5-2012

Out of Sight, Out of Mind: The Value of Political Connections in Social Networks

Quoc-Anh DO
Singapore Management University, qa.quocanhdo@gmail.com

Yen Teik LEE
Singapore Management University, yt.lee.2006@smu.edu.sg

Bang Dang NGUYEN
University of Cambridge

Kieu-Trang NGUYEN
Indiana University at Bloomington

SMU ECONOMICS & STATISTICS
WORKING PAPER SERIES

SMU
SINGAPORE MANAGEMENT UNIVERSITY

Out of Sight, Out of Mind: The Value of Political Connections in Social Networks

Quoc-Anh Do, Yen-Teik Lee,
Bang Dang Nguyen & Kieu-Trang Nguyen

May 2012

Paper No. 22 - 2012

Out of Sight, Out of Mind: The Value of Political Connections in Social Networks*

Quoc-Anh Do†
Singapore Management University

Yen-Teik Lee§
Singapore Management University

Bang Dang Nguyen‡
University of Cambridge

Kieu-Trang Nguyen**
Indiana University at Bloomington

This draft: May 2012
First draft: February 2011

ABSTRACT

This paper investigates the impact of social-network based political connections on firm value. We focus on the networks of university classmates and alumni among directors of U.S. public firms and congressmen. Comparing firms connected to elected versus defeated politicians in the Regression Discontinuity Design of close elections from 2000 to 2008, we provide evidence that political connections enhance firm value. However, the value of political connections varies in a more complex way than expected. While connections to powerful members of the Senate generate strong positive impact on firm value, connections to newly elected congressmen are less valuable to firms than connections to state-level politicians defeated in those elections. As a result, a director's connection to an elected congressman causes a Weighted Average Treatment Effect on Cumulative Abnormal Returns of -2.65% surrounding the election date. Our results are robust and consistent through various specifications, parametric and nonparametric, with different outcome measures and social network definitions, and across many subsamples. Overall, our study identifies the value of political connections through social networks, uncovers its variation across different politicians' backgrounds, and stresses the importance of state-level political connections.

Keywords: Social network; political connection; close election; regression discontinuity design; firm value; state-level politics.

JEL Classifications: D72, D73, D85, G3, G10, G11, G14, G30, C21

---

* We thank many friends and colleagues, and the seminar participants at City University of Hong Kong, Ecole Polytechnique, HEC, Hong Kong University of Science and Technology, Indiana University School of Public and Environmental Affairs, INSEAD, Manchester Business School, National University of Singapore Business School, Paris School of Economics, Sciences Po, Singapore Management University School of Economics and Lee Kong Chian Business School, THEMA (Université Cergy-Pontoise), Tufts University, University of Cambridge Judge Business School and Economics Department, University of Exeter Business School, University of Reading Henley Business School, University of Warwick and conference participants at the Asian Conference on Applied Microeconomics/Econometrics at Academia Sinica, European Finance Association Meeting 2011, of the Econometric Society Meetings (Europe 2011, Asia 2011, North America Summer 2011 and Winter 2012), CAF Summer Research Conference in Finance at the Indian School of Business 2011, Asian Finance Association Meeting 2011, Journées Louis-André Gérard-Varet on Public Economics 2011, SMU-ESSEC Workshop on Financial Economics 2011, and University of Cambridge Finance Research Day 2011 for helpful comments, and for thoughtful insights and suggestions. We thank Zeng Huaxia, Liu Shouwei, Nguyen Phu Binh, Lan Lan for invaluable research assistance. Do acknowledges financial support from the Sim Kee Boon Institute for Financial Economics, Singapore Management University. All errors remain our own.

† School of Economics, Singapore Management University, Singapore 178903. Tel: (+65) 6828 1916; Fax: (+65) 6828 0833; Email: quocanhdo@smu.edu.sg.

‡ Finance and Accounting Group, Judge Business School, University of Cambridge, Cambridge CB2 1AG, U.K. Tel: (+44) 1223 760 740; Fax: (+44) 1223 339 701; Email: b.nguyen@jbs.cam.ac.uk.

§ Department of Finance, Lee Kong Chian School of Business, Singapore Management University, Singapore 178899. E-mail: yt.lee.2006@smu.edu.sg.

** SPEA, Indiana University, Bloomington, IN 47401, U.S.A. Email: trknguye@indiana.edu.

1. INTRODUCTION

The impact of political connections on firms has attracted a growing body of economic and finance literature. Political connections are reported to affect firm value, access to credit, business with government, corporate taxation, and regulatory oversight, in many parts of the world, especially where institutions are weak and politicians have much discretion and little accountability.[1] The existence of political influences on firms paves way to rent-seeking activities, with long-term detrimental effects on market efficiency, political accountability and economic growth.[2] In the United States, where institutions rank among the best in the world,[3] the evidence of the value of political connections is mixed, with positive estimates (Jayachandran 2006, Knight 2007, Goldman et al. 2009, Acemoglu et al. 2010), as well as estimates indistinguishable from zero (Fisman et al. 2006).

This paper consolidates and enriches the body of empirical evidence on the impact of political connections in the U.S. by using novel methods to address the major challenges faced by the extant literature. First, we extend beyond event studies of very specific cases by broadening the definition of political connections to social relations between politicians and corporate directors based on their educational backgrounds. Second, we address key identification problems in the empirics of social interactions by using the Regression Discontinuity Design (RDD) of close elections to Congress, subjected to thorough robustness checks with additional fixed effects and control variables.

Our first objective is to address the social relations between politicians and firms beyond direct family ties and share ownerships, which are very rare among American congressmen. While social connections could be carefully measured by coordination games in laboratory setups (e.g., Leider et al. 2009) or by extensive field surveys (e.g., Conley and Udry 2010), both methods are prohibitively costly to apply in our context.[4] Instead, we use the social networks defined by

---

[1] The literature has covered Indonesia (Fisman 2001), Malaysia (Johnson and Mitton 2003), Pakistan (Khwaja and Mian 2005), Brazil (Claessens et al. 2008), France (Bertrand et al. 2008), Thailand (Bunkanwanicha and Wiwattanakantang 2009), Taiwan (Imai and Shelton 2010), and cross-country evidence (Faccio 2006, Faccio et al. 2006), , among others.

[2] See for instance Shleifer and Vishny (2002), chapters 3-5 and 8-10, for discussions on political rent-seeking and its negative impacts on efficiency and growth.

[3] From 2000 to 2008, the U.S. rank consistently in the world's first decile in terms of control of corruption, rule of law, regulatory quality and government effectiveness (by average scores of the World Bank's World Governance Indicators, Kaufman et al. 2011.)

[4] See the surveys on social networks by Marsden (1990), Rauch (2001), Ioannides and Loury (2004),

former classmates in tertiary education, an important type of social networks in the U.S.[5] This measurement can be clearly and unambiguously defined based on publicly available information on educational backgrounds of all politicians and directors, and covers a sample much more representative than connections specific to a few politicians (such as in Acemoglu et al. 2010, and Fisman et al. 2006.) We abstract from political connections based on campaign contributions, treated for instance by Cooper et al. (2011), as we find it difficult to establish clear links between specific firms and politicians based on these contributions in the U.S. During our period of study firms cannot contribute to political candidates, except in setting up political action committees to receive donations from its employees, often to both major parties. Even those committees often channel the contributed funds to larger-scale committees, and only a small fraction of those funds goes to specific candidates' campaigns.[6]

Our second objective is to solve the identification problem related to connections between politicians and firms. Many unobservable characteristics of politicians and firms can influence a political link (or the measure thereof) and the outcomes at the same time, thereby confounding the effect we want to attribute to social network connections.[7] In specific contexts, event studies using arguably exogenous news and event probabilities from prediction markets may provide partial solutions to this issue (see, for instance, Snowberg et al. 2007, or Fisman 2001). However, the reliance on specific events may compromise the generalizability of the empirical findings.

Our novel approach consists of identifying the effect of social connections of politicians and directors by using politicians' close elections. Lee (2008) showed that close elections can be considered a Regression Discontinuity Design (RDD), a natural experiment that produces near-randomized-trial identification with extremely good internal validity. That is, a connection to a politician elected to office by a small margin is almost identical to a connection to one defeated by a small margin, and can be considered as a randomized experiment around the threshold. Moreover, Lee and Lemieux (2010) also show that the estimated effect is a Weighted Average

---

Jackson (2009), and Allen and Babus (2009) for more network definitions and measurements.

[5] The social networks of former classmates have been explored, and their importance stressed, *inter alia*, by Cohen et al. (2008) and Fracassi (2009) in the context of American educational institutions, Bertrand et al. (2008), Kramarz and Thesmar (2012), and Nguyen (2012) in France, and Lerner and Malmendier (2011) and Shue (2011) for Harvard Business School alumni. In the U.S., educational institutions received as much as $41.67 billion in 2010, or 14% of all charitable donations, second only to religious organizations (the Giving USA Foundation, 2011.)

[6] Our results are not affected when controlled for each politician's total campaign contributions.

[7] See the surveys by Durlauf and Ioannides (2010) and Blume et al. (2011) on the identification challenge regarding social interactions.

Treatment Effect (WATE), thus being generalizable to the sample of all politicians with a nonzero chance of experiencing a close election. The existing literature has principally used the RDD of close elections with politicians' behaviors and outcomes, such as election advantage, roll call votes or wealth accumulation (surveyed by Lee and Lemieux 2010); to our knowledge, we are the first to apply close election RDD to outcomes of firms linked to politicians. This can pave way for further applications of RDD in corporate finance, a hitherto underexploited possibility.[8]

The remaining identification challenge in social networks is the confoundedness of homophily. Coined by sociologists,[9] "homophily" refers to the phenomenon that people sharing the same characteristics are more likely to connect, thus confounding the effect of connections with the effect of shared characteristics. Earlier works using the social network of educational backgrounds (Cohen et al. 2008, Fracassi 2009) have distinguished between former classmate networks and alumni networks to highlight the effect of connections as opposed to that of shared characteristics. By including both politicians and directors, we are able to push this methodology further: we introduce school fixed effects, thus identifying the effect of political connections by variations over time (school fixed effects are unidentifiable in earlier works based solely on the connections of businessmen). We can thus ascertain that the discovered effects come from social connections, not homophily.

We obtain data on elections from 2000 to 2008 from the Federal Election Commission, from which we filter in only elections of a winning margin within 5% between the two frontrunners. We manually collect details of all politicians' educational backgrounds from the web archives of their campaigns, a process made difficult by the search for less prominent defeated candidates. On the director side, we obtain past education history for directors of public firms in the U.S. from BoardEx of Management Diagnostics Limited. We then form all pairs between close-election candidates (elected or defeated) and directors who graduated from the same educational institution (same campus) within one year of each other, and link each pair to the stock performance of the firm around the date of the politician's close election. Each observation thus matches a firm's cumulative abnormal return on the event window to the win or loss status of the candidate who shares education background with a director of the firm.

We run a regression of cumulative abnormal returns of stock prices of connected firms on a Win/Loss dummy with semi-parametric controls as required in a RDD. This regression equation provides an estimate of the stock-market value of a new connection to a politician in

[8] Exceptions include Chava and Roberts (2008), Cuñat et al. (2012), Kerr et al. (2011).

[9] See McPherson, Smith-Lovin, and Cook's (2001) survey.

Congress. As shown in Lee and Lemieux (2010), the RDD of close elections produces a consistent, unconfounded estimate of the effect of the treatment. In this context, a treated firm's connected politician gets elected to Congress, while a control firm's connected politician is defeated. This estimate is in fact as good as a randomized experiment around the vote share threshold of 50%, and can account for all confounding factors prior to the event, be they observable or unobservable. Therefore, instead of running regressions trying to control for all relevant covariates, we can focus our empirical work on a single regression, while varying the subsample used in the regression.

In the terminology coined by Lee and Lemieux (2010), we estimate the Weighted Average Treatment Effect (WATE), where the weight of each observation is the probability that a politician experiences a very close election. While some politicians are less likely to have that experience than others, the inclusion of highly visible politicians such as John Ashcroft or Walter Mondale in our sample implies that our estimate can cover a very large share of the population of politicians and is therefore generalizable, unlike previous interpretations of RDD which are considered only applicable to the threshold value. Taken together, our estimate identifies a treatment effect that can shed light on social connections between Congressmen and corporate directors.

We obtain a variety of treatment effects, ranging from positive 7.43% for incumbent members of the powerful Appropriations Committees, to a negative 3.24% for challengers, to an overall effect of negative 2.65% during the event window from one day before to five days after the election. This result indicates that having a connected politician in Congress significantly decreases firm value by 2.65% on average and that the average effect is dominated by the negative value effect of challengers. Our results are robust through many specifications, parametric and nonparametric, with different measures of outcomes, under different definitions of the social network (former classmates or alumni), and across many subsamples.

We interpret the seemingly counterintuitive negative impact of political connections results as follows. The connected politician is already providing benefits to the firm at state level, where he may have more time and focus for business deals, and faces less institutional and public checks and balances. If he is elected to federal office, the firm is expected to get less benefit, whereas if he is defeated, he will most likely remain as active in state politics, probably return to his previous position and strengthen his role in the state party apparatus. As a result, the estimated treatment effect is negative. We empirically test and confirm three implied predictions. First, the value loss effect is present for politicians coming from state, not for those from federal politics. Second, the effect is stronger for states with lower institutional quality and smaller firms.

