

[2] The industry classification is based on the Fama–French industry classification.

Table I. Procurement awards of two sample companies

This table shows descriptive statistics for two of our sample companies that receive procurement awards during the period surrounding the 1994 midterm election. Both companies are classified to the "petroleum and natural gas" industry based on the Fama–French 30 industry classification. The value of procurement contracts awarded by the US government between 1990 and 1998 is found using information provided by FPDS-NG. Accounting variables are from COMPUSTAT and are based on values at the end of 1994. The listed board members are those with a former political affiliation. For each board member with a former political position, we provide information on his/her former position.

	Phillips petroleum	Occidental petroleum
Procurement ($million): 1990–93 (A)	120.0	169.5
Procurement ($million): 1995–98 (B)	289.3	143.7
Difference (B−A)	169.3	−25.8
Growth rate (%)	141.1	−15.2
Market cap ($million)	8,568.7	6,099.4
Asset ($million)	11,436.0	17,989.0
Sales ($million)	12,211.0	9,236.0
EBITD ($million)	1,752.0	1,539.0
CAPEX ($million)	1,216.0	1,103.0
Book-to-market	0.66	0.93
Connected board member (nomination year)	James B. Edwards (1983); Lawrence S. Eagleburger (1993); Norman R. Augustine (1989)	Albert Gore (1972); Ray R. Irani (1984)
Connected party	Republican	Democratic

The political career of the connected board members

Board member	Year(s) of service	Position	Connected party
James B. Edwards	1981–82	Secretary of Energy Department	Republican
Lawrence E. Eagleburger	1989–93	Secretary of State Department	Republican
Norman R. Augustine	1977	Under Secretary of Defense Department	Republican
Albert A. Gore	1953–71	Senator in Tennessee	Democratic
Ray R. Irani	1994	Member of President Clinton's Export Council	Democratic

in the period between 1995 and 1998. Thus, while both companies operate in the same industry and have similar characteristics, the company with a Republican (Democratic) board experiences an increase (decrease) in its government contracts following the election. This anecdotal case study demonstrates what we analyze more rigorously in the remainder of the article.

We look at a sample of all companies that are in the S&P500 between the years 1990 and 2004 with a focus on the year 1994. The choice of 1994 as

the focal point of the analysis is based on the fact that there is a shift in political control of both the House and the Senate from one party (Republicans) to another (Democrats) in the 1994 midterm election.[3] Furthermore, the choice of a midterm election is motivated by the consideration that officials in the legislative branch are probably best positioned to influence contract awards. This change above implies that the influence over the allocation of procurement contracts is likely to switch from Democrats to Republicans.

For each company, the study first identifies the political party to which the company is connected, as measured by the political background of the individuals on the board of directors. The study then calculates the change in the value of each company's procurement contracts surrounding the 1994 election. Specifically, companies in the S&P500 in 1994 are classified in order to define those that are connected to the Republicans and those that are connected to the Democrats. The classification of political connections is based on hand-collected data detailing the past political positions held by each of the board members of S&P500 companies in 1994. A company is classified as being Republican (Democratic), if it has at least one director with a past political position, with the Republicans (Democrats), and no other directors with any past political position with the Democrats (Republicans). Given the above classification, for each company in the 1994 sample, we calculate the change in the total value of its procurement contracts for the period between 1990 and 1993 and between 1995 and 1998. The procurement contracts that are considered include all contracts awarded to the company and to its subsidiaries.

The main findings are that companies connected to the winning party are more likely to experience an increase in the value of their procurement contracts following the 1994 change in the political landscape. The article also finds that companies connected to the losing party are more likely to experience a decrease in the value of their procurement contracts following the 1994 change. These results are both economically and statistically significant and remain significant after controlling for several company characteristics, such as size, book-to-market, and capital expenditure.

In economic terms, the univariate calculation of the dollar value of having connections to the winning party implies an average increase in contracts over the 4 years, following the election of about $476 million relative to other

[3] In principle, the analysis could be extended to other elections in which a power shift occurs but constraints on the availability of the board data (described in Section 2.4.) and the data on procurement contracts (described in Section 2.1.) limit us to only consider the 1994 midterm election.

companies (not connected to the winning party) in the S&P500, and an average loss of $234 million for firms connected to the losing party (again relative to all other firms). The results from the multivariate analysis show that the estimates of the economic magnitude of the effect decrease. In particular, we find that the estimated average increase to firms connected to the winning party is $270 million, whereas the loss of contracts to firms connected to the losing party is $77 million relative to the sample average of all other firms.[4]

We also explore whether certain types of political connections are more valuable than others and find that while some political connections may matter more than others, the bulk of the effect is in simply being able to establish a political connection. For example, for companies connected to the winning party, we ask whether those that hire individuals with a more recent political appointment receive a larger increase in contracts relative to companies that hire people whose political job ended a long time ago. The findings show that the increase is indeed larger for recent politicians but the difference between recent and less recent politicians fails to be significant.

The article establishes that board connections to the winning (losing) party are positively (negatively) correlated with changes in the companies' procurement contracts. This correlation can be due to the fact that board connections impact contract awards and/or to the fact that Republican and Democrat politicians are attracted to companies with certain characteristics that correlate with future changes in contract awards. Although one cannot fully alleviate this classic-omitted variable problem we do, however, conduct several additional tests that try to address specific concerns associated with the endogenous nature of political connections.

First, one might ask whether companies with Republican (Democrats) board connections simply have preferences that are naturally aligned with that party's agenda and, therefore, also receive more contracts when their party is in power. This argument especially has merit on an industry level as Republican (Democratic) directors may simply serve in companies in those industries that stand to benefit from a Republican (Democratic) win due to the Party's political platform, regardless of whether the company itself is politically connected. The analysis is thus repeated after controlling for the industry of the firm. Furthermore, a direct test of the distribution of Democratic and Republican connected companies across the Fama–French 30 industries (Figure 1) suggests that the two distributions are not

[4] Note that the reported numbers are an average of three estimates obtained from the three alternative multivariate models we use.

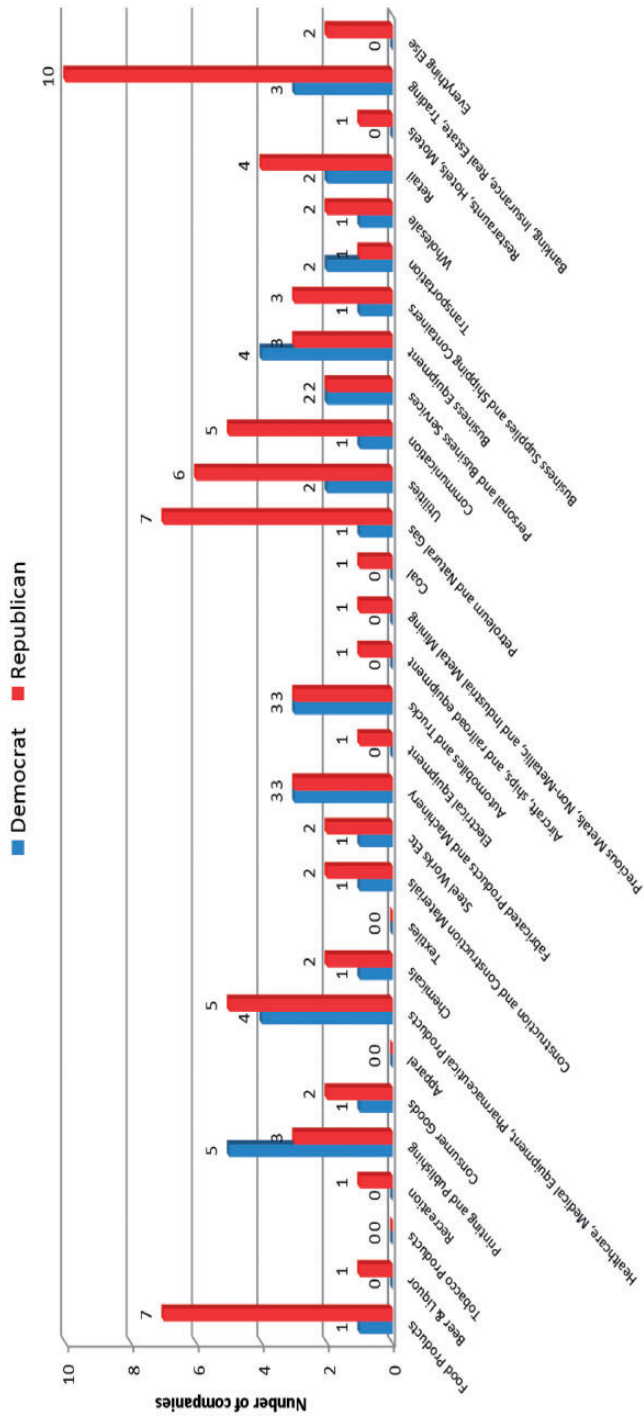

Figure 1. Distribution of politically connected companies across the Fama–French 30 industries.

