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Liu, Claire

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Three Essays in Corporate Finance

Claire Yang Liu

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Given Name/s	:	**Claire Yang**
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This Ph.D. dissertation studies corporate finance and consists of three chapters.

The first chapter examines the value of a firm's board political capital by identifying professional and social ties of top executive branch officials and corporate directors in the United States. Using the close 2008 Democratic presidential primaries between Hillary Clinton and Barack Obama as repeated shocks to board political capital, I find that director network ties to politicians significantly enhance shareholder value. Firms connected to the winning candidate experience a 1.4% higher abnormal return relative to non-winner-connected firms. Further, I show that one channel of value creation is through an improved likelihood of merger completions and higher merger returns. Overall, my study shows that less visible political ties can allow firms to extract significant rents even in a low corruption environment.

The second chapter studies how the existence of an important production contract affects the choice of CEO compensation contract. We hypothesize that having major customers raises the costs associated with CEO risk-taking incentives, leading to lower option-based compensation. Using import tariff cuts as exogenous shocks to customer relationships, we find firms with major customers significantly reduce CEO option-based compensation following tariff reductions. We also document that following tariff cuts, the value of these relationships as well as the firm itself significantly decline in response to higher option compensation. Our study provides new insights into how important stakeholders shape executive compensation decisions.

The last chapter examines whether shareholder attention improves director incentives. Using exogenous industry shocks to institutional investor portfolios, we find that institutional investor distraction weakens board oversight. Distracted institutions are less likely to discipline ineffective directors using their votes, while directors with poor proxy voting outcomes are less likely to depart. Consequently, independent directors face weaker monitoring incentives and exhibit poor performance. Also, ineffective independent directors are more frequently appointed. Such firms exhibit more earnings management, high unexplained CEO pay, and lower valuation. Overall, our findings suggest that institutional investor attention significantly strengthens director monitoring incentives and board governance.

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Introduction

This Ph.D. dissertation studies corporate finance and consists of three chapters. The first chapter examines the impact of director network ties to politicians on firm value. The second chapter investigates how the presence of a large production contract affects the choice of a CEO's compensation contract. The third chapter studies whether shareholder attention improves director monitoring incentives.

The first chapter examines the value of a firm's board political capital by identifying professional and social ties between top executive branch officials and corporate directors in the United States. Using the close 2008 Democratic presidential primaries between Hillary Clinton and Barack Obama as repeated shocks to a firm's director political capital, I find that director network ties to politicians significantly enhance shareholder value. Firms connected to the winning candidate experience a 1.4% higher abnormal return relative to non-winner-connected firms. Further, I show that one channel of value creation is through an improved likelihood of merger completions and higher merger announcement returns. Overall, my study shows that less visible political ties can allow firms to extract significant rents even in a low corruption environment.

The second chapter studies how the existence of an important production contract affects the choice of CEO compensation contract. We hypothesize that having major customers raises the costs associated with CEO risk-taking incentives, leading to lower option-based compensation. Using import tariff cuts as exogenous shocks to customer relationships, we find firms with major customers significantly reduce CEO option-based compensation following tariff reductions. We also document that following tariff cuts, the value of these relationships as well as the firm itself

significantly decline in response to higher option compensation. Our study provides new insights into how important stakeholders shape executive compensation decisions.

In the third chapter, we examine whether shareholder attention improves director incentives. Using exogenous industry shocks to institutional investor portfolios, we find that institutional investor distraction weakens board oversight. Distracted institutions are less likely to discipline ineffective directors using their votes in director elections, while directors with poor proxy voting outcomes are less likely to depart. Consequently, independent directors face weaker monitoring incentives and exhibit poor performance. Also, ineffective independent directors are more frequently appointed. Such firms exhibit more earnings management, high unexplained CEO pay, and lower valuation. Overall, our findings suggest that institutional investor attention significantly strengthens director monitoring incentives and board governance.

Chapter 1. Board Political Capital in Director Networks

1.1. Introduction

Corporate and political elites often display strongly overlapping networks. Unlike other forms of corporate political influence such as corporate lobbying and campaign contributions, network ties of politicians and corporate decision makers do not require systematic disclosure, leading to weaker public scrutiny in the United States. However, less visible ties to powerful politicians can allow firms to extract greater rents (Faccio, 2016). Recent studies generally show that social and professional ties to powerful politicians often enable corporate directors to influence political decision making in the United States.[1] However, the economic channels through which such political ties create firm value remain underexplored.

In this study, I explore the value of network ties between corporate directors and federal government officials in the United States, and how these network ties affect the regulatory oversight of mergers and acquisitions. I define a firm's board political capital as the social and professional ties between individual corporate directors and top executive branch officials aggregated to the board-level. Theoretically, beneficiaries of board political capital can include shareholders, corporate directors and politicians, all of whom can extract rents from these political ties. Board political capital only creates value for shareholders if the marginal benefits of the connections

[1] For instance, Do, Lee, and Nguyen (2015) study social ties to state governors in the U.S., Acemoglu et al. (2016) use professional ties to U.S. Treasury Secretary and official meetings to measure political connections, and Schoenherr (2018) examines social ties to politicians and allocations of government contracts in Korea. Fisman et al. (2012) find no significant effect of social ties to the U.S. Vice President on firm value, but Do, Lee, and Nguyen (2015) and Acemoglu et al. (2016) find network ties increase firm value in the U.S.

outweigh the marginal costs of maintaining them (Shleifer and Vishny, 1994). Thus, an empirical examination is needed to determine its overall value.

I focus on political ties to top executive branch officials for several reasons. First, the executive branch officials in U.S. federal government departments can make decisions that benefit a specific firm, since a substantial proportion of their actions are implementing and enforcing laws and regulations as they apply to individual firms. In contrast, officials in the legislative branch generally make broad laws that do not generally target a particular firm, but instead are a set of general requirements that apply to all firms or a specific group of firms (Smith, 2000). Therefore, the value of firm political connections to executive branch officials should be easier to identify than legislative branch representatives. Moreover, executive branch officials are generally less dependent on political donations made by corporations, making network ties to politicians more important in this context.[1] I focus on board ties to U.S. presidential candidates, who have the power to appoint the heads of federal departments and regulatory agencies, and thus have the ability to exert significant political influence if elected.

Board political capital can generate significant shareholder benefits. The existing literature documents a variety of channels through which political connections increase firm value. Firms with political connections are more likely to receive procurement contracts (Amore and Bennedsen, 2013; Goldman, Rocholl and So, 2013; Brogaard, Denes and Duchin, 2015, Akey, 2015; Schoenherr, 2018), have better access to bank loans (Claessens, Feijen and Laeven, 2008; Dinc, 2005; Khwaja and Mian, 2005), and enjoy other regulatory benefits including receiving government funding or

[1] For example, PAC contributions only account for one percent of candidate's total receipts in presidential elections, but represent over forty percent of campaign cash for house members in congress elections. See https://www.opensecrets.org/pres08/include/pacind_pop.php for more details.

bailouts (Stigler, 1971; Faccio, Masulis, and McConnell, 2006; Duchin and Sosyura, 2012). In addition, political connections can generate tax-related benefits (Kim and Zhang, 2015). Thus, board political capital can allow firms to extract economic rents and raise shareholder value through any of the above-mentioned channels.

A competing hypothesis is that board political capital raises agency costs by exacerbating manager-shareholder conflicts of interests. For example, politicians may extract rents from their political connections with corporations (Stigler, 1971; Shleifer and Vishny, 1994). Babenko, Fedaseyeu and Zhang (2017) provide empirical evidence on how politically-connected managers can deliver benefits to politicians without benefiting shareholders.[2] Moreover, managers and directors can extract private benefits from their political connections, which can in some circumstances destroy shareholder value. For instance, politically-connected firms can experience weaker regulatory overview that generates poorer accounting quality and weaker fraud detection (Yu and Yu, 2011; Correia, 2014). Political connections can also negatively affect investment and operating performance. Government officials can pressure corporations to maintain employment levels, especially near elections (Bertrand, Kramarz, Schoar, and Thesmar, 2018). Aggarwal, Meschke and Wang (2012) find that firms which make political contributions experience significantly lower excess returns and tend to make more value-destroying acquisitions. Thus, shareholders of firms with greater board political capital can be exposed to more severe agency conflicts.

I propose a new identification strategy to examine the overall value of board political capital and address endogeneity concerns. I use the 2008 series of close Democratic presidential primary elections between Hillary Clinton and Barack Obama

[2] Political connections can destroy shareholder value through channels other than intensifying manager-shareholder interests. For example, Stanfield and Tumarkin (2017) show that political connections can allow labour unions to extract rents from shareholders.

as multiple shocks to a firm's board political capital. Presidential primary elections in the U.S. follow a process by which voters of each major political party select their party's nominee in each presidential election cycle. Thus, I focus on the value of political ties to presidential candidates, who have the greatest amount of power over federal executive branch officials and their decisions once elected. One appealing feature of this empirical design is that I can use shocks to the election outcomes of individual candidates from the same political party, which allows me to better capture variations in firm ties to these individual candidates, holding general ties to their political party relatively constant. This also helps mitigate the concern that firms can benefit from the policies of a political party, without necessarily benefitting from their political connections to a particular politician (Pastor and Veronesi, 2017). Another key advantage of this experimental design is that I can capture within-firm variations in board political capital as presidential primary candidates win or lose different state primaries. By including firm fixed effects, I can show that the effect of board political capital on firm value is unlikely to be driven by unobserved firm characteristics that do not vary during these state primaries. Additionally, the 2008 Democratic presidential primaries represented a close race between Hillary Clinton and Barack Obama. I follow the existing literature and identify four early state primaries with close victory margins as exogenous shocks (Lee and Lemieux, 2010; Akey, 2015). These events are hard to predict and thus they allow me to isolate the timing of the shocks on an individual firm's stock returns.

Based on my empirical analysis, I conclude that in general, board political capital creates firm value. Firms connected to the winning candidate through board political capital experience significantly higher announcement period cumulative abnormal returns relative to non-winner-connected firms in close Democratic

presidential primaries. The average cumulative abnormal return (CAR) for firms connected to the winning candidate is 0.8% higher using a (0,1) election outcome event window and it is 1.4% higher using a (0,7) event window, suggesting that board political capital has substantial economic value. My results also indicate that not all network ties are equally important. Firms with directors who are connected to a winning presidential primary candidate through educational institutions or social clubs experience larger abnormal announcement returns.

In addition, I document cross-sectional variations in the value of board political capital to shareholders. Board political capital is more valuable for firms in regulated industries, suggesting that political access to influential politicians can increase firm value through regulatory decisions. Moreover, board political capital has stronger effects on firms that have former government officials serving as board members, suggesting that government experience of a director and connections to government decision makers strengthens the value of a director's network ties to politicians. This result also suggests that my measure of board political capital complements the existing works on board political ties (Goldman, Rocholl, and So, 2008).

I further explore whether merger outcomes represent one potential channel through which board political capital increases firm value. Takeover decisions are significant firm investments that are initiated and approved by corporate boards, but large corporate mergers often trigger antitrust review in the U.S. The vast majority of mergers are reviewed by one or two federal executive branch agencies, usually the Department of Justice or the Federal Trade Commission. Thus, examining the value of board political ties to top executive branch officials is particularly relevant in the context of mergers. Given their significant discretion over antitrust reviews and

regulatory outcomes, board ties to executive branch politicians can be potentially beneficial during these important external investment decisions.

I find that firms with board political capital experience a higher likelihood of merger approval. I conduct a difference-in-difference analysis among the Obama-connected and Clinton-connected bidders over the 2007-2013 period. Conditional on a merger being under regulatory review, an Obama-connected bidder is 15.6% more likely to receive regulatory approval after Obama takes office relative to Clinton-connected bidders. This effect is also stronger for horizontal mergers that are more vulnerable to antitrust challenges. One possible interpretation of this result is that bidder firms receive preferential treatment due to their political access. However, it is also possible that the President may not necessarily assist connected bidders, but instead corporate directors who have access to valuable networks are better informed about current antitrust regulatory policies, which improves a bidder's takeover strategy and deal structure in terms of obtaining regulatory approval.

Further, I find that Obama-connected bidders also experience significantly higher announcement returns when they make takeover bids that trigger regulatory review in the post-treatment period. This effect is stronger for horizontal mergers. Thus, bidders with board political capital are more likely to successfully complete profitable within-industry acquisition investments. Overall, my findings suggest that board political capital creates shareholder value through an improved likelihood of merger completions and higher merger returns.

My study contributes to the existing literature on the interrelationships between politics and finance along several important dimensions. First, I study an important form of political connections that are underexplored in the existing literature. Prior studies on corporate political connections in the United States emphasize monetary

ties to politicians.[3] However, politicians doing political favors for monetary benefits in countries with strong legal institutions can face career concerns due to close public scrutiny (Duchin and Sosyura, 2012). In this study, I focus on shared social and professional backgrounds between corporate directors and executive branch officials, which could potentially enable firms to extract significant economic rents due to the lack of systematic disclosure. My study is most related to several recent studies on corporate decision makers' network ties to politicians. Schoenherr (2018) examines how social networks between politicians and corporate executives lead to contract misallocations in Korea. Do, Lee and Nguyen (2015) find social networks between state governors and corporate directors are valuable in the U.S., and Acemoglu et al. (2016) find political ties to the U.S. Treasury Secretary through professional activities increase firm value. In contrast, my board political capital measure captures network ties to the U.S. presidential candidates and the ultimate winner. Moreover, it includes both social and professional ties between board members and politicians. I also find that social ties between corporate boards and presidential candidates are particularly valuable.

Second, I propose a new and credible identification strategy that helps address the endogeneity problem of political connections that is recognised in the literature. Using close presidential primaries between candidates from the same political party, my identification strategy allows me to better capture the effect of firm-politician ties, rather than firm-political party connections. Additionally, close presidential primary outcomes represent repeated shocks that lead to within-firm variations in the value of political connections. This allows me to show that the changes in a firm's value are

[3] Studies of political connections using monetary ties include but not limited to: Cooper, Gulen and Ovtchinnikov (2010), Yu and Yu (2011), Duchin and Sosyura (2012), Correia (2014), Akey (2015), Kim and Zhang (2015), Akey and Lewellen (2016), Mehta, Srinivasan, and Zhao (2017).

driven by unexpected changes in the value of directors' political connections. Overall, this identification strategy allows me to provide convincing evidence that network ties to politicians are of significant value to firms and shareholders in general.

Third, my study also improves the current understanding of channels through which political connections can affect firm value. The existing evidence on channels of rent-extraction primarily focuses on government contract allocations and better access to financing. There is very limited evidence on how political connections can affect a firm's investment opportunities.[4] In this study, I highlight M&A investments as a key channel of value creation. I show that a firm's political access to government officials in the executive branch improves the investment returns from its M&A activities.[5]

1.2.Empirical Methodology, Data and Sample Formation

1.2.1. Main Identification Strategy

The existing literature highlights several empirical challenges in identifying the value of political connections. Characteristics of politically-connected firms are likely to differ significantly from non-connected firms (Faccio, 2010). Unobserved firm characteristics can be correlated with the ability to establish political connections, making the identification of causal effects of political connections an empirical challenge.

[4] Ovtchinnikov, Reza, and Wu (2014) find that politically active firms invest more in innovative activities. Duchin and Sosyura (2012) and Andonov, Hochberg, and Rauh (2017) find that political representation negatively affects investment performance.

[5] My study differs from Mehta, Srinivasan and Zhao (2017), who examine merger antitrust review from the perspective of political connections to legislative branch officials, rather than to executive branch officials. They also focus on potentially visible political connections such as monetary ties and directors with prior government work experience

Several studies use shocks to politicians and event studies to address endogeneity concerns, and document that corporate political connections in general increase firm value (Fisman, 2001; Akey, 2015; Do, Lee, and Nguyen, 2015; Acemoglu et al., 2016; Schoenherr, 2018). However, causality concerns may persist if the responses to the same shock could be significantly different between politically-connected and non-connected firms due to differences in unobserved characteristics. For example, one possible explanation for the positive value of political connection could be that political connections are positively correlated with unobserved managerial ability. Firms with high quality managers (who are also likely to have political connections) will outperform unconnected firms that have low-ability managers around turbulent times that are captured by these political shocks. Moreover, it is challenging to differentiate between the value of connections to a politician or a politician's political party. For instance, following an election outcome shock, firms can benefit from policies of the winning political party after a politician affiliated with the party is elected, but they may not directly benefit from their connections to the politician per se. Addressing this concern is important for the purpose of this study, because I am interested in examining the value of network ties to politicians, rather than the effect of political party policies on firm value.

I use the close presidential campaign race between Hillary Clinton and Barack Obama in the 2008 U.S. Democratic Party state primaries as positive and negative shocks to a firm's board political capital, which helps address endogeneity concerns mentioned above. There are three main advantages for using election primary results from competitive state races as shocks to address endogeneity issues. First, to the extent that the outcomes of presidential primaries are close, politician and firm characteristics before the election should be independent of which candidates win and

lose.[6] This allows me to capture the causal effect of potential connections becoming 'active' and also isolate the timing of the shocks to firm returns. Second, since all the primaries I use are from the same political party, this identification strategy allows me to better disentangle the effect of firm-politician ties and firm-political party ties. Additionally, using shocks to candidates of the same political party allows me to address the endogeneity of election outcomes due to political cycles as modelled by Pastor and Veronesi (2017).[7] Third, presidential primaries involve several repeated events where different groups of firms are treated each time as their connected candidate wins and losses. Therefore, I can observe *within firm* variations in political connectedness and use firm fixed effects to control for unobserved firm characteristics that do not vary across these events. This allows me to show that my results are unlikely to be driven by unobserved time invariant firm characteristics, including unobserved managerial ability or other forms of political connectedness that do not vary within the short primary election period.

It is also important to note that I have underestimated the value of connections to the elected US president for several reasons. First, I only capture the effect of winning the Democratic nomination, but not the effect of the candidate winning the presidential election. However, an increased likelihood of winning the nomination also increases a candidate's likelihood of winning the presidential election. Additionally,

[6] It is unlikely for firms to accurately predict the results of close presidential primaries at the time of appointed connected directors (especially for earliest ones). Polls conducted just three days before the primary have an error of 7%, and those conducted a week out have an error of about 10%. It is also unlikely for the connection itself to affect primary results. Voters who show up in elections can be significantly different from people were surveyed. See https://fivethirtyeight.blogs.nytimes.com/2012/03/01/a-warning-on-the-accuracy-of-primary-polls/ for more details on polling accuracy during primaries.

[7] Pastor and Veronesi (2017) models how time-varying risk aversion can affect agents' preferences for political parties during presidential elections. When risk-aversion is high, voters are more likely to vote for a Democratic president.

the possibility that the loser of the primaries could wield power in the new administration biases the analysis against the hypothesized results.

1.2.2. The Context of the 2008 Democratic Party Presidential Primary

Presidential primaries in the U.S. represent a process whereby voters of political parties select its nominee for the presidential election, under rules specified in the individual state. Several early state presidential primaries are crucial for candidates to secure the presidential nomination. For example, the Iowa Caucuses and New Hampshire Primary Election are the two earliest state caucuses/primaries and often serve as an early indication of which candidate is more likely to win the nomination of the Democratic or Republican Party. Republican state primaries differ substantially from Democratic Party. A Republican candidate who wins a state primary receives all delegate votes whilst a winning Democratic candidate only receives proportional delegate votes. Thus, close state primaries are more likely for Democratic candidates than Republican candidates due to its nomination rules (Ryan, 2017). The 2008 Democratic Party presidential primary race between Hillary Clinton and Barack Obama was the closest contest since 1980.[8]

Panel A of Table 1.1 lists the dates and voting results for Clinton and Obama in the five earliest Democratic presidential primaries in 2008.[9] There were four state caucuses/primaries in 2008 before "Super Tuesday" when 23 states held presidential

[8] To secure the Democratic Party nomination in 2008, a candidate needed to have a majority of delegate votes at the national convention. However, neither candidate was able to obtain a majority of the 3,253 pledged delegate votes in 2008, and thus the race remained competitive for a longer period than expected.

[9] See http://uselectionatlas.org/RESULTS/timeline.php?year=2008&f=0&off=0&elect=1 for presidential primary timeline and results.

primaries on the same day.[10] I identify primaries through Super Tuesday since the difference in accumulated pledged votes was small until Obama widened his lead in the pledged delegate count following the outcomes of the Super Tuesday voting in February 2008.[11] Further, I restrict my analysis to the four primaries from this list that were decided by a close vote where the margin in pledged delegate votes was smaller than a 5% cut-off. I follow the existing literature to identify close elections using ex post results and this cut-off approach is consistent with studies including Lee and Lemieux (2010) and Akey (2015). The four close primary dates selected are the Iowa caucuses, New Hampshire Primary, Nevada caucuses, and Super Tuesday.

The presidential nomination eventually depends on the total number of delegate votes received by a candidate. The candidate with a greater number of pledged delegate votes is the winner of the caucuses/primary. However, there can be exceptions if some delegate numbers are only estimates in early caucuses and will not be finalised until subsequent caucuses that can be held weeks later. Among the five earliest primaries, the delegate vote results in the Iowa and Nevada caucuses are only indicative and I place them in parenthesis. As a result, the winners in the Iowa and Nevada caucuses are determined by the number of popular votes instead of delegate votes. Among the four close primaries listed in Table 1.1.A, Clinton and Obama won an equal number of these contests. Obama won the vote at the Iowa caucuses and the Super Tuesday vote totals among the four close primaries, whereas Clinton won the New Hampshire primary and the Nevada caucuses.

[10] I do not include disputed January 2008 primaries in Florida and Michigan. The Democratic Party has ruled that the votes by delegates in Florida and Michigan would not count in the nominating contest due to violations of party rules in 2007.

[11] https://www.nytimes.com/interactive/2016/06/07/us/elections/clinton-sanders-delegate-fight.html

Panel B of Table 1.1 lists the poll averages of Clinton and Obama in the five early state Democratic primaries, and compares the margin of the winner and the loser from the election polls and the actual popular vote outcomes. The poll data is drawn from Real Clear Politics and the average is calculated as the mean percentage vote from various poll resources, which are usually polls conducted by major news organizations like CNN and Fox News, or polling companies like Gallup Poll. The margins between Clinton and Obama are generally very small in the earliest five primaries and most poll margins are smaller than 5%. Among the four close primaries identified using the margin of pledged delegate votes (Iowa, New Hampshire, Nevada and Super Tuesday), only New Hampshire has a poll margin that is greater than 5%. Additionally, polls in the New Hampshire primary, Nevada caucuses and Super Tuesday primaries predict the wrong winner. Only the polls in the Iowa caucuses and South Carolina primary predict the actual winner, but the poll averages significantly underestimated Obama's margin. Thus, polling errors are particularly severe during the early state primaries, highlighting that the actual winners in these primaries are extremely hard to predict based on polling averages.

Taken together, the four close primaries I use in my main analysis (Iowa, New Hampshire, Nevada and Super Tuesday) are both close ex post based on final results and close ex ante in terms of pre-primary polls. This supports the use of them as exogenous shocks as it is highly unlikely for firms to accurately predict the outcomes of close primaries.

1.2.3. Construction of Main Variables

I measure a firm's board political capital by aggregating network ties between the firm's directors and top executive branch government officials at firm-level.

Network ties to politicians represent shared educational institution, social club or employment at business organisations between corporate directors and top executive branch government officials. I classify shared educational experience and social club activities as social ties, and shared working experience as professional ties. Definitions and data of educational, social and professional experience will be discussed with more details in section 1.2.4.

My main explanatory variable is *BPC Winner*, which is an indicator variable that equals one if a firm has at least one director on the firm's board connected to the winning candidate of the state primary through past or current professional or social ties, and 0 otherwise. This board political capital measure can capture both direct interactions and common characteristics between corporate directors and politicians due to the same professional or social backgrounds. Politicians can be influenced by their past experiences. Direct access to government officials can be hugely beneficial since powerful politicians are likely to interact with people from their own networks when making decisions (Acemoglu et al., 2016). Sharing common characteristics or viewpoints with politicians may also be valuable due to potential introductions facilitated by common friends and access to similar information, which can help resolve policy uncertainties and allow directors to make better informed decisions (Cohen, Frazzini, and Malloy, 2008; Shue, 2013).

Moreover, social networks can help facilitate more frequent communications and mutual trust (e.g., Cohen, Frazzini, and Malloy, 2008; Fracassi and Tate, 2012; Nguyen, 2012; Shue, 2013; and Do, Lee and Nguyen, 2015). Thus, I expect social ties between politicians and corporate directors to be particularly strong, so I construct another variable that only accounts for director social ties to the primary winner. *BPC Winner Social* equals one if a firm has at least one director who shares the same

educational institution or social club with the winning candidate of the state primary, and zero otherwise.

Compared to studies that focus on family ties to politicians (e.g. Amore and Bennedsen, 2012), this measure of connections allows me to identify a wide range of connections using publicly available information on social or professional backgrounds of politicians and corporate directors. Additionally, I do not require overlapping time periods for their connections in my main analysis because the information on the time period is missing from BoardEx for most directors. Nevertheless, in robustness analysis I construct an alternative variable requiring corporate directors and the primary winner to share the same social or professional activities for an overlapping time period, e.g. with respect to schooling.

1.2.4. Data, Variable Construction and Sample Formation

I collect and merge data from several sources. Presidential primary results are taken from the webpage of CNN 2008 Election Center and the poll data for each state primary is drawn from the Real Clear Politics website.[12] I hand collect the biographic information of major Democratic and Republican presidential primary candidates in 2008 from the muckety.com and votesmart.org websites. The biographic information I collected includes past educational, social and professional activities of presidential primary candidates before January 2008. Board data and the biographic information of directors is drawn from BoardEx and is used for year 2007. The information on director educational institutions is taken from BoardEx includes a director's undergraduate and graduate university education. Information of participation in social

[12] Web address of CNN Election Center: http://edition.cnn.com/ELECTION/2008/primaries/; Real Clear Politics: https://www.realclearpolitics.com/epolls/2008/president/

clubs is classified as "other activities" by BoardEx, and they include memberships and directorships of not-for-profit organizations such as trusts, universities, and other non-business associations like charities. I classify educational and other/social club activities as social ties. Professional activities taken from BoardEx include work experience in public or private businesses, government agencies and branches of the military.

I use text-matching to identify common professional experiences, educational institutions, and social clubs between corporate directors and presidential primary candidates. All the text matches are manually verified. It is also important to control for measures of political connections documented in prior studies. In particular, I control for: 1) the number of directors with prior government experience;[13] 2) PAC contributions to presidential candidates; and 3) firm lobbying expenses.

Government officers are identified using the BoardEx director biographic information. There is no mechanical overlap between my main board political capital variable and the number of directors with prior government experience, since the professional activities captured by my main variable only pertain to employment in business organisations. I label the number of directors with prior government experience as "number of government directors". PAC contribution data is taken from Federal Election Commission. Following Cooper, Gulen and Ovtchinnikov (2010) and Akey (2015), I only consider "hard money" contributions from firm PACs to a specific politician's campaign committee. I do not consider "soft money" contributions that are not candidate specific, or "Super PAC" donations where the firm-candidate link may not be clear, or individual contributions since they are often considered as ideological

[13] It is unlikely for American politicians who currently hold government positions to sit on corporate boards due to strict regulations, so this measure primarily captures number of former government officers.

consumption (Ansolabehere, Figueiredo and Snyder, 2003). I match firms' PAC contributions to Hillary Clinton and Barack Obama's campaign contributions respectively. Firm lobbying data is taken from the Center for Responsive Politics.[14] I calculate a firm's total annual lobbying expenses and then scale these expenses by a firm's total assets in my regression analysis.

I construct my main sample by merging several data sources and report summary statistics in Table 1.2. In Panel A of the table, there are 1,282 unique firms in my initial sample after requiring political connections data along with firm accounting and stock returns data. All variables represent figures for fiscal year 2007. I find that firm director network ties to presidential candidates are common in my initial sample. 73% firms have one or more directors connected to Democratic candidates (Clinton or Obama) through professional or social ties. Among Democratic-connected firms, 47% of firms have at least one director connected to Hillary Clinton, 58% of firms have at least one director connected to Barack Obama, and 31% of firms have directors connected to both Clinton and Obama.

Among Clinton-connected boards, 20% are connected to Clinton through director educational ties, 29% are connected through social clubs, which implies that about 49% of firms have at least one director connected to Clinton through social ties. 13% of Clinton-connected boards are connected through director professional activities. On average, the total number of directors who are connected to Clinton in my initial sample is 0.75. I also find that 58% of firms have a director who is connected to Obama, and of these connections 47% are from educational ties, 14% are from social clubs/other activities and 17% are from professional ties. The average total number of

[14] https://www.opensecrets.org/lobby/

directors who are connected to Obama in my initial sample is 1.02. Board ties to Clinton are primarily through social clubs and board ties to Obama are mainly due to common educational activities. This is also consistent with common beliefs that Clinton has accumulated political capital through participating in charity groups, while Obama has notable ties to his Harvard University classmates.[15] Due to Obama's Harvard background, more firms have directors connected to Obama than Clinton using my measure of board political capital, since Harvard University has largest number of alumni sitting on corporate boards of large U.S. companies (Marcec, 2018).[16] In addition, I find that director connections to the two major 2008 Republican presidential candidates, John McCain and Mitt Romney, through professional or social ties represent 68% of all firms in my initial sample.

Among other political connection measures, most firms have former government officials on their boards, and there are 0.68 government directors on average. The average firm's PAC contributions to Clinton is $54 per firm. The average amount of PAC contributions is small because only 22 firms in my initial sample donated to Clinton (an untabulated statistic). Obama did not receive "hard money" contributions through the end of 2007. On average, firms donated $265 in total to presidential candidates. My summary statistics of PAC contributions to presidential candidates are consistent with Cooper, Gulen and Ovtchinnikov (2010), who also show that firm PACs rarely donate "hard money" to presidential candidates. In addition, the total lobbying expenses by firms in the initial sample is $587 thousand on average with a median of 0.

[15] Obama has more than 20 Harvard Law School classmates in his administration team during his presidential campaign in 2008. See https://www.politico.com/story/2008/12/school-buds-20-harvard-classmates-advising-obama-016224

[16] See https://corpgov.law.harvard.edu/2018/02/07/top-universities-for-corporate-directors/.

I construct my base sample to study how firm value responds to positive and negative political capital shocks surrounding four previously discussed close 2008 Democratic presidential primaries. First, I exclude firms that have director connections to the two major Republican Party presidential candidates John McCain and Mitt Romney to mitigate concerns with confounding events. 872 firms are deleted since many of the firms have corporate directors connected to Mitt Romney through a common education at Harvard University, which means that the remaining firms have no directors who graduated from Harvard University. As a result, some firms that are connected to Obama through Harvard University are also deleted.

I further delete firms connected to both Clinton and Obama and firms connected to Clinton or Obama through PAC contributions to ensure my analysis captures a clear effect of director network ties from either candidate's primary wins and losses. This yields 398 unique firms remaining in my sample.[17] The remaining firms in my main sample contain: 1) Democratic-connected firms that are connected to either Clinton or Obama through director network ties, but not to both candidates (187 unique firms) and 2) firms that have no director connected to any major Democratic or Republican presidential primary candidates (211 unique firms), which are denoted as 'not connected' in Panel B of Table 1.2. [18]

Panel B of Table 1.2 reports the summary statistics for unique firm-level observations in my base sample and compares Democratic-connected (Clinton or Obama connected) boards and non-connected boards. Firms in my base sample are significantly smaller compared to my initial sample in terms of firm size. This is

[17] I added firms connected to both candidates but not to Republican candidates (only 39 unique firms) as a robustness checks, which will be discussed with more details in Section 1.3.4.
[18] One unique firm is associated with 4 events in my base sample and this yields 1,592 (398*4) observations.

because I have excluded Republican-connected firms and firms connected to both Clinton and Obama, which tend to be larger firms with more connected directors. Firms connected to Democratic candidates through director network ties also have a higher frequency of political connections through other channels. Most Democratic-connected firms through director network ties have at least 1 government director on their board and the average number of government directors is 1.19, while most non-connected firms do not have a government director and they have a significantly lower mean number of government directors (0.63). Democratic-connected firms also have a significantly higher mean level of lobbying expenses, but the difference in median lobbying expenses between these two groups of firms is not significant. Overall, it is important to control for number of government directors, firm lobbying expenses, and board size in my multivariate analysis. One exception are cases where I use firm fixed effects.

There is little disparity in firm characteristics between Democratic-connected firms and non-connected firms. The differences in the means and medians of firm size, firm risk, sales growth, firm performance, leverage, firm investments, board independence and institutional ownership between these two groups of firms are statistically insignificant. Only the mean and median board size of Democratic connected firms are significantly larger than non-connected firms, but the economic differences in board sizes are small. Overall, Clinton or Obama connected firms are very similar to non-connected firms in terms of firm characteristics.

1.3. Empirical Results

1.3.1. Board Political Capital and Firm Value: Univariate Analysis

Figure 1.1 separately plots the daily abnormal returns of firms with Clinton-connected and Obama connected boards surrounding the dates of the four close Democratic primaries. Daily abnormal return is defined as the stock's daily raw return minus its expected return. The expected return is estimated using the standard one-factor market model and the CRSP value-weighted index over the (-210, -30) event window. From figure 1.1, Obama-connected firms (dashed line) experience a significant increase in daily abnormal returns on January 4th, 2008, which is the first trading day following Obama's win in the Iowa caucuses. Similarly, Clinton-connected firms (solid line) experience positive abnormal returns on January 9th and January 22nd, following her consecutive wins in the New Hampshire primary and Nevada caucuses. Finally, the abnormal returns of Obama-connected firms go up at a faster rate than Hillary connected firms following his victory on the Super Tuesday primaries. Overall, the graph in figure 1.1 demonstrates a clear pattern that firms connected to the winner experience significant increases in abnormal returns relative to loser-connected firms following each close primary. Thus, the effect of primary wins and losses of connected candidates on firm returns is not driven by characteristics of a particular candidate.

I undertake a univariate analysis of board political capital and firm value by comparing the cumulative abnormal returns of winner-connected to non-winner-connected firms (those loser-connected or non-connected firms), and report its results in Table 1.3. The primary election cumulative abnormal returns (CAR) are calculated over several event windows including (0,+1), (0,+3), (0,+5) and (0,+7). This sample contains all firms from my base sample surrounding the 4 primary election events and

this yields 1,592 (398*4) observations. I split my base sample into 2 groups based on *BPC Winner* in panel A and *BPC Winner Social* in panel B respectively.

In Panel A of Table 1.3, I find that the mean CAR is higher when the firm's director-connected candidate wins, and it is lower when their director-connected candidate loses relative to when directors are not connected to any candidate in the primaries, and these differences are all statistically significant at least at the 10% level over short and long event windows, except for the 5-day CAR. The differences in means are also economically significant. The mean CARs of the winner-connected firms are 0.69% higher over the (0,+1) event window and 1.28% higher over the (0,+7) event window. My results are generally robust to the use of both short and long event windows, and the stock return effect that I find in the (0,+1) window also persists over the longer (0,+7) event window.

In Panel B of Table 1.3, I perform a similar analysis and split the sample based on whether a firm's directors have social ties to the primary election winner. The differences in the mean CAR between winner-connected firms and non-winner-connected firms in Panel B are larger over both short and long event windows. The CAR of winner-connected firms is 0.86% higher over the (0,+1) window than non-winner-connected firms and this difference is statistically significant at the 5% level. The mean CAR over the (0,+7) event window for winner-connected firms is 1.44% higher than non-winner-connected firms, and this difference is statistically significant at the 1% level. This result indicates that the effect on firm value of directors with social ties to politicians is particularly strong.

