The importance of network recommendations in the director labor market

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Abstract

Directors are more likely to obtain additional directorships if the CEO and peer directors of their current boards are well-connected. CEO connections are particularly important for directors with a weaker labor market. They help directors to obtain board seats in more prestigious firms. An analysis of appointment announcement returns and director election voting results provides no evidence that shareholders are concerned about CEO referrals of their own directors to other boards. Overall, we find that network recommendations reduce problems of asymmetric information in the directorial labor market. Access to additional networks provides strong incentives for directors to join corporate boards. (*JEL* G30, G34)

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一年之计，莫如树谷；十年之计，莫如树木；终身之计，莫如树人。- *To yield the most out of a year, grow grain; to harvest the most after 10 years, grow trees; for the greatest lifelong reward, develop people.*

Chinese Proverb

1. Introduction

Why do directors want to join corporate boards? The literature has discussed three main reasons – compensation, reputation, and access to a large network that enhances a director's future career. Although recent empirical research has examined the financial incentives (e.g., Adams and Ferreira, 2008; Fedaseyeu, Linck, and Wagner, 2018) and reputation effects of outside directorships (e.g., Masulis and Mobbs, 2014), there exists surprisingly little work on the network dimension of joining corporate boards. While it has been suggested that opportunities to build a new network of connections are important considerations for directors when joining a board (e.g., Fahlenbrach, Low, and Stulz, 2010; Levit and Malenko, 2016; Matveyev, 2016), there exists no empirical study on these indirect network benefits. Our paper intends to fill this gap by testing whether access to executive networks via board appointments enhances a director's future career in the director labor market.

A directorship requires very specific and distinct skills; a proper and transparent market for such jobs may not exist so that being known indirectly to management and directors is a strong comparative advantage (Kramarz and Thesmar, 2013).[1] Many practitioners remark that even one director who is too confrontational or not up to the task can lead to a dysfunctional board so that the vetting process for new directors is taken very seriously. Referrals from individuals who have already interacted with the director candidate in a comparable situation can therefore be very important. Therefore, we first test whether a director benefits from serving on the board of a firm with a well-connected CEO and well-connected peer directors by asking whether these second degree connections are important for the director's future career in the director labor market. Following Engelberg, Gao, and Parsons (2013), we calculate the number of directors in other firms that the CEO is connected to via education, professional, or social connections as a measure of the size of his network. Importantly, our measure of CEO

[1] For other papers that focus on director appointments and match formation, see Adams, Akyol, and Verwijmeren (2018), Cai, Nguyen, and Walkling (2018), or Ferreira et al. (2018).

connections only counts incremental connections, i.e. we remove connections common to the director and CEO when calculating the CEO network. We find that a one standard deviation increase in the network size of the CEO relative to the mean increases the likelihood that a director obtains an additional board seat in another firm by 0.87 percentage points. The effect is economically large because only 4.32% of independent directors obtain a new independent directorship in our sample. To further refine our measure of CEO network, we focus on employment connections formed while both executives had top management positions. We believe that those are tighter connections and indeed find a stronger impact of the CEO's network on director appointments to other boards.

The design of our study helps alleviate endogeneity concerns. For example, it is possible that the size of a CEO's network is a proxy of the CEO's ability and that CEOs with higher ability tend to attract higher caliber directors who in turn tend to obtain more board appointments. Alternatively, it could be that well-connected CEOs manage better-performing firms and that it is firm performance driving the additional director appointments (as directors of better performing firms tend to get more board seats (Yermack, 2004)). As we count only incremental connections that the CEO has relative to a director, different directors sitting on the same board derive different benefits from the CEO's connections. Therefore, we can account for time-varying firm, CEO, and board characteristic by including firm-year fixed effects. This strategy effectively compares the effect of additional CEO network connections on labor market outcomes of directors sitting on the same board of the same firm in the same year. Even with firm-year fixed effects, we again find that access to a larger non-overlapping CEO network helps directors obtain additional board seats. Additionally, we show that the CEO's network matters mainly for new appointments at firms directly connected to the CEO compared to appointments to firms not within the CEO's social network. Therefore, it is unlikely that our results are driven by higher ability directors being able to obtain more board seats as this should not impact their appointment at connected versus unconnected firms. We further show that our results are not driven by issues relating to director's industry expertise, errors in the measurement of the networks, nor mechanical issues driven by network size.

Is the CEO's network special, or does the network of the other peer directors also give directors access to new labor market opportunities? We answer this question by examining the impact of peer independent directors' social network. Similar to the CEO connections results, we find that peer director connections increase the likelihood of additional appointments, and especially at firms within the peer directors' network. These results further corroborate the results on CEO connections – directors obtain significant benefits in the form of career advancements from sitting on boards of well-connected CEOs and peer directors.

What are the economic implications of such director referrals? We first demonstrate that directors with less desired characteristics in the director labor market are particularly likely to benefit from the network of the CEO. Directors are also more likely to rely on the CEO's network to obtain additional directorships at bigger firms, consistent with network referrals helping directors advance their careers. Why do CEOs help these directors? On the one hand, a CEO may be willing to help advance their careers to entrench himself. These directors would become more loyal to the CEO. On the other hand, CEOs could be just helping excellent fellow directors who are undervalued by the directorial labor market. CEOs, through their recommendations, reduce the information asymmetry between appointing firms and the prospective director candidates without wanting any immediate quid pro quo. In that case, the benefits are more long-term – the CEO develops a reputation for spotting and developing talent, and members of their network may reciprocate when the CEO searches for a new director for his own board. To distinguish between these two hypotheses, we examine the reactions of shareholders to the director appointment at the appointing firm. We find no evidence that the announcement returns at the appointing firm are lower when the appointed director had network recommendations. The newly-appointed directors also receive similar levels of shareholder support at subsequent annual general meetings as directors who were appointed without network recommendations. The evidence therefore suggests that shareholders do not consider directors who were appointed via referrals as worse directors. Finally, we examine the voting support at the original firm for directors who were recommended for additional appointments elsewhere. These directors receive the same proportion of positive votes at subsequent annual general meetings as before. Hence, shareholders at the original firm do not appear

to think that the independence of the directors is compromised after the CEO helped them advance their careers.

Our paper contributes to the literature on incentives of potential directors to join corporate boards. Directors have to spend time and effort on their duties, yet past papers have shown that the financial incentives for joining a board are limited (e.g., Yermack, 2004). The incentives for directors to join corporate boards were further reduced with the passage of the Sarbanes-Oxley Act that increased the workload and risk of being a corporate director (Linck, Netter, and Yang, 2009). Papers such as Fahlenbrach, Low, and Stulz (2010), Levit and Malenko (2016), and Boivie et al. (2016) have suggested that access to valuable networks is an important factor for directors to join corporate boards. We show empirically that this is indeed the case and that directors benefit from joining a firm with a well-connected CEO and board as they get recommendations to more board seats at bigger and more prestigious firms.

Our paper also advances our knowledge of how directors are appointed to corporate boards. While the process of directors selecting new directors from their own network (the "old boys' network") has been criticized for more than 40 years (e.g., Mace, 1971; Lorsch and MacIver, 1989), the recent literature and survey results show that firms still heavily rely on their network when they hire new directors (Adams, 2017; Adams, Akyol, and Verwijmeren, 2018; Cai, Nguyen, and Walkling, 2018; Ferreira et al., 2018).[2] Our results shed some light on why the much criticized process is still the dominant form of choosing new directors. We show that these network recommendations can have benefits as they play an important role in matching directors to firms. The fact that the recommendations come from individuals who have interacted with the recommended director in the same boardroom and in similar situations makes such recommendations more salient and credible to the appointing firm. Our results show that such network recommendations from credible sources reduce information asymmetries in the

[2] PwC's 2016 Annual Corporate Directors Survey (PwC, 2016) states that almost 90% of surveyed directors use recommendations from their own board's network as the most widely used source for identifying new directors, followed by search firm recommendations (60%), management recommendations (52%), and investor recommendations as a distant fourth (18%).

directorial labor market; talented and competent directors who would otherwise be overlooked receive additional appointments through network certification.

The focus of the prior literature has been on whether the appointment of directors connected to the CEO compromises the directors' independence and monitoring capacity.[3] An interesting question is why new directors would continue to risk their reputation by being considered captured directors after their initial appointment to the board, all the more given the recent increases in governance awareness. Our paper suggests that directors gain from having access to the CEO's network to help them in their future director career.

Our paper also relates to a larger literature on the importance of CEO connections to the firm and CEO himself.[4] Another strand of literature examines the impact of director connections for the firm and the director himself.[5] Contrary to these papers, we ask whether CEO connections and director connections not only provide benefits to the individuals themselves and the firms employing them, but also help the careers of *other* fellow directors sitting on the same board. We show that the incentives of CEOs to recommend the directors on their boards to additional director positions elsewhere are more benign and may not be entirely agency-motivated.

[3] Shivdasani and Yermack (1999) show that when the CEO serves on the nominating committee or no nominating committee exists, firms appoint fewer independent outside directors and more gray outsiders with conflicts of interest. Fracassi and Tate (2012) show that firms with more powerful CEOs are more likely to appoint directors with professional and non-professional ties to the CEO whose independence is subsequently compromised. Coles, Daniel, and Naveen (2014) find that directors who are appointed by the current CEO are weaker monitors. Hwang and Kim (2009) show that social connections between the CEO and directors facilitate higher pay levels, lower pay–performance sensitivity, and lower turnover probability. Kramarz and Thesmar (2013) show that social networks affect board composition and that firms in which these networks are most active pay their CEOs more, are less likely to replace a CEO who underperforms, and engage in less value-creating acquisitions. Similarly, Nguyen (2012) shows that when the CEO and a number of directors belong to the same social networks, the CEO is less likely to be dismissed for poor performance.

[4] Engelberg, Gao, and Parsons (2013) find that CEOs are paid for their valuable, portable network of connections that bring information into the firm. Faleye, Kovacs, and Venkateswaran (2014) find that CEO connections facilitate investments in corporate innovation because they increase the CEO's access to relevant network information and provide labor market insurance to the CEO by mitigating career concerns. Babina, Garcia, and Tate (2018) show that firms with more network connections to other firms through executives and directors have higher survival rates during the great depression. El-Khatib, Fogel, and Jandik (2015) provide evidence that highly-connected CEOs tend to make more and worse-performing acquisitions. Liu (2014) finds evidence that CEOs are more likely to move to better jobs if they are well-connected.

[5] Fogel, Ma, and Morck (2015) find that directors who are well-connected are better monitors. Larcker, So, and Wang (2013) document that boards which are well-connected outperform less-connected boards. They argue that connected boards are better able to access valuable and relevant information through their social networks.