statistically different from each other. Our results remain unaffected by these controls.[5]

Second, we consider whether the results are due to the possibility that Republican and Democratic companies are on a different trajectory from one another. Therefore, the analysis is repeated after controlling for company trend characteristics, including companies' past sales growth, past growth in procurement contracts, and in company size. Controlling for these trends does not affect the results.

Third, as argued in Roberts (1990) and in Cohen, Coval, and Malloy (2011), the chairman of each of the main congressional committees may allocate more federal resources to the companies that are located in his or her state. For this reason, we control for whether a company is headquartered in a state whose senator is chairing a congressional committee. We find that this variable is significant and that our board connection variable remains significant as well even after controlling for this geographical variable.

Our article relates to studies, such as Khwaja and Mian (2005), Faccio, Masulis, and McConnell (2006), Claessens, Feijen, and Laeven (2008) that show various direct ways in which companies outside the USA may benefit from having political connections. In particular, Khwaja and Mian (2005) demonstrate that companies in Pakistan with political connections receive more loans and default on these loans at a much higher rate relative to nonconnected companies. Faccio, Masulis, and McConnell (2006) look at a cross-country sample of bankrupt companies that are politically connected and show that these companies are much more likely to get bailed out. Claessens, Feijen, and Laeven (2008) use campaign contribution for Brazilian firms to show that contributing firms increase their access to bank financing following elections.[6]

Focusing on political donations, Ansolabehere, de Figueirdo, and Snyder (2003) argue that patterns of political donations are not consistent with an investment that aims to gain a financial return.[7] Stratmann (2005) provides a

[5] In addition, we control for the political donations of each company as donations are more likely to reflect the political preferences of the company rather than its connections (see discussion of related literature).

[6] Our article also broadly relates to research on the value of social networks analyzed, for example, in Cohen, Frazzini, and Malloy (2008); Hwang and Kim (2009); and Engelberg, Gao, and Parsons (2012).

[7] Ansolabehere, Snyder, and Ueda (2004); Aggarwal, Meschke, and Wang (2007); and Goldman, Rocholl, and So (2009) all find evidence consistent with this view, whereas Cooper, Gulen, and Ovtchinnikov (2010) argue, in contrast, that the number of politicians the company donates to correlates with long-term returns.

summary of the literature on donations. Looking at lobbying, Wright (1990), Goldberg and Maggi (1999), de Figueiredo and Silverman (2006), Drope and Hansen (2004), and Mian and Trebbi (2010) all show that lobbying activity is used to influence the transfer of government resources to various industry groups.[8] Blanes, Draca, and Fons-Rosen (2012), and Bertrand, Bombardini, and Trebbi (2011) analyze whether lobbyists provide information to politicians or rather use their personal connections with politicians. Duchin and Sosyura (2011) look at TARP allocations. We add to this literature by focusing on the company-level political connections of board members and explore the direct monetary reward that accrues to the company from these board connections.

The rest of the article is organized as follows. In Section 2, we describe the data and the empirical methodology. In Section 3, we present the key findings and their interpretation. Section 4 shows robustness tests and Section 5 concludes.

2. Data Description

The analyses in this article utilize the 1994 midterm election as well as two types of data. The 1st data set comprises information on all US government procurement contracts in the sample period between 1990 and 2004. The 2nd data set consists of original data containing information regarding the political affiliation of each board member of all companies in the S&P500 at the end of 1994. Both data sets are described in more detail below. In addition, we hand-collect information regarding the subsidiaries of all S&P500 companies in 1994 and obtain Center for Research in Security Prices and COMPUSTAT data as well as Fama–French and Standard Industrial Classification (SIC) industry classification data. Finally, the SDC Platinum database by Thompson Financial is used for checking merger and acquisition activities or divestitures by S&P500 companies in the sample period.

2.1 PROCUREMENT PROCESS AND DATA

The process of awarding government contracts begins when an agency of the federal government identifies a need for a purchase of a good or service. Each agency has a contracting officer who posts a solicitation on the Federal Business Opportunities website, which is called a Request For Proposal

[8] See also the theoretical work of Grossman and Helpman (1994) on optimal lobbying by interest groups.

(RFP). Companies then submit their offers for review by agency personnel who evaluate them and make the final decision.[9]

While in theory, government contracts are awarded based on the merits of each proposal; in practice, people in-the-know argue that personal connections and insider information play an important role in affecting a firm's likelihood of winning a bid. For example, the executive director of Project on Government Oversight (a Washington-based nonprofit organization) argued that "...relationships have become infinitely more important than a contractor being able to show that they are the best person for the job..." (see Palmer, 2005).

In practice, connected companies have a leg-up on the competition. This can happen in several ways: First, companies that are able to have one-on-one meetings with the contracting agency before the RFP comes out are able to get more details on what the government agency is looking for and hence are better able to design a proposals that will fit these needs. Second, companies that have access to the contracting agency can also affect the proposal itself and tailor it to be more suitable for their company. The government actually encourages interactions between companies and the contracting agency as a way to solicit information to help design a proposal that is feasible. Third, connections may also help in meeting with lawmakers and attempting to increase funding for goods and services that the company is already providing. A manager of Sprint's government system division was said that talking to congress "...can be helpful. GSA [General Service Administration] certainly listens to the Hill." (see Palmer, 2005). Finally, as one contracting consultant points out in her explanation of how to win contract bids, "successful vendors know that... government buyers do business with people they know...How do you get known and meet people? Use internal private networks (like a corporate board)."[10]

The above discussion suggests that if former politicians who sit on the board of a company are able to help their company meet and advise government officials and thus help shape the RFP, then the company has a greater chance of winning the contract.

Data on procurement contracts on the company level are available from the Federal Procurement Data System-Next Generation (FPDS-NG).[11]

[9] For more details on this process, see Halchin (2006).

[10] See article by Judy Bradt of Summit Insight at http://www.summitinsight.com/index.asp.

[11] A "procurement contract" is any of a number of documented legal interactions between the government and a contractor including a "contract award" (the basic terms and conditions of the contract including the goods and services to be provided), a "modification" (which may be an exercise of an option to modify the contract), or an "order" (example.g., an order against a government-wide contract).

The FPDS-NG, which is operated and maintained by Global Computer Enterprises, replaced the Federal Procurement Data Center (FPDC).[12] The FPDS-NG contains all procurement contracts that are awarded by the US government and that exceed an individual transaction value of $2,500.[13] The largest exceptions to this reporting requirement are the US Postal Service and several legislative and judicial branch organizations.[14] FPDS-NG reports procurement contracts for each company that is a separate legal entity, independent of the ultimate owner of that company. This means that procurement contracts for subsidiaries of companies are not aggregated on the parent company level, which aggravates the use of these data for the purpose of academic research. The exact matching procedure used in this article is described in detail below.

Table II shows the aggregate value and the number of procurement contracts over the sample period between 1990 and 2004. The yearly value increases substantially over the sample period from $158 billion in 1990 to $351 billion in 2004. Similarly, the number of procurement contracts increases from 371,514 in 1990 to 2,843,212 in 2004. In particular, the value increases greatly after 2001 as a result of the increased spending following the events of September 11 2001. The aggregate value is more than $3.1 trillion.