1.3.2. Board Political Capital and Firm Value: Multivariate Analysis

Table 1.4 reports OLS regression results for the four close Democratic state primaries. In Panels A and B, the dependent variable is the CAR (0,+1) in columns 1 & 2, and the CAR (0,+7) in columns 3 & 4. The main variable of interest is *BPC Winner* and *BPC Winner Social* respectively in Panels A and B. Columns 1 and 3 contain specifications using firm fixed effects, but no other control variables. The use of firm fixed effects helps mitigate concerns about cross sectional differences in unobserved firm characteristics that are time invariant around board political capital shocks. Thus, I can capture within-firm variations in firm value as the connected Democratic candidate wins and loses. Control variables are not included in specifications using firm fixed effects due to multicollinearity concerns. Columns 2 and 4 contain these specifications using Fama-French 48 industry fixed effects and control for other well-known measures of political connections and firm financial characteristics. As discussed in Section 1.1.2, firms can benefit from a politician's agenda without having connections to the politician. Thus, a politician's agenda can have a similar effect on both winner-connected and non-connected firms from the same industry, and the use of industry fixed effects helps mitigate concerns associated with the effect of a politician's broader policies. Standard errors are clustered by firm in all the regressions to account for serial correlation.

Panel A of Table 1.4 reports my baseline results. Consistent with Table 1.3, I find that firms experience significantly higher mean CAR when their director-connected candidate wins relative to the mean CAR of firms not connected to the winning candidate. In columns 1 and 2, the coefficient of *BPC Winner* is positive and statistically significant at the 5% level. Board political capital is also economically important. Firms connected to the winner outperform non-winner-connected firms by

0.8% to 0.9% in its CAR (0,+1) and by 1.3% to 1.4% in its CAR (0,+7). I find consistent results in columns 3 and 4, and this effect persists over the long event window.

In Panel B of Table 1.4, I find that social ties to politicians are particularly valuable for connected firms. The coefficient of *BPC Winner Social* is positive and statistically significant at the 1% level in columns 1 and 2, and statistically significant at the 5% and 1% level in columns 3 and 4. Economically, firms that have board members socially connected to the winner of the Democratic primary experience a 1-1.2% higher CAR (0,+1) and a 1.7% higher CAR (0,+7) relative to non-winner-connected firms. Compared to the results in panel A, both the statistical significance and economic significance are stronger. This result indicates that not all types of connections to politicians are equally valuable. Social connections can facilitate trust-building and represent a stronger form of political connection relative to a professional connection.

In Table 1.5, I further explore firm heterogeneity and the value of board political capital. The dependent variables are the CAR (0,+1) and CAR (0,+7). I use the same model specifications as in Table 1.4, but firm fixed effects are not included in models (1) & (3) due to multicollinearity between the controls for firm characteristics and firm fixed effects. In Panel A, the main variable of interest is the interaction term of *BPC Winner* and *Regulated*. *Regulated* is an indicator variable that equals one if a firm is in either the heavily regulated finance (SIC 6000-6999) or utilities (SIC 4800-4999) industry. The coefficient on *BPC Winner* interacted with *Regulated* is positive and statistically significant at the 5% or 1% level in all these columns. This result indicates that the effect of connections to the winning candidate is stronger if a firm is in a highly regulated industry. This result is also consistent with

the expectation that board political capital is more valuable for firms that are more sensitive to government policies.

In Panel B, the main variable of interest is the interaction term between *BPC Winner* and *Number of Government Directors*. I find that the interaction term is positive and statistically significant at the 1% level. The effect on firm value of having a connection to the winning candidate is stronger for firms that have more former government officials on their boards. This result suggests that the strength of the connections between directors and politicians becomes stronger, if firms are also politically connected through other channels. It is also possible that former government officials can use political influence and private information about government policies more effectively. It could also be that firms with former government officials on their boards are also more politically sensitive firms. Overall, firms that appoint former government officials as directors are more likely to enjoy greater benefits from their board political capital since there are multiple channels for them to use their connections so as to increase firm value.

In an untabulated analysis, I also interact *Lobbying expenses* and *BPC Winner* and do not find a significant effect. One explanation for this result is that corporate lobbying activities are usually aimed at legislative changes. However, legislation usually applies to a broad set of firms or industries and does not specifically target a politically connected firm. Thus, the link between lobbying expenses and the value of board political capital is potentially much weaker.

1.3.3. Board Political Capital and M&A Outcomes

I next explore the importance of an M&A channel through which board political capital can create firm value. To address endogeneity concerns, I perform a

diff-in-diff analysis on board political capital and firm M&A activities following the Presidential election. Barack Obama wins both the Democratic presidential nomination and the later presidential election in 2008, and Hillary Clinton eventually serves as Secretary of State under Obama and oversees foreign policies beginning in 2009. Thus, I use Obama-connected bidders as a treated group of firms and Clinton-connected as a controlled group. The pre-treatment period is the period beginning when Obama announced his presidential campaign on February 10th, 2007 until January 19, 2009, which is the day prior to when he became U.S. president. The post-treatment period is the period from January 20, 2009 to December 31, 2013.

To mitigate concerns of endogenous director appointments, I measure Obama and Clinton's connections as a sticky binary variable that is based on the fiscal year 2006 connections, which is the year just before the start of the sample period. To avoid endogeneity concerns around director selection, this measure is not updated and does not reflect director appointments after both candidates have announced their presidential campaigns in 2007. As discussed in section 1.1.2, the race between Clinton and Obama is tight in these early Democratic state primaries. It is very unlikely for firms in February 2007 to be able to predict Obama's victory in the 2008 presidential election, since Obama was a much less well-known politician compared to Clinton in the early stages of the campaign. According to the Real Clear Politics pool average, Clinton started with a 35% nomination preference that is two times greater than that of Obama in February 2007, and Clinton remained ahead of Obama in polls until February 2008.[19] Thus, Obama's victory over Clinton is for the most part a surprise.

[19] Poll average from Real Clear Politics can be found via this link: https://www.realclearpolitics.com/epolls/2008/president/us/democratic_presidential_nomination-191.html

My merger data is taken from the SDC Platinum US mergers and acquisitions database. I follow Masulis, Wang and Xie (2007) and include domestic deals that represent acquisitions of majority interests, with a deal size of more than $1 million and is at least 1% of the bidder's total market capitalization. I also exclude mergers of firms in the finance or utility industries since they are closely regulated by government agencies other than antitrust authorities. I only include firms connected to either Clinton or Obama through network ties in my diff-in-diff analysis, but not to both. These sample criteria yields 526 M&A deals that are announced between February 10th, 2007 and December 31, 2013.[20] My sample starts on February 10th 2007 because both Barack Obama and Hillary Clinton have announced their presidential campaigns on or shortly before this date. Control variables also follow Masulis, Wang and Xie (2007). Information on merger review is drawn from the SDC Platinum database.

Table 1.6 summarizes deal characteristics of treated and controlled bidders in the pre-treatment period and post-treatment period. *BPC President* is an indicator variable that equals 1 if the bidder firm has at least one director connected to Barack Obama (the winner of the 2008 presidential election) through past social or professional ties. The post-treatment period is defined as January 20, 2009 to December 31, 2013 when Obama serves his first term as the U.S. President. Panel A of Table 1.6 summarizes deal characteristics in the pre-treatment period. Deals undertaken by treated and controlled bidders are similar in merger returns, probability of completion, bidder size, deal size, and deal financing method. The only means that differ significantly are bidder leverage, bidder MTB, and type of merger between

[20] My M&A sample from SDC Platinum ends on December 31 of 2013. Using data of most recent years from SDC Platinum could yield a biased sample due to the backfilling practice. As a robustness check, I require my sample period for this analysis ends on January 19, 2013, which is the last day of Obama's first term as president. This robustness test will be discussed with more details in Section 1.3.4.

treated and controlled bidders, but there is little difference in the medians of these variables, except for the case of bidder leverage. Overall, M&A deals of treated and controlled bidders have similar characteristics in the pre-treatment periods.

Panel B summarizes deal characteristics in the post-treatment period. Among the control variables, only the differences in bidder leverage and the median bidder size are statistically significant between M&A deals of treated and control bidders. In addition, deals undertaken by treated bidders experience a higher likelihood of deal completion in the post-treatment period. This difference is statistically significant for both the mean and the median of the deal completion variable.

Table 1.7 reports OLS regression results for my diff-in-diff analysis of how board political capital affects M&A outcomes. Columns 1 and 2 contain all M&A deals, columns 3 and 4 contain deals that are subject to review by the anti-trust authorities of the Department of Justice and the Federal Trade Commission, and columns 5 and 6 contain deals that are not reviewed by these regulatory agencies. I include bidder industry fixed effects in all the models and the standard errors are clustered by bidder. The main variable of interest is the interaction of *BPC President* and *Post* in Panel A. The coefficient of the interaction term in column 1 is positive and significant at the 10% level. The magnitude is also economically large. Bidders that are connected to the newly elected president through board political capital are 7.4% more likely to complete a proposed merger after the president takes office.

Horizontal mergers can significantly reduce competition and thus, they usually trigger more rigorous antitrust review. Specifications in the even-numbered models of Panel A also include a triple interaction of *BPC President, Post* and *Horizontal*. The coefficient of this triple interaction term is positive and statistically significant at the 5% level in column 2. This indicates that bidders with board political capital have a

higher likelihood of merger completions and this is especially true if the bidders undertake horizontal mergers.

Results in columns 3 and 4 show that this finding is statistically and economically stronger in the subsample of M&A deals where mergers are subject to formal review by executive branch agencies tasked with regulatory review of potential anti-competitive actions. In contrast, the interaction is not statistically significant in columns 5 and 6 where mergers are not subject to regulatory review, indicating the effects in columns 1 and 2 are mainly driven by mergers subject to regulatory review.

Overall, I find strong evidence that bidders with board political capital experience a higher likelihood of obtaining merger approval of their proposed M&A deals, especially for horizontal mergers. Economically, bidders with board political capital are 15.6% more likely to complete mergers subject to regulatory review, which represents a potentially large valuation effect. This result can imply that the president actively assists firms from her/his networks to complete deals. Alternatively, it is also possible that network ties to politicians significantly reduce the information asymmetry between regulator and the bidder networks, leading to a higher likelihood of completions by connected bidders due to their information advantage in the deal structuring stage and then merger review process.

I repeat my analysis of merger completions in Panel B using a political capital measure that only captures social ties between the bidder's board and the president and find similar results. I find moderate evidence that social ties to politicians are particularly strong in the context of merger completions.

I further explore the value of a bidder's board political capital by examining merger announcement returns in Table 1.8. All models are OLS regressions and contain specifications with bidder industry fixed effects, and the standard errors are

clustered by bidder. Columns 1 and 2 contain all M&A deals, columns 3 and 4 contain deals subject to review by the Department of Justice and Federal Trade Commission, and columns 5 and 6 contain deals not subject to anti-trust review. The main variable of interest is the interaction term of *BPC President* and *Post* in Panel A. The coefficient of this interaction term is not statistically significant in columns 1, but the coefficient of the triple interaction of *BPC President*, *Post* and *Horizontal* is statistically significant at the 10% level in Column 2. This indicates that bidders with board political capital experience higher merger returns for more closely regulated horizontal mergers relative to bidders without connections to the president in the post-treatment period.

Bidders with board political capital experience higher merger announcement returns if the mergers are under formal regulatory review. The coefficients of the interaction term of *BPC President* and *Post* is not statistically significant in the full sample, but this coefficient in columns 3 is positive and significant at the 10% level for M&A deals subject to regulatory review, which indicates that Obama connected bidders experience significantly higher announcement returns in the period after Obama takes office and when the deal is subject to regulatory review. Economically, mean merger announcement returns of bidders with board political capital is 4.9% higher for CAR (-1, +1) if the mergers are under regulatory review. This effect is also stronger for horizontal mergers among all the deals and deals subject to regulatory review. Thus, the results of merger announcement returns are consistent with the view that politically-connected bidders face less demanding regulatory constraints on their external investments, especially these investments that can trigger strict regulatory review.

In Panel B of Table 1.8, I repeat my analysis in Panel A and run OLS regressions using a board political capital measure for only director social ties to politicians. All the effects I find in Panel A are stronger in Panel B. This result is consistent with my prior results in Table 3.1 and suggests that social ties to politicians are generally more valuable. Overall, my results on mergers suggest that board political capital increase firm value through a higher likelihood of merger completions and greater merger returns.

1.3.4. Robustness Tests

I perform several robustness checks and report these results in Table 1.9. First, I construct several alternative measures of board political capital and repeat my analysis in Table 1.4 using these measures to assess the robustness of my baseline results. I report these results in Panel A of Table 1.9. My main results are robust in columns 1 and 3 where I use of the number of director social or professional ties to presidential candidates as the main explanatory variable. I also test for robustness by requiring overlapping time period for ties between directors and presidential candidates and report these results in columns 2 and 4. As discussed in 2.3, the information on the time period is often missing from BoardEx for most directors. Thus, I can only rely on the information when it is available, and this variable clearly underestimates the existence of overlapping time periods for director-presidential candidate ties. My regression results using *BPC Winner Same Time* as the main explanatory are similar to my main results in Table 1.4, but they are statistically weaker due to the more limited sample that bias against me finding results.

In addition, I also repeat my main analysis in Table 1.4 using alternative samples and report these results in Panel B of Table 1.9. First, I exclude non-connected

firms that have no director sharing social or professional ties with Clinton or Obama from my baseline sample, and report results of this robustness test in columns 1 and 3. This exclusion reduces the size of my baseline sample from 1,592 to 748 observations. My key explanatory variable, *BPC Winner*, remains statistically significant in columns 1 and 3 after this exclusion. In another robustness check, I added firms that have directors connected to both Clinton and Obama to my base sample, which increases the sample size from 1,592 to 1,748 observations. In columns 2 and 4, the regression results are statistically and economically similar to my main results in Table 1.4. Thus, my main findings are robust to using these alternative samples.

In Panel C of Table 1.9, I repeat my main M&A analysis using an alternative sample period. I repeat my analysis in Table 1.7 and 1.8, but restrict the sample period to the end of Obama's first term as president on January 19, 2013. My M&A results are robust to the use of this alternative sample period.

1.4. Conclusion

I explore the value of board political capital through shared social or professional ties between corporate directors and presidential candidates in the United States. I identify four close 2008 Democratic presidential primaries between Hillary Clinton and Barack Obama, and use them as repeated shocks to the value of a firm's political connections termed board political capital. This identification strategy allows me to better capture the value of board ties to the politician alone, rather than the value of board ties to a particular political party. It also allows me to capture the within-firm variations in stock returns of firms due to a connected presidential candidate's wins and losses during the primary election season.

I find that board political capital in general creates significant firm value. Firms experience significantly higher cumulative abnormal returns around primary election outcomes if their directors' connected candidate wins, relative to the returns if their directors' connected candidate loses. The CAR (0,+7) is 1.4% higher for firms with winner-connected boards, and thus board political capital is shown to be economically valuable. Firms with directors that are connected to the winning presidential primary candidate through director social ties experience a stronger cumulative abnormal return around primary election outcomes. In addition, board political capital is more valuable for firms in regulated industries, and firms that have former government officials as board members.

Furthermore, I find that firms with board political capital are more likely to receive merger approval when they undertake acquisitions, which represents one critical channel of value creation. Bidders with Obama-connected directors are more likely to get regulatory approval after Obama takes office relative to bidders with Clinton-connected directors. This result is stronger for horizontal mergers that are subject to stricter antitrust review. Further, I find that Obama-connected firms also experience significantly higher announcement returns when they initiate merger bids in the post-treatment period when their mergers are subject to regulatory review. Overall, these results suggest that board political capital can create value through an improved likelihood of completing major corporate investments and thus a higher return from these large external investments.

My study significantly expands measures of political connections to firms and highlights the value of less visible director ties to powerful politicians. I uncover clear evidence that firms can extract significant rents from director political ties that are not under close public scrutiny, even in a low corruption environment.

Tables

Table 1.1. Vote Results and Polls of Five Earliest Democratic Presidential Primaries in 2008

This table lists the delegate vote results and polls of the five earliest Democratic presidential primaries in 2008. Panel A of this table lists the dates, delegates vote results, popular votes of Barack Obama and Hillary Clinton and the final winner in the five earliest Democratic primaries in 2008. *Total Pledged* in Panel A is the total number of pledged delegates that are allocated for each state primary. *Pledged Delegate Vote* is the number of national delegates received by the candidate in the state caucuses/primary. Results of pledged delegate vote in the Iowa caucuses and Nevada caucuses are listed in parenthesis since these votes are not finalised until the state conventions in a later month, and popular votes in those situations are used to determine the winners. *% Popular Vote* is the number of votes received by a candidate divided by the total number of vote casts in the state caucuses/primary elections. All primaries in the list below except the South Carolina primary are identified as primaries with close vote results. Panel B lists the poll average of Barack Obama and Hillary Clinton from the RealClearPolitics.com just before the five earliest Democratic primaries in 2008. The margin between the winning and losing candidate from actual popular votes is compared with the margin of the poll average in the column titled 'Actual-Poll' in Panel B.

Panel A: Delegates Vote Results, Popular Votes of Barack Obama and Hillary Clinton and the Final Winner

Date	Primary Name	Total Pledged	*Pledged Delegate Vote*			*Popular Vote*		Winner
			Obama	Clinton	Margin	Obama	Clinton	
Jan-03	Iowa	45	(16)	(15)	**2.2%**	38%	29%	Obama
Jan-08	New Hampshire	22	9	9	**0.0%**	37%	39%	Clinton
Jan-19	Nevada	25	(13)	(12)	**4.0%**	45%	51%	Clinton
Jan-26	South Carolina	45	25	12	28.9%	55%	27%	Obama
Feb-05	Super Tuesday	1681	847	834	**0.7%**	50%	50%	Obama

Panel B: Poll Average and Comparison of Margins with Actual Popular Vote

Date	Primary Name	*Poll Average*			*Actual Popular Vote (%)*			Actual - Poll	Unexpected Winner?
		Obama	Clinton	Margin	Obama	Clinton	Margin		
Jan-03	Iowa	**31%**	29%	2%	**38%**	29%	9%	7%	No
Jan-08	New Hampshire	**38%**	30%	8%	37%	**39%**	-3%	-11%	Yes
Jan-19	Nevada	34%	**38%**	-4%	45%	**51%**	-6%	-2%	Yes
Jan-26	South Carolina	**38%**	27%	12%	**55%**	27%	29%	17%	No
Feb-05	Super Tuesday	42%	**44%**	-3%	**50%**	50%	0%	3%	Yes

Table 1.2. Summary Statistics

Panel A summarizes the characteristics of 1,282 unique firms in my initial sample after requiring the information of director professional or social backgrounds and major control variables. The base sample in Panel B contains 398 unique firms that 1) have at least one director connected to either Clinton or Obama through professional or social ties, but not to both (denoted as *Clinton or Obama Connected* in columns 1 & 2); or 2) do not have director connected to either Democratic candidate in the 2008 presidential election (denoted as *Not Connected* in columns 3 & 4). Appendix 1.A provides detailed variable descriptions. All variables take the value of the fiscal year 2007. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively from a two-tailed t-test of the difference in means or a two-tailed Wilcoxon test for the difference in medians.

Panel A: Summary Statistics (Initial Sample, N=1,282)

Variable	Mean	25%	Median	75%	STD
Political Connection Variables					
Democratic Connected	0.73	0.00	1.00	1.00	0.44
Clinton Connected	0.47	0.00	0.00	1.00	0.50
Clinton Connected: Educational Ties	0.20	0.00	0.00	0.00	0.40
Clinton Connected: Other Ties	0.29	0.00	0.00	1.00	0.45
Clinton Connected: Professional Ties	0.13	0.00	0.00	0.00	0.34
Total Ties to Clinton	0.75	0.00	0.00	1.00	1.02
Obama Connected	0.58	0.00	1.00	1.00	0.49
Obama Connected: Educational Ties	0.47	0.00	0.00	1.00	0.50
Obama Connected: Other Ties	0.14	0.00	0.00	0.00	0.35
Obama Connected: Professional Ties	0.17	0.00	0.00	0.00	0.37
Total Ties to Obama	1.02	0.00	1.00	2.00	1.20
Both Clinton and Obama Connected	0.31	0.00	0.00	1.00	0.46
Republican Connected	0.68	0.00	1.00	1.00	0.47
McCain Connected	0.32	0.00	0.00	1.00	0.47
Romney Connected	0.56	0.00	1.00	1.00	0.50
Clinton PAC Contributions ($)	53.98	0.00	0.00	0.00	690.02
Obama PAC Contributions ($)	0.00	0.00	0.00	0.00	0.00
Total Primary PAC ($)	264.70	0.00	0.00	0.00	1,420.96
Number of Government Directors	0.68	0.00	1.00	1.00	0.47
Lobbying Expenses ($ 000's)	586.55	0.00	0.00	130.00	2,281.40
Firm Characteristics					
Total Assets ($ mil)	20,064.7	882.23	2,620.75	8,128.00	112,379
Firm Risk	10.01	9.60	10.03	10.45	0.64
Sales Growth	0.74	0.70	0.74	0.77	0.09
ROA	0.06	0.08	0.14	0.21	0.47
MTB	1.89	1.17	1.53	2.19	1.16
Leverage	0.26	0.06	0.23	0.37	0.25
CAPEX	0.02	-0.05	0.01	0.04	0.07
R&D Intensity	0.02	0.00	0.00	0.03	0.05
Tangibility	0.27	0.05	0.17	0.38	0.28
Board Independence	77.71	71.43	80.00	87.50	11.24
Board Size	9.37	8.00	9.00	11.00	2.45
Institutional Own	0.83	0.74	0.86	0.98	0.17

Panel B: Summary Statistics (Base Sample): Characteristics of Firms Connected to Clinton or Obama vs. Non-Connected Firms

	Clinton or Obama Connected (N=187)		*Not Connected (N=211)*		Difference of Means	Difference of Medians
	Mean	Median	Mean	Median		
	(1)	(2)	(3)	(4)		
PAC to Clinton ($)	0.00	0.00	0.00	0.00	0.00	0.00
PAC to Obama ($)	0.00	0.00	0.00	0.00	0.00	0.00
Number of Government Directors	1.19	1.00	0.63	0.00	0.57***	1.00***
Lobbying Expenses ($ 000's)	216.32	0.00	100.10	0.00	116.21*	0.00
Total Assets ($ mil)	6501	1817	4519	1060	1981.75	757.15
Firm Risk	10.03	10.03	10.17	10.18	-0.15	-0.15
Sales Growth	0.75	0.74	0.75	0.74	0.00	-0.01
ROA	0.05	0.13	0.05	0.16	0.00	-0.03
MTB	1.82	1.44	2.00	1.68	-0.18	-0.24
Leverage	0.22	0.19	0.23	0.18	-0.01	0.01
CAPEX	0.02	0.01	0.03	0.02	-0.01	0.00
R&D Intensity	0.02	0.00	0.02	0.00	-0.01	0.00
Tangibility	0.26	0.18	0.26	0.15	0.00	0.02
Board Independence	74.49	76.92	73.48	75.00	1.01	1.92
Board Size	9.11	9.00	7.94	8.00	1.17**	1.00***
Institutional Own	0.82	0.86	0.85	0.90	-0.03	-0.03

Figure 1.1. Abnormal Returns and Board Political Capital Surrounding the Close Presidential Primaries

The Figure below presents the daily abnormal returns on day 0 and day +1 of the four close Democratic presidential primary elections between Hillary Clinton and Barack Obama in 2008: the Iowa caucuses on January 3rd, New Hampshire Primary on January 8th, Nevada caucuses on January 19th, and Super Tuesday on February 5th. The winner of each state primary is in parentheses. *AR* is the daily abnormal return of the firm calculated using the standard one-factor market model. The expected return is estimated over the period (-210, -30) using the CRSP value-weighted market return. This sample contains 1,592 observations where 436 firm-event observations have board connections to Hillary Clinton and 312 firm-event observations are connected to Barack Obama through professional or social ties.

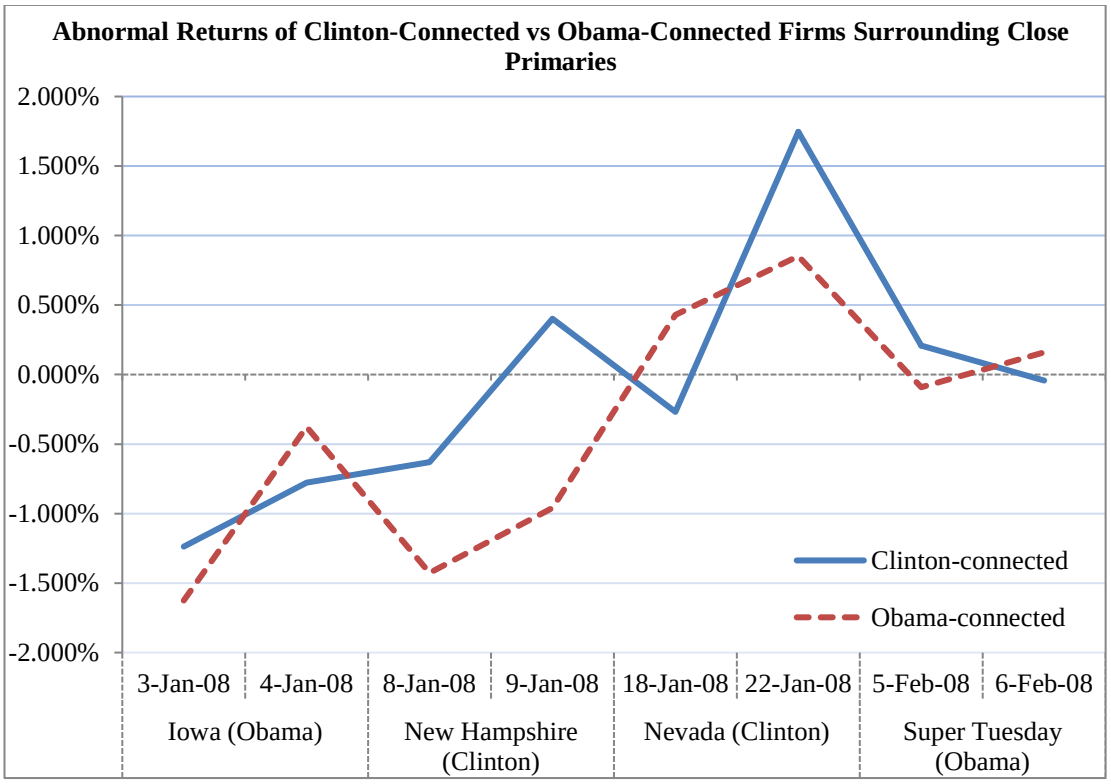


Table 1.3. Univariate Analysis: Board Political Capital and Firm Value

This table summarizes and compares the CAR of winner-connected and non-winner-connected firms surrounding four competitive Democratic presidential primaries in 2008. This sample contains 1,592 firm-event observations from 398 unique firms in my base sample. *CAR* is the cumulative abnormal return of the firm calculated using the standard one-factor market model over several event windows. The expected return is estimated over the period (-210, -30) using the CRSP value-weighted market return. *BPC Winner* is an indicator variable that equals 1 if a firm has at least one director connected to the winning candidate of the state primary through past or current professional and/or social ties, and 0 otherwise. *BPC Winner Social* is an indicator variable that equals 1 if a firm has at least one director connected to the winning candidate of the state primary through past or current social ties, and 0 otherwise. Appendix 1.A provides detailed variable descriptions. All variables take the value of the fiscal year 2007. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively from a two-tailed t-test for difference in means or a two-tailed Wilcoxon test for difference in medians.

Panel A: Univariate Analysis: Political Capital Shocks and the CAR Surrounding Democratic Presidential Primaries

	BPC Winner=1 (N=374)		*BPC Winner=0 (N=1218)*		Difference of Means	Difference of Medians
	Mean	Median	Mean	Median		
	(1)	(2)	(3)	(4)		
CAR (0,+1)	0.96%	-0.06%	0.27%	-0.12%	0.69%*	0.06%*
CAR (0,+3)	0.70%	0.09%	-0.08%	-0.43%	0.78%*	0.52%*
CAR (0,+5)	1.04%	0.14%	0.42%	0.19%	0.62%	-0.05%
CAR (0,+7)	2.11%	0.90%	0.83%	0.23%	1.28%**	0.67%*

Panel B: Univariate Analysis: Political Capital Shocks and the CAR Surrounding Democratic Presidential Primaries: Social Ties to the Winning Candidates

	BPC Winner Social=1 (N=356)		*BPC Winner Social=0 (N=1236)*		Difference of Means	Difference of Medians
	Mean	Median	Mean	Median		
	(1)	(2)	(3)	(4)		
CAR (0,+1)	1.10%	-0.02%	0.24%	-0.14%	0.86%**	0.12%**
CAR (0,+3)	0.81%	0.23%	-0.10%	-0.45%	0.91%**	0.68%**
CAR (0,+5)	1.18%	0.39%	0.39%	0.14%	0.79%*	0.25%
CAR (0,+7)	2.25%	1.07%	0.81%	0.20%	1.44%***	0.87%***

Table 1.4. Multivariate Analysis: Board Political Capital and Firm Value

This table reports the OLS regression results of the CAR surrounding four Democratic presidential primaries with close results in 2008. This sample contains 1,592 firm-event observations from 398 unique firms in my base sample. *CAR* is the cumulative abnormal return of the firm calculated using the standard one-factor market model over the event window (0,+1) or (0,+7). The expected return is estimated over the period (-210, -30) using the CRSP value-weighted market return. *BPC Winner* is an indicator variable that equals 1 if a firm has at least one director connected to the winning candidate of the state primary through past or current professional and/or social ties, and 0 otherwise. *BPC Winner Social* is an indicator variable that equals 1 if a firm has at least one director connected to the winning candidate of the state primary through past or current social ties, and 0 otherwise. Appendix 1.A provides detailed variable descriptions. All variables take the value of the fiscal year 2007. Standard errors are clustered by firm in all regressions. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively.

Panel A: Political Capital Shocks and the CAR Surrounding Democratic State Primaries

	CAR (0, +1)		CAR (0, +7)	
	(1)	(2)	(3)	(4)
BPC Winner	0.009**	0.008**	0.013*	0.014**
	(2.30)	(2.55)	(1.75)	(2.21)
Number of Government Directors		-0.002**		-0.005*
		(-2.06)		(-1.85)
Lobbying Expenses		-1.720***		-2.520**
		(-3.08)		(-2.36)
Ln(Assets)		-0.000		0.004
		(-0.32)		(1.54)
Sales Growth		-0.033**		-0.024
		(-1.98)		(-0.75)
ROA		-0.001		0.009
		(-0.10)		(0.82)
MTB		0.001		-0.004
		(0.99)		(-1.42)
Leverage		-0.000		0.001
		(-0.02)		(0.08)
Board Size		0.001		0.000
		(1.09)		(0.19)
Board Independence		-0.000***		-0.000**
		(-2.97)		(-2.05)
Firm FE	Y	N	Y	N
Industry FE	N	Y	N	Y
Observations	1,592	1,592	1,592	1,592
Adjusted R2	0.104	0.036	0.006	0.042

Panel B: Political Capital Shocks and the CAR Surrounding Democratic State Primaries: Social Ties to the Winning Candidate

	CAR (0, +1)		CAR (0, +7)	
	(1)	(2)	(3)	(4)
BPC Winner Social	0.012***	0.010***	0.017**	0.017***
	(2.98)	(3.16)	(2.26)	(2.64)
Number of Government Directors		-0.002**		-0.005*
		(-2.10)		(-1.86)
Lobbying Expenses		-1.697***		-2.475**
		(-3.01)		(-2.36)
Ln(Assets)		-0.000		0.004
		(-0.29)		(1.56)
Sales Growth		-0.034**		-0.025
		(-2.02)		(-0.78)
ROA		-0.000		0.009
		(-0.07)		(0.84)
MTB		0.001		-0.004
		(1.00)		(-1.43)
Leverage		-0.000		0.001
		(-0.01)		(0.08)
Board Size		0.001		0.000
		(0.99)		(0.13)
Board Independence		-0.000***		-0.000**
		(-2.99)		(-2.07)
Firm FE	Y	N	Y	N
Industry FE	N	Y	N	Y
Observations	1,592	1,592	1,592	1,592
Adjusted R2	0.102	0.037	0.004	0.043

Table 1.5: Firm Heterogeneity and the Value of Board Political Capital

This table reports the OLS regression results of the CAR surrounding four Democratic presidential primaries with close results in 2008. This sample contains 1,592 firm-event observations from 398 unique firms in my base sample. *CAR* is the cumulative abnormal return of the firm calculated using the standard one-factor market model over the event window (0,+1) or (0,+7). The expected return is estimated over the period (-210, -30) using the CRSP value-weighted market return. *Regulated* is an indicator variable that equals one if a firm is in either the finance (SIC 6000-6999) or utilities (SIC 4800-4999) industry. *Number of Government Directors* is the number of corporate directors who have worked for government agencies in the past. *BPC Winner* is an indicator variable that equals 1 if a firm has at least one director connected to the winning candidate of the state primary through past or current professional and/or social ties, and 0 otherwise. Control variables are same as in Column 2 of Table 1.4 but coefficients are omitted. All variables take the value of the fiscal year 2007. Standard errors are clustered by firm in all regressions. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively.

Panel A: Firms in Regulated Industries and the Value of Board Political Capital

	CAR (0, +1)		CAR (0, +7)	
	(1)	(2)	(3)	(4)
BPC Winner: a	0.003	0.003	0.005	0.005
	(0.82)	(0.79)	(0.70)	(0.79)
Regulated: b	0.008**	0.011**	0.013*	0.014*
	(2.18)	(2.57)	(1.83)	(1.67)
a * b	0.019**	0.019**	0.037***	0.039**
	(2.44)	(2.49)	(2.58)	(2.15)
Other Control Variables in Table 1.4	N	Y	N	Y
Firm FE	N	N	N	N
Industry FE	N	Y	N	Y
Observations	1,592	1,592	1,592	1,592
Adjusted R2	0.011	0.023	0.013	0.026

Panel B: Number of Government Directors and the Value of Board Political Capital

	CAR (0, +1)		CAR (0, +7)	
	(1)	(2)	(3)	(4)
BPC Winner: a	0.000	0.002	-0.004	-0.002
	(0.13)	(0.47)	(-0.47)	(-0.19)
Number of Government Directors: b	-0.002*	-0.004***	-0.005*	-0.009***
	(-1.69)	(-3.19)	(-1.65)	(-2.92)
a * b	0.006***	0.006***	0.016***	0.014***
	(3.05)	(2.95)	(3.23)	(3.15)
Other Control Variables in Table 1.4	N	Y	N	Y
Firm FE	N	N	N	N
Industry FE	N	Y	N	Y
Observations	1,592	1,592	1,592	1,592
Adjusted R2	0.003	0.037	0.008	0.047

Table 1.6. Bidder Board Political Capital and M&A Deal Characteristics

This table summarizes and compares characteristics of 526 M&A deals where the bidder has at least one director connected to either Clinton or Obama through social and/or professional ties, but not to both Clinton and Obama. All M&A deals are domestic deals that are announced between Feb 10, 2007 and Dec 31, 2013. *BPC President* is an indicator variable that equals 1 if a firm has at least one director connected to Barack Obama (the winner of the 2008 presidential election) through past or current social or professional ties. The pre-treatment period is the period from Feb 10, 2007 to Jan 19, 2009, and the post-treatment period starts on Jan 20, 2009 and ends on Dec 31, 2013 when Obama serves as the U.S. President. Appendix provides detailed variable descriptions. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively from a two-tailed t-test for the difference in means or a two-tailed Wilcoxon test for the difference in medians.