Third, firm activities, measured by local newspapers' citations of firm names, decrease in elected politicians' states, compared to defeated politicians'. Trading volume also increased significantly more for the stocks in our sample around election time, implying that the financial market pays particular attention to those events. Our result is thus interpreted as evidence of a higher value of connections for politicians at the state level than for politicians at the federal level.

This paper makes two main contributions to the literature on political connections. The first contribution is our solution to the identification problem. In the existing literature, the study of political events, assumed as independent of political connections, has perhaps yielded the most convincing results. Knight (2007), Goldman et al. (2008, 2009),and Mattozzi (2008) exploit close elections in presidential races in the U.S.; Roberts (1990), Jayachandran (2006),Fisman et al. (2006), and Acemoglu et al. (2010) use news and events related to prominent American politicians; while Fisman (2001), Johnson and Mitton (2003), Bunkanwanicha and Wiwattanakantang (2009), Ferguson and Voth (2008), and Imai and Shelton (2010) treat politically important events in Indonesia, Malaysia, Thailand, Nazi Germany, and Taiwan. This strategy avoids the direct reverse causation channel, but, as discussed by Snowberg et al. (2008), many caveats persist, notably the unobserved prior probability of each event. The use of prediction markets as a helpful fix is unfortunately only limited to important events such as American presidential elections, and thus restrict the scope and undermine the generalizability of such analysis.

Other articles using non-political firm-related events such as appointments of directors (Faccio 2006, Goldman et al. 2009), bailouts (Faccio et al. 2006), IPOs (Fan et al. 2007, Francis et al. 2009) are subject to the endogeneity concern that these events are partly triggered by certain unobservable characteristics of the firms. Khwaja and Mian (2005), Dinç (2005), Leuz and Oberholzer-Gee (2006), Bertrand et al. (2008), Claessens et al. (2008), Li et al. (2008), and Boubakri et al. (2009) rely on fixed effects and/or difference-in-difference strategies, and are liable to confounding biases induced by time-varying characteristics of firms or politicians/political parties.

Despite extensive robustness checks of causality in prior literature, the endogeneity of political connections remains a thorny issue. Even in the best event-study setups with perfect measures of prior probabilities of events, it is hard to rule out the possibility of unobserved firm characteristics affecting both a firm's outcome and political connections (exceptions include randomized assignments to social networks as studied by Lerner and Malmendier 2011, and Shue 2011.) For instance, a defense technology firm can recruit a former secretary of defense because of his expertise in defense technologies, and will likely benefit from the political success of his

pro-war former party fellow members, without this effect deriving from a "political connection," as previously defined. Our framework deals adequately with both the endogeneity of the connected politician and the selection bias in networks due to homophily, providing a powerful internal validity of the empirical results. Moreover, the estimated effect is a WATE across the sample of all politicians susceptible to experiencing a close election, and across sampled firms, which are comparable to Compustat's universe, therefore enforcing the external validity of the estimate.

Our second contribution is the finding of a large variation in the value of political connection and the implied emphasis on state-level political connections. While the negative average estimated value of connection to congressmen appears at first glance counterintuitive, it does not contradict the existing literature on the positive value of political connections (e.g., Fisman, 2001, Faccio, 2006, Goldman et al. 2008). We argue that it actually results from the firm's lost benefits when the connected politician moves away from state politics. This empirical finding is consistent with Fisman et al. (2006) who find that, on average, firms do not enjoy financial benefits from their connections to Vice President Dick Cheney while he is in office. Our result points to the remarkable difference in the institutional environments between the federal and state levels in the U.S., implying very different values of political connections, and highlights the importance of state-level political connections, which calls for further attention on state-level political research and institution design.

The remaining of the paper is organized as follows. Section 2 details the methodology. Section 3 provides data description. Section 4 reports the major empirical results and robustness checks. Section 5 discusses and explains the findings, and Section 6 concludes.

2. METHODOLOGY

2.1 CONCEPTUAL FRAMEWORK OF THE IDENTIFICATION

Evidence of the impact of a political connection on firm value is subject to two types of endogeneity biases. The first bias comes from the endogeneity of the "political" part in "political connection." The estimated effect could reflect (i) a reverse causation channel when a well-performing firm may be able to help its connected politicians win elections, or (ii) an omitted variable bias when connected firms and politicians are affected by the same unobservable factor, such as a shift in public opinion. The second bias comes from the endogenous determination of the "connection," usually termed as the problem of homophily when individuals are connected because of similarity.

The endogeneity bias is best eliminated with a randomization of the assignment of a

politician to office: if the politician is chosen randomly, there is no concern of either the reverse causation of firm value changes or the influence of some omitted variables. In practice, it is hard to find a randomized experiment on political connection.

David Lee's (2008) pioneering work on Regression Discontinuity Designs points out that, under the key assumption that candidates are unable to precisely manipulate the result of the election, the event of winning close to the vote threshold of 50% is randomized between the top two runners as though in a randomized experiment. Intuitively, as candidates only have imprecise control over the assignment of win or loss, everyone has approximately the same probability of getting a vote share of just above or just below 50% – similar to a coin flip. In other words, conditional on the election being close, the incidence of winning or losing is independent of all observable and unobservable characteristics of the politician before the election. The RDD thus allows an estimation of the average treatment effect of connections to elected politicians versus defeated politicians without any reverse causation or omitted variable bias, ensuring the internal validity of the results.

On their external validity, the results from the RDD are generalizable. Lee and Lemieux (2010) point out that the RDD estimate is not only informative for close elections but also for others. The estimate can be interpreted as a Weighted Average Treatment Effect (WATE) of being politically connected, where each politician's weight is her ex ante likelihood to be in a close election. This likelihood is nontrivial for most American politicians. Even very powerful politicians are not immune to close elections, as the Senate majority leader Harry Reid experienced in 2010. On the other hand, there is no particularity in firms included in our sample, as we will show in Section 3 that our sample of firms is very similar to the Compustat universe.

2.2 EMPIRICAL SPECIFICATIONS

We follow Lee and Lemieux (2010) in designing two main econometric specifications to estimate the effect of political connection. In our context, each observation represents a connection between a close-election top-two candidate and a connected firm's director through a specific university program for a given election year. The dependent variable is the corresponding firm's stock price cumulated abnormal return in a window around the election day that year. The treatment variable is an indicator variable whether the connected politician wins or loses that race.

The first specification consists of an OLS regression of the outcome variable on the treatment variable, controlling for the vote shares of elected politicians and defeated politicians, where the sample is limited to all races with less than 5% vote margin. That is, we obtain the OLS estimate $\hat{\beta}$ in the following equation, where VS_i stands for vote share:

$$CAR_i = \beta WinLose_i + \delta_W VS_i \mathbf{1}_{\{VS_i \geq 50\%\}} + \delta_L VS_i \mathbf{1}_{\{VS_i < 50\%\}} + \varepsilon_i.$$

Standard errors are calculated from the OLS regression, and are clustered at the politician level for each election. In our robustness checks, we also include a cubic polynomial of the vote shares, as well as other levels of clustering.

The second specification uses nonparametric regressions of the outcome variable on the treatment variable on two separate subsamples, of elected politicians and of runners-up. Predictions of the outcome variable are calculated at the threshold of 50% for each sample, and their difference is reported. Technically, we use the nonparametric local cubic polynomial regression of the equation:

$$CAR_i = F(VoteShare_i) + \varepsilon_i$$

on the subsample where $VoteShare_i < 50\%$ to estimate the function $\hat{F}_-(.)$ and on the subsample where $VoteShare_i > 50\%$ to obtain $\hat{F}_+(.)$. The estimated effect is calculated as $\hat{F}_+(50\%) - \hat{F}_-(50\%)$.[10]

2.1. OTHER ISSUES

By defining connections by all pairs of classmates, we may raise doubts about the realistic nature of those connections, as most people have only a small number of friends even among classmates (see, for instance, Leider et al. 2009). Yet this should not be a concern to the significance of our results. The measurement errors in this case imply that the effect of real friendships is nuanced by many non-friends classmate connections, thus produce an attenuation bias that reduces the absolute size of the estimate and its statistical significance. The effect of real friendships can thus be even larger than those found in this paper. On the other hand, classmate connections can be primordial in the development of relationships after college or graduate school by providing common ground in communication and mutual trust as well as common access to the same social network. In that sense, former classmates are much more likely to later develop a strong connection, even if they not close friends while in college or graduate school. In fact, several recent papers have shown the strength of this measurement of connections in many contexts (Cohen et al. 2008, Fracassi 2009, and Nguyen 2012).

While the links between firms and elected congressmen are identified as an almost-random treatment in our context, the full social networks of classmates and alumni, including

[10]The standard error is calculated as a standard error of the difference of two independent variables, as the two subsamples are completely separate from one another. Cluster-adjusted standard errors are not shown. In each local polynomial regression, the clusters near the threshold are very similar to single observations, therefore cluster-adjusted standard errors will not differ much from unclustered ones.

links to both elected and defeated congressmen, are taken as exogenously given. This definition of social network, while ruling out direct reverse causality (e.g., Cohen et al. 2008), still tolerates the problem of homophily (McPherson et al. 2001). Accordingly, future politicians and directors sharing similar characteristics and preferences may have been drawn together at the same university; decades later the elected politician may enact policies in favor of these same characteristics, on which the director's firm can profit, without passing through the social network channel. In essence, unobservable factors could determine connections, politician's preferences, firm's activities, and market reaction to elections (i.e., value is only affected when the similar politician is elected). For example, if a politician and a director went to a university that specializes in military studies, then the election of the former has the potential to affect the latter's firm value through new defense policies, rather than through the social network. In sum, identification problems of the effect in question emerge when certain unobservables influence both the outcomes at the firm level and the explanatory variable of political connection. While the RDD does identify the effect of "political connection" as we define it, this effect may not be the fruit of social network mechanisms but may instead result from common characteristics.

Our setup allows for a simple solution: the common, time-invariant characteristics of school cohorts can be captured by school fixed effects. The estimated effect is then identified across years and by individuals who went to more than one school. As it turns out, the results are not much affected by the inclusion of school fixed effects, hence homophily is not a prevalent problem for our estimation.

On the concern of how political connections are translated into stock price reactions, we note that our framework which estimates an average stock price reaction does not requires that all potential investors know about the connection between a politician and a firm through politician-director educational links and/or the outcome of a close election. A fraction of investors who follow related firms might be sufficient to create the stock price impact. At the local level, local investors might follow more closely the political connections to local firms.

In summary, our research design identifies and consistently estimates the WATE of being connected to a politician in Congress, where the effect is averaged with weights over the sample of all politicians who stand a chance of experiencing a close election, and all firms in Compustat.

3. DATA DESCRIPTION

We build our sample using data from a few sources. First, we collect the federal election results from the Federal Election Committee (FEC) website. Every two years, FEC publishes

certified federal election results compiled from each state's election office and other official sources. The published data contains information on primary, runoff, and general election results for the U.S. Senate, the U.S. House of Representatives, and, when applicable, the U.S. President. For each election, we identify the candidate finishing first and second and calculate the margin of votes between the top two candidates. A close election is specified by a margin of votes of less than 5%.

As reported in Panel A of Table D1, we identify 128 close elections for U.S. Senate (23 elections) and Congress (105 elections) between 2000 and 2008. The average Win/Loss margin across all election is 2.54% (2.42% with Senate elections and 2.57% with House of Representatives elections). Panel B shows summary statistics of elections and politicians per year. The average annual number of elections is 26 (with a maximum of 36, and minimum of 15). Our sample elections involve on average 89 politicians per year, with a maximum of 112 and a minimum of 61. The average number of connected firms per year is 362.

[Insert Table D1 Here]

We hand-collect the biographical record of these elections using Marquis *Who's Who* biographies, which contain active and inactive biographies from the *Who's Who* publications. Our scope of search includes biographies in (i) *Who's Who in American Politics*, (ii) *Member Biographical Profiles – Current Congress*, (iii) *World Almanac of U.S. Politics*, and (iv) *The Almanac of American Politics*. For each candidate, *Who's Who* biographies provide a brief vita, including the candidate's employment history, all undergraduate and graduate degrees attained, the year in which those degrees were awarded, and the awarding institution. Most of the biographies for our sample are available in *Who's Who*. To complete our biographies, we use Library of Congress Web Archives, Internet Archives, politicians' archived websites, and other sources on the World Wide Web. We retain entries for which we can positively identify the politician.

We next obtain biographical information and past education history for directors and senior company officers from BoardEx of Management Diagnostics Limited. The data details the relational links among board directors and senior company officers for both active and inactive firms by cross-referencing these directors' and officers' employment history, educational background, and professional qualifications. In particular, the data contains current and past roles of each official in a company with start and end date (year), all undergraduate and graduate degrees attained, the year in which those degrees were awarded, and the awarding institution. We restrict our sample to board directors in U.S. publicly listed firms.

We construct our social network measure through educational institutions.[11] We define a political connection as a link between a firm's director and an election candidate who graduate from the same university program within a year. We thereby match institutions and degrees on *Who's Who* biographies and BoardEx. Following Cohen, Frazzini, and Malloy (2008), we group the degrees into six categories: (i) business school (Master of Business Administration), (ii) medical school, (iii) general graduate (Master of Arts or Master of Science), (iv) Doctor of Philosophy, (v) law school, and (vi) general undergraduate. To identify a politician's alumni network, we relax the restriction on year of graduation. Finally, we match our data to stock return data from the Center for Research in Security Prices (CRSP).