Table II also shows which departments award the major share of these procurement contracts. The defense department is by far the largest contractor with an average share of 65% of the awarded value, followed by the Energy Department with an average share of 10% and National Aeronautics and Space Administration (NASA) with an average share of 5%. Note that defense-related spending is broadly defined and can include contracts with many nondefense companies, such as IBM and Compaq. Other departments comprise the remaining 20% share.

[12] FPDC, implemented under Public Law 93-400, provides data for Congress, the Executive branch, the private sector, and the public. FPDC was a part of the US General Services Administration and operated and maintained the original Federal Procurement Data System. FPDS-NG is the central repository of statistical information on federal contracting.

[13] The reporting threshold for individual transactions was $25,000 before 2004.

[14] US Census Bureau reports total procurement amount annually in the Consolidated Federal Funds Report (CFFR), but no detailed data on the company level are available. The total procurement amount in FPDS-NG covers more than 85% of the total amount in CFFR over the sample period.

Table II. Procurement awards in the USA between 1990 and 2004

This table presents the value and the number of procurement contracts awarded by the US government between 1990 and 2004. It shows the total value of procurement contracts (in million dollars), the number of contracts, and the share of the value awarded by the Defense Department, the Energy Department, and NASA. All procurement data are from FPDS-NG.

Year	Value of contracts (in $ million)	Number of contracts	Share by department (in percent of value)			
			Defense	Energy	NASA	Others
1990	158,150	371,514	66.6	13.4	6.7	13.3
1991	169,079	422,275	62.5	14.3	8.6	14.6
1992	159,277	506,592	63.4	13.0	6.2	17.4
1993	165,534	450,340	58.8	12.0	12.9	16.3
1994	170,680	459,692	63.6	12.4	5.7	18.3
1995	165,275	527,085	65.5	11.1	4.4	19.0
1996	201,876	592,985	63.5	9.4	11.2	16.0
1997	177,945	537,696	66.0	10.5	3.4	20.0
1998	183,793	537,246	64.7	10.1	4.1	21.0
1999	189,312	567,669	64.8	10.7	3.6	20.9
2000	208,208	613,655	66.5	8.3	2.8	22.3
2001	213,840	691,568	66.2	9.4	2.5	21.9
2002	281,240	902,218	67.3	8.0	2.0	22.7
2003	335,237	1,503,145	65.6	8.9	4.2	21.3
2004	351,107	2,843,212	68.9	6.1	4.4	20.7
Mean	208,704	768,459	65.3	10.0	5.2	19.5
Sum	3,130,553	11,526,892				

2.2 SUBSIDIARY DATA

Many companies receive a substantial share of their procurement contracts through their subsidiaries. As an example, Halliburton receives aggregate procurement contracts of $7 million in 1998, whereas its subsidiary KBR receives procurement contracts of $43 million in the same year. For this reason, we collect information on all subsidiaries of S&P500 companies from Exhibit 21 (Subsidiaries of the Registrant) of their annual 10-K reports. These are available in the EDGAR database of the Securities and Exchange Commission (SEC). S&P 500 companies and their subsidiaries are then matched with the list of companies in the FPDS-NG database.[15] The procurement contracts of S&P500 companies and their subsidiaries are finally

[15] The procurement data used in this article are based on the September 2006 status of FPDS-NG.

summed up to obtain the aggregate value of procurement contracts for each company in the S&P500 and for each year over the sample period.

2.3 RESULTING SAMPLE

This procedure results in a total sample of 405 S&P500 companies that receive procurement contracts in the period between 1990 and 1998. A number of companies are involved in substantial merger and acquisition activities or divestitures over the sample period. To ensure consistency and comparability of the procurement contracts of these companies over time, their procurement contracts are adjusted in the following way. First, 22 companies in the S&P500 are acquired by other companies in the S&P500 during the sample period. In this case, the procurement contracts of the target company are added to those of the acquiring company before the merger and are thus comparable to the procurement contracts of the combined entity after the merger.[16] Second, 45 companies in the S&P500 are acquired by non-S&P500 companies and are thus excluded from the sample. Third, over the sample period, 8 S&P500 companies sell units or divisions in which the transaction value exceeds $1 billion. To ensure the comparability of the awarded government contracts, these companies are excluded as well. The final sample for the 1st event period thus consists of 330 companies.

2.4 BOARD DATA

Board connections are derived by considering the composition of the board of directors at the end of 1994 of all S&P500 companies with procurement contracts and analyzing the background of each board member. Section 14 of the SEC Act requires companies to file a definite proxy statement (submission type Def 14a), containing information about their board members. These filings, which are hand-collected from the EDGAR database of the SEC, contain a brief description of each board member's career background. Based on these data, it is possible to identify whether board members are connected to the Republicans, to the Democrats, or to neither. A board member is defined as being politically connected if he or she at any time prior to 1994 held a position, such as Senator, Member of the House of Representatives, Member of the Administration, or was a Director of an

[16] For these companies, the accounting variables, such as sales, assets, EBITD, capital expenditure, and book-to-market ratio are adjusted in the same way.

Table III. Summary statistics for the sample companies

This table presents descriptive statistics for the 330 S&P500 companies that have government procurement contracts during the 1990–98 period. These companies are sorted based on the political connections of their board members in 1994. The reported values for Market Cap, Assets, Sales, Earnings before income, tax, and depreciation (EBITD), Capital Expenditure (CAPEX), and Book-to-Market Equity Ratio are measured as of the end of 1994. A company is classified as politically connected if it has at least one board member with the following former position: President, Presidential (Vice Presidential) Candidate, Senator, Member of the House of Representatives, Governor, Mayor, (Assistant) Secretary, Deputy Secretary, Deputy Assistant Secretary, Under Secretary, Director (CIA, Federal Emergency Management Agency), Deputy Director (CIA, Office of Management and Budget), Commissioner (Internal Revenue Service, Nuclear Regulatory Commission, Social Security Administration, Civil Rights Commission, Food and Drug Administration (FDA), Securities and Exchange Commission (SEC)), Representative to the United Nations, Ambassador, Staff (White House, President, Presidential campaign), Chairman of the Party Caucus, Chairman or Staff of the Presidential Election campaign, and Chairman or member of the President's Committee/Council. A company is classified as Rep (Dem), if it has only Republican (Democratic)-affiliated board members.

	Full sample		Rep		Dem	
Variable	Mean	Median	Mean	Median	Mean	Median
Market Cap ($ million)	7,458	3,681	9,881	6,488	5,736	2,995
Asset ($ million)	14,199	4,744	21,378	8,247	12,671	4,863
Sales ($ million)	8,269	4,527	12,989	8,087	7,792	4,819
EBITD ($ million)	1,403	623	2,067	1,125	1,120	477
CAPEX ($ million)	548	233	826	356	467	222
Book-to-market	0.56	0.51	0.56	0.47	0.54	0.55
No. of companies	330		81		39	

organization, such as the Central Intelligence Agency (CIA), SEC, or FDA. A full list of these positions is provided in Table III.

Table III shows the descriptive statistics for the 330 sample companies used in the analysis. According to the definition used in this article, 81 of the 330 companies are connected to the Republican Party as they have at least one board member with a former political position with the Republicans, but no board member with a former position with the Democratic Party. Similarly, 39 companies are defined as being connected to the Democratic Party as they have at least one board member connected to the Democrats, but no board member connected to the Republicans. The remaining 210 companies are connected either to both parties (30 companies) or to neither (180 companies). Note that the expectation is that companies

connected to both parties should not exhibit any change in contracts. This is true as long as the strength of their connection to one party is the same as the strength of their connection to the other. The descriptive statistics in the table show that, on average, companies that are connected to the Republicans tend to be larger than those that are connected to the Democrats.

Figure 1 shows that the industry distribution of Republican and Democratic firms is relatively evenly distributed and this suggests that there is no major concern about Republican or Democratic companies representing industry preferences that are correlated with the agenda of one of the two parties. A chi-square test finds that the two distributions are not statistically different from each other (p-values of 0.9).