Panel A: Bidder Board Political Capital and Deal Characteristics in the Pre-treatment Period

	BPC President =1 (N=122)		*BPC President =0 (N=71)*		Difference of Means	Difference of Medians
	Mean	Median	Mean	Median		
CAR (-1, +1)	0.00	0.00	-0.01	0.00	0.01	0.00
Completion	0.93	1.00	0.96	1.00	-0.02	0.00
FDC or DOJ Review	0.21	0.00	0.18	0.00	0.02	0.00
Horizontal	0.57	1.00	0.71	1.00	-0.14**	0.00
Bidder Govt Directors	1.07	1.00	1.01	1.00	0.06	0.00
Bidder Lobbying ($000's)	468.12	0.00	409.32	0.00	58.80	0.00
Bidder Size ($ mil)	4687.62	1559.2	5416.4	1839.71	-728.75	-280.44
Bidder MTB	2.08	1.87	1.80	1.51	0.27	0.36*
Bidder ExCash	-0.57	0.04	-0.76	0.03	0.19	0.01
Bidder Leverage	0.22	0.17	0.30	0.33	-0.08**	-0.16***
Bidder Runup	0.04	0.02	0.01	0.00	0.03	0.02
Relative Size	0.16	0.06	0.26	0.05	-0.10	0.02
Public Target	0.25	0.00	0.21	0.00	0.05	0.00
Stock Deal	0.06	0.00	0.08	0.00	-0.02	0.00
All Cash	0.71	1.00	0.75	1.00	-0.04	0.00

Panel B: Bidder Board Political Capital and Deal Characteristics in the Post-treatment Period

	BPC President =1 (N=227)		*BPC President =0 (N=106)*		Difference of Means	Difference of Medians
	Mean	Median	Mean	Median		
CAR (-1, +1)	0.01	0.00	0.01	0.00	0.00	0.00
Completion	0.97	1.00	0.94	1.00	0.04*	0.00*
FDC or DOJ Review	0.19	0.00	0.25	0.00	-0.05	0.00
Horizontal	0.60	1.00	0.62	1.00	-0.02	0.00
Bidder Govt Directors	1.24	1.00	1.13	1.00	0.11	0.00
Bidder Lobbying ($ 000's)	800.81	0.00	550.78	13.50	250.03	-13.50
Bidder Size ($ mil)	8396.6	2392.88	9546.11	4504.62	-1149.53	-2111.7**
Bidder MTB	1.75	1.59	1.80	1.55	-0.05	0.05
Bidder ExCash	-0.54	0.06	-0.62	0.04	0.08	0.02
Bidder Leverage	0.21	0.19	0.27	0.23	-0.06**	-0.05*
Bidder Runup	0.03	0.02	0.04	0.02	0.00	0.01
Relative Size	0.18	0.08	0.31	0.06	-0.13*	0.02
Public Target	0.18	0.00	0.25	0.00	-0.06	0.00
Stock Deal	0.04	0.00	0.06	0.00	-0.03	0.00
All Cash	0.75	1.00	0.72	1.00	0.03	0.00

Table 1.7. Bidder Board Political Capital and M&A Completions

This table reports the OLS regression results of how bidder board political capital affects M&A completions for the period 2007-2013. This M&A sample contains 526 completed or withdrawn domestic deals that are announced between February 10, 2007 and December 31, 2013. All M&A deals have at least one director on the bidder's that is connected to either Clinton or Obama through social and/or professional ties, but not to both Clinton and Obama. The dependent variable in all columns is *Completion*, an indicator variable that equals one if a merger is approved by regulatory agencies and 0 otherwise. *BPC President* is an indicator variable that equals 1 if a firm has at least one director connected to Barack Obama (the winner of the 2008 presidential election) through past or current social or professional ties, and 0 otherwise. *Post* is an indicator variable that equals one if a merger is announced after Barack Obama officially takes office as the U.S. president on January 20, 2009 and 0 otherwise. *Horizontal* is an indicator variable that equals 1 if the bidder and the target share the same Fama-French 48 industry and 0 otherwise. *BPC Presidential Social* is an indicator variable that equals 1 if a firm has at least one director connected to Barack Obama through social ties and 0 otherwise. Columns 1 & 2 contain all deals, columns 3 & 4 only contain deals that are under the regulatory review by the Federal Trade Commission and/or the Department of Justice, and columns 5 & 6 contain deals that are not reviewed by these agencies. Appendix provides detailed variable descriptions. Standard errors are clustered by bidder in all regressions. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively.

Panel A: Bidder Board Political Capital and M&A Completions

	All Deals		Under Review		Not Under Review	
	(1)	(2)	(3)	(4)	(5)	(6)
BPC President: a	-0.043	0.083	-0.003	0.028	-0.027	0.143
	(-1.30)	(1.54)	(-0.05)	(0.32)	(-0.69)	(1.57)
Post: b	0.058	0.056	-0.181***	-0.001	0.007	0.098
	(0.76)	(1.00)	(-2.79)	(-0.01)	(0.20)	(1.04)
a * b	0.074*	-0.060	0.156**	0.009	0.036	-0.111
	(1.92)	(-0.91)	(2.19)	(0.08)	(0.80)	(-1.08)
Horizontal: c	-0.029	0.088	-0.013	0.184	-0.031	0.123
	(-1.36)	(1.60)	(-0.38)	(1.51)	(-1.18)	(1.41)
a * c		-0.161**		-0.212		-0.252**
		(-2.49)		(-1.45)		(-2.53)
b * c		-0.125*		-0.329*		-0.111
		(-1.85)		(-1.91)		(-1.08)
a * b * c		0.173**		0.321*		0.209*
		(2.13)		(1.77)		(1.69)
Bidder Govt Directors	-0.007	-0.007	-0.012	-0.017	-0.008	-0.007
	(-1.05)	(-0.85)	(-0.88)	(-1.20)	(-0.96)	(-0.80)
Bidder Lobbying	0.000	-0.000	0.046	0.080*	-0.020	-0.021
	(0.02)	(-0.02)	(1.15)	(1.88)	(-0.85)	(-0.90)
Bidder Size	-0.002	-0.002	0.028**	0.014	0.001	0.001
	(-0.22)	(-0.22)	(2.10)	(0.84)	(0.18)	(0.10)
Relative Size	-0.057*	-0.053***	0.015	-0.000	-0.140***	-0.146***
	(-1.84)	(-3.14)	(0.95)	(-0.01)	(-4.12)	(-4.43)
Bidder MTB	-0.011	0.001	0.006	0.016	0.015	0.010
	(-0.66)	(0.04)	(0.28)	(0.63)	(0.74)	(0.50)
Bidder ExCash	0.006	0.000	-0.001	-0.034	-0.006	-0.008
	(0.50)	(0.00)	(-0.05)	(-1.29)	(-0.45)	(-0.61)
Bidder Leverage	0.034	0.037	-0.028	0.063	0.075	0.062
	(1.06)	(0.85)	(-0.60)	(1.39)	(1.33)	(1.10)
Bidder Runup	0.094**	0.060	0.041	0.041	0.042	0.033
	(2.09)	(1.42)	(0.49)	(0.47)	(0.83)	(0.64)
Public Target	-0.148***	-0.148***	-0.047	-0.068	-0.214***	-0.214***
	(-4.00)	(-6.06)	(-1.29)	(-1.37)	(-3.92)	(-4.01)
Stock Deal	0.071	0.074	-0.052	-0.032	0.177**	0.173**
	(1.09)	(1.59)	(-0.83)	(-0.46)	(2.55)	(2.46)
All Cash	-0.014	-0.016	0.056	0.006	-0.016	-0.024
	(-0.66)	(-0.73)	(1.48)	(0.14)	(-0.61)	(-0.95)
Bidder Industry FE	Y	Y	Y	Y	Y	Y
Observations	526	526	105	105	415	415
Adjusted R2	0.140	0.141	0.037	0.041	0.182	0.189

Panel B: Bidder Board Political Capital and M&A Completions: Social Ties to the President

	All Deals		Under Review		Not Under Review	
	(1)	(2)	(3)	(4)	(5)	(6)
BPC President Social: a	-0.039	0.066	0.019	0.059	-0.027	0.096
	(-1.03)	(1.21)	(0.35)	(0.70)	(-0.63)	(1.00)
Post: b	0.038	0.055	-0.150**	0.026	0.009	0.080
	(0.47)	(1.02)	(-2.48)	(0.27)	(0.23)	(0.85)
a * b	0.081*	-0.035	0.125*	-0.029	0.056	-0.055
	(1.92)	(-0.53)	(1.82)	(-0.25)	(1.15)	(-0.54)
Horizontal: c	-0.031	0.066	-0.020	0.079	-0.023	0.091
	(-1.39)	(1.21)	(-0.60)	(0.78)	(-0.83)	(0.93)
a * c		-0.126*		-0.047		-0.184*
		(-1.92)		(-0.41)		(-1.68)
b * c		-0.115*		-0.261**		-0.092
		(-1.75)		(-2.04)		(-0.86)
a * b * c		0.147*		0.214		0.160
		(1.80)		(1.45)		(1.31)
Other Panel A Control Variables	Y	Y	Y	Y	Y	Y
Bidder Industry FE	Y	Y	Y	Y	Y	Y
Observations	526	526	105	105	415	415
Adjusted R2	0.080	0.054	0.121	0.147	0.115	0.122

Table 1.8. Bidder Board Political Capital and M&A Returns

This table reports the OLS regression results of how bidder political capital affects M&A returns for the period 2007-2013. This M&A sample contains 526 completed or withdrawn domestic deals that are announced between February 10, 2007 and December 31, 2013. Bidders of all the deals in this sample have at least one director that is connected to either Clinton or Obama through social or professional ties, but not to both Clinton and Obama. The dependent variable in all columns is *CAR (-1, +1)*, the three-day cumulative abnormal return of the bidder calculated using the standard one-factor market model. The expected return is estimated over the period (-210, -30) using the CRSP value-weighted market return. *BPC President* is an indicator variable that equals 1 if a firm has at least one director connected to Barack Obama (the winner of the 2008 presidential election) through past or current social or professional ties, and 0 otherwise. *Post* is an indicator variable that equals one if a merger is announced after Barack Obama officially takes office as the U.S. president on January 20, 2009 and 0 otherwise. *Horizontal* is an indicator variable that equals 1 if the bidder and the target share the same Fama-French 48 industry and 0 otherwise. *BPC Presidential Social* is an indicator variable that equals 1 if a firm has at least one director connected to Barack Obama through social ties and 0 otherwise. Columns 1 & 2 contain all deals, columns 3 & 4 only contain deals that are under the regulatory review by the Federal Trade Commission and/or the Department of Justice, and columns 5 & 6 contain deals that are not reviewed by these agencies. Appendix provides detailed variable descriptions. Standard errors are clustered by bidder in all regressions. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively.

Panel A: Bidder Board Political Capital and M&A Returns

	All Deals		Under Review		Not Under Review	
	(1)	(2)	(3)	(4)	(5)	(6)
BPC President: a	0.015	0.028*	-0.005	0.013	0.012	0.028
	(1.57)	(1.89)	(-0.26)	(1.24)	(1.07)	(1.60)
Post: b	0.019*	0.035**	-0.005	-0.009	-0.002	0.011
	(1.92)	(2.35)	(-0.18)	(-0.58)	(-0.05)	(0.32)
a * b	-0.013	0.018	0.049*	-0.023	-0.016	-0.043*
	(-1.14)	(1.17)	(1.87)	(-1.60)	(-1.12)	(-1.95)
Horizontal: c	0.006	-0.040**	0.006	0.002	0.007	0.018
	(1.05)	(-2.22)	(0.29)	(0.11)	(1.23)	(0.93)
a * c		-0.020		-0.011		-0.025
		(-1.09)		(-0.69)		(-1.15)
b * c		-0.024		-0.018		-0.019
		(-1.32)		(-1.11)		(-0.81)
a * b * c		0.041*		0.032*		0.043
		(1.83)		(1.68)		(1.54)
Bidder Govt Directors	-0.001	-0.001	-0.014**	-0.001	-0.001	-0.001
	(-0.41)	(-0.37)	(-2.01)	(-0.55)	(-0.32)	(-0.21)
Bidder Lobbying	0.002	0.002	0.017	0.001	-0.000	-0.001
	(0.26)	(0.29)	(0.69)	(0.31)	(-0.04)	(-0.11)
Bidder Size	-0.003	-0.003	-0.005	0.001	-0.001	-0.001
	(-1.26)	(-1.24)	(-0.84)	(0.80)	(-0.62)	(-0.56)
Relative Size	0.003	0.004	-0.001	0.001	0.014	0.013
	(0.49)	(0.55)	(-0.21)	(0.61)	(0.94)	(0.92)
Bidder MTB	0.002	0.002	-0.006	0.001	0.000	0.000
	(0.38)	(0.34)	(-0.34)	(0.38)	(0.08)	(0.04)
Bidder ExCash	-0.006*	-0.006*	-0.000	-0.002	-0.002	-0.003
	(-1.65)	(-1.74)	(-0.03)	(-0.99)	(-0.58)	(-0.68)
Bidder Leverage	0.015	0.015	0.021	-0.004	-0.004	-0.006
	(0.99)	(1.03)	(0.93)	(-0.69)	(-0.21)	(-0.30)
Bidder Runup	-0.018	-0.019	-0.032	0.016*	-0.002	-0.004
	(-1.26)	(-1.33)	(-0.69)	(1.85)	(-0.14)	(-0.28)
Public Target	-0.018**	-0.018**	-0.030*	0.001	-0.021***	-0.022***
	(-2.54)	(-2.53)	(-1.91)	(0.21)	(-2.78)	(-2.87)
Stock Deal	-0.026	-0.026	-0.076**	0.009	0.007	0.006
	(-1.42)	(-1.47)	(-2.56)	(1.39)	(0.29)	(0.29)
All Cash	0.004	0.003	-0.009	-0.001	0.005	0.004
	(0.58)	(0.43)	(-0.39)	(-0.20)	(0.71)	(0.54)
Bidder Industry FE	Y	Y	Y	Y	Y	Y
Observations	526	526	102	102	419	419
Adjusted R2	0.104	0.104	0.204	0.200	0.129	0.132

Panel B: Bidder Board Political Capital and M&A Returns: Social Ties to the President

	All Deals		Under Review		Not Under Review	
	(1)	(2)	(3)	(4)	(5)	(6)
BPC President Social: a	0.011	0.026*	0.013	0.041	0.006	0.009
	(1.13)	(1.69)	(0.60)	(0.97)	(0.53)	(0.48)
Post: b	0.014	0.037**	-0.010	0.076	-0.006	-0.007
	(1.47)	(2.23)	(-0.35)	(1.59)	(-0.19)	(-0.20)
a * b	-0.006	-0.038*	0.050*	-0.043	-0.008	-0.018
	(-0.56)	(-1.95)	(1.85)	(-0.95)	(-0.58)	(-0.73)
Horizontal: c	0.006	0.023	0.007	0.102*	0.007	0.004
	(1.02)	(1.38)	(0.31)	(1.81)	(1.21)	(0.19)
a * c		-0.023		-0.044		-0.007
		(-1.21)		(-0.89)		(-0.30)
b * c		-0.032		-0.170**		0.001
		(-1.59)		(-2.50)		(0.05)
a * b * c		0.043*		0.131**		0.017
		(1.86)		(2.03)		(0.58)
Other Panel A Control Variables	Y	Y	Y	Y	Y	Y
Bidder Industry FE	Y	Y	Y	Y	Y	Y
Observations	526	526	102	102	419	419
Adjusted R^2	0.102	0.087	0.206	0.207	0.125	0.123

Table 1.9. Robustness Checks for Mainline Findings

This table reports the OLS regression results for several robustness checks. Panel A reports further analysis of my mainline regression in Table 1.4 using alternative board political capital measures. The dependent variable is *CAR (0,+1)* in columns 1 & 2 of Panel A and *CAR (0,+7)* in columns 3 & 4 of Panel A. *Number of Ties to Winner* denotes the total number of director social or professional ties to the winning candidate of the state primary. *BPC Winner Same Period* is an indicator variable that equals one if a firm has at least one director sharing social or professional ties with the winning candidate of the state primary for overlapping periods, and zero otherwise. Panel B reports results of my mainline analysis using an alternative sample. The dependent variable is *CAR (0,+1)* in columns 1 & 2 of Panel B and *CAR (0,+7)* in columns 3 & 4 of Panel B. In columns 1 & 3 of Panel B, I exclude firms connected to neither Obama nor Clinton through director social or professional ties from my base sample. In columns 2 & 4 of Panel B, I further include firms connected to both Clinton and Obama through director social or professional ties in my base sample. Panel C reports robustness checks for my M&A analysis using an alternative sample period. I require all deals to be announced before the first term of Obama's presidency that ends on January 19, 2013 and after February 10, 2007 when Obama announced his presidential campaign. The dependent variable in columns 1 & 2 of Panel C is *Completion*, and the dependent variable in columns 3 & 4 of Panel C is *CAR (-1,+1)*. Models in columns 1 & 2 of Panel C also include all the control variables in Table 1.7, and models in columns 3 & 4 of Panel C include all the control variables in Table 1.8. Variable definitions are discussed with more details in Table 1.4, 1.7 & 1.8. Standard errors are clustered by firm in Panel A & B, and by bidder in Panel C. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively.

Panel A: Alternative Board Political Capital Measures and the CAR Surrounding Democratic State Primaries

	CAR (0, +1)		CAR (0, +7)	
	(1)	(2)	(3)	(4)
Number of Ties to Winner	0.006**		0.009**	
	(2.13)		(2.00)	
BPC Winner Same Period		0.016		0.033*
		(1.29)		(1.66)
Firm FE	Y	Y	Y	Y
Observations	1,592	1,592	1,592	1,592
Adjusted R2	0.104	0.107	0.005	0.006

Panel B: The Value of Board Political Capital Using Alternative Sample

	CAR (0, +1)		CAR (0, +7)	
	Exclude Non-Connected Firms	*Include Firms Connected to Both*	*Exclude Non-Connected Firms*	*Include Firms Connected to Both*
	(1)	(2)	(3)	(4)
BPC Winner	0.009*	0.009**	0.013*	0.013*
	(1.90)	(2.02)	(1.70)	(1.79)
Firm FE	Y	Y	Y	Y
Observations	748	1,748	748	1,748
Adjusted R2	0.116	0.103	0.007	0.004

Panel C: Mainline M&A Analysis Using an Alternative Sample Period (Sample Ends on January 2013)

	Completion		CAR (-1, +1)	
	All	*Under Review*	*All*	*Under Review*
	(1)	(2)	(3)	(4)
BPC President: a	-0.050	-0.010	0.014	-0.002
	(-1.50)	(-0.21)	(1.44)	(-0.11)
Post: b	0.060	-0.154**	0.013	-0.018
	(0.76)	(-2.64)	(1.26)	(-0.57)
a * b	0.068*	0.137**	-0.009	0.053*
	(1.66)	(2.20)	(-0.76)	(1.71)
Other Control Variables	Y	Y	Y	Y
Bidder Industry FE	Y	Y	Y	Y
Observations	461	84	461	84
Adjusted R^2	0.174	0.156	0.103	0.269

Appendix

Appendix A: Variable Definitions

Variable Name	Definition
BPC Winner	An indicator variable that equals 1 if a firm has at least one director connected to the winning candidate of the state primary through past or current social and/or professional ties, and 0 otherwise.
BPC Winner Social	An indicator variable that equals 1 if a firm has at least one director connected to the winning candidate of the state primary through social ties, and 0 otherwise.
BPC President	An indicator variable that equals 1 if a firm has at least one director connected to Barack Obama (the winner of the 2008 presidential election) through professional or social ties, and 0 otherwise.
BPC President Social	An indicator variable that equals 1 if a firm has at least one director connected to Barack Obama (the winner of the 2008 presidential election) through social ties, and 0 otherwise.
Firm Characteristics	
Board Independence	Percentage of board members who are independent directors using the RiskMetrics classification.
Board Size	Number of directors on the board.
CAPEX	(Capital Expenditures-Sale of Property)/ Lagged Book Value of Assets
ExCash	(Net Cash Flow from Operating Activities - Depreciation/Amortisation + R&D Expense)/ Lagged Book Value of Assets
Institution Own	Total percentage ownership from all institutional investors.
Leverage	(Total current debt+Long term debt)/ Lagged book value of assets.
Ln(Total Assets)	The natural logarithm of book value of total assets in millions of dollars.
Lobbying Expenses	The total lobbying spending by the firm during the last fiscal year. I further scale lobbying expenses by the firm's total assets in regressions.
MTB	(Book Value of Assets-Book Value of Equity+Market Value of Equity) / Lagged Book Value of Assets
Number of Government Directors	Number of directors on the firm's board who have worked for government agencies in the past.
R&D Intensity	R&D expense/Lagged Book value of assets. Missing values are set to 0.
ROA	Earnings before interest, taxes, depreciation and amortization/Beginning-year total assets.
Sales Growth	Ln(1 + sale/lagged sale).

Tangibility	Total Gross Property, Plant and Equipment/ Lagged Book Value of Assets
Deal Characteristics	
Completion	An indicator variable equals one if the merger is approved by the agency and 0 otherwise.
CAR (-1,+1)	The 3-day cumulative abnormal return calculated using the one-factor standard market model over the event window (-1, +1). The expected return is estimated over the period (-210, -30) using the CRSP value-weighted market return.
Horizontal	An indicator variable =1 if the bidder and the target share the same Fama-French 48 industry and 0 otherwise.
All Cash	An indicator variable =1 if the deal is purely financed by cash and 0 otherwise.
Bidder ExCash	(Net Cash Flow from Operating Activities of Bidder- Bidder Depreciation/Amortisation + Bidder R&D Expense)/ Lagged Book Value of Bidder Assets
Bidder Govt Directors	The number of directors on the bidder firm's board who have worked for government agencies in the past.
Bidder Leverage	(Bidder total current debt+ Bidder long term debt)/ Lagged book value of assets of the Bidder.
Bidder Lobbying	The total lobbying spending by the bidder firm during the last fiscal year. I further scale lobbying expenses by the firm's total assets in regressions.
Bidder MTB	(Book Value of Bidder Assets-Book Value of Bidder Equity+ Bidder Market Value of Equity) / Lagged Book Value of Bidder Assets
Bidder Runup	Bidder's buy-and-hold abnormal return during the period (-210,-30). I use the CRSP value-weighted return as the market index and standard one-factor market model.
Public Target	An indicator variable=1 if the target is a publicly listed firm and 0 otherwise.
Relative Size	Transaction value divided by the bidder's market value.
Stock Deal	An indicator variable =1 if the deal is partially financed by stocks and 0 otherwise.

Chapter 2. CEO Option Compensation Can Be a Bad Option: Evidence from Product Market Relationships

2.1. Introduction

Option compensation is an important component of executive pay in the United States. By providing convex payoffs, option-based compensation is viewed as a standard mechanism to reduce manager risk-aversion and encourage value-enhancing risk-taking.[21] While stock options can better align CEO and shareholder interests, they are also associated with less desirable effects. By increasing executive risk-taking incentives, CEO stock option compensation can raise a firm's risk of financial distress and intensify conflicts of interests between shareholders and other key stakeholders with debt or debt-like claims (for example, see John and John, 1993; Opler and Titman, 1994; Berger, Ofek, and Yermack, 1997; Kuang and Qin, 2013).

Production is a fundamental function of the firm and preserving valuable product market relationships, such as major customers, is crucial to firm value. In the United States, nearly half of public firms depend on at least one large customer for a substantial portion of their sales, i.e. representing at least 10% of sales (Ellis, Fee, and Thomas, 2012). Prior literature suggests that suppliers commonly make relationship-specific investments in their major customer relationships and the health of these valuable trading relationships can significantly affect firm value.[22] Once these

[21] For example, see Defusco, Johnson, and Zorn (1990), Mehran (1992), Tufano (1996), Guay (1999), Cohen, Hall, and Viceira (2000), Knopf, Nam, and Thornton (2002), Coles, Daniel, and Naveen (2006), Low (2009), Dong, Wang, and Xie (2010), Gormley, Matsa, and Milbourn (2013), and Shue and Townsend (2014).

[22] Classical works in this area include Titman (1984), Joskow (1988) and Titman and Wessels (1988).

investments are made, a supplier faces substantial losses if its major customer terminates the trading relationship.

While recent evidence suggests that important product-market relationships affect a firm's corporate governance by increasing the incidence of anti-takeover provisions so as to reduce a firm's takeover likelihood (Johnson, Karpoff, and Yi, 2015; Cen, Dasgupta, and Sen, 2016; Cremers, Litov, and Sepe, 2017; Harford, Schonlau, and Stanfield, 2017) and that increasing debtholder bargaining power leads firms to reduce the risk-taking incentives of its executives (Akins et al., 2017), we are the first to examine how the bargaining power of important product market relationships affects executive compensation. As a nexus of the contracting relationships among stakeholders, a firm's bargaining position relative to its stakeholders determines the economic rents it captures from these relationships over time and is a major component of firm value (Jensen and Meckling, 1976). Therefore, in selecting a CEO compensation structure to maximize shareholder value, boards should take into account the impact that CEO risk-taking incentives have on its other significant stakeholder relationships (John and John, 1993).

We hypothesize that having concentrated customers raises the costs associated with granting CEOs option compensation, leading to lower risk-taking incentives of option compensation. The existing literature finds that CEO stock option compensation leads to increased leverage, and thus also increases the likelihood of financial distress and credit ratings downgrades.[23] However, an important indirect cost of financial distress is the expected loss of customers as the probability of financial distress increases. Customers face heightened uncertainty about a supplier's reliability

[23] See Mehran (1992); Cohen, Hall, and Viceira (2000); Dong, Wang, and Xie (2010; Kuang and Qin (2013); and Shue and Townsend (2017).

in terms of product quality and timeliness of product deliveries and servicing as the supplier firm becomes riskier.[24] Thus, CEO option compensation can lead to reduced customer demand for a firm's products and services, thus producing unstable trade relationships. Such unstable customer relationships are particularly costly for firms with concentrated customer bases. Firms with concentrated customers usually make relationship-specific investments for their major customers, and these customer-specific assets will lose value if the customer terminates the trade. Therefore, executive option-based compensation is associated with higher costs for firms with concentrated customers relative to firms with diversified customer bases. As a result, firms with concentrated customers should have a more customer-friendly CEO compensation structure exhibiting lower risk-taking incentives associated with option-based compensation.

Consistent with the above perspective, we expect firms experiencing an exogenous shock that weakens their bargaining power relative to their customers, are likely to experience a larger reduction in CEO stock option compensation when they have a concentrated customer base. Williamson (1979) argues that firms optimally adjust governance structures so as to reduce contracting costs with key stakeholders by attenuating incentives towards ex post opportunism. Specifically, these adjustments act as a pre-commitment mechanism against ex post opportunism. Thus, the strength of these adjustments should reflect the importance of these stakeholder relationships and specifically the relative bargaining power of their customers (Hui, Klasa, and Yeung, 2012). This reduction in stock option compensation strengthens the firm's pre-commitment mechanism to avoid ex post opportunism. This in turn reduces the

[24] See Klein, Crawford, and Alchian (1978); Williamson (1979); Titman (1984); Opler and Titman (1994); Hortaçsu et al. (2013); Wowak, Mannor, and Wowak (2015).

likelihood of relationship termination and the loss in value of relationship-specific investments for firms with concentrated customers.

To test our hypothesis and address endogeneity concerns, we exploit industry-level tariff reductions as quasi-natural experiments. Consistent with the evidence of Martin and Otto (2017), tariff reductions in a supplier firm's industry unexpectedly increase the bargaining power of customers relative to the supplier by intensifying supplier industry competition and reducing customer switching costs to foreign rivals. We find novel evidence that customer considerations have a first-order effect on a CEO's option-based compensation. Following tariff reductions, firms with major customers experience greater reductions in CEO option compensation and risk-taking incentives relative to firms without a large customer.[25] Given the existence of major customers, firms reduce the proportion of annual compensation awarded in the form of stock options by an average of 25.6% following tariff reductions. In an alternative test, we use propensity score matching to correct for endogenous selection across observable factors. We repeat the above analysis on a matched sample and conclude that our findings are robust to this matching approach. Taken together, these empirical results provide strong evidence that customer considerations have a substantial impact on a firm's executive compensation structure.

Our empirical results also provide strong evidence that reducing CEO stock option compensation helps bond a firms' pre-existing relationships with their major customers. Following tariff reductions, a decrease in CEO option-based compensation and risk-taking incentives lead to significantly higher growth in sales to their major

[25] We do not find evidence that this effect is driven by a change in stock volatility for firms with large customers. There is no significant change in the stock volatility of firms with large customers around the tariff reductions. In untabulated tests, we find no evidence that the result is driven by changes in CEOs around these tariff cuts.

customers and a lower probability of relationship termination. We document that this effect also adversely impacts the overall performance of supplier firms. Lower CEO option compensation and risk-taking incentives significantly decrease firm value in the presence of concentrated customers.

We further show that the negative relation between an increase in major customer bargaining power and a supplier CEO's option compensation exhibits significant cross-sectional differences based on customer and supplier characteristics. Specifically, we find our results are centered in supplier firms that have higher leverage, a higher probability of financial distress, higher asset specificity, and greater product differentiation. These results are consistent with the negative link between customer concentration and CEO option-based compensation occurring through the existence of customer-specific assets and financial distress. In addition, the negative link is also centered among firms that have higher industry concentration, a higher fraction of domestic sales, and a higher fraction of sales within the industry subject to tariff shocks. These results suggest that supplier firms where we would expect the greatest increases in competition as a result of tariff cuts significantly reduce option compensation, consistent with a supplier response to the increase in customer bargaining power. We also find stronger results with large corporate (rather than government) customers that are more likely to switch to foreign suppliers. In a series of robustness tests, we rule out several alternative channels driving our results, including a decline in stock prices or an increase in industry risk driving our results.

This study contributes to the existing literature in several ways. First, our study contributes to a growing literature documenting that important stakeholders have real

effects on corporate decisions.[26] Several prior studies document that creditor and labor bargaining power affects CEO compensation. John and John (1993) show the important relation between debtholders and executive compensation structure, Edmans and Liu (2011) demonstrate the importance of debt-equity holder conflicts in CEO risk taking, Akins et al. (2017) find that increases in creditor bargaining power leads to reductions in executive option compensation, and Huang et al. (2017) find that labor unions bargaining power influences CEO pay. Despite this prior evidence, there is little existing theoretical or empirical work that examines the impact of large and economically important customer relationships on the choice of CEO compensation contracts. This study helps fill this important gap. We advance our understanding of these issues by showing the importance of product market relationships for firm governance and managerial compensation policies more specifically. Our results also partially support the efficient contracting theory of executive compensation (e.g. Edmans and Gabaix, 2009; Frydman and Jenter, 2010; Murphy, 2013). In response to an increase in customer bargaining power, the board of directors appears to substantially adjust senior manager compensation by reducing risk-taking incentives so as to maintain major product market relationships and stengthen firm performance.

Second, we find that a firm can optimize its governance practices so as to bond their trading relationships. Our findings support Williamson (1979), who argues that firms optimally adjust governance structures so as to reduce contracting costs with key stakeholders, in part by attenuating incentives towards ex post opportunism. Along

[26] Large customers affect a firm's takeover probability (Harford, Schonlau, and Stanfield, 2017), the level of takeover protections (Johnson, Karpoff, and Yi, 2015; Cen, Dasgupta, and Sen, 2016), financial leverage (Kale and Shahrur, 2007; Banerjee, Dasgupta, and Kim, 2008); equity issuance (Johnson, Kang, Masulis and Yi, 2017), and equity investments in economically-linked firms (Fee, Hadlock, and Thomas, 2006). Financial distress (Hertzel et al., 2008) and gains from merger activity (Fee and Thomas, 2004) can also spillover from customers to suppliers.

with Hui, Klasa, and Yeung (2012), Johnson. Karpoff, and Yi (2015), Cen, Dasgupta, and Sen (2015), and Cremers, Litov, and Sepe (2016), we find a new channel through which firms use governance policies as bonding devices. In this context, we investigate how listed firms adjust their governance practices to reassure major customers by altering executive compensation policies. Compared to other governance related bonding mechanisms, adjusting managerial compensation to protect relationship-specific investments is a potentially less costly approach to reassuring major stakeholders. [27] Thus, shareholders should support policies that can enhance shareholder wealth.

2.2. Hypothesis Development

Managerial risk-aversion is a fundamental component of the agency problem associated with separating ownership and control (Jensen and Meckling, 1976; Fama, 1980). In order to mitigate manager's risk-aversion, it is a common practice to give key executives convex payoffs through option-based compensation. Existing studies generally conclude that granting stock options to executives encourages greater risk-taking activity. For instance, it leads to increased leverage (Mehran, 1992; Cohen, Hall, and Viceira, 2000; Dong, Wang, and Xie, 2010; Shue and Townsend, 2017), riskier investment policy (Coles, Daniel, and Naveen, 2006; Low, 2009), discourages hedging (Tufano, 1996; Knopf, Nam, and Thornton, 2002; Rajgopal and Shevlin, 2002), and raises both stock volatility (Defusco, Johnson, and Zorn, 1990; Guay, 1999) and the likelihood of ratings downgrades (Kuang and Qin, 2013). Overall, the past literature

[27] Johnson, Karpoff, and Yi (2015), Cen, Dasgupta, and Sen (2016), and Cremers, Litov, and Sepe (2017) find that anti-takeover provisions can serve as a bonding device of important business relationships. Yet, institutional investors generally have strong resistance to anti-takeover proposals.

suggests that greater risk-taking incentives for senior managers through option grants are associated with more corporate risk-taking, which in turn raises the probability of financial distress.

While CEO stock option compensation can reduce shareholder-manager conflicts, it can impose costs on a firm's customers *ex post* and lead to unstable trade relationships. Specifically, CEO stock option grants can adversely impact a firm's customers by encouraging post-contractual opportunism and increasing the probability of a supplier's financial distress. Supply interruptions and the deterioration of product quality are first-order concerns for a customer. For instance, Maksimovic and Titman (1991) argue that a customer expects to face greater risks of supplier liquidation or change of control when suppliers are financially distressed. A supplier's willingness to produce high-quality products also falls significantly with financial distress, making its customers bear greater uncertainties about both the quantity and quality of products purchased from the supplier (Maksimovic and Titman, 1991). Consistent with the above prediction, Hortaçsu et al. (2013) find that a rise in a supplier's probability of financial distress significantly reduces major consumer demand for its core products. Additionally, Opler and Titman (1994) suggest that the loss of valuable customer relationships to be an important component of the cost of bankruptcy.

CEO stock option compensation can also impose costs on a firm's customers *ex ante*. Given the arguments above, customers should rationally assess supplier risk-taking incentives embedded in their executive compensation plans prior to entering into and throughout the life of any important customer-supplier relationship. Supplier CEO option compensation can reduce its major customer's willingness to pay a higher price for its products (Titman, 1984; Hortaçsu et al., 2013), purchase more goods from the supplier, and maintain pre-existing trading relationships for a longer duration. For

example, supplier CEO stock option compensation can discourage relationship-specific investments (RSI) by the customer, which reduces the switching costs the customer faces. Therefore, supplier CEO option compensation can also lead to unstable customer relationships *ex ante.*

Unstable trade relationships are particularly costly for firms with a concentrated customer base. Firms with economically large and longer-term trading relationships are more likely to make RSI when producing customized products for these customers (Titman, 1984; Joskow, 1988; Titman and Wessels, 1988). Once RSIs are made, a supplier's relationship-specific assets lose value if the large customer terminates the trading relationship. The loss in customer-specific asset value can be substantial and has economically large impacts on supplier profitability. To avoid a loss in value of its RSI, firms with major customers should ceteris paribus reduce risk-taking more than firms with a diversified customer base. Consistent with this conjecture, Kale and Shahrur (2006) and Banerjee, Dasgupta, and Kim (2008) find that both customers and suppliers in bilateral relationships maintain lower leverage to reduce the loss of RSI should the counterparty fail.