Panel C reports the distribution of common educational backgrounds of directors and politicians in our sample. Degrees for undergraduate studies seem to be the most important to the connection of directors and politicians: 74.8% of politicians and 86.8% of directors are connected through their undergraduate studies, having graduated from the same school/university within one year. The figures are 9.6% and 3.6% for law school; 7.6% and 4.6% for business school; 6.8% and 4.2% for other graduate degrees. Medical school and doctoral degrees appear to be insignificant in connecting politicians to directors. Only 0.4% of politicians and 0.1% of directors are connected through medical school, while 0.8% of politicians and 0.7% of directors are connected through Ph.D. programs.

Panel D reports characteristic of firms in our sample and compares them to firms in the Compustat universe. The sample's firm average market capitalization is $2.13 billion, with a maximum of $58.64 billion and a median of $0.40 billion, which are fairly comparable to Compustat average firms ($2.29 billion, $467.09 billion, and $0.24 billion, respectively). Our average firm has a market-to-book ratio of 4.50 and age of 8.60 years, as compared to a market-to-book ratio of 4.30 and age of 8.10 years for an average Compustat firm.

4. EMPIRICAL RESULTS

In this section, we report main empirical results of our regression discontinuity design, with additional results on alternative outcome variables and alternative windows. We also present results from alternative, non-parametric estimations, as well as the results on the impact of political connections across many sub-samples.

4.1 ESTIMATIONS OF THE IMPACT OF POLITICAL CONNECTIONS USING A REGRESSION DISCONTINUITY DESIGN

[11] We did not construct links between people previously working in the same firm, as only a few in our sample of politicians have previously worked in a publicly listed firm.

Similar to the prior literature (Fisman 2001, Faccio 2006, Faccio et al. 2006), we start by investigating potentially strong and direct political connections. We thus focus on the backgrounds of candidates in close elections. Of those, incumbent congressmen sitting in powerful committees might wield more power than junior fellows. Connected firms to those powerful politicians might be more beneficial to firms.

Empirical results are reported in Table 1. We estimate the impact of political connection on firm value by relating stock price cumulated abnormal returns (CAR) of connected firms around the election day to the win/lose status of the connected politician. Each observation pairs a firm's director to a candidate finishing first or second in a close election, both of whom graduate from the same university program within a year (Cohen et al. 2008).For every connected firm, we obtain daily stock returns for the 6-day event period (from day -1 to day 5), as well for a 255-day pre-event period (from day -315 to day -61). The event day (day 0) is the election day reported by the Federal Election Commission, which is always a trading day. We follow a conventional event study method to calculate the abnormal returns resulting from close elections by assuming a single-factor model with the beta estimated from the pre-event window (the results are not sensitive to the method of estimation of the abnormal returns). We exploit the RDD of close elections by limiting the sample to elections in which the vote share between the top two candidates is between 48.5% and 52.5% (i.e., within a 5% vote share margin), and by controlling for the vote shares separately for winners and losers, as suggested by Lee and Lemieux (2010), to obtain the effect at the exact threshold of 50%.

We focus first on connected firms to incumbents. While the average value of connection to an incumbent congressman is estimated to be insignificantly different from zero, as shown in column (1), certain congressmen may be particularly powerful, and garner above-average benefits for their connected firms. We explore this possibility by considering subsamples of members of important committees. Column (2) shows a particularly strong positive effect of 7.43% (significant at the 5% level) on firm value when a congressman in the committees on appropriations in either house wins a close election. The appropriations committees of both houses control the allocation of federal funds to specific projects and are often regarded as the most important committees in Congress (see, e.g., the detailed discussion in Aghion et al., 2009). This finding shows that a politician's membership in appropriations committees is indeed very valuable to connected firms.

[Insert Table 1 Here]

Column (3) reports that connections to a member of one of the Senate committees who wins a close re-election generate a positive stock price reaction of 8.59% above that of the loser.

This large impact is statistically significant at the 1% level. This effect is due mostly to senior members of the Senate. For senators with at least five years of tenure in committees, the effect is 8.01% and significant at the 1% level, as reported in column (4).[12] Column (5) shows that the effect on firms connected to senators with less than five years of tenure is 6.21%, significant at the 1% level. This finding confirms the role of seniority in Congress as previously stressed in political science (e.g., Roberts, 1990; Kellerman and Shepsle, 2009).

We also find consistent evidence of the value of connection to members of other committees in Congress. Columns (6) and (7) report results for committees in the Senate in charge of natural resources, energy, and agriculture, and economic, financial, and budgetary respectively. We observe a positive and significant impact of comparable magnitude. Columns 8, 9, and 10 report the results on firms connected to incumbents in the House's committees. We find that the impact on connected firms is negative, but not significant.

Results from Table 1 show that connections to powerful incumbent politicians are beneficial to firms. We next investigate whether the impact is different with firms connected to challengers in close elections to the Congress. For this purpose, we collect information on the positions candidates have held up to election and classify four categories of politicians whose main occupation in the election year was (1) in a public office at federal level; (2) in a public office at state level, or below; (3) in a top state position (for example, governor); or (4) in other environments, including NGOs, labor unions, and independent professions, such as doctors and professors. Table 2 reports the benchmark estimates by the corresponding subsamples.

[Insert Table 2 Here]

Column (1) shows the estimate for the subsample of challengers, including candidates in a race for an open seat from which the incumbent had retired. Contrary to the results on incumbents in Table 1, we find that, among challengers, the estimated effect of political connections is -3.24%, statistically significant at 1%. This result suggests that having a connected politician elected to Congress significantly reduces connected firms' value.

Columns (2) to (6) consider subsamples among challengers. Columns (2) and (3) distinguish between challengers coming from various positions at the federal level (for instance, in a senator's office) and others. The effect is -3.5% and significantly for the latter, and insignificant and close to zero for the former. Columns (4) and (5) report the results on subsamples of challengers who had previously held top-level public offices at the state levels, and

[12] To be more precise, we measure seniority by averaging over a congressman's seniority across her committees to make the subsamples in column (4) exclusive. The choice of 5th year experience is closest to the sample median.

top state positions as governors or state legislators, respectively. We find negative estimates of -4.36% and -3.89%, significant at the 1% and 5% levels respectively. On the other hand, for the group of candidates from non-political, business occupations, the estimated effect is -3.52%, but insignificant, as reported in column (6).

Taken together, Tables2 shows a consistent result that a candidate's election to Congress appears to significantly destroy value of connected firms if the elected congressman has been sufficiently entrenched in his home state. In contrast, the value of incumbent congressmen or of congressmen coming from positions in federal office is not significantly different from zero. This result strongly supports the possibility that politicians bring more value to firms at state level. Results from Tables 1 and 2 suggest that the value of connection to a congressman initially drops when the freshly elected congressman moves away from his previous position at state level, and is only restored once he becomes senior and powerful in Congress. This appears to be consistent with the idea that there exists a learning curve for new Congressmen.

The value impact of political connections, as reported in Tables 1 and 3, depends on the position and status of the politicians. To investigate the general impact of political connections, we run regressions on our pooled sample. Table 3 summarizes our results.

[Insert Table 3 Here]

We find an overall negative and statistically significant value effect of connection to a winner in a close election. Column (1) shows our benchmark specification (vote share margin of 5% or less, controlling separately for winners' and losers' vote shares) with 1,819 observations across 1,268 firms and 170 politicians. We find an estimate of -2.65%, significant at 1%.Column (2) controls additionally for quartic polynomials of winners' and of losers' vote shares, so as to single out the effect exactly at the threshold of 50% vote share (Lee and Lemieux 2010), and reports an even larger effect of -4.07%, significant at 1%.

Columns (3) to (8) further show that the results are unaffected by "irrelevant covariates." Indeed, when the treatment is comparable to a randomized experiment, any additional control variable must be independent of the treatment, thus its inclusion should not significantly alter the estimate of the treatment effect. Column (3) controls for characteristics of the politician (dummy variables for the party, gender, incumbency, Senate/House race), column (4) for connected directors' characteristics (age, gender, nationality, executive/non-executive role), column (5) for firm characteristics (market capitalization, book value of equity, total assets, return on asset, capital expenditure, and leverage), producing estimates very close to the benchmark in column (1) and all significant at 1%. In a similar vein, unobservable characteristics of the election year or the industry appear also to be irrelevant covariates and thus do not alter much the main estimate, as

shown in columns (6) and (7). As expected, the main results are not driven by any year-specific or industry-specific unobservables.

Including fixed effects for educational institutions, however, may substantially affect the main estimate, if a strong homophily factor pertains in the formation of the school networks that we consider, as discussed in the previous section. Controlling for school fixed effects, column (8) still produces a similar, slightly larger estimate of -2.75%, significant at 1%. It implies that network homophily is relatively irrelevant to our treatment, and shared school characteristics are not the factor behind the negative estimate of the value of connection reported in Table 1.[13]

While the cross-sectional distribution of CARs includes some very large observations, column (9) shows that even after taking out all CARs exceeding 50% in absolute value, the result still remains strong at -2.30% (significant at 1%).

The absolute size of the effect, namely -2.65% after 7 days, is 24% of the standard deviation of CARs in our sample. In comparison to other event studies, Faccio (2006) reports an average effect of 1.43% on CARs for worldwide firms experiencing an event of new political connection, while Goldman et al. (2009) show an effect on CARs of 8.97% in difference between Republican-connected and Democrat-connected firms in the event of the 2000 presidential election. In summary, Table 3 provides evidence that firms connected to the winner in a close election to the U.S. Congress between 2000 and 2008 experience, on average, significant loss in firm value, as compared to firms connected to the runner-up. The results remain consistent when we control for politicians' characteristics, firm size, election year-, industry- and school-fixed effects.

4.2 EXPLANATION OF THE RESULTS

Our finding of a value-reducing effect of political connections appears, at first glance, counterintuitive and different from the extant literature. It is however consistent with the following explanation in which the value of political connection depends on the politician's position in a more complex way than previously studied: The value of connection to a congressman initially drops when the freshly elected congressman moves away from his previous position at state level, as proved in Table 2, and only increases once he becomes senior and powerful in Congress, as supported by Table 1. Before their elections to Congress, many politicians have held positions at the state level, which has probably already resulted in benefits for connected firms. If a politician wins his congressional election and moves to federal politics, connected firms' benefits may be much harder to maintain. On the one hand, an elected

[13] We do not include company fixed effects, as there is very little variation within companies across years, with the majority of companies appearing only once, thus omitted from such a fixed-effect regression.

politician will have less time and focus for specific state matters that relate to their connected firms., He may need to accumulate experience and power over time, through a learning curve with much electoral uncertainties, until he is senior enough to support connected firms. On the other hand, the strong checks and balances in federal politics in the United States may already block most channels by which firms connected with politicians through social networks could obtain significant financial benefits, as shown by Fisman et al. (2006) in the example of firms connected to former Vice President Dick Cheney. Consequently, from a firm's perspective, it may be preferable that its socially connected politician remain at the state level, rather than get elected to federal office.

This line of argument reaffirms previous findings of positive values of connections to key politicians, by Goldman et al. (2009), Acemoglu et al. (2010), among others, as Table 1 consistently shows that connections to closely elected powerful incumbent congressmen significantly increase firm value, compared with connections to closely defeated powerful incumbents.. Similarly, the value-reducing effect discovered in Table 2 indicates that connections to state-level politicians are even more valuable than connections to junior Congress members. The overall results of Table 3 imply that the value-reducing effect caused by challengers outweighs the gain associated with incumbents in our sample.

There is further evidence that these effects are not coincidental. We use a market model to predict actual trading volume based on a prior window from day -315 to day -61 before each election event to obtain, and then subtract predicted volume from actual volume to obtain abnormal daily trading volume (see Campbell and Wasley, 1996, for more details.) The results show that stocks in our sample are significantly more widely traded around the event, with 5.21% cumulative abnormal volume during the window (-5,-1), and 2.22% cumulative abnormal volume during the window (-1,+5) (both statistics are significant at 1%.) It implies that at least a part of the market does pay particular attention to those stocks during the relevant elections.

It is important to note that the types of political connections we study do not need to be salient market-wide, in order for the relevant prices to fully react to news from the elections. Instead, a few traders or investors with privileged information on political connections can be sufficient to move market prices of connected stocks.

Before further hypotheses based on our explanation are developed and tested in section 5, subsections 4.3 to 4.6 further explore the main regressions and check the results' robustness. The uninterested reader may skip these subsections to jump directly to section 5.

4.3 EFFECTS BY GROUPS

The previous sub-section shows the robust, consistent, and strong impact of firms'

political connections on firm value. We now explore whether that impact is present in different sub-groups of companies. Table 4 summarizes our results.

[Insert Table 4 Here]

Our identification strategy is based on close Senate and House elections from 2000 to 2008. As the Senate and the House serve different missions, one might expect that the value of a firm's connection to a member of the House or to a member of the Senate might be different. We thus divide our samples into two subsamples of firms depending on whether the close election is for the Senate or the House, rerun the benchmark regression in column (2) of Table 1, and report the respective results in columns (1) and (2) of Table 4. For both subsamples, the results are consistent with our pooled regression results from Table 1, and significant at 1% and 10% respectively: for both the Senate and the House, firms connected to the winner experience significant loss in firm value. In addition, firms connected to the winner in a close Senate election appear to experience a greater loss of firm value than do firms connected to the winner in a close House election (-4.24% against -2.14%).