Table IV provides descriptive statistics of the timing of nominations. Panel A of Table IV shows that former politicians are hired long before either of the events studied. On an average, these directors are on the board close to 5 years before the election. Panel B of Table IV describes the timing of nominations relative to the presidential and legislative cycles and relative to who is the controlling party. The table shows that a large portion of the nominations occurs in the year following the presidential election. The table further shows that there is no clear pattern on whether politicians are more likely to be nominated during their party's control of the house or senate.

3. Empirical Results

The purpose of the empirical analysis is to determine whether the political connections of the board influence the value of procurement contracts that companies receive before and after the change in majority in House and Senate following the 1994 midterm election. The analysis proceeds in two steps. First, we show univariate results. Second, we present multivariate analyses that control for other variables.

3.1 UNIVARIATE RESULTS

The variable of interest is the change in the value of procurement contracts between the 4-year period before and the 4-year period after the 1994 midterm election. To minimize the impact of outliers in a specific year and to take into account the long-term nature of public procurement contracts, the procurement contracts for each sample company are aggregated over the two 4-year periods and then compared to each other. The change in the value

Table IV. Tenure and timing of nomination of political boards

Panel A of this table reports the mean, median, and maximum period of time (in years) between the nomination of a politically connected board member and the 1994 midterm election. Panel B presents the number of nominations of politically connected board members in specific years. The 1st sorting criterion is based on the year in a presidential cycle in which a politically connected board member is nominated. First year refers to nominations in the next year after a presidential election (e.g., 1981, 1985, 1989); 2nd year refers to nominations in the 2nd year after a presidential election (e.g., 1982, 1986, 1990); 3rd year refers to nominations in the 3rd year after a presidential election (e.g., 1983, 1987, 1991), and 4th year refers to nominations in the 4th year after a presidential election (e.g., 1984, 1988, 1992). The 2nd sorting criterion is based on whether a board member is nominated in an odd or an even year. The 3rd sorting criterion is based on whether the incumbent President is from the Republican or Democratic Party. The 4th and the 5th criteria are based on whether the Republican or Democratic Party holds the majority in the Senate and House, respectively. In election years, the calculation of the year starts on the day after the election and in nonelection years, it starts on 11th November.Tenure of connected boards before the 1994 election

Panel A: Tenure of connected boards before the 1994 election

	1994 election		
	Rep	Dem	Total
Number of nominations of connected board members	188	65	253
Tenure			
Mean	4.09	6.62	4.74
Median	3	4	3
Max	20	22	22

Panel B: Nomination timing of connected boards

Nomination	Rep	Dem	Total
Total	188	65	253
Year in presidential cycle			
1st year	84	17	101
2nd year	50	18	68
3rd year	29	17	46
4th year	25	13	38
Odd/even years			
Odd years	113	34	147
Even years	75	31	106
President			
Republican	105	45	150
Democratic	83	20	103
Senate majority			
Republican	22	16	38
Democratic	166	49	215
House majority			
Republican	–	–	–
Democratic	188	65	253

of the sum of procurement contracts between the two periods around the 1994 midterm election is defined as:

$$\Delta C_i = \left(\sum_{t=1995}^{1998} C_{i,t} \right) - \left(\sum_{t=1990}^{1993} C_{i,t} \right) \quad (1)$$

where $C_{i,t}$ represents the dollar value of procurement contracts for company i in year t.[17]

As mentioned earlier, this variable turns out to have an uneven distribution across the sample companies with some extreme negative and positive values. As an example, the highest negative difference is found for Perkin Elmer, who loses \$6.6 billion in government procurement contracts; the highest positive difference is found for Lockheed Martin, who gains \$29.2 billion in these contracts. More formally, we test whether the two variables of interest are normally distributed using the Shapiro–Wilk and the Shapiro–Francia test. The tests reject this null hypothesis at the 1% level for either of the sample periods. The variables exhibit significant levels of skewness and kurtosis, which need to be taken into account in the design of the empirical specification.

Table V reports the average value of procurement contracts for the sample companies, sorted by their political connections.[18] The figures suggest that the mean value of procurement contracts to Republican companies is substantially higher than that to Democratic companies. The average value of procurement contracts for the two groups over the sample period amounts to \$3,654 and \$816 million, respectively.

The average value of procurement contracts in the preelection period between 1990 and 1993 is about \$569 million and it increases to \$709 million in the postelection period between 1995 and 1998. However, there is a remarkable difference between Republican and Democratic companies. While the average Republican company experiences an increase of \$499 million in procurement contracts, the average Democratic company suffers a decrease of \$67 million.

[17] Note that the election year is not included in the calculation of the dependent variable to eliminate any potential abnormal behavior in an election year. In a robustness test, we include the election years and the results do not materially change.

[18] S&P500 companies receive procurement contracts totaling more than \$475 billion for the period between 1990 and 1998. This represents a substantial share of the \$1,552 billion of total procurement contracts in FPDS-NG over that period.

Table V. Value of procurement contracts for sample companies

This table summarizes the value of procurement contracts (in $million) for the sample of 330 S&P500 companies between 1990 and 1998. A company is classified as Rep (Dem), if it has only Republican (Democratic)-affiliated board members.

Year	Mean of procurement contracts ($ million)		
	Full sample	Rep	Dem
1990–98	1,434	3,654	816
1990–93 (A)	569	1,394	391
1995–98 (B)	709	1,893	323
Difference (B – A)	140	499	−67
Growth rate (%)	24.7	35.8	−17.3
No. of companies	330	81	39

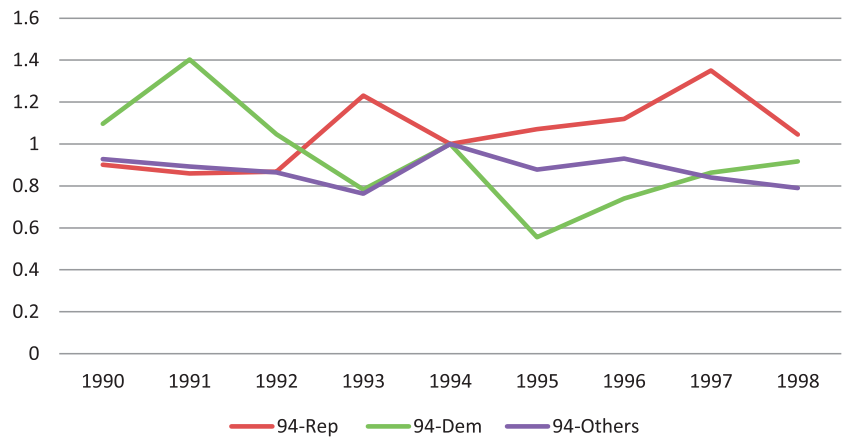

Figure 2. Time trends in procurement contracts relative to event year. Figure 2 shows the ratio of procurement contract dollars for each year relative to the dollar amount of contract in the event year, 1994. Reported ratios are for Republican companies, for Democrat companies, and for others that are neither Republican nor Democrat.

Overall, these figures provide the 1st piece of evidence suggesting that political connections of companies may influence how procurement contracts are allocated.

Figure 2 shows how contract awards vary before and after the 1994 midterm election. From this figure one can see that the increase in contracts to Republican companies and the decrease in contracts to Democrat

companies are manifested over several years following the midterm election and hence we conduct our analysis by looking at 4 year rather than 1 or 2 year windows.

3.2 EMPIRICAL METHODOLGY

As discussed in the previous section, the change in procurement contracts before and after the 1994 midterm election has a nonnormal distribution with some extreme negative and positive outliers. For this reason, we conduct the multivariate analysis using the dependent variable as the log of the change in the sum of procurement contracts between the 4-year periods before and after the event year.