Taken together, supplier CEO option compensation can lead to unstable customer-supplier relationships. Due to the existence of customer-specific assets, CEO option compensation is costlier for firms with concentrated customer bases relative to firms with diversified customers. In equilibrium, the level of option compensation is determined by the relative importance of the customer relationship and the relative bargaining power of the supplier/CEO and the customer (Hui, Klasa, and Yeung, 2012; Akins et al., 2017). We predict that following a decline in switching costs for customers and an increase in customer bargaining power relative to that of its supplier, firms with major customer relationships will award their CEOs lower stock option

compensation than firms without large customers. Lower CEO stock option compensation is also predicted to strengthen a firm's relationships with major customers, leading to increases in major customer sales and longer-lasting relationships. We formalize this analysis in the main hypotheses that follow:

Hypothesis 1. *Following a shock that increases customer bargaining power, firms with a concentrated customer base experience a larger reduction in CEO stock option compensation than firms without a concentrated customer base.*

Hypothesis 2. *Following a shock that increases customer bargaining power, a decrease in CEO stock option compensation is predicted to strengthen a firm's relationships with its major customers.*

2.3. Data and Empirical Methodology

2.3.1. Data

2.3.1.1. Compensation Data

We extract executive compensation data from the Execucomp database from 1992-2005. Stock volatility is calculated from daily stock returns taken from CRSP and calculated over the prior fiscal year, and annual dividend yields are taken from Compustat and averaged over the past three years. We use this information to calculate the Black-Scholes values of stock options after accounting for expected annual dividends. To be consistent with the treatment in Execucomp, we winsorize return volatilities and dividend yields at the 5th and 95th percentiles.

Tariff reductions may reduce the value of supplier firms by increasing competition for customers and the value of a supplier CEO's options may decrease after tariff cuts, even if the number of options or option granting behavior is unchanged.

As a result, a decline in value of total option grants may not represent firms actively decreasing option compensation to act as a pre-commitment mechanism as predicted by our hypothesis, but rather through a stock price channel. Therefore, we use *Flow Vega* as the primary measure of CEO risk-taking incentives of option compensation. We define *Flow Vega* as the dollar change in the executive's current annual option grants (and not total option portfolio) for a one percent change in the annualized standard deviation of the stock's daily returns. This measure captures changes in the risk-taking incentives given by new option grants and not the value of preexisting grants. We also define an alternative measure, *Pct Option*, as the portion of CEO compensation comprised of stock options, which is calculated from the *ex ante* value of stock options as a fraction of *ex ante* annual total compensation. The portion of CEO compensation measures the use of options to remunerate executives and reflects risk-taking incentives that can be easily interpreted from a firm's financial reports.

In a series of robustness checks, we also use the following alternative measures of CEO option compensation: (1) *Vega*; (2) *Vega* scaled by total assets; (3) the value of option-based compensation divided by stock compensation; and (4) the number of options granted in the current year divided by the number of shares outstanding. Following the existing literature (Guay, 1999; Core and Guay, 2002; Coles, Daniel, and Naveen, 2006), *Vega* is computed as the dollar change in the executive's total option portfolio for a one percent change in the annualized standard deviation of the stock's daily returns. The dollar value of *Vega* is stated in 2012 dollars. CEO compensation *Vega* is winsorized at 99th percentile, since these variables are by definition truncated at zero.

2.3.1.2. Firm-level Customer Relationship Data

We extract the firm-level customer information from the Compustat Segment files from 1992 to 2005. Our primary variable of interest is *Large Customer*, an indicator variable equal to 1 if firm *i* has one or more large customers that usually account for more than 10% of its sales in year *t* and 0 otherwise. This measure allows us to capture all publicly traded firms with actual materially important customers. Therefore, it is the most appropriate for the purposes of studying the compensation policies of firms with important customers and not just of firms from industries with higher average product market relationships with other industries.[28] We also include two alternative measures of significant trading partners that identify whether the large customer is a government agency or a corporation (including both public and private firms). *Corporate Customer* and *Government Customer* are indicator variables that equal 1 if the firm has one or more large corporate customers or large government customers respectively that account for more than 10% of its total sales and equals 0 otherwise.

Since 1998, firms are no longer required to report identities of their important customers under SFAS No.14, but the existence of a major customer must be reported. Reporting the actual sales level is also voluntary under this requirement. Due to this reporting practice, measures computed with customer identities and sales levels are understated and subject to downward biases. Therefore, *Large Customer* is the most complete measure of the existence of large trading relationships. However, for completeness, we also utilize several additional measures of significant trading

[28] Due to differences in research questions, other studies utilize industry-level measures of product-market flows obtained from the Bureau of Labor Statistics. For example, Martin and Otto (2017) examine the impact of supplier tariff reductions on customer investment. As such, the Compustat firm-level data would be inappropriate since it identifies public supplier firms with important customers and only public customers are identified. See Harford, Schonlau, and Stanfield (2017) for an in-depth discussion of the differences between these data sources.

partners for robustness. These alternative measures include: the sum of total percentage sales to large customers (*Sum Sale*), long-term large customers based on sales in the last two years (*Large Customer 2yr*), and number of large customers (*Number Customers*).

The prior literature analyzes the existence of key suppliers as another type of important trading partner on various firm policies (Kale and Shahrur, 2007; Banerjee, Dasgupta, and Kim, 2008; Hui, Klasa, and Yeung, 2012; Johnson, Karpoff, and Yi, 2015). However, we focus on the role of large customers for several reasons. First, large customers are the main sources of a firm's revenues and several studies suggest that large customers have stronger wealth effects on a firm than its suppliers (Hertzel et al., 2008; Pandit, Wasley, and Zach, 2011). Second, and partially due to the above reasoning, SFAS only requires public firms to report significant customers, but not their key suppliers. Thus, it is only possible to identify whether a firm is an important customer to a public supplier from the Compustat Segment files, but not whether the supplier is important to their business. Third, it is easier to identify the implications of large customers on firm value (for example, subsequent sales growth) than that of suppliers. Nevertheless, we also examine the impact of having important suppliers (defined as *Large Supplier*) on a firm's CEO compensation policy as an untabulated robustness test.

2.3.1.3. Import Tariff Data

We use the import tariff data compiled by Fresard (2010) covering the period 1974-2005.[29] The tariff data only exists for manufacturing industries (2000-3999 SIC

[29] Available on Laurent Fresard's webpage: http://terpconnect.umd.edu/~lfresard/

range). Following Fresard (2010), we identify a tariff cut as a large negative tariff change in a specific 4-digit SIC industry that is 2.5 times larger than the industry's median tariff change.[30] *Tariff Cut*$_{j,t}$ is an indicator variable that equals 1 if the supplier is in industry *j* which experiences a tariff cut at time *t* and 0 otherwise. To ensure that the tariff changes only reflect non-transitory shocks and thus are relatively permanent changes in the competitive environment, we exclude tariff cuts followed by equivalently large increases over next two years. As a result, we identify 257 tariff cuts in 86 unique 4-digit SIC industries in the 1992-2005 period. Figure 2.1 displays the 257 industry-level tariff reductions by year for our sample.

2.3.2. Sample Formation

We merge the Execucomp compensation data with the Compustat Segment and company financial data, and require the firm-years to be in the manufacturing industries described above. These requirements yield a sample of manufacturing firms for the period 1992-2005. We use reductions in import tariffs for specific manufacturing industries to capture exogenous increases in competitive pressures experienced by individual firms and the increase in a large customer's bargaining power relative to a supplier. To avoid obvious endogeneity, we require that customers are also not directly subject to a tariff reduction. Thus, we drop 45 firm-years where firms have only one large customer and this large customer is subject to a concurrent tariff cut. This leads to a maximum of 6,356 firm-years as a result of the above requirements. After requiring the availability of lagged values of the controlled variables, we are left with a final sample of 836 unique firms.

[30] Our results are also robust to the use of alternative cutoffs to determine significant tariff cuts, such as a negative tariff change that is 2 or 3 times larger than the industry median tariff change.

The mean and median statistics for key variables along with other CEO and firm characteristics are presented in Panel A of Table 2.1. As shown in the table, 48% of all the firm-year observations in our final sample have one or more major customers. Although the compensation data requirement restricts our sample to well-established firms (S&P 1500 firms), the existence of large customers is commonly observed and accounts for nearly half of all the firm-years. As a result of the large disparity in firm size between these two samples of firms with and without large customers, we primarily rely on a multivariate analysis of stock option compensation. We also use propensity score matching to help mitigate tangible disparities in firm characteristics between treatment and control samples as discussed in Section 2.3.4 below.

2.3.3. Import Tariff Reductions as Quasi-Natural Experiments

To address concerns about reverse causality in the relation between firms having a large customer and the proportion of CEO stock option compensation, we use a quasi-natural experiment to examine how firms change their CEO compensation policies in response to exogenous changes in competitive pressure. Following Fresard (2010) and Valta (2012), we use staggered reductions in import tariffs within selected U.S. manufacturing industries as unexpected intensifications of competitive pressures faced by suppliers. Following these tariff reductions, customers face lower switching costs that lead to a higher likelihood of a supplier losing an existing major customer, which improves the bargaining position of customers relative to suppliers. Importantly, Martin and Otto (2017) find evidence consistent with tariff cuts in supplier industries improving the bargaining power of customers. Specifically, they document that firms in industries with suppliers subject to tariff cuts significantly increase investment. To reduce the likelihood of major customers switching to foreign rivals, firms that are in

industries subject to import tariff reductions are predicted to award their CEOs significantly lower stock option compensation.

As pointed out by Fresard (2010), the tariff reductions have to satisfy three requirements under the parallel trends assumption to be a valid experiment for establishing causality: 1) They must substantially change competition in the industry after the tariff cuts; 2) The industry-level tariff cuts are exogenous to the determinants of CEO risk-taking incentive awards; and 3) Tariff reductions are unexpected.

Tariff reductions make it significantly less costly for foreign firms to directly compete with domestic firms. This naturally leads to significant increases in competitive pressures on domestic firms. Past studies including Bertrand (2004), Irvine and Pontiff (2009), and Fresard (2010) find that the market share of foreign competitors significantly rises following tariff cuts. Also, tariff cuts effectively intensify competition in domestic markets (Bernard, Jensen, and Schott, 2006; Lee and Swagel, 1997; Trefler, 1993). In Table 2.9, we perform univariate tests of the effects of tariff cuts on total industry sales and industry concentration, and find evidence consistent with Fresard (2010). Both total industry sales and industry concentration of domestic firms dramatically fall. These findings indicate a significant rise in industry competition (this finding is likely to understate the actual increase in competition, since only data on domestic firms is available) and an increased probability of domestic firms losing large customers.

Industry-level tariff cuts need to be exogenous to the factors that drive CEO compensation structures to make for a useful quasi-natural experiment. The tariff reductions are events that repeat themselves on multiple occasions for various groups of firms. An advantage of using repeated experiments is that one can show that the treatment effects are similar across time, and that they are not driven by a particular

group of firms in a particular industry over a few adjacent years. Of course, there may be a concern that policy makers consider industrial performance and financial conditions when granting trade protections. Another potential concern is that larger firms are more capable of lobbying politicians for trade protections. Thus, to address concerns about the randomness of this experiment, we also include controls for firm performance (ROA, sale growth), financial strength (leverage, cash holdings) and firm size in our main specification. These control variables are measured prior to each tariff cut to avoid them reflecting the impacts of subsequent tariff reductions on firm performance, financial condition, or total size.

Finally, to be a valid experiment the tariff cuts should not be anticipated, and thus firms should not be preemptively making adjustments in CEO's risk-taking incentives. To ensure this assumption holds, we perform a falsification test on the pre-treatment trends. We construct a pre-trend indicator variable that equals 1 if a firm-year is 1 or 2 years before an industry-level tariff cut, and then regress *Flow Vega* on this indicator interacted with our main explanatory variables. The results (shown in the Table 2.9) show that there is no significant change in the use of option-based compensation before these tariff cuts.

2.3.4. Propensity Score Matching

We use propensity score matching to form an alternative matched sample, so as to mitigate the possibility that observed differences following tariff reductions in CEO option compensation between large-customer and non-large-customer firms are potentially due to differences in observable firm characteristics. Following the recommendations of Atanasov and Black (2016), we estimate propensity scores and form the matched sample based on scores in the entire portion of our sample period

that precedes tariff reductions to ensure that the tariff reductions produce covariate balance between the two groups of firms. Propensity scores are estimated using a probit model that is based on the following matching criteria: *Vega*, *Delta*, sales, return volatility, the natural log of firm age, *Sales Growth*, *ROA*, *Tobin's Q*, *Leverage*, *ExCash* (excess cash), *CAPEX* (capital expenditures), R&D intensity, and the log number of business segments, which are all defined in the appendix. As the next step, we match each large customer firm-year observation to the corresponding nearest *two* nearest neighbor firm-year observations. The matched firm-year observations must be drawn from the same year as the large customer firm-year observations, and they must not have experienced tariff reductions in the past two years. There are 2,722 large customer firm-year observations in the treatment sample and 8,166 pseudo-firm-year observations in the final matched sample.

Table 2.1, Panel B reports the means for CEO and firm characteristics of large-customer firm-years and non-large customer firm-years in the matched sample. As a result of matching, the two samples of firms with and without large customers exhibit similar firm characteristics. We find that firm size, risk, performance, investment expenditures, financial policies, sales concentration, and corporate governance are not significantly different between the two samples. The only significant difference between the two samples is *CEO Age* and this difference is economically small. To address the concern that CEOs in firms with large customers are significantly younger than CEOs in firms without large customers, we control for CEO age as a robustness check in our main specifications. This does not alter our conclusions. Thus, we view our matched samples as having balanced covariates. Firms with and without large-customers are likely to have similar time trends in their proportion of CEO option compensation in our matched sample before the occurrence of an exogenous shock.

Figure 2.2 displays the overlap of the covariates in our matched sample by plotting the distribution of all the key covariates, including firm size, firm risk, ROA, book leverage, and cash holdings. As seen in Figure 2.2, the distributions of the covariates for the treated and control observations are very similar over all the key covariates. Together with the prior analysis, this provides corroborating evidence that our matching procedure enables us to draw valid inferences on the effects of tariff changes for executive compensation and firm value.

2.4. Empirical Results

2.4.1. Summary Statistics

Table 2.2 summarizes the mean and median, and quartile values of the magnitudes of tariff rates and tariff rate changes among the firm-years with tariff reductions. It also reports the mean differences in the proportion of CEO stock option compensation for firms with and without large customers before and after tariff reductions. As shown in Panel A of Table 2.2, there are 257 industry-level tariff reductions for the 1992-2005 period. Import tariffs in manufacturing industries are generally very low following tariff reductions in our sample period, with a mean tariff rate of 1.83% and a median of 1.37%. Among firm-years subject to tariff reductions, the magnitude of the typical cut is large, with a mean tariff rate change of -0.59% and a median tariff rate change of -0.43%, which represents an approximately 33% mean reduction. We conclude that the economic significance of these tariff cuts is large and it should lead to significant changes in a firm's competitive environment. Further validation of the economic significance of tariff reductions is shown in the Panel A of Table 2.9.

As shown in Panel B of Table 2.2, the industry-level tariff cuts contain 972 firm-years, which account for 15% of all the firm-years in our sample (972 out of 6,356 firm-years). Columns 1 and 2 show that following these tariff reductions mean CEO option compensation of all firms declines significantly from 36% to 32%. Also after a tariff cut, the mean value of *Flow Vega* exhibits a small decline of $1,582. The change in *Flow Vega* is not statistically significant but the change in *Pct Option* is statistically significant at the 1% level. Columns 3 and 4 report the mean changes in stock option compensation in the subsample of firms with at least one major customer. Following the tariff cuts, firms with large customers experience a larger reduction in *Pct Option* compared to firms without large customers (as shown in columns "(4)-(3)" and "(6)-(5)"). This also results in reductions in *Flow Vega* by firms with large customers following tariff cuts, but the change is not statistically significant. Overall, our univariate results provide evidence that changes in CEO stock option compensation are more responsive to tariff reductions in firms with large customers. In other words, firms dependent on major customers tend to reduce CEO stock option compensation more after exogenous shocks to the strength of their large customer relationships.

2.4.2. Multivariate Analysis of CEO Stock Option Compensation and Large Customer Relationships

Estimates of difference-in-difference OLS regressions are shown in Table 2.3. To test hypothesis 1, we are primarily interested in the changes in CEO risk-taking incentives from new option grants and the proportion of option compensation after the tariff reductions. The dependent variable in Panel A of Table 2.3 is the natural log of one plus the dollar change in the executive's current option grants for a one percent

change in the annualized standard deviation of the stock's daily returns (*Flow Vega*). Studying the CEO's risk-taking incentives from new option grants mitigates the alternative stock price channel and provides evidence of real changes in a firm's executive compensation in reaction to the tariff cut. All of our OLS regressions include firm and year fixed effects to capture unobserved time invariant firm characteristics and general macroeconomic factors.[31] Additionally, standard errors are clustered by firm to account for the lack of independence across individual firm observations.

Results in column 1 indicate that after tariff cuts, firms with large customers provide significantly lower risk-taking incentives through current CEO stock option grants compared to those without large customers. This result is statistically significant at the 1% level. Since firms with *Vega* equal to zero in the year before the tariff cuts already have the lowest possible *Vega,* it is not possible to reduce the risk-taking incentives provided to these CEOs further, so in column 2 we re-estimate the relation after excluding this subsample of firms. In columns 3 and 4, we report regression results based on our matched sample and we find that the results remain robust.

While *Flow Vega* appropriately captures the risk-taking incentives provided to a CEO through new option grants, it is potentially more difficult for important customers to observe or calculate. In Panel B, we define the dependent variable as the natural log of one plus the fraction of CEO annual compensation in stock options (*Pct Option*). It also offers a clear interpretation of the economic significance of any estimated effects. As reported in Panel B, we continue to find evidence in support of hypothesis 1, the proportion of the option compensation given to CEOs of supplier firms is significantly reduced following the tariff cuts. Economically, the difference

[31] The number of observations in our full sample decreases from 6,356 to 6,315 due to the use of firm fixed effects, and firms that only appear once are dropped in the final regression sample.

between these two groups of firms following the tariff cuts is large. In column 1, the average firm with a large customer is predicted to reduce its proportion of CEO stock option compensation 25.9% more than firms without a large customer all else being equal.

In untabulated tests, we also examine the large customer effect following tariff cuts on total CEO pay, the fraction of total CEO pay in cash compensation, and the fraction of total CEO pay in stock grants. We find that the total compensation in the presence of significant customers does not change significantly following tariff reductions. However, there is moderate evidence that both the fractions of total CEO pay in cash compensation and stock grants increase around tariff cuts. This result indicates that the reduction in CEO option-based compensation is largely offset by an increase in cash compensation and stock grants. Thus, total CEO compensation in the presence of significant customers remains unchanged around tariff reductions.

Overall, the empirical evidence in Table 2.3 strongly supports hypothesis 1. We find compelling evidence that following import tariff reductions, which act as exogenous shocks to existing large customer relationships, firms with large customers provide their CEOs with significantly less stock option compensation.

2.4.3. CEO Stock Option Compensation and the Strength of Large Customer Relationships

In this section, we test the channel through which CEO option compensation reduces firm value. Specifically, we examine if stock option compensation weakens large customer-supplier relationships following import tariff reductions. For this purpose, we extract sales data for major customer-supplier pairs from the Compustat Segment files. Under SFAS accounting rules, firms are required to report the existence

of customers who account for more than 10% of their sales. Due to this reporting practice, Compustat Segment files only contain trading relationships for firms that have large customers. Since 1998, reporting sales percentages and customer identities became voluntary. We use supplier GVKEYs and customer IDs from the Compustat Segment files to identify supplier-customer pairs and to validate and match listed customer names to existing firms by hand where possible.

We limit our analysis of trading relationships to suppliers that report both the amount of sales and the identities of its large customers to allow us to identify each unique supplier-major customer pair. We then calculate the annual change in sales for a particular customer-supplier relationship (*Change in Reported Sales*). For every unique customer-supplier relationship, we calculate the total length of the relationship in years. There are 284 unique suppliers with CEO compensation data available, 772 unique trading relationships, and 1,812 relationship-year observations after requiring information on key control variables and dependent variables. We further restrict the sample to include only firms with positive CEO portfolio Vegas in the previous year, which reduces the sample size slightly to 1,705. In addition, calculating sales growth to a particular customer requires past sales data, which requires that we have this trading relationship data for at least two years. This reduces the sample size for the customer sales analysis to 1,206.

Panel A of Table 2.4 reports the summary statistics of the characteristics of these major customer-supplier relationships. On average, the mean relationship length is 4.6 years and the median is 4 years, indicating that long-term trading relationships commonly exist when a firm reports having major customers. On average, large customer sales equals $458 million, and 20% of the total sales of firms with large customers come from sales to those customers (sale dependence). Median sales to a

large customer is only $153 million, while median sale dependence on a large customer is 15% of total sales. Overall, the statistics in Table 2.4 indicate that the major customer-supplier relationships in our sample are generally large and stable relationships.

Panel B of Table 2.4 compares the length and sales growth of these large trade relationships before and after the tariff reductions. Overall, there is no significant difference in the strength of these relationships following tariff cuts. One exception to this statement is that the relationships' average length is significantly shorter when supplier CEOs' stock option compensation is above the sample median, as shown in columns 3 and 4.

Table 2.5 reports the results from a multivariate diff-in-diff analysis of supplier CEO stock option compensation and the strengths of the major customer-supplier relationships. We use OLS regressions with supplier-customer pair and year fixed effects in columns 1 and 2 where standard errors are clustered by supplier-customer pair. The dependent variable in columns 1 and 2 is the natural logarithm of one plus *Change in Reported S*ales, which is the sale growth to a particular large customer *j* as reported by the supplier firm in percentage terms. Results in columns 1 and 2 indicate that greater risk-taking incentives from new option grants and a higher fraction of option-based compensation lead to significantly lower sales growth to its major customers when the firm's industry experiences tariff reductions. These results are statistically significant at the 10% and 5% levels. Economically, a 1% increase in the annual option usage as a form of compensation is predicted to be associated with a 6.5% decrease in the subsequent sales growth to the *same* large customer following a tariff cut.

The dependent variable in columns 3 and 4 is *Termination*, an indicator variable that equals one if the trade relationship is no longer reported by the supplier firm as significant next year and 0 otherwise. We use logit regressions with supplier industry and year fixed effects and standard errors clustered by supplier-customer pairs. The results in columns 3 and 4 document that supplier firms with higher CEO risk-taking incentives due to option compensation following large tariff cuts significantly increase the likelihood of customer relationship termination, as indicated by the significant positive interaction term. This result is statistically significant at the 10% level in column 3 and 5% level in column 4.

We do not find evidence that tariff reductions themselves significantly weaken the existing major customer-supplier relationships, which is in line with Bernard, Jensen and Scott (2006) and Fresard (2010). However, we do find some trading relationships are weakened and others are strengthened, which leads to an overall neutral effect of tariff reductions. In particular, we find that CEO stock option compensation affects the reallocation of major customer sales following reductions in import tariffs. Firms with higher CEO stock option compensation are predicted to experience a weakening of their major customer relationships and a decline in large-customer sales growth, while at the same time facing a higher probability of relationship termination following tariff reductions. This result is consistent with hypothesis 2. It also provides strong support for our hypothesis that firms with concentrated customers reduce their CEO option compensation following shocks to their customer relationships, so as to bond these valuable relationships.

2.4.4. CEO Stock Option Compensation and Firm Value

In Table 2.5, we find evidence that lower supplier CEO stock option compensation strengthens its relationships with major customers, and leads to gains in major customer sales and longer-lasting relationships. Due to strengthened pre-exiting major customer relationships, lower CEO stock option compensation is also expected to reduce supplier losses in its RSI and leads to rising sales to major customers, and thus, positively affect a supplier's overall operating performance. However, if suppliers do not reduce option compensation to provide a stronger pre-commitment mechanism in the face of reduced switching costs by major customers, then suppliers can expect to experience a subsequent deterioration of their customer relationships, which then leads to a reduction in firm performance and value.

To test this prediction, we examine whether changes in a supplier CEO's option compensation lead to changes in firm value when the firm has a large customer. Table 2.6 presents difference-in-difference regression results for the positive CEO compensation Vega sample, however results remain robust to including firms with zero compensation Vega. In this test, we split our sample into firm-years with and without large customers, and compare the differences in firm value caused by changes in CEO option compensation following tariff reductions. Results in columns 1 and 2 indicate that following tariff reductions, firms with large customers experience significantly larger declines in firm value if their CEOs have greater risk-taking incentives from stock option compensation. This result is statistically significant at the 10% and 5% levels, respectively. Economically, after the tariff reductions, firms with large customers experience a 2.7% decline in Tobin's Q after a 1% relative increase in the proportion of CEO stock option compensation (column 2). However, as shown in columns 3 and 4, the CEO stock option compensation of firms without large customers does not significantly affect firm value.

2.4.5. Firm Heterogeneity and Large Customer Characteristics

To demonstrate the robustness of our results, in this section, we examine cross-sectional differences in firms with large customers that change their CEO stock option compensation in response to tariff reductions. For the remainder of our tests, we only report tests using Flow Vega as the dependent variable and restricting the sample to firms with positive CEO compensation Vega in the prior year for brevity. However, results remain robust to using Pct Option or to including firms with zero CEO compensation Vega. In particular, we expect the observed negative relation between Large Customer and CEO option compensation following a tariff cut (reported in Table 2.3) to be concentrated in firms with a higher probability of financial distress, greater customer-specific assets, and a higher sensitivity to industry tariff cuts.

In columns 1 and 2 of Panel A in Table 2.7, we split firm-years by whether they have leverage above or below our sample median. We find that following tariff cuts, firms with a large customer and high leverage significantly cut CEO option compensation (at the 1% level), while firms with a large customer and low leverage do not. This is consistent with our expectation that higher leverage, which can be encouraged by high CEO option compensation, reduces customer demand for the firm's products. As existing large customer relationships become more vulnerable following tariff reductions in the industry, firms with higher leverage have a greater need to reduce CEO option-based compensation so as to protect their valuable customer relationships by reassuring these customers of the financial viability of its supplier. We find consistent statistically significant evidence in columns 3 and 4, where we split our sample into firms with higher and lower probabilities of financial distress (following Fong et al. (2014)) using the sample median as the cutoff.

The increased costs of contracting due to ex post opportunism are much greater for firms with higher asset specificity or more differentiated products (for example, see Gibbons (2005)), given a customer's greater reliance on its supplier's financial health. Moreover, a supplier with higher asset specificity or differentiated products suffers from a greater loss in RSI if the customer terminates the trade relationship (Banerjee et al., 2008). Similarly, major customers are more concerned about potential financial distress by a supplier that produces differentiated products, due to the higher switching costs. Therefore, we expect suppliers with greater asset specificity or product uniqueness are more likely to reduce CEO option compensation following increased threats of foreign competition.

In columns 1 and 2 of Panel B in Table 2.7, we split firm-years by whether firms have asset specificity above or below the median in our sample, where asset specificity is defined as the gross value of machinery and equipment scaled by lagged total assets (James and Kizilaslan, 2014). In columns 3 and 4, we alternatively split firm-years by median product uniqueness. Following Titman and Wessels (1988) and Masulis, Wang and Xie (2007), we define product uniqueness using the ratio of selling expense to total assets. Consistent with the discussion above, we find that firm-years with above median asset specificity (in column 1) and above median product uniqueness (in column 3) significantly reduce CEO option-based compensation. These results are statistically significant at 5% and 1% in the subsample of firm-years with above median asset specificity and product uniqueness (respectively), but are not significant in the subsample of firm-years with below median asset specificity or product uniqueness. Moreover, differences in above- versus below-median estimates are statistically significant for both characteristics. Overall, we find persuasive

evidence that customer RSI creates strong incentives for a supplier to reduce CEO stock option compensation following tariff cuts.

In Panel C of Table 2.7, we split our full sample of firm-years by supplier-firm industry characteristics. In columns 1 and 2, we find that as the result of facing intensified competition due to tariff cuts, firms with large customers that are in industries with above median market concentration significantly reduce the proportion of CEO option-based compensation. In contrast, firms with large customers in less concentrated industries do not. Similarly, in columns 3 and 4 we find that firms with a greater concentration of sales in industries subject to tariff cuts significantly reduce option-based compensations if they have large customers. We do not find a similarly significant relation in firms that have a lower percentage of sales in these industries. These results are consistent with our expectations that firms need to make greater reductions in CEO option compensation if they have valuable customer relationships and they are more affected by tariff reductions in their industries.

We next explore the heterogeneity in key characteristics of suppliers and their large customers and report these results in Table 2.8. We split all supplier firm-years by the median fraction of domestic sales to total sales as reported in columns 1 and 2 of Panel A. We expect firms with a larger proportion of domestic sales to be impacted by tariff cuts to a greater degree. We find that when firms have large customers and a higher than median fraction of domestic sales, they significantly reduce CEO option-based compensation following tariff cuts, as shown in column 1. This result is statistically significant at 1%. In contrast, there is no significant reduction in the subsample of firms less dependent on domestic sales, as shown in column 2.

Next, we differentiate large customers into corporate customers versus government customers in Panel B. We predict that large corporate customers are more

likely to switch to a foreign supplier as imports become cheaper after the tariff reductions. However, since large government customers strongly prefer to trade with domestic firms, we predict firms with government customers are less sensitive to tariff cuts.[32] Consistent with this prediction, the results in columns 1 and 2 of Panel B show a stronger reduction in CEO stock option compensation for firms with large corporate customers relative to large government customers. The coefficient on the interaction of the tariff cut and large corporate customer indicators in column 1 is larger than that in column 1 of Table 2.3, suggesting that conditional on having a large corporate customer, the effect on a supplier CEO's compensation structure is larger than the average effect for all firms with large customers. In comparison, the coefficient of the interaction of the tariff cut and large government customer indicators in column 2 of Panel B is not statistically significant, which supports large government customers not having a significant effect on supplier CEO compensation structures.

2.4.6. Implementation of FAS 123R as an Exogenous Shock to Option-based Compensation

Our primary analysis utilizes tariff cuts as a plausibly exogenous shock to the competition for large customers, which enhances customer bargaining power. As discussed in Section 2.3.3, this setting has several desirable empirical properties including multiple events that shock many different industries at different points in time. To strengthen the external validity of our findings, we also use an alternative

[32] Another alternative explanation is that government customers mainly purchase goods for consumption rather than production, where poorer quality products from suppliers lead to less severe reputational or monetary losses (Banerjee et al., 2008). Also, government buyers may not be driven by a profit motive, and can sometimes provide help to distressed firms and save their employees from losing jobs, therefore they can be less sensitive to the risk-taking of their suppliers. These predictions similarly point to a stronger empirical relation for corporate customers.

exogenous shock to option-based compensation (rather than a shock to competition for customers) to confirm the negative option-value link in the presence of concentrated customer base.

Specifically, following Hayes, Lemmon, and Qiu (2012), we use the change in the accounting valuation of stock options under the Financial Accounting Standards Board's Statement, FAS 123R. Following FAS 123R, firms are no longer able to expense employee stock options at their intrinsic value, but instead they must expense these options at their much higher fair values. The change in accounting treatment under FAS 123R significantly reduced the accounting benefits of expensing option-based compensation and we observe that CEO stock option compensation significantly declines after FAS 123R.[33] To exploit this quasi-natural experiment, we define the post-123R period as fiscal years 2005 through 2013. After requiring necessary data from the RiskMetrics Director and Governance Databases, and Compustat, our supplier sample consists of 2,811 large-customer firm-years and 3,979 non-large-customer firm-years from 1996-2013.

We repeat the analysis in Table 2.5 using Post-123R as the focal variable in untabulated tests. We find strong evidence that adoption of FAS 123R significantly reduces the termination likelihood for existing large customer relationships. We also find moderately significant evidence that the sales growth rates to the same large customers rise following the adoption of FAS 123R. Overall, our results indicate that following a negative shock to CEO stock-option compensation levels, the values of

[33] It is important to note that while this alternative setting provides a plausibly exogenous shock to option compensation, utilizing FAS 123R introduces several econometric issues and potentially confounding effects not present in our tariff analysis. First, FAS 123R adoption represents a simultaneous shock to the option compensation to all industries, and reduces the power of econometric tests due to the shared shock among all firms. Second, due to the timing of the single shock (in the post-SOX period and near the start of the global financial crisis), it is difficult to separate the effects of the FAS 123R from other potentially confounding macroeconomic factors occurring around the same time.

firms with large customers significantly improve, reflecting strengthened trading relationships. These findings support the results in Tables 2.5 and provide external validity to our previous inferences using an alternative quasi-natural experiment.

We compare the impact of FAS 123R on supplier values in the subsamples of large-customer and non-large-customer firm-years based on OLS regressions. We use Tobin's Q as the main dependent variable and study the impact of FAS 123R on firm value in the two subsamples of supplier firm-years. We include all the control variables used in our baseline regressions in Table 2.6 as well as board independence, the E-index, and CEO ownership percentage as added control variables along with CEO and firm fixed effects, where standard errors are clustered by firm. In untabulated results, we find that the coefficient on the Post-123R indicator is positive and statistically significant at the 5% level in the large-customer firm-years subsample, but it is insignificant in the non-large-customer firm-year subsample. This result is consistent with the findings in our results reported in Table 2.6. It indicates that the reduction of option-based compensation significantly increases firm value in the presence of important product market relationships.

2.4.7. Additional Robustness Tests

To ensure our results are robust to a variety of alternative explanations and definitions, we conduct a variety of other robustness tests. First, we assess whether tariff cuts impact the stock volatility of firms with large customers more than firms without large customers. Since one of our option compensation measures (*Pct Option*) is value-based, changes in stock volatility could influence our results. To ensure that this is not the case, we explicitly test whether stock volatility of firms with large customers increased following tariff cuts in untabulated tests. We do not observe a

significant change in stock volatility around the tariff cuts for firms with or without large customers. Furthermore, we do not observe a significant difference between the two subsamples. This provides evidence that the reduction in option compensation that we observed is not due to a change in stock volatility around tariff cuts.

In further untabulated tests, we repeat our primary analysis using alternative measures of CEO risk-taking incentives including: 1) CEO *Vega*; 2) CEO *Vega* scaled by total assets; 3) the market value of CEO option compensation divided by CEO stock compensation; and 4) the number of CEO options granted in current year divided by number of shares outstanding. We obtain qualitatively similar results. These results are robust to alternative measures of major trading relationships, including: 1) the number of large customers (*Number Customer*); 2) the combined percentage of sales to all large customers *(Sum Sale*); 3) an indicator of large longer-term customers (*Large Customer 2yr*); and 4) an indicator of major suppliers (*Large Supplier*).

We also check whether firms with potentially higher supplier CEO turnover rates in the face of tariff reductions are driving our results. In our sample, there are 52 CEO turnovers after a firm is also subject to tariff reductions. When these 52 firm-years are excluded from our analysis, we find that our main results remain robust.[34]

To ensure that our findings are not being driven by the general decline in option compensation that occurs in the 2000s due to the passage of the 2002 Sarbanes-Oxley Act as well as the 2004 FAS 123R accounting rule, we repeat our analysis for years 2001 and before. In untabulated results, we continue to find consistent evidence that supports our primary findings in the overall sample.