Our paper is also related to the labor economics literature on labor market referrals. Researchers have documented, using survey data, that half or more of jobs are found through personal or informal contacts of the prospective job candidates (see Topa, 2011 for a survey). Not only do job candidates use their personal contacts to help them in the job market, several studies have also shown that employers often use referrals as a recruiting method (see, e.g., Marsden 2001). Such informal search methods in the job market have been shown to reduce adverse selection issues and improve the quality of the worker-employer match (see e.g., Blau, 1990; Brown, Setren, and Topa, 2016; Burks et al., 2015). Most papers in the labor economics literature have shown that referral-based hiring methods are used more by workers with lower socio-economic status and lower education levels, and for blue-collar rather than white-collar occupations (Topa, 2011). However, we show that referral-based hiring also takes place in the upper echelons of the corporate world.

The remainder of the paper is organized as follows. In Section 2, we discuss the data and construction of our main dependent and independent variables. Section 3 shows the empirical results examining the impact of CEO connections and peer director connections on additional appointments of directors. Section 4 provides additional tests to mitigate concerns related to endogeneity, measurement error, and non-random matching. Section 5 analyzes the economic consequences of appointing referred directors and discusses the incentives of the affected players. Section 6 concludes.

2. Data

The data come from multiple sources. Management Diagnostic Limited's BoardEx database is our main source to obtain information on CEOs and directors and to identify their education, professional, and social networks. Financial and stock return information are obtained from S&P's Compustat and the Center for Research in Security Prices (CRSP), respectively. Institutional Shareholder Services (ISS) Voting Analytics provides information on director elections and their voting outcomes.

2.1 Sample selection

BoardEx provides detailed information on past and current employment and the educational background of executives. In addition, BoardEx collects information on executives' affiliations to not-for-profit

associations, club memberships, and other activities. BoardEx expanded its coverage significantly in 2003 so that any network measure would be incomplete prior to 2003. Our sample therefore starts in 2003 and ends in 2012. We match BoardEx company information with data on firms in the Compustat-CRSP merged database using both manual and computer matching. On average, we are able to match 74% of all Compustat-CRSP firms each year to BoardEx based on the algorithm (starting with 62% of Compustat-CRSP firms in the first year and 76% of firms in the last year of our sample period). The matched BoardEx-Compustat-CRSP universe of firm-years is the basis for the construction of our network connections.

We obtain the names of the CEO and directors of each firm at the end of each fiscal year from BoardEx. Unlike the ISS Directors database which provides the names of directors standing for election during the annual meeting, BoardEx provides the names of directors sitting on the board as of the fiscal year end. We use the Boardex director classification and director employment history to exclude current and former employees of the firm and focus on outside directors only.[6] Hereafter, for brevity, we will simply refer to these directors as independent directors.

Finally, we exclude financials and utilities from our sample of firms.[7] After requiring non-missing values for the key dependent and independent variables, our final sample consists of 138,910 firm-year-independent director observations, with 25,874 unique independent directors, 4,265 distinct companies, and 23,686 firm-year observations.

2.2. Construction of main explanatory network variables

We follow Engelberg, Gao, and Parsons (2013) and construct a measure of the CEO's connections to directors currently sitting on boards of firms in the matched BoardEx-Compustat-CRSP universe. We count, for each CEO and in each year, the number of directors who he is connected to via education,

[6] Unfortunately we were not able to exclude affiliated directors such as those with business ties to the company because BoardEx does not provide the information. We have checked that our results and conclusions are robust to restricting the sample of firms to those in the ISS Directors database where we can identify and exclude all affiliated directors.

[7] Note that when we count the connections of CEOs and directors we do not exclude connections to directors who are employed or sit on the boards of financials and utilities. Neither do we exclude observations where directors are appointed to financials and utilities.

professional, or social connections. Two individuals are connected via an education connection if they attended the same university with the same degree type and graduated within one year of each other. We classify degree types into six categories - undergraduate, masters, MBA, PhD, law, and others. Two individuals share a professional connection if they worked at or sat on the board of the same company at the same time in the past or during the current year. When constructing professional connections, we exclude connections formed in the focal company. Finally, two individuals share a social connection if they are active members of the same non-work-related organization, such as a golf club, fraternity, charitable organization, trust, or university board. Following Schmidt (2015), we exclude connections formed through professional or industrial organizations where social interaction is less likely due to the compulsory nature of the membership (e.g., American Bar Association).

When counting education and professional connections, we require that the connections start prior to the beginning of the fiscal year to ensure that we are using *pre-existing* CEO connections to explain additional directorships obtained by the directors within one year after the fiscal year begins. The starting dates of memberships in non-work related organizations are mostly missing in BoardEx. Therefore, we assume that two individuals share a social connection if they ever were affiliated with such an organization, regardless of dates.

Our main hypothesis is that a director can gain additional board seats because the CEO's network expands the director's own network. Hence, we need to ensure that we do not count connections that are common to the CEO and each focal director. We only take into account the CEO's connections to individuals who themselves are not connected to the focal director, i.e., we focus on non-overlapping connections. As our focus is on the directorial labor market, we only count CEO connections to directors, and not CEO connections to both directors and executives.

To summarize, our main independent variable *CEO Rolodex* is the number of directors who are connected to the CEO through either education, professional, or social connections excluding individuals that are connected to the focal director as well. Therefore, in our data, directors sitting on

the same board in the same year can have different values of *CEO Rolodex* depending on the degree of overlap between their network and the CEO's network.

We further refine, in some tests, our measure of professional connections. We distinguish between professional connections that were formed when both individuals were members of the senior management team or board (SMT connections) and connections in which the two individuals worked for the same firm but at lower hierarchical levels (non-SMT connections).[8] We expect the network connection to be tighter and the network recommendations to carry more weight if the connection was formed at the same high hierarchical level.

We also measure the impact of other peer independent directors' connections on the career outcomes of the focal director. For each focal independent director on the board, we measure the non-overlapping connections of the other peer independent directors who are on the same board. The methodology is identical to the one used to calculate CEO connections. We include professional, education, and social connections and exclude those connections to individuals who are connected to both the focal director and the peer director. For each focal director, *Med Peer Dir Rolodex* is the median number of connections across the peer independent directors while *Sum Peer Dir Rolodex* is the sum of all connections across all peer independent directors.

We take logs of all connectedness measures because the measures are highly skewed.

2.3 Construction of main dependent variable

The dependent variable measures the focal director's success in the directorial labor market. It is an indicator variable equal to one if the focal independent director receives an additional independent director appointment in another company within one year after the fiscal year begins, and zero otherwise. We obtain information on additional appointments from BoardEx and focus on appointments to another company within the matched BoardEx-Compustat-CRSP universe of firms.

[8] Senior management positions include CEO, CFO, COO, chairman, president, division CEO, division CFO, division chairman, division COO, division president, head of division, regional CEO, regional CFO, regional chairman, regional COO, and regional president (Custódio and Metzger, 2013).

2.4 Summary statistics

Panels A to C of Table 1 show summary statistics at the firm-year-director level and Panel D presents summary statistics of the firm and board characteristics at the firm-year level. Appendix A provides detailed descriptions for all variables. All continuous variables are winsorized each year at the 1% level in both tails.

Panel A starts with statistics on our main explanatory variable, *CEO Rolodex*. The average CEO has 80 education, professional, or social connections that do not overlap with those of the focal director, and the median CEO has 39. There is substantial variation in the number of CEO connections, with the 25th quartile being 9 connections and the 75th quartile being 110 connections. When we split the CEO connections into the subgroups of professional, education, and social connections, we find that the network of the CEO comprises on average 47 social connections, 9 education connections, and 27 professional connections. We further divide the professional connections into two groups – CEOs have 7 strong connections via SMT connections and 15 non-SMT connections. These summary statistics and rankings of types of connections are in line with those reported by Engelberg, Gao, and Parsons (2013).

In Panel B, we report the summary statistics for the connection measures of the peer independent directors. For each focal director, we calculate the median and sum of connections across the peer independent directors sitting on the same board. The average *Med Peer Dir Rolodex* is 78 while the median is 61. Again, there is substantial cross-sectional variation in the connection measures with the 25th percentile for *Med Peer Dir Rolodex* being 29 while the 75th percentile is 110. The second row of the panel shows how many connections the peer independent directors have as a group. On average, peer directors have 694 connections that do not overlap with the focal director, with an interquartile range from 236 to 935. Hence, by joining a board, a director can substantially increase his exposure to corporate America.

Panel C reports the directorial labor market outcome, network connection measures, and characteristics of the focal director. In our sample, 4.32% of the directors obtain an additional board seat at another firm within one year of the start of the fiscal year. The average focal director is connected to 105

directors who sit on the boards of other firms in our sample universe while the median number of connections is 64. The average focal director is 61 years old with tenure of about 6.59 years and sits on 1.67 boards in the BoardEx-Compustat-CRSP universe, including the focal firm. 10% of the directors are female, 47% have some form of foreign experience, 34% of them have finance experience, and 20% of the directors have an MBA. These statistics are similar to those reported in Cashman, Gillan, and Whitby (2013) or Becher, Walkling, and Wilson (2018) who also use BoardEx director data. Custodio, Ferreira, and Matos (2013) construct an index of general skills that are transferable across firms and industries. The index is standardized to have a mean of zero.

Panel D reports the summary statistics of firm and board characteristics at the firm-year level. The average firm has sales of $1.2 billion, 13% annualized stock returns, and 3% daily stock return volatility (which corresponds to 48% annualized volatility) over the prior fiscal year. The average board has 8 directors, and 81% of directors are considered independent.

3. Main empirical analysis

We now test our main empirical hypothesis, that access to the network of the CEO is beneficial for the future career of a director sitting on the board of the firm managed by the CEO. We first test whether a bigger CEO network increases the likelihood of the focal director obtaining additional directorships in general. Then we examine whether focal directors are more likely to obtain the additional appointments within the CEO's social network. Finally, we examine whether peer director connections have a similar impact as CEO connections.

3.1 Effect of CEO's network on obtaining an additional independent directorship

In Table 2, we examine whether CEO connections affect the likelihood that an independent director obtains an additional independent directorship in the coming year. The regressions are estimated at the firm-year-director level. The main independent variable is *CEO Rolodex*. In addition to firm characteristics, we also control for the focal director's connections, characteristics, and experiences which may affect his likelihood of obtaining an additional board seat. We estimate logit models with Fama-French 48 industry fixed effects and year fixed effects in Columns 1 to 3. In Column 4, we

estimate a linear probability model (LPM) with firm-year fixed effects. Standard errors are clustered at the CEO level. The numbers in brackets are marginal effects expressed in percentage points.

