Corporate Governance Propagation through Overlapping Directors

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Directors at large, publicly-listed firms tend to hold several directorships. The literature on "social networks" suggests that individuals with multiple directorships may spread what they learn on one board to another board. This implies that overlapping directors may cause corporate governance practices to be propagated across firms, thereby causing governance practices to look similar.

The first goal of this paper is to empirically test the hypothesis that director overlap leads to cross-sectional governance similarity. Eight governance practices are examined. The empirical tests provide strong evidence that firms that share directors have governance practices that are more similar than those of firms that do not.

The second goal is to examine whether these results are driven by a "familiarity effect" or an "influence effect". The familiarity effect says that the relationship between director overlap and governance similarity arises because firms are selecting directors who are already serving at firms with similar governance practices. The influence effect says that the relationship arises because a director – even one currently serving at firms with dissimilar governance practices – exerts influence on the firm's governance practices after joining the board. After dealing with the endogeneity concerns that arise in empirically distinguishing between the two effects, empirical support is found for both effects.

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1. INTRODUCTION

Firms, even those that are publicly-traded, have substantial leeway in choosing their corporate governance practices, including board size, the fraction of outside directors, the number of board meetings, director base pay, CEO compensation, and so on. How do firms decide which governance practices to adopt? The theoretical governance literature has provided insights on this. Fama and Jensen (1983),[1] Hermalin and Weisbach (1998), Raheja (2005), Song and Thakor (2006), Adams and Ferreira (2007) and Harris and Raviv (2008) have addressed a variety of governance design issues such as optimal board size, the optimal fraction of outside directors, and the accuracy of information communication from the CEO to the board of directors. Holmstrom (1979) and Holmstrom and Ricart i Costa (1986) have focused on the determinants of agent compensation in a principal-agent context, and generated results that have been used in the CEO compensation literature. There are also governance practices that have not yet been theoretically examined as optimal (value-maximizing) choices. Examples are practices related to the choice of the average age of directors and how many active CEOs to have as directors. Nonetheless, these practices have been empirically documented to vary across firms (e.g., Baker and Gompers, 2003; Gillan, Hartzell and Starks, 2004; Boone, Field, Karpoff and Raheja, 2007; and Coles, Daniel and Naveen, 2008). But we lack an understanding of why they vary the way they do in the cross-section. How do firms go about selecting these governance practices?

This paper starts with the intuition that firms' choices of corporate governance practices may be affected by the governance practices of other firms their directors serve at. It is well-known that directors of large firms tend to serve on multiple boards: the average and median director of a Forbes 500 firm, for example, holds three directorships (Fich and Shivdasani, 2006).[2] Such direct overlap means that there are "social networks" of directors that facilitate communication among them, creating the possibility for firms

[1] While Fama and Jensen (1983) point out that the board cannot be effective unless it limits the decision discretion of top managers, Jensen (1993) takes this a step further in his Presidential Address and argues that the board can only be effective if the CEO is not the chairman of the board

[2] Directors at the largest firms tend to hold more directorships than others. Ferris, Jagannathan and Pritchard (2003) document that directors at firms with total assets over $100 million on average hold 1.6 directorship (median: 1.4).

to learn from each other through their directors, thereby potentially causing governance practices to spread across firms that share directors.

The importance of social network effects is well established in a variety of other contexts. For example, Bertrand, Luttmer and Mullainathan (2000) provide evidence that social networks affect welfare participation, whereas Hong, Kubik and Stein (2004) show that social interaction affects stock market participation. This paper examines the empirical validity of social networks for understanding governance practices. In particular, I ask: does director overlap among firms lead to similarity in governance practices at these firms?

To address this question, I focus on eight governance practices. These are: (1) board size; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) whether the CEO is also the chairman (CEO duality). The consideration of this number of governance variables is a departure from the existing literature that has typically focused on only four of these practices – board size, the fraction of outside directors, CEO duality, and CEO compensation. The reason for the broader coverage is that there is no *a priori* justification for excluding governance practices like the number of board meetings and director compensation when one is examining the director-overlap-induced propagation of governance practices.

I begin by examining whether a specific governance practice at firm *i* can be explained by the (one-year lagged) weighted average governance practices at firms that have overlapping directors with firm *i*, while controlling for other factors that the literature has found to be important determinants of governance, including CEO and firm characteristics. Since firms may benchmark their corporate governance practices to those at similar firms, the average peer firm governance is also controlled for. I find results that strongly suggest that director overlap shapes governance practices: the coefficients on the governance practices at firms with overlapping directors are positive and highly significant for most governance practices. It is verified that these results are not driven by firms all moving in the same

direction since they had to comply with Sarbanes Oxley (SOX) and more stringent governance requirements imposed by several exchanges over the sample period.

While I find strong evidence that overlapping directorships have an impact on corporate governance practices, and this finding is consistent with the intuition suggested by social network effects, the source of the impact is not obvious. All of the governance practices I examine are highly visible and a firm that wishes to adopt a particular practice can easily do so simply by observing what firms it wishes to benchmark are doing. Social network effects would then ostensibly have no role to play in firms' decisions of which practices to adopt.

It is therefore important to understand the mechanisms by which social network effects could manifest themselves and then examine the vailidity of these hypothesized mechanisms empirically. I examine two possible sources of this documented overlapping-directors effect: familiarity and influence. The familiarity effect says that firms may simply choose directors who already have directorships at firms with governance characteristics that are similar to their own practices. That is, firms tend to choose directors who are "familiar" with their own governance practices. Obviously, other factors (such as the director's experience on boards in the same industry or at firms of similar size) will play a role, but familiarity with the firm's governance practices may matter too. One reason for this may be that it signals director preferences over governance practices that may be important to a board of directors seeking alignment and harmony among its members. This is especially true for governance practices where objective firm-specific optima do not exist and there is potential for disagreement about what is best. Another reason may be that directors who have had experience with a particular practice at other firms may bring with them expertise in the nuances of *implementation* that may be useful to the firm.

The influence effect is suggested by the literature on "social networks". It says that a firm may choose directors for a variety of reasons, some possibly unrelated to familiarity. These directors, who may serve on boards of firms with different governance characteristics, may influence the firm's

governance practices in the direction of those at the other firms they serve at.[3] That is, the premise of this paper is that not only do overlapping directors allow a firm to learn and act as facilitators of specific changes the firm may have contemplated adopting even before these directors came on board, but that overlapping directors additionally exert *influence* to induce change after they join the board. And the direction of the influence they exert depends on their opinion of what a particular governance practice should be, with this opinion being shaped by their experiences at other firms they are directors at.

If the familiarity effect is driving the results, I should find that a person is more likely to be selected as a director at a particular firm if he already holds directorships at other firms with similar governance practices. To examine this, I specify a *director-selection* model. It predicts the probability that a director at one firm will be chosen as a director by another firm based on measures of governance similarity across the two firms as well as a variety of other factors, including whether an individual already has a directorship at a firm in the same industry, at a firm of similar size, at a geographically-close firm, or was acquainted with one of the directors because he served with that person on another board in the past. For two-thirds of the governance variables, I find that an individual is more likely to be appointed as a director at a firm if he is already a director at firms with governance practices that are similar to the firm's own practices. This suggests that the familiarity effect is at work. But the other variables are also statistically significant, indicating that the familiarity effect is not the sole determinant of director selection.

To address whether the influence effect is also driving the results, I first analyze whether a bigger *gap* in governance practices between the other firms at which a firm's directors serve and the firm itself leads to bigger *subsequent* governance *changes* at the firm in question. For most governance variables, I find that it does. This evidence supports the influence effect. However, it does not rule out the possibility that the firm anticipated changing its governance in a particular direction and hired new directors serving

[3] Directors may bring other insights and experiences to the table as well, such as those gleaned from newspapers and journals, experiences on boards they served at a long time ago, etc. However, to the extent that these other effects are at work, they should create a bias against finding any relationship between a firm's governance practices and the governance practices at other firms its directors serve at.

at firms with governance practices similar to the ones the firm anticipated moving to. That is, rather than new directors coming on board and changing governance practices, it was the anticipation of the governance practice change that led to these directors being hired. To deal with this endogeneity problem, two additional tests are performed. The influence effect survives both tests. Thus, it appears that both the familiarity effect and the influence effect are associated with director overlap.

The findings of this paper highlight two kinds of social network effects. One is a social network effect pertaining to director selection. An individual is more likely to obtain a board seat at a firm if he already has a board seat at a firm in the same industry, at a geographically-close firm, at a firm with similar governance practices, or if he served on another board with someone who is a director at this firm. This is the familiarity effect – firms tend to select directors from a network of firms that exhibit similar attributes. The second kind of social network effect pertains to director influence on governance practices. Firms that are networked through overlapping directors tend to adopt similar governance practices due to the experience-based influences exerted by their shared directors.

The rest of the paper is organized as follows. Section 2 contains a review of related literature. Section 3 describes the corporate governance data. Section 4 examines whether governance practices can be explained by the governance practices at firms with overlapping directors. Section 5 analyzes the determinants of the relationship between director overlap and governance similarity. Section 6 summarizes and concludes.

2. LITERATURE REVIEW

This paper is related to the literatures on corporate governance and social network effects. I discuss these two literatures in turn.

One strand in the corporate governance literature theoretically and empirically examines the determinants of board structure. Theoretical contributions in this area include Hermalin and Weisbach (1998), who recognize that board composition is endogenous. They show that board independence declines with CEO tenure and that outsiders will be added after poor performance. In contrast, Raheja

(2005) argues that the number of outsiders increases as CEO influence goes up. Adams and Ferreira (2007) and Raheja (2005) show that optimal monitoring by the board increases with managerial private benefits, while Song and Thakor (2006) show that the dual career concerns of the CEO and board members can render monitoring by outside directors ineffective. Harris and Raviv (2008) examine the conditions under which control by insiders versus outsiders is optimal.

The empirical literature in this strand consists of two groups of papers. One group deals in general with the empirical determinants of various governance practices, whereas the other focuses specifically on the nature and effects of board interlocks, situations in which a director sits on the board of at least one other firm (e.g., Dooley 1969). Both groups of papers tend to focus on a fairly limited number of governance practices, such as board size, the fraction of outside directors, and CEO duality. Arguing that one size may not fit all, Coles, Daniel and Naveen (2008) provide evidence that complex firms have larger boards, potentially because their CEOs need more advice, and that firms at which insiders' firm-specific knowledge is critical have a bigger fraction of insiders on the board. Linck, Netter and Yang (2008) find that large firms have larger boards than small firms and a bigger fraction of outsiders.[4] Yermack (1996) shows that firms with smaller boards have higher market valuations. Brickley, Coles, and Jarrell (1997) argue that (successful) CEOs become chairmen of the board of directors as part of the succession planning process. Gillan, Hartzell and Starks (2004) show that investment opportunities, the competitive environment and product uniqueness help explain board size, director independence and CEO duality. In contrast to this literature, this paper analyzes a broader set of governance practices, and focuses on how corporate governance practices spread across firms via overlapping directors.

As summarized in Mizruchi (1996), the literature on board interlocks argues that interlocks: (i) facilitate collusion among competitors; (ii) facilitate monitoring; (iii) help directors to advance their careers; and (iv) represent social ties among members of the upper class. Several studies use the number

[4] Some board determinant papers focus on firms around the time of the IPO. Baker and Gompers (2003) find that the fraction of outsiders decreases with CEO power but increases with the power of outsiders. Boone, Field, Karpoff and Raheja (2007) analyze the evolution of corporate governance over a decade following the IPOs.

of directorships held by outsiders as a proxy for director reputation (Shivdasani, 1993; Vafeas, 1999). Fich and Shivdasani (2006) find that firms at which over 50% of the outside directors hold at least three directorships are associated with weaker corporate governance and lower firm performance (including market-to-book ratios). In contrast, Ferris, Jagannathan and Pritchard (2003) find no relationship between the average number of board seats held by directors and their firms' market-to-book ratios. Core, Holthausen and Larcker (1999) find that CEOs receive excessive compensation packages when outside directors tend to be busy. While I also focus on directors with multiple board seats, the objective here is to examine the governance propagation implications of this rather than the firm-value implications.

In addition to the governance literature, the second major strand of the literature this paper is related to is that on social network effects. Case and Katz (1991) show that living in a neighborhood in which a big fraction of youths is involved in crime positively affects the probability of being involved in crime. Bertrand, Luttmer and Mullainathan (2000) find that welfare participation is higher if individuals speak the same language as high-welfare-using language groups. Madrian and Shea (2000) and Duflo and Saez (2002) show that co-workers' decisions on employer-sponsored retirement plan participation affect an individual's choice. In Hong, Kubik and Stein (2004), households that interact with their neighbors or attend church are more likely to invest in the stock market than those that do not.