We also explore whether a candidate belongs to the Chamber majority or Chamber minority affect our results, by partitioning the sample accordingly. Regression results from columns (3) and (4) show a loss of value effect in both subsamples. In columns (5) and (6), we further explore the sample of Democrats and of Republicans. In both cases, the effect is statistically significant at 5%, with a slightly larger size for Republicans than for Democrats (-2.86% versus -2.43%). This result echoes Snowberg et al.'s (2007) finding that, when it comes to holding majority in Congress, partisan differences matter little to the market.

Our measure of social networks is based on the network between directors and politicians. As independent directors and executive directors are supposed to assume different tasks, we repeat our tests in subsamples of connections through independent directors and executive directors. We find, as reported in columns (7) and (8), that firms connected to a politician through one of its independent directors experience a significant loss of value (-2.76%), while the impact is not significant in firms connected to a politician through an inside (executive) director. In the latter sample, the estimate at -1.84% is still negative and sizeable, and the lack of significance could be attributed to the small sample size.

The impact of political connection on firm value may also depend on the nature of the connection. We investigate this direction by checking the estimates across different school networks. We sort the educational institutions by the number of observations in the sample, as it is important to look at the number of prominent graduates that rise to the top in business and politics, and not just at any graduate from the same year. Intuitively, when a network is better

represented in the sample, its links are arguably stronger in Granovetter's (1974) sense, in that each pair shares more common connections. Such a network has a higher measure of network closure, according to Karlan et al. (2009), and is more conducive to agreements that require commitments between pairs in the network. In contrast, Karlan et al. (2009) show that a low closure network is provides better incentives for information sharing.

Through this exercise, Harvard and Yale come out as the two most represented universities (if we had looked at the number of graduates each year, large state universities would have dominated). Columns (9) and (10) report the estimate of -3.92% and -5.45% for the subsamples of connections based on Harvard and Yale networks, and Harvard networks, respectively. Columns (11) and (12) show the results for the subsamples of universities that are below and above the median number of observations, respectively at -2.45% and -2.55%, significant at the 5% level. The effect is markedly stronger for Harvard and Yale as compared with the average, yet little difference exists between the subsamples above and below median. This result is consistent with an explanation that network strength and network closure matter only at the very top schools, and that political connections matter mostly as commitment devices for deals, rather than for information sharing purposes. However, we cannot rule out some alternative explanations, such as that the media pay more attention to the educational background of graduates from Harvard and Yale, or that there are other unobserved elements very specific to these universities that help strengthen this effect.

In summary, Table 4 shows that our finding—that connections to a politician in a close election incur a significant loss in firm value—is consistent and robust to the type of election (Senate vs. House), as well as across several subsamples and subgroups.

4.4 ALUMNI NETWORK

We have so far identified the social connections between a board director of a firm and a politician by the criterion that the politician and the director graduate within one year from the same university, campus, college, or professional school. In this subsection, we study the impact of a politician's alumni network by relaxing the restriction on year of graduation. Columns (1) to (9) in Table 5 replicate the same tests from Table 3 and report the results. Column (10) runs a benchmark non-parametric test.

[Insert Table 5 Here]

The benchmark regression in column (2) shows that an additional connection to an elected politician in alumni networks reduces a firm's CARs by 0.58%. This estimate, statistically significant at 5%,is much smaller than the corresponding estimate of -2.65% for classmate networks, as reported in column (1) of Table 3.The non-parametric test reported in column (10)

produces a larger coefficient of -1.38%, statistically significant at 1%. Across the columns of Table 5, the negative and significant estimates of the value of alumni-network political connection on the CARs remain consistent, but with coefficient sizes much smaller than in Table 3(In columns (1) and (6), the results are no longer significant at 10%, though they are negative.)

The smaller estimates in Table 5, as compared with Table 3, can be explained in two different ways. First, one should expect the links between alumni who are not classmates to be less important than the links between classmates. Because our result is an average effect over all pairs of connected individuals, the estimate should be smaller in size in alumni networks than in classmate networks. Second, as our connection variable is only a proxy for friendships or acquaintances in reality, the presence of measurement errors will likely imply an attenuation bias on our estimates. As more measurement error is probable in the alumni networks than in classmate networks, the attenuation bias will be larger for the alumni networks, leading to smaller estimates, as found in Table 5.

Overall, results from Table 5 show that our main results remain consistent when we relax our measure of social networks to alumni networks. In our context, we still find a social network effect even in a sample constructed with a less stringent definition of social network.

4.5 ALTERNATIVE SPECIFICATIONS AND ROBUSTNESS CHECKS

In this section, we explore alternative specifications with different event windows and calculations of the CARs. Table 6summarizes this exercise.

[Insert Table 6 Here]

In Panel A, we check the consistency of our results by varying the event windows used in Table 3. Column (1) of Panel A reports the results of regressions using CARs from a pre-event window from day -7 to day -1. The coefficient of interest is very small and not statistically significant. This shows that the treatment has not been predicted by the market prior to the event, as expected from the close elections design.

While column (3) reports the benchmark result for the window from day -1 to day 5, as in column (1) of Table 3, columns (2), (4), and (5) use different starting days for the event window, namely beginning on day -1,on the event day (day 0), and on day +1, and ending on day +1 and day +5. We find that consistently negative and significant coefficient. Interestingly, we find negative and significant coefficients on the Win/Lose dummy, of about 70% the size of the benchmark estimate in column (5) for the (+1, +5) window. This result implies that market reaction after one day accounts to only about 30% of the full effect, and substantial further reaction occurs even after day 1 up to day 5. We can consequently create a portfolio on day +1 after the event, knowing all the results of elections, shorting on firms connected to closely

elected politicians and longing on those connected to closely defeated ones, with equal weights on firm connections (i.e., a firm's stock is counted twice if it is connected to two different politicians). From day 1 to day 5, this portfolio yields a risk-free return of 1.85%.

Beyond our benchmark window, such as from day 6 to day 20 after the election day, as reported in column (6), we find an insignificant estimate of the value of connection. While this finding is consistent with the market having fully priced in the news after day 5, it could also be due to the presence of much additional noise, which hinders statistical significance.

In all regressions throughout the paper, we calculate the heteroskedasticity-corrected standard errors clustered at the level of politician-election year level to avoid the potential downward bias of standard error estimates when the error terms can be autocorrelated among observations sharing the same politician and election year (Bertrand, Duflo, and Mullainathan 2004). The qualitative results are strongly robust to other levels of clustering, including by director, firm, year, and politician's state, and are available upon request.

Given the high cross-sectional variance of CARs, one may worry that our results are affected by stocks with aberrantly high volatility. Simply censoring aberrant values, as shown in column (9) of Table 3, may not entirely solve the issue, because of a potential censoring bias. A different approach consists of normalizing each stock's CAR by its standard error derived from the market model within the event window. Panel B of Table 6 repeats Table 3's regressions with this new outcome variable, with the same qualitative results as in Panel A. Being connected to an elected politician has a statistically significant impact of about negative 32.2% on a firm's standardized CAR, or about one third of a standard deviation of the firm's CARs during the event window.

In other tests of robustness reported in Appendix Table A1, we calculate the CARs using different methods, including the cumulative daily stock (raw) returns in columns (1) and (2), Fama-French's three-factor model (Fama and French 1993) in columns (3) and (4), and the four-factor model (Carhart 1997) in column (5) and (6). We find estimates mostly similar to those reported in Table 3, either including or excluding school fixed effects.

Appendix Table A1 also reports results for alternative specifications of a unit of observation. In the benchmark model, we choose an observation as a classmate connection between a politician and a director for a given election year, where the treatment variable is binary. That empirical design implies the interpretation of the estimate as the WATE of an additional connection to a politician in office. In alternative specifications, we can choose a unit of observation as a director or a firm (each for a given election day), where the treatment variable is the count of connections to elected politicians. The difference is in the weights: while each

connection has the same weight in the benchmark setup, in alternative specifications, the same-weight unit could be director, or firm, or politician. Columns (7) to (9) of Appendix Table A1 show very similar results. Finally, column (10) reruns the benchmark regression in Table 3 with standard errors subject to two-way clustering of both Politician-Year and Company-Year (Cameron et al., 2011), yielding the same qualitative results.

We check the near-randomness of winning or losing a close election as highlighted by Lee (2008) and report supporting results in Appendix Table A2. Each column serves to show that a dependent variable's distribution is continuous at the cutoff point of 50% vote share. These dependent variables are those used as control variable in Tables (1) to (10). Panel A shows results for politician's gender, age, chamber, logarithm of campaign contribution, logarithm of number of contributors, and incumbency. Panel B considers challenger's party and different backgrounds, director's age, gender and executive/non-executive role, and social network size. Panel C displays results with different firm characteristics. Panel D reports regressions with industry's financial dependence, state's institution quality and corruption measured in different ways. Across regressions we do not find any significant relationship between different dependent variables and our main independent variable (Win/Lose dummy). This confirms the near-randomness of the win/lose treatment induced by close elections for US Senate and Congress between 2000 and 2008.

We also investigate the heterogeneous effects of political connections from quantile regressions for challengers from state politics, and report supporting results in Appendix Table A3.Column (1) shows results from median regression (50% quantile). Columns (2) to (5) report the estimation using quantile regressions at the 1st, 2nd, 3rd and 4th quintiles. The estimate's negativity is shown to come mostly from the lower quintiles, i.e. among firms with negative CARs.

In further robustness checks, Table 7 reports the result of the nonparametric specification as detailed in Section 2. Column (1) shows a 1%-statistically significant estimated effect of negative 3.40%, which is even stronger than in Table 3. Columns (2) to (5) indicate that the effect is robust in size and statistically significant across a wide range of bandwidths.

[Insert Table 7 Here]

Our RDD has so far exclusively focused on the vote share threshold of 50%. In columns (6) to (9), we further test the robustness of our result by applying the same method to "placebo" thresholds of vote share, instead of the actual cut-off at 50%. For example, in the sample used for column (6), a politician is marked as elected if his vote share is 48% or above, and marked as defeated otherwise. We then apply the nonparametric regression around the placebo cutoff of

48% and report the corresponding estimate. Because such a placebo threshold does not separate winners from losers in reality, we do not expect to find results similar to column (1). Columns (6) to (9) confirm our prediction: for the placebo thresholds of 48%, 49%, 51% and 52%, the estimate is always positive and not statistically significant at 10%.

Figures 1.A and 1.B visualize the numerical results presented in Table 7 by plotting the outcome variable, namely firms' CARs over the window (-1,+5), against vote shares. Each graph represents the fitted local polynomial of degree 3 for vote shares, separately for elected or defeated politicians. Figure 1.A also includes bins of actual observations, represented as dots, while they are removed in figure 1.B to clarify the gap at the discontinuity point of 50% vote share. At this point, we see a sizeable gap, whereas the gradient of the graph is relatively small elsewhere, as already tested with placebo thresholds in Table 3. Furthermore, there is visual evidence of a "Z" shape of CAR with respect to vote share: as vote share increases around 50%, CAR first increases, then drops sharply at the threshold of 50%, and then increases again. This Z shape is predicted in a pricing model, such as Cuñat et al.'s (2009), where the market internalizes available information before election and partially anticipates the discontinuity effect at 50%, to an extent proportionate to the difference between prior probabilities of winning or losing and the threshold of 50%. For example, for an election resulting in vote shares of 52% versus 48%, it is likely that the market's prior probability of the first candidate's winning is larger than 50%, hence a part of the effect at 50% has already been incorporated in market prices even before the election. Therefore, we do not see a large difference between the CARs at 48% and at 52% on the graphs in Figure 1.

[Insert Figures 1.A and 1.B Here]

However, the robustness of the Z shape depends on the relatively strong hypothesis that no confounding factors can possibly bias the non-parametric cross-section estimation in the whole range of vote shares between 48.5% and 52.5%. This hypothesis is not necessary for the consistency of RDD, which depends only on the lack of full manipulation at exactly the threshold of 50%. In other words, if one is skeptical that elections of 4-5% margin cannot be considered close, and the identity of the winner or loser therein may be endogenous, then such endogeneity can significantly affect the Z-shape, but it does not invalidate the RDD result obtained from the 50% threshold.

In summary, Tables 6 and 7, and Appendices Tables A1, A2, and A3 show that our results are robust to different methodological specifications. Furthermore, they are found only in specifications where the treatment matters, and not in tests with irrelevant event windows or irrelevant vote share thresholds. Consequently, political connection must be the causal factor

behind these results.

5. TESTS OF FURTHER PREDICTIONS

The previous sections have shown an average overall negative impact of political connections on firm value. In this section, we investigate potential channels of this effect. Based on prior literature, we advance the three following hypotheses:

Prediction 1: In states with stronger institutional checks and balances, firms receive fewer benefits from their state-level political connections through social networks.

Prediction 2: Firm characteristics may determine the value of political connections.

Prediction 3: Firm activities in the connected politician's state should decline following the politician's successful election, as compared with an unsuccessful one. We will test these predictions on sub-samples based on institution quality measures, firm characteristics, and firm activities. We run the benchmark regression in each subsample and compare the estimates. The following subsections will detail the corresponding results.

5.1 STATE CHARACTERISTICS AND THE VALUE OF POLITICAL CONNECTIONS

Moving away from politicians' backgrounds, Prediction 1 concerns a different dimension of our explanation: under better checks and balances at the state level, the estimated effect of connection should be weaker. Table 8 shows various ample supports of this prediction.[14]

[Insert Table 8 Here]

Columns (1) and (2) distinguish between politicians' states having more or less than median regulations. The index of regulation by state is measured for 1999 in Clemson University's Report on Economic Freedom, http://freedom.clemson.edu. This report combines information on labor and environmental regulations and regulations in specific industries such as insurance. As expected, we find a strongly negative and significant effect in states with more regulations, where the potential is greater for politicians to grant benefits to connected firms on a discretionary basis.