Other than the fixed effects, Column 1 includes only the *CEO Rolodex* variable. We find that a director is indeed more likely to obtain an additional independent directorship in other firms in the BoardEx-Compustat-CRSP universe when the CEO of his current firm's board has a larger network. A one standard deviation increase in the size of the CEO's network relative to the mean increases the likelihood of the focal director obtaining a new independent directorship by 0.87 percentage points. This effect is sizeable because only 4.32% of independent directors obtain a new independent directorship in our sample. We additionally control for firm characteristics in Column 2 and firm and director characteristics in Column 3. Although the economic significance is much reduced, we continue to observe that *CEO Rolodex* is positive and significant at the 1% level. In Column 3, a one standard deviation increase in the CEO's network size relative to the mean increases the likelihood of the focal director having a new appointment by 0.21 percentage points. Throughout the paper, we will use the model in Column 3 which includes both firm and director characteristics as our baseline specification.

While the industry fixed and year fixed effects that we use in Columns 1 through 3 account for the time-invariant director demand in certain industries and the potential demand differences across time, they do not control for time-varying unobservable firm, CEO, or board characteristics. In Column 4, we control for firm-year fixed effects which take into account any unobservable time-varying firm and board characteristics, such as firm performance or board prestige. Therefore, we do not include firm characteristics. Since firm-year fixed effects correspond to CEO-year fixed effects, any time-varying CEO characteristics should also be subsumed by the fixed effects. Identification in these regressions comes from variation in the number of non-overlapping connections of the CEO for each focal director sitting on the same board. That number can differ by focal director because for each focal director, we remove connections that are common to the CEO and each focal director. Essentially we are comparing a director whose connections have more overlap with the CEO's connections (smaller *CEO Rolodex*) against another director on the same board in the same year who has less network overlap with the CEO

(higher *CEO Rolodex*).[9] Column 4 shows that an independent director has a higher chance of obtaining an additional board seat when the additional connections provided by the CEO's network are higher. The economic impact is comparable to those in the logit models. The coefficient of 0.007 implies that a one standard deviation increase in CEO connections relative to the mean increases the likelihood of an additional appointment by 0.89 percentage points. The result suggests that even within the same board, a director with more non-overlapping CEO connections is more likely to benefit from the CEO's connections compared to a director on the same board with less non-overlapping CEO connections.

Prior research suggests that the prestige and performance of the firm in which the independent director currently serves plays a role for new directorships (e.g., Yermack, 2004; Do, Nguyen, and Rau, 2015). In Columns 2 and 3, we confirm the results of the prior studies for our sample. We find that directors sitting on boards of bigger firms or firms which have well-performing stock are more likely to obtain additional directorships.

Director characteristics are also strongly significant in determining the likelihood of obtaining new directorships. The director's own connections play a very important role in the appointment decision; the more connected the director, the more likely it is for him to obtain a new directorship (Cai, Nguyen, and Walkling, 2018). The effect is also economically large. In Column 3, a one standard deviation increase in own connections relative to the mean increases the probability of obtaining a new directorship by more than 1 percentage point. Younger directors and directors with shorter tenure are more likely to obtain additional board seats, indicating that director candidates who could serve for some time on the board are more in demand. Recent studies demonstrate an increased demand for female directors (e.g., Becher, Walkling, and Wilson, 2018), and we find that being a female director indeed increases the likelihood of obtaining an additional board seat. The general skills of the director play an important role and go in the expected direction. The coefficient of the general ability index is significantly positive and economically significant. Finally, foreign experience, defined as in Oxelheim

[9] Note that the variation is not necessarily driven by the size of the focal director's connections. A focal director with a big network may have little overlap with the CEO's connections while another director with a small network may have a lot of overlapping connections with the CEO.

et al. (2013), is valuable for the appointment decision. Director's finance experience and his MBA degree do not affect the likelihood of obtaining additional board seats. Overall, the coefficients of the control variables seem economically sensible and are in line with the prior literature (e.g., Cashman, Gillan, and Whitby, 2013).

The overall conclusion from Table 2 is that both focal firm characteristic and director characteristics play the expected large role for new director appointments. But importantly, once we control for a comprehensive list of director characteristics, the performance of the firm where the director already is on the board, and the director's own network, we find that the network of the CEO of the firm in which the director already serves on the board has an economically surprisingly significant impact on director's additional appointments to other boards.

Which types of CEO connections are important for the director's new appointment to other firms? In Table 3, we split the non-overlapping connections of the CEO into its three subgroups – professional, education, and club connections. All regressions in Table 3 contain the director and firm characteristics of Table 2 Column 3, but we do not show their coefficients and standard errors for brevity. In Table 3, we report marginal effects when connections increase by one standard deviation relative to the mean, expressed in percentage points, instead of the logit model coefficients.

We learn from Column 1 that the CEO's professional connections significantly impact the likelihood of the director obtaining an additional board seat. A one standard deviation increase in professional connections relative to the mean increases the chance to be appointed to an additional board by 0.28 percentage points. In Column 2, we further separate CEO's professional connections into senior management team connections (*Prof CEO Rolodex SMT)* and non-senior management team connections (*Prof CEO Rolodex Non-SMT*). *Prof CEO Rolodex SMT* count only connections formed when the CEO and his connections worked in senior management or director positions. We consider these connections to be tighter and referrals through such connections to likely carry more weight as compared to connections formed when the CEO and his connections worked at lower hierarchical levels. As expected, we see that the connections that were formed when the CEO and connected

directors worked closely together in senior positions have a greater impact on additional appointments, with the coefficient of *Prof CEO Rolodex SMT* being positive and strongly significant, and the coefficient on *Prof CEO Rolodex Non-SMT* being indistinguishable from zero. The two coefficients are also significantly different from each other, at the 5% level. These results highlight the importance of strong network ties for CEO recommendations to have any impact. They are also reassuring because if our network ties are measured with error, we would not be able to find such sharp differences.

Column 3 shows that the education ties of the CEO do not play a role for additional appointments, but Column 4 indicates that social connections are important. A test of equality of the coefficients on Log (*Prof CEO Rolodex*+1) and Log (*Club CEO Rolodex*+1) is rejected with a *p*-value 0.02. Hence, our conclusion from a comparison of the three types of connections is that professional connections are the most important connections for referrals in the director labor market.

As we do not have data on the starting and ending dates of most of the club connections, we assume that two individuals share a club connection if they ever were affiliated with the same non-business organization, regardless of dates. Our assumption creates measurement error. Therefore, in Column 5, we examine the impact of CEO's connections excluding the club connections, i.e., *Ex-Club CEO Rolodex*. The result that CEO connections are important for additional director appointments of the focal director continues to hold.

In Table 3, we not only include the connections of the CEO, but also the director's own connections (which we define accordingly). It can be clearly seen from Table 3 that the connections of the director himself play a large role. Column 1 shows that the professional connections of the director are economically very important. A one standard deviation change in the director's professional connections relative to the mean increases the likelihood of an additional board seat by 0.96 percentage points. Relative to the unconditional probability of new appointments of 4.32%, this represents close to 22% change in the probability of new appointments. In Column 2, the test of equality of coefficients on *Log (Prof Dir Rolodex SMT+1)* and *Log (Prof Dir Rolodex Non-SMT+1)* is rejected under the 1% level, which means that stronger ties matter more in the director labor market. Education and social ties of the

director are equally important, but have a significantly smaller economic magnitude than professional connections.[10]

It is interesting to compare the results on the focal director's connections in Table 3 to those of Cohen, Frazzini, and Malloy (2008). Cohen, Frazzini, and Malloy (2008) examine connections between mutual fund managers and corporate board members via shared education networks. They show that portfolio managers place larger bets on connected firms and perform significantly better on these holdings relative to other firms. One interpretation of their results is that social networks created by education connections are important for information flow between firms and investors. We find that once it comes not only to an exchange of information but to long-term appointments to board positions, education ties are much less important than professional connections. Professional connections arise when executives interact with each other in a company on a professional basis and can allow them to assess whether the potential candidate is qualified to become a board member. Our result is consistent with the results in Brown, Setren, and Topa (2016) who argue that referrals tend to be used by firms when they can provide a better signal about the referred worker's productivity.

3.2 Direct channel from CEO connections to additional director appointments

So far we have shown that directors that serve on the boards of firms with well-connected CEOs are more likely to obtain additional directorships in other firms. Our argument is that the CEO links the director to the new appointing firm. We now examine whether we can establish a tighter link between the CEO's network and director appointments. To do so, we examine whether the focal director obtains additional directorships in the companies that are part of the network of the CEO. Such direct links may also help alleviate endogeneity concerns not addressed by the firm-year fixed effects. For example, suppose that well-connected CEOs are higher ability CEOs and are more likely to attract higher ability directors to their firms. If that was the case, it is not the network of the CEO that is responsible for the additional directorships of the focal director, but rather the unobserved ability of the director. Suppose

[10] Tests of difference in coefficients show that the coefficient of the focal director's professional connections is significantly different from the coefficients of the other two types of connections, while the coefficient on educational connections is not significantly different from that on club connections.

we can show that directors serving in firms with well-connected CEOs are more likely to get new directorships only in firms that are directly connected to the CEO. Then the unobserved director ability channel becomes a less plausible explanation for the results in Table 2 as director quality should affect appointments to connected and unconnected firms equally.

In Table 4, Panel A, we estimate regressions predicting the likelihood of independent directors obtaining additional board seats in firms which are connected to the focal firm CEOs. A connection exists between the focal firm CEO and the appointing firm if the CEO is connected to at least one of the directors of the appointing firm via education, professional, or social links. Column 1 contains the result from a logit regression where we restrict our sample to the 6,445 director-firm-years with new appointments, excluding all director-firm-years without appointments. We use the same set of control variables as in Table 2, Column 3. The dependent variable is equal to one for an additional director appointment in a firm to which the focal firm CEO is directly connected and zero otherwise.[11] There are 1,471 observations (22.8%) where the directors obtain additional directorships in firms connected to the focal firm CEO. Column 1 clearly indicates that CEO connections increase the likelihood of the director being appointed to a connected firm. Relative to appointments in unconnected firms, the likelihood of being appointed to a firm connected to the focal firm CEO increases by 6.97 percentage points when *CEO Rolodex* increases by one standard deviation relative to the mean. If the CEO connections were correlated with unobservable characteristics such as focal director or focal firm quality, we would not expect the coefficient of CEO network in Column 1 to be significantly different from zero as such characteristics should impact both types of appointments equally.