More specifically, we have for the 1994 midterm election:

$$\log \Delta C_i = \begin{cases} \log\left(\sum_{t=1995}^{1998} C_{i,t} - \sum_{t=1990}^{1993} C_{i,t}\right) & \text{if} \quad \sum_{t=1995}^{1998} C_{i,t} - \sum_{t=1990}^{1993} C_{i,t} > 1 \\ 0 & \text{if} \quad 1 > \sum_{t=1995}^{1998} C_{i,t} - \sum_{t=1990}^{1993} C_{i,t} > -1 \\ -\log\left[-\left(\sum_{t=1995}^{1998} C_{i,t} - \sum_{t=1990}^{1993} C_{i,t}\right)\right] & \text{if} \quad \sum_{t=1995}^{1998} C_{i,t} - \sum_{t=1990}^{1993} C_{i,t} < -1 \end{cases} \tag{2}$$

The choice of the dependent variable above addresses the uneven distribution of the raw variable, while it maintains its cardinality. Note also that this functional transformation is well behaved in that it is a continuous function (in practice, there are no observations for which the change in the value of contracts is between 1 and −1).

The above dependent variable measures the log of the difference in contracts rather than the difference of the log. This implies that our dependent variable is a measure of the dollar value of the change in contracts rather than the percentage change in the value of the contracts. While both measures can be economically meaningful, we focus our analysis on the (log) dollar change.[19] For completeness, we provide an analysis using the difference in the log value of contracts in the robustness section.

[19] Note that, political connections are economically important in that they generate additional dollars from government contracts. Thus, a political connection that leads to an increase in government contracts from $100 to $150 million is more beneficial than a

The independent variables of interest indicate whether or not a company is politically connected through its board members. We use two dummy variables: dRep takes a value of one if a company has at least one board member connected to the Republicans, but no board member connected to the Democrats and a value of zero otherwise; dDem takes a value of one if a company has at least one board member connected to the Democrats, but no board member connected to the Republicans and a value of zero otherwise.

In addition, the article uses several control variables. The 1st variable is lnCap, which captures the log of the size of the company.[20] The 2nd variable, BM, represents the company's book-to-market ratio. The Herfindahl index (HHI) is included in order to take into account the intensity of competition in the industry in which the company operates. This index is calculated based on the sales of all competitors with the same two-digit SIC code. In order to control for the investment level and the cost structure of the company, two accounting variables are included as further independent variables. The 1st accounting variable CAPEX/Sales is the ratio of capital expenditure to sales, which controls for the possibility that a company that has recently invested in its facilities is expected to subsequently increase its production. The 2nd accounting variable CostGood/Sales is the ratio of cost of the goods sold to sales, which is important to consider as cost-efficient producers are more likely to be awarded with procurement contracts.

To control for the possibility that Republican and Democratic companies are simply on different growth trajectories, are in industries that benefit from one of the two parties, or are in States that benefit from one of the two parties, we control for the growth in sales in the 2-year period before the election (SalesGrowth), the industry of the company, and whether or not the State at which the company is headquartered has a representative who is chairing a senate committee, respectively.

More formally, we use variations of the following empirical specification, for which results are reported in Tables VI and VII:

$$\begin{aligned}\log \Delta C_i = c_0 + \beta_1(ln\ \text{Cap})_i + \beta_2(\text{BM})_i + \beta_3(\text{HHI})_i + \beta_4(\text{CAPEX/Sales})_i + \\ + \beta_5(\text{CostGood/Sales})_i + \beta_6(d\,\text{Rep})_i + \beta_7(d\,\text{Dem})_i + \varepsilon_i + \alpha_i\end{aligned} \tag{3}$$

connection that increases a firm's contract from \$1 to \$2 million. But according to the percentage measure that latter change is larger.

[20] In the robustness section, we discuss controls that capture more flexible functional forms of size.

Where log ΔC_i is the log of the change in the sum of procurement contracts between the two periods before and after the 1994 midterm election and α_i represents an industry dummy and a dummy for whether the company is headquartered in a state with a senator who is a chairman of a senate committee.

Finally, we run a multivariate test to explore the heterogeneity of the effect of the increase in contracts to Republican companies. We analyze which characteristics of politically connected Republican companies can explain the cross-section of the increase in contracts following the midterm election. Namely, we ask why some Republican companies benefit more than others.

3.3 MULTIVARIATE RESULTS

The multivariate analysis comprises of the cross-sectional analysis of the 1994 midterm election, and the cross-sectional analyses of the heterogeneity of Republican companies.

3.3.a Cross-sectional analysis of 1994 event

The results for the main empirical specification, as outlined in Equation (1), are reported in Table VI. Model 1 includes only the Republican and Democratic dummy variables.[21] The coefficient for the Republican dummy variable is positive and significant at the 1% level, whereas the coefficient for the Democratic dummy variable is negative and significant at the 5% level. This suggests that Republican companies are more likely to experience an increase in government contracts in the postelection period, whereas Democratic companies are more likely to experience a decrease in government contracts in this period.

Models 2 and 3 include the Democratic and Republican dummy variable, respectively, and the control variables outlined in empirical specification (1). The Republican and Democratic dummy variables remain significant at the 5% level, respectively, even after controlling for these control variables. The same holds in Model 4 when both dummy variables are used simultaneously.

While there is no standard approach to get at the economic significance of the regressions, we come up with the following method. We first take the estimated coefficients from Model 1 (no control variables) as our benchmark of the average univariate change to republicans and to democrats. Then, we

[21] Note that the two variables are negatively correlated with a correlation coefficient of -0.2046 ($p = 0.0002$).

Table VI. Cross-section analysis for the change in procurement contracts of 1994 sample

The sample consists of 330 companies in the S&P 500 in the year 1994 with procurement contracts. The dependent variable is the log of the absolute value of the change in the sum of procurement contracts between 1990–93 and 1995–98; this variable is multiplied by 1, if the change is positive and −1 if it is negative. lnCap is the log of the company's market capitalization. BM is the ratio of the book value and market value of equity. HHI is the HHI, which is based on the sales amount in the two-digit SIC industry of the company. CAPEX/Sales is the ratio of capital expenditure to sales. CostGood/Sales is the ratio of cost of the goods sold to sales. All control variables are from COMPUSTAT and are measured at the end of 1994. dRep is a dummy variable that takes a value of one, if a company is politically connected to the Republicans and zero otherwise. dDem is defined similarly. SalesGrowth is the growth rate in sales between 1990–91 and 1992–93. lnProc_bef4yr is the log of procurement contracts amount in years 1990–93. dDonation_Rep is a dummy variable that takes a value of one, if a company donates more to Republicans than to Democrats in the 1994 elections, and dDonation_Dem is defined similarly. dHq_Chair is a dummy variable that takes a value of one, if the headquarter of a company is located in a state whose Senator is the chair of a Senate committee in 1995. SIC two-digit dummy is a dummy variable based on the SIC two-digit industry classification. All models are adjusted for heteroskedasticity. The *t*-values are in parentheses. The symbols $, * and **denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Model	1	2	3	4	5	6	7
lnCap		−0.300	−0.016	−0.194	−0.253	0.315	−0.155
		[0.66]	[0.03]	[0.43]	[0.52]	[0.68]	[0.30]
BM		1.256	1.438	1.428	1.401	2.212*	1.808$
		[1.23]	[1.50]	[1.51]	[1.49]	[2.45]	[1.94]
HHI		0.290**	0.289**	0.284**	0.268**	0.282**	0.283**
		[3.45]	[3.34]	[3.30]	[3.13]	[3.25]	[3.33]
CAPEX/Sales		0.149*	0.150*	0.140$	0.130$	0.097	0.143*
		[2.03]	[2.13]	[1.94]	[1.80]	[1.32]	[1.99]
CostGood/Sales		0.012	0.021	0.014	0.016	0.031	0.015
		[0.40]	[0.72]	[0.48]	[0.57]	[1.07]	[0.53]
dRep	2.587**	2.608*		2.133*	2.225*	2.195*	2.248*
	[2.85]	[2.53]		[2.04]	[2.07]	[2.12]	[2.16]
dDem	−2.666*		−3.605**	−3.067**	−2.803*	−3.099**	−2.941*
	[2.15]		[3.12]	[2.61]	[2.32]	[2.75]	[2.53]
SalesGrowth					0.555$		
					[1.77]		
lnProc_bef4yr						−0.332**	
						[4.35]	
dDonation_Rep							0.634
							[0.49]
dDonation_Dem							−1.969
							[1.25]
dHq_Chair		2.088*	2.313*	2.237*	2.389*	2.028$	2.204*
		[2.01]	[2.18]	[2.12]	[2.23]	[1.96]	[2.08]
SIC two-digit dummy		Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.345	−11.03**	−10.080*	−8.867*	−8.674*	−6.202	−9.589*
	[0.71]	[2.77]	[2.42]	[2.16]	[2.03]	[1.56]	[2.18]
Observations	330	330	330	330	319	330	330
R^2	0.05	0.29	0.30	0.31	0.30	0.34	0.32