[34] We include firm-years with CEO turnovers in our main test since they can represent one particular source for changes in firm risk-taking policies.

We also repeat our primary analysis using the Coarsened Exact Matching (CEM) approach as an alternative matching method to propensity score matching. Some recent studies criticize the fragility and biases in PSM and find evidence that CEM dominates PSM in terms of providing more stable/credible evidence (Iacus, King & Porro, 2011). We find quantitatively and qualitatively similar results for our primary analysis using CEM matching in untabulated robustness tests.

Finally, in other untabulated robustness tests, we perform our analysis on a comprehensive set of firms based on OLS regressions over the period 1992-2009 and study the relation between the fraction of CEO option compensation, the presence of a large customer, and firm value. While we lose the causal nature of tariff cuts in these tests, this approach allows us to understand whether our results are externally valid for a broad sample of firms, and not just in manufacturing industries. We continue to find strong results in support of our main hypothesis that are consistent with our difference-in-differences estimates presented earlier. Taken together, these tests indicate that the results reported for firms with large customers are robust to different variable definitions as well as producing externally valid estimates of the relations between CEO option compensation and risk-taking, as well as firm performance and value.

2.5. Conclusion

We examine the influence that an important stakeholder (namely a large customer) can have on a firm's CEO option compensation choice. Using import tariff reductions as exogenous shocks to existing customer relationships, we provide strong evidence that an increase in customer bargaining power leads firms with concentrated customers to significantly reduce risk-taking incentives through option-based compensation. We further document that following tariff cuts supplier firms with

higher risk-taking incentives significantly weaken the relationships with their major customers, and experience reduced sales growth to these customers and an increased likelihood of relationship termination. Furthermore, this also leads to a reduction in firm value. This indicates that CEO option compensation can have an adverse effect on important customer relationships and firm value at the presence of large customers.

Moreover, our results are stronger if firms with large customers face a higher likelihood of losing major customers, greater costs of unstable customer relationships, and are more responsive to tariff reductions. Given the existence of large customers, firms exhibiting a higher likelihood of financial distress, greater customer-specific assets, and greater sales sensitivity to tariff reductions all reduce CEO risk-taking incentives associated with option compensation more aggressively following these shocks. Finally, our results indicate that increasing CEO risk-taking incentives of option compensation is not wealth increasing for firms with large customers.

Bringing these findings together, this study sheds new light on the importance of customer-supplier relationships for optimal CEO compensation policy. We find that CEO risk-taking incentives can weaken these major trading relationships ex post and that having a large customer can lead to reduced CEO stock option compensation ex ante. Also, we find that raising CEO risk-taking incentives can actually undercut firm performance when a firm has a large customer. These results add support to the notion that firms modify governance mechanisms so as to bond their relationships with important stakeholders. These results also suggest that when making real decisions firms can face serious implicit or explicit constraints, which are imposed by important stakeholders.

Tables

Table 2.1. Summary Statistics

This table summarizes the means and medians of our key compensation variables and various CEO and firm characteristics. Panel A reports the summary statistics of the full sample and Panel B reports the summary statistics of our matched sample. The full sample consists of 6,356 firm-years and 836 unique ExecuComp firms in U.S. manufacturing industries for 1992 – 2005. To construct the matched sample, we estimate propensity scores and match each *large customer* firm-year observation to the corresponding 2 firm-year nearest neighbors. Propensity scores are estimated from the probit model that uses matching criteria includes: Vega, Delta, sale, return volatility, the natural log of firm age, sales growth, ROA, Tobin's Q, ExCash, leverage, capital expenditure, R&D intensities, and number of business segments. We also restrict the matched pseudo large customer firm-year observation to be in the same year as the real large customer firm-year observation, and it does not experience tariff reductions for the past two years. *Large Customer* is an indicator variable that equals 1 if a firm has reported one or more major customers which usually account for more than 10% of its total sales and 0 otherwise. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Summary Statistics of the Full Sample

	All Firms		
	N	Mean	Median
Large Customer	6,356	0.48	0.00
Pct Option	6,356	0.358	0.359
Flow Vega ($000s)	6,356	42.040	12.140
Delta ($000s)	6,356	533.409	197.949
Total Compensation ($000s)	6,356	3554.400	1957.490
Other Firm and CEO Characteristics			
Sale ($ millions)	6,356	4054.960	779.286
Total Assets	6,356	4641.360	801.157
Firm Risk	6,356	10.165	10.128
Sales Growth	6,356	0.759	0.737
ROA	6,356	0.135	0.158
Tobin's Q	6,356	2.359	1.743
CAPEX	6,356	0.066	0.049
R&D Intensity	6,356	0.075	0.038
Leverage	6,356	0.234	0.201
ExCash	6,356	0.087	0.093
Business Segments	6,108	2.544	2.000
Sale HHI	6,108	0.753	0.915
Board Independence	3,128	0.644	0.667
Board Size	3,128	9.188	9.000
BCF Index	4,657	2.081	2.000
Institutional Block	6,356	0.685	1.000
CEO Age	6,124	55.521	56.000
CEO Tenure	6,356	7.645	5.000
CEO Own	5,548	0.028	0.003

Panel B: Matched Sample Validation

Variables	Large Customer=0 (N=5,444)			Large Customer=1 (N=2,722)			Difference of Means	Difference of Medians
	N	Mean	Median	N	Mean	Median		
Sales ($ millions)	5,444	1780.450	419.520	2722	1671.500	390.540	0.0260	28.980
Firm Risk	5,444	10.420	10.490	2722	10.420	10.470	0.0040	0.019
Sales Growth	5,444	0.780	0.750	2722	0.772	0.750	0.0070	0.001
ROA	5,444	0.110	0.150	2722	0.108	0.150	0.0030	0.000
Tobin's Q	5,444	2.460	1.790	2722	2.480	1.790	-0.0150	-0.004
CAPEX	5,444	0.070	0.050	2722	0.073	0.050	-0.0010	-0.001
R&D Intensity	5,444	0.090	0.060	2722	0.095	0.060	-0.0010	0.001
Leverage	5,444	0.220	0.170	2722	0.221	0.170	0.0000	0.004
ExCash	5,444	0.080	0.100	2722	0.082	0.100	0.0010	-0.001
Business Segments	5,444	2.190	1.000	2722	2.210	1.000	-0.0230	0.000
Sale HHI	5,444	0.820	1.000	2722	0.829	1.000	-0.0130	0.000
Board Independence	2,298	0.640	0.670	1149	0.640	0.670	0.0030	0.000
Board Size	2,298	8.380	8.000	1149	8.319	8.000	0.0580	0.000
BCF Index	3,521	1.960	2.000	1675	1.973	2.000	-0.0160	0.000
Institutional Block	5,444	0.630	1.000	2722	0.622	1.000	0.0090	0.000
CEO Age	2,335	54.251	55.000	1203	53.249	53.000	1.002***	2.000***
CEO Tenure	5,520	3.886	1.000	2760	3.674	1.000	0.2120	0.000
CEO Own	3,265	0.021	0.001	1617	0.021	0.001	0.0000	0.000

Table 2.2. Summary Statistics of Import Tariff Cuts and CEO Stock Option Compensation.

Panel A of this table summarizes the characteristics of the 257 industry-level tariff reductions in the full sample containing 836 firms and 6,356 firm-years for 1992-2005. Panel B summarizes the CEO stock option compensation characteristics around tariff reductions in the full sample. *Pct Option* is the dollar value of stock options as a fraction of CEO total compensation. *Flow Vega* is the dollar change in the executive's current annual option grants associated with a 0.01 change in the firm's return volatility. *Large Customer* is an indicator variable that equals 1 if a firm has reported one or more major customers which usually account for more than 10% of its total sales and 0 otherwise. *Tariff Cut* is an indicator variable that equals 1 if a firm's industry currently experiences a negative tariff change that is 2.5 times larger than the industry's median tariff change and 0 otherwise. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Characteristics of Imports Tariff Cuts

Variable	**N**	**Mean**	**25%**	**Median**	**75%**	**Minimum**	**Maximum**
% Tariff Change	257	-0.59	-0.70	-0.43	-0.21	-7.45	0.00
Total Tariff (in %)	257	1.83	0.38	1.37	2.56	0	19.97

Panel B: Option Compensation before and after Tariff Cuts in the Full Sample

	All Firms (N=6,356)			**Large Customer=1 (N=3,030)**			**Large Customer=0 (N=3,326)**		
	Tariff cut=0	Tariff cut=1	Difference of Means	Tariff cut=0	Tariff cut=1	Difference of Means	Tariff cut=0	Tariff cut=1	Difference of Means
	(1)	(2)	(2) - (1)	(3)	(4)	(4) - (3)	(5)	(6)	(6) - (5)
Flow Vega ($000s)	43.378	41.796	1.582	30.761	28.877	-1.883	53.795	53.509	0.286
Pct Option	0.364	0.323	-0.041***	0.378	0.319	-0.059***	0.351	0.326	-0.025*
Observations	5,384	972		2,594	436		2,790	536	

Table 2.3. Difference-in-Difference Estimations: The Presence of Concentrated Customers and CEO Stock Option Compensation.

This table presents results from difference-in-difference regressions on the full sample and a matched sample of U.S. manufacturing firms for 1992-2005. In Panel A, the dependent variable is the natural logarithm of one plus *Flow Vega*, which is the dollar change in the executive's option portfolio from the current year's grants associated with 0.01 increase in the firm's return volatility. The dependent variable in Panel B is the natural logarithm of one plus *Pct Option* in all columns, and *Pct Option* is the value of stock options as a fraction of CEO total compensation. Columns (1) & (2) present regression results in the full sample without matching, and columns (3) & (4) present regression results for our matched sample, where each *large customer* firm-year observation is matched to the corresponding 2 firm-year nearest neighbors. Columns (2) & (4) reports results only using the subsample where the total portfolio Vega of the supplier firm CEOs' compensation is greater than zero in the year prior to the tariff cut. *Tariff Cut*$_t$ is an indicator variable that equals 1 if a firm's industry currently experiences a negative tariff change that is 2.5 times larger than the industry's median tariff change and 0 otherwise. *Large Customer* is an indicator variable that equals 1 if a firm has reported one or more major customers which usually account for more than 10% of its total sales and 0 otherwise. We estimate OLS regressions and use firm and year fixed effects with firm clustered standard errors in all specifications. t-statistics are in parenthesis and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Risk-taking Incentives from Current Option Grants

	Dependent Variable: Ln(1+Flow Vega $_t$)			
	Full sample		*Matched Sample*	
	(1)	(2)	(3)	(4)
Tariff Cut $_t$: a	0.629***	0.548**	-0.042	-0.062
	(2.62)	(2.21)	(-0.15)	(-0.20)
Large Customer $_{t-1}$: b	0.120	0.140	0.008	0.007
	(0.67)	(0.77)	(0.15)	(0.13)
*a * b*	-0.891***	-0.893***	-0.259*	-0.254*
	(-2.79)	(-2.72)	(-1.79)	(-1.69)
Ln(Sale) $_{t-1}$	0.438***	0.377**	0.221	0.246
	(2.98)	(2.57)	(1.28)	(1.36)
ROA $_{t-1}$	0.253	0.098	0.546	0.486
	(0.71)	(0.27)	(1.14)	(1.05)
Sale Growth $_{t-1}$	-0.106	0.009	-0.111	-0.163
	(-0.30)	(0.03)	(-0.27)	(-0.39)
Leverage $_{t-1}$	-0.798**	-0.846**	-0.549	-0.465
	(-2.34)	(-2.51)	(-1.37)	(-1.09)
ExCash $_{t-1}$	0.125	-0.011	-0.081	-0.105
	(0.32)	(-0.03)	(-0.15)	(-0.21)
Delta $_{t-1}$	0.001*	0.001	0.001*	0.001***
	(1.65)	(1.63)	(1.69)	(2.76)
HHI $_{t-1}$	0.292	0.439	0.538	0.268
	(0.39)	(0.59)	(0.50)	(0.25)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	6,315	6,033	8,128	7,619
Adjusted R^2	0.351	0.302	0.426	0.366

Panel B: Value of Stock Options as a Fraction of CEO Total Compensation

	Dependent Variable: Ln(1+Pct Option $_t$)			
	Full sample		*Matched Sample*	
	(1)	(2)	(3)	(4)
Tariff Cut $_t$: a	0.147*	0.121	-0.039	-0.033
	(1.71)	(1.36)	(-0.35)	(-0.28)
Large Customer $_{t-1}$: b	0.048	0.061	0.002	0.002
	(0.70)	(0.87)	(0.12)	(0.11)
*a * b*	-0.258**	-0.271**	-0.105*	-0.109*
	(-2.15)	(-2.19)	(-1.87)	(-1.86)
Ln(Sale) $_{t-1}$	0.135**	0.106*	0.045	0.051
	(2.32)	(1.83)	(0.65)	(0.71)
ROA $_{t-1}$	0.184	0.119	0.331*	0.305*
	(1.30)	(0.83)	(1.91)	(1.76)
Sale Growth $_{t-1}$	-0.087	-0.036	-0.092	-0.112
	(-0.62)	(-0.25)	(-0.52)	(-0.64)
Leverage $_{t-1}$	-0.308**	-0.323**	-0.185	-0.169
	(-2.37)	(-2.50)	(-1.13)	(-0.97)
ExCash $_{t-1}$	-0.066	-0.120	-0.157	-0.183
	(-0.44)	(-0.80)	(-0.83)	(-1.03)
Delta $_{t-1}$	0.001	0.001	0.000	0.000
	(0.18)	(0.10)	(0.25)	(1.26)
HHI $_{t-1}$	0.047	0.090	0.085	0.018
	(0.17)	(0.32)	(0.20)	(0.04)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	6,315	6,033	8,128	7,619
Adjusted R^2	0.326	0.275	0.416	0.357

Table 2.4. Summary Statistics of Significant Customer-Supplier Relationships.

This table reports summary statistics of the trading relationships between supplier firms and their large customers. Data is drawn from Compustat Segment files and we restrict it to significant trade relationships of US manufacturing suppliers for the period 1992-2005 after requires tariff reductions data. Due to the reporting practice required by SFAS, Compustat Segment files only contain firms that have significant customers (typically more than 10% of the firm's total sales). This sample contains 284 unique supplier firms, 772 unique large trading customer relationships and 1,812 relationship-years for the 1992-2005 period. *Flow Vega* is the dollar change in the executive's option portfolio from the current year's grants associated with 0.01 increase in the firm's return volatility. *Tariff Cut* is an indicator variable that equals 1 if a firm's industry currently experiences a negative tariff change that is 2.5 times larger than the industry's median tariff change and 0 otherwise. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Characteristics of Significant Trade Relationships

Variable	**N**	**Mean**	**Median**	**25%**	**75%**	**Std Dev**
Reported Sales (in $ million)	1,812	457.82	152.95	53.34	403.16	1135.18
Relationship Length (years)	1,812	4.60	4.00	2.00	6.00	3.30
Sale Dependence of Supplier (in %)	1,812	19.60%	15.00%	10.80%	22.50%	21.20%

Panel B: Characteristics of Significant Trade Relationships around Tariff Reductions

	All Firms (N=1,812)			**> Median Flow Vega (N=906)**			**< Median Flow Vega (N=906)**		
	Tariff cut=0	*Tariff cut=1*	*Difference of Means*	*Tariff cut=0*	*Tariff cut=1*	*Difference of Means*	*Tariff cut=0*	*Tariff cut=1*	*Difference of Means*
	(1)	(2)	(1) - (2)	(3)	(4)	(4) - (3)	(5)	(6)	(6) - (5)
% Change in Reported Sales	4.68	4.67	-0.01	4.72	4.64	-0.08	4.64	4.70	0.06
Relationship Length	4.6	4.93	0.33	5.03	4.34	0.69*	4.86	4.84	-0.03
Observations	1605	207		809	97		796	110	

Table 2.5. Difference-in-Difference Estimations: CEO Stock Option Compensation and Large Trading Relationships around Tariff Reductions.

This table presents results from difference-in-difference regressions in a sample of trades between US manufacturing suppliers and their major customers for 1992-2005. The dependent variable in Columns (1) & (2) is the natural logarithm of one plus *Change in Reported Sales*, and *Change in Reported Sales* is the sale growth to a particular large customer *j* as reported by the supplier firm in percentage terms. The dependent variable in Columns (3) & (4) is *Termination*, which is an indicator variable that equals 1 if a trade relationship is no longer reported as significant by the supplier firm in the next year and 0 otherwise. It is set to missing if either supplier or customer firm disappears in the Compustat universe. *Flow Vega* is the dollar change in the executive's option portfolio from the current year's grants associated with 0.01 increase in the firm's return volatility. *Pct Option* is the dollar value of stock options as a fraction of total compensation. OLS regressions in columns (1) & (2) are estimated with relationship and year fixed effects and standard errors clustered by trade relationships. *Tariff Cut* is an indicator variable that equals 1 if a firm's industry currently experiences a negative tariff change that is 2.5 times larger than the industry's median tariff change and 0 otherwise. The logit models in columns (3) & (4) are estimated with year fixed effects and standard errors are clustered by trade relationships. t-statistics are in parenthesis and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

	Change in Reported Sales $_{j, t+1}$		**Termination $_{j, t+1}$**	
	OLS	OLS	Logit	Logit
	(1)	(2)	(3)	(4)
Tariff Cut $_t$: a	0.183	0.245*	-0.969	-1.107
	(1.44)	(1.85)	(-1.36)	(-1.54)
Ln(1+Flow Vega $_t$): b1	0.006		0.014	
	(1.15)		(0.72)	
a * b1	-0.014*		0.144*	
	(-1.66)		(1.92)	
Ln(1+Pct Option $_t$): b2		0.010		0.036
		(0.76)		(0.74)
a * b2		-0.065**		0.446**
		(-2.35)		(2.08)
Sale Dependence $_{t-1}$	0.015***	0.015***	-0.022***	-0.022***
	(7.12)	(7.10)	(-3.52)	(-3.52)
Relationship Length $_{t-1}$	0.620***	0.625***	-0.033	-0.032
	(4.20)	(4.20)	(-1.33)	(-1.28)
Ln(Sale) $_{t-1}$	-0.096	-0.102	-0.098	-0.090
	(-1.06)	(-1.12)	(-1.44)	(-1.33)
ROA $_{t-1}$	-0.354	-0.342	-1.259*	-1.319**
	(-1.24)	(-1.21)	(-1.91)	(-1.98)
Sale Growth$_{t-1}$	0.036	0.036	0.447	0.471
	(0.21)	(0.21)	(0.87)	(0.92)
Firm Age$_{t-1}$	0.144	0.141	0.008	0.008
	(1.59)	(1.57)	(1.47)	(1.47)
R&D $_{t-1}$	0.831**	0.807**	-1.251	-1.221
	(2.19)	(2.13)	(-1.20)	(-1.17)
Leverage $_{t-1}$	-0.102	-0.102	0.209	0.183
	(-1.12)	(-1.12)	(0.69)	(0.60)
ExCash $_{t-1}$	-0.092	-0.091	0.329	0.361
	(-1.17)	(-1.16)	(1.31)	(1.42)
Relationship FE	Yes	Yes	No	No
Supplier Industry FE	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,206	1,206	1,705	1,705
Adjusted/Pseudo R^2	0.169	0.171	0.235	0.235

Table 2.6. Difference-in-Difference Estimations: CEO Stock Option Compensation, Large Customers, and Firm Value.

The table presents results of difference-in-difference regressions on a sample of U.S. manufacturing firms for 1992-2005. The dependent variable in all columns is the natural logarithm of one plus *Tobin's Q*, and Tobin's Q equals the market value of a firm's total assets divided by its beginning-year book value. Panels A presents regression results in the full sample without matching, and Panel B presents regression results with our matched sample, where each *large customer* firm-year observation is matched to the corresponding 2 firm-year nearest neighbors. We estimate OLS regressions and use firm and year fixed effects with firm clustered standard errors in all specifications. Columns (2) & (4) in Panel A and B reports estimates based on the subsample where the Vega of a CEO's compensation for the year prior to the tariff cut is positive. *Flow Vega* is the dollar change in the executive's option portfolio from the current year's grants associated with 0.01 increase in the firm's return volatility. *Pct Option* is the Black-Scholes value of CEO stock options as a fraction of total compensation. *Tariff Cut* is an indicator variable that equals 1 if a firm's industry currently experiences a negative tariff change that is 2.5 times larger than the industry's median tariff change and 0 otherwise. *Large Customer* is an indicator variable that equals 1 if a firm has reported one or more major customers which usually account for more than 10% of its total sales and 0 otherwise. t-statistics are in parenthesis and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

	Dependent Variable: Ln(1+Tobin's Q $_{t+1}$)			
	Large Customer $_{t-1}$ =1		*Large Customer $_{t-1}$ =0*	
	(1)	(2)	(3)	(4)
Tariff Cut $_t$: a	0.049	0.062	-0.076*	-0.045
	(1.05)	(1.37)	(-1.94)	(-1.22)
Ln(1+Flow Vega $_t$): b1	-0.003		-0.001	
	(-1.58)		(-0.56)	
a * b1	-0.009*		0.002	
	(-1.75)		(0.54)	
Ln(1+Pct Option $_t$): b2		-0.009		-0.001
		(-1.59)		(-0.15)
a * b2		-0.027**		-0.004
		(-2.12)		(-0.36)
Other Control Variables in Table 2.3	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	2,642	2,642	2,964	2,963
Adjusted R^2	0.667	0.667	0.728	0.728

Table 2.7. Cross-Sectional Variations: Supplier Characteristics and CEO Risk-taking Incentives around Tariff Reductions

This table presents results from OLS regressions on a sample of U.S. manufacturing firms for 1992-2005. The dependent variable in all panels is the natural logarithm of one plus *Flow Vega*, which is the dollar change in the executive's option portfolio from the current year's grants associated with 0.01 increase in the firm's return volatility. *Tariff Cut* is an indicator variable that equals 1 if a firm's industry currently experiences a negative tariff change that is 2.5 times larger than the industry's median tariff change and 0 otherwise. *Large Customer* an indicator variable that equals 1 if a firm has reported one or more major customers which usually account for more than 10% of its total sales and 0 otherwise. *Leverage* is the book value of total current debts plus long-term debts and scaled by total assets. *Distress* is the distance to default measure from Fong, Hong, Kacperczyk, and Kubik (2014). *Asset Specificity* is defined as the gross value of machinery and equipment scaled by lagged assets. *Product Uniqueness* is the ratio of selling expense to assets as a proxy for product uniqueness. *Industry Concentration* is the Herfindahl-Hirschman Index (HHI) of the supplier firm's 4-digit SIC industry. *% Sales in Affected Industry* is the percentage of the supplier's sales in industries that are experiencing tariff reductions. We split the full samples into high and low subsamples based on the sample's median. Control variables (not reported for brevity) are the same as in Table 2.3. Standard errors are clustered by firm in all specifications. t-statistics are in parenthesis and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Supplier Financial Distress and CEO Stock Option Compensation around Tariff Reductions

	High Leverage	*Low Leverage*	*High Distress*	*Low Distress*
	(1)	(2)	(3)	(4)
Tariff Cut $_t$: a	0.653**	0.269	0.643**	0.152
	(2.15)	(0.63)	(2.04)	(0.35)
Large Customer $_{t-1}$: b	0.204	-0.062	0.124	-0.060
	(0.68)	(-0.28)	(0.39)	(-0.26)
*a * b*	-1.350***	-0.388	-1.448***	-0.213
	(-2.92)	(-0.78)	(-3.18)	(-0.42)
Other Control Variables in Table 2.3	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	2,959	2,916	2,965	2,912
Adjusted R^2	0.306	0.340	0.308	0.336

Panel B: Supplier Relationship-Specific Investments and CEO Stock Option Compensation around Tariff Reductions

	High Asset Specificity	*Low Asset Specificity*	*High Product Uniqueness*	*Low Product Uniqueness*
	(1)	(2)	(3)	(4)
Tariff Cut $_t$: a	0.787**	0.143	1.283***	0.055
	(2.43)	(0.34)	(3.85)	(0.15)
Large Customer $_{t-1}$: b	-0.176	0.518**	0.044	0.141
	(-0.62)	(2.05)	(0.17)	(0.51)
*a * b*	-1.116**	-0.362	-1.649***	-0.152
	(-2.51)	(-0.69)	(-3.65)	(-0.32)
Other Control Variables in Table 2.3	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	2,993	2,955	2,945	2,984
Adjusted R^2	0.308	0.334	0.296	0.340

Panel C: Tariff Impacts and Supplier CEO Stock Option Compensation around Tariff Reductions

	High Industry Concentration	*Low Industry Concentration*	*High Sales in Affected Industry*	*Low Sales in Affected Industry*
	(1)	(2)	(3)	(4)
Tariff Cut $_t$: a	1.028***	-0.049	0.808***	-0.153
	(2.93)	(-0.13)	(2.79)	(-0.30)
Large Customer $_{t-1}$: b	-0.012	0.130	-0.142	0.295
	(-0.04)	(0.57)	(-0.45)	(1.09)
*a * b*	-1.287***	-0.343	-1.085***	-0.465
	(-2.76)	(-0.67)	(-2.69)	(-0.65)
Other Control Variables in Table 2.3	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	2,888	3,029	2,994	2,915
Adjusted R^2	0.278	0.340	0.307	0.344

Table 2.8. Difference-in-Difference Estimations: Customer Firm Characteristics and Supplier CEO Stock Option Compensation around Tariff Reductions

This table presents results from OLS regressions on a sample of U.S. manufacturing firms for 1992-2005. The dependent variable is the natural logarithm of one plus *Flow Vega*, which is the dollar change in the executive's option portfolio from the current year's grants associated with 0.01 increase in the firm's return volatility. *Tariff Cut* is an indicator variable that equals 1 if a firm's industry currently experiences a negative tariff change that is 2.5 times larger than the industry's median tariff change and 0 otherwise. *% Domestic Sales* is the percentage of the supplier's total sales to domestic customers. *Corporate (Government) Customer* is an indicator variable that equals 1 if the firm has one or more large corporate (government) customers, which usually account for more than 10% of its total sales and 0 otherwise. Standard errors are clustered by firm in all specifications. t-statistics are in parenthesis and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Proportion of Domestic Sales and CEO Stock Option Compensation around Tariff Reductions

	High % Domestic Sales	*Low % Domestic Sales*
	(1)	(2)
Tariff Cut $_t$: a	0.808***	-0.153
	(2.79)	(-0.30)
Large Customer $_{t-1}$: b	-0.142	0.295
	(-0.45)	(1.09)
*a * b*	-1.085***	-0.465
	(-2.69)	(-0.65)
Other Control Variables in Table 2.3	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	2,951	2,964
Adjusted R^2	0.319	0.333

Panel B: The Presence of Significant Corporate vs. Government Customers and CEO Stock Option Compensation around Tariff Reductions

	(1)	(2)
Tariff Cut $_t$: a	0.545**	0.135
	(2.21)	(0.68)
Corporate Customer$_{t-1}$: b	0.083	
	(0.45)	
*a * b*	-0.961***	
	(-2.95)	
Government Customer$_{t-1}$: c		1.295*
		(1.84)
*a * c*		-0.508
		(-0.49)
Other Control Variables in Table 2.3	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	6,033	6,033
Adjusted R^2	0.312	0.311

Table 2.9. Validity Checks for the Tariff Reduction Experiments.

This table presents results from OLS regressions on a sample of U.S. manufacturing firms for 1992-2005. The dependent variable in Panel B is *Flow Vega*, which is the dollar change in the executive's option portfolio from the current year's grants associated with 0.01 increase in the firm's return volatility. *Pre Cut* is an indicator variable that equals 1 if the current industry-year of a firm is 1 or 2 years before an industry-level tariff cut and 0 other wise. *Large Customer*$_{t-1}$ is an indicator variable that equals 1 if a firm has reported one or more major customers which usually account for more than 10% of its total sales and 0 otherwise. t-statistics are in parenthesis and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Impact of Tariff Reductions on Industry Sales and Concentration

	Tariff cut=0	**Tariff cut=1**	**Difference of Means**
	(1)	(2)	(2) - (1)
Mean Industry Sales ($ mil)	989,217	562,651	-426,565***
Mean Industry Concentration	0.344	0.301	-0.043***
Observations	1,115	257	

Panel B: Falsification Test of Pre-treatment Trends

	Ln(1+Flow Vega $_t$)	**Ln(1+Pct Option $_t$)**
	(1)	(2)
Pre Cut$_t$: a	-0.240	-0.043
	(-0.70)	(-0.36)
Large Customer$_{t-1}$: b	-0.057	-0.002
	(-0.30)	(-0.03)
*a * b*	0.457	0.165
	(1.20)	(1.17)
Other Control Variables in Table 2.3	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	6,033	6,033
Adjusted R^2	0.311	0.279

Figures

Figure 2.1: Industry Import Tariff Reductions by Year, 1992-2015

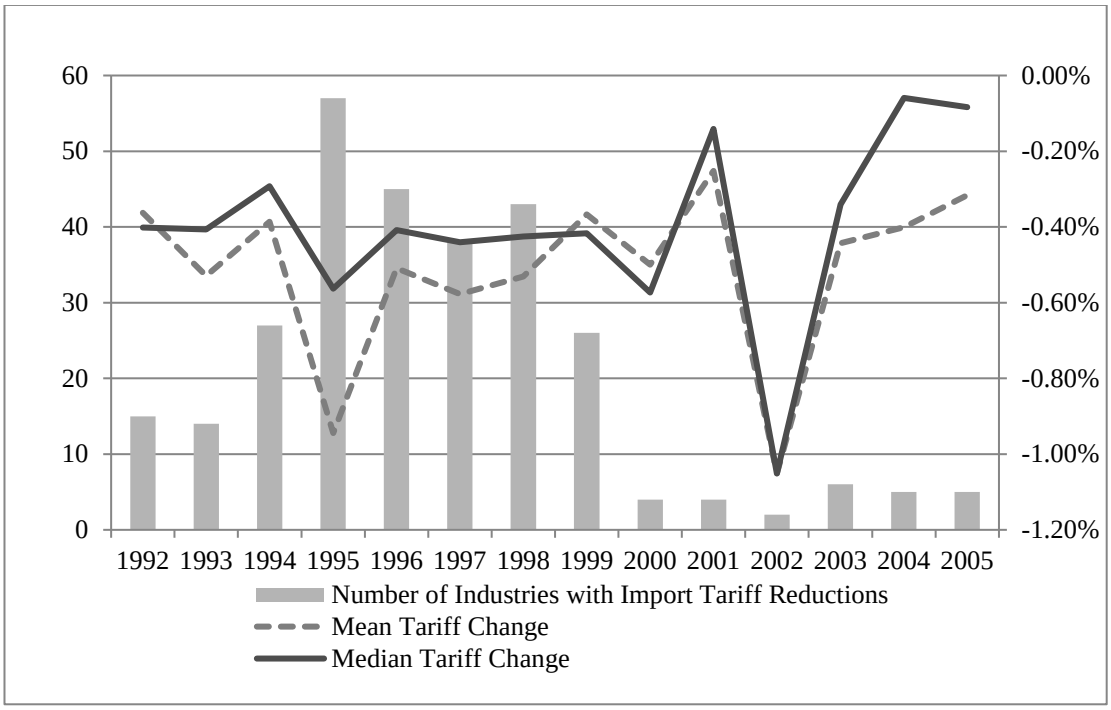
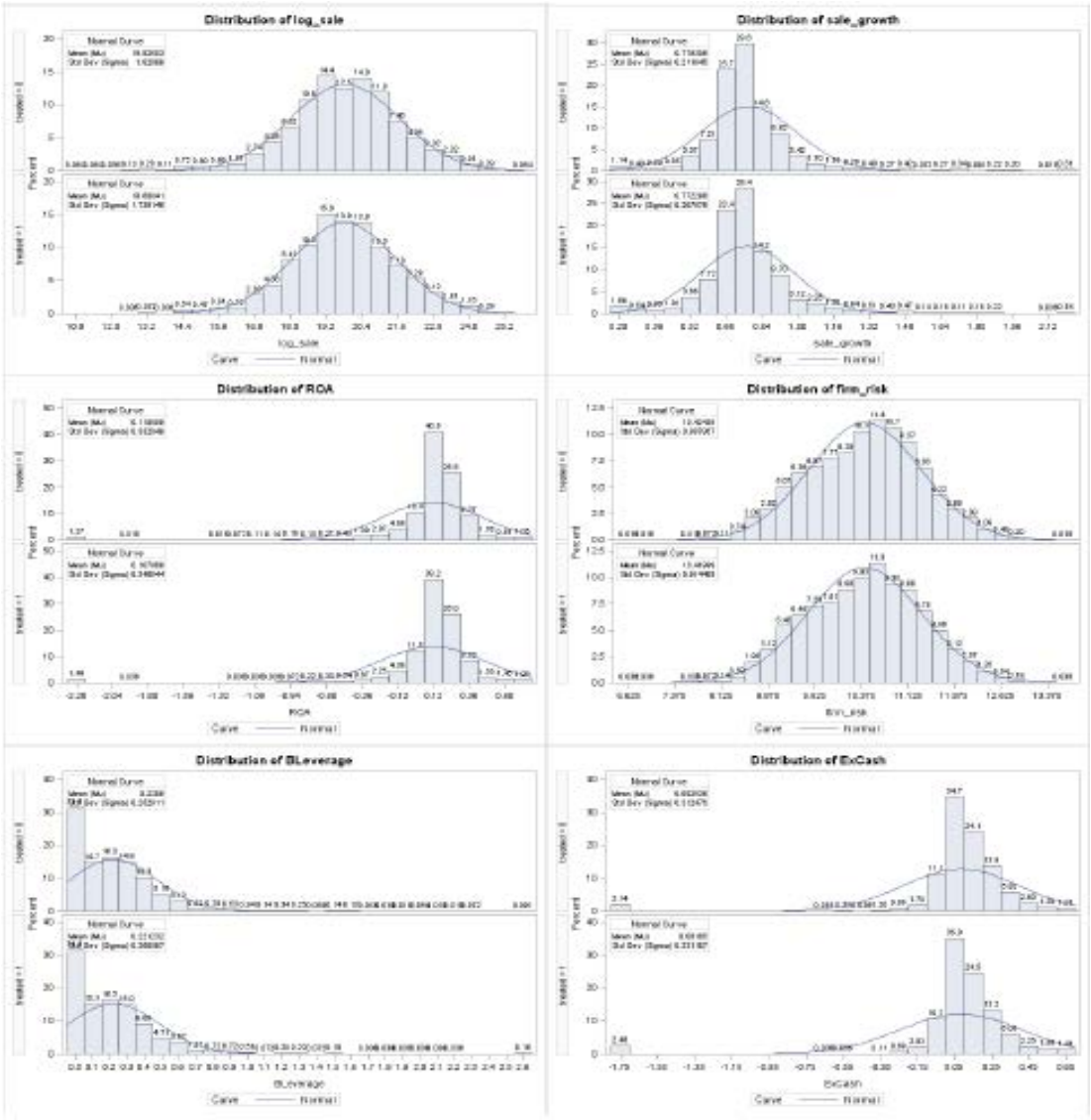


Figure 2.2: Distributions of Key Matched Sample Covariates

This figure presents histograms of the distributions of six key covariates of treated firm-years with their matched firm-years using the matched sample discussed in Table 2.1, Panel B. The vertical axis of each histogram is the proportion of firm-years with covariates in a given range. In each pair of histograms, the treated sample is below the matched sample. From the top left to the bottom right, the reported covariate distributions are of *Log(Sale)*, *Sales Growth*, *ROA*, *Firm Risk*, *Leverage*, and *ExCash*, and are as defined in the appendix.