Instead of regulations, columns (3) to (8) attempt to divide states by actual level of corruption. The most commonly used measure of state-level corruption comes from Glaeser and Saks (2006), who extract actual conviction data from the Department of Justice's "Report to Congress on the Activities and Operations of the Public Integrity Section" to form a measure of

[14]These results are also confirmed by regressions, including an interaction between our main explanatory variable, Win/Lose, and a dummy variable for good/bad institutions as in Table 8. Because these regressions implicitly impose the same coefficients for the controls of vote share for each subsample, they are less preferred than our reported results, and are only available upon request.

the ratio of convicted corruption cases by population size, averaged from 1976 to 2002 to remove periodical noises. Using that measure, columns (3) and (4) show a more sizable and significant effect in more corrupt states.

Because one may expect that actual conviction cases only amount to a small fraction of real corrupt deals, the measure of actual conviction may not truly depict the extent of corruption in a state. We overcome this concern by using Saiz and Simonsohn's (2008) approach of "downloading wisdom from online crowds." More specifically, columns (5) and (6) use a measure of search hits on Exalead.com for the term "corruption" near the name of the main city in each state, normalized by the number of search hits for the name of that main city, to divide the sample of all states into those with higher or lower than median corruption, as reported in the news. While Exalead.com conducts web-based searches, columns (7) and (8) use the dataset of all newspapers gathered in Newslibrary.com to search for the word "corruption" close to the state name, with the number of search hits normalized by the search hits for the state name alone. We can thus cover cases of corruption as reported both on the internet and in newspapers. Both measures yield satisfying results that support our intuition, as the effect is stronger and statistically significant in more corrupt states, while it is indistinguishable from zero in less corrupt states.

As these measures of institutional qualities are calculated before this paper's period of study, we partly avoid the problem of direct reverse causation. However, the use of measures of corruption or regulations may expose us to the problem of endogenous selection, where certain unobserved characteristics may affect both the selection into good or bad institutional designs, and later affect the political connection that we estimate. While we still have clearly identified the WATE of political connections, we cannot ascertain that its variation across states truly comes from the differences in institutional quality. This endogeneity problem is a perennial problem in all studies of the economics of institutions, where the exogeneity and excludability of instrumental variables are keys to the answer.

In columns (9) and (10) we attempt to check this problem by using GCISC, a measure of population concentration around the state capital city. As developed by Campante and Do (2010), this measure is highly predictive of several measures of qualities of political governance both across countries and across American states (higher concentration implies better institution quality because of the political pressure of the population). This measure is also highly persistent over time and is arguably much less directly affected by institution qualities than by historical events, such as the somewhat arbitrary choice of state capitals. As expected, our estimated effect is strongly significant among states of lower-than-median population concentration, as shown in

column (9), while in column (10), the effect is practically indistinct from zero.

In sum, Table 8 provides evidence that the estimated effect of political connection is all the more important in states that are more corrupt, have more regulations, and worse institutions, entirely in accordance with our explanation of the differential value of political connections between state-level politics and federal politics.

5.2 FIRM CHARACTERISTICS AND THE VALUE OF POLITICAL CONNECTIONS

We now study firm characteristics as potential determinants of the relationship between political connections and firm value, and detail the results in Table 9.

[Insert Table 9 Here]

Columns (1) and (2) report regression results on two subsamples of firms whose market capitalization is respectively above or below the median. The difference between those results indicates that smaller politically connected firms experience greater loss of value when the connected politician wins an election to Congress (loss of 6.56% for smaller firms, significant at 1%, as compared with no effect among larger firms). Put differently, political connections are more important for small firms. Larger firms may be connected to many politicians, and the financial benefit of connection to one more politician may only represent a small fraction of the firm's value; hence, for larger firms, we expect a smaller effect.

One may conjecture that firms benefit from political connections thanks to easier access to finance, as shown by Khwaja and Mian (2005). Accordingly, we investigate whether the value of political connection is associated with the firm's dependence on external finance. We construct Rajan and Zingales's (1998)measure of dependence on external finance by 3-digit SIC industries as the industry average of (CapEx – Cash flow from Operations)/CapEx, then divide our sample into industries with above and below median scores. Columns (3) and (4) of Table 9 report our standard regression results on these two sub-samples. For industries relying more on external finance, the coefficient on the Win/Lose dummy is -2.99% and significant at 5%; in contrast, for the subsample of industries with less dependence on external financial sources, the estimated effect is insignificant at conventional levels. Firms that are financially independent seem not to be affected after election results.

The estimated effect appears to be particularly strong when determinants are interacted. Column (5) shows that small firms that rely heavily on external finance incur a very high loss of value: the average loss is 5.64% (significant at 1%) in firm value as a result of a connection to a politician in federal office. Column (6) considers the subsample of states with higher than median corruption, using the Newslibrary.com measure as detailed in the previous subsection, for which the distance between the firm's headquarters and the politician's state is in the smallest

quartile (less than 650km). Such distance is used as a proxy for the presence and interests of the firm in the politician's state, as we expect the effect to be stronger for firms that do more business in the politician's state. The estimated effect in column (6) of Table 9 is much stronger than in column (7) of Table 8, and much stronger than for the sample with the limitation by distance alone.[15] In column (7) of Table 9, the sample is limited to states with higher than median corruption, and to industries with higher than median reliance on external finance. As expected, the effect is strongly significant, and is much larger than both column (3) and column (7) of Table 8.

5.3 POLITICAL CONNECTIONS AND FIRMS ACTIVITIES IN CORRESPONDING STATES

The estimation results shown in Table 9 indirectly corroborate the storyline that firms get benefit from politicians before their election to federal office. A more direct test of Prediction 3 can be based on the change in firm activities after the event of the election. Unfortunately, systematic data on firm activities by state and year, measured either by sales or investment, are unavailable.

We surmount this difficulty by providing a new measure of firm activities by state and year. Again, we follow Saiz and Simonsohn's (2008) idea of "downloading wisdom" by searching each company's name through local newspapers in the connected politician's state within each year, using Newslibrary.com; we then normalize the number of search hits by the search hits for the neutral keyword "September" across the same set of newspapers. The resulting hit rate is used as a proxy of a firm's activities within a state in a certain year. We further remove any firm-state fixed effect by looking at only the change in the hit rate after each year, then use this measure of changes of firm activities across various windows and subsamples as the dependent variable in our benchmark regressions, and report the results in Table 10.[16]

[Insert Table 10 Here]

Columns (1) to (3) focus on the subsample of challengers with top state experience that was used in Table 2. Column (1), in particular, shows that being connected to an elected congressman clearly reduces a firm's activities in the corresponding state from the election year (where elections are held in November) to the following year, with a coefficient of -0.96 percentage points of hit rates. Column (2) presents a placebo test in the period before the event,

[15] Results on the division relating to the distance between a firm's headquarters and a politician's state are available upon request.

[16] Changes in our measure of firm activities, calculated for the whole sample of all U.S. local newspapers, are highly correlated with changes in firm sales, investments, R&D, employment, and cash flows. These results, available upon request, suggest that our measure is a good proxy for firm activities at state level.

between election year -1 and the election year. The resulting small estimate—insignificantly different from zero—indicates that the treated and control samples are very similar before the event, thus confirming the RDD. We notice from column (3) that any adjustment following the event has been accomplished by 1 year after the election, as the estimated effect is close to zero for the window from year 1 to year2. Column (4) provides the comparable result (although the magnitude of the effect is slightly larger) for the subsample of challengers with top state experience.

Focusing on the main event window from the election year to the year after, columns (4) and (6) of Table 10 follow Table 2 in treating different subsamples of politicians, namely candidates from federal offices, and from other backgrounds, respectively). Reassuringly, we do not see any significant results in those subsamples, confirming the intuition that the effect on firm activities passes uniquely through the movement of politicians from state to federal offices.

The examination of firm characteristics and activities by state, as shown in Tables 9 and 10, thereby provides further evidence that certain firms benefit from political connections at state level more than others, and that such firms are more likely to move out of the state when the favor is over.Taken together, the verifications of Predictions 1, 2, and 3 across Tables 8 to 10 provide a wide array of support to the explanation that politicians bring more benefits to (certain kinds of) connected firms before, than they do after, electionsto federal office.

6. CONCLUDING REMARKS

This paper investigates corporate benefits of political connections from the social network of directors and politicians. We use the Regression Discontinuity Design (RDD) to identify the connection to a politician elected to the U.S. Congress in a closely contested race. The estimate of the Weighted Average Treatment Effect (WATE) during the period 2000 to 2008 shows a negative, both economically and statistically significant cumulative abnormal return of 2.65% surrounding the election date. The results are robust to various specifications, parametric and nonparametric, throughout different measures of outcome variables, with different definitions of social network, and across many subsamples.

Our contribution to the existing literature is twofold. First, we propose an internally valid identification strategy using the RDD of close elections that effectively deals with the endogenous nature of connected politicians. Our results are also externally valid, as the estimated WATE is averaged over the sample of all politicians susceptible to experience a close election. The external validity is further strengthened as firms in our sample are comparable to Compustat's universe.

Second, we find that the value of connection to U.S. congressmen varies. Strong connections, i.e. connections to powerful incumbent members of Senate or House committees, are associated with positive stock price reaction. We also find an average negative effect of connection, which is consistent with an explanation that firms benefit more from political connections when the connected politician remains in state politics than when (s)he moves to the federal level. We empirically test several resulting predictions and find a wide range of evidence supporting our hypothesis.

We remain cautious in generalizing the empirical results for several reasons. First, while our estimate is a weighted average treatment effect (WATE) across all politicians, we acknowledge that some politicians may naturally have higher chances of competing in a close election, and correspond to larger weights in the WATE. Our interpretation is therefore more informative on those politicians than some others who by nature always win (or lose) by large margins. Second, our analysis is limited to elections from 2000 to 2008, given excessive data collection costs, and focuses uniquely on the social network of classmates. Extrapolations before and after this period, or towards other types of political connections, require careful consideration. Third, we measure market valuations from investors' trading behaviors according to their beliefs and expectations; and investors may be surprised by actual behaviors of firms and politicians after the elections. We also stop short of inferring potential effects on the general welfare. These topics are natural targets for future research in this line of work.Overall, our study identifies the value of political connections through social networks in the United States and uncovers its variation across different states and between state and federal political environments. This remarkable gap in the value of connections calls for more attention and research on the theory and empirics of political connections and state-level institutional design.

REFERENCES

Acemoglu, Daron; Johnson, Simon; Kermani, Amir; Kwak, James and Mitton Todd. "The Value of Political Connections in the United States." Unpublished Paper, 2010.

Aghion, Philippe; Boustan, Leah; Hoxby, Caroline and Vandenbussche, Jerome. "The Causal Impact of Education on Economic Growth: Evidence from U.S." Unpublished Paper, 2009.

Allen, Franklin and Babus, Ana. "Networks in Finance," in *The Network Challenge*, edited by P. Kleindorfer and J. Wind, Philadelphia, PA: Wharton School Publishing, 2009, 367-82.

Bertrand, Marianne; Duflo, Esther and Mullainathan, Sendhil. "How Much Should We Trust Difference in Difference?" *Quarterly Journal of Economics*, 2004, 119(1), pp. 249-75.

Bertrand, Marianne; Kramarz, Francis; Schoar, Antoinette and Thesmar, David. "Politicians, Firms and the Political Business Cycle: Evidence from France." Unpublished Paper, 2008.

Blume, Lawrence E.; Brock, William A.; Durlauf, Steven N. and Ioannides, Yannis M. "Identification of Social Interactions." *Handbook of Social Economics*, Vol. 1B, edited by J. Benhabib, A. Bisin and M. O. Jackson, CA: Elsevier, 2011, pp. 853-964.

Boubakri, Narjess; Cosset, Jean-Claude and Saffar, Walid. "Politically Connected Firms: An International Event Study." Unpublished Paper, 2009.

Bunkanwanicha, Pramuan and Wiwattanakantang, Yupana. "Big Business Owners in Politics." *Review of Financial Studies*, 2009, 22(6), pp. 2133-68.

Campbell, Cynthia J. and Wasley, Charles E. "Measuring Abnormal Daily Trading Volume for Samples of NYSE/ASE and Nasdaq Securities Using Parametric and Nonparametric Test Statistics." *Review of Quantitative and Finance and Accounting,* 1996, 6(3), pp. 309-326.

Carhart, Mark M. "On Persistence in Mutual Fund Performance." *Journal of Finance*, 1997, 52 (1), pp. 57-82.

Cameron, Colin, Jonah Gelbach and Douglas Miller. "Robust Inference with Multi-way Clustering." *Journal of Business and Economic Statistics*, 2011, 29(2), pp. 238-49.

Campante, Filipe R. and Do, Quoc-Anh. "A Centered Index of Spatial Concentration: Axiomatic Approach with an Application to Population and Capital Cities." Unpublished Paper, 2010.

Chava, Sudheer and Roberts, Michael R. "How Does Financing Impact Investment? The Role of Debt Covenants." *Journal of Finance*, 2008, 63(5), pp. 2085-121.

Claessens, Stijin; Feijen, Erik and Laeven, Luc. "Political connections and preferential access to finance: The role of campaign contributions." *Journal of Financial Economics*, 2008, 88(3), pp. 554-80.