Several recent papers focus on the effects of networked boards on corporate strategy and performance. Bizjak, Lemmon, and Whitby (forthcoming) find that a firm is more likely to backdate options if one of its directors has a board seat at a firm that backdated options in the past. CEO pay is higher and less sensitive to performance, and CEOs are less likely to be fired after poor performance in firms with more connected directors (Barnea and Guedj, 2009) and in firms with social ties between directors and CEOs (Hwang and Kim, 2009). Firms with (better) connected boards make better acquisitions (Schonlau and Singh, 2009). None of these papers have examined the role of social

interaction among directors in influencing corporate governance practices at firms, which is the focus of this paper.[5]

3. CORPORATE GOVERNANCE DATA

This section describes the corporate governance data used in the paper. I start with all the firms included in The Corporate Library's Board Analyst database. Board Analyst contains governance data on virtually every firm included in the S&P 500, the S&P midcap 400 index, the S&P smallcap 600 index, the Fortune 1000, and the Russel 3000 between 2001 and 2007. It also has detailed information on each firm's directors.

The Board Analyst's "Companies" dataset (which includes the firm-level data) is merged with the "Directorships" dataset (which contains the director-level data); this combination contains a wide variety of board-related corporate governance variables. CEO total compensation (which includes salary, bonus, option grants, restricted stock grants, and long-term incentive payouts) is obtained from ExecuComp and added to the dataset.

The following eight governance variables are used in all of the analyses: (1) board size measured as the number of directors; (2) the percentage of outside directors as a measure of board independence;[6] (3) the number of board meetings; (4) director base pay;[7] (5) log(CEO total pay);[8] (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality.

This set of governance variables includes the obvious choice variables such as board size, the percentage of outsiders, and CEO duality. In addition, it includes CEO and director compensation, as the effect of social networks is likely to be particularly strong for these variables. The remaining variables

[5] Several papers which find that social interaction affects economic outcomes stress the importance of distance, arguing that information is more efficiently procured when distances are smaller (e.g., Coval and Moskowitz, 1999, 2001; Huberman, 2001; Grinblatt and Keloharju, 2001; Petersen and Rajan, 2002; Hong, Kubik and Stein, 2004, 2005; Malloy, 2005; Butler, 2008; and Uysal, Kedia and Panchapagesan, 2008). This paper relies on a similar intuition in positing that geography plays a role in director selection, and shows that having directorships at firms in a given geography increases the likelihood of becoming a director at another firm within that geography.

[6] Similar results are obtained using the percentage of outside-related directors, i.e. directors that have or have had a significant relationship with the firm, instead of the percentage of outside directors.

[7] Director stock and option ownership are missing for a large fraction of directors, and hence not used.

[8] Qualitatively similar results are obtained based on salary and cash compensation.

are ones where social networks are also likely to play a role. For example, a firm probably does not specifically plan to have 20% of its directors over 70. However, if it has a director who is close to its existing retirement age of 70, then that director may try to move the retirement age to 75, based on the argument that other firms he is a director at have this higher retirement age.

4. OVERLAPPING DIRECTORS AND CORPORATE GOVERNANCE PRACTICES

This section examines whether director overlap lead to similarity in corporate governance practices. It discusses the methodology, explains the variables, provides summary statistics, and formulates hypotheses regarding the expected strength of the effect of director overlap on governance similarity.

4.1. Methodology

To examine whether the governance practices at firm A can be explained by the weighted average governance practices at firms that have common directors with firm A, each of the eight corporate governance practices highlighted in Section 3 is regressed on the corresponding one-year-lagged weighted average corporate governance practices of other firms at which its directors have board seats (see Section 4.2). Each regression focuses on one governance practice, and the key independent variable "matches" the dependent variable. For example, a firm's board size is regressed on the weighted average size of the boards on which the firm's directors serve. In all cases, peer firm governance plus key firm and CEO characteristics which the literature has found to be important determinants of corporate governance practices are controlled for (see Section 4.3).

OLS regressions are used in seven cases, while a logit regression is performed in the case in which the dependent variable is a dummy variable. In line with the board determinant literature, all regressions include year and industry fixed effects (e.g., Baker and Gompers, 2003; Coles, Daniel and Naveen, 2008; and Linck, Netter and Yang, 2008). Industries are based on 17 Fama-French industry groupings, but using two-digit SIC codes yields similar results. Robust standard errors are clustered by firm; clustering the standard errors instead by firm-year yields qualitatively similar results.

4.2. Key independent variable: weighted average governance practices at firms with overlapping directors

For each firm, the weighted average governance practices at firms with overlapping directors (which can be viewed as the weighted average opinion of its directors) are obtained using a three-step procedure.

In the first step, I assign equal weight to each director at the firm of interest, call it firm k. Suppose firm k has N_k directors. So each director of firm k gets a weight of $1/N_k$. The assumption that each director has equal say in the voting process seems supported by informal discussions with select board members at publicly-listed firms. One could imagine, however, that some board members may be more important than others in the decision-making process. Members of important committees and those holding important positions could potentially have greater influence. To deal with this possibility, I perform robustness checks in which members of the audit and compensation committees or the lead director and the financial expert on the audit committee receive twice the weight other directors are assigned. The results are qualitatively similar to the ones presented in this paper.

In the second step, I calculate for each director the average governance practice at the other firms on whose boards the director sits. Suppose director i is a director of n_i other firms in year t. Let $x_{i,t}^{j}$ be the governance practice at firm j that director i is a board member of in year t. Then the average governance practice for director i is $x_{i,t} = \frac{\sum_{j=1}^{n_i} x_{i,t}^{j}}{n_{i,t}}$. This calculation is performed for each director who is affiliated with one or more other firms. As an example, suppose the governance practice of interest is board size. If director 1 has board seats at date t at three other firms with board sizes 5, 6, and 10, then the average governance practice at the other firms at which director 1 has a board seat is $x_{1,t} = \frac{(5+6+10)}{3} = 7$.[9]

Many firms have one or more unaffiliated directors, i.e. directors with no other directorships. These directors must also be accounted for and they must be assigned "opinions". The main specification

[9] Note that the governance practices at each of those firms receive equal weight. It is possible that a director does not draw equally on the experiences learned at those firms. However, to the extent that this is true, it only makes it harder to find significance.

assumes that the best proxy for the opinion of these directors is the firm's own governance practice. However, to the extent that governance practices are intertemporally "sticky", this opinion assignment scheme for unaffiliated directors can bias in favor of finding significance. To ameliorate such concerns, two additional specifications are used – one assigns peer-firm governance to unaffiliated directors and the other assigns an arbitrary value of 0 to the opinion of the unaffiliated directors, thereby focusing primarily on directors with other directorships. As an additional robustness check, regressions are run for all three specifications limiting the sample to firms at which at least 67% of the directors have other directorships (see Section 4.5).

In the third step, I calculate the "other-firms" *weighted average corporate governance characteristic* for the firm in question. For firm k, let this weighted average in year t be $WAgov_{k,t}$. Then, it is computed as: $WAgov_{k,t} = \sum_{i=1}^{N_k} \left[\frac{x_{i,t}}{N_{k.t}}\right]$, where $x_{i,t}$ is computed as in Step 2 above for the directors who are also affiliated with other firms via board seats. For the unaffiliated directors, $x_{i,t}$ equals firm k's own governance characteristic or the peer-group average governance characteristic or zero. Note that all analyses use last year's weighted average corporate governance, $WAgov_{k,t-1}$, as the independent variable when the dependent variable is the firm's governance in this year (date *t*).

To illustrate, suppose firm k has four directors and we are computing $WAgov_{k,t}$ for board size. As in Step 2, the average governance practice at other firms for director 1 is $x_{1,t} = 7$. Suppose director 2 has seats on the boards of two other firms, one with a board size of 9 and the other 13. Then $x_{2,t} = \frac{9+13}{2} = 11$. Director 3 has a board seat at only one other firm with a board size of 6. Then $x_{3,t} = 6$. Director 4 has no other affiliations. Then $WAgov_{k,t} = \frac{7+11+6+4}{4} = 7$ if $x_{4,t}$ is assigned the same value as firm k's board size, $WAgov_{k,t} = \frac{7+11+6+8}{4} = 8$ if $x_{4,t}$ is assigned the peer-group average value (assumed to be 8), and $WAgov_{k,t} = \frac{7+11+6+0}{4} = 6$ if $x_{4,t}$ is assigned a value of 0. Note that even when a value of zero is assigned to the opinion of the unaffiliated director, this director's presence is taken into account by assigning a weight of 25% to him. That is, the presence of more directors, affiliated *or* unaffiliated, yields

a lower weight for each director, which captures the notion that the larger the board size, the smaller will be any individual director's influence.

In the rest of the paper, for clarity, I will generally refer to other firms' weighted average corporate governance for firm k in year *t-1* simply as $WAgov_{t-1}$, i.e., the subscript k will be dropped where it causes no confusion.

4.3. Control variables

The existing literature has found that a set of firm and CEO characteristics can explain some key governance practices such as board size, the fraction of outside directors, whether or not the CEO is the chairman of the board, and CEO pay (Baker and Gompers, 2003; Bebchuk and Grinstein, 2005; Coles, Daniel and Naveen, 2008; Linck, Netter and Yang, 2008; Bizjak, Lemmon and Naveen, forthcoming). The other governance practices listed in Section 3 have been studied to a lesser extent and it is not clear in all cases which control variables should be included in regressions that try to explain, say, the fraction of directors over age 70 or director base pay.

For consistency, the regressions use the same set of firm and CEO controls for every governance practice. The firm characteristics include firm size measured as the log of total assets; book leverage measured as the total amount of interest-bearing debt divided by total assets; firm age measured as the number of years since the firm first occurred on CRSP; R&D intensity defined as R&D divided by total assets; and free cash flow normalized by total assets. The CEO characteristics include CEO age and CEO tenure.

In addition to firm and CEO characteristics, it is also important to control for "peer firm" governance. We know from the existing literature (e.g., Bizjak, Lemmon, and Naveen, 2008) that firms explicitly use peer-group benchmarking to set CEO and director compensation. It is likely that firms also rely on benchmarking for their governance practices. I therefore include the average corporate governance characteristic at peer firms as a control variable in every regression, where "peer firms" are

defined as firms of similar size (belonging to the same asset tercile) and industry (based on 17 Fama French industry groupings) in a particular year.[10]

The key independent variable and all the control variables are lagged by one year to reduce potential endogeneity (reverse causality) concerns. As a result, the sample period is restricted to 2002 – 2007. The sample includes 7,085 firm-year observations in most regressions. In two cases, the sample is smaller because data are not available in every year (number of board meetings) and because data are not available for every firm (CEO total pay).

Table 1 contains key summary statistics on the regression variables. Panel A shows that the average board in the sample has 9.4 directors of which 71% are outside directors. The average board meets 7.9 times a year and its directors receive base pay of $30,050. The average CEO earns $3.43 million in total pay. One in four directors (26%) is an active CEO. Some 9% are over 70 years of age. The CEO is the chairman in 64% of the cases. Most governance practices change frequently over the sample period. Not surprisingly, CEO total pay changes the most, while CEO duality changes the least (100% versus 17% of all firm-year observations, respectively). Panel B includes summary statistics on the three weighted average corporate governance variables, and Panel C shows summary statistics on the control variables.

Place Table 1 here

4.4. Hypothesized strength of the effect of director overlap on governance similarity

The effect of board overlap on governance is unlikely to be equally strong (in the sense of statistical significance) for all eight variables. The governance practices seem to fall into two categories.

The first is the "weak effect" category. It contains three variables about which we have existing theories – board size (e.g., Raheja, 2005; and Harris and Raviv, 2008), the fraction of outside directors (e.g, Hermalin and Weisbach, 1998; Raheja, 2005; Adams and Ferreira, 2007; and Harris and Raviv, 2008), and CEO duality (e.g., Fama and Jensen, 1983; and Jensen 1993). These theories examine the

[10] Similar results are obtained based on two-digit SIC codes.

optimal determination of these variables, and these optimal choices reflect various *firm-specific* factors. To the extent that firms in the real world behave in the manner depicted in these theories, they can be expected to choose these governance variables to optimally reflect their own specific circumstances, as opposed to being influenced by the practices of peers. As a result, the social influence effect is likely to be relatively weak for these governance practices.

The "weak effect" category also includes a governance variable about which we do not yet have theories, but where a firm-specific or industry-specific optimum is likely to exist – the frequency of board meetings. Firms that are associated with relatively frequent information shocks – such as firms that operate in rapidly-changing industries, younger firms and firms that are less profitable – may need more board meetings. But after controlling for industry effects, firm age and firm profitability, we would expect social network effects to be small.