Appendix

Table A: Variable Definitions

Label	Definition	Data Source
Stock Option Compensation Measures		
Pct Option	The dollar value of CEO stock option grants as a fraction of total compensation.	Execucomp
Vega	The dollar change in the executive's total option portfolio associated with 0.01 increase in the firm's return volatility.	Execucomp
Flow Vega	Same as Vega but only calculated from the current year's stock option grants.	Execucomp
Quasi-Natural Experiment Variables		
Tariff Cut	An indicator variable that equals 1 if the negative tariff change in a specific industry is 2.5 times larger than its median change and 0 otherwise.	Fresard (2010)
Key Explanatory Variable at Firm Level		
Large Customer	An indicator variable that equals 1 if a firm has reported one or more major customers which usually account for more than 10% of its total sales and 0 otherwise.	Compustat Segment
Corporate Customer	An indicator variable that equals 1 if a firm has reported one or more large corporate customers that usually accounts for more than 10% of its total sales and 0 otherwise.	Compustat Segment
Government Customer	An indicator variable that equals 1 if a firm has reported one or more government customers that usually accounts for more than 10% of its total sales and 0 otherwise	Compustat Segment
Trading Relationship Measures		
Change in Reported Sales	Sales growth to a particular large customer as reported by the supplier in percentage terms.	Compustat Segment
Termination	An indicator variable that equals one if a trade relationship is no longer reported as significant by the supplier firm in the next year and 0 otherwise. It is set to missing if either supplier or customer firm disappears in the Compustat universe.	Compustat Segment
Length	The relationship length between a firm and its large customer.	Compustat Segment
Sale Dependence	The fraction of a firm's sale to the large customer divided by the supplier firm's total sales.	Compustat Segment

Control Variables		
BCF	Entrenchment index	RiskMetrics
Board Independence (BI)	The percentage of independent directors on board	RiskMetrics
Board Size	Log(1+number of directors)	RiskMetrics
Business Segments	Log of Number of Business Segments	Compustat Segment
CAPEX	(Capital Expenditures - Sale of Property)/ Lagged Book Value of Assets	Compustat
Cash Compensation	Sum of salary and bonus	Execucomp
CEO Age	CEO Age in years	Execucomp
CEO Own	CEO's share ownership excluding options as CEO's percent shares owned to total common shares	Execucomp
CEO Tenure	CEO Tenure	Execucomp
Delta	The sensitivity of wealth from CEO's stock and option portfolio to firm performance.	Execucomp
ExCash	(Net Cash Flow from Operating Activities - Depreciation/Amortization + R&D Expense)/ Lagged Book Value of Assets	Compustat
Firm Risk	log(variance of daily returns over firm fiscal year)	CRSP
HHI	The Herfindahl-Hirschman index (HHI) of a firm's 4-digit SIC industry.	Compustat
Institutional Block	An indicator variable that equals 1 if the firm has one or more institutional investors whose share ownerships are greater than 5% of the firm's total shares and 0 otherwise.	Thompson Reuters
Leverage	(Total Current Debt + Long Term Debt)/ Lagged Book Value of Assets	Compustat
Pct Cash	The fraction of (salary + bonus) of total compensation	Execucomp
Pct Stock	Dollar value of stock grants' dollar as a fraction of total CEO compensation	Execucomp
RD	R&D intensity. R&D expense/Lagged Book value of assets. Missing values are set to 0.	Compustat
ROA	Operating Income Before Depreciation/ Lagged Book Value of Assets	Compustat
Sale	Total net Sales during the fiscal year	Compustat
Sales Growth	log[Sale(t) / Sale(t-1)]	Compustat
Sale HHI	(Sum of squared Segment Sales)/(squared Firm Sales).	Compustat Segment
Selling Expense	Selling Expense / Total Assets	Compustat
Tobin's Q	(Total Assets - Book Value of Equity + Market Value of Equity) / Lagged Book Value of Assets	Compustat

Chapter 3. Monitoring the Monitor: Distracted Institutional Investors and Board Governance

3.1. Introduction

Boards of directors play a crucial role in corporate governance. Boards serve as the "gatekeeper" of all shareholder proposals to amend the charter and to approve almost all major corporate decisions. Directors are also charged with monitoring management, hiring and firing of CEOs, and setting executive compensation. While the board is a powerful governance mechanism for monitoring managers and minimizing shareholder-manager agency problems, director monitoring incentives do not appear to be particularly strong. Researchers have questioned if directors have sufficient financial incentives to motivate them to effectively monitor (Yermack, 2004), or whether the labor market for directors effectively punishes poor performance (Harford and Schonlau, 2013; Fahlenbrach, Low, and Stulz, 2017).[35] This raises important questions about how reliable boards are in representing shareholder interests. What motivates directors to monitor? Who monitors directors? To address these questions, we examine whether monitoring by institutional investors, a major class of shareholders, impacts director behavior. We find an array of evidence that institutional investor monitoring of directors does improve director incentives to monitor senior management.

A fundamental question in the literature is, do institutional investors have sufficient incentives to affect firm governance when directors appear to have weak

[35] Past literature on how the director labor market penalizes poor monitoring by directors primarily focuses on extreme events such as earnings restatements (Srinivasan, 2005), financial fraud lawsuits (Fich and Shivdasani, 2007), bankruptcies (Gilson, 1990), and option backdating (Ertimur, Ferri, and Maber, 2012).

incentives to monitor managers? Several studies argue that institutional investors do not actively intervene to improve firm governance due to the classical free-rider problem (Grossman and Hart, 1980 and Shleifer and Vishny, 1986). Even if they do intervene, institutional shareholders and board monitoring could be close substitutes. For example, institutions can seek to meet with management directly without going through the board (McCahery, Sautner, and Starks, 2016) or they can nominate a representative to join the board to directly influence change (Gow, Shin, and Srinivasan, 2014). Thus, it is unclear if institutions actively intervene to affect board governance or how effective such interventions might be.

To test whether institutional investor monitoring affects board incentives, we construct measures of exogenous distraction of institutional shareholders. Following Kempf, Manconi, and Spalt (2017), we utilize exogenous variations in institutional shareholder attention caused by unrelated industry shocks to their portfolio. We use these shocks to capture reductions in the level of institutional shareholder monitoring of a focal firm. The following example illustrates how such an exogenous shock to institutional investor monitoring of the board can occur. Suppose a mutual fund investor has two large stockholdings belonging to two unrelated industries, one a bank and the other a pharmaceutical firm. When the pharmaceutical industry is experiencing a large return shock due to technological breakthroughs, the mutual fund has incentives to allocate more time and effort to fully understand the impact of technological breakthroughs in the pharmaceutical industry. Assuming the attention and effort of a fund investor is in limited supply, we expect the bank to receive less attention. The mutual fund may also allocate its best portfolio managers and analysts to the

pharmaceutical firm. Hence, the exogenous shock to the pharmaceutical industry reduces a mutual fund's monitoring intensity of the bank.[36]

To the extent that industry-level shocks to a fund's portfolio firms are unrelated to the focal firm's fundamentals, the above measure captures *exogenous* variation in an institutional investor's monitoring intensity that is orthogonal to the focal firm's fundamentals. Moreover, when institutional shareholders shift their attention to different 'shocked' industries over time, firms in non-shocked industries can experience permanent changes in their corporate governance due to a lack of institutional shareholder monitoring over extended periods. Yet, there is little existing empirical evidence free of endogeneity concerns that shows whether institutional monitoring has any impact on corporate governance, especially director efforts to monitor management.

Generalizing on the two-industry portfolio example above, we aggregate industry shocks using the weights of the shocked industries in an institutional shareholder's portfolio, to construct an investor-level measure of exogenous distractions experienced by each institutional shareholder towards a given focal firm in a given quarter. Next, we construct a firm-level investor distraction measure by summing the distraction levels across all the firm's institutional shareholders. Kempf, Maconi, and Spalt (2017) convincingly show that this distraction measure is negatively related to how much attention institutional investors spend monitoring a firm's activities, such as participating in conference calls and initiating governance-related proposals.

[36] Kacperczyk, Van Nieuwerburgh, and Veldkamp (2016) model how mutual fund managers optimally choose to allocate their limited attention to different information depending on the business cycle. In a survey study, McCahery, Sautner, and Starks (2016) find that limited resources (personnel) and "too many firms in our portfolio" are important impediments to institutional shareholder activism.

Why should institutional shareholders have a tangible impact on board behavior? In the absence of effective board monitoring, institutional investors can be exposed to severe agency problems and experience significant losses. Thus, monitoring boards of directors to ensure they perform their fiduciary duties can be a critical channel through which outside investors seek to maximize their returns on investments. Prior studies that go "behind-the-scenes" report that institutional investors do actively intervene in firms by engaging management and directors in active discussions.[37] In particular, McCahery, Sautner, and Starks (2016) find that 45% of surveyed institutional investors state that they have private discussions with corporate boards outside of management's presence.

To investigate whether institutional investors influence board governance, we begin by examining the voting behavior of institutional investors in annual director elections. Specifically, we explore how institutional investor distractions affect their voting behavior and thus, impact director incentives to monitor. Institutional shareholder voting on directors represents a primary mechanism for exerting influence over a firm's board. While directors rarely fail to be re-elected, except in proxy fights, experiencing disciplinary votes nevertheless can be a public embarrassment to a director and adversely affect her reputation and likelihood of being re-nominated in the future (Aggarwal, Dahiya, and Prabhala, 2017). Therefore, shareholder voting may motivate independent directors to act in shareholder interests due to these adverse reputational impacts.

In examining board behavior, we focus on independent directors given the recent governance evidence documenting their importance in protecting shareholder

[37] See e.g. Becht et al. (2010); Carleton, Nelson, and Weisbach (1998); McCahery, Sautner, and Starks (2016).

interests.[38] Moreover, the literature finds that some types of independent directors are problematic, e.g., directors socially connected to the CEO or overly busy directors. These directors tend to be less effective monitors.[39] So, we also analyze institutional investor influence on board composition in terms of appointments and re-nominations of these types of problematic directors.

Using an investor-level measure of mutual fund distraction, we find that mutual funds are less likely to discipline directors with negative votes when they are distracted. This effect is stronger for problematic director candidates. Economically, a one standard deviation rise in a mutual fund investor's distraction level is associated with a 7.5% fall in the likelihood of a vote against a problematic director candidate at the annual shareholder meeting.

Next, we examine how investor distraction at the firm-level affects director voting outcomes. We find that independent directors in general receive significantly fewer disciplinary votes from institutional shareholders when these investors are distracted. Consistent with our fund voting findings, this effect is stronger for problematic director candidates. In addition, the sensitivity of subsequent director departures to poor election outcomes is also significantly lower when institutional shareholders are distracted, consistent with weaker disciplinary effects of shareholder votes. Taken together, this voting evidence indicates that independent directors, especially problematic ones, are significantly less likely to be disciplined by director

[38] Recent research by Nguyen and Nielsen (2010), Knyazeva, Knyazeva, and Masulis (2013), Falato, Kadyrzhanova, and Lel (2014), Guo and Masulis (2015), Fahlenbrach, Low, and Stulz (2017), and Masulis and Zhang (2017) provides evidence based on exogenous shocks and supply effects that board independence leads to improved board monitoring, firm performance, valuation, and CEO incentives.

[39] For example, see Chidambaran, Kedia, and Prabhala (2011), Coles, Daniel, and Naveen (2014), Fracassi and Tate (2012), Hwang and Kim (2009) (2012), and Nguyen (2012) for social connections, Fich and Shivdasani (2006), Falato, Kadyrzhanova, and Lel (2014) and Masulis and Mobbs (2014) for busy directors.

elections when institutional shareholders are distracted. It is noteworthy that when institutional investors are distracted, not only are directors less likely to not stand for re-election due to poor voting outcomes per se, directors are also less likely to subsequently leave the board to mitigate reputational damage due to weak voting outcomes.

We then examine whether weakened board oversight by institutional shareholders affects director monitoring activity and outcomes. Consistent with weaker disciplinary effects of shareholder votes and less reputational damage, we find that when institutional shareholders are distracted, independent directors miss more board meetings and boards hold fewer meetings. For example, a one standard deviation rise in institutional investor distraction is associated with an almost 17% rise in the likelihood of poor director meeting attendance, defined as missing over 25% of board meetings. Furthermore, institutional investor distraction leads to more problematic independent directors on the board, due to both an increased likelihood of new appointments and of reappointments of problematic directors to the board. These findings suggest institutional investor monitoring has important implications for director monitoring incentives and efforts.

Finally, we examine how a reduction in director monitoring efforts and incentives due to investor distraction affects several governance outcomes. Firms with distracted institutional investors exhibit significantly greater earnings management, grant their CEOs higher unexplained compensation, and have lower equity valuation, consistent with prior studies that governance is weakened when institutional shareholders are distracted. More importantly, we find that the negative impacts of investor distraction are amplified in firms where board monitoring efforts are compromised by problematic independent directors on the board and its key

committees. Taken together, our results suggest that institutional shareholder distraction leads to significantly poorer director monitoring incentives, which in turn leads to worse governance outcomes.

Our study contributes to the literature on corporate governance in several ways. First, we extend our understanding of what motivates independent directors to do their job well and monitor management carefully. While it is well known that boards make important corporate decisions that have economically large impacts on shareholder value, director incentives to monitor managers are not well-understood. It is unclear why directors with limited financial incentives are willing to exert sufficient effort to closely monitor managers (Yermack, 2004). Fama and Jensen (1983) argue that director reputational concerns provide a strong motivation, and recent studies show that reputational concerns affect director incentives to perform their roles as effective monitors.[40] We advance the literature's understanding of director incentives by showing that institutional investor oversight of boards significantly improves director incentives to more closely monitor senior management.

Second, our study furthers our understanding of how institutional investors intervene to improve corporate governance. Several recent studies report evidence that institutional investors in general improve corporate decision making and thus, firm value.[41] Existing studies that examine shareholder interventions in corporate governance emphasize the actions of shareholder activists during extreme events, including the use of proxy contests and law suits.[42] However, evidence on shareholder

[40] For instance, Jiang, Wan, and Zhao (2016); Masulis and Mobbs (2014); Levit and Malenko (2016).
[41] See for example, Doidge et al. (2016); Appel, Gormley, and Keim (2016); Kempf et al. (2017); and Li, Liu, and Wu (2016).
[42] See e.g., Brav et al. (2008) on hedge fund activism; Del Guercio and Hawkins (1999) on the impact of shareholder proposals put forward by public pension funds; Doidge et al. (2016) on the activities of Canadian Coalition for Good Governance, a formal collective action organization of institutional investors; Del Guercio, Seery, and Woidtke (2008) on vote-no campaigns; Gillan and Starks (2000) on

actions to improve board functioning on a *regular basis* is surprisingly scarce.[43] We help fill this gap in the existing literature, and show that institutional investors use their disciplinary votes to monitor and discipline directors on a regular basis.

Our study differs substantially from Kempf et al. (2017) who show that firms are more likely to undertake diversifying acquisitions and grant their CEOs opportunistically-timed equity grants when institutional investors are distracted. Given that acquisitions and CEO pay are within the board's decision domain, we show that one underlying mechanism by which distracted shareholders can impact firm policies is through board monitoring. In particular, our study highlights the important role that institutional investors play in monitoring directors. We show that reduced institutional investor monitoring leads to poorer board effectiveness, in part due to independent directors reducing their own monitoring efforts in response to reduced shareholder voting pressure, and in part due to poorly chosen board appointments.

Our study is also related to the literature that explores how corporate governance mechanisms interact with each other. Existing evidence is mixed as to how governance mechanisms interact (Agrawal and Knoeber, 1996; Cremers and Nair, 2005; Gillan, Hartzell, and Starks, 2011), and it remains unclear whether the monitoring roles of directors and the firm's institutional shareholders are complements or substitutes. We contribute to this literature by showing that the monitoring function of corporate boards, a key internal governance mechanism, depends crucially on the

detailed analysis of shareholder proposal outcomes at annual meetings. See also Gillan and Starks (2007), Denes, Karpoff, and McWilliams (2017) for comprehensive reviews of shareholder activism.

[43] Outside shareholders can submit Rule 14a-8 shareholder proposals relating to board independence and other board issues, but they are often ineffective in eliciting change (Gillan and Starks, 2007; Denes, Karpoff, and McWilliams, 2017). Activist shareholders can organize "just vote no" campaigns to withhold votes from directors, however Del Guercio, Seery, and Woidtke (2008) show that such campaigns often target large, poorly performing firms and are typically sponsored by public pension funds.

effectiveness of institutional shareholder in monitoring of directors, thus, acting as a complementary governance mechanism.

Lastly, we contribute to the literature that examines the impact of institutional investor monitoring on firm policies and governance outcomes. Monitoring by institutional investors has a positive impact on a firm's governance indices, CEO compensation, mergers and acquisitions profitability, firm risk-taking, and earnings management.[44] However, endogeneity makes it difficult to assess the causal dimension of these effects.[45] Recent studies use annual reconstitutions of the Russell 1000 and 2000 indexes as an exogenous shock to institutional shareholdings to examine how changes in passive institutional ownership affect firm governance and policies.[46] Our study differs from theirs in that we focus on a much broader sample of firms and ask how institutional shareholder monitoring intensity affects board incentives as a crucial internal governance mechanism. Additionally, we examine a wide range of institutional investors, not just passive index investors.

3.2. Variable Construction, Data, and Descriptive Statistics

3.2.1. Construction of institutional investor distraction

We follow Kempf, Manconi, and Spalt (2017) and construct shareholder distraction using industry shocks in an institutional investor's portfolio. In addition to their measure of firm-level distraction experienced by all institutional shareholders,

[44] Examples include: Hartzell and Starks (2003), Aggarwal et al. (2011), Chen, Harford, and Li (2007), Cornett, Marcus, Tehranian (2008), Aghion, Van Reenen, and Zingales (2013), and Kim and Lu (2011).
[45] For example, Chung and Zhang (2011) conclude that the positive association between institutional ownership and good governance structure is driven by institutional investors gravitating towards firms with good governance so as to minimize their own monitoring costs suggesting reverse causality effect.
[46] Appel, Gormley, and Keim (2016) find that an increase in passive institutional ownership increases board independence, while Schmidt and Fahlenbrach (2017) find no change in board independence and appointments of independent directors are met with worse announcement returns when passive institutional ownership rises.

we construct an institutional investor-level distraction measure to exploit the stockholdings by each individual mutual fund. We use this investor-level measure to examine how fund-level distractions affect their voting behavior. For each institutional investor in a given firm in a given quarter, we first identify extreme returns for industry sectors in the institution's portfolio that are unrelated to the focal firm. We expect these unrelated industry shocks to cause institutions to shift their attention away from the focal firm. To measure an investor's level of distraction, we weight shocks in unrelated industry sectors by the investor's percentage ownerships in the shocked industry sectors. For each institutional investor *i* in a given focal firm *f* in a given quarter *q*, we define an investor-level distraction as:

$$Investor - Level\ Distraction_{i,f,q} = \sum_{IND \neq INDf} w_{i,q-1}^{IND} \times IS_q^{IND} \quad (1)$$

where *i* denotes a specific institutional investor in firm *f* at the end of quarter *q*-1, *IND* denotes Fama-French 12 (FF12) industry sector, and IND_f denotes firm *f*'*s* industry sector.

FF12 industry sectors represent a broad industry classification scheme. It follows that sector-level events are generally unrelated to the fundamentals of individual firms in other FF12 industry sectors. IS_q^{IND} is an indicator variable that equals one if industry *IND* experiences a shock in quarter *q*, and equals zero otherwise. An industry is deemed to have experienced a shock if the industry's return for the quarter is either the highest or lowest of all the FF12 industry sectors.[47] We weight these shocks to capture their economic importance to an institutional investor. The variable $w_{i,q-1}^{IND}$ denotes the weight of industry sector *IND* in investor *i*'s portfolio in

[47] To ensure that our distraction measure does not capture extreme industry sector performance, in all regressions we exclude observations in the two industries that are experiencing the positive and negative shocks.

the prior quarter *q*-1, and as such captures the importance of industry sector *IND* in institutional investor *i*'s portfolio. The sum of the products of $w_{i,q-1}^{IND}$ and IS_q^{IND} across the other industry sectors unrelated to firm *f*, captures institutional investor *i*'s level of distraction away from focal firm *f* due to extreme outcomes in other industry sectors.

Finally, to obtain a firm-level distraction measure for focal firm *f*, we aggregate our investor-level distraction measures across all the institutional investors of firm *f* as in Kempf et al. (2017). Specifically, we define the level of distraction experienced by all the institutional investors of firm *f* in a given quarter *q* as:

$$Total\ Distraction_{f,q} = \sum_{i \in f} \sum_{IND \neq INDf} w_{i,f,q-1} \times w_{i,q-1}^{IND} \times IS_q^{IND} \quad (2)$$

To aggregate the distractions across all the institutional investors of a firm, we weight the level of distraction of each investor *i* in firm *f* by $w_{i,f,q-1}$ which measures the importance of investor *i* in firm *f* in the prior quarter, *q*-1. Intuitively, investor *i* has more weight if 1) firm *f* has more weight in investor *i*'s portfolio and 2) investor *i* owns a larger fraction of firm *f*'s shares. We compute $w_{i,f,q-1}$ as:

$$w_{i,f,q-1} = \frac{QPFweight_{i,f,q-1} + QPercOwn_{i,f,q-1}}{\sum_{i \in F,q-1} (QPFweight_{i,f,q-1} + QPercOwn_{i,f,q-1})} \quad (3)$$

where $PFweight_{i,f,q-1}$ is the weight of firm *f*'s market value in investor *i*'s portfolio, and $PercOwn_{i,f,q-1}$ is investor *i*'s percentage ownership in firm *f*. The former measures how much time the investor is likely to spend in analyzing firm *f*, and the latter measures how much influence investor *i* potentially has in firm *f*.

We sort all stocks held by investor *i* into quintiles by $PFweight_{i,f,q-1}$ and all investors of firm *f* into quintiles by $PercOwn_{i,f,q-1}$. Both $QPFweight_{i,f,q-1}$ and $QPercOwn_{i,f,q-1}$ take values from 1 to 5 with 5 representing the highest quintile. The weights $w_{i,f,q-1}$ sum to 1 for each focal firm *f* after scaling by the denominator $\sum_{i \in F,q-1} (QPFweight_{i,f,q-1} + QPercOwn_{i,f,q-1})$. It follows that higher values of

Total Distraction indicates that the institutional shareholders in firm *f* are more distracted by the extreme returns of unrelated industry sectors, and therefore their overall monitoring intensity of firm *f's* board is reduced.

3.2.2. Validity of the distraction measure

There are two important advantages to measuring institutional investor distraction in this way. First, to the extent that return shocks occur in unrelated industries, this measure captures exogenous variation in institutional shareholder monitoring. This helps to alleviate issues relating to reverse causality and omitted variables, which could affect both institutional investor monitoring levels and firm behavior. Second, by construction the investor-level distraction measure differs across the portfolio firms held by each institutional investor. Thus, we are able to compare the *within-investor* difference in distraction levels towards its portfolio firms, thus essentially taking into account the preferences of individual institutional investors to select portfolio firms.

To assess the validity of our distraction measure, we further evaluate the persistence of return shocks in unrelated industries. We find that each industry return shock on average lasts for 1.25 quarters with maximum duration of 2 quarters. These short-lived industry-level return shocks are likely to be random events, and unlikely to cause institutional investors to significantly rebalance their portfolios. Consistent with our expectation, Kempf et al. (2017) find that a focal firm is unlikely to experience a significant change in the institutional investor's portfolio weight during the return shocks. Therefore, observed changes in the focal firm's board governance are not likely to be due to changes in stockholdings of distracted institutional investors.

Although industry-level return shocks could be short-lived, the non-shocked industries could be "overlooked" for a significantly longer period, since institutional investors can face a series of short-lived industry shocks in different sectors that continuously absorb institutional investor attention. We find that these investor distraction periods on average last 7 quarters. Thus, prolonged weak investor monitoring due to shocks in unrelated industry can lead to significant changes in the focal firm's board governance and its long-run operating performance.

In constructing our main distraction measure, we include both positive and negative industry shocks. Investors can be distracted by unanticipated events like technological boom, new legislation, and court rulings. These events can lead to positive return shocks in some industries, and negative shocks in others. We argue that it takes time for investors to fully assess the immediate ramifications of both the positive and negative shocks and to evaluate the shocks' long-term ramifications, even if the shocks themselves are short-lived. Thus, we consider both positive and negative shocks in determining an investor's level of distraction following Kempf et al. (2017). Nevertheless, for robustness, we calculate separate distraction measures for positive and negative industry shocks and report these results in Table 3.9.

3.2.3. Data and sample formation

We construct our main sample by linking several well-known databases. For our investor-level analysis, we obtain quarterly mutual fund stock holdings from the Thomson-Reuters Mutual Fund Database (S12) and use it to construct a fund-level distraction measure, and then merge the fund-level distraction with fund director voting, taken from ISS Voting Analytics. Appendix 3.B provides more details on the merging process and sample formation. For the firm-level analysis, we start with firm-

years in the RiskMetrics director database, which contains information on board structure and director characteristics. We obtain institutional investor shareholdings from the Thomson-Reuters Institutional Holdings (13F) database, which we use to construct our investor distraction measure. We then merge the director and institutional holdings data with firm accounting and stock returns data from the Compustat and CRSP databases respectively. We drop firm-years with missing information for our distraction measure, board structure, and other control variables. We also exclude heavily regulated finance and utility industries and we exclude firm-years experiencing industry shocks as defined in Section 3.2.1. Finally, we exclude firms with dual-class share structures and closely-held firms where insiders or directors as a group hold more than 50% of shares, since institutional shareholders are unlikely to have much influence over the corporate governance of these closely-held firms. We focus on independent directors in this study since they are the primary board monitors.[48] Our final sample consists of 88,811 independent director-firm-years from 12,889 firm-year observations over the 1996-2013 period.[49]

To examine board characteristics and composition, we extract information on CEO-director social ties from BoardEx. Although BoardEx reports data from 2000, it becomes much better populated after 2002. Thus, for most of our tests involving board structure, we begin the sample period in 2003 and end it in 2013, resulting in 6,402 firm-year observations. To examine voting outcomes, we obtain shareholder voting

[48] We follow the director classification in Riskmetrics. Independent directors are outside directors that have no family or economic ties to management or the firm they monitor other than that through their directorship. RiskMetrics primarily relies on the NYSE and Nasdaq listing rules to classify independent directors, and identifies independent directors based on proxy statements and disclosures of related transactions. Examples of non-independent directors using the RiskMetrics definition include, but are not limited to former employees of the firm or subsidiaries, major shareholders, customers, suppliers, and family members of executives.

[49] However, the sample size varies across tests due to availability of control variables and dependent variables.

data from ISS Voting Analytics over the 2003-2012 period. We merge ISS Voting Analytics with RiskMetrics director data using company and director names, and further merge this data with CEO-director social ties information from BoardEx. After requiring non-missing voting data and social ties data, we end up with 29,217 individual director elections. We call this sample the Director Election sample. In these director elections, we observe 20,594 distinct mutual fund-years and 1,845,371 individual director votes.

3.2.4. Descriptive statistics

Table 3.1 provides summary statistics for our key variables. Detailed descriptions of all of the variables we analyze are reported in Appendix 3.A. We winsorize all the continuous dependent and control variables at 1% and 99% levels. Panel A summarizes the means, medians, 25th and 75th percentiles, and standard deviations of the institutional investor distraction measures. For our mutual fund-level distraction measure, the mean and median distraction levels are both 0.14, with a standard deviation of 0.06. The mean and median firm-level distraction measures, *Total Distraction*, are 0.17, while the 25th and 75th percentile values are 0.13 and 0.19, respectively. By construction, *Total Distraction* is positive for all our observations and it has a minimum value of 0.05. The distribution of our distraction measure is in line with the findings of Kempf et al. (2017).

Panel B reports summary statistics for director election outcomes and director characteristics for our Director Election sample of voting outcomes and social ties. Among the 29,217 independent director election outcomes, the average percent of "No" votes, i.e., defined as "Against" or "Withheld" votes divided by total votes cast is 5%, with a median of 2%, and a 75th percentile of 5%. Clearly, negative votes are infrequent,

although the maximum percent of negative votes is 74% in our sample. We also find that only 11% of directors receive a poor voting outcome, which we define as elections where the director receives more than 10% "No" votes. Furthermore, only 6% of ISS director recommendations are negative. These election-level statistics are similar to those reported in Cai, Garner, and Walkling (2009).

We find that 23% of the independent directors in the Director Election sample are problematic, which are defined as either busy or socially connected to the CEO. A busy director is one who holds 3 or more directorships in a given year (Fich and Shivdasani, 2006). Directors who attend the same educational institutions or the same non-business organization as the CEO are deemed to be socially connected to the CEO.[50] Among the problematic directors, 18% are busy directors and 13% are socially dependent directors. About 16% of directors are not re-nominated to the board in the subsequent director elections. We use data from Voting Analytics to determine whether a particular director is re-nominated by the board.

In Panel C, we report the director characteristics for our main sample of director-firm-year observations from 1996 to 2013.[51] We find that only 1% of independent directors in our sample have attendance problems defined as missing 25% or more of board meetings. Independent directors hold an average of 1.7 total directorships including the focal firm directorship, while the median number of

[50] While BoardEx uses a unique identifier for each educational institution in its database, the same educational institution can have multiple entries (e.g. Harvard University and Harvard Business School). To remedy this problem, we manually match the names of educational institutions and create new identifiers that uniquely identify each educational institution. For shared social ties at non-business organizations, we include connections to charities, social clubs, and armed forces, and exclude compulsory professional and industrial organizations where social interaction is less likely given the compulsory nature of membership (e.g. American Bar Association).

[51] RiskMetrics has a stricter requirement for director independence than do listing rules. For example, all prior employees are classified as gray (excluded in our tests) even if their previous employment are more than 3 years ago which under exchange listing rules are treated as independent. We find that our main results are also robust in the sample of all outside directors. Thus, any potential misclassification of directors by RiskMetrics is unlikely to alter our main findings.

directorships is 1. In addition, the average director is 63 years old with board tenure averaging 5.5 years. Moreover, a director's mean (median) equity stake in the firm is a mere 0.07% (0.02%) of outstanding shares, suggesting that independent directors generally have weak financial incentives.

In Panel D, we report board characteristics for the subsample of firm-years with information from BoardEx. On average, 22% of independent directors on the board are considered problematic. About 9% of firm-years have a new director appointment that is problematic. Turning to the distribution of problematic directors on major board committees, we find that on average, about 21% to 23% of audit, compensation, and nomination committee members are problematic.

In Panel E, we report descriptive statistics for firm characteristics at the firm-year level. Boards on average hold 8 meetings per year. The average board has 9 members, of whom 70% are classified as independent. Finally, about 60% of firm-years in our sample have staggered boards. These summary statistics are in line with other studies examining the board structure of U.S. public firms, such as Masulis and Mobbs (2014).

3.3. Shareholder Distraction and Voting

3.3.1. Investor-level mutual fund distractions and director voting decisions

We begin our analysis by examining voting behavior of institutional investors in director elections, as these annual elections represent one critical channel through which outside investors can discipline poor director quality and performance. Although a vast majority of director elections are uncontested and the rejection of a standing director is rare, Aggarwal, Dahiya, and Prabhala (2017) show that poor vote results still have disciplinary effects in themselves. They find that these directors are

less likely to stand for re-election, while if they remain on the board, they tend to assume less important board roles. Moreover, these poorly-performing directors also suffer from significant reputation losses in the director labor market, resulting in fewer new board appointments and relinquishing more of their other board seats relative to other independent directors.

We first look at the relation between investor-level distractions and their individual director voting behavior. Since 2003, mutual funds are required to publicly disclose their voting behavior through N-PX filings with the Securities and Exchange Commission (SEC). This constrains our analysis of mutual fund voting to start in 2003. We focus on actively-managed equity funds as these funds are most likely to gain from active intervention. We provide more details about the formation of our voting sample in Appendix 3.B. For each director election proposal, depending on whether it is under plurality or majority voting, mutual funds can vote "For," "Against," or withhold their votes.[52] We classify "Withhold" as well as "Against" votes as "No" or negative votes.[53] Our dependent variable is an indicator variable *Oppose Director,* which equals one if the mutual fund casts a negative vote for a director in a given election and is zero otherwise. *Oppose Director* is equal to one in 6% of the sample. Due to their rarity, negative votes by mutual funds can have strong disciplinary effects on directors through their adverse reputation effects.

Our results are reported in Panel A of Table 3.2. The key explanatory variable is *Mutual Fund Distraction,* which is the level of distraction experienced by the mutual fund in the past four quarters immediately preceding the voting date. We report linear

[52] We include director elections involving plurality voting and majority voting. Under plurality voting, shareholders can vote "For" or withhold their votes while in majority voting, shareholders can vote "For" or vote "Against" a director (Ertimur, Ferri, and Oesch, 2015).
[53] According to Cai, Garner, and Walkling (2009), shareholders often express their dissatisfaction by withholding votes, thus "Withhold" is functionally equivalent to "Against."

probability model (LPM) estimates with two types of fixed effects and with standard errors clustered at the firm level. The first type of fixed effects we use is fund by year fixed effects, which allows us to compare the director voting outcomes at firms where a mutual fund shareholder is more distracted compared to voting outcomes at firms where the *same* fund is less distracted. The second type of fixed effects is director election proposal fixed effects, which allow us to control for all the director-firm-year characteristics of each election proposal, including time-varying director and firm characteristics, such as performance. The effects of ISS recommendation for each director candidate and shareholder activist events such as "just vote no" campaigns are subsumed in the director election proposal fixed effects. Similar regression specifications are used by other studies such as Dimmock et al. (2016).

In Model (1) of Panel A, we find the *Mutual Fund Distraction* coefficient is -0.043 and statistically significant at the 5% level. This implies that a one standard deviation increase in mutual fund distraction reduces the chance that this investor votes against an independent director candidate in this particular election year by 4.3% (0.043*0.06/6%), adjusted for the unconditional probability of voting no to a proposal (6%). This finding suggests that distracted mutual fund investors are less likely to oppose management recommendations in independent director elections.

We then examine whether problematic directors, who are often considered weaker monitors, are especially unlikely to be disciplined when institutional investors are distracted. Based on the prior literature, monitoring incentives of two types of independent directors are often compromised. Socially connected directors tend to be friendlier to management and thus, are apt to be ineffective monitors (Hwang and Kim 2009, 2012; Chidambaran, Kedia, and Prabhala, 2011; Fracassi and Tate, 2012; Nguyen, 2012). Busy directors are likely to be overcommitted and tend to be less

effective monitors (Fich and Shivdasani, 2006; Falato, Kadyrzhanova, and Lel, 2014; Masulis and Mobbs, 2014).