Columns 2 and 3 show the estimation from a Heckman probit two-step procedure which accounts for the selection issue that only certain types of directors or focal firms are associated with additional board appointments. Column 2 shows the results of the first stage, where the dependent variable is an indicator variable equal to one if the director obtains an additional board seat in another firm, and zero otherwise. We use the number of local firms (*# Local firms*) as a first-stage variable that is exogeneous to the

[11] In some rare cases, a director is appointed to multiple boards in a single year. These are counted as multiple observations in our sample.

outcome regression to help identification. Fahlenbrach, Low, and Stulz (2010) and Knyazeva, Knyazeva, and Masulis (2013) show that the cost of hiring local directors is relatively lower, which suggests that when there are a larger number of firms located near the focal firm, the directors in the focal firm are more likely to obtain additional board seats in these nearby firms. *# Local firms* is defined as the number of firms in the BoardEx-Compustat-CRSP universe which are located within a 60-mile radius of the focal firm. The number of local firms strongly and positively predicts the likelihood of a director obtaining an additional appointment as conjectured.

In Column 3, we show the results of the second stage regression where the dependent variable is equal to one if the director is appointed to a firm connected to the focal firm CEO and zero if the director is appointed to an unconnected firm. We find that the likelihood of being appointed to a firm connected to the focal firm CEO increases with the size of the CEO's rolodex. Note that *rho* from the Heckman probit is insignificant which suggests that the error terms in the two equations are not correlated (i.e., the fact that only certain directors obtain additional mandates does not influence appointments to firms connected to the CEO).

Regarding the other explanatory variables, we find in Column 3 that directors with a large personal network are not more likely to obtain additional board seats at firms connected to the CEO, which is what we expected. Personal connections of the director should affect the probability of obtaining an additional board seat, and they strongly do in Column 2. However, it is not clear why they should influence the probability of being appointed to the board of a firm connected to the CEO. Firm performance does not play a role for connected vs. unconnected appointments. Most of the other director characteristics are also insignificant in predicting connected vs. unconnected appointments, with the exception of two. Compared to the directors appointed to the unconnected firm, directors appointed to connected firms are less likely to have foreign and finance experience, and come from the larger firms.

We have shown that the likelihood of the director being appointed to a firm from the CEO's network increases with the size of the CEO's rolodex. However, this relation could be purely mechanical. The likelihood of a CEO being connected to any randomly selected firm in the database naturally increases

with the size of his social network. In that case, our observed relation has nothing to do with the CEO actively referring directors to his connections. To rule out such a possibility, we need to know the hypothetical likelihood that a CEO with a certain rolodex size is connected to the appointing firm and then compare it to the actual empirically observed likelihood. If the relation is purely mechanical, the hypothetical likelihood and empirically observed likelihood should be identical.

To formally rule out that our results are driven by a purely mechanical relationship, we conduct the following test. We restrict the sample to director-firm-year observations with at least one new appointment. For each focal firm CEO with a new appointment, we identify a set of hypothetical CEOs from the BoardEx-Compustat-CRSP universe who are in the same rolodex decile. We further require the hypothetical CEO to be from the same Fama-French 10 industry in the same year to take into account any industry connections between the focal firm and appointing firm. To ensure that we have a sufficient number of hypothetical CEOs, we drop the bottom quartile of observations with too few hypothetical CEOs. Out of the original 6,445 firm-year-director with a new appointment, we retain 4,886 observations. On average, we have 43 hypothetical candidates for the each focal CEO; the standard deviation, minimum, and maximum are 16, 28, and 92, respectively.

Next, for each focal firm CEO, we calculate the proportion of the hypothetical CEOs that are connected to the actual appointing firm. The results are presented in Panel B of Table 4. There are 1,128 director appointments where the focal firm CEO is connected to the appointing firm, i.e. the actual empirically observed likelihood is 1,128 /4,886 or 23.1%. The average proportion of hypothetical CEOs that are connected to the appointing firm is only 8.8%. We conduct a binomial probability test and reject the null hypothesis that the mechanical likelihood is equal to the actual likelihood at the 1% level. Therefore, the actual likelihood of a connection between the focal firm CEO and the appointing firm is much higher than what we would expect if the appointments were made randomly.

Overall, the results from Table 4 confirm our hypothesis that directors sitting on the board of a firm benefit from gaining access to the network of the CEO of the firm. The directors are more likely to

obtain additional directorships in other firms within the CEO's social network, exactly where the CEO's connections should matter the most.

3.3. Additional evidence from peer independent director connections

In a typical board of a large publicly listed US firm, the CEO is one of eight board members. Hence, by joining a board, a new director not only gains access to the network of the CEO, but also to the network of six other board members. Are the connections of the peer independent directors also important for the future career of the focal director? We investigate this question next.

For each focal director, we calculate for all peer independent directors the professional, education, and social connections that they have and that are non-overlapping with the network of the focal director. In Column 1 of Table 5, our main independent variable is the median peer director's non-overlapping connections, *Med Peer Dir Rolodex*. In Columns 2 and 3, we use the total number of non-overlapping connections of all peer independent directors, *Sum Peer Dir Rolodex*. Using the median director's connections has the advantage that it does not mechanically depend on the size of the board; the sum of the non-overlapping connections has the advantage that it measures the exposure to the extended network of all directors. Therefore, when using *Sum Peer Dir Rolodex*, we also control for the board size and the percentage of independent directors on the board.

In Column 1, we find that the connections of the median peer director significantly increase the likelihood of the focal director obtaining additional board seats in other firms after controlling for the focal firm's CEO connections, Log (*CEO Rolodex*+1). A one standard deviation increase in the median peer director's network relative to the mean increases the likelihood of obtaining an additional board seat by 0.17 percentage points. Relative to the unconditional likelihood of an additional board seat of 4.32%, it represents an increase of 3.94%. We see that the CEO connections and the director's own connections continue to matter for future board appointments, with economic and statistical magnitudes that are similar to those reported in Table 2. We find similar results when we use the sum of non-overlapping connections of all peer directors. The economic magnitudes are economically similar to those in Column 1 – a one standard deviation increase in the sum of all peer independent directors'

connections relative to the mean increases the likelihood of an additional appointment by 0.26 percentage points in Column 2. In Column 3, we control for board size and percentage of independent directors on the board. We find that the peer director's total connections continue to be significant at the 1% level.

In Column 4, we estimate a linear probability model with firm-year fixed effects. While the results on CEO connections continue to hold even after controlling for peer directors' connections, the coefficients of Log (*Med Peer Dir Rolodex*+1) is insignificant in the presence of firm-year fixed effects. We obtain similar results when we use the sum of connections instead.

We also examine whether we can establish a tighter link between the peer directors' network and additional director appointments by estimating logit regressions predicting the likelihood of independent directors obtaining additional board seats at firms connected to the peer directors. The setup of the empirical analyses is identical to that reported in Table 4. For brevity, we do not tabulate the results but only briefly discuss the main findings. Similar to the CEO connection results in Table 4, we find that the peer directors' network matters most for the focal director's appointments to boards of firms connected to the peer directors. A one standard deviation increase in the median peer director's network relative to the mean increases the likelihood of the focal director being appointed to a firm connected to the peer director by 11.41 percentage points, relative to the directors who are appointed to unrelated firms. Furthermore, we confirm that our results are not merely a mechanical effect. We find that the actual empirical likelihood of being appointed to a connected firm is over 50% while the mechanical (expected) likelihood is only 36%, with the mechanical likelihood significantly different from the actual likelihood at the 1% significance level.

4. Additional tests

In Table 6, we report results from additional tests designed to demonstrate the robustness of our main results in Table 2 and to alleviate additional endogeneity concerns.

4.1. Focal director ability

We have so far controlled for a variety of focal director characteristics that could affect his likelihood of obtaining additional directorships. However, we have not considered that a director may have an industry-specific ability. Industry-specific ability is a potential identification threat if it is correlated with the network of the CEO of the focal firm. Suppose a focal director sits on the board of Firm A operating in Industry X and has abilities that make him particularly attractive as a director for Industry X. In addition, individuals from firms in Industry X could be overrepresented in the network of Firm A's CEO. Hence, it is possible that the industry-specific ability of the director is correlated with both the network of the CEO and with new appointments at other firms in Industry X.

To examine whether our results are only driven by the industry-specific ability of the focal director, we re-estimate our baseline regression of Table 2, Column 3 after deleting 1,135 observations where the focal director obtains a board seat in another firm which shares the same Fama-French 48 industry code as the focal firm. Column 1 shows the result. CEO connections continue to positively impact the likelihood of the focal director obtaining an additional directorship so that industry-specific director ability alone cannot explain our main result.

4.2. Moving to different boards or true additional directorships?

A director who is appointed to a new board can step down from or retain existing director positions. So far, we have not distinguished between these two cases. Appointments to additional boards without leaving the current board appear more consistent with our hypotheses than stepping down from boards, for two reasons. First, additional boards would increase both director income and exposure to corporate America more than exchanging one board seat for another. Second, a CEO should be more likely to refer one of his own directors if he does not have to fear losing the director for his own board. In Column 2, we therefore exclude focal directors who depart from any of their existing boards within one year after the fiscal year begins. The regression is based on 125,416 director-firm-year observations. We find that the coefficients for Log (*CEO Rolodex* +1) have similar magnitudes with similar statistical significance as before. Therefore, CEO connections lead to board appointments which increase the number of directorships of the focal directors. The results also suggest that CEOs do not act against

their own interests when they refer one of their board members as the focal directors do not drop their current directorship.

4.3. Non-random matching of focal directors and focal CEOs

Westphal and Zajac (1995) and Fracassi and Tate (2012) show that powerful CEOs tend to appoint socially similar directors or directors from the same social circles. Their finding may cause a problem for our study if we measure the true network of the CEO and the focal director with error. For example, suppose that CEO A of Firm A, CEO B of Firm B, and focal director C all know each other. Focal director C becomes a director in Firm A and subsequently obtains a directorship in Firm B. Suppose further that while we can observe the connection between CEO A and CEO B, we miss the connection between focal director C and CEO B in our data. We would have wrongly attributed director C's additional directorship in Firm B to CEO A's network, when in fact director C obtains the additional directorship using his own network. To reduce concerns about measurement error, we carry out the following test. We separate the sample of directors into two groups, co-opted independent directors and non-co-opted independent directors. Co-opted directors are those directors appointed after the CEO assumed his position as CEO. Co-opted directors are likely to be appointed at least with the consent of the incumbent CEO. If measurement error and non-random matching of directors and CEOs cause our results, we should observe the results on CEO connections mainly within the sample of co-opted directors.