The second is the "strong effect" category. This contains one variable for which we have existing theories – CEO compensation. This literature argues that the CEO's compensation should depend on his reservation utility, his disutility for effort, his risk aversion, the risk in the payoff (e.g., Holmstrom, 1979), and possibly his perceived ability (e.g., Holmstrom and Ricart i Costa, 1986). More recent contributions examine various other aspects of executive compensation, such as the manner in which imperfect diversification affects CEO incentive levels (Lin, 2002), and whether CEOs are paid for luck (Garvey and Milbourn, 2006). This literature has largely focused on issues like pay-for-performance sensitivity and the mix of salary and various forms of incentive compensation, rather than the level of compensation. We do not have theories that are accompanied by calibration exercises that pin down how much CEOs should be paid. While actual compensation levels may be partly based on general labor market conditions for senior executives, CEOs may have some bargaining power with respect to their boards when it comes to the level of compensation. Since directors involved in such bargaining are likely to bring to the negotiating table what they know about other firms' CEO compensation policies, the compensation level of CEOs at these firms is likely to be affected by the compensation practices of other firms at which its directors are board members.

The "strong effect" category also contains the remaining governance variables, including director base pay, the percentage of directors who are active CEOs, and the percentage of directors over the age of 70, for which we have no theories. It is therefore economically intuitive that these governance practices may be subject to the influence of other firms with which the firm shares directors. Moreover, there is no compelling economic rationale suggesting the existence of precise point estimates of firm-specific optima that reflect explicit tradeoffs. Rather, a wide range of choices for each variable may exist that all yield similar outcomes. Such practices are particularly susceptible to strong influence by the choices made by other firms since the actual choices may be driven largely by heuristic rules of thumb. For example, a firm's director base pay may be strongly influenced by the compensation practices at other firms at which its directors have board seats for reasons similar to those for CEO compensation. The empirical evidence on whether it is optimal for a firm to have fewer or more active CEOs as directors is mixed, again opening up the possibility that the choices of firms are affected by what they observe other firms doing. Similarly, the absence of any theory about the relationship between director age and firm performance suggests that the variable representing directors over the age of 70 on the board is likely to be susceptible to social network effects.

Table 2 summarizes the hypothesized effect of social network effects on governance.

Place Table 2 here

4.5. Regression results

In this subsection, I report the regression results related to each of the eight governance variables.

Table 3 Panels A, B, and C contain the results for $WAgov_{t-1}$ being computed with the unaffiliated directors assigned the "own firm's governance", "peer average value", and "zero value" opinions, respectively. In each panel, columns 1-7 and 8 contain the results of OLS and logit regressions, respectively (see also the last three columns in Table 2 for a summary of the results). Consistent with the existing literature, board size increases with firm size, firm age, and CEO age, and decreases in CEO tenure (Baker and Gompers, 2003; Coles, Daniel and Naveen, 2008; Linck, Netter and Yang, 2008).

Similarly, the fraction of outsiders decreases in CEO tenure, a finding that is consistent with Baker and Gompers (2003).

Based on the logic discussed in the previous section, I expected to find the coefficients on the lagged governance at firms with overlapping directors to be positive and significant for four out of the eight governance variables. Interestingly, however, I find statistical significance (with significance at the 1% level) for all governance variables based on the "own firm's governance" and "peer-average value" measures, and for six governance variables based on the "zero value" measure. I now discuss these results in turn and focus the discussion on the last measure.

The results are consistent with the priors for six out of eight governance variables. As expected, board size and the number of board meetings are not significantly affected by social network effects. Also as expected, director base pay, log(CEO total pay), the percentage of directors who are active CEOs, and the percentage of directors over the age of 70 do have a statistically significantly positive impact on the associated governance practice at the firm.

Surprisingly, the coefficients on two of the variables for which we do have theories, the percentage of outside directors and CEO duality, are positive and significant. That is, firms are more likely to have a higher fraction of outsiders if its directors serve on other boards with a bigger fraction of outsiders, and the CEO is more likely to be the chairman if this practice is already in place at other firms at which the firm's directors are board members. This finding suggests that governance is affected by the governance practices at firms with overlapping directors to a larger extent than either existing theories or intuition suggests.

Place Table 3 here

One may be suspicious that the results are somehow driven by firms at which many directors have no outside directorships. If the sample is dominated by firms that have many unaffiliated directors, then the results would be primarily attributable to the role played by the values assigned to the opinions of unaffiliated directors in the determination of $WAgov_{t-1}$, such as the firm's own governance value or the peer-group average value for last year. I rerun the regressions while imposing the restriction that at least

67% of a firm's directors have outside directorships. While the sample size drops considerably (to 605 – 867 firm-year observations depending on the regression), I continue to find significance for all eight governance variables based on the "own firm's governance" measure, and for seven out of eight governance practices based on the "peer-average value" and "zero value" measures (not shown for brevity). This robustness check indicates that it is not the choice of values assigned to the opinions of unaffiliated directors that is a key determinant of my findings. Rather, the results seem to depend significantly on what is happening with the affiliated directors.

4.6. Robustness: are results driven by SOX?

After high-profile corporate scandals involving Enron, Worldcom and Tyco in 2001 and 2002, various attempts were made to enhance corporate governance. The Sarbanes-Oxley (SOX) Act was passed in July 2002 and the NYSE and Nasdaq adopted new listing requirements in August and October 2002, respectively. Below, I refer to these three collectively as "SOX". While the details of these initiatives differed, there were many similarities. The two main governance provisions of SOX that are possibly relevant for this paper include:[11]

- All firms must have a majority of independent directors (NYSE and Nasdaq).
- All members of the compensation and nominating committee must be independent (NYSE and Nasdaq) and audit committee members as well (SOX, NYSE, and Nasdaq).

Firms with a non-classified board had to adopt these provisions between January and October 2004, while firms with a classified board had to meet these requirements by year-end 2005.

The fact that firms had to comply with stricter governance rules some time during the sample period suggests that the results documented so far may be driven by a joint movement towards a new set of required corporate governance practices rather than by overlapping directors affecting governance.

[11] Other SOX provisions focused on accounting firms, corporate responsibility, enhanced disclosure and controls, and increased penalties for corporate fraud. Other NYSE and Nasdaq provisions focused on the definition of independence and the financial literacy of audit committee members. It also required non-management directors to meet regularly without management, but that requirement did not seem to be very restrictive as meeting at least once a year seemed to be sufficient.

Note first, however, that the key provisions of SOX focused primarily on only one of the eight practices studied in this paper, the percentage of outsiders. While firms may have reacted to the new SOX requirements by adding directors to their boards (leading to an increase in board size), the key is that most of the practices studied in this paper were *not* directly affected. Nonetheless, two analyses are now performed to address the potential contaminating effect of SOX.

The first analysis focuses on firms that were already SOX-compliant in 2002. That is, the sample is limited to firms with a majority of independent directors and nominating, compensation, and audit committees that consist entirely of outsiders as of 2002 (as in Chhaochharia and Grinstein, 2009). The results for these companies should be unaffected by the passage of SOX. If it is the passage of SOX that is driving the results here, then we should *not* get significant results for this subsample.

Table 4 Panels I-A, I-B, and I-C show the results for the three overlapping director measures. The sample sizes are far smaller than those presented in Table 3 – roughly 30% of the original firm-year observations were from firms that already complied with the new requirements in 2002. While the coefficients tend to be smaller than those reported in Table 3, the level of significance is generally unaffected. I continue to find strong significance for all eight governance variables based on the "own firm's governance" measure, and slightly weaker results based on the "peer-average value" and "zero value" measures (significance for six variables). Thus, for firms expected to be unaffected by SOX, the results seem to be generated by the effect of overlapping directors.

A second way of checking robustness is to include *all* firms but focus on the time period *after* the last date by which firms had to be in compliance with SOX; this was year-end 2005. Beyond 2005, since all firms in the sample had to be SOX-compliant, we should again find *no* significant results if our earlier results were primarily attributable to the passage of SOX. So, I limit the sample to 2006 and 2007 and rerun the regressions.

Table 4 Panels II-A, II-B, and II-C contain the results. As is evident, the results are again similar to the main results presented in Table 3, indicating that SOX is not driving the results.

Place Table 4 here

4.7. Robustness: are results driven by intertemporal persistence in governance practices?

Another possible concern is that board-related corporate governance practices tend to be relatively persistent through time (Hermalin and Weisbach, 1998), suggesting that the annual firm-level observations in the sample may not be independent. It is to deal with this concern that the main results reported earlier are based on robust standard errors clustered by firm. However, one could argue that this does not go far enough to address the concern. To provide an additional robustness check the sample is restricted to include observations from only every second year (2003, 2005 and 2007) as suggested by Linck, Netter and Yang (2008).[12]

Table 5 Panels A, B and C contain the results. Columns 1-7 and 8 again contain the results of OLS and logit regressions, respectively. The results generally suggest that limiting the sample period does not materially affect the level of the coefficients or the statistical significance of the results. Thus, the main results do not seem to be driven by the choice of using all available years.

Place Table 5 here

5. A FAMILIARITY EFFECT OR AN INFLUENCE EFFECT?

The results presented so far suggest that a wide range of governance practices are affected by overlapping directors. This section examines the determinants of these results. The focus is on two possible effects discussed earlier: a *familiarity effect* and an *influence effect*.

5.1. A familiarity effect?

If the familiarity effect is the underlying driver of the results, then one implication is that a person should be more likely to be selected as a director at a particular firm if he already holds directorships at other firms with similar governance practices. Assessing the empirical significance of this effect requires a

[12] Skipping years like this tends to minimize the impact of intertemporal rigidity on the results. Results are qualitatively similar if I include observations from only every third year (2004 and 2007).

model of how directors are selected. This section discusses such a model, describes the independent variables, and presents the regression results.

5.1.1. Methodology

In choosing a director, firms likely consider an individual's experience as a director at firms that have adopted similar corporate governance practices. To estimate the likelihood of being appointed as a director, I therefore run one logit regression -- a dummy variable that equals 1 if a person was appointed as a director at a particular firm is regressed on the eight measures of governance similarity plus a variety of other factors (see Section 5.1.2) and year fixed effects. Robust standard errors are clustered by firm. As a robustness check, since multiple directors are typically appointed at a firm at the same time, robust standard errors are also clustered by firm-year. Similar results are obtained.

It is important to include in the director selection analysis not just individuals who were picked as directors, but also other individuals who could have been picked but were not. To achieve this, I use a two-step procedure. First, the sample is limited to firms that appointed new directors – between 953 and 1,278 firms in a particular year – and for each of those firms, all the newly-appointed directors are retained in the sample. Second, for each firm-director pair, I randomly select 1,000 directors out of all the directors in the dataset (between 10,309 and 19,062 in a particular year) as potential matches.[13] The firm could have picked any of these directors but did not. Ideally, I would have used a complete list of other individuals a firm considered for each director's position. However, this information is unavailable.

This procedure leads to a sample size that is far bigger than the sample sizes used in the previous section – 330,291 firm-director observations over the sample period.[14]

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[13] Using all directors as potential matches does not seem to make much sense since no firm will consider 10,000 – 20,000 individuals for a directorship. Besides, it leads to huge datasets that can contain over 25 million observations in later sample years, creating a considerable computational challenge.

[14] The sample size is smaller than one might expect for three reasons. First, for each director, 1,000 directors are selected *with replacement*. Second, Corporate Library does not contain the number of board meetings in 2001 and 2002, causing me to lose these two years in this analysis. Third, when directors are randomly picked as potential matches, I do not require that all of the governance variables are available for those directors. In the regression, the ones with missing data drop out. As a robustness check, eight separate regressions are run, which each focus on

5.1.2. Independent variables used in the familiarity effect analysis

The following independent variables are included in the director-selection model.

Governance gap: governance similarity is captured by eight (director-level) "governance gap" measures. The familiarity effect says that a person is more likely to be appointed director at firm k if he is currently a director at a firm j with similar governance practices. So the smaller the gap between the governance practices of firms j and k, the higher is the probability that a director at firm j will be appointed director at firm k. For each director, I construct these governance gap measures based on the eight governance variables used before. Each governance gap is calculated as follow. Let $x_{i,t}^{j}$ be the governance practice at firm j where director i has a board seat in year t, and let $n_{i,t}$ be the number of other firms at which director i has board seats in that year. Then the governance gap for director i with respect to firm k where he is *not* a director in year t is defined as $Govgap_{i,t}^{k} = \sum_{j=1}^{n_i} \frac{\left[x_{i,t}^{j} - x^{k,t}\right]}{n_{i,t}}$, where $x^{k,t}$ is the governance practice of firm k at date t, and the summation is over all firms where director i has board seats at date t. To see an example, suppose a person is being considered for a director's position at firm A, which has 10 directors. If the person currently has directorships at firms B and C with 15 and 9 directors respectively, then the gap in board size for that director with respect to firm A equals $\frac{(15-10)+(9-10)}{2} = 2$. In the analyses, I use the *absolute percentage* governance gap, since the familiarity effect hypothesis suggests that an individual is more likely to be selected as a director if the percentage governance gap, positive or negative, is smaller. In the regressions, $Govgap_{i,t-1}^{k}$, the governance gap for director i with respect to firm k in year *t-1* is then used to explain the likelihood of director i joining the board of firm k in year t.