Cohen, Lauren; Malloy, Christopher and Frazzini, **Andrea.** "The small world of investing: board connections and mutual funds returns." *Journal of Political Economy*, 2008, 116(5), pp. 951-79.

Conley, Timothy G. and Udry, **Christopher R.** "Learning about a New Technology:

Pineapple in Ghana." *American Economic Review*, 2010, 100(1), pp. 35-69.

Cuñat, Vicente; Gine, Mireia and Guadalupe, **Maria.** "The Vote is Cast: The Effect of Corporate Governance on Shareholder Value." *Journal of Finance*, 2012.

Dinç, I. Serdar. "Politicians and banks: Political influences on government-owned banks in emerging markets." *Journal of Financial Economics*, 2005, 77(2), pp. 453-79.

Durlauf, Steven N. and Ioannides, Yannis M. "Social Interactions." *Annual Review of Economics*, 2010, 2, pp. 451-478.

Fama, Eugene F. and Kenneth R. French. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics*, 1993, 33(1), pp. 3-56.

Faccio, Mara. "Politically Connected Firms." *The American Economic Review*, 2006, 96(1), pp. 369-86.

Faccio, Mara; Masulis, Ronald W. and McConnell, **John J.** "Political Connections and Corporate Bailouts." *Journal of Finance*, 2006, 61(6), pp. 2597-635.

Fan, Joseph, P. H.; Wong, T. J. and Zhang, **Tianyu.** "Politically connected CEOs, corporate governance, and Post-IPO performance of China's newly partially privatized firms." *Journal of Financial Economics*, 2007, 84(2), pp. 330-57.

Ferguson, Thomas andVoth, Hans-Joachim. "Betting on Hitler – the Value of Political Connections in Nazi Germany." *Quarterly Journal of Economics*, 2008, 123(1), pp. 101-37.

Fisman, David; Fisman, Ray; Galef, Julia and Khurana, Rakesh. "Estimating the value of connections to Vice-President Cheney." Unpublished Paper, 2006.

Fisman, Raymond. "Estimating the Value of Political Connections." *The American Economic Review*, 2001, 91(4), pp. 1095-102.

Fracassi, Cesare. "Corporate finance policies and social networks." Unpublished Paper, 2009.

Francis, Bill B.; Hasan, Iftekhar and Sun, Xian. "Political connections and the process of going public: Evidence from China." *Journal of International Money and Finance*, 2009, 28(4), pp. 696-719.

Glaeser, Edward L. and Saks, Raven E. "Corruption in America." *Journal of Public Economics*, 2006, 90(6-7), pp. 1053-72.

Giving USA Foundation. *Giving USA 2011: The Annual Report on Philanthropy for the Year 2010*, 2011. Chicago: Giving USA Foundation.

Goldman, Eitan; Rocholl, Jörg and So, Jongil. "Political Connections and the Allocation of Procurement Contracts." Unpublished Paper, 2008.

Goldman, Eitan; Rocholl, Jörg and So, Jongil. "Do Politically Connected Boards Affect Firm Value?" *Review of Financial Studies*, 2009, 22(6), pp. 2331-60.

Granovetter, Mark. *Getting a Job: a Study of Contacts and Careers.* Cambridge, Mass.: Harvard University Press, 1974 (Chicago: Chicago University Press, 1995).

Imai, Masami and Shelton, Cameron A. "Elections and Political Risk: New Evidence from Political Prediction Markets in Taiwan." Unpublished Paper, 2010.

Ioannides, Yannis M. and Loury, Linda Datcher. "Job Information Networks, Neighborhood Effects, and Inequality." *Journal of Economic Literature*, 2004, 42(4), pp. 1056-93.

Jackson, Matthew O. *Social and Economic Networks*. Princeton, New Jersey: Princeton University Press, 2009.

Jayachandran, Seema. "The Jeffords Effect." *Journal of Law and Economics*, 2006, 49(2), pp. 397-425.

Johnson, Simon and Mitton, Todd. "Cronyism and capital controls: evidence from Malaysia." *Journal of Financial Economics*, 2003, 67(2), pp. 351-82.

Karlan, Dean; Mobius, Markus M.; Rosenblat, Tanya and Szeidl, Adam. "Trust and Social Collateral." *Quarterly Journal of Economics,* 2009, 124(3), 1307-61.

Kaufman, Daniel; Kraay, Aart and Mastruzzi, Massimo. "The Worldwide Governance Indicators (WGI): 1996-2010." Unpublished Paper, 2011.

Kellermann, Michael and Shepsle, Kenneth A. "Congressional Careers, Committee Assignments, and Seniority Randomization in the U.S. House of Representatives." *Quarterly Journal of Political Science,* 2009, 4(2), 87-101.

Kerr, William R.; Lerner, Josh and Schoar, Antoinette. "The Consequences of Entrepreneurial Finance: Evidence from Angel Financings." Review of Financial Studies, 2011.

Khwaja, A. Ijaz and Mian, Atif. "Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market." *Quarterly Journal of Economics*, 2005, 120(4), pp. 1371-411.

Knight, Brian. "Are policy platforms capitalized into equity prices? Evidence from the Bush/Gore 2000 Presidential Election." *Journal of Public Economics*, 2007, 91(1-2), pp. 389-409.

Kramarz, Francis and Thesmar, David. "Social Networks in the Boardroom." *Journal of the European Economic Association,* 2012, Forthcoming.

Lee, David S. "Randomized experiments from non-random selection in U.S. House elections." *Journal of Econometrics*, 2008, 142(2), pp. 675-97.

Lee, David S. and Lemieux, Thomas. "Regression Discontinuity Designs in Economics." *Journal of Economic Literature,* 2010, 48(2), pp. 281-355.

Leider, Stephen; Möbius, Markus M.; Rosenblat, Tanya and Do, Quoc-Anh. "Directed Altruism and Enforced Reciprocity in Social Networks." *Quarterly Journal of Economics*, 2009, 124(4), pp. 1815-51.

Lerner, Josh and Malmendier, Ulrike. "With a Little Help from My (Random) Friends: Success and Failure in Post-Business School Entrepreneurship." Unpublished Paper, 2011.

Leuz, Christian and Oberholzer-Gee, Felix. "Political relationships, global financing, and corporate transparency: Evidence from Indonesia." *Journal of Financial Economics*, 2006, 81(2), pp. 411-39.

Li, Hongbin; Meng, Lingsheng; Wang, Qian and Zhou, Li-An. "Political connections, financing and firm performance: Evidence from Chinese private firms." *Journal of Development Economics*, 2008, 87(2), pp. 283-99.

Marsden, Peter V. "Network Data and Measurement." *Annual Review of Sociology*, 1990, 16, pp. 435-63.

Mattozzi, Andrea "Can We Insure Against Political Uncertainty? Evidence from the U.S. Stock Market." *Public Choice*, 2008, 137(1-2), pp. 43-55.

McPherson, Miller; Smith-Lovin, Lynn and Cook, James M. "Birds of a feather: homophily in social networks." *Annual Review of Sociology*, 2001, 27, pp. 415-44.

Nguyen, Bang Dang. "Does the rolodex matter? Corporate elite's small world and the effectiveness of boards of directors." *Management Science*, 2012, 58 (2), pp. 236-252.

Rajan, Raghuram G. and Zingales, Luigi. "Financial Dependence and Growth." *American Economic Review*, 1998, 88(3), pp. 559-86.

Rauch, James E. "Business and Social Networks in International Trade." *Journal of Economic Literature*, 2001, 39(4), pp. 1177-203.

Roberts, Brian E. "A Dead Senator Tells No Lies: Seniority and the Distribution of Federal Benefits." *American Journal of Political Science*, 1990, 34(1), pp. 31-58.

Saiz, Albert and Simonsohn, Uri. "Downloading Wisdom from Online Crowds." Unpublished Paper, 2008.

Shleifer, Andrei and Vishny, Robert W. *The Grabbing Hand: Government Pathologies and Their Cures.* Cambridge, Mass: Harvard University Press, 2002.

Shue, Kelly. "Executive Networks and Firm Policies: Evidence from the Random Assignment of MBA Peers." Unpublished Paper, 2011.

Snowberg, Erik; Wolfers, Justin and Zitzewitz, Eric. "Party Influence in Congress and the Economy." *Quarterly Journal of Political Science*, 2007b, 2(3), pp. 277-86.

Snowberg, Erik; Wolfers, Justin and Zitzewitz, Eric. "How Prediction Markets Can Save Event Studies." Unpublished Paper, 2008.

TECHNICAL APPENDIX

From Lee and Lemieux (2010), the Average Treatment Effect we estimate is defined and expressed as:

$$\beta_{RDD} \overset{\text{def}}{=} \lim_{VoteShare \downarrow 50\%} E(CAR_i|Win) - \lim_{VoteShare \uparrow 50\%} E(CAR_i|Lose)$$
$$= E(CAR_i(Win) - CAR_i(Lose)|VoteShare = 50\%).$$

This estimate is well identified under the assumption that the density of *VoteShare*, conditional on all characteristics of an observation, is continuous. Such assumption is guaranteed when the incidence of winning cannot be perfectly manipulated by candidates. Moreover, if we let the effect be heterogeneous across observations, i.e., $\beta(W_i)$ with W_i representing all observable and unobservable characteristics of each observation *i*, then the estimate can be rewritten as follows:

$$\beta_{RDD} = \int \beta(W) \frac{f(50\%|W)}{f(50\%)} dG(W),$$

where $G(W)$ is the cumulative distribution of *W*, $f(x)$is the density of *VoteShare*, and the weight $\frac{f(50\%|W)}{f(50\%)}$ represents the ex-ante likelihood of an observation with characteristics *W* to produce a close election. β_{RDD} is thus a Weighted Average Treatment Effect across all possible observations.