use Model 4 (with the added control variables) to see what is the marginal impact on the coefficients of dRep and dDem from adding the control variables. Using this approach, we find that the control variables lower the estimated increase (decrease) in the value of contracts to republican (democrat) connected firms. In particular, the increase in contracts to republican connected firms goes down to 35% of its univariate estimated value leading to an economic increase of $292 million relative to the average of all firms that are not connected to republicans. As for the decrease to democrat-connected companies, adding control variables lowers the estimated value to 40% of the univariate average of democrat firms, which suggests an economic magnitude of a loss of $54 million relative to all other firms.

Model 5 also includes the growth in sales as an additional control variable. The coefficient for this control variable is significant at the 10% level and thus suggests that companies that are on a growth trajectory before the election increase their government procurement awards after the election. Similarly, in Model 6, we test whether the value of procurement contracts before the election has an impact on the change in procurement contracts after the election, and we find that companies with a high starting value lose significantly more than companies with a low starting value. However, the results are not driven by the size of the initial contract.

The article has so far focused on board members as the source for political connections. However, there are also other several ways in which a company may become politically connected, for example, through indirect ways such as lobbyists and consultants, or through other direct ways such as donations. As mentioned in the introduction, existing studies provide at best mixed evidence on whether donations help companies in becoming politically connected. Furthermore, even if they do, Jayachandran (2006) raises the question whether donations have a causal effect on firm value or simply represent industry preferences. Consistent with the latter argument, Goldman, Rocholl, and So (2009) show that donations lose their explanatory power once the industry's effect is taken into account. To test more formally for the impact of donations, we include in Model 7 controls for the political donations made by each company through contributions from company-related individuals and political action committees. The underlying data are from the Center for Responsive Politics, a nonpartisan research organization that collects and aggregates information on these types of corporate donations to the Republican and Democratic Party. Specifically, we use these data to create two dummy variables dDonation_Rep and dDonation_Dem for the 1994 election. The 1st (2nd) variable takes a value of one if the company donates more to Republicans (Democrats) than to Democrats (Republicans) and zero otherwise. Model 7 shows that

donations do not have any impact on contract awards, while the significance for the coefficients for board affiliations remains unchanged.[22] For the control variables, the coefficient for the HHI is positive and significant throughout the different models. This suggests that the lower the level of competition in the industry in which a company operates, the more likely the company is to gain more government contracts. Thus, it is easier for a company to gain government contracts in a less competitive industry.

In addition to controlling for the variables described above, it is also important to rule out the possibility that Republican and Democratic companies happen to be in certain industries or to be located in certain states that benefit from an increase or suffer from a decrease in government spending. In this case, the observed pattern would not be due to a company's political affiliation, but simply due to the industry in which it operates or the state in which it is headquartered.

To address both the industry and geography components more formally, each model (starting in Model 2) in Table VI contains both an industry and a state dummy variable. The industry dummy variable is unique for each two-digit SIC industry, whereas the state dummy variable takes a value of one if the company is headquartered in a state whose Senator is the chair of a Senate committee and a value of zero otherwise. The observed results that the key political explanatory variables remain significant even after controlling for industry and geography thus suggest that the patterns are indeed driven by political connections.

Overall, the empirical results suggest that companies that are connected to the Republican Party benefit from the Republican win in the 1994 midterm election. They receive more government contracts following the midterm election. In contrast, companies connected to the Democratic Party lose government contracts after the election. These results are robust to a number of control factors that capture company-, industry-, and geography-specific characteristics and thus seem to be driven by political affiliations.

3.3.b Heterogeneity of effects

One important open question is whether or not some political connections matter more than others. To explore this issue, we next focus on companies with connections to the Republican Party and analyze whether some forms of connections lead to a larger increase in contracts relative to other forms of

[22] As a further robustness test, we create a continuous donation variable, which records for each company the percentage amount donated to Republicans out of the total political donations made by that company. The results, available upon request, remain the same.

Table VII. Heterogeneity of effects

The sample consists of only Republican firms in the S&P500 in the year 1994 that have procurement contracts. The dependent variable is the log of the absolute value of the change in the sum of procurement contracts between before and after the event year; this figure is multiplied by 1, if the change is positive and multiplied by −1, if it is negative. lnCap is the log of the company's market capitalization. BM is the ratio of the book value and market value of equity. HHI is based on the sales amount in the two-digit SIC industry of the company. CAPEX/Sales is the ratio of capital expenditure to sales. CostGood/Sales is the ratio of cost of the goods sold to sales. All control variables are from COMPUSTAT and are measured at the end of 1994. dRelatedness is a dummy that takes a value of one, if the former career of a connected board member is related to the current business of the company. dDefense is a dummy for board member with a defense career. dCongress is a dummy for a board who was a congressman, Senate, or House of representative. Tenure is the number of years for which the connected board member has been on the board of the company. Gap is the number of years between the last political appointment of the board member and his nomination to the board. dBig_contract_bef4year is a dummy that takes a value of one, if the average procurement contract size for 4 years before the event year is greater than the median in the Republican companies in 1994. Percentage of 3rd and 4th year contract is the ratio of the 3rd and the 4th year contract amount and the total 4-year period contract amount. Red State dummy is a dummy variable that takes the value of one, if the senators from the state where the company is headquartered are Republican in 1994. The SIC one-digit dummy is a dummy variable based on the SIC one-digit industry classification. All models are adjusted for heteroskedasticity. The *t*-values are in parentheses. The symbols $ and * denote statistical significance at the 10% and 5% levels, respectively.

Model	1	2	3	4	5	6	7
lnCap	−0.327	−0.515	−0.289	−0.227	−0.751	−0.033	−0.440
	[0.33]	[0.55]	[0.29]	[0.22]	[0.67]	[0.03]	[0.46]
BM	0.836	1.233	0.874	−0.116	−0.826	1.164	0.926
	[0.49]	[0.71]	[0.52]	[0.05]	[0.35]	[0.67]	[0.46]
HHI	−0.020	−0.017	−0.006	−0.646*	−0.390	−0.037	−0.122
	[0.08]	[0.07]	[0.02]	[2.17]	[1.17]	[0.16]	[0.52]
CAPEX/Sales	0.044	0.045	0.022	0.112	−0.021	0.027	0.025
	[0.35]	[0.36]	[0.17]	[0.70]	[0.14]	[0.22]	[0.19]
CostGood/Sales	−0.032	−0.032	−0.037	0.028	0.013	−0.009	−0.028
	[0.68]	[0.72]	[0.76]	[0.38]	[0.22]	[0.19]	[0.57]
dRelatedness	−0.385						
	[0.22]						
dDefense		2.637					
		[1.21]					
dCongress			0.809				
			[0.38]				
Tenure (years)				0.438*			
				[2.24]			
Gap (years)					−0.090		
					[0.54]		

(*Continued*)

Table VII. (Continued)

Model	1	2	3	4	5	6	7
dBig_contract_bef4yr						−2.483	
						[1.27]	
Percentage of 3rd and 4th year contracts							0.077*
							[2.12]
Red State dummy							
SIC one-digit dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12.425	13.289	12.37	7.974	21.126*	8.447	18.172$
	[1.39]	[1.57]	[1.41]	[0.81]	[2.07]	[0.90]	[1.93]
R^2	81	81	81	50	62	81	79

connections. The results for the heterogeneity of these effects are reported in Table VII.