The coefficients on Log (*CEO Rolodex*+1) in Columns 3 and 4 of Table 6 are significant for both subsamples of directors and a test of equality of the coefficients is not rejected (the *p*-value is 0.61). Co-opted and non-co-opted independent directors are equally likely to benefit from the additional network of the focal CEO. Non-random matching of the CEO and focal director is unlikely to explain our main result.

4.4. Alternative regression specifications

In Column 5 of Table 6, we show results from a Cox proportional hazard model instead of the logit regressions we used before. The dependent variable is the time until a director receives an additional

appointment (the event) or when he leaves the sample (the censoring event). Column 5 reports hazard ratios, i.e., exponentiated coefficients. We find that directors of firms with better connected CEOs find new directorships faster, which is the hazard regression equivalent of our finding of a higher likelihood of obtaining an additional board position in the logit regression. Hence, our main result is also robust to different estimation methodologies.

5. Discussion and analysis

We have shown so far that directors significantly benefit from the expanded network that they can access when joining a board. CEOs tend to refer their own directors to additional boards within their own social network. We now analyze the economic incentives of the affected parties and the shareholder reactions to these director nominations. We first examine in Sections 5.1 and 5.2 which directors benefit from network recommendations and which types of firms they join. In Section 5.3, we analyze the announcement returns to referred director appointments to understand how shareholders of the appointing firm assess the quality of these directors. Finally we assess in Section 5.4 how shareholders of both the focal and appointing firm view referred appointments in the longer term by using voting data of individual director elections from annual general meetings. Through these analyses, we seek to understand why CEOs refer their own directors and the economic impact of such referrals in the directorial labor market. On the one hand, such referrals may reduce the information asymmetry between the potential director candidate and the appointing firm, leading to a more efficient director-firm match. On the other hand, CEOs may use their vast networks to hold their own directors captive through referrals to appointing firms (El-Khatib, Fogel, and Jandik, 2015; Cai, Nguyen, and Walkling, 2018).

5.1. Which directors benefit from the network of the CEO?

In Table 7, we split our sample of 6,445 director-firm-years with new appointments by focal director characteristics to understand the types of directors more likely to benefit from focal firm CEO connections in the directorial labor market. We estimate the logit model of Table 4, Panel A for each subsample. In all regressions, the dependent variable is an indicator variable equal to one if the focal director joins a firm which is connected to the CEO, and zero otherwise. In Columns 1 and 2, we split

the sample by median focal director rolodex (median is 117) and in Columns 3 and 4, we split the sample by median focal director age (median is 59). In Columns 5 and 6, we split by director gender and in Columns 7 and 8, we report results for directors with a general ability index lower and higher than the median (0.607). In Columns 9 and 10, we split by the median number of board seats that the focal director holds (median is two), and finally in Columns 11 and 12, we report results for directors segmented by their foreign experience.

The coefficients on Log (*CEO Rolodex* +1) are significant in most of the subsamples. We find some evidence that the network of the CEO is more important for female directors compared to male directors, directors who hold a smaller number of board seats, and directors who do not have foreign experience. It is interesting that female directors are more likely to depend on CEO referrals for additional board seats compared to male directors, suggesting that the old boys' network in the directorial labor market does not work against female directors. In Table 2 we show that directors sitting on more boards and those with foreign experience are more likely to be appointed as directors elsewhere. Presumably, these are director traits favored by the directorial labor market. Here we find that directors with less board seats and directors without foreign experience are more likely to rely on CEO referrals for additional appointments, suggesting that directors without a strong labor market on their own particularly benefit from the CEO's network connections. Network connections may help to convey information about the prospective director candidate to the appointing firm, thereby reducing uncertainty about the quality of the director and allowing for better matches in the director appointment process. However, it is also possible that these directors are simply worse directors who can only obtain additional directorships through personal connections. We examine the issue of director quality in the next sections where we analyze announcement returns to director appointments and subsequent shareholder voting results.

5.2. Which types of firms appoint directors through CEO network connections?

Do referrals also convey information about the appointing firm to the prospective director candidate? We examine the types of firms that rely on network referrals to obtain their new directors. We split the sample by appointing firm characteristics and estimate the logit regression of Table 4, Panel A for each of the subsamples. Table 8 shows the results. In Columns 1 and 2, we split the sample by median sales

of the appointing firm ($ 545 million) and in Column 3 and 4, we split the sample by the median age of the appointing firms (17). We split the firms based on the median ROA in Columns 5 and 6 (0.11). In Columns 7 and 8, we split the sample by the median number of analysts who follow the appointing firms (10).

Results show that CEO connections are important in obtaining a board position in all types of appointing firms. However, the connection is especially helpful in obtaining employment in bigger firms with more analyst following. If network recommendations help reduce the information opaqueness of the appointing firms for potential director candidates, we should see that the connections would be most useful in smaller firms, younger firms, firms with worse operating performance and firms with less analyst coverage. However, we instead observe that connections are more useful for appointments to bigger firms and more transparent firms. The cross-sectional results suggest that focal firm CEOs help focal directors obtain better and more prestigious board positions elsewhere.

Overall, the results in Tables 7 and 8 show that network referrals help focal directors, especially those without a strong labor market, obtain board seats at bigger firms - positions that may otherwise be unavailable to them.

5.3. Market reaction to the appointment of focal directors

We now examine the market reaction to new director appointments at the appointing firm. If network recommendations of director appointments decrease the information asymmetry between the appointing firm and the prospective director candidate, the match between the appointing firm and the recommended director should be at least as good as the match between appointing firm and a director sourced by the appointing firm itself. On the other hand, if network recommendations lead to worse directors being appointed to boards, then we should expect a more negative appointment announcement return for such appointments.

Following Fahlenbrach, Low, and Stulz (2017), we obtain director appointment announcement dates from the Audit Analytics Director and Officer Changes database which tracks 8-K filings of director

appointments or departures after 2004.[12] We begin with 4,678 distinct new appointment observations that we observe in our sample of directors who obtain directorship after 2004. We are able to match 3,564 observations (76%) to appointment filings in Audit Analytics. We further exclude director appointments with confounding events in the 10 days surrounding the events. We exclude director appointments surrounding acquisition announcements either as target or acquirer (3,402 observations remaining), quarterly earnings announcements (2,648), dividend announcements (2,371), other director or executive changes from Audit Analytics Director and Officer Changes database (1,037), or management guidance announcements (1,010). Finally, we delete observations with missing return data, leaving us with 947 distinct new appointment observations.

We use the date on which the 8-K filing is accepted by the SEC as the announcement date (day 0). We report the cumulative abnormal returns calculated from a market model over the event window (-5, +1), where the parameters of the market model are calculated using data from days -280 to -61. Table 9 shows the stock market reaction of the appointing firm at the announcement of the director appointment. We divide the sample of appointments into those where the appointment takes place at a firm connected to the focal firm CEO and other appointments. The average and median announcement returns for recommended and non-recommended director appointments are not significantly different from zero and neither are they significantly different from each other. Therefore, there is little evidence to suggest that the stock market views referred director appointments less favorably than non-referred appointments.

5.4. Shareholder voting in director elections at subsequent annual general meetings

The availability of individual voting data on director elections from the ISS Voting Analytics database enables us to also examine shareholder support for referred directors after their initial appointments. This analysis supplements the announcement return analysis and gives shareholders more time to

[12] The SEC requires firms to report director departures or appointments within 4 business days through 8-K section 5.02 with effect from August 23, 2004. We have to exclude 124 (2.57%) new appointments prior to the effective date from our tests because we do not have the precise director appointment date.

discover the qualities or deficiencies of the newly-elected directors. The ISS data are available for 1,596 of our 6,445 director appointments.

Following Cai, Garner, and Walkling (2009), we calculate the *Excess Ratio For,* defined as the difference between the proportion of 'For' votes for the newly-appointed director and the average proportion for the rest of the directors on the same board. The proportion of 'For' votes is the number of 'For' votes divided by the sum of 'For' and 'Withhold' (or 'Against') votes. Therefore, *Excess Ratio For* takes into account the performance of the board as a group and allows us to examine how shareholders view the newly-appointed director's relative performance.

In Table 10, we show the voting results of the newly-appointed director at the first annual general meeting after his appointment. We separate the sample of new appointments based on whether the director was referred by the focal firm CEO. We find that both referred and non-referred directors receive more favorable votes compared to the rest of the board as the mean and median *Excess Ratio For* are both positive and significant.[13] However, we do not observe any significant difference in voting results between these two groups of newly-appointed directors. Appointing firm shareholders do not view referred appointments as worse than non-referred appointments.

We now turn to the focal firm and examine whether shareholders of the original firm are concerned that the monitoring capability of the referred director is compromised. The specific concern is that the director will be a less effective monitor of the CEO once the director has obtained an additional board seat with the help of the CEO. Because we observe the voting results for directors before and after their additional appointments, we can carry out a difference-in-difference analysis that isolates changes in shareholder support for the referred directors relative to all other directors that obtain an additional directorship on their own. Table 11 shows the results. In the pre-appointment period, we find that shareholders view the focal director at least as favorably as the rest of the board for both referred and non-referred directors. There is also no difference in how shareholders view the two groups of directors

[13] Cai, Garner, and Walkling (2009) also find that newly-appointed directors tend to receive more favorable votes compared to the incumbents.

in the pre-appointment period. In the post-appointment period, the shareholder support for directors appointed to a firm connected to the focal firm CEO remains similar to the pre-appointment period. The change in shareholder support pre- and post-appointment is also not significantly different from zero for this group of directors. For the other group of directors appointed to unconnected firms, we find that shareholder support diminishes slightly after their additional appointment. Finally, the difference-in-differences results show that the change in shareholder support pre- and post-appointment is not significantly different between directors who are appointed to connected firms and directors who are appointed to unconnected firms. Overall, the voting result at the focal firm (original firm) suggests that shareholders are not concerned that a CEO recommendation to an additional board position compromises the integrity of the recommended director.

To summarize our discussion and analysis of Section 5, we find that focal directors with less marketability tend to rely on the focal CEO's referral to get additional positions in the directorial labor market. The referred appointments tend to take place in bigger and more transparent firms. Stock market reactions to the appointments of referred directors are similar to that of non-referred directors. Shareholder votes at appointing firms for newly-appointed directors who are recommended and the other newly-appointed directors are equally favorable. Finally, shareholders at the original firm do not penalize the directors after they have obtained an additional directorship through the recommendation of the CEO. Overall, the set of results suggests that referrals reduce information asymmetries about the potential director candidate's abilities and help directors advance their careers by obtaining additional directorships at big and prestigious firms. The incentives of the involved CEOs seem to be more to build a reputation for developing talent than personal entrenchment as there is little evidence that shareholders view such referrals as bad for the original firm.[14]

[14] We implement tests based on peer director connections which mirror the tests reported in Section 5. We reach similar conclusions as we find that the role of the peer director connection is similar to that of CEO connections. Directors tend to rely on peer director connections to get appointed to bigger firms. Stock market reaction and shareholder voting results that are based on peer director connections are similar to those based on CEO connections.