In Models (2) and (3), we split the independent director sample into problematic and non-problematic candidates. We find most of the significant effects that we found earlier come from the subsample of problematic director candidates shown in Model (2). Economically, a one standard deviation increase in institutional investor distraction reduces the chance of an institutional investor voting against a problematic candidate in an election by 7.5% (0.075*0.06/6%). We also observe a significant fund distraction effect for non-problematic director at the 10% level, but this effect is both statistically and economically weaker than in Model (2). The difference in the fund distraction effect for problematic and non-problematic directors is also statistically significant at the 1% level. Problematic directors often receive less support in general as vigilant investors vote against these weak monitors. Thus, when investors are distracted, they tend to ignore the underperformance of problematic directors and support their re-elections. These findings suggest that directors, especially problematic directors, experience less discipline during general elections and suffer less reputational damage when mutual fund investors are distracted.[54]

Mutual funds within the same fund families may have similar voting patterns or policies. To account for voting patterns, we further control for voting behavior at the fund family level by interacting fund family and year fixed effects, and including

[54] An alternative measure of ineffective directors is to use ISS no recommendations. However, ISS recommendations have important limitations. For example, ISS have been accused of making "blanket recommendations" that are uniform recommendations for or against certain types of directors or firm characteristics. Furthermore, using ISS recommendations to measure ineffective directors would require the additional assumption that investors are active voters and do not rely on ISS recommendations when they are not distracted. But this assumption is unlikely to be valid as Iliev and Lowry (2014) find that mutual fund investors vary greatly on their reliance on ISS recommendations.

fund and election proposal fixed effects, with standard errors clustered by firm.[55] As reported in Panel B, our results continue to hold. In another robustness check reported in Panel C, we follow Davis and Kim (2007) and exclude the six largest fund families that are likely to provide pension services to portfolio firms and as a result may act less independently.[56] We find a stronger distraction effect in Panel C.

We perform several forms of robustness checks in this analysis. First, we exclude closely-held family firms where institutional investors are likely to have limited influence. After this exclusion, we find that the link between mutual fund distraction and their voting pattern is stronger. We also use a larger sample where we include both actively-managed and passively-managed funds. In this case, the results are weaker, but remain qualitatively similar. Additionally, using Bushee (1998)'s classification of institution types, [57] we find a stronger distraction effect for mutual funds that are affiliated with institutions more likely to monitor, such as investment companies, independent investment advisors, and public pension funds. Finally, we construct a mutual fund distraction measure for each of the four quarters preceding the voting date and find that the distraction measure in the nearest quarter has the strongest effect over the four quarters.

3.3.2. Firm-level investor distraction and director election results

In Table 3.3, we report the impact of distractions by institutional investors on director election outcomes aggregated to the firm-level. Our dependent variable is the

[55] Panel B has more observations than Panel A as fund-year fixed effects in Panel A is more refined than fund family-year fixed effects in Panel B and funds that appear only once in a given year are dropped in Panel A.
[56] These six large fund families include Vanguard, Fidelity, AIM, Invesco, Rowe Price, and Putnam.
[57] The Bushee (1998) classifications are taken from: http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html

Fraction of "No" Votes for a Director and the key explanatory variable is *Total Distraction*, defined as the average distraction of the firm's main institutional investors over the past 4 quarters immediately before the meeting date. In Models (1) and (2) of Panel A, we examine the impact of investor distraction on director election outcomes for all independent directors. In Models (1) to (4) of Panel B, we compare the impact of investor distraction for the election outcomes of problematic versus non-problematic independent directors. We report Linear Probability Model (LPM) estimates and include director and industry by year fixed effects in the odd-numbered models, and director, firm, and year fixed effects in the even-numbered models. We further control for director and firm characteristics likely to affect director voting results, and the ISS recommendations for all the independent directors standing for election during the year. In all these regressions, we cluster standard errors at the firm level.

In Models (1) and (2) of panel A, we find that the coefficient on *Total Distraction* is negative and statistically significant, indicating that there are fewer "No" votes for director elections when a firm's institutional investors are distracted.[58] Economically, a one standard deviation increase in institutional investor distraction reduces the negative votes received by a director by 2.9% (0.029*0.05/5%). Turning to the control variables, we find that director election results are strongly influenced by *Negative ISS* and *Poor Meeting Attendance*, which is consistent with the findings of Cai, Garner, and Walking (2009).

In Models (1) to (4) of Panel B, we find that the coefficient on investor distraction is statistically significant, but only for the subsample of problematic

[58] Model 2 has fewer observations than Model 1 since firms that only appear once in elections are dropped in Model 2 with firm fixed effects. Similarly, for subsequent tables, observation numbers may also differ depending on the types of fixed effects used.

independent directors. We find that a one standard deviation increase in institutional investor distractions decreases negative votes received by a problematic director by about 8.9% (0.089*0.05/5%). The distraction effect is significantly stronger for problematic directors. These findings suggest that the effect of institutional investor distraction on director election outcomes is more pronounced for problematic independent directors, who are more likely to face negative shareholder assessments in the absence of these shareholder distraction.

In Panel C, we repeat our baseline analysis reported in Panel A using an alternative dependent variable, *Poor Vote Result*, which is an indicator variable that equals one if the fraction of "No" votes exceeds 10% and zero otherwise. We find similar results using this indicator variable of poor director voting results.

3.3.3. Sensitivity of director departures to negative voting results

Aggarwal, Dahiya, and Prabhala (2017) find that directors are more likely to leave the board after a more negative election outcome, suggesting that annual elections serve as an important disciplining mechanism for directors. We conjecture that this disciplinary effect is weaker when outside institutional investors are distracted. In this subsection, we employ regression analysis to examine the impact of shareholder distraction on the sensitivity of director departures to election results. Our dependent variable is *Director Departure*, an indicator variable that equals one if the director departs by the next election and zero otherwise.[59] Directors need to be nominated before they can be elected by shareholders in annual meetings. We construct this

[59] In each shareholder annual meeting for directors in firms with classified boards, we require director election data for the next 2 or 3 years to construct this variable. Our results are robust to alternatively using an indicator variable for director departures as the dependent variable, i.e., we track each director from one year to the next and identify a departure when the director is no longer on the board in subsequent years.

variable by following each director from one election to the next in Voting Analytics and checking whether the director is nominated for re-election.

The primary variable of interest in our analysis is the interaction term between *Total Distraction* and weak vote outcomes, which we measure by *Fraction "No" Votes for a Director* or the *Poor Vote Result* indicator. We only include directors who are aged 70 and below to exclude board departures due to mandatory retirements (Fahlenbrach, Low, and Stulz, 2017). Since we require re-election data for this test, our sample is limited to directors completing their current terms where we can observe if they are re-nominated for another term. Our estimates are based on a LPM model with either interacted industry by year fixed effects, or firm and year fixed effects. We cluster standard errors at the firm level.

Table 3.4 presents the results. Consistent with Aggarwal, Dahiya, and Prabhala (2017), we find in all models that directors who receive relatively weaker shareholder support in an election are less likely to be re-nominated in the next election. Importantly, the disciplinary effect of these voting outcomes is attenuated when institutional investors are distracted. In particular, we find that the coefficients on the interaction terms between *Total Distraction* and *Fraction of "No" Votes for a Director* and *Poor Voting Result* are negative and statistically significant in all the models, suggesting that investor distraction weakens the sensitivity of director departures to poor election outcomes.

Since director voting results can partially capture their characteristics of being problematic or non-problematic, we skip the subsample analysis of problematic and non-problematic directors to avoid redundancy. We perform several robustness checks of our main results in Table 3.4 in untabulated tests. First, we interact *Total Distraction* with *Poor Meeting Attendance* and find a significant negative coefficient on the

interaction term. This indicates that directors with poor attendance records are less likely to be replaced when institutional investors are distracted. Overall, our findings suggest that the disciplinary effect of shareholder voting for directors is weaker when outside institutional investors are distracted, especially in the case of problematic directors.

3.4. Shareholder Distraction and Board Activities

So far, we show that independent directors are less likely to be disciplined by shareholder voting when institutional investors are distracted. As a result, we would expect that shareholder distraction reduces director and board incentives to diligently monitor management. To test this proposition, we examine the impact of institutional investor distraction on board activity and composition. Our conjecture is that when outside institutional investors are distracted, they exert less monitoring pressure on the board, so directors reduce their own monitoring efforts by missing scheduled board meetings, scheduling fewer board meetings, and appointing more problematic monitors to the board.

3.4.1. Independent director meeting attendance

We first examine whether institutional investor distraction raises the likelihood of directors missing board meetings. Attendance records serve as one important indicator of outside director monitoring intensity for at least two reasons. First, it is an observable measure of director performance, which allows us to investigate whether directors behave differently when major shareholders are distracted. Second, board meeting attendance is a direct way for directors to obtain the information necessary to carry out their duties and exert influence over firm managers. To the extent that

institutional investor monitoring intensity declines when they shift attention away from the firm, we expect to find that directors miss more board meetings.

Table 3.5 reports estimates based on LPM model where our dependent variable, *Poor Meeting Attendance*, is an indicator variable that equals one if a director has a poor board meeting attendance record defined as missing more than 25% of board meetings over the past fiscal year, and zero otherwise. The key explanatory variable in the regressions is *Total Distraction*, which measures the distraction level of all the firm's institutional investors over the past 4 quarters immediately before the annual meeting date. The control variables used are based on Masulis and Mobbs (2014). To account for time invariant director, firm and industry characteristics, we include models with director and industry by year fixed effects, or director, firm and year fixed effects. Standard errors are robust and clustered at the director level.[60]

Our results are reported in Panel A of Table 3.5. In Models (1), we find that the coefficient on *Total Distraction* is positive and statistically significant, suggesting that independent directors miss more board meetings when institutional shareholders become distracted. This result is weaker, but statistically similar in Model 2. Economically, a one standard deviation increase in the distraction level leads to a 17% (0.034*0.05/1%) rise in the probability that a director experiences attendance problems, after adjusting for the unconditional probability of poor attendance records (1% in our sample).

[60] In an untabulated test, we add meeting fees and director retainers as control variables (information on these variables is only available in the pre-2006 period). When we use alternative regression specifications such as logit and probit models with industry and year fixed effects. Our results remain unchanged.

In Panel B of Table 3.5, we compare the impact of investor distraction on the attendance records of problematic and non-problematic independent directors.[61] The coefficients on *Total Distraction* for the subsample of problematic independent directors are statistically significant in Models (1) and (2), while for the subsample of non-problematic directors reported in Models (3) and (4), they are not significant. The poorer attendance records of problematic directors are consistent with our findings reported in Tables 3.2 to 3.4 where we find that problematic directors face significantly weaker disciplinary votes in the face of distracted institutional investors. In an untabulated test, we also interact director ownership with *Total Distraction* and find that the interaction term is not statistically significant. Thus, director ownership does not appear to serve as a strong substitute for shareholder monitoring.[62]

In an untabulated analysis, we further control for whether the independent director is primarily employed by an institutional shareholder of the firm and find quantitively and qualitatively similar results. We match the names of the director's primary employers from RiskMetrics Director database to the names of the institutional shareholders of the focal firm from 13F fillings, and only 2% independent directors are identified as directors representing institutional shareholders using this approach.

3.4.2. Board meeting frequencies

We next examine how board meeting frequencies are related to institutional shareholder distraction. Previous studies (Lipton and Lorsch, 1992; Conger et al.,

[61] In this test, we restrict the sample period to 2003-2013 when BoardEx data on CEO-director social ties is available.

[62] The shareholder director indicator is not statistically significant in all of our models. Also, most shareholder directors in our sample are from commercial banks and likely to be providing the firm with financial services.

1998; Vafeas 1999) suggest that board meeting frequency is an important measure of board activity and directors perform their monitoring duties more diligently if they meet more frequently.[63] We estimate OLS regressions using the natural logarithm of the number of board meetings as the dependent variable in all the models. We include industry by year fixed effects in Models (1) and (3), and firm and year fixed effects in Models (2) and (4).

Our results are reported in Table 3.6. In Models (1), we find that the coefficient on *Total Distraction* is negative and statistically significant, indicating that boards hold fewer meetings when there is less monitoring by outside investors. In Model (2), we replace industry by year fixed effect with firm and year fixed and find similar results. Vafeas (1999) finds that boards hold more meetings if the firm is underperforming. Therefore, in Models (3) and (4), we examine the sensitivity of board meeting frequencies to poor firm performance when outside investors are distracted. For this purpose, we include an indicator variable, *Poor Tobin's Q*, which equals one if the focal firm's Tobin's Q is in the lowest quartile of all firms during the year, and its interaction term with *Total Distraction*. We find that the coefficient on the interaction term is negative and significant in Model (3), indicating that boards are less diligent in trying to improve firm performance when institutional shareholders are distracted. The above results are weaker in Models (2) and (4) where we use firm and year fixed effects, possibly due to the lack of variations for board meeting frequencies within the same firm.

In an untabulated analysis, we find similar results using a Poisson count model with industry and year fixed effects. In another robustness test, we construct an

[63] As Execucomp does not provide information about board meeting frequency since 2006, we use the MSCI GMI Ratings database to extend our meeting frequency data for the remainder of our sample period.

alternative dependent variable, *Fewer Board Meetings*, which is an indicator variable that equals one if the number of board meetings during the year is less than the number of meetings in the prior year and is zero otherwise. We find that investor distraction significantly increases the likelihood of firms having fewer board meetings in the current relative to the prior year.

3.4.3. Director turnover

In this subsection, we examine new director appointments following a change in the level of shareholder attention. By appointing effective monitors to the board, shareholders would be better represented in major corporate decisions, which can ultimately improve firm performance and value. Table 3.7 reports the regression estimates for the period 2003-2013. In Panel A, we examine *New Problematic Director Appointment*, an indicator variable that equals one if the firm has at least one newly-appointed problematic independent director in the year and is zero otherwise. We report LPM model estimates with either industry by year fixed effects or firm and year fixed effects.

In Models (1) and (2), we find that the coefficient on shareholder distraction is positive and significant, indicating that firms are more likely to appoint problematic directors to the board when institutional investors are distracted. Economically, a one standard deviation increase in *Total Distraction* raises the likelihood of appointing a new problematic director by 10% (0.181*0.05/0.09). In Models (3) and (4), we include an interaction term between *Total Distraction* and the lagged proportion of problematic independent directors on the nominating committee, *Lagged Proportion PID on Nomination Committee*. The impact of shareholder distraction on new appointments of problematic directors is stronger in firms with problematic

independent directors on the nominating committee as shown in Models (3) and (4). As shown in Models (5) and (6), we find that the distraction effect is stronger among firms where CEOs are more powerful, measured by CEO-Chair duality. These results are consistent with our conjecture that boards are more likely to appoint ineffective directors when institutional shareholders are distracted and especially when the firm's existing board governance is weak.

The dependent variable in Panel B is *Re-nomination of Problematic Director*, an indicator that equals one if the firm has re-nominated a current problematic director and is zero otherwise. In Models (1) and (2), we find evidence consistent with a significant distraction effect. However, we uncover weaker evidence for the interaction effect of a powerful CEO and shareholder distraction. We find in untabulated results that when institutional investors are distracted, the proportion of problematic directors on all the major board monitoring committees (compensation, audit and nomination) significantly rises. Overall, our evidence shows that investor distraction adversely affects board composition, especially when the nomination committee includes problematic monitors and CEOs are more powerful.

3.5. Shareholder Distraction and Board Monitoring Effectiveness

The decline in board monitoring effectiveness when shareholders are distracted should also manifest itself in governance outcomes that fall within the domain of board monitoring activities. In this section, we examine how earnings management, CEO compensation, and firm valuation are affected by reduced board monitoring efforts caused by distracted institutional shareholders. These governance outcomes are commonly used in the governance literature to assess board effectiveness.

3.5.1. Investor distraction and earnings management

We examine the impact of investor distraction on earnings management in Panel A of Table 3.8. To measure earnings management, we follow Dechow, Sloan, and Sweeney (1995) and calculate a firm's discretionary accruals.[64] We estimate OLS regressions where our dependent variable is the level of discretionary accruals. We include either industry by year fixed effects or firm and year fixed effects. In Model (1) and (2), we find that the coefficient of *Total Distraction* is positive and statistically significant, indicating that firms pursue more earnings management when institutional investors are distracted.

To show that shareholder distraction impacts earnings management through board monitoring ineffectiveness, we split all firms in our sample based on *Lagged Proportion PID on Audit Committee* and report these results in Models (3) - (6). We find the distraction coefficient is positive and significant in Models (3) and (4) where firms have problematic independent directors on their audit committee. However, the effect of distraction is weaker in Models (5) and (6) where firms do not have problematic director on their audit committee. The difference in the distraction effect between these two groups of firms is statistically significant at the 10% level. This suggests that the impact of shareholder distraction on earnings management is more pronounced when more problematic independent directors sit on the audit committee, and the distraction effect on earnings management is primarily driven by a weaker audit committee. In an untabulated test, we use as an alternative dependent variable, a

[64] Using a modified Jones model, discretionary accruals is defined as total accruals minus the predicted value of total accruals. The predicted value of total accruals is from regressing total accruals on the inverse of total assets, the difference between change of sales and change of accounts receivable scaled by total assets, and PPE scaled by total assets. The regression coefficients are estimated annually for each two-digit SIC industry. We do not employ industry-year fixed effects since the dependent variable is already detrended by industry-time.

positive accruals indicator, that equals one if discretionary accruals are positive and zero otherwise. We find qualitatively similar results.

3.5.2. Investor distraction and CEO pay

Panel B of Table 3.8 presents our results on unexplained CEO pay. Following Cai, Garner, and Walkling (2009), we define unexplained CEO compensation as the residual from a regression where the dependent variable is the natural logarithm of total CEO compensation and the explanatory variables are log (total assets), ROA, total firm risk, and industry by year fixed effects.[65] The dependent variable is an indicator variable that equals one if unexplained pay is above the median of all firms in the same fiscal year, and is zero otherwise. In Models (1) and (2), we find that the investor distraction coefficient is positive and statistically significant, suggesting that CEO pay is higher when a firm's institutional shareholders are distracted. Interpreting the coefficient estimate, a one standard deviation rise in investor distraction is associated with 5.8% (0.541*0.05/0.47) increase in the likelihood of unexplained CEO pay.

We next examine whether the impact of investor distraction on unexplained pay is stronger when boards monitor less. In Models (3) - (6), we examine whether the effect of total investor distraction is stronger among firms that have problematic independent directors on their compensation committees. We find that the coefficient on total distraction is statistically and economically stronger in Models (3) and (4), indicating that the effect of shareholder distraction on CEO pay is more pronounced when more problematic independent directors sit on the compensation committee. This

[65] Since the dependent variable has been detrended using industry-year fixed effects, we omit industry-year fixed effects in the regressions of Table 3.9.

evidence is consistent with the notion that investor distraction affects CEO pay through weaker board oversight.

In an untabulated analysis, we separate our sample of firm-years into two subsamples where firms experience above or below median annual returns respectively (based on the full sample). We find that the investor distraction-CEO abnormal pay result is stronger in the subsample where firm performance falls below the median, indicating that the board is less likely to punish managers for poor performance when institutional investors are distracted.

3.5.3. Investor distraction and equity valuation

In Panel C of Table 3.8, our dependent variable is Tobin's Q, which we used as an overall indicator of firm valuation. In Models (1) and (2), we find that the coefficient of *Total Distraction* is significantly negative, suggesting that firm equity value is lower when institutional shareholders are distracted. The economic magnitude is also large. For a one standard deviation increase in investor distraction, firm value falls by 3.4% (1.359*0.05/1.98), relative to the average Tobin's Q in the full sample. This evidence complements that of Kempf et al. (2017), who find that firms with distracted investors have lower stock return performance. We also find that the negative association of investor distraction and equity valuation is concentrated among firms where the board is represented by problematic directors who are known to have weak monitoring incentives.

Overall, our findings in Panels A - C of Table 3.8 highlight that board governance is an important channel through which shareholder distraction can affect corporate outcomes and destroy firm value. When institutional investors are distracted,

boards experience less pressure to perform, and boards in turn reduce their monitoring efforts, causing worse governance outcomes and significant declines in firm value.

3.6. Robustness Analysis

In Table 3.9, we report further analysis using several alternative investor distraction measures. We re-estimate the main results from Tables 3.3 – 3.8 and present these results in Panels A to H, respectively. Only the coefficients of the alternative distraction measures are shown for brevity.

In Model (1), we decompose the firm-level distraction measure to take into account the type of institutions most likely to actively monitor managers. The impact of distraction should be most evident among such monitoring institutions. *Monitoring Distraction* is re-calculated based on the distraction levels of institutions most likely to monitor managers, which we define as investment companies, independent investment advisors, and public pension funds. Our main conclusions continue to hold when we use this alternative investor distraction measure. As an alternative measure of institutional investors most likely to monitor, we construct distraction metrics based on the firm's largest 5, 10, or 20 institutional shareholders to capture only the largest and therefore most influential shareholders. We find similar results in this untabulated analysis.

In the construction of our main distraction measure, we treat both positive and negative industry shocks equally. In Models (2) and (3), we calculate distraction measures differentiating between positive and negative industry shocks. *Positive Distraction* is the distraction level of the institutional investors calculated based only on positive shocks to their portfolio firms in other industry sectors, while *Negative Distraction* is calculated based only on similar negative shocks. Positive (negative)

distractions refer to situations where the industry sector has the highest (lowest) stock returns over all FF12 industry sectors. Overall, we find similar distraction effects for these two measures. Therefore, combining both types of shocks is likely to generate more powerful tests than separating them. In Model (4), we employ an alternative distraction measure based on extreme trading volume across the FF12 industry sectors. In this approach, an industry sector is deemed to have experienced a shock if the industry has the highest trading volume across all 12 sectors. Our results are robust to this alternative distraction measure.

In constructing the *Total Distraction* variable, we sum across all institutional investors of a focal firm, where we weight the investor-level distraction measure by $w_{i,f,q-1}$, which captures the relative shareholdings that each fund investor has in the firm. One possible concern with this method is that variation in the weights may also cause variation in our measure of investor distraction. To the extent that investors choose to hold less stock in firms they do not want to monitor, our *Total Distraction* measure could introduce some endogenous variation. Therefore, in Model (5), we construct an *Equal-weighted Ownership Distraction* measure where we equally weight all the portfolio firms the institutional investor holds, i.e., we ignore the $PFweight_{i,f,q-1}$ when constructing $w_{i,f,q-1}$. Compared to our main findings, we find similar distraction effects using this alternative measure. Thus, our results are not likely to be driven by the endogenous choices of investors to hold less stock in firms that they do not want to actively monitor.

In another set of untabulated robustness checks, we control for a focal firm's relatedness and supply-chain relatedness to the shocked industry. This takes into account any indirect economic links between a shocked industry sector and the focal firm. Following Kempf et al. (2017), we use the Hoberg and Phillips (2010) text-based

industry classification to define a focal firm's relatedness to the shocked industry as the percentage of all the focal firm *f*'s peers in the same Hoberg-Phillips industry classification experiencing these positive or negative industry return shocks. We define a firm's supply-chain relatedness as the percentage of focal firm *f*'s major customers or suppliers experiencing these positive or negative industry return shocks.[66] Our results remain robust after controlling for these two variables. Our results are also robust to using different clustering procedures such as clustering at the industry, industry by year or firm level.

Finally, we repeat our primary analysis for alternative samples. As a falsification test, we add back closely-held and dual-class share firms where institutional investors have limited influence, and repeat our primary analysis with this full sample of RiskMetric firms. Consistent with our expectation, the distraction effect is statistically and economically weaker, although *Total Distraction* remains statistically significant in nearly all the cases we examine. We also repeat our primary analysis in a more restrictive sample that excludes closely-held, dual-class share, and in addition family firms. We find a statistically and economically stronger distraction effect in this more restricted sample. However, due to data availability for family ownership, we lose approximately 50% of our sample. Finally, we repeat our main analysis controlling for outside blockholders. Our main results are robust to adding this control.

[66] We thank Jared Stanfield for sharing the gvkey of customer firms in Compustat Segment files as used in Harford, Schonlau, and Stanfield (2017).

3.7. Conclusion

We examine whether shareholder monitoring affects director incentives to monitor managers. Using exogenous variations in institutional monitoring intensity caused by time-variation in the level of attention allocated to stocks in an institutional investor's portfolio, we find that reduced institutional monitoring intensity weakens board oversight. Distracted institutional investors are less likely to use their votes as a disciplining device for ineffective independent directors. Independent directors on average receive significantly more favorable votes when outside institutional investors are distracted, and the distraction impact is stronger for problematic director candidates, who have weaker monitoring qualities. Furthermore, independent directors, especially problematic directors, are less likely to depart following poor voting outcomes, implying that the disciplinary and reputational effects of voting on an independent director's incentives are weaker in the presence of distracted investors.

We further find that as a result of weakened institutional investor monitoring, board monitoring intensity declines. Specifically, individual independent directors miss more meetings and firms with distracted institutional investors hold fewer board meetings, and appoint more conflicted or overcommitted independent directors to the board. Lastly, we find that the negative impact of shareholder distraction on governance outcomes is stronger when a board's monitoring ability is compromised by existing problematic independent directors or a powerful CEO, suggesting that one of important channels through which investor distraction affects firm governance is through their impact on board monitoring. Firms with distracted institutional investors are likely to accept greater earnings management, approve unexplained high levels of CEO compensation, and are associated with significantly lower firm valuation and these patterns are especially strong for firms with problematic independent directors.

Overall, we find strong evidence that distracted institutional investors cause poorer board governance, in part through fewer disciplinary votes in director elections. Boards generally have primary responsibility for monitoring management performance. Our study shows that the board monitors themselves need to be monitored by shareholders. More specifically, outside shareholder monitoring provides one source of strong incentives for independent directors to exert more monitoring efforts and to more effectively perform their own monitoring duties.

Tables

Table 3.1: Summary Statistics

The main sample comes from the intersection of RiskMetrics director database, Thomson-Reuters Institutional Holdings (13F) database, Compustat, and CRSP. We exclude firms with dual-class share structures and closely-held firms, defined as those where insider ownership is greater than 50% or the total ownership of directors is greater than 50%. We also exclude firms in regulated industries and firm-years that are experiencing industry return shocks. The final sample consists of 88,811 independent director-firm-years and 12,889 firm-year observations for the period 1996 to 2013. Our sample is further constrained to 29,217 independent director-firm-years for the period 2003 to 2012 after we require director vote information from Voting Analytics and director social ties information from BoardEx. Appendix 3.A provides detailed variable descriptions.

Variable	N	Mean	Median	25th	75th	STD
Panel A: Distraction Measures						
Mutual Fund Distraction	20,594	0.14	0.14	0.10	0.18	0.06
Total Distraction	12,889	0.17	0.17	0.13	0.19	0.05
Panel B: Independent Director Characteristics in the Director Votes Sample (2003-2012)						
Fraction "No" Votes for a Director	29,217	0.05	0.02	0.00	0.05	0.08
Poor Vote Result	29,217	0.11	0.00	0.00	0.00	0.31
Negative ISS	29,217	0.06	0.00	0.00	0.00	0.24
Problematic Director	29,217	0.23	0.00	0.00	0.00	0.42
Director Departure	21,176	0.16	0.00	0.00	0.00	0.36
Panel C: Independent Director Characteristics in the Main Sample (1996-2013)						
Poor Meeting Attendance	88,811	0.01	0.00	0.00	0.00	0.12
Number of Directorships	88,811	1.71	1.00	1.00	2.00	1.02
Director Age	88,811	62.80	63.00	58.00	68.00	7.83
Director Tenure	88,811	5.50	5.00	3.00	8.00	3.76
Director Own (%)	88,811	0.07	0.02	0.00	0.07	0.12
Panel D: Board Characteristics (2003-2013)						
New Problematic Director Appointment	6,402	0.09	0.00	0.00	0.00	0.29
Re-nomination of Problematic Director	6,402	0.66	1.00	0.00	1.00	0.48
Lagged PID on Nomination Committee	6,402	0.24	0.20	0.00	0.40	0.28
% PID on Audit Committee	6,402	0.21	0.17	0.00	0.33	0.25
% PID on Comp Committee	6,402	0.23	0.20	0.00	0.33	0.27
% PIDs	6,402	0.22	0.17	0.00	0.33	0.21
Panel E: Board and Firm Characteristics (1996-2013)						
Number of Board Meetings	11,931	7.58	7.00	5.00	9.00	3.39
Discretionary Accruals	12,889	0.01	-0.02	-0.09	0.05	0.35
High CEO Pay	12,889	0.47	0.00	0.00	1.00	0.50
Tobin's Q	12,889	1.98	1.58	1.22	2.23	1.36
Institutional Shares	12,889	2.51	0.85	0.69	1.00	189.32
Institutional Shares HHI	12,889	0.03	0.02	0.02	0.04	0.06
Board Size	12,889	9.10	9.00	7.00	11.00	2.39
Board Independence	12,889	68.65	71.43	57.14	83.33	17.35
Staggered Board	12,889	0.59	1.00	0.00	1.00	0.49

Table 3.2: Mutual Fund Distraction and Fund Votes for Independent Director Election Proposals

This table reports the OLS regression results of fund-level distraction on mutual funds' votes for independent director election proposals for the period from 2003 to 2012. The initial sample consists of 1,845,371 fund votes. We include only votes by actively-managed US domestic equity funds. Appendix 3.B provides details on the sample formation. The dependent variable in all panels is *Oppose Director*, which is an indicator variable that equals one if the mutual fund votes "Against" or "Withhold" for a particular independent director election proposal, and zero otherwise. The key independent variable, *Mutual Fund Distraction* is the investor-level proxy for how much the mutual fund investor is distracted over the past 4 quarters immediately before the voting date. *Problematic Directors* are defined as independent directors who hold 3 or more total directorships, or/and are socially-connected to the CEO**.** In all panels, we use director election proposal fixed effects (equivalent to director-firm-year FE) to account for time-varying director and firm characteristics. In Panels A & C, we use *interacted* fund and year fixed effects to account for time-varying fund characteristics. In Panel B, we use fund fixed effects and interacted fund family and year fixed effects. Standard errors are clustered by firm in all panels. t-statistics are reported in parentheses, and the difference in the mutual fund distraction coefficient between problematic and non-problematic directors are reported with their associated F-statistics from the Chow test. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Mutual Fund Distraction and Individual Fund Votes against Independent Directors

	All	*Problematic*	*Non-problematic*
	(1)	(2)	(3)
Mutual Fund Distraction	-0.043**	-0.075**	-0.039*
	(-2.14)	(-2.56)	(-1.81)
Difference of coefficients			-0.036***
between (2) and (3)			(8.49)
Fund-year FE	Y	Y	Y
Election Proposal FE	Y	Y	Y
Observations	1,845,333	338,535	1,506,386
Adjusted R^2	0.354	0.336	0.361

Panel B: Mutual Fund Distraction and Individual Fund Votes against Independent Directors: Control for Time-varying Fund Family Characteristics

	All	*Problematic*	*Non-problematic*
	(1)	(2)	(3)
Mutual Fund Distraction	-0.012**	-0.019**	-0.011
	(-2.18)	(-2.46)	(-1.62)
Difference of coefficients		-0.008	
between (2) and (3)		(1.49)	
Fund FE	Y	Y	Y
Fund Family-year FE	Y	Y	Y
Election Proposal FE	Y	Y	Y
Observations	1,845,371	338,872	1,506,435
Adjusted R^2	0.344	0.326	0.351

Panel C: Excluding Large Fund Families

	All	*Problematic*	*Non-problematic*
	(1)	(2)	(3)
Mutual Fund Distraction	-0.057***	-0.076**	-0.055**
	(-2.67)	(-2.55)	(-2.41)
Difference of coefficients		-0.021	
between (2) and (3)		(1.85)	
Fund-year FE	Y	Y	Y
Election Proposal FE	Y	Y	Y
Observations	1,358,566	248,852	1,109,334
Adjusted R^2	0.416	0.398	0.423

Table 3.3: Institutional Investor Distraction and Independent Director Election Outcomes

This table reports OLS regression results for firm-level distraction on independent director election outcomes for the period 2003 to 2012. The initial sample consists of 29,217 independent director elections in 7,564 shareholder meetings. The dependent variable in Panel A is *Fraction "No" Votes for a Director*, which is the number of "Against" and "Withhold" votes received by a particular director candidate divided by the total number of votes cast. *Total Distraction* is the average distraction of the firm's institutional investors over the past 4 quarters prior to the meeting date. *Problematic Directors* are defined as independent directors who hold 3 or more total directorships, or/and are socially-connected to the CEO. The dependent variable in Panel C, *Poor Vote Result*, is an indicator variable that equals one if the percentage of "against" and "withhold" votes a director candidate receives exceeds 10%, and zero otherwise. Appendix 3.A provides detailed variable descriptions. Standard errors are clustered by firm. t-statistics are reported in parentheses, and the difference in the total distraction coefficient for problematic and non-problematic directors are reported with their associated F-statistics from the Chow test. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Institutional Investor Distraction and Fraction of "No" Votes for an Independent Director

	All	
	(1)	(2)
Total Distraction	-0.029*	-0.019*
	(-1.84)	(-1.80)
Negative ISS	0.199***	0.200***
	(44.85)	(44.47)
Poor Meeting Attendance	0.060***	0.061***
	(5.64)	(5.73)
Number of Directorships	0.001	0.002**
	(1.47)	(2.16)
Director Tenure	0.001***	0.001***
	(3.04)	(3.66)
Director Age	-0.002*	-0.002
	(-1.95)	(-1.31)
Director Own	-0.000	0.000
	(-0.49)	(0.04)
Major Committee	0.004**	0.004**
	(2.56)	(2.16)
Institutional Shares	0.006	-0.007
	(1.42)	(-1.25)
Institutional Shares HHI	-0.007***	-0.003
	(-2.81)	(-1.23)
Board Independence	0.000	-0.000
	(0.99)	(-0.09)
Board Size	-0.000	0.000
	(-0.96)	(0.52)
Staggered Board	0.002	0.002
	(1.62)	(1.11)
Majority Voting	-0.007***	-0.007***
	(-5.75)	(-6.45)
Mature Firm	-0.003**	-0.004**
	(-2.04)	(-2.16)
Ln (Total Assets)	-0.000	-0.006***
	(-0.61)	(-3.30)
Firm Risk	0.008***	0.006***
	(8.73)	(8.82)
Sales Growth	-0.011***	-0.006
	(-2.63)	(-1.57)
ROA	-0.001	-0.007***
	(-0.46)	(-2.69)
Tobin's Q	-0.003***	-0.004***
	(-5.54)	(-5.97)
Director FE	Y	Y
Industry-year FE	Y	N
Firm + Year FE	N	Y
Observations	29,217	29,137
Adjusted R^2	0.558	0.560

Panel B: Investor Distraction and the Fraction "No" Votes for an Independent Director: Problematic vs. Non-problematic Independent Directors

	Problematic		*Non-problematic*	
	(1)	(2)	(3)	(4)
Total Distraction	-0.089**	-0.044*	-0.020	-0.012
	(-2.55)	(-1.76)	(-1.14)	(-0.96)
Difference of coefficient			-0.069*	-0.032*
Between (1) and (3) or (2) and (4)			(-3.32)	(-2.79)
Other Panel A Control Variables	Y	Y	Y	Y
Director FE	Y	Y	Y	Y
Industry-year FE	Y	N	Y	N
Firm + Year FE	N	Y	N	Y
Observations	7,166	7,062	21,342	21,241
Adjusted R2	0.555	0.563	0.574	0.559

Panel C: Institutional Investor Distraction and Poor Vote Result for an Independent Director

	All	
	(1)	(2)
Total Distraction	-0.148*	-0.094*
	(-1.84)	(-1.69)
Other Panel A Control Variables	Y	Y
Director FE	Y	Y
Industry-year FE	Y	N
Firm + Year FE	N	Y
Observations	29,217	29,137
Adjusted R^2	0.340	0.344

Table 3.4: Investor Distraction and the Sensitivity of Independent Director Departure to Weak Election Outcomes