In Model 1, we test whether the specific nature of a political connection makes a difference. We follow the notion of relatedness in Goldman, Rocholl, and So (2009) and sort former politicians into those whose political experience is related to the industry of the company for which they work and those for whom this criterion does not apply. For example, if a former senator had previous political experience in finance (by say sitting on a respective committee) and is now on the board of a financial company, then we define this connection as related. The findings here are that related connections do not appear to provide an increase in contracts relative to nonrelated connections.

In Model 2, we analyze specifically those companies in which the Republican board member had a political career in the defense sector; this includes all former Republican politicians who worked for the department of defense. Here, again, the results show that connections to the defense department provide a larger but statistically insignificant increase.

In Model 3, the variable of interest focuses on companies in which the Republican board member was a congressman or a senator. This is particularly important for the 1994 midterm election. The results show that none of these variables proves to be significant.

In Model 4, we test whether the number of years a board member has served on the board matters. Here, we find that longer serving political directors do obtain larger increases in contracts, which suggest that it takes time for the politically connected director to interact with government officials before affecting on contract awards. In Model 5, we analyze the effect of the time that has passed since the end of an individual's political

career. Here, we find that companies with directors who had a political appointment more recently are associated with a larger, yet insignificant increase in contracts.

Finally, Models 6 and 7 show how past contract size (Model 6) and timing of past contracts (Model 7) affect the increase in contracts postelection. The results indicate that Republican companies that start with larger amounts of contracts tend to have a lower but insignificant increase in contracts, whereas companies whose contracts arrive mostly in the 2-year period before the elections tend to see a large increase in contracts postelection where this increase is statistically different than that of other Republican companies.

Overall, the results provide some indication to the type of situations where connections become more valuable. However, given the nature of the data, one can only conclude that the statistical power of the results lies in the fact that companies have a political connection rather than in the exact extent and nature of this political connection.

4. Further Tests and Robustness

This section presents various robustness tests described in more detail below.

4.1 CHOICE OF THE DEPENDENT VARIABLE

The dependent variable in the multivariate estimations is the log of the change in the sum of procurement contracts between the two periods before and after the 1994 midterm election. The choice of this dependent variable addresses the issue of the existence of extreme negative and positive outliers in the raw variable, while maintaining the cardinality of the observations. The downside of this variable, however, is that it does not allow for a simple calculation of the economic magnitude of the reported effect. For this purpose, we look at two alternative dependent variables in Table VIII. The 1st (Models 1 and 2) is the difference between log of procurement contracts in the 4 years before 1994 and after. This variable measures the percentage change in the value of contracts. From the results of the table, we see that the coefficient of dRep is positive and significant and that of dDem is negative but not within the normal significance threshold. The economic estimates here imply a republican increase of 170% relative to the sample average of all other firms and a democrat decrease of 68% relative to the sample average of all other firms.

Models 3 and 4 of Table VIII look at the raw dollar difference in contract values, where we winsorize the sample at the 5% level. Here again, we find

Table VIII. Alternative measures for dependent variable

The sample consists of 330 firms in the S&P500 in the year 1994 that have procurement contracts. The dependent variable for Models 1 and 2 is the difference of log procurement dollar between the 4 years prior to 1994 (1990–93) and the 4 years following 1994 (1995–98). The dependent variable for Models 3 and 4 is the dollar difference of procurement contracts (5% winsorized) between the 4 years prior to 1994 and the 4 year period following 1994. Models 5 and 6 report the results of an ordered Logit model. Here, the 330 sample companies are classified into one of the five groups based on the difference in the amount of procurement contracts in the 4 years prior to 1994 and following 1994. Each of the five groups comprises the same number of companies (66 companies in each group), with Group 1 comprising the companies with the lowest dollar difference and Group 5 comprising the companies with the highest dollar difference in procurement contracts across the two time periods. This categorical variable is the dependent variable. lnCap is the log of the company's market capitalization. BM is the ratio of the book value and market value of equity. HHI is based on the sales amount in the two-digit SIC industry of the company. CAPEX/Sales is the ratio of capital expenditure to sales. CostGood/Sales is the ratio of cost of the goods sold to sales. All control variables are from COMPUSTAT. dRep is a dummy variable that takes a value of one, if a company is politically connected to the Republicans and zero otherwise. dDem is defined similarly. All models are adjusted for heteroskedasticity. The *t*-values are in parentheses. Pseudo R^2, Log pseudo L, Wald test are included for Models 5 and 6. The symbols $, *, and **denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Difference of log dollar		Difference of dollar		Ordered logit model	
Model	1	2	3	4	5	6
lnCap	−0.162$	−0.119	22.402*	26.528**	0.046	0.103
	[1.79]	[1.35]	[2.57]	[2.96]	[0.43]	[0.98]
BM	−0.284	−0.296	4.363	3.317	0.317	0.284
	[0.95]	[1.03]	[0.46]	[0.35]	[1.13]	[1.14]
HHI	0.024$	0.024$	3.090$	3.021$	0.041*	0.040*
	[1.80]	[1.71]	[1.95]	[1.87]	[2.47]	[2.22]
CAPEX/Sales	0.031	0.031	−0.376	−0.355	0.022	0.023$
	[1.52]	[1.48]	[0.28]	[0.26]	[1.63]	[1.73]
CostGood/Sales	−0.003	−0.002	1.139**	1.268**	0.001	0.002
	[0.54]	[0.36]	[2.63]	[2.85]	[0.20]	[0.38]
dRep	0.435*		41.643$		0.591*	
	[2.23]		[1.74]		[2.34]	
dDem		−0.495		−26.694		−0.559$
		[1.36]		[1.03]		[1.82]
Constant	1.569	1.315	−241.7**	−269.8**		
	[1.64]	[1.41]	[2.95]	[3.16]		
(Pseudo) R^2	0.04	0.03	0.07	0.06	0.02	0.01
Log pseudo L					−522.8	−524.1
Wald test					16.74*	15.64*
p-value					0.010	0.016
Observations	330	330	330	330	330	330

that dRep is positive and significant, whereas dDem is negative but, again, fails to be significant. In economic terms, these models indicate a republican connection worth an additional $40 million in contracts and a democrat connection leading to a decrease of $26 million in contracts.

Finally, we use an alternative estimation technique that is to transform the cardinal into an ordinal variable. We use this technique by dividing the sample into five groups with the same number of companies in each group. Companies are sorted into these five groups based on the value of ΔC_i. For example, Group 1 comprises those companies with the lowest ΔC_i implying that companies in this group have experienced the lowest increase or the highest decrease in the value of their contracts. The multivariate estimations are then rerun as ordered logit models, where the dependent variable is now a number between one and five depending on which of the five ΔC_i groups the company falls in to. The rest of the control variables are exactly the same variables as before. The results of this estimation are reported in Models 5 and 6 of the table. The Republican dummy variable is positive and significant and the Democratic dummy variable is negative and significant. Thus, the results are mostly robust to these alternative specifications of the dependent variable.

4.2 DIFFERENCE IN DIFFERENCE ANALYSIS

In untabulated results, we further utilize the panel nature of our data and follow companies through time and across different electoral cycles. The dependent and explanatory variables are the same ones as in Table VI, and they are calculated around the 1994, 1996, 1998, and 2000 elections. As a company may thus appear more than once, we control for firm fixed effects throughout the different models. We also control for various time, industry, and geography fixed effects, along with their interactions. The key variables of interest are the interaction variables dRep*d1994 and dDem*d1994. The variable d1994 takes the value of one for the years 1994, and the value of zero for the years 1996, 1998, and 2000 in which there was no shift in power of the house and senate.[23] Test results show

[23] Specifically, we compute the 4-year change in contracts for each firm around the four events and then run a difference in difference regression with a dummy variable for the event year 1994. The additional benefit of this approach is that it allows us to control for the past change in government contracts for each firm. Note that we use overlapping time periods in order to maintain a 4-year window around each event. The nature of government contracts requires us to consider time periods longer than 1 or 2 years. This is because contract awards are given over several years. In addition, shorter time periods may not take

that dRep*d1994 is significantly positive at 5% level and dDem*1994 is negative and marginally significant at 10% level.