Firm size: a firm may be more likely to select a particular director if the person already holds a board seat at a similar-sized firm because the issues a board confronts may be dependent on firm size. This suggests that experience as a board member at another firm of similar size may be more valuable

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only one measure of governance similarity. The sample sizes in these individual regressions are far bigger, but what is most important is that the results of those regressions are qualitatively similar to the ones reported here.

than experience at a firm with a different size. A "similar-size" dummy is created that equals one if a director held at least one directorship in the previous year at another firm of similar size, measured as a firm with sales between 50% and 150% of the sales of the firm of interest.

Industry: a firm may also be more likely to pick someone as a director if the person already is a director at a firm in the same (or substantially similar) industry because industry-specific experience is likely to be of value. While the Clayton Act of 1914 makes it illegal for directors to simultaneously serve on the boards of two or more competitors, experience as a board member in an *adjacent* industry may be useful. For example, a board member of AB-Inbev may be an attractive candidate for a directorship at Coca Cola which is not a direct competitor, but both are in the broadly-defined beverage industry. A "same-industry" dummy is constructed which equals one if a director was on the board of at least one firm in the same industry (measured based on the 17 Fama-French industry groupings) in the previous year. Since these are somewhat broad industry classifications, they will tend to classify adjacent-industry firms as belonging to the same industry.[15]

Geographic proximity: social interaction among CEOs and board members is likely to be facilitated by being in the same geographic neighborhood. Those who are in the same city, for example are more likely to socialize with each other and communicate information about potentially good board members.[16] Thus, it is possible that the likelihood of obtaining a board seat at a particular firm increases if the person held at least one directorship at a geographically-proximate firm. To construct this variable, I obtain the location (city) of the headquarters of every firm in the sample from Compustat, and latitude and longitude data from the Census 2000 U.S. Gazetteer. Compustat city names are checked to ensure that they correspond with the names found in the Gazetteer "places" files and are corrected when needed. In case a Compustat city name could not be found on the Gazetteer file, I check the actual location of the

[15] For example, Coca Cola and AB-Inbev are both in Fama-French industry 1 ("food"). In robustness checks which use two-digit SIC codes, Coca Cola (SIC code 2086 "bottled and canned soft drinks") and AB-Inbev (SIC code 2082 "malt beverages") both fall in industry 20.

[16] Another, potentially more direct way of measuring the impact of geographic proximity might have been to use the actual home (or mailing) address of each director. Unfortunately, Board Analyst only provides this information for a small fraction of the directors.

city on maps.google.com and assign the observation to the nearest place that is on the Gazetteer file within a 15 kilometer radius of the original location. The distance between cities is estimated using the Haversine formula.[17] Firms that are headquartered within a 100-kilometer of the firm are defined as being "geographically close" (e.g., Coval and Moskowitz, 2001; Malloy 2005; Uysal, Kedia and Panchapagesan, 2008; and Kedia and Rajgopal, forthcoming). Similar results are obtained using a 250-kilometer radius instead.

Director network: personal acquaintanceship may increase the likelihood of being appointed as a director. A clear example of this is provided by Davis, Yoo and Baker (2003). They indicate that Vernon Jordan, the individual with the most Fortune 1000 board memberships in 1999, was almost always acquainted with – from having previously served together on another board – at least one of the directors at the firm that invited him to be a director. To capture this network effect, for each director in the sample, I first create an overview of all the boards the person served on in the previous year. I then find the names of all the other directors on those boards. For each of those other directors, I create a list of all the boards they served on in that year and flag cases in which one of those directors served on the board of the firm of interest. Finally, I create a network dummy that equals 1 if the person was a director at another board in the previous year with someone who already served on the firm's board.

Firm performance: evidence provided by Ferris, Jagannathan and Pritchard (2003) suggests that an individual who serves on boards of firms with strong performance is more likely to be picked as a director. I therefore add the average stock price performance of all the other firms on whose boards a director served in the previous year to the regressions.

Director age: a director's age may affect the likelihood of being appointed. Older individuals may be less likely to be selected since many boards have age limits for directors.

[17] The haversine formula gives great-circle distances between two points on a sphere. The distance between cities 1 and 2 is calculated as $d_{12} = R \times 2 \times \arcsin(\min(1, \sqrt{a}))$, where R is the earth's radius (approximately 6371 kilometers), $a = (\sin(dlat / 2))^2 + \cos(lat_1) \times \cos(lat_2) \times (\sin(dlon / 2))^2$. In this expression, $dlat = lat_2 - lat_1$ and $dlon = lon_2 - lon_1$. Lat_1 and lon_1 (lat_2 and lon_2) are the latitudes and longitudes of $City_1$ and $City_2$, respectively.

Number of directorships: the number of board seats a person already has may affect the odds of obtaining a new directorship. Directors who already have at least one other directorship may be more attractive because the number of directorships may be interpreted as a signal of director quality (Shivdasani, 1993; Vafeas, 1999).[18]

5.1.3. Familiarity effect regression results

Table 6 Panel A contains the logistic regression results. Instead of presenting the regression coefficients, I report odds ratios (which are obtained by exponentiating the original coefficients) because they are easier to interpret. Odds ratios divide the probability of being appointed as a director by the probability of not being appointed. Odds ratios greater than one imply that a bigger governance gap increases the likelihood of being appointed as a director. Since the familiarity effect predicts that the odds of being chosen as a director are greater when the governance gap is smaller, I expect to find odds ratios smaller than one. Consistent with the familiarity effect, the odds ratios are indeed significant and smaller than one for five governance gap variables (based on board size, the percentage of outside directors, director base pay, log(CEO total pay), and CEO duality). The odds ratios for most of the other governance gap variables are also smaller than one, but *not* significant.

Table 6 Panel B provides information that helps to gauge the economic significance of the governance gap results. As shown, the average percentage gap in board size between the firm at which an individual will be appointed and the firms at which he already has directorships is 30%. A one standard deviation increase in this gap (i.e. an increase of 27%) reduces the odds of being selected by 31.0%. Similarly, the average percentage gap in % outsiders, director base pay, and log(CEO total pay) are 28%, 78% and 14%, respectively. A one standard deviation increase in these gaps (i.e. increases of 42%, 128% and 17%, respectively) reduces the odds of being selected by 20.1%, 36.6%, and 12.6%, respectively. The odds ratio for CEO duality in Panel A suggests that if an individual only has directorships at firms at

[18] Some suggest the opposite, namely that too many directorships, however, may make outside directors less effective monitors (e.g., Fich and Shivdasani, 2006).

which the CEO is the chairman, the odds of being appointed at a firm where the CEO is not the chairman are 26.2% lower.

The odds ratios for the other variables are also revealing. The results in Panel A suggest that an individual is significantly more likely to be appointed as a director at a particular firm if in the previous year the person had a directorship at another firm in the same industry (odds +76.9%), or at a geographically close firm (odds +240%). The person is also more likely to be picked as a director by say firm k if in the previous year he served on the board of another company, say j, with someone who is currently a board member at firm k (odds +1189%). Having a directorship at a similar-sized industry peer, the average stock performance of the other firms whose boards the director served on in the previous year and the number of current directorships an individual has do not significantly improve the odds of that individual being selected as a director at a particular firm. Director age has a slightly negative effect on the probability of being appointed (odds -3.6%).

Thus, our tests based on the director-selection model reveal that an individual is more likely to be appointed as a director of a firm if he is already serving as a director at other firms that have smaller governance gaps relative to that firm. Two points are noteworthy, however. First, this finding holds only for roughly two-thirds of the governance variables. Second, a variety of other factors also significantly affect the director selection outcome. Thus, the evidence provided in this section suggests that the familiarity effect is at work, but it is not the sole driving force.

Place Table 6 here

5.2. An influence effect? Initial analysis

To examine whether the influence effect is also an underlying driver of the results, I now perform an analysis which is based on the observation that if directors do influence corporate governance, then a bigger gap in governance between the other firms at which a firm's directors serve and the firm should lead to bigger *subsequent* governance changes.

The rest of this subsection explains the methodology, discusses the key independent variable (the percentage governance gap), and presents regression results.

5.2.1. Methodology

The goal is to examine whether bigger governance gaps are associated with greater subsequent changes in governance. OLS regressions are run in which the percentage change in governance between year *t-1* and year *t* is regressed on the percentage governance gap (explained in Section 5.2.2) that existed between the other firms at which the firm's directors had board seats and the firm in year *t-1*. I lag the independent variables because the goal is to examine how the governance gap in a particular year leads to subsequent governance changes.

All of the control variables from the regressions that examine whether director overlap leads to similarity in governance practices (see Section 4) are included. These are: peer firm governance; firm size; book leverage; firm age; R&D intensity; free cash flow normalized by total assets; CEO age; and CEO tenure. As before, the regressions also include industry and year fixed effects. Robust standard errors clustered by firms are used; clustering standard errors by firm-year yields similar results.

5.2.2. Independent variable used in the influence effect regressions: governance gap

The influence effect analysis uses *firm-level* governance gap variables, whose computation is straightforward. Let the firm-level governance gap for firm k at date *t* be $Fgovgap_{k,t} = WAgov_{k,t} - x^{k,t}$, where $WAgov_{k,t}$ is the weighted average governance characteristic at the other firms at which firm k's directors have board seats (as defined in Section 4.2) and $x^{k,t}$ is the governance practice of firm k at date *t*. Alternatively, it can be written as $Fgovgap_{k,t} = \frac{\sum_{i=1}^{N_{k,t}} \sum_{j=1}^{n_i} \frac{\left[x_{i,t}^{j} - x^{k,t}\right]}{n_{i,t}}}{N_{k,t}}$, where $x_{i,t}^{j}$ is the governance practice of another firm j at which firm k's director i also has a board seat in year t, $n_{i,t}$ is the number of other firms at which director i has board seats in year t, and $N_{k,t}$ is the number of directors at firm k in

year *t*. In the regressions, last year's governance gap, $Fgovgap_{k,t-1}$, will be the independent variable used to explain the change in firm k's governance from last year to this year, i.e. from *t-1* to *t*.

As before, I use several methods to deal with unaffiliated directors. The main specification assigns the firm's own governance practice to such directors for their value of $x_{i,t}^{j}$. For those directors, the director-level governance gap $\left(x_{i,t}^{j} - x^{k,t}\right)$ is 0, which seems intuitive. An alternative specification assigns the peer-firm average governance to such directors.[19]

Robustness checks in which members of important committees (the audit and compensation committees) and directors holding important positions (lead director and the financial expert on the audit committee) receive double weight yield regression coefficients of similar size and significance to the ones reported in the paper.

5.2.3. Influence effect regression results

Table 7 contains the regression results. In Panels A and B, the coefficients on the governance gap variables are positive and significant in six (eight) out of eight cases, respectively.[20] In these cases, the bigger the governance gap, the greater the subsequent change in governance, which supports the predictions of the influence-effect hypothesis. The results are similar if the sample is restricted to cases in which an actual change in directors occurred.

Place Table 7 here

5.3. The influence effect revisited – An asymmetric effect?

One might suspect that the influence effect is asymmetric. One possible reason for this is that firms may have a tendency to move towards "better" governance practices, those that are either perceived to enhance firm performance or viewed by investors as superior. If firm A is viewed as having governance standards

[19] Note that assigning a value of 0 to unaffiliated directors, an alternative approach which made sense when calculating the weighted average governance at other firms (see Section 4.2), does not seem to make sense here, since it would result in a director-level governance gap that equals minus the firm's own governance.
[20] Results are insignificant based on log(CEO total pay) and CEO duality.

that are inferior to those of firm B, then it is likely that firm A may be induced to move its governance closer to that of firm B after it appoints a director from firm B. But the reverse is unlikely – if firm A is viewed as having better governance than firm B and it appoints a director from firm B, the governance at firm A may not change. Two examples of this asymmetric effect of director influence may be the percentage of outside directors and CEO duality. The literature strongly suggests that having more outside directors and separation of the roles of the CEO and chairman are good governance practices. So for these practices, we have relatively unambiguous benchmarks for what is considered "good", and governance practices at different firms can be conveniently rank-ordered.