6. Conclusion

When a director joins a new board, he gets access to the professional and social network of the CEO of the firm and of the peer directors already sitting on the board. We test the null hypothesis that these second degree network connections are irrelevant for additional appointments and reject it in favor of the alternative hypothesis that network connections matter in economically significant ways in the director labor market. Directors who sit on the boards of firms with well-connected CEOs are more likely to obtain additional board seats, especially at firms directly connected to the CEO. Similarly, the connections of peer directors positively impact the likelihood of the director getting an additional appointment. Additional analyses suggest that network recommendations for new board positions are especially useful for directors with a weaker director labor market. These network recommendations are also helpful for directors to "move up in the directorial labor market" as network appointments are often at bigger and more prestigious firms. Shareholders do not consider such referrals as compromising the integrity of the focal director at the original firm. We also do not find evidence that the shareholders at the receiving firm are concerned about the referred directors. The stock market reaction to a referred director appointment is no different from the reaction to other types of appointments. Voting results also show that newly-appointed directors who were recommended enjoy as much support from shareholders as compared to other new appointees. Our results highlight the importance of social networks in reducing information asymmetries in the director labor market and suggest that being able to access new and valuable networks provide important incentives for directors to join corporate boards.

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Appendix A: Variable definitions

Variable	Definition	Source
	Key Dependent Variables	
Additional Board Seat	Indicator variable equal to one if the focal independent director obtains an additional independent directorship in another company within the BoardEx-Compustat-CRSP universe within one year after the fiscal year begins, and zero otherwise.	BoardEx
Announcement Return	The cumulative abnormal return to the appointing firm over the event window (-5, +1), where day 0 is the day the 8-K filing of the director appointment is accepted by SEC. The abnormal returns is calculated based on the market model where the parameters are from regressing the daily stock returns on the CRSP value-weighted market portfolio over days -280 to -61.	CRSP
Excess Ratio For	The proportion of 'For' votes less than the average proportion of 'For' votes of all directors on the same board, where the proportion of 'For' votes is number of 'For' votes divided by the sum of 'For' and 'Withhold' (or 'Against') votes.	ISS Voting Analytics
	Connection Variables	
	(All connections are required to start one year prior to the start of the fiscal year)	
CEO Rolodex	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the CEO but who are not connected to the focal director. A connection exists if two individuals 1) attended the same university and graduated with the same degree within one year of each other (education connection), 2) previously worked or are working for the same company excluding the focal company (professional connection), or 3) are active members of the same nonprofessional organizations (club connection).	BoardEx
Dir Rolodex	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the focal director via education, professional, or club connections.	BoardEx
Prof (Edu) [Club] CEO Rolodex	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the CEO via professional (education) [club] connections only but who are not connected to the focal director via professional (education) [club] connections.	BoardEx
Prof CEO Rolodex SMT	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the CEO via senior management or director professional connections only excluding those who are connected to the focal director via senior management or director professional connections. A senior management or director professional connection exists if the two individuals previously worked or are working for the same company excluding the focal company either as senior management or directors.	BoardEx
Prof CEO Rolodex Non-SMT	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the CEO via non-senior management and non-director professional connections excluding those who are connected to the focal director via non-senior management and non-director professional connections. A non-senior management and non-director professional connection exists if the two individuals previously	BoardEx

	worked or are working for the same company excluding the focal company in non-senior management and non-director positions.	
Ex-Club CEO Rolodex	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the CEO via education or professional connections but who are not connected to the focal director via education or professional connections.	BoardEx
Prof (Edu) [Club] Dir Rolodex	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the focal director via professional (education) [club] connections only.	BoardEx
Prof Dir Rolodex (Non-) SMT	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the focal director via senior management or director professional connections only. A senior management or director professional connection exists if the two individuals previously worked or are working for the same company excluding the focal company either (neither) as senior management or (nor) directors.	BoardEx
Ex-Club Dir Rolodex	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to the focal director via professional or education connections.	BoardEx
Peer Dir Rolodex	The number of directors in the BoardEx-Compustat-CRSP universe who are connected to a peer independent director via education, professional, or club connections but who are not connected to the focal director. A peer independent director is one who sits on the same board as the focal director.	BoardEx
Med (Sum) Peer Dir Rolodex	The median (sum) of *Peer Dir Rolodex* across all the peer independent directors who sit on the same board as the focal director.	BoardEx
	Director Characteristics Variables	
Dir Board Seats	Total number of board seats in the BoardEx-Compustat-CRSP universe of firms held by the director. Board seats are measured one year prior to the start of the fiscal year and are required to be held as of the start of the fiscal year.	BoardEx
Dir Age	Year of fiscal year starting date minus independent director's birth year. Measured as of start of fiscal year.	BoardEx
Dir Female	Indicator variable equal to one if the independent director is female, and zero otherwise.	BoardEx
Dir Tenure	Number of years since the director was initially appointed in focal firm. Measured as of start of fiscal year.	BoardEx
Dir General Ability Index	Standardized principal component analysis of five proxies of general ability of the director, calculated as in Custódio, Ferreira, and Matos (2013). The proxies include number of positions held, number of firms worked for, number of different industries worked in, CEO experience indicator variable, and conglomerate experience indicator variable. All experiences and jobs are measured relative to firms in the BoardEx-Compustat-CRSP universe. Measured one year prior to the start of the fiscal year.	BoardEx, Compustat
Dir MBA	Indicator variable equal to one if the independent director holds an MBA degree, and zero otherwise.	BoardEx
Dir financial experience	Indicator variable equal to one if the director has either a CPA or CFA, financial management or accounting experience in the BoardEx-Compustat-CRSP universe (e.g., CFOs, treasurers,	BoardEx

	controllers, or having another banking, finance, investment, or accounting titles), or work experience in the BoardEx-Compustat-CRSP universe financial company (SIC code 6000-6999), and zero otherwise. Measured one year prior to the start of the fiscal year.	
Dir Foreign Experience	Indicator variable equal to one if an independent director has studied abroad, or has worked or is working at a non-U.S. private or public firm, and zero otherwise (Oxelheim et al, 2013). Measured one year prior to the start of the fiscal year.	BoardEx
	Firm Characteristics Variables	
Sales	Consumer price index-adjusted sales (in million of dollars) as of the last fiscal year.	Compustat
Cumulative Return	Cumulative daily stock returns over the prior fiscal year.	CRSP
Return Volatility	Standard deviation of the firm's daily stock returns over the prior fiscal year.	CRSP
Board Size	The number of directors in boardroom as of the start of the fiscal year	BoardEx
Board Independence	The fraction of independent director to board size as of the start of the fiscal year.	BoardEx
# Local firms	The number of firms in BoadEx-Compustat-CRSP universe which are located within the 60-mile radius of the focal firm.	CRSP/ Compact Disclosure
ROA	Operating income before depreciation, scaled by lagged assets.	Compustat
# Analysts	The number of analysts follow the firm during the fiscal year.	IBES
Firm Age	The number of years since the firm is covered in either CRSP or Compustat.	Compustat/ CRSP

Table 1: Summary statistics

The table shows summary statistics for our sample of 138,910 firm-year-director observations covered in the BoardEx-Compustat-CRSP universe for the period from 2003 to 2012. Panel A reports statistics for the CEO connection measures. Panel B reports statistics for network connection measures of the other independent directors sitting on the board. Panel C reports statistics for the focal director's connection measure as well as the focal director's characteristics. Panel D reports firm-year level statistics for the firms covered in our sample. Appendix A provides detailed descriptions of the variables. .

	Obs	Mean	Std	25th	Median	75th
Panel A: CEO Connections						
CEO Rolodex	138,910	79.87	101.95	9	39	110
Prof CEO Rolodex	138,910	26.94	38.90	1	11	35
Edu CEO Rolodex	138,910	8.79	16.02	0	2	10
Club CEO Rolodex	138,910	46.61	81.93	0	6	54
Prof CEO Rolodex SMT	138,910	7.39	11.35	0	2	11
Prof CEO Rolodex Non-SMT	138,910	15.02	30.20	0	1	13
Panel B: Peer Independent Director Connections						
Med Peer Dir Rolodex	138,903	78.25	65.81	28.5	60.5	110
Sum Peer Dir Rolodex	138,903	694.17	648.28	236	497	935
Panel C: Focal Independent Director Characteristics						
Additional board seat (%)	138,910	4.32	20.33	0	0	0
Dir Rolodex	138,910	105.46	116.21	20	64	152
Prof Dir Rolodex	138,910	43.23	50.96	6	24	61
Edu Dir Rolodex	138,910	11.77	18.99	0	4	15
Club Dir Rolodex	138,910	52.54	88.77	0	9	67
Prof Dir Rolodex SMT	138,910	14.64	18.07	0	8	22
Prof Dir Rolodex Non-SMT	138,910	20.87	37.91	0	4	22
Dir Age	138,910	60.55	9.06	54	61	67
Dir Female	138,910	0.10	0.31	0	0	0
Dir Tenure	138,910	6.59	6.03	2	5	9
Dir Board Seat	138,910	1.67	0.99	1	1	2
Dir Foreign Exp	138,910	0.47	0.50	0	0	1
Dir Finance Exp	138,910	0.34	0.47	0	0	1
Dir MBA	138,910	0.20	0.40	0	0	0
Dir General Ability Index	138,910	0.18	0.99	-0.69	-0.04	0.84
Panel D: Firm Characteristics						
Sales (Million $)	23,686	1214.27	3532.99	37.31	174.21	717.01
Cumulative Ret	23,686	0.13	0.61	-0.23	0.04	0.35
Ret Volatility	23,686	0.03	0.02	0.02	0.03	0.04
Board Size	23,686	8.01	2.14	7	8	9
Board Independence	23,686	0.81	0.09	0.75	0.83	0.88