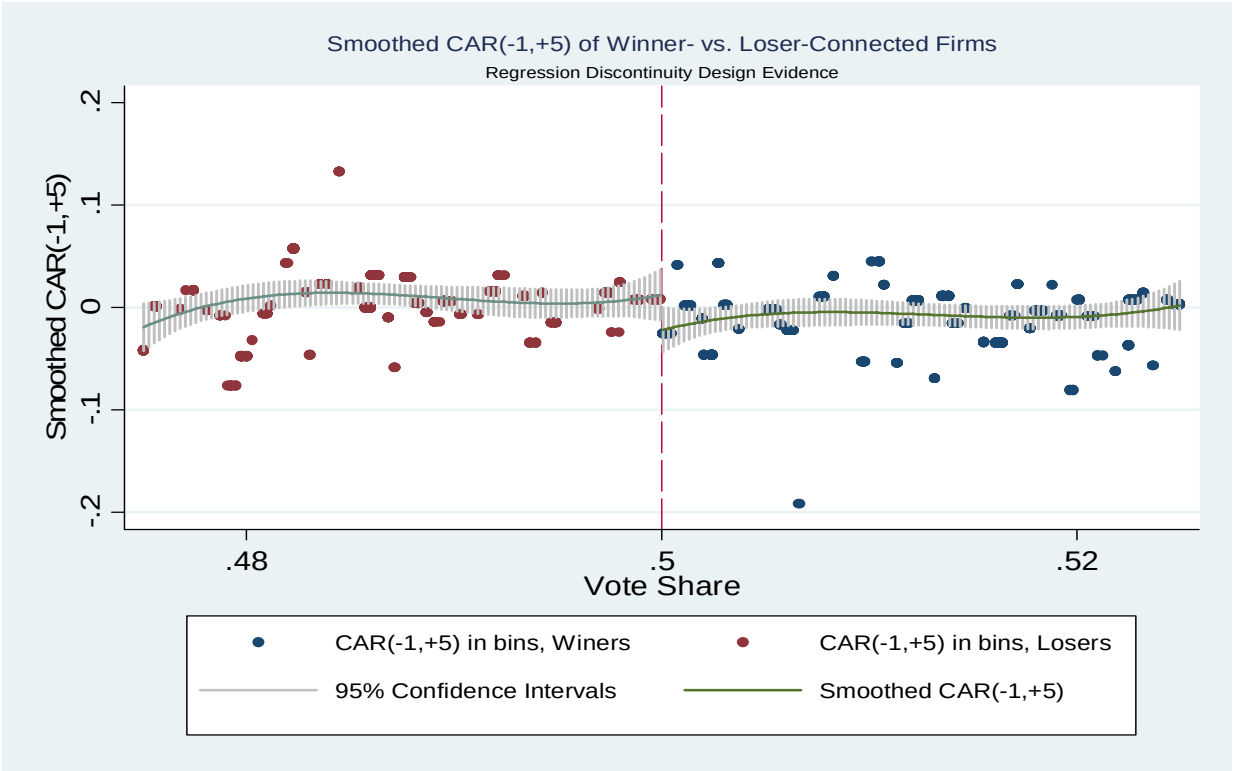

Figure 1.A

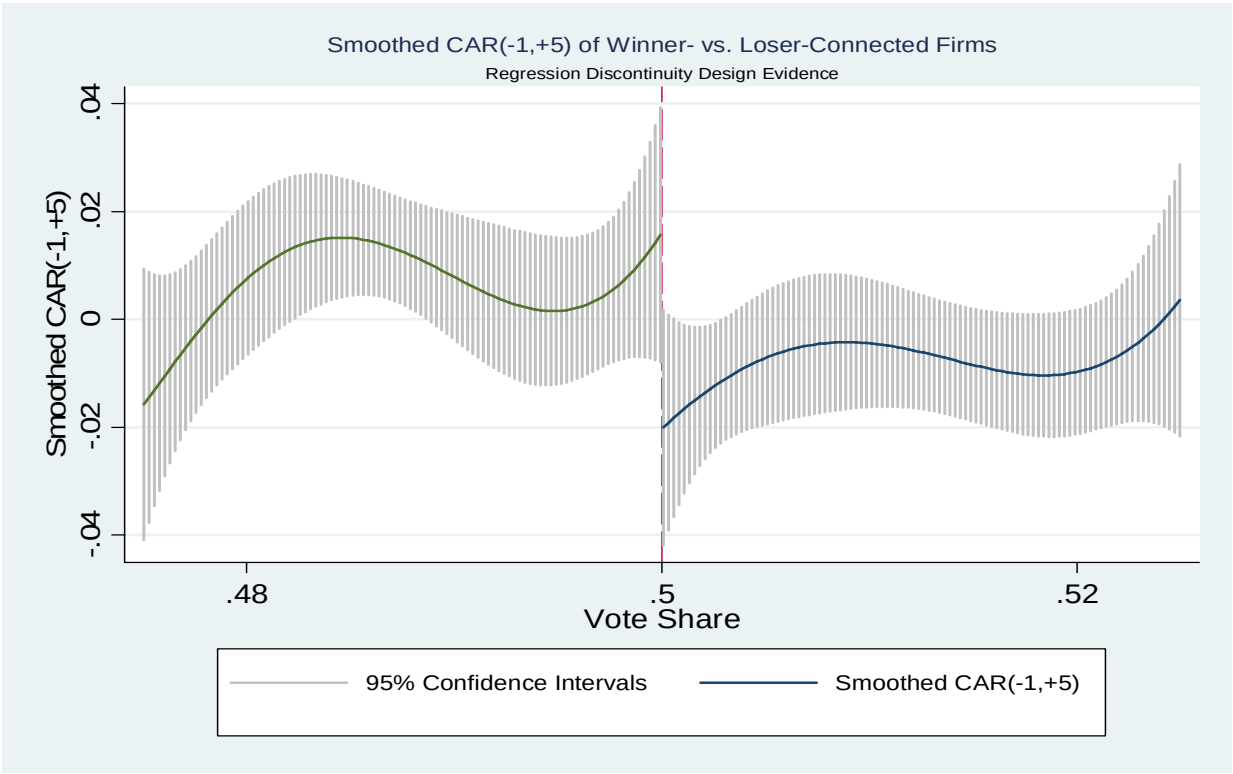

Figure 1.B

Table D1 Summary Statistics

This table reports descriptive statistics of our sample. Panels A and B report vote margin distribution and summary statistics of elections and politicians per year, respectively. Federal election results are collected from the Federal Election Committee (FEC) website. For each election, we identify the candidate finishing first and second and calculate the margin of votes between the top two candidates. A close election is specified by a margin of votes of less than 5%. Panel C reports the distribution of common educational backgrounds of directors and politicians in our sample. We define a political connection as a link between a firm's director and an election candidate who graduate from the same university program within a year. Following Cohen, Frazzini, and Malloy (2008), we group the degrees into six categories: (i) business school (Master of Business Administration), (ii) medical school, (iii) general graduate (Master of Arts or Master of Science), (iv) Doctor of Philosophy, (v) law school, and (vi) general undergraduate. Panel D reports characteristic of firms in our sample and compares them to firms in the Compustat universe.

A. Close Elections at 5%-Vote Margin

Election Year	Senate		House of Reps.		Total	
	Number of Close Election	Average Margin	Number of Close Election	Average Margin	Number of Close Election	Average Margin
2000	8	2.76%	18	2.28%	26	2.43%
2002	4	2.03%	19	2.94%	23	2.79%
2004	5	3.01%	10	2.92%	15	2.95%
2006	3	1.83%	33	2.27%	36	2.23%
2008	3	1.63%	25	2.74%	28	2.62%
Sample	23	2.42%	105	2.57%	128	2.54%

B. Time Series (Biannual Observations, 2000-2008)

	Mean	Median	Minimum	Maximum	Q1	Q3	Stdev
Elections per year	26	26	15	36	23	28	8
% of elections	5.45	5.51	3.21	7.68	4.93	5.94	1.62
% of reps	4.82	4.39	2.31	7.57	4.11	5.71	1.96
% of senators	13.64	11.76	9.09	23.53	9.09	14.71	6
Politicians per year	89	84	61	112	82	108	21
% of elections	6.24	6.14	4.47	7.78	5.95	6.85	1.22
% of reps	4.87	4.99	2.18	7.21	4.39	5.60	1.84
% of senators	17.11	14.81	11.19	27.12	11.98	20.47	6.67
Firms per year	362	372	200	588	260	392	149
% of stocks	4.97	4.63	2.89	8.39	3.57	5.40	2.14
% of total market value	13.09	11.79	8.12	20.99	10.97	13.60	4.84
Academic institutions per year	49	50	32	71	40	54	15

C. Distribution of Degree and Graduation Years

Degree	Politicians	Directors	Graduation Year	Politicians	Directors
Business School	7.6%	4.6%	<1950	3.6%	17.6%
Medical School	0.4%	0.1%	1950-59	4.8%	4.1%
Graduate	6.8%	4.2%	1960-69	21.2%	32.6%
PhD	0.8%	0.7%	1970-79	42.8%	32.6%
Law School	9.6%	3.6%	1980-89	20.0%	11.4%
Undergraduate	74.8%	86.8%	>=1990	7.6%	1.7%

D. Firm Characteristics

	Sample					Compustat Universe				
	Min	Mean	Median	Max	Std Dev.	Min	Mean	Median	Max	Std Dev.
Market Cap (in $million)	2.3	2131.5	395.4	58638.2	5389.2	0.0	2288.7	232.8	467092.9	11085.5
Common Equity (in $million)	1.0	855.5	164.0	52817.0	2898.9	0.0	985.8	118.0	224234.3	5449.4
Market to Book Ratio	0.1	4.5	2.3	246.1	11.7	0.0	4.3	1.9	7071.4	59.0
Capital Expenditure (in $million)	0.0	88.1	9.6	3023.0	275.7	0.0	144.6	6.7	31574.4	896.2
Age	0.1	8.6	8.4	40.6	5.7	0.0	8.1	7.2	59.7	6.2
Leverage	0.0	0.3	0.2	1.0	0.3	0.0	0.3	0.2	1.0	0.3
Tobin's Q	0.3	2.4	1.6	29.5	2.4	0.1	2.1	1.4	111.5	2.7
Payout	0.0	80.8	1.2	2601.0	238.4	0	81.1	0.2	16019.0	505.5
Tangibility	0.0	0.2	0.1	0.9	0.2	0.0	0.2	0.1	1.0	0.2
ROA	-2.7	0.0	0.0	0.6	0.3	-43.7	-0.1	0.0	3.3	0.6
RND	0.0	0.1	0.1	2.5	0.2	0.0	0.1	0.1	7.5	0.2
Cash Reserve Ratio	0.0	0.3	0.2	1.0	0.3	0.0	0.2	0.1	1.0	0.3

Notes:

(1) Corresponding Compustat universe includes all firms within Compustat in 2000, 2002, 2004, 2006 and 2008.

(2) Book value of equity<0, Capex<0, Share outstanding<0, Price at fiscal year end <0, Firm Age <0 are removed.

Table 1: Connections to Incumbent Politicians

This table reports RDD regressions of the Cumulative Abnormal Returns among politically connected firms around close elections for US Senate and Congress between 2000 and 2008 for the subsample of incumbents. Each observation pairs a firm's director to an incumbent Congressman finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Column (1) groups all incumbent candidates. Column (2) considers only members of the Appropriations Committee in both chambers. Columns (3) and (8) group all incumbent senators and incumbent representatives, respectively. Columns (4) and (5) use the subsamples of senators with more or less than 5 years of seniority. Column (6) considers senate committees related to agriculture and natural resources (see appendix for detailed classification). Column (7) considers senate committees related to the economy, budget and public finance issues. Column (9) and (10) show results for representatives with more or less than 3 years of seniority. Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Subsample	All Incumbents	In Both Houses	Senate Committees	In Senate				House Committees	In House of Representative	
		Appropriations Comm.		Seniority>=5	Seniority<5	Resources & Agriculture	Economy, Budget & Finance		Seniority>=3	Seniority<3
Win/Lose	-0.0129	0.0743	0.0859	0.0801	0.0621	0.0760	0.0856	-0.0115	-0.0262	-0.00635
	[0.0145]	[0.0294]**	[0.0170]***	[0.0165]***	[0.00668]***	[0.00584]***	[0.0165]***	[0.0184]	[0.0226]	[0.0204]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.006	0.017	0.016	0.011	0.046	0.031	0.017	0.003	0.005	0.001
Obs	586	58	127	111	102	71	119	459	299	214

Table 2: Connections to Challengers

This table reports RDD regressions of the Cumulative Abnormal Returns among politically connected firms around close elections for US Senate and Congress between 2000 and 2008 for the subsample of challengers. Each observation pairs a firm's director to a challenging candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Column (1) considers the sample of all challengers. Columns (2) and (3) divide the sample of challengers into those with recent federal positions and the rest. Column (4) groups all challengers with recent state level positions, and column (5) limits them to those with past positions in state's legislative bodies or as governors. Column (6) considers challengers from all other backgrounds. Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)					
	(1)	(2)	(3)	(4)	(5)	(6)
Subsample	All Challengers	Among Challengers				
		From Federal Offices	Non-Federal	From State Politics	Top State Experience	From Others
Win/Loss	-0.0324 [0.0107]***	-0.00832 [0.0287]	-0.0350 [0.0104]***	-0.0436 [0.0142]***	-0.0389 [0.0180]**	-0.0352 [0.0255]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.009	0.007	0.011	0.013	0.016	0.013
Obs	1,221	199	1,022	539	341	483

Table 3: Connections to All Politicians

This table reports pooled RDD regressions of the Cumulative Abnormal Returns among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate (incumbent or challenger) finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates, with an x% margin referring to the subsample of elections with less than x% vote margin. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Column (1) reports the benchmark estimation, while column (2) reports the results using 4th-order polynomials of vote shares (separately for winners and losers) as controls. Column (3) controls for dummy variables representing party, gender, incumbency, senate/house race, and the logarithm of total campaign contribution, and of the number of contributors for each connected politician. Column (4) controls for dummy variables representing age, gender, nationality, executive/non-executive role of the connected director. Column (5) controls for firm's market value, book value of equity, total assets, return on asset, capital expenditure and leverage. Columns (6), (7) and (8) control respectively for fixed effects of years, SIC 2-digit industries, and educational institutions. Column (9) excludes observations with CAR of 50% or higher. Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Subsample	5% margin	5% margin	5% margin	5% margin	5% margin	5% margin	5% margin	5% margin	No Outliers
Win/Lose	-0.0265 [0.00853]***	-0.0407 [0.0137]***	-0.0307 [0.0112]***	-0.0288 [0.00928]***	-0.0292 [0.00973]***	-0.0257 [0.00835]***	-0.0270 [0.00926]***	-0.0275 [0.0110]**	-0.0230 [0.00774]***
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls		4th Poly	Politician Controls	Director Controls	Firm Controls	Year FE	Industry FE	University FE	
R-squared	0.006	0.010	0.021	0.038	0.019	0.013	0.040	0.096	0.005
Obs	1,819	1,819	1,795	1,722	1,623	1,819	1,804	1,819	1,788

Table 4: Value of Political Connections by Groups

This table reports RDD regressions of the Cumulative Abnormal Returns among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Pairs of columns from (1) to (8) respectively show results on the subsamples of Senate or House races, candidates belonging to the majority or minority in the corresponding chamber, democrats or republicans, and non-executive or executive directors. Columns (9) to (12) examine subsamples of connections through Harvard & Yale Universities, Harvard University, and institutions that are alma mater of less or more than 50 individuals (sample's median) in the sample. Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Subsample	Senators	House	Chamber Majority	Chamber Minority	Democrats	Republicans	Non-Executive Directors	Executive Directors	Harvard & Yale	Harvard	Small Networks	Large Networks
Win/Loss	-0.0424 [0.0117]***	-0.0214 [0.0112]*	-0.0262 [0.0129]**	-0.0286 [0.0115]**	-0.0243 [0.0117]**	-0.0286 [0.0137]**	-0.0276 [0.00901]***	-0.0184 [0.0210]	-0.0392 [0.00849]***	-0.0545 [0.0117]***	-0.0245 [0.0113]**	-0.0255 [0.00985]**
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.015	0.004	0.008	0.008	0.004	0.008	0.007	0.003	0.017	0.012	0.005	0.009
Obs	559	1,260	893	926	1,057	762	1,493	326	449	215	1,092	727