Another reason why the influence effect may be asymmetric is that some practices tend to be downward rigid because political and other organizational constraints may make it difficult to reduce the levels of these variables. Director base pay and CEO compensation are obvious examples – they may be increased due to director influence, but the appointment of new directors from firms that pay their CEOs and directors less is likely to have a smaller impact, if any. However, an asymmetric influence effect can be expected for some other variables as well. One of these is board size. It is easy for directors to argue that board size should be increased based on their experience on bigger boards elsewhere, but it is more difficult to argue for a reduction because it would mean the board is essentially asking for some members to be fired. A similar argument can be made for the number of board meetings – more board meetings allows the board to get more involved in the affairs of the firm and may even justify asking for higher compensation at a later time. It is harder for a new director to argue that the board meets too often and should cut back on the number of meetings, especially given the moral hazard that may be suspected in what may come across as a self-serving argument by a lazy director. The effect on the percentage of active CEOs on the board may also be asymmetric – it is harder to argue that the number of CEOs on the board has to be reduced, especially if the firm already has some CEOs on board.

It is not clear whether the effect of director overlap on the percentage of directors over 70 should be asymmetric. The reason is that it is not obvious whether having older directors is a better or worse governance practice. Thus, it is not clear that young directors who have directorships on other firms that

have more directors over 70 years of age would necessarily believe that those other firms are pursuing better governance. So they may not even wish the firm to increase the number of directors over 70. Moreover, if they think that the number of directors over 70 should be reduced, they do not have to publicly push for it; they can simply wait for retirements of older directors and then recommend younger directors to replace them.

To examine the potential asymmetry of the influence effect, I rerun the influence regressions and add the governance gap interacted with a dummy variable that equals 1 if the governance gap is positive and 0 otherwise.[21] All of the controls used in the previous analysis are included as well. If the coefficients on the interaction terms are positive and significant, positive governance gaps have a more pronounced impact on governance than negative governance gaps. Based on the discussion above, I expect to find a positive and significant coefficient for six governance practices (board size, percentage of outside directors, number of board meetings, director base pay, log(CEO total pay), and the percentage of active CEOs), a negative and significant coefficient for CEO duality (note that a value of 1 for this dummy variable implies that the CEO and chairman are the same person), and I have no priors for the percentage of directors over 70.

Table 8 Panels A and B show the results based on the "own firm's governance" and "peer average value" measures. In both panels, the coefficients on the interaction terms are positive and significant in six out of eight cases, suggesting that positive governance gaps have a bigger impact on governance than negative governance gaps. For five of these governance variables the significance that is encountered was expected – board size, the percentage of outside directors, the number of board meetings, director base pay, and the percentage of active CEOs

Surprisingly, I find significance in the wrong direction for CEO duality. The positive coefficient on the interaction term suggests that director overlap helps firms to move towards having the CEO also be chairman. What might account for this? One possible reason may be that in the U.S., there is a strong tradition of CEOs also serving as chairmen. A director who suggests separation of these two roles in a

[21] Results are qualitatively similar if a positive governance gap dummy is added in addition.

firm where they are combined may be viewed by the CEO as being confrontational, so directors may shy away from pushing for it. In contrast, if the CEO prefers to combine the two, directors may feel more comfortable supporting this based on their experiences at other firms.

Also surprisingly, the interaction term is not significant for CEO total pay. This is harder to explain, but it may be because there are numerous other factors at work besides director influence when it comes to CEO compensation determination, and these may interact in complex ways to dissipate the asymmetry.

Finally, I find no evidence of an asymmetric effect of director overlap on the percentage of directors over 70. Given the discussion above, this is not surprising.

Place Table 8 here

5.4 The influence effect revisited – Dealing with endogeneity

While suggestive of an influence effect, the results presented in the previous sections suffer from a potential endogeneity problem in the sense that they may also be consistent with a particular familiarity effect interpretation. In particular, it is possible that a firm has already decided to change its governance practice in a particular direction and it then seeks out a director who is serving at another firm with governance similar to the one the firm is moving to. In this case, the firm's change in governance after it hires the director will reflect the familiarity effect rather than the influence effect. I now address this endogeneity issue.

Ideally, I would like to randomly assign directors to firm *k*, measure the change in the governance gap between firm *k* and the other firms at which its directors have board seats, and examine how firm *k*'s governance changes as a result. While I do not have random assignment or a pure exogenous shock in the data, I can design an experiment in the same spirit.

Specifically, I limit the sample to cases in which there was no change in directors at firm *k* in year *t-1*. Since firm *k* did not select new directors, the role of familiarity as a potential driver of the

results is substantially diminished. I then decompose the change in the (firm-level) governance gap from year *t-2* to year *t-1* into two components:

$$\Delta Fgovgap_{t-2\ to\ t-1}$$
$$= (Fgovgap_{t-1} - Fgovgap_{\,t-2})$$
$$= \left(Fgovgap_{t-1} - Fgovgap_{ongoing\ dirships,t-1}\right) + \left(Fgovgap_{ongoing\ dirships,t-1} - Fgovgap_{t-2}\right)$$

The first part above, $Fgovgap_{t-1} - Fgovgap_{ongoing\ dirships,t-1}$, is the change in the governance gap at *t-1* due to existing directors adding new outside directorships at *t-1*. I shall refer to this part as the change in the governance gap from existing directors adding new directorships. It is computed as the difference between the total firm-level governance gap at *t-1*, $Fgovgap_{t-1}$, and the firm-level governance gap at *t-1* that arises solely from the continuing directorships at other firms held by firm k's directors, $Fgovgap_{ongoing\ dirships,t-1}$, i.e. this latter term excludes the governance practices of new firms that were added by firm k's directors at *t-1*. This difference in governance gaps arises not because the firm selected new directors to join the board, but because of decisions by other firms to invite its existing directors to join their boards.[22] Since this change reflects the decisions made by *other firms*, this part can be viewed as exogenous with respect to the actions of firm k. Thus, if a change in this first part (in year *t-1*) is followed by a change in governance at firm k (in year *t*), one can argue that it is evidence of influence.

The second part, $Fgovgap_{ongoing\ dirships,t-1} - Fgovgap_{t-2}$ which I shall refer to as the change in the governance gap from ongoing outside directorships, is the change in firm k's governance gap that arises because firms at which firm k's directors already have board seats at *t-2* change their governance characteristics between years *t-2* and *t-1*. If firm k anticipated changing its governance and selected new directors because they have experience with the governance the firm is moving to, one could

[22] This may also reflect the decisions of the directors themselves, but these decisions reflect the personal preferences of these directors to join these new boards that have no relationship to the governance practice of the firm in question.

argue that the change in the governance gap from ongoing outside directorships may possibly be driven by a selection effect. Thus, from firm k's perspective, only the first part is unambiguously exogenous.

A numerical example may help to clarify the decomposition. Suppose that board size is the governance characteristic of interest and that firm k has 2 directors. Director 1 is also a director at firms B and C in year *t-1*, but was not a director at firm C in year *t-2*. Suppose director 2 had another board seat at firm D at *t-2* as well as *t-1*.

Suppose that in year *t-2*, the board sizes of firms B and D are 4 and 9, respectively. Thus, the average governance characteristic for directors 1 and 2 is 4 and 9, respectively. The governance gap for firm k in year *t-2* is then $Fgovgap_{t-2} = \frac{(4+9)}{2} - 2 = 4.5$.

Suppose that in year *t-1*, the board sizes of firms B, C, and D are 4, 8, and 10, respectively. For each director, two average governance characteristics are calculated in year *t-1* : (a) one including all directorships at *t-1*: for director 1 this is (4+8)/2 = 6 and for director 2 this is 10; and (b) another including only ongoing directorships (i.e. excluding new directorships): for director 1 this is 4 and for director 2 this is 10. The two corresponding governance gaps for firm k in year *t-1* are then calculated as: (a) $Fgovgap_{t-1} = \frac{(6+10)}{2} - 2 = 6$; and (b) $Fgovgap_{ongoing\ dirships,t-1} = \frac{(4+10)}{2} - 2 = 5$.

Now, returning to the previous formula, the change in the governance gap from existing directors adding new directorships (the exogenous change in the governance gap) can be calculated as $Fgovgap_{t-1} - Fgovgap_{ongoing\ dirships,t-1} = 6 - 5 = 1$. The second component can be computed as $Fgovgap_{ongoing\ dirships,t-1} - Fgovgap_{t-2} = 5 - 4.5 = 0.5$.[23]

I then regress the change in firm k's governance from year *t-1* to year *t* on the exogenous change in the governance gap in year *t-1* (part 1 above) while controlling for the remaining change in the governance gap (part 2 above),[24] the change in peer-firm governance between *t-2* and *t-1*, and all the firm

[23]The total change in governance gaps, $\Delta Fgovgap_{t-2\ to\ t-1}$, equals the sum of these two components, $1 + 0.5 = 1.5$. Alternatively, it can be calculated as $Fgovgap_{t-1} - Fgovgap_{t-2} = 6 - 4.5 = 1.5$.

[24] An alternative would be to limit the sample to situations in which this second part is 0. However, the resulting sample sizes are generally too small to yield meaningful results.

and CEO characteristics included in the earlier analyses. If overlapping directors influence governance, I should find that the coefficients on the change in the governance gap due to existing directors adding directorships are positive and significant.

Table 9 Panels A and B present the results of this analysis for the eight governance practices based on the "own firm's governance" and "peer-average value" measures, respectively. Not surprisingly, the new samples are considerably smaller. Importantly, the coefficients on the change in the exogenous governance gap are positive and significant for six out of eight governance practices in both panels, suggesting that overlapping directors do influence governance.[25]

In summary, the tests reported here provide strong evidence of an independent influence effect in addition to the familiarity effect I reported earlier, suggesting that both the familiarity effect and the influence effect are contributors to the positive relationship between director overlap and governance similarity across firms that share directors

Place Table 9 here

6. CONCLUSION

This paper has focused on the propagation of governance practices across firms through overlapping directorships. Specifically, it is hypothesized that when directors serve on multiple boards, important social network effects arise which lead to similarities in corporate governance practices across these firms. The first goal of the paper was to examine this empirically.

A broad set of eight corporate governance variables was regressed – one at a time – on the weighted average governance practices at firms with overlapping directors, while controlling for other

[25] To check whether these results may somehow be driven by some mechanical relationship between the two main variables of interest (the change in governance and the change in the governance gap), I design a counterfactual analysis. If directors learn from their experiences on other boards and use those to influence governance, I should find that *future* changes in the governance gap do not drive changes in governance. To test this, the sample is again limited to situations in which there was no change in directors at firm k in year $t-1$, but now the change in governance from year $t-1$ to year t is regressed on the change in the governance gap in year $t+1$. As expected, the coefficients on the change in the future governance gap are not significant in most cases (and if they are significant, they have the wrong signs), providing additional support for an influence interpretation.

factors which the literature has found to be important board-related governance determinants, including CEO and firm characteristics. The results strongly suggest that director overlap matters and helps shape corporate governance practices.

The second goal of the paper was to examine whether these results are driven by a familiarity effect or an influence effect or both. The familiarity effect says that firms may simply choose directors who already have directorships at firms with governance practices that are similar to their own. The influence effect says that a firm may choose directors for various reasons besides familiarity and that these directors, many of whom may serve on boards of firms with different governance characteristics, may exert influence that causes the firm's governance practices to move in the direction of those of the other boards these directors serve on. The results strongly suggest that both effects are at work.

Given the intertemporal sluggishness of governance practices (e.g., Hermalin and Weisbach, 1998) and the fact that I use a very stringent test of the social network effect by examining whether there is a governance change *within* a year, it is quite remarkable that such strong statistical significance is encountered for the effect of overlapping directors for so many governance practices. It is an indication of the strength and potential pervasiveness of these sorts of network effects, and points to interesting avenues for future research that examines whether the effect of overlapping directors extends to other corporate decisions such as globalization strategy, acquisitions and divestitures (e.g., Schonlau and Singh, 2009), and choice of consultants, including those that benchmark CEO and director compensation.

References

Adams, Renee B., and Daniel A. Ferreira, 2007, A theory of friendly boards, Journal of Finance 62: 217-250.

Baker, Malcolm, and Paul A. Gompers, 2003, The determinants of board structure at the initial public offering, Journal of Law and Economics 46: 569-598.

Barnea, Amir, and Ilan Guedj, 2009, Director networks, working paper.

Bebchuk, Lucian, and Yaniv Grinstein, 2005, The growth of executive pay, Oxford Review of Economic Policy 21: 283-303.

Bertrand, Marianne, Erzo Luttmer, and Sendhil Mullainathan, 2000, Network effects and welfare cultures, Quarterly Journal of Economics 115: 1019-1055.

Bizjak, John, Michael Lemmon, and Lalitha Naveen, forthcoming, Does the use of peer groups contribute to higher pay and less efficient compensation?, Journal of Financial Economics.

Bizjak, John, Michael Lemmon, and Ryan Whitby, forthcoming, Option backdating and board interlocks, Review of Financial Studies.