Table 2: CEO network and likelihood of additional board seats

The table shows results of regressions predicting the likelihood of an independent director obtaining an additional board seat. The sample consists of 138,910 firm-year-director observations covered in the BoardEx-Compustat-CRSP universe for the period from 2003 to 2012. The dependent variable is an indicator variable equal to one if the independent director obtains an additional independent directorship in another company within the BoardEx-Compustat-CRSP universe within one year after the fiscal year begins, and zero otherwise. *CEO Rolodex* is the number of directors in other firms who are connected to the CEO prior to the fiscal year, excluding individuals who are connected to the focal independent director as well. Models 1 to 3 are logit models and include Fama-French 48 industry-fixed effects and year-fixed effects. Model 4 is a linear probability model and includes firm-year fixed effects. *P*-values with standard errors clustered at the CEO level are reported in parentheses. Marginal effects, which shows the percentage point change in the likelihood of appointment for a one standard deviation change in *CEO Rolodex* relative to the mean are reported in brackets. Appendix A provides detailed descriptions of the variables. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Log (CEO Rolodex+1)	0.166***	0.097***	0.040***	0.007*
	(0.000)	(0.000)	(0.000)	(0.086)
	[0.870]	*[0.509]*	*[0.207]*	
Log (Dir Rolodex+1)			0.249***	0.005***
			(0.000)	(0.000)
			[1.100]	
Log (Sales)		0.109***	0.032***	
		(0.000)	(0.001)	
Cumulative Ret		0.021	0.045*	
		(0.427)	(0.087)	
Ret Volatility		0.367	-2.006	
		(0.786)	(0.134)	
Log (Dir Age)			-1.874***	-0.049***
			(0.000)	(0.000)
Dir Female			0.191***	0.011***
			(0.000)	(0.000)
Log (Dir Tenure+1)			-0.414***	-0.017***
			(0.000)	(0.000)
Dir General Ability Index			0.301***	0.014***
			(0.000)	(0.000)
Log (Dir Board Seat)			0.290***	0.011***
			(0.000)	(0.000)
Dir Foreign Exp			0.129***	0.005***
			(0.000)	(0.001)
Dir Finance Exp			0.004	0.001
			(0.909)	(0.718)
Dir MBA			0.038	0.004*
			(0.260)	(0.082)
Industry FE and Year FE	Yes	Yes	Yes	No
Firm-Year FE	No	No	No	Yes
Observations	138,910	138,910	138,910	138,910
Pseudo R-Sq/ Adj. R-Sq	0.013	0.017	0.077	0.027

Table 3: CEO network by type and likelihood of additional board seats

The table shows the results of logit regressions predicting the likelihood of an independent director obtaining an additional board seat. The sample consists of 138,910 firm-year-director observations covered in the BoardEx-Compustat-CRSP universe for the period from 2003 to 2012. The dependent variable is an indicator variable equal to one if the independent director obtains an additional independent directorship in another company within the BoardEx-Compustat-CRSP universe within one year after the fiscal year begins, and zero otherwise. *Prof* (*Edu*) [*Club*] *CEO Rolodex* is the number of directors in other firms who are connected to the CEO via professional (education) [club] connections prior to the fiscal year, excluding individuals who are connected to the focal independent director as well. *Prof CEO Rolodex SMT (Non-SMT)* is the number of directors in other firms who are connected to the CEO but not the focal director via senior management or director professional connections, where the connections are established only when both the CEO and the other-firm directors worked or are working together either (neither) as senior management or (nor) as directors in the same company, excluding the focal company. *Ex-Club CEO Rolodex* is the number of directors in other firms who are connected to the CEO via professional or education connections prior to the fiscal year, excluding individuals who are connected to the focal independent director as well. *Prof* (*Edu*) [*Club*] *Dir Rolodex* is the number of directors in other firms who are connected to the focal director via professional (education) [club] connections prior to the fiscal year. *Prof Dir Rolodex SMT* (*Non-SMT*) is the number of directors in other firms who are connected to the focal director via senior management or director professional connections, where the connection is established only when both the focal director and the other-firm directors worked or are working together either (neither) as senior management or (nor) as directors in the same company, excluding the focal company. *Ex-Club Dir Rolodex* is the number of directors in other firms who are connected to the focal director via professional or education connections prior to the fiscal year. The table reports marginal effects, which is the percentage point change in the likelihood of appointment for a one standard deviation change in *CEO Rolodex* relative to the mean. Appendix A provides detailed descriptions of the variables. *P*-values are reported in parentheses below the marginal effects. Standard errors are clustered at the CEO level. All models include the firm and director characteristic control variables of Table 2 Column 3 as well as Fama-French 48 industry- and year-fixed effects. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Log (Prof CEO Rolodex+1)	*0.283***				
	(0.000)				
Log (Prof Dir Rolodex+1)	*0.956***				
	(0.000)				
Log (Prof CEO Rolodex SMT+1)		*0.298***			
		(0.000)			
Log (Prof CEO Rolodex Non-SMT+1)		*0.094*			
		(0.246)			
Log (Prof Dir Rolodex SMT+1)		*1.183***			
		(0.000)			
Log (Prof Dir Rolodex Non-SMT+1)		*0.578***			
		(0.000)			
Log (Edu CEO Rolodex+1)			*0.011*		
			(0.894)		
Log (Edu Dir Rolodex+1)			*0.614***		
			(0.000)		
Log (Club CEO Rolodex+1)				*0.132***	
				(0.030)	
Log (Club Dir Rolodex+1)				*0.550***	
				(0.000)	
Log (Ex-Club CEO Rolodex+1)					*0.217***
					(0.000)
Log (Ex-Club Dir Rolodex+1)					*0.995***
					(0.000)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	138,910	138,910	138,910	138,910	138,910
Pseudo R-Sq	0.076	0.077	0.071	0.073	0.076

Table 4: CEO network and likelihood of additional board seats at connected firms

The table examines the likelihood of obtaining additional board seats at firms which share a connection with the focal firm CEO. A connection exists between the focal firm CEO and the appointing firm if the focal firm CEO shares either education, professional, or social connections with at least one of the directors of the appointing firm. In Panel A, we test whether focal firm CEO's rolodex size affects the likelihood of the focal director being appointed to a connected firm. Panel A, Column 1 shows the results of a logit model, using only the 6,445 director-firm-year observations with new director appointments. The dependent variable in the logit model is an indicator variable equal to one if the focal director is appointed to the board of a firm which is connected to the focal firm CEO within one year after the fiscal year starts and zero if appointed to an unconnected firm. Panel A, Columns 2 and 3 show the results from a two-stage Heckman probit model. The dependent variable in the first stage (Column 2) is an indicator variable equal to one if the director obtains an additional board seat in another company, and zero otherwise, using the full sample of 135,575 director-firm-year observations. The key exogenous first stage variable is *# Local firms,* which is the number of firms in the BoardEx-Compustat-CRSP universe which are located within a 60-mile radius of the focal firm. The dependent variable in the second stage of the Heckman model (Column 3) is an indicator variable equal to one if the focal director is appointed to the board of a firm connected to the focal firm CEO within one year after the fiscal year starts and zero if appointed to an unconnected firm. *P*-values with standard errors clustered at the CEO level are reported in parentheses. Marginal effects, which shows the percentage point change in the likelihood of appointment for a one standard deviation change in *CEO Rolodex* relative to the mean are reported in brackets. The logit model and Heckman probit model include Fama-French 48 and Fama-French 17 industry fixed effects, respectively. Appendix A provides detailed descriptions of all variables.

Panel B provides test results of a binomial probability test of whether the actual likelihood of being appointed to a connected firm is higher than what a mechanical relationship would suggest. The sample is restricted to observations where the director obtains an additional board seat. To calculate the mechanical probability of the focal firm CEO being accidentally connected to the appointing firm, we first identify hypothetical CEOs for each focal firm CEO. Hypothetical CEOs are CEOs of firms in the same year, same Fama-French 10 industry, and in the same *CEO Rolodex* decile. We select hypothetical CEOs from the full BoardEx-Compustat-CRSP universe. Observations where the number of hypothetical CEOs are in the bottom quartile are dropped, resulting in 4,886 firm-year-director new appointment observations. For each focal firm CEO, we calculate the proportion of hypothetical CEOs who are connected to the appointing firm. *Mechanical likelihood* is the average proportion of hypothetical CEOs who are connected to the appointing firm across all the focal firm CEOs. *Actual likelihood* is the proportion of focal firm CEOs who are connected to the appointing firm in our sample. *Diff* shows the difference between *Actual likelihood* and *Mechanical likelihood*. The *p*-values are from binomial probability tests which test the null hypothesis that the *Mechanical likelihood* is equals to the *Actual likelihood*.. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: Logit and Heckman probit regressions

	Logit	Heckman Probit	
	(1)	(2)	(3)
Log (# Local firms+1)		0.016***	
		(0.009)	
Log (CEO Rolodex+1)	0.343***	0.024***	0.214***
	(0.000)	(0.000)	(0.000)
	[6.973]	*[0.278]*	*[5.947]*
Log (Dir Rolodex+1)	-0.047	0.110***	-0.002
	(0.228)	(0.000)	(0.971)
	[-0.831]	*[0.106]*	*[-0.045]*
Log (Sales)	0.126***	0.011**	0.040***
	(0.000)	(0.017)	(0.003)
Cumulative Ret	-0.112	0.022*	-0.063
	(0.122)	(0.078)	(0.132)
Ret Volatility	-3.294	-0.692	-2.614
	(0.321)	(0.284)	(0.162)
Log (Dir Age)	0.099	-0.905***	0.072
	(0.713)	(0.000)	(0.858)
Dir Female	-0.198**	0.097***	-0.099
	(0.027)	(0.000)	(0.162)
Log (Dir Tenure+1)	0.139***	-0.210***	0.074
	(0.001)	(0.000)	(0.426)
Dir General Ability Index	-0.008	0.155***	0.002
	(0.834)	(0.000)	(0.979)
Log (Dir Board Seat)	0.103	0.142***	0.070
	(0.170)	(0.000)	(0.327)
Dir Foreign Exp	-0.269***	0.063***	-0.152***
	(0.000)	(0.000)	(0.003)
Dir Finance Exp	-0.114*	-0.001	-0.074*
	(0.095)	(0.973)	(0.058)
Dir MBA	0.000	0.015	-0.017
	(0.998)	(0.377)	(0.693)
rho			*0.115*
P-Value (rho=0)			*(0.811)*
Observations	6,445	135,575	6,260
Pseudo R-Sq/Prob > χ2	0.090	0.000	