Table 5: Connections on Social Networks of Alumni

This table reports pooled RDD regressions of the Cumulative Abnormal Returns among the alumni-network politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program without restriction on year of graduation (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates, with an x% margin referring to the subsample of elections with less than x% vote margin. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Column (3) controls for a quartic polynomial in vote share, separately for losers and winners. Column (4) controls for dummy variables representing party, gender, incumbency and senate/house race information of the politician involved. Column (5) controls for firm's market value. Columns (6), (7) and (8) control respectively for fixed effects of years, SIC 2-digit industries, and educational institutions. Column (9) excludes observations with CAR of 50% or higher. Column (10) runs a local cubic polynomial regression of the dependent variable on vote shares in a subsample above the cutoff and a subsample below the cutoff, then calculates the difference between the predicted values of the dependent variable for each subsample around the cutoff. Standard errors in square brackets are corrected for clustering by politicians in each election, except in column (10) where clustering does not matter. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Subsample	1% margin	5% margin	5% margin	5% margin	5% margin	5% margin	5% margin	5% margin	No Outliers	Non-Param.
Win/Lose	-0.0029	-0.0058	-0.0121	-0.0054	-0.0058	-0.0036	-0.0057	-0.0058	-0.0052	-0.0138
	[0.0036]	[0.0028]**	[0.0060]**	[0.0024]**	[0.0024]**	[0.0027]	[0.0028]**	[0.0034]*	[0.0023]**	[0.0042]***
Vote Share (Winners) and Vote Share (Losers)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-
Controls			Full Poly	Politician Variables	Market Value	Year FE	Industry FE	School FE		-
R-squared	0	0.001	0.001	0.001	0.001	0.012	0.017	0.015	0.001	-
Obs	5,656	29,527	29,527	29,063	29,527	29,527	29,527	29,527	29,330	29,527

Table 6: Alternative Event Windows around Election Day

This table reports pooled RDD regressions of the Cumulative Abnormal Returns and Standardized Cumulative Abnormal Returns among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008 for alternative event study windows. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Standardized CAR is CAR normalized by volatility during the event period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

Panel A: Cumulative Abnormal Returns

	Dependent Variables: CAR					
	(1)	(2)	(3)	(4)	(5)	(6)
Window	(-7,-1)	(-1,1)	(-1,5)	(0,5)	(1,5)	(6,20)
Win/Lose	0.00174	-0.0155	-0.0265	-0.0182	-0.0185	0.0139
	[0.0165]	[0.00649]**	[0.00853]***	[0.00947]*	[0.00802]**	[0.0220]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.003	0.005	0.006	0.005	0.005	0.002
Obs	1,804	1,819	1,819	1,819	1,819	1,819

Panel B: Standardized Cumulative Abnormal Returns

	Dependent Variables: SCAR					
	(1)	(2)	(3)	(4)	(5)	(6)
Window	(-7,-1)	(-1,1)	(-1,5)	(0,5)	(1,5)	(6,20)
Win/Lose	0.032	-0.25	-0.322	-0.261	-0.290	0.0616
	[0.208]	[0.127]**	[0.125]**	[0.143]*	[0.129]**	[0.142]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.005	0.004	0.005	0.004	0.004	0.000
Obs	1,464	1,819	1,819	1,819	1,819	1,819

Table 7: RDD with Nonparametric Regressions and Tests

This table reports nonparametric RDD regressions of the Cumulative Abnormal Returns among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. Each column consists of running a local cubic polynomial regression of the dependent variable on vote shares in a subsample above the cutoff and a subsample below the cutoff, then calculating the difference between the predicted values of the dependent variable for each subsample around the cutoff. The first column shows the result for the realistic cutoff of 50%. Columns (2) to (5) show the results for different values of the bandwidth. Columns (6) to (9) show results with hypothetical cutoffs. Standard errors are in square brackets; *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Benchmark	Robustness to Bandwidths				Placebo Thresholds			
Bandwidth	0.05	0.04	0.03	0.02	0.01				
Cutoff	50%	50%	50%	50%	50%	48%	49%	51%	52%
Win/Lose	-0.034	-0.034	-0.0342	-0.0345	-0.0387	0.0805	0.0128	0.0465	0.0234
	[0.0168]**	[0.0168]**	[0.0167]**	[0.0168]**	[0.0180]**	[0.0235]***	[0.0207]	[0.0283]	[0.0218]

Table 8: Value of Political Connections across Subsamples of States by Regulation, Corruption and Institution Quality

This table reports RDD regressions of the Cumulative Abnormal Returns among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Columns (1) to (10) respectively show results on the subsamples of above or below median of the following measures: regulation score, corruption conviction rate in 2000 (Glaeser Saks 2006), Exalead.com 2009 search hits for "corruption" close to name of main city, normalized by hits for name of main city, Newslibrary.com 2009 all newspapers search hits for "corruption" close to name of state, normalized by hits for name of state, and GCISC 1970 score (population concentration around the State capital, Campante Do 2010). Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Subsample	High Regulation	Low Regulation	More Corrupt Conviction Rate	Less Corrupt Conviction Rate	More Corrupt Main City	Less Corrupt Main City	More Corrupt State	Less Corrupt State	High GCISC 1970	Low GCISC 1970
Win/Lose	-0.0327 [0.0123]***	-0.0127 [0.0113]	-0.0430 [0.0132]***	-0.0135 [0.0113]	-0.0531 [0.0148]***	-0.00740 [0.0115]	-0.0309 [0.0125]**	-0.0213 [0.0122]*	-0.0205 [0.0110]*	-0.0360 [0.0136]***
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.012	0.003	0.011	0.004	0.014	0.004	0.009	0.004	0.005	0.008
Obs	1,166	653	852	967	872	947	1,081	738	905	914

Table 9: Value of Political Connections across Subsamples of Firms

This table reports RDD regressions of the Cumulative Abnormal Returns among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Columns (1) to (4) respectively show results on the subsamples of below or above median market capitalization, with or without reliance on external finance (Rajan and Zingales 1998). Column (5) uses the subsample of firms below median market capitalization and with reliance on external finance. Standard errors in square brackets are corrected for clustering by politicians in each election. Column (6) refers to the subsample with the distance between firm's headquarter and politician's State within the lowest quartile, and above median corruption score by Newslibrary search hits in politician's State (see Table 6). Column (7) refers to the subsample with above median dependence on external finance and above median corruption score by Newslibrary search hits in politician's State. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Dependent Variables: CAR (-1,5)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Subsample	Lower Market Cap	Higher Market Cap	Rely on External Finance	Not Rely on External Finance	Lower Market Cap, Rely on External Finance	Short HQ Distance, More Corrupt	Rely on External Finance, More Corrupt
Win/Lose	-0.0656 [0.0197]***	0.000202 [0.00911]	-0.0299 [0.0128]**	-0.0217 [0.0148]	-0.0564 [0.0198]***	-0.0718 [0.0223]***	-0.0377 [0.0185]**
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.023	0.004	0.010	0.004	0.025	0.034	0.015
Obs	763	1,056	948	871	511	359	550

Table 10: Political Connections and Firms Activities in Corresponding States

This table reports RDD regressions of the change in firm activities among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Firm activities in a given state in a given year are measured as "Firms Reported In Local Newspapers" (FRILN), the ratio of the number of search hits for the firm's name in local newspapers and the number of search hits for the neutral keyword "September". The dependant variable is the change of FRILN over different event windows, with year 0 being the election year. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Columns (1) to (3) limit the sample to challengers with recent state level positions, respectively with windows of one year after, one year before, and two years after the election year. Column (4) further restricts the sample to those with experience in state's legislative bodies or as governors, within one year after the election. Columns (5) to (6) consider challengers coming from federal offices and from other backgrounds, respectively. Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	Challengers with State Experience			**Challengers with Top State Experience**	**From Federal Offices**	**From Others**
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable: Year-to-Year Change in Activities	(0,+1)	(-1,0)	(+1,+2)	(0,+1)	(0,+1)	(0,+1)
Win/Lose	-0.00957 [0.00435]**	0.000225 [0.00559]	-0.00284 [0.00434]	-0.0154 [0.00253]***	0.00145 [0.000981]	-0.0405 [0.0476]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.01	0.005	0.002	0.009	0.128	0.002
Obs	593	591	593	402	144	479

Table A1: Additional Robustness Checks

This table reports robustness checks of the Cumulative Abnormal Returns (CAR) among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. In columns (1) to (6) each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). The outcome variable is raw returns from the window (-1,5) in columns (1) and (2), CARs calculated from Fama-French model in columns (3) and (4), CARs calculated from Fama-French model with momentum in columns (5) and (6). Those models are estimated around the electionday (Day 0) using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates, with an x% margin referring to the subsample of elections with less than x% vote margin. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Columns (7) to (9) collapse the data so that each unit of observation is respectively a director, a company, or a politician. In column (10) the benchmark regression in Table 1 is estimated with two-way clustering of both Politician-Year and Company-Year (Cameron, Gelbach & Miller, 2011). Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

Dependent Variable	**CAR (-1,5) Raw Returns**		**CAR(-1,5) from FF**		**CAR(-1,5) from FFM**		**CAR (-1,5)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample	5% margin	5% margin	5% margin	5% margin	5% margin	5% margin	Director Level	Company Level	Politician Level	2-way clustering: Pol. & Com.
Win/Lose	-0.0204	-0.0445	-0.0228	-0.0248	-0.0261	-0.0270	-0.0306	-0.0287	-0.0271	-0.0261
	[0.0190]	[0.0211]**	[0.00774]***	[0.0101]**	[0.00725]***	[0.00949]***	[0.00917]***	[0.00819]***	[0.0196]	[0.00759]***
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
School FE	No	Yes	No	Yes	No	Yes				
R-squared	0.012	0.147	0.005	0.083	0.005	0.083	0.006	0.005	0.013	0.005
Obs	1,819	1,819	1,819	1,819	1,818	1,818	1,308	1,593	192	1,818

Table A2: RDD Randomness Checks

This table reports robustness checks of the near-randomness of the win/lose treatment induced by close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates being less than 5%. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Each column serves to show that a dependent variable's distribution is continuous at the cutoff point of 50% vote share. These dependent variables are those used as control variable in Tables 1-10 in the main text. Panel A shows results for politician's gender, age, chamber, logarithm of campaign contribution, logarithm of number of contributors, and incumbency. Panel B considers challenger's party and different backgrounds, director's age, gender and executive/non-executive role, and social network size. Panel C displays results with different firm characteristics. Panel D reports regressions with industry's financial dependence, state's institution quality and corruption measured in different ways (see text for details). Standard errors in square brackets are corrected for clustering by politicians in each election. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

Panel A: Politician Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Pol. Gender	Pol. Age	Senate/House	Log(Campaign Contribution)	Log(Number of Contributors)	Incumbency
Win/Lose	0.0999	2.673	0.103	-0.0644	-0.370	-0.177
	[0.116]	[2.086]	[0.224]	[0.655]	[0.395]	[0.202]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.023	0.030	0.019	0.004	0.014	0.029
Obs	1,817	1,797	1,819	1,819	1,819	1,819

B. Challenger and Director Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable:	Challengers' Party	Challengers from State Politics	Challengers with Top State Experience	Challengers from Federal Politics	Director's Gender	Director's Age	Executive Directorship	Large Social Network
Win/Lose	-0.192	-0.382	-4.943	-0.291	-0.0300	2.685	0.0779	-0.143
	[0.268]	[0.276]	[4.730]	[0.239]	[0.0412]	[2.049]	[0.0475]	[0.194]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.066	0.055	0.129	0.058	0.004	0.033	0.003	0.023
Obs	1,221	1,221	1,221	1,221	1,819	1,722	1,819	1,819

C. Firm Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Market Cap	Common Equities	Assets	Return on Asset	Capital Expenditure	Leverage
Win/Lose	3,291	604.8	-1,522	-0.0318	-0.0566	-0.0272
	[3,255]	[1,055]	[10,321]	[0.0225]	[0.0361]	[0.0426]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.003	0.002	0.001	0.002	0.002	0.000
Obs	1,786	1,751	1,752	1,690	1,688	1,745

D. Industry and State Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	External Finance Dependence	GCISC 1970	Regulation	Corruption Main City	Corruption Conviction Rate	Corruption State
Win/Lose	-0.115	0.0192	-0.0621	12,339	-0.0873	4.974
	[0.709]	[0.0388]	[0.182]	[7,746]	[0.0758]	[62.35]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.003	0.060	0.070	0.039	0.015	0.025
Obs	1,715	1,780	1,819	1,819	1,819	1,550

Table A3: Heterogeneous Effects from Quantile Regressions for Challengers from State Politics

This table reports pooled RDD regressions of the Cumulative Abnormal Returns among the politically connected firms around close elections for US Senate and Congress between 2000 and 2008. Each observation pairs a firm's director to a candidate (incumbent or challenger) finishing first or second in a close election, who furthermore graduates from the same university program within a year (Cohen et al. 2008). Average abnormal returns are estimated based on the market model around the election day (Day 0). The market model is estimated using daily data over a 255-day (-315,-61) period. Win/Lose is a dummy variable equal to one if and only if a politician finishes first or second in an election. A close election is specified by the margin of votes between the top two candidates, with an x% margin referring to the subsample of elections with less than x% vote margin. Vote Share (Winners) and Vote Share (Losers) refer to the vote shares of winners and vote shares of losers, respectively. Column (1) reports the estimation using median regression (50% quantile), while columns (2) to (5) report the estimation using quantile regressions at the 1st, 2nd, 3rd and 4th quantiles. Bootstrapped standard errors are reported in square brackets. *, ** and *** denote statistical significance at 10%, 5% and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
Subsample	Median 5% margin	1st quintile	2nd quintile	3rd quintile	4th quintile
Win/Lose	-0.0353	-0.0759	-0.0343	-0.0142	-0.0125
	[0.0105]***	[0.0276]***	[0.0127]***	[0.00889]	[0.0193]
Vote Share (Winners) and Vote Share (Losers)	Yes	Yes	Yes	Yes	Yes
Obs	594	594	594	594	594