Boone, Audra L., Laura Casares Field, Jonathan M. Karpoff, and Charu G. Raheja, 2007, The determinantsof corporate board size and composition: An empirical analysis, Journal of Financial Economics 85: 66-101.

Brickley, James A., Jeffrey L. Coles, and Gregg Jarrell, 1997, Leadership structure: Separating the CEO and the chairman of the board, Journal of Corporate Finane 3: 189-220.

Butler, Alexander W., 2008, Distance still matters: Evidence from municipal bond underwriting, Review of Financial Studies 21: 763-784.

Case, Anne C., and Lawrence F. Katz, 1991, The company you keep: The effects of family and neighborhood on disadvantaged youths, NBER working paper no. 3705.

Chhaochharia, Vidhi, and Yaniv Grinstein, 2009, CEO compensation and board structure, Journal of Finance 64: 231-261.

Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen, 2008, Boards: Does one size fit all?, Journal of Financial Economics 87: 329-356.

Core, John E., Robert W. Holthausen, and David F. Larcker, 1999, Corporate governance, chief executive officer compensation, and firm performance, Journal of Financial Economics 51: 371-406.

Coval, Joshua, and Tobias Moskowitz, 1999, Home bias at home: Local equity preference indomestic portfolios, Journal of Finance 54: 2045-2073.

Coval, Joshua, and Tobias Moskowitz, 2001, Geography of investment: informed trading and asset prices, Journal of Political Economy 109: 811-841.

Davis, Gerald F., Mina Yoo, and Wayne E. Baker, 2003, The small world of the American corporate elite, 1982-2001, Strategic Organization 1: 301-326.

Dooley, Peter C., 1969, The interlocking directorate, American Economic Review 59: 314-323.

Duflo, Esther, and Emmanuel Saez, 2002, Participation and investment decisions in a retirement plan: The influence of colleagues' choices, Journal of Public Economics 85: 121-148.

Fama, Eugene F., and Michael C. Jensen, 1983, Separation of ownership and control, Journal of Law and Economics 26: 301-325.

Ferris, Stephen, Murali Jagannathan, and Adam Pritchard, 2003, Too busy to mind the business? Monitoring by directors with multiple board appointments, Journal of Finance 58: 1087–1111.

Fich, Eliezer M., and Anil Shivdasani, 2006, Are busy boards effective monitors?, Journal of Finance 61: 689-724.

Garvey, Gerald, and Todd Milbourn, 2006, Asymmetric benchmarking in compensation: executives are rewarded for good luck but not penalized for bad, Journal of Financial Economics 82:197-226.

Gillan, Stuart L., Jay C. Hartzell, and Laura T. Starks, 2004, Explaining corporate governance: boards, bylaws, and charter provisions, University of Texas working paper.

Grinblatt, Mark, and Matti Keloharju, 2001, Distance, language, and culture bias: The role of investor sophistication, Journal of Finance 56: 1053-1073.

Harris, Milton, and Artur Raviv, 2008, A theory of board control and size, Review of Financial Studies 21: 1797-1832.

Hermalin, Benjamin, and Michael Weisbach, 1998, Endogenously chosen boards of directors and their monitoring of the CEO, American Economic Review 88: 96–118.

Holmstrom, Bengt, 1979, Moral hazard and observability, Bell Journal of Economics 10: 74-91.

Holmstrom, Bengt, and Joan Ricart i Costa, 1986, Managerial incentives and capital management, Quarterly Journal of Economics 101: 835-860.

Hong, Harrison, Jeffrey D. Kubik, Jeremy C. Stein, 2004, Social interaction and stock-market participation, Journal of Finance 59: 137-163.

Hong, Harrison, Jeffrey D. Kubik, Jeremy C. Stein, 2005, Thy neighbor's portfolio: Word-of-mouth effects in the holdings and trades of money managers, Journal of Finance 60: 2801-2824.

Huberman, Gur, 2001, Familiarity breeds investment, Review of Financial Studies 14: 659–680.

Hwang, Byoung-Hyoun, and Seoyoung Kim, 2009, It pays to have friends, Journal of Financial Economics 93: 138-158.

Jensen, Michael C., 1993, The modern industrial revolution, exit and the failure of internal control systems, Journal of Finance 48: 831-880.

Jin, Li, 2002, CEO compensation, diversification, and incentives, Journal of Financial Economics 66: 29-63.

Kedia, Simi, and Shiva Rajgopal, forthcoming, Neighborhood matters: The impact of location on broad based stock option plans, Journal of Financial Economics.

Linck, James S., Jeffrey M. Netter, and Tina Yang, 2008, The determinants of board structure, Journal of Financial Economics 87: 308-328.

Madrian, Bridget, and Dennis Shea, 2000, Peer effects and savings behavior in employer-sponsored savings plans, working paper.

Malloy, Christopher J., 2005, The geography of equity analysis, Journal of Finance 60: 719-755.

Mizruchi, Mark S., 1996, What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates, Annual Review of Sociology 22: 271-298.

Petersen, Mitchell A, and Raghuram G. Rajan, 2002, Does Distance Still Matter? The Information Revolution in Small Business Lending, Journal of Finance 57: 2533-2570.

Raheja, Charu G., 2005, Determinants of board size and composition: a theory of corporate boards, Journal of Financial and Quantitative Analysis 40: 283–306.

Schonlau, Robert, and Param Vir Singh, 2009, Board networks and merger performance, working paper.

Shivdasani, Anil, 1993, Board composition, ownership structure and hostile takeovers, Journal of Accounting and Economics 16: 167–198.

Song, Fenghua, and Anjan V. Thakor, 2006, Information control, career concerns, and corporate governance, Journal of Finance 61: 1845-1896.

Uysal, Vahap B., Simi Kedia, and Venkatesh Panchapagesan, 2008, Geography and acquirer returns, Journal of Financial Intermediation 17:256-275.

Vafeas, Nikos, 1999, Board meeting frequency and firm performance, Journal of Financial Economics 53: 113–142.

Yermack, David, 1996, Higher market valuation for firms with a small board of directors, Journal of Financial Economics 40: 185-21.

Table 1: Summary statistics

Panel A provides summary statistics on the eight governance variables and indicates the frequency with which they change in the sample. Panel B contains summary statistics on three weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure), the peer-group average governance ("peer-average value" measure), or zero ("zero value" measure). Panel C shows summary statistics on most of the control variables used in the regressions that examine whether director overlap leads to similarity in governance practices. (The average corporate governance practice at similar-sized (same asset tercile) firms in the industry is excluded because it differs by industry and per year.) Sample period: 2002 – 2007.

The governance measures include: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Log(assets) is the log of total assets. Book leverage is interest-bearing debt divided by the sum of the book value of equity and interest-bearing debt. Firm age is the number of years since the firm firs appeared in CRSP. R&D intensity is defined as R&D divided by total assets. FCF / TA, is free cash flow divided by total assets. CEO age is the CEO's age. CEO tenure is the number of years the CEO has been in charge.

PANEL A: Eight governance practices and how often they change in the sample

Variable	N	Average firm governance	Change in firm governance in X% of all firm-year observations
1. Board size	7066	9.4	54%
2. % of outside directors	7066	71%	69%
3. Number of board meetings	4467	7.9	71%
4. Director base pay (in $)	6964	30,086	33%
5. log(CEO total pay) (in $'000)	5674	8.14	100%
6. % of directors who are active CEOs	7066	26%	82%
7. % of directors over the age of 70	7066	9%	42%
8.CEO duality	7066	64%	17%

PANEL B: Three weighted average overlapping director measures

Variable	N	Average "own firm's governance" measure	Average "peer-average value" measure	Average "zero value" measure
1. Board size	7066	9.5	9.8	4.1
2. % of outside directors	7066	69%	70%	29%
3. Number of board meetings	4467	7.5	7.5	3.1
4. Director base pay (in $)	6964	26,862	27,141	12,386
5. log(CEO total pay) (in $'000)	5667	8.06	8.06	3.51
6. % of directors who are active CEOs	7066	37%	37%	15%
7. % of directors over the age of 70	7066	8%	8%	3%
8. CEO duality	7066	59%	59%	25%

PANEL C: Control variables

Variable	N	Average
Average industry governance	7066	p.m.
Log(assets)	7066	7.7
Book leverage (%)	7066	34%
Firm age (years)	7066	23.5
R&D / assets (%)	7066	0%
FCF / assets (%)	7066	2%
ROA (%)	7066	2%
CEO age (years)	7066	54.7
CEO tenure (year)	7066	7.0

Table 2: The hypothesized and documented effect of social network effects on governance

This table provides an overview of the hypothesized and documented effect of social network effects on corporate governance. The documented effect is based on three weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure), the peer-group average governance ("peer-average value" measure), or zero ("zero value" measure).

The governance measures include: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Governance practice	**Hypothesized effect on governance**	**Documented effect on governance based on:**		
		"Own firm's governance" measure	**"Peer-average value" measure**	**"Zero value" measure**
1. Board size	Weak	Strong	Strong	Weak
2. % of outside directors	Weak	Strong	Strong	Strong
3. Number of board meetings	Weak	Strong	Strong	Weak
4. Director base pay	Strong	Strong	Strong	Strong
5. log(CEO total pay)	Strong	Strong	Strong	Strong
6. % of directors who are active CEOs	Strong	Strong	Strong	Strong
7. % of directors over the age of 70	Strong	Strong	Strong	Strong
8. CEO duality	Weak	Strong	Strong	Strong

Table 3: Can governance practices be explained by practices at firms with overlapping directors?

This table shows the results of OLS regressions (columns 1-7) and a logistic regression (column 8) to address whether a firm's corporate governance practices can be explained by the (weighted average) governance practices at firms with overlapping directors. Results are presented based on three weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure – Panel A), the peer-group average governance ("peer-average value" measure – Panel B), or zero ("zero value" measure – Panel C).

The governance measures include: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Average industry practice is the average corporate governance practice at similar-sized (same asset tercile) firms in the industry. Log(assets) is the log of total assets. Book leverage is interest-bearing debt divided by the sum of the book value of equity and interest-bearing debt. Firm age is the number of years since the firm first appeared in CRSP. R&D intensity is defined as R&D divided by total assets. FCF / TA, is free cash flow divided by total assets. ROA is return on assets, measured as net income divided by total assets. CEO age is the CEO's age. CEO tenure is the number of years the CEO has been in charge. Year and industry fixed effects are included in every regression.

p-values based on robust standard errors clustered by firm are in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

PANEL A: Results based on the "own firm's governance" measure

	Board size	% Outsiders	Nr of board meetings	Director base pay	log(CEO total pay)	% Active CEOs	% Directors over 70	CEO duality
	1	2	3	4	5	6	7	8
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.832	0.854	0.732	0.942	0.564	0.699	1.056	186.768
	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Average industry practice (based on practice mentioned in column header)	0.033	0.159	-0.067	0.119	0.123	0.002	0.050	0.803
	(0.293)	*(0.001)***	*(-0.327)*	*(0.010)***	*(0.001)***	*(0.984)*	*(0.192)*	*(0.641)*
Log(assets)	0.229	-0.003	0.158	1547.919	0.180	0.002	0.001	1.091
	*(0.000)***	*(-0.029)**	*(0.000)***	*(0.000)***	*(0.000)***	*(0.207)*	*(0.115)*	*(0.016)**
Book leverage	-0.054	0.010	0.257	-1613.827	-0.131	-0.012	-0.005	1.535
	(-0.612)	*(0.164)*	*(0.291)*	*(-0.107)*	*(-0.108)*	*(-0.136)*	*(-0.263)*	*(0.026)**
Firm age	0.004	0.000	-0.006	1.524	0.000	0.001	0.000	1.008
	*(0.050)**	*(0.000)***	*(-0.020)**	*(0.918)*	*(0.942)*	*(0.000)***	*(0.003)***	*(0.003)***
R&D intensity	2.288	-0.309	-79.842	7598.152	0.383	-0.268	-0.173	81673.967
	(0.246)	*(-0.000)***	*(-0.303)*	*(0.422)*	*(0.325)*	*(-0.003)***	*(-0.000)***	*(0.622)*
FCF / assets	-0.311	0.007	0.115	-70.794	-0.081	-0.002	-0.009	0.987
	*(-0.003)***	*(0.325)*	*(0.738)*	*(-0.938)*	*(-0.267)*	*(-0.800)*	*(-0.063)**	*(0.949)*
ROA	-0.091	-0.006	-3.114	-523.833	0.559	-0.028	-0.003	0.984
	(-0.622)	*(-0.681)*	*(-0.000)***	*(-0.766)*	*(0.000)***	*(-0.067)**	*(-0.744)*	*(0.964)*
CEO age	0.005	0.000	-0.003	42.712	0.003	0.000	0.000	1.049
	(0.201)	*(0.209)*	*(-0.709)*	*(0.203)*	*(0.172)*	*(0.161)*	*(0.004)***	*(0.000)***
CEO tenure	-0.006	0.000	-0.039	-89.558	-0.005	0.000	0.000	1.175
	(-0.131)	*(0.111)*	*(-0.000)***	*(-0.005)***	*(-0.033)**	*(0.725)*	*(0.038)**	*(0.000)***
Observations	7066	7066	4467	6964	5664	7066	7066	7066
Adj. R-squared (Pseudo R-squared in column 8)	0.68	0.51	0.31	0.52	0.50	0.35	0.67	0.45