4.3 MORE FLEXIBLE FUNCTIONAL FORMS OF SIZE

In the empirical estimations, we control for various company-specific factors to address the possibility that the observed differences in changes in procurement contracts between Republican and Democratic companies might not be due to their political connections, but rather due to the fact that these firms are different from each other and on potentially different trajectories. In particular, we address the potential concern that the results might be driven only by the largest companies. We perform an additional test to address this concern by allowing for more flexible functional forms of size. Thus, while we control for the size of the company in our estimations, it might be that only certain size groups benefit or suffer from a change in procurement contracts. Therefore, we create size quintiles (deciles) for our sample companies and include dummies for these quintiles (deciles). The results, which are available upon request, do not materially change. The sign and significance of the political explanatory variables remain the same, which suggests that the results hold also true for more flexible forms of size.

4.4 MIXED PRESIDENCY IN THE EVENT PERIOD

One last point is that the period before the 1994 election comprises two different presidencies: a Republican presidency until 1992 and a Democratic Presidency after 1992. However, this setting imposes an even higher hurdle to find any evidence for the political influence on the allocation of procurement contracts. For robustness, we repeat the analysis using the years 1993 and 1994 as the preperiod and the years 1995–98 as the postperiod. As the two periods do not have the same duration, we use dependent variable as the log of the change in the average annual amount in contracts between the period from 1993 to 1994 and the period from 1995 to 1998. The results on the Republican and Democratic dummy variables remain as before.

into account the fact that the increase or decrease in contracts following the political power shift may occur with a different delay for different companies.

5. Conclusion

Government involvement in the US private sector and in particular in financial markets seems to be increasing. As government intervention in economic activity can result in a significant reallocation of resources, some companies have the incentive to become politically connected. In previous studies, these political connections have been shown to result in an increase in shareholders value as measured by changes in company stock prices around different political events.

This article takes a 1st step in disentangling the source of this value by identifying one direct way in which political board connections affect the value of the largest US publicly traded companies. Based on the analysis of the individuals who serve on the board of directors of all S&P500 companies, the article classifies these companies into those that are connected to the Democrats and those that are connected to the Republicans. The article asks whether political connections affect the allocation of procurement contracts awarded to these companies following the 1994 midterm election in which majority control in House and Senate shifts from Democrats to Republicans. The main findings are that following the midterm election companies connected to Republicans experience an increase in the total value of their procurement contracts, whereas companies connected to Democrats experience a respective decrease. These results remain statistically significant after controlling for company characteristics, geography, as well as the industry in which the company operates. The results suggest that, even within the confine of the strong legal system of the US, political board connections have a significant impact on the allocation of government resources.

References

Adams, R. and Ferreira, D. (2007) A theory of friendly boards, *Journal of Finance* **62**, 217–250.

Adams, R. B., Hermalin, B. E., and Weisbach, M. S. (2009) The role of boards of directors in corporate governance: a conceptual framework & survey. Charles A. Dice Center Working Paper No. 2008-21, ECGI—Finance Working Paper No. 228/2009, Fisher College of Business Working Paper No. 2008-03-020.

Aggarwal, R. K., Meschke, F., and Wang, T. Y. (2007) Corporate political contributions: investment or agency? Working paper, Business and Politics, forthcoming.

Ansolabehere, S. D., de Figueiredo, J. M., and Snyder, J. M. (2003) Why is there so little money in politics? *Journal of Economic Perspectives* **17**, 105–130.

Ansolabehere, S. D., Snyder, J. M., and Ueda, M. (2004) Did firms profit from soft money? *Election Law Journal* **3**, 193–198.

Bertrand, M., Bombardini, M., and Trebbi, F. (2011) Is it whom you know or what you know? An empirical assessment of the lobbying process. Working paper, National Bureau of Economic Research.
Blanes i Vidal, J., Draca, K., and Fons-Rosen, C. (2012) Revolving door lobbyists, *American Economic Review,* forthcoming.
Cai, Y. and Sevilir, M. (2012) Board connections and M&A transactions, *Journal of Financial Economics* **103**, 327–349.
Claessens, S., Feijen, E., and Laeven, L. (2008) Political connections and preferential access to finance: the role of campaign contributions, *Journal of Financial Economics* **88**, 554–580.
Cohen, L., Frazzini, A., and Malloy, C. (2008) The small word of investing: board connections and mutual fund returns, *Journal of Political Economy* **116**, 951–979.
Cohen, L., Coval, J., and Malloy, C. (2011) Do powerful politicians cause corporate downsizing?, *Journal of Political Economy* **119**, 1015–1060.
Cooper, M., Gulen, H., and Ovtchinnikov, A. (2010) Corporate political contributions and stock returns, *Journal of Finance* **65**, 687–724.
de Figueiredo, J. M. and Silverman, B. S. (2006) Academic earmarks and the returns to lobbying, *Journal of Law and Economics* **49**, 597–626.
Drope, J. and Hansen, W. (2004) Purchasing protection? The effect of political spending on US trade policy, *Political Research Quarterly* **57**, 27–37.
Duchin, R. and Sosyura, D. (2011) The politics of government investment. Working paper, Michigan University.
Engelberg, J., Gao, P., and Parsons, C. A. (2012) Friends with money, *Journal of Financial Economics* **103**, 169–188.
Faccio, M. (2006) Politically connected firms, *American Economic Review* **96**, 369–386.
Faccio, M., Masulis, R. W., and McConnell, J. J. (2006) Political connections and corporate bailouts, *Journal of Finance* **61**, 2597–2635.
Fisman, R. (2001) Estimating the value of political connections, *American Economic Review* **91**, 1095–1102.
Goldberg, P. K. and Maggi, G. (1999) Protection for sale: an empirical investigation, *American Economic Review* **89**, 1135–1155.
Goldman, E., Rocholl, J., and So, J. (2009) Do politically connected boards affect firm value?, *Review of Financial Studies* **22**, 2331–2360.
Güner, B., Malmendier, U., and Tate, G. (2008) Financial expertise of directors, *Journal of Financial Economics* **89**, 20–43.
Grossman, G. M. and Helpman, E. (1994) Protection for sale, *American Economic Review* **84**, 833–850.
Halchin, L. E. (2006) Overview of the federal procurement process and resources, *Congressional Research Service, The Library of Congress,* Order Code RS22536.
Hwang, B. and Kim, S. (2009) It pays to have friends, *Journal of Financial Economics* **93**, 138–158.
Jayachandran, S. (2006) The Jeffords effect, *Journal of Law and Economics* **49**, 397–425.
Jensen, M. C. (1993) The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance* **48**, 831–880.
Khwaja, A. I. and Mian, A. (2005) Do lenders favor politically connected firms? Rent provision in an emerging financial market, *Quarterly Journal of Economics* **120**, 1371–1411.
Knight, B. (2007) Are policy platforms capitalized into equity prices? Evidence from the Bush/Gore 2000 Presidential Election, *Journal of Public Economics* **91**, 389–409.

Kroszner, R. and Strahan, P. (2001) Bankers on boards: monitoring, conflicts of interest, and lender liability, *Journal of Financial Economics* **62**, 415–452.
Mian, S. and Trebbi, F. (2010) The political economy of the U.S. mortgage default crisis, *American Economic Review* **100**, 1967–1998.
Palmer, K. (2005) Schmooze or lose, *Government Executive,* December 1.
Raheja, C. (2005) Determinants of board size and composition: a theory of corporate boards, *Journal of Financial and Quantitative Analysis* **40**, 283–306.
Roberts, B. (1990) A dead Senator tells no lies: seniority and the distribution of federal benefits, *American Journal of Political Science* **34**, 31–58.
Stratmann, T. (2005) Some talk: money in politics. A (partial) review of the literature, *Public Choice* **124**, 135–156.
Wright, J. (1990) Contributions, lobbying, and committee voting in the US House of Representatives, *The American Political Science Review* **84**, 417–438.