This table reports OLS regression results of the effect of institutional investor distraction on the sensitivity of independent director departure to director election votes for the period 2003 to 2012. We only include independent directors who are aged below 70 in this analysis, to ensure their departures are not due to mandatory retirement. The dependent variable in Panels A and B is *Director Departure*, an indicator variable that equals one if the independent director is not re-nominated by the board in the subsequent elections and zero otherwise. *Total Distraction* is the average distraction of the firm's institutional investors over the past 4 quarters immediately before the annual shareholder meeting date. *Fraction of "No" Votes for a Director*, is the number of "Against" and "Withhold" votes received by a particular director candidate divided by the total number of votes cast. *Poor Vote Result* is an indicator variable that equals one if the percentage of "against" and "withhold" votes received by a director candidate is more than 10%, and zero otherwise. Appendix 3.A provides detailed variable descriptions. t-statistics are reported in parentheses. Standard errors are clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Investor Distraction and the Sensitivity of Director Departure to Weak Election Outcomes

	(1)	(2)	(3)	(4)
Total Distraction: a	-0.039	0.148	-0.079	0.107
	(-0.22)	(1.11)	(-0.45)	(1.49)
Fraction "No" Votes for a Director: b	0.469***	0.297**		
	(2.91)	(2.00)		
a * b	-2.293**	-1.529*		
	(-2.55)	(-1.83)		
Poor Vote Result: c			0.057**	0.046*
			(2.03)	(1.78)
a * c			-0.360**	-0.333**
			(-2.26)	(-2.22)
Poor Meeting Attendance	0.115***	0.092***	0.133***	0.103***
	(3.54)	(2.74)	(4.09)	(3.12)
Number of Directorships	-0.001	0.004	-0.001	0.004
	(-0.51)	(1.40)	(-0.42)	(1.51)
Director Tenure	0.002**	0.005***	0.002**	0.005***
	(2.32)	(6.29)	(2.50)	(6.48)
Director Age	-0.000	0.001	-0.000	0.001
	(-0.82)	(1.44)	(-0.79)	(1.45)
Director Own	0.099***	0.032	0.100***	0.033
	(2.92)	(1.01)	(2.96)	(1.04)
Major Committee	-0.034**	-0.118***	-0.032**	-0.117***
	(-2.43)	(-7.42)	(-2.34)	(-7.35)
Institutional Shares	0.022	0.129**	0.023	0.130**
	(0.64)	(2.03)	(0.69)	(2.05)
Institutional Shares HHI	-0.009	-0.036**	-0.007	-0.034**
	(-0.38)	(-2.55)	(-0.32)	(-2.45)
Board Independence	-0.000	0.000	-0.000	0.000
	(-0.14)	(0.84)	(-0.21)	(0.79)
Board Size	-0.001	0.018***	-0.001	0.018***
	(-0.25)	(4.32)	(-0.30)	(4.34)
Staggered Board	0.236***	0.091***	0.237***	0.092***
	(22.95)	(4.00)	(23.01)	(4.00)
Majority Voting	-0.018	-0.054***	-0.019	-0.055***
	(-1.35)	(-3.40)	(-1.49)	(-3.46)
Mature Firm	-0.001	-0.028	-0.000	-0.028
	(-0.06)	(-1.06)	(-0.01)	(-1.06)
Ln (Total Assets)	-0.011**	0.021	-0.011**	0.021
	(-2.43)	(1.11)	(-2.42)	(1.12)
Firm Risk	-0.002	0.003	-0.002	0.003
	(-0.31)	(0.36)	(-0.24)	(0.39)
Sales Growth	0.190***	0.172***	0.191***	0.172***
	(3.94)	(3.55)	(3.97)	(3.56)
ROA	-0.114***	-0.084*	-0.116***	-0.085*
	(-2.86)	(-1.86)	(-2.92)	(-1.87)
Tobin's Q	-0.005	0.007	-0.006	0.007
	(-1.26)	(0.92)	(-1.32)	(0.95)
Industry-year FE	Y	N	Y	N
Firm + year FE	N	Y	N	Y
Observations	21,176	21,143	21,176	21,143
Adjusted R^2	0.447	0.532	0.447	0.532

Table 3.5: Institutional Investor Distraction and Independent Directors' Meeting Attendance

This table reports OLS regressions results of institutional investor distraction on individual independent director's attendance at board meetings from for 1996-2013. The dependent variable *Poor Meeting Attendance*, is an indicator variable that equals one if an independent director attended fewer than 75% of a firm's board meetings during the previous fiscal year, and zero otherwise. *Total Distraction* is the average distraction of the firm's institutional investors over the past 4 quarters immediately before the annual meeting date. Panel A reports results using the full sample. Panel B examines subsamples of problematic directors and non-problematic directors. *Problematic Directors* are defined as independent directors who hold 3 or more total directorships, or/and are socially-connected to the CEO. The sample period in Panel B is 2003-2013, as coverage of BoardEx database is more comprehensive after 2003. Appendix 3.A provides detailed variable descriptions. t-statistics are reported in parentheses, and the difference in the coefficients of total distraction for problematic and non-problematic directors are reported with their associated F-statistics from the Chow test. Standard errors are clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Institutional Investor Distraction and Poor Director Meeting Attendance

	(1)	(2)
Total Distraction	0.034*	0.021
	(1.73)	(1.48)
Number of Directorships	0.003***	0.002***
	(2.79)	(2.86)
Director Tenure	0.000	0.001**
	(1.55)	(2.35)
Director Age	-0.002*	-0.001
	(-1.81)	(-0.63)
Director Own	-0.015**	-0.013**
	(-1.97)	(-2.04)
Major Committee	0.004*	0.004**
	(1.91)	(2.17)
Institutional Shares	0.002	-0.000
	(0.44)	(-0.03)
Institutional Shares HHI	-0.000	-0.001
	(-0.13)	(-0.20)
Board Independence	0.000**	0.000**
	(2.29)	(2.57)
Board Size	0.001***	0.001**
	(3.09)	(2.51)
Staggered Board	-0.001	-0.001
	(-0.44)	(-0.73)
Mature Firm	-0.001	-0.001
	(-0.78)	(-0.26)
Ln (Total Assets)	-0.006***	-0.000
	(-6.17)	(-0.14)
Firm Risk	-0.002**	-0.001
	(-2.25)	(-0.87)
Sales Growth	-0.000	-0.001
	(-0.08)	(-0.29)
ROA	-0.010	-0.015***
	(-1.38)	(-3.49)
Tobin's Q	-0.001*	0.000
	(-1.81)	(0.46)
Director FE	Y	Y
Industry-year FE	Y	N
Firm + year FE	N	Y
Observations	88,811	88,691
Adjusted R^2	0.135	0.155

Panel B: Institutional Investor Distraction and the Poor Meeting Attendance of Problematic vs Non-Problematic Directors

	Problematic		*Non-problematic*	
	(1)	(2)	(3)	(4)
Total Distraction	0.094**	0.062*	0.002	-0.001
	(2.29)	(1.68)	(0.07)	(-0.04)
Difference of coefficient			0.092***	0.063***
Between (1) and (3) or (2) and (4)			(8.00)	(7.48)
Other Panel A Control Variables	Y	Y	Y	Y
Director FE	Y	Y	Y	Y
Industry-year FE	Y	N	Y	N
Firm + year FE	N	Y	N	Y
Observations	12,781	12,705	44,737	44,690
Adjusted R^2	0.105	0.091	0.112	0.114

Table 3.6: Investor Distraction and Board Meeting Frequencies

This table reports OLS regressions results of institutional investor distraction on firm-level board meeting frequencies. The sample covers firms in the RiskMetrics universe for the period 1996-2013, where the information on board meeting frequencies is from Execucomp for 1996-2006 and MSCI GMI Ratings for 2007-2013. The dependent variable in all models is *Number of Board Meetings,* which is the natural logarithm of the number of board meetings over the current fiscal year. *Poor Tobin's Q* is an indicator variable equals one if the firm's Tobin's Q is below the bottom quartile of all firms during that year and zero otherwise. *Total Distraction* is the average distraction of the firm's institutional investors over the prior fiscal year. Standard errors are clustered by firm. Appendix 3.A provides detailed variable descriptions. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Institutional Investor Distraction and Board Meeting Frequencies

	(1)	(2)	(3)	(4)
Total Distraction: a	-0.507*	-0.180	-0.540*	-0.234
	(-1.83)	(-1.15)	(-1.84)	(-1.47)
Poor Tobin's Q: b			0.109***	0.049**
			(3.85)	(2.12)
a * b			-0.393**	-0.165
			(-2.56)	(-1.36)
Acquisition	0.048***	0.033***	0.047***	0.033***
	(5.83)	(5.34)	(5.64)	(5.31)
Institutional Shares	0.055	-0.025	0.049	-0.026
	(1.62)	(-0.68)	(1.42)	(-0.70)
Institutional Shares HHI	0.025	0.034**	0.024	0.029*
	(0.40)	(2.07)	(0.36)	(1.86)
Board Independence	0.003***	0.001*	0.003***	0.001*
	(7.63)	(1.69)	(7.26)	(1.74)
Board Size	-0.001	-0.002	-0.001	-0.003
	(-0.42)	(-0.74)	(-0.31)	(-1.00)
Staggered Board	0.003	0.011	0.006	0.004
	(0.31)	(0.52)	(0.52)	(0.18)
Mature Firm	-0.007	0.025*	-0.004	0.025*
	(-0.57)	(1.82)	(-0.31)	(1.83)
Ln (Total Assets)	0.039***	0.033***	0.040***	0.045***
	(7.99)	(2.86)	(8.12)	(3.82)
Firm Risk	0.058***	0.043***	0.056***	0.039***
	(7.23)	(6.11)	(6.73)	(5.52)
Sales Growth	-0.106***	-0.102***	-0.128***	-0.120***
	(-3.06)	(-3.54)	(-3.62)	(-4.14)
ROA	-0.038	-0.033	-0.079**	-0.043
	(-1.15)	(-0.98)	(-1.98)	(-1.15)
Tobin's Q	-0.029***	-0.013***		
	(-5.62)	(-2.65)		
Industry-year FE	Y	N	Y	N
Firm + year FE	N	Y	N	Y
Observations	11,931	11,733	11,931	11,733
Adjusted R2	0.180	0.567	0.175	0.571

Table 3.7: Investor Distraction, Board Composition, and New Appointments or Re-nominations of Directors

This table reports results of OLS regressions for institutional investor distraction on board composition and independent director appointments for the period 2003 to 2013. The dependent variable in Panel A is *New Problematic Director Appointment*, an indicator variable equals one if the firm has newly appointed at least one problematic independent director, and zero otherwise. The dependent variable in Panels B is *Re-nomination of Problematic Director*, an indicator variable that equals one if the firm has re-nominated one or more problematic directors during the year and zero otherwise. *Lagged Proportion PID on Nomination Committee* is the proportion of problematic directors among the independent directors on the nomination committees at the end of the prior year. *Total Distraction* is the firm-level shareholder distraction measure over the previous 4 quarters immediately before the annual meeting date. Appendix 3.A provides detailed variable descriptions. Standard errors are clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Institutional Investor Distraction and New Appointments of Problematic Directors

	(1)	(2)	(3)	(4)	(5)	(6)
Total Distraction: a	0.181*	0.164*	0.051	-0.014	0.059	0.037
	(1.94)	(1.93)	(0.50)	(-0.14)	(0.49)	(0.30)
Lagged Proportion PID on			-0.053	-0.201***		
Nomination Committee: b			(-1.06)	(-3.77)		
a * b			0.627**	0.764***		
			(2.13)	(2.61)		
CEO-Chairman Duality: c					-0.024	-0.058**
					(-1.18)	(-2.24)
a * c					0.219*	0.303**
					(1.71)	(2.02)
Institutional Shares	-0.000*	-0.000***	0.001	-0.020	-0.005	-0.022
	(-1.65)	(-2.61)	(0.09)	(-1.28)	(-0.55)	(-1.19)
Institutional Shares HHI	0.003	0.008	0.005	0.006	0.001	0.009
	(0.27)	(1.24)	(0.43)	(1.12)	(0.09)	(1.38)
Board Independence	0.001**	-0.000	0.000*	-0.000	0.001**	-0.000
	(2.50)	(-0.31)	(1.86)	(-0.41)	(2.09)	(-0.18)
Board Size	-0.003*	-0.021***	-0.005***	-0.023***	-0.003	-0.025***
	(-1.71)	(-5.66)	(-2.69)	(-6.06)	(-1.52)	(-5.51)
Staggered Board	0.005	0.033*	0.007	0.038*	0.001	0.034
	(0.79)	(1.66)	(1.23)	(1.87)	(0.15)	(1.45)
Mature Firm	0.001	0.007	0.005	0.004	-0.001	0.005
	(0.19)	(0.54)	(0.77)	(0.30)	(-0.12)	(0.30)
Ln (Total Assets)	0.024***	0.030**	0.021***	0.022*	0.026***	0.040***
	(7.56)	(2.40)	(6.61)	(1.72)	(7.43)	(2.67)
Firm Risk	0.004	0.000	0.003	-0.003	0.005	-0.006
	(0.76)	(0.02)	(0.45)	(-0.39)	(0.79)	(-0.66)
Sales Growth	-0.041	-0.006	-0.019	0.004	-0.040	0.007
	(-1.09)	(-0.14)	(-0.45)	(0.10)	(-0.98)	(0.16)
ROA	-0.048*	-0.092**	-0.034	-0.083*	-0.051**	-0.106**
	(-1.89)	(-2.07)	(-1.22)	(-1.83)	(-2.06)	(-2.08)
Tobin's Q	0.006*	0.004	0.004	0.004	0.006*	0.005
	(1.86)	(0.70)	(1.10)	(0.62)	(1.92)	(0.75)
Industry-year FE	Y	N	Y	N	Y	N
Firm + year FE	N	Y	N	Y	N	Y
Observations	6,402	6,307	6,402	6,307	6,402	6,307
Adjusted R2	0.050	0.072	0.062	0.075	0.050	0.065

Panel B: Institutional Investor Distraction and Re-nominations of Problematic Directors

	(1)	(2)	(3)	(4)	(5)	(6)
Total Distraction: a	0.435**	0.502***	0.484**	0.392**	0.130	0.411*
	(2.25)	(3.24)	(2.11)	(2.00)	(0.48)	(1.70)
Lagged Proportion of PID on			0.534***	0.083		
Nomination Committee: b			(6.50)	(1.00)		
a * b			-0.450	0.538		
			(-1.00)	(1.27)		
CEO-Chairman Duality: c					0.033	0.038
					(0.65)	(0.75)
a * c					0.094	-0.036
					(0.34)	(-0.14)
Industry-year FE	Y	N	Y	N	Y	N
Firm + year FE	N	Y	N	Y	N	Y
Observations	6,402	6,307	6,402	6,307	6,402	6,307
Adjusted R2	0.118	0.331	0.184	0.328	0.088	0.335

Table 3.8: Institutional Investor Distraction, Earnings Management, Excess CEO Pay, and Firm Valuations

This table reports the OLS regression results of how institutional investor distraction affects firm's earnings management through lower director monitoring intensity for the period 1996 to 2013. The dependent variable in Panel A is *Discretionary Accruals*, which is calculated using the modified Jones model as in Dechow, Sloan, and Sweeney (1995). The dependent variable in Panel B is *High CEO Pay*, which is an indicator variable equals one if the abnormal CEO compensation of a firm is greater than the median abnormal pay in the same year, and zero otherwise. Abnormal CEO compensation is the residual from an OLS regression where the dependent variable is the natural logarithm of the total CEO compensation and the independent variables include log(assets), ROA, total firm risk, and interacted industry-year fixed effects. The dependent variable in Panel C is *Tobin's Q*, which is defined as the market value of a firm's total assets divided by the book value of total assets. *Lagged Proportion PIDs on Audit Committee* is the lagged proportion of problematic directors among the independent directors on the audit committee, which is available only for the period 2003-2013 due to BoardEx data availability. *Lagged Proportion PIDs on Comp Committee* is the prior year's proportion of problematic independent directors on the compensation committee. *Lagged Proportion PIDs* is defined as the proportion of problematic directors among the firm's independent directors. Appendix 3.A provides detailed variable descriptions. *Total Distraction* is the shareholder distraction measure over the previous fiscal year. Appendix 3.A provides detailed variable descriptions. t-statistics are reported in parentheses, and the difference in the coefficients of total distraction for the subsamples are reported with their associated F-statistics from the Chow test. Standard errors are clustered by firm in all regressions. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Institutional Investor Distraction and Earnings Management

	All		*Lagged Proportion PIDs on Audit Committee>0*		*Lagged Proportion PIDs on Audit Committee=0*	
	(1)	(2)	(3)	(4)	(5)	(6)
Total Distraction	0.264**	0.241**	1.043*	0.659*	0.164	0.224
	(2.09)	(2.27)	(1.83)	(1.73)	(0.65)	(1.03)
Institutional Shares	0.001	0.018	-0.019	-0.010	-0.017	0.009
	(0.06)	(1.07)	(-1.26)	(-0.18)	(-1.01)	(0.26)
Institutional Shares HHI	-0.002	0.019*	0.011	0.016**	0.047	-0.178
	(-0.17)	(1.72)	(1.19)	(2.06)	(0.17)	(-0.31)
Board Independence	-0.000	-0.000	0.001**	-0.001	0.001*	0.001
	(-0.20)	(-0.36)	(2.25)	(-1.17)	(1.88)	(0.73)
Board Size	-0.001	-0.001	0.004	0.008	0.001	0.001
	(-0.32)	(-0.34)	(1.10)	(0.98)	(0.19)	(0.13)
Staggered Board	0.003	-0.005	0.008	-0.035	0.000	0.039
	(0.63)	(-0.23)	(0.61)	(-0.52)	(0.05)	(1.08)
Mature Firm	0.001	-0.014	-0.025	-0.024	0.001	-0.068
	(0.12)	(-0.62)	(-1.43)	(-0.50)	(0.11)	(-0.63)
Ln (Total Assets)	-0.002	-0.040***	-0.012*	-0.019	-0.013***	-0.085**
	(-0.33)	(-4.00)	(-1.86)	(-0.51)	(-2.65)	(-2.24)
Firm Risk	-0.005	-0.009	-0.003	0.002	-0.030***	-0.015
	(-0.92)	(-1.35)	(-0.28)	(0.06)	(-3.03)	(-0.68)
Sales Growth	0.006	0.031	0.066	-0.172	0.033	0.112
	(0.10)	(0.66)	(0.22)	(-0.71)	(0.50)	(1.53)
ROA	0.056***	0.036	0.204**	0.070	-0.010	0.037
	(2.89)	(1.07)	(1.99)	(0.40)	(-0.19)	(0.45)
Tobin's Q	-0.002	-0.001	-0.022**	-0.001	0.005	0.001
	(-0.83)	(-0.17)	(-2.20)	(-0.06)	(1.03)	(0.15)
Difference of coefficient					0.879*	0.435*
B/w (3) and (5) ((4) and (6))					(3.06)	(3.61)
Industry-year FE	Y	N	Y	N	Y	N
Firm + Year FE	N	Y	N	Y	N	Y
Observations	12,889	12,716	3,061	2,954	3,006	2,851
Adjusted R2	0.378	0.014	0.526	0.044	0.461	0.003

Panel B: Institutional Investor Distraction and High Excess CEO Pay

	All		*Lagged Proportion PIDs on Comp Committee>0*		*Lagged Proportion PIDs on Comp Committee=0*	
	(1)	(2)	(3)	(4)	(5)	(6)
Total Distraction	0.541***	0.478**	0.928*	1.034**	0.680	0.788**
	(2.60)	(2.35)	(1.83)	(2.58)	(1.26)	(1.98)
Institutional Shares	0.193***	0.084***	0.137	0.014	0.224***	0.184***
	(5.19)	(3.09)	(1.41)	(0.26)	(3.71)	(3.08)
Institutional Shares HHI	0.000	-0.051	-0.425	-1.187	0.088*	-0.016
	(0.00)	(-0.99)	(-0.48)	(-1.36)	(1.74)	(-0.80)
Board Independence	0.004***	0.002***	0.005***	0.001	0.002**	0.003***
	(7.50)	(4.18)	(4.36)	(1.32)	(2.05)	(3.44)
Board Size	0.003	-0.003	-0.000	-0.003	0.004	-0.005
	(0.74)	(-0.59)	(-0.04)	(-0.34)	(0.45)	(-0.59)
Staggered Board	0.018	-0.027	0.021	-0.019	-0.003	-0.120*
	(0.98)	(-0.88)	(0.66)	(-0.39)	(-0.09)	(-1.66)
Mature Firm	-0.032*	-0.055**	-0.047	-0.068	-0.020	-0.060
	(-1.72)	(-2.06)	(-1.36)	(-1.13)	(-0.56)	(-1.37)
Ln (Total Assets)	0.024***	-0.026	0.005	-0.051	0.038**	0.030
	(2.76)	(-1.52)	(0.32)	(-1.32)	(2.16)	(0.76)
Firm Risk	-0.024*	-0.024**	-0.036	-0.002	-0.041	-0.020
	(-1.95)	(-2.22)	(-1.36)	(-0.11)	(-1.52)	(-0.83)
Sales Growth	0.088	0.108**	0.018	0.153	0.137	0.188*
	(1.58)	(2.14)	(0.12)	(1.53)	(1.06)	(1.72)
ROA	0.112**	0.197**	0.385*	0.461***	0.178**	0.255*
	(2.20)	(2.54)	(1.92)	(2.89)	(2.09)	(1.89)
Tobin's Q	0.043***	0.044***	0.044**	0.052***	0.030**	0.059***
	(5.89)	(7.18)	(2.40)	(3.16)	(2.37)	(4.29)
Difference of coefficient					0.248*	0.246
B/w (3) &(5) ((4) & (6))					(3.37)	(0.88)
Industry-year FE	Y	N	Y	N	Y	N
Firm + Year FE	N	Y	N	Y	N	Y
Observations	12,889	12,716	3,153	3,030	2,985	2,798
Adjusted R2	0.098	0.317	0.078	0.341	0.049	0.367

Panel C: Institutional Investor Distraction and Firm Valuation

	All		*Lagged Proportion PIDs >0*		*Lagged Proportion PIDs =0*	
	(1)	(2)	(3)	(4)	(5)	(6)
Total Distraction	-1.359*	-1.608***	-1.820***	-2.591**	-0.640	-0.056
	(-1.82)	(-3.50)	(-2.82)	(-2.10)	(-0.72)	(-0.07)
Institutional Shares	0.102	0.358***	-0.019	0.043	-0.123	0.098
	(1.12)	(5.08)	(-0.17)	(0.68)	(-0.78)	(0.87)
Institutional Shares HHI	-0.489	-0.162	-0.079	-4.879***	-1.467	-0.089**
	(-1.14)	(-0.89)	(-0.90)	(-3.74)	(-1.14)	(-2.11)
Board Independence	-0.000	-0.001	-0.001	-0.003	0.002	0.002
	(-0.26)	(-0.65)	(-0.26)	(-1.14)	(1.09)	(0.90)
Board Size	-0.011	-0.025***	-0.013	-0.003	-0.007	-0.024
	(-0.97)	(-2.64)	(-0.76)	(-0.23)	(-0.61)	(-1.62)
Staggered Board	-0.092*	0.364***	-0.078	0.414***	-0.055	0.280**
	(-1.95)	(3.34)	(-1.27)	(3.61)	(-1.09)	(2.05)
Mature Firm	-0.120***	-0.057	-0.052	-0.217*	-0.127**	-0.063
	(-2.64)	(-0.75)	(-0.75)	(-1.70)	(-2.20)	(-0.76)
Ln (Total Assets)	-0.038*	-0.660***	-0.138***	-0.666***	-0.087***	-0.678***
	(-1.72)	(-9.31)	(-4.29)	(-7.62)	(-3.54)	(-7.21)
Firm Risk	-0.108***	0.017	-0.226***	0.073**	-0.117***	-0.062*
	(-3.39)	(0.81)	(-5.20)	(2.10)	(-3.08)	(-1.83)
Sales Growth	1.565***	0.878***	0.378	-0.124	-0.216	0.307
	(4.68)	(3.64)	(1.00)	(-0.62)	(-0.57)	(0.99)
ROA	2.340***	1.937***	4.713***	2.919***	5.598***	2.426***
	(4.88)	(4.16)	(6.60)	(6.70)	(8.41)	(3.83)
Difference of coefficient					-1.180*	-2.535*
B/w (3) & (5) ((4) & (6))					(3.08)	(2.73)
Industry-year FE	Y	N	Y	N	Y	N
Firm + Year FE	N	Y	N	Y	N	Y
Observations	12,889	12,716	4,150	4,034	1,984	1,841
Adjusted R2	0.280	0.640	0.353	0.759	0.467	0.785

Table 3.9: Robustness Checks Using Alternative Investor Distraction Measures

This table reports our main results using alternative institutional investor distraction measures as robustness analysis. *Monitoring Distraction* is calculated based on the distraction levels of institutions who are most likely to monitor such as investment companies, independent investment advisors, and public pension funds. *Distraction (Positive Shocks) and Distraction (Negative Shocks)* are firm-level distraction measures that are calculated based on positive industry-level return shocks and negative industry-level return shocks, respectively. *Volume-based Distraction* is a distraction measure calculated based on extreme trading volume across the FF12 industry sectors instead of return shocks. *Equal-weighted Ownership Distraction* is a distraction measure calculated by equally weighting portfolio firms in institutional investors' shareholdings. All regressions include the control variables that are used in the respective tables previously. Panels A and B also include director, firm, and year fixed effects. Panel C include director and firm fixed effects. Panels D to H include firm and year fixed effects. Appendix 3.A provides detailed variable descriptions. Standard errors are clustered by firm in all regressions. ***, **, and * indicates statistical significance of 1%, 5%, and 10% respectively.

	Alternative Distraction Variable =				
	Monitoring Distraction	Distraction (Positive Shocks)	Distraction (Negative Shocks)	Volume-based Distraction	Equal-weighted Ownership Distraction
	(1)	(2)	(3)	(4)	(5)
Panel A: Dep Var = Fraction "No" Votes for a Director					
Alternative Measure	-0.027**	-0.033**	-0.038***	-0.031**	-0.027**
	(-2.31)	(-2.38)	(-2.90)	(-2.17)	(-2.33)
Panel B: Dep Var = Director Departure					
Fraction "No" Votes for a	0.057***	0.054***	0.042***	0.053***	0.056***
Director: a	(4.49)	(5.17)	(3.34)	(4.64)	(4.39)
Alternative Measure: b	0.675***	0.885***	0.355**	-0.107	0.561***
	(4.55)	(5.57)	(2.07)	(-0.61)	(3.79)
a * b	-0.251***	-0.292***	-0.194**	-0.258***	-0.243***
	(-3.62)	(-4.29)	(-2.28)	(-3.59)	(-3.49)
Panel C: Dep Var = Poor Director Attendance Indicator					
Alternative Measure	0.030*	0.037*	0.032	0.046*	0.033*
	(1.68)	(1.76)	(1.48)	(1.94)	(1.76)
Panel D: Dep Var = Ln (Number of Board Meetings)					
Alternative Measure	-0.645***	-0.688**	-0.591*	-0.577*	-0.537**
	(-2.86)	(-2.57)	(-1.96)	(-1.86)	(-2.21)
Panel E: Dep Var = Proportion Problematic Directors					
Alternative Measure	0.085*	0.100*	0.091*	0.105	0.087*
	(1.65)	(1.72)	(1.68)	(1.41)	(1.66)
Panel F: Dep Var = Discretionary Accruals					
Alternative Measure	0.352***	0.350**	0.618***	0.420**	0.325**
	(2.81)	(2.43)	(3.28)	(2.58)	(2.41)
Panel G: Dep Var = High CEO Pay					
Alternative Measure	0.388***	0.425***	0.488***	0.446**	0.397***
	(3.00)	(3.14)	(2.87)	(2.29)	(2.61)
Panel H: Dep Var = Tobin's Q					
Alternative Measure	-2.476***	-2.444***	-2.015***	-2.808***	-2.537***
	(-4.40)	(-4.14)	(-3.26)	(-3.52)	(-4.24)

Appendix

Appendix 3.A: Variable Definitions

Variable	Definition
Panel A: Distraction Measures	
Mutual Fund Distraction	Investor-level proxy for how much the mutual fund investor is distracted over the 4 quarters immediately before the voting date. It is the weighted average return shocks across Fama-French 12 industries, unrelated to the focal firm, held by the mutual fund. The weights are based on the investor's portfolio weights in the shocked industries.
Total Distraction	Firm-level proxy for how much institutional investors are distracted over the past 4 quarters immediately before the annual meeting date/fiscal year end. It is the weighted average distraction of institutional investors in the firm. We calculate the investor-level distraction measure as the weighted average return shocks across industries, unrelated to the focal firm, held by the investor. The return shocks are weighted by the investor's portfolio weights in the shocked *industries.*
Positive Distraction	A firm-level distraction measure that is calculated based on positive industry-level return shocks only.
Negative Distraction	A firm-level distraction measure that is calculated based on negative industry-level return shocks only.
Equal-weighted Ownership Distraction	A firm-level distraction measure that is calculated by equally weighting portfolio firms in institutional investors' shareholdings.
Monitoring Distraction	A firm-level distraction measure that is calculated from distraction levels of institutions who are most likely to monitor such as investment companies, independent investment advisors, and public pension funds
Volume-based Distraction	A firm-level distraction measure that is calculated based on extreme trading volume across the FF12 industry sectors instead of return shocks.
Panel B: Director Characteristics	
Director Age	Director's age.
Director Departure	An indicator variable that equals one if the independent director is not re-nominated by the board in the subsequent elections and zero otherwise.
Director Own	Director's percentage ownership in the firm obtained from RiskMetrics Director database.
Director Tenure	Number of years the director has been on the board.
Fraction "No" Votes for a Director	Number of "Against" and "Withhold" votes received by a particular director candidate divided by the total number of votes cast. This variable is at the firm-director-election date level.

Major Committee	Indicator variable equals one if the director is a member of the nominating, audit, compensation, or corporate governance committee.
Negative ISS	Indicator variable equals one if the ISS recommendation for the director candidate is either “against” or “withhold,” and zero otherwise.
Number of Directorships	Number of directorships held by the director within the RiskMetrics universe during the year, including the focal firm.
Oppose Director	Indicator variable equals one if the mutual fund votes “Against” or “Withhold” for a particular director candidate, and zero otherwise. This variable is at the fund-firm-director-election date level.
Poor Meeting Attendance	Indicator variable equals one if the director attended less than 75% of the board meetings during the year, and zero otherwise.
Poor Vote Result	Indicator variable equals one if the percent of “Against” and “Withhold” votes is more than 10% of total votes cast, and zero otherwise.
Problematic Director	Indicator variable equals one if the independent director holds 3 or more directorships during the year, and/or if the director shares a social tie with the current CEO, and zero otherwise. A social tie exists if the CEO and director attend a common educational institution or are members of the same non-business organization.

Panel C: Firm Characteristics

Acquisition	An indicator variable equals one if the firm has announced an acquisition during the fiscal year.
Average Director "No" Votes	The mean fraction of “Against” and “Withhold” votes received by all the independent directors in the firm in a particular year. This variable is at the firm-election date level.
Board Size	Number of directors on the board.
Board Independence	Percentage of board members who are independent directors using the RiskMetrics classification.
CEO-Chair Duality	Indicator variable equals one if the CEO is also the board chair, and zero otherwise.
CEO Own	CEO’s percentage ownership in the firm.
Discretionary Accruals	A proxy for earnings management calculated using the modified Jones model as in Dechow, Sloan, and Sweeney (1995).
Firm Risk	The natural logarithm of the variance of daily returns over firm fiscal year.
High CEO Pay	An indicator variable equals one if the abnormal CEO compensation is greater than the median abnormal pay in the sample of the same year, and zero otherwise. Abnormal CEO compensation is the residual from an OLS regression where the dependent variable is the natural logarithm of the total CEO compensation and the control variables include log(assets), ROA, total firm risk, and industry-year dummies.
Institutional Shares	Total percentage ownership from all institutional investors.

Institutional Shares HHI	The concentration of institutional investor ownership as in Hartzell and Starks (2003).
Leverage	(Total current debt + long term debt)/beginning - year total assets (book value).
Majority Voting	An indicator variable equals one if the firm requires the director to receive more than 50% “Yes” votes from the shareholders to be successfully elected.
New Problematic Director Appointment	Indicator variable equals one if the firm has newly appointed at least one problematic independent director, and zero otherwise.
Number of Board Meetings	Number of board meetings held by the firm during the fiscal year.
Old Firm	Indicator variable equals one if the firm's age is greater than the median firm age, and zero otherwise.
Poor Tobin's Q	An indicator variable equals one if the firm’s Tobin’s Q is below the bottom quartile of all firms during that year, and zero otherwise.
Lagged Proportion PIDs	The proportion of problematic directors among the independent directors of the board.
Lagged Proportion PID on Audit Committee	The proportion of problematic independent directors on the audit committee.
Lagged Proportion PID on Comp Committee	The proportion of problematic independent directors on the firm’s compensation committee.
Lagged Proportion PID on Nomination Committee	The proportion of problematic independent directors on the nomination committee of the prior fiscal year.
Problematic Director Re-nomination	An indicator variable that equals one if the firm has re-nominated problematic directors during the year and zero otherwise.
ROA	Earnings before interest, taxes, depreciation and amortization/beginning-year total assets.
Sales Growth	Ln (1 + sale/beginning-year sale).
Staggered Board	An indicator variable equals one if only part of the directors on the board are elected each year, and zero otherwise.
Tobin’s Q	(Total assets - book value of equity + market value of equity)/ beginning-year total assets.
Total Assets	Book value of beginning-year total assets in millions of dollars.

Appendix 3.B: The Mutual Fund Votes Sample in Table 3.2

We examine how mutual fund investors vote when they are distracted in Table 3.2. Our initial mutual fund investors sample is drawn from the CRSP survival bias free mutual fund database. Following previously studies including Kacperczyk, Sialm, and Zheng (2008) and Dimmock et al. (2016), we focus on actively-managed domestic equity funds and eliminate balanced, bond, international, money market, and sector funds. We also remove funds that hold less than 10 stocks and have less than two million total net assets.[67]

We merge this initial sample with the Thompson Reuters Mutual Fund Holding (S12) data using MFLINKS file from WRDS. We then construct our measure of fund distraction following equation (1) and merge it with ISS Voting Analytics database using fund and fund family names. Only since 2003, mutual funds are required to disclose their votes through N-PX filings to the Securities and Exchange Commission (SEC). Therefore, our mutual fund voting data is only available from 2003 onwards.

Our dataset contains information on the number of votes casted by each mutual fund investor for each of the directors up for election during the annual general meeting. For each fund vote, we can observe whether the mutual fund shareholder vote "For," "Against," or "Withhold" the vote for each director election proposal in the investee company's annual meeting.

To obtain information on director classification and characteristics, we further restrict our mutual fund vote sample to votes for director elections. We match companies from ISS Voting Analytics to RiskMetrics director data using CUSIP, ticker, and company names. Then, we extract director names from the item description in ISS Voting Analytics, and match them to the director names from the same company in the RiskMetrics director database. We manually verify these company and director matches. With these procedures, we are able to match 98% director election proposals from ISS Voting Analytics to RiskMetrics.

[67] Following previous studies, we identify the type of fund by Lipper classification, which becomes populated since 1998. For example, we identify actively-managed US equity funds with objective code "G," "GI," "LSE," or "SG," or the classification code "LCCE," "LCGE," "LCVE," "LSE," "MCCE," "MCGE," "MCVE," "MLCE," "MLGE," "MLVE," "SCCE," "SCGE," or "SCVE." To further exclude index funds, we manually checked the fund names to further exclude index funds.

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