PANEL B: Results based on the "peer-average value" measure

	Board size	% Outsiders	Nr of board meetings	Director base pay	log(CEO total pay)	% Active CEOs	% Directors over 70	CEO duality
	1	2	3	4	5	6	7	8
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.234	0.385	0.431	0.378	0.248	0.410	1.616	8.236
	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.001)***	*(0.000)***	*(0.000)***	*(0.000)***
Average industry practice (based on practice mentioned in column header)	0.106	0.334	-0.059	0.168	0.132	0.196	-0.387	2.486
	*(0.085)**	*(0.000)***	*(-0.537)*	*(0.027)***	*(0.070)**	*(0.071)**	*(-0.000)****	*(0.045)***
Log(assets)	0.512	-0.006	0.231	3528.423	0.289	0.000	0.003	1.112
	*(0.000)****	*(-0.012)***	*(0.000)****	*(0.000)****	*(0.000)****	*(0.853)*	*(0.117)*	*(0.006)****
Book leverage	0.229	0.024	0.620	-1067.471	-0.206	-0.013	0.004	1.408
	(0.197)	*(0.070)**	*(0.053)**	*(-0.477)*	*(-0.033)***	*(-0.235)*	*(0.660)*	*(0.099)**
Firm age	0.015	0.001	-0.009	51.523	0.000	0.001	0.000	1.014
	*(0.000)****	*(0.000)****	*(-0.021)***	*(0.016)***	*(0.926)*	*(0.000)****	*(0.841)*	*(0.000)****
R&D intensity	-5.288	-0.022	-44.313	10189.646	-0.858	-0.454	0.033	15539875
	*(-0.001)****	*(-0.798)*	*(-0.586)*	*(0.433)*	*(-0.020)***	*(-0.000)****	*(0.753)*	*(0.590)*
FCF / assets	-0.073	0.005	0.010	2414.133	-0.026	-0.008	-0.015	0.845
	(-0.584)	*(0.649)*	*(0.980)*	*(0.075)**	*(-0.739)*	*(-0.412)*	*(-0.078)**	*(0.336)*
ROA	0.628	0.008	-4.654	4675.268	0.919	-0.032	-0.002	0.808
	*(0.024)***	*(0.705)*	*(-0.000)****	*(0.081)**	*(0.000)****	*(-0.135)*	*(-0.901)*	*(0.548)*
CEO age	0.022	0.000	-0.006	158.070	0.002	-0.001	0.002	1.051
	*(0.000)****	*(0.589)*	*(-0.528)*	*(0.002)****	*(0.464)*	*(-0.073)**	*(0.000)****	*(0.000)****
CEO tenure	-0.019	-0.002	-0.065	-315.558	-0.007	0.000	0.001	1.185
	*(-0.008)****	*(-0.000)****	*(-0.000)****	*(-0.000)****	*(-0.033)***	*(0.820)*	*(0.002)****	*(0.000)****
Observations	7066	7066	4467	6964	5664	7066	7066	7066
Adj. R-squared (Pseudo R-squared in column 8)	0.39	0.13	0.09	0.31	0.35	0.13	0.19	0.20

PANEL C: Results based on the "zero value" measure

	Board size	% Outsiders	Nr of board meetings	Director base pay	log(CEO total pay)	% Active CEOs	% Directors over 70	CEO duality
	1	2	3	4	5	6	7	8
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.026	0.260	0.019	0.281	0.074	0.240	1.048	10.598
	(0.189)	*(0.000)***	*(0.662)*	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Average industry practice (based on practice mentioned in column header)	0.255	0.512	0.203	0.344	0.261	0.453	0.672	8.072
	*(0.000)***	*(0.000)***	*(0.013)***	*(0.000)***	*(0.001)***	*(0.000)***	*(0.000)***	*(0.000)***
Log(assets)	0.514	-0.015	0.237	3330.980	0.271	-0.005	-0.003	1.025
	*(0.000)***	*(-0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(-0.024)***	*(-0.129)*	*(0.544)*
Book leverage	0.265	0.027	0.569	-719.342	-0.194	-0.011	0.002	1.413
	(0.138)	*(0.036)***	*(0.078)**	*(-0.634)*	*(-0.047)***	*(-0.303)*	*(0.845)*	*(0.095)**
Firm age	0.016	0.001	-0.008	35.476	-0.001	0.001	0.000	1.012
	*(0.000)***	*(0.000)***	*(-0.039)***	*(0.112)*	*(-0.381)*	*(0.000)***	*(0.193)*	*(0.000)***
R&D intensity	-5.954	-0.034	-43.197	7564.226	-1.097	-0.468	0.136	45275.543
	*(-0.000)***	*(-0.698)*	*(-0.595)*	*(0.458)*	*(-0.040)***	*(-0.000)***	*(0.230)*	*(0.282)*
FCF / assets	-0.061	-0.004	0.023	2287.065	-0.041	-0.015	-0.022	0.786
	(-0.647)	*(-0.736)*	*(0.958)*	*(0.086)**	*(-0.608)*	*(-0.131)*	*(-0.011)***	*(0.177)*
ROA	0.762	0.010	-4.815	4769.811	0.915	-0.028	-0.007	0.798
	*(0.006)***	*(0.672)*	*(-0.000)***	*(0.073)**	*(0.000)***	*(-0.166)*	*(-0.686)*	*(0.519)*
CEO age	0.023	0.000	-0.007	156.408	0.002	-0.001	0.002	1.050
	*(0.000)***	*(0.670)*	*(-0.474)*	*(0.002)***	*(0.627)*	*(-0.046)***	*(0.000)***	*(0.000)***
CEO tenure	-0.018	-0.001	-0.064	-295.086	-0.005	0.000	0.002	1.193
	*(-0.009)***	*(-0.004)***	*(-0.000)***	*(-0.000)***	*(-0.153)*	*(0.560)*	*(0.000)***	*(0.000)***
Observations	7066	7066	4467	6964	5664	7066	7066	7066
Adj. R-squared (Pseudo R-squared in column 8)	0.38	0.17	0.08	0.32	0.35	0.15	0.13	0.21

Table 4: Robustness: Are the results driven by new governance requirements imposed by SOX, NYSE and Nasdaq?

This table addresses whether the main results are driven by new governance requirements imposed by SOX, NYSE and Nasdaq. It shows the results of OLS regressions (columns 1-7) and a logistic regression (column 8) based on a sample of firms that were already in compliance with the new governance requirements in 2002 (Panel I), and based on a sample that includes all firms in 2006-2007, the time period after the last date by which firms had to be in compliance with the new requirements. In both panels, results are presented based on three weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure – Subpanel A), the peer-group average governance ("peer-average value" measure – Subpanel B), or zero ("zero value" measure – Subpanel C).

The governance measures include: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Every regression includes the following control variables (not shown for brevity). Average industry practice is the average corporate governance practice at similar-sized (same asset tercile) firms in the industry. Log(assets) is the log of total assets. Book leverage is interest-bearing debt divided by the sum of the book value of equity and interest-bearing debt. Firm age is the number of years since the firm first appeared in CRSP. R&D intensity is defined as R&D divided by total assets. FCF / TA, is free cash flow divided by total assets. ROA is return on assets, measured as net income divided by total assets. CEO age is the CEO's age. CEO tenure is the number of years the CEO has been in charge. Year and industry fixed effects are included in every regression.

p-values based on robust standard errors clustered by firm are in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Panel I: Results for all years based on firms that were already in compliance with the governance requirements imposed by SOX, NYSE and NASDAQ in 2002

	Board size	% Outsiders	Nr of board meetings	Director base pay	log(CEO total pay)	% Active CEOs	% Directors over 70	CEO duality
	1	2	3	4	5	6	7	8
PANEL I-A: "Own firm's governance" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.661	0.667	0.648	1.002	0.242	0.675	1.025	163.437
	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Observations	1984	1984	1121	1969	1780	1984	1984	1984
Adj. R-squared (Pseudo R-squared in column 8)	0.58	0.34	0.28	0.55	0.60	0.31	0.55	0.43
PANEL I-B: "Peer-average value" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	-0.038	0.230	0.505	0.371	0.072	0.340	1.322	15.638
	(-0.519)	*(0.019)***	*(0.000)***	*(0.006)***	*(0.105)*	*(0.005)***	*(0.000)***	*(0.000)***
Observations	1984	1984	1121	1969	1780	1984	1984	1984
Adj. R-squared (Pseudo R-squared in column 8)	0.44	0.11	0.14	0.35	0.57	0.16	0.17	0.26
PANEL I-C: "Zero value" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	-0.003	0.165	0.132	0.158	0.019	0.237	0.845	14.107
	(-0.909)	*(0.000)***	*(0.045)***	*(0.084)**	*(0.172)*	*(0.000)***	*(0.000)***	*(0.000)***
Observations	1983	1983	1121	1968	1780	1983	1983	1983
Adj. R-squared (Pseudo R-squared in column 8)	0.44	0.14	0.12	0.34	0.57	0.18	0.11	0.26

Panel II: Results for 2006-2007, the time period after which firms had to be in compliance with the new governance requirements imposed by SOX, NYSE and NASDAQ

	Board size	% Outsiders	Nr of board meetings	Director base pay	log(CEO total pay)	% Active CEOs	% Directors over 70	CEO duality
	1	2	3	4	5	6	7	8
PANEL II-A: "Own firm's governance" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.911	1.021	0.740	0.950	0.693	0.843	1.088	341.801
	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Observations	2018	2018	1972	2003	1462	2018	2018	2018
Adj. R-squared (Pseudo R-squared in column 8)	0.70	0.60	0.31	0.44	0.58	0.51	0.66	0.52
PANEL II-B: "Peer-average value" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.263	0.542	0.670	0.296	0.542	0.806	1.622	6.502
	*(0.001)***	*(0.000)***	*(0.000)***	*(0.011)***	*(0.015)***	*(0.000)***	*(0.000)***	*(0.001)***
Observations	2018	2018	1972	2003	1462	2018	2018	2018
Adj. R-squared (Pseudo R-squared in column 8)	0.39	0.10	0.08	0.24	0.41	0.20	0.16	0.24
PANEL II-C: "Zero value" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.029	0.254	0.037	0.288	0.092	0.426	0.939	6.733
	(0.211)	*(0.000)***	*(0.556)*	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Observations	2018	2018	1972	2003	1462	2018	2018	1121
Adj. R-squared (Pseudo R-squared in column 8)	0.38	0.14	0.07	0.24	0.40	0.21	0.10	0.24

Table 5: Robustness: Are the results driven by intertemporal persistence in governance practices? *(Restricted years)*

This table addresses whether the main results are driven by intertemporal persistence in governance practices. It shows the results of OLS regressions (columns 1-7) and a logistic regression (column 8) using a sample that includes years 2003, 2005, and 2007 only. (Results based on 2004 and 2007 are qualitatively similar.) Results are presented based on three weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure – Panel A), the peer-group average governance ("peer-average value" measure – Panel B), or zero ("zero value" measure – Panel C).

The governance measures include: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Every regression includes the following control variables (not shown for brevity). Average industry practice is the average corporate governance practice at similar-sized (same asset tercile) firms in the industry. Log(assets) is the log of total assets. Book leverage is interest-bearing debt divided by the sum of the book value of equity and interest-bearing debt. Firm age is the number of years since the firm first appeared in CRSP. R&D intensity is defined as R&D divided by total assets. FCF / TA, is free cash flow divided by total assets. ROA is return on assets, measured as net income divided by total assets. CEO age is the CEO's age. CEO tenure is the number of years the CEO has been in charge. Year and industry fixed effects are included in every regression.

p-values based on robust standard errors clustered by firm are in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Board size	% Outsiders	Nr of board meetings	Director base pay	log(CEO total pay)	% Active CEOs	% Directors over 70	CEO duality
	1	2	3	4	5	6	7	8
PANEL A: "Own firm's governance" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.820	0.900	0.800	0.973	0.612	0.823	1.043	225.882
	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Observations	3128	3128	1920	3070	2468	3128	3128	3128
Adj. R-squared (Pseudo R-squared in column 8)	0.67	0.51	0.33	0.52	0.47	0.41	0.12	0.49
PANEL B: "Peer-average value" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.167	0.420	0.362	0.461	0.474	0.744	1.052	8.617
	*(0.004)***	*(0.000)***	*(0.001)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Observations	3128	3128	1920	3070	2468	3128	3128	3128
Adj. R-squared (Pseudo R-squared in column 8)	0.38	0.12	0.08	0.31	0.38	0.16	0.68	0.22
PANEL C: "Zero value" measure								
Weighted average practice at firms with overlapping directors (based on practice mentioned in column header)	0.018	0.266	-0.050	0.314	0.127	0.498	1.045	9.400
	(0.385)	*(0.000)***	*(-0.394)*	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***
Observations	3128	3128	1920	3070	2468	3128	3128	3128
Adj. R-squared (Pseudo R-squared in column 8)	0.37	0.16	0.07	0.31	0.38	0.18	0.13	0.26

Table 6: A familiarity effect?

Panel A shows the results of a logit regression to address whether the main results are driven by a familiarity effect in that firms select board members from firms with similar governance practices. The dependent variable equals 1 if an individual was appointed as a director, and 0 otherwise. The independent variables include the eight (absolute value of the %) governance gap and various other factors that may affect the likelihood of being picked. Odds ratios are reported. Panel B gives the mean and standard deviation of all independent variables, and shows the percentage change in odds for a one standard deviation increase in each independent variable.

The governance gap measures are based on the following governance variables: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Same-industry dummy = 1 if the director already has a directorship in the same industry (based on the 17 Fama-French industry groupings). Similar-size dummy = 1 if the director already has a directorship at a similar-sized firm, where similar size means sales totaling between 50% and 150% of the firm's sales. Geographically-close dummy = 1 if the director already has a directorship at another firm in the same geographic area (within a 100-kilometer radius). Network dummy = 1 if the director served on the board of another firm in the previous year with a current board member of the firm. Director age is the age of the director. Firm performance is the average stock price performance at other firms at which the director served on the board in the previous year. Nr of directorships is the number of boards the director serves on. Year fixed effects are included in every regression.

p-values based on robust standard errors clustered by firm are in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Panel A: Logit regression results	**Panel B: Impact of a one standard deviation increase**		
	Prob(picked)	**Mean**	**Standard deviation**	**% Change in odds for a one standard deviation increase**
Absolute value of % firm-level governance gap based on:				
Board size	0.251 *(0.000***)*	0.30	0.27	-31.0
% Outsiders	0.588 *(0.084)**	0.28	0.42	-20.1
Nr of board meetings	1.077 *(0.552)*	0.46	0.50	3.8
Director base pay	0.701 *(0.003)***	0.78	1.28	-36.6
log(CEO total pay)	0.452 *(0.033)**	0.14	0.17	-12.6
% Active CEOs	0.969 *(0.700)*	0.71	0.84	-2.6
% Directors over 70	0.956 *(0.768)*	0.82	0.60	-2.6
CEO duality	0.738 *(0.059)**	0.35	0.44	-12.4
Same-industry dummy	1.769 *(0.000)***	0.17	0.37	23.6
Similar-size dummy	1.001 *(0.995)*	0.26	0.44	0.0
Geographically-close dummy	3.404 *(0.000)***	0.06	0.23	32.6
Network dummy	12.886 *(0.000)***	0.01	0.08	22.4
Director age	0.964 *(0.000)***	59.22	8.38	-26.3
Firm performance	1.002 *(0.990)*	0.24	0.43	0.1
Nr of directorships	1.030 *(0.682)*	1.47	0.82	2.4
Observations	330291			
Pseudo R-squared	0.0704			

Table 7: An influence effect? Initial analysis

This table shows the results of OLS regressions to address whether the main results may be driven by an influence effect. The influence effect says that a firm may choose directors for a variety of reasons, some of which may be unrelated to familiarity. These directors, who may serve on boards of firms with different governance characteristics, may influence the firm's governance practices in the direction of the other boards they serve at. The (percentage) change in governance is regressed on the (percentage) governance gap and other factors that may affect a change in governance. The governance gap is the difference between the weighted average governance practice at firms with overlapping directors minus the firm's own governance practice. Results are presented based on three weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure – Panel A), or the peer-group average governance ("peer-average value" measure – Panel B).

The governance gap measures are based on the following governance variables: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Every regression includes the following control variables (not shown for brevity). Average industry practice is the average corporate governance practice at similar-sized (same asset tercile) firms in the industry. Log(assets) is the log of total assets. Book leverage is interest-bearing debt divided by the sum of the book value of equity and interest-bearing debt. Firm age is the number of years since the firm first appeared in CRSP. R&D intensity is defined as R&D divided by total assets. FCF / TA, is free cash flow divided by total assets. ROA is return on assets, measured as net income divided by total assets. CEO age is the CEO's age. CEO tenure is the number of years the CEO has been in charge. Year and industry fixed effects are included in every regression.

p-values based on robust standard errors clustered by firm are in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	% Change in:							
	Board size	**% Outsiders**	**Nr of board meetings**	**Director base pay**	**log(CEO total pay)**	**% Active CEOs**	**% Directors over 70**	**CEO duality**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
PANEL A: "Own firm's governance" measure								
% Governance gap (based on practice mentioned in column header)	0.016	0.201	0.045	0.000	64.780	0.732	1.373	-0.011
	*(0.000)***	*(0.003)***	*(0.001)***	*(0.093)**	*(0.126)*	*(0.000)***	*(0.000)***	*(-0.806)*
Observations	7066	7062	4459	6238	5058	7018	3206	4203
Adj. R-squared (Pseudo R-squared in column 8)	0.13	0.19	0.11	0.06	0.03	0.47	0.01	0.13
PANEL B: "Peer-average value" measure								
% Governance gap (based on practice mentioned in column header)	0.013	0.446	0.053	0.000	42.638	0.768	1.155	0.131
	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.021)**	*(0.000)***	*(0.002)***	*(0.008)***
Observations	7066	7062	4459	6238	5058	7018	3206	4203
Adj. R-squared (Pseudo R-squared in column 8)	0.12	0.20	0.11	0.06	0.03	0.47	0.01	0.13

Table 8: The influence effect revisited – An asymmetric effect?

This table shows the results of OLS regressions to address whether the influence effect is asymmetric, for example because firms may have a tendency toward "better" governance practices, or because some practices are downward rigid.. The (percentage) change in governance is regressed on the (percentage) governance gap, an interaction term (% Governance gap * positive gap dummy) and other factors that may affect a change in governance. The governance gap is the difference between the weighted average governance practice at firms with overlapping directors minus the firm's own governance practice. The positive gap dummy equals one if the governance gap is positive, and 0 otherwise. Results are presented based on two weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure – Panel A), or the peer-group average governance ("peer-average value" measure – Panel B).

The governance gap measures are based on the following governance variables: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Every regression includes the following control variables (not shown for brevity). Average industry practice is the average corporate governance practice at similar-sized (same asset tercile) firms in the industry. Log(assets) is the log of total assets. Book leverage is interest-bearing debt divided by the sum of the book value of equity and interest-bearing debt. Firm age is the number of years since the firm first appeared in CRSP. R&D intensity is defined as R&D divided by total assets. FCF / TA, is free cash flow divided by total assets. ROA is return on assets, measured as net income divided by total assets. CEO age is the CEO's age. CEO tenure is the number of years the CEO has been in charge. Year and industry fixed effects are included in every regression.

p-values based on robust standard errors clustered by firm are in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	% Change in:							
	Board size	**% Outsiders**	**Nr of board meetings**	**Director base pay**	**log(CEO total pay)**	**% Active CEOs**	**% Directors over 70**	**CEO duality**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
PANEL A: "Own firm's governance" measure								
% Governance gap (based on practice mentioned in column header)	-0.002	-0.366	-0.014	0.000	34.928	-0.187	1.177	-0.012
	(-0.483)	*(-0.000)***	*(-0.242)*	*(0.000)***	*(0.201)*	*(-0.241)*	*(0.000)***	*(-0.790)*
% Governance gap * positive gap dummy	0.028	1.123	0.125	0.000	58.565	2.125	1.386	25.993
	*(0.000)***	*(0.000)***	*(0.001)***	*(0.000)***	*(0.552)*	*(0.000)***	*(0.334)*	*(0.000)***
Observations	7066	7062	4459	6238	5058	7018	3206	4203
Adj. R-squared (Pseudo R-squared in column 8)	0.13	0.21	0.12	0.07	0.03	0.47	0.01	0.13
PANEL B: "Peer-average value" measure								
% Governance gap (based on practice mentioned in column header)	-0.001	0.003	0.002	0.000	34.075	0.218	1.017	0.131
	(-0.763)	*(0.961)*	*(0.818)*	*(0.426)*	*(0.054)**	*(0.280)*	*(0.007)***	*(0.008)***
% Governance gap * positive gap dummy	0.021	0.809	0.102	0.000	17.282	1.093	1.683	0.000
	*(0.000)***	*(0.000)***	*(0.000)***	*(0.000)***	*(0.748)*	*(0.000)***	*(0.213)*	*n.a.*
Observations	7066	7062	4459	6238	5058	7018	3206	4203
Adj. R-squared (Pseudo R-squared in column 8)	0.13	0.23	0.14	0.08	0.03	0.47	0.01	0.13

Table 9: The influence effect revisited – Dealing with endogeneity

This table provides additional evidence of an influence effect. It deals with endogeneity (a firm may have already decided to change its governance practice in a particular direction and then seeks out directors who are serving at other firms with governance similar to the one the firm is moving to; in this case, the firm's change in governance will reflect the familiarity effect rather than the influence effect), by restricting the sample to firms that did not change their directors last year but whose directors added directorships in that year. For these firms, an exogenous change in the governance gap occurs in that year. The percentage change in governance from year *t-1* to year *t* is regressed on this exogenous change in the governance gap in year *t-1* (while controlling for the change in the governance gap based on directors who did not change directorships themselves, but whose firms changed their corporate governance between years *t-2* and *t-1*). Positive and significant coefficients support an influence effect interpretation. Results are presented based on two weighted average overlapping director measures which assign the average governance at other firms at which directors have board seats to affiliated directors; to unaffiliated directors, they alternatively assign the firm's own governance ("own firm's governance" measure – Panel A), or the peer-group average governance ("peer-average value" measure – Panel B).

The governance gap measures are based on the following governance variables: (1) board size measured as the number of directors; (2) the percentage of outside directors; (3) the number of board meetings; (4) director base pay; (5) log(CEO total pay); (6) the percentage of directors who are active CEOs; (7) the percentage of directors over the age of 70; and (8) CEO duality, a dummy that equals 1 if the CEO is the chairman.

Every regression includes the following control variables (not shown for brevity). The change in average industry practice is the change in the average corporate governance practice at similar-sized (same asset tercile) firms in the industry. Log(assets) is the log of total assets. Book leverage is interest-bearing debt divided by the sum of the book value of equity and interest-bearing debt. Firm age is the number of years since the firm first appeared in CRSP. R&D intensity is defined as R&D divided by total assets. FCF / TA, is free cash flow divided by total assets. ROA is return on assets, measured as net income divided by total assets. CEO age is the CEO's age. CEO tenure is the number of years the CEO has been in charge. Year and industry fixed effects are included in every regression.

p-values based on robust standard errors clustered by firm are in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

PANEL A: A change in the governance gap due to directors adding directorships leads to a change in governance (Sample: firms without a change in directors last year)

	% Change in:							
	Board size	**% Outsiders**	**Nr of board meetings**	**Director base pay**	**log(CEO total pay)**	**% Active CEOs**	**% Directors over 70**	**CEO duality**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
PANEL A: "Own firm's governance" measure								
Exogenous change in governance gap (based on practice mentioned in column header)	0.156	0.313	0.126	0.616	-162.514	0.524	0.652	0.580
	*(0.030)***	*(0.003)****	*(0.509)*	*(0.001)****	*(-0.274)*	*(0.000)****	*(0.000)****	*(0.000)****
Observations	1363	1363	739	1338	995	1363	1363	1363
Adj. R-squared (Pseudo R-squared in column 8)	0.02	0.07	0.07	0.06	0.07	0.24	0.03	0.07
PANEL B: "Peer-average value" measure								
Exogenous change in governance gap (based on practice mentioned in column header)	0.009	0.238	0.338	0.565	56.163	0.331	0.174	0.261
	(0.909)	*(0.012)***	*(0.017)***	*(0.000)****	*(0.153)*	*(0.002)****	*(0.099)**	*(0.003)****
Observations	1587	1587	739	1338	995	1363	1363	1363
Adj. R-squared (Pseudo R-squared in column 8)	0.01	0.08	0.09	0.09	0.06	0.29	0.05	0.18