Panel B: Actual and mechanical likelihood of being appointed to a connected firm

Actual likelihood	Mechanical likelihood	Diff
0.231	0.088	0.143***
P-value		0.000

Table 5: Peer director network and likelihood of additional board seats

The table shows the results of regressions predicting the likelihood of an independent director obtaining an additional board seat. The sample consists of 138,903 firm-year-director observations covered in the BoardEx-Compustat-CRSP universe for the period from 2003 to 2012. The dependent variable is an indicator variable equal to one if the independent director obtains an additional independent directorship in another company within the BoardEx-Compustat-CRSP universe within one year after the fiscal year starts, and zero otherwise. For each focal independent director, *Peer Dir Rolodex* is the number of individuals who are connected to a peer independent director via education, professional, or club connections, excluding individuals who are connected to the focal independent director as well. Peer independent directors are those who sit on the same board as the focal director. *Med (Sum) Peer Dir Rolodex* is the median (sum) of *Peer Dir Rolodex* across all the peer independent directors. Models 1 to 3 are logit models and include Fama-French 48 industry-fixed effects and year-fixed effects. Model 4 is a linear probability model and includes firm-year fixed effects. All models include the firm and director characteristic control variables of Table 2 Column 3. *P*-values with standard errors clustered at the firm level are reported in parentheses. Marginal effects, which shows the percentage point change in the likelihood of appointment for a one standard deviation change in *CEO Rolodex* relative to the mean are reported in brackets. Appendix A provides detailed descriptions of the variables. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Log (Med Peer Dir Rolodex+1)	0.050***			-0.001
	(0.008)			(0.753)
	[0.169]			
Log (Sum Peer Dir Rolodex+1)		0.070***	0.074***	
		(0.001)	(0.002)	
		[0.262]	*[0.277]*	
Log (CEO Rolodex+1)	0.033***	0.030**	0.029**	0.007*
	(0.005)	(0.011)	(0.013)	(0.085)
	[0.169]	*[0.153]*	*[0.149]*	
Log (Dir Rolodex+1)	0.244***	0.242***	0.242***	0.005***
	(0.000)	(0.000)	(0.000)	(0.000)
	[1.077]	*[1.067]*	*[1.069]*	
Log (Board Size)			-0.247***	
			(0.007)	
Board Independence			0.812***	
			(0.000)	
Controls	Yes	Yes	Yes	Yes
Industry FE and Year FE	Yes	Yes	Yes	No
Firm-Year FE	No	No	No	Yes
Observations	138,903	138,903	138,903	138,903
Pseudo R-Sq/Adj. R-Sq	0.077	0.077	0.078	0.027

Table 6: CEO network and likelihood of additional board seats – Robustness tests

The table shows results of different robustness tests. The dependent variable in all panels is an indicator variable equal to one if the independent director obtains an additional independent directorship in another company within the BoardEx-Compustat-CRSP universe within one year after the fiscal year begins, and zero otherwise. Column 1 shows results of a logit regression after excluding observations where the director obtains a directorship in a firm which has same Fama-French 48 industry as the focal firm (137,775 firm-year-director observations). Column 2 shows results of a logit regression after excluding directors who simultaneously departed from any other directorship within one year after the fiscal year starts (125,416 firm-year-director observations). Columns 3 and 4 show results of logit regressions where the sample is separated into co-opted directors (66,363 firm-year-director observations) and non-co-opted directors (72,054 firm-year-director observations), respectively. Column 5 shows the results of a Cox proportional hazard regression. The time variable is director tenure in the focal firm until the director obtains his first additional directorship in another company. Therefore, observations after which the director obtains his additional appointment are deleted (118,843 firm-year-director observations). We report hazard ratios. Appendix A provides detailed descriptions of the variables. *P*-values are reported in parentheses. Standard errors are clustered at the CEO level in all models. All models include the firm and director characteristic control variables of Table 2 Column 3 as well as Fama-French 48 industry- and year-fixed effects. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) Excl. same industry	(2) Excl. departure	(3) Co-opted directors	(4) Non-co-opted directors	(5) Cox Model
Log (CEO Rolodex+1)	0.032**	0.044***	0.047***	0.035**	1.043***
	(0.011)	(0.000)	(0.003)	(0.035)	(0.000)
Log (Dir Rolodex+1)	0.263***	0.243***	0.278***	0.216***	1.285***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	137,775	125,416	66,363	72,054	118,843
Pseudo R-Sq/Chi-Sq	0.083	0.075	0.072	0.083	0.000

Table 7: CEO network and likelihood of additional board seats (subsample analysis – focal director characteristics)

The table shows results of logit regressions predicting the likelihood of an independent director obtaining an additional board seat at connected firms for subsamples by focal director characteristics. The sample consists of 6,445 firm-year-director-new appointment observation for the period from 2003 to 2012, excluding the directors who did not obtain any additional board seats. The dependent variable is an indicator variable equal to one if the independent director obtains an additional independent directorship in another firm which is connected to the focal firm CEO within one year after the fiscal year begins, and zero otherwise. The main explanatory variable is *CEO Rolodex*. Columns 1 and 2 split the sample by focal directors' median *Dir Rolodex*. Columns 3 and 4 split the sample by focal directors' median age. Columns 5 and 6 split the sample by focal directors' gender. Columns 7 and 8 split the sample by the focal directors' median general ability index. Columns 9 and 10 split the sample by median number of board seats held by the focal director. Columns 11 and 12 split the sample by focal directors' foreign experience. Appendix A provides detailed descriptions of the variables. *P*-values are reported in parentheses. Standard errors are clustered at the CEO level. All models include the firm and director characteristic control variables of Table 2 Column 3 as well as Fama-French 48 industry- and year-fixed effects. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively. [c], [b], and [a] represent significance at the 10%, 5%, and 1% significance level, respectively and are from tests of whether the coefficients on *Log (CEO Rolodex*+1) are significantly different between the subsamples.

	(1) Low Rolodex	(2) High Rolodex	(3) Low Age	(4) High Age	(5) Female	(6) Male	(7) Low GAI	(8) High GAI	(9) Low Seat	(10) High Seat	(11) Foreign Exp	(12) No Foreign Exp
Log (CEO Rolodex+1)	0.322*** (0.000)	0.404*** (0.000)	0.366*** (0.000)	0.329*** (0.000)	0.520*** (0.000)	0.331***[c] (0.000)	0.396*** (0.000)	0.311*** (0.000)	0.391*** (0.000)	0.247***[b] (0.000)	0.262*** (0.000)	0.435***[a] (0.000)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,186	3,212	3,476	2,949	938	5,496	3,208	3,217	4,544	1,866	3,618	2,819
Pseudo R-Sq	0.089	0.114	0.093	0.103	0.146	0.090	0.095	0.102	0.094	0.110	0.085	0.111

Table 8: CEO network and likelihood of additional board seats (subsample analysis – appointing firm characteristics)

The table shows results of logit regressions predicting the likelihood of an independent director obtaining an additional board seat at connected firms for subsamples by appointing firm characteristics. The sample consists of 6,445 firm-year-director-new appointment observation for the period from 2003 to 2012, excluding the directors who did not obtain any additional board seats. The dependent variable is an indicator variable equal to one if the independent director obtains an additional independent directorship in another firm which is connected to the focal firm CEO within one year after the fiscal year begins, and zero otherwise. The main explanatory variable is *CEO Rolodex*. Columns 1 and 2 split the sample by median sales of the appointing firms. Columns 3 and 4 split the sample by median firm age, Columns 5 and 6 split the sample by median firm operating profitability. Columns 7 and 8 split the sample by the median number of analysts following the appointing firms. Appendix A provides detailed descriptions of the variables. *P*-values are reported in parentheses. Standard errors are clustered at the CEO level. All models include the firm and director characteristic control variables of Table 2 Column 3 as well as Fama-French 48 industry- and year-fixed effects. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively. [c], [b], and [a] represent statistical significance at the 10%, 5%, and 1% significance level, respectively and are from tests of whether the coefficients on *Log (CEO Rolodex*+1) are significantly different between the subsamples.

	(1) Small Size	(2) Big Size	(3) Young Firm	(4) Old Firm	(5) Low ROA	(6) High ROA	(7) Low # Analysts	(8) High # Analysts
Log (CEO Rolodex+1)	0.281***	0.403***[c]	0.343***	0.359***	0.362***	0.341***	0.267***	0.427***[b]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,940	2,990	3,049	2,910	2,933	2,931	3,032	2,903
Pseudo R-Sq	0.075	0.112	0.081	0.122	0.105	0.097	0.068	0.118

Table 9: Director appointment announcement returns

The table shows appointing firm announcement returns for the appointment of the focal directors. The sample consists of 947 director appointment observations for the period from 2003 to 2012, excluding appointments prior to 2005. We obtain the 8-K filing dates of the appointment events from the Audit Analytics Director and Officer Changes dataset. Observations are excluded if any of the following confounding events - acquisition announcement, quarterly earnings announcement, dividend announcement, other director or officer changes, or management guidance - are announced within +/- 5 days of the announcement date, where we use as announcement date (day 0) the date the 8-K filing is accepted by the SEC. We report the cumulative abnormal returns calculated from a market model over the event window (-5, +1), where the parameters of the market model are calculated using daily stock returns and CRSP value-weighted market returns from days -280 to -61. We separate the sample of appointments based on whether the appointing firm is connected to the focal firm CEO or not. *T*-tests (signed rank tests) are used to test the null hypothesis of whether the mean (median) cumulative return is zero. The *P*-values from two-sample *T*-tests (Wilcoxon-Mann-Whitney tests) which test whether the mean (median) returns are significantly different across the two subsamples are also reported in the last row. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	N	Mean (%)	Median (%)
Appointing firm connected to CEO	226	0.0549	-0.4278
Appointing firm not connected to CEO	721	0.4330	0.0158
P-value of test of difference		0.53	0.21

Table 10: Director election voting results at appointing firm

The table shows voting results that the newly-appointed director receives at the first annual general meeting of the appointing firm. The sample consists of 1,596 appointing firm-focal director observations for the period from 2003 to 2012. We obtain voting results from the Institutional Shareholder Services (ISS) Voting Analytics database. We calculate the *Excess Ratio For*, defined as the difference between the proportion of 'For' votes less the average proportion of 'For' votes of all directors on the same board. The proportion of 'For' votes is defined as the number of 'For' votes divided by the sum of 'For' and 'Withhold' (or 'Against') votes. We express the numbers for *Excess Ratio For* in percentage points in the table. We separate the sample of appointments based on whether the appointing firm is connected to the focal firm CEO or not. *T*-tests (signed rank tests) are used to test the null hypothesis of whether the mean (median) *Excess Ratio For* is zero. The *P*-values from two-sample *t*-tests (Wilcoxon-Mann-Whitney tests) which test whether the mean (median) *Excess Ratio For* is significantly different across the two subsamples are also reported in the last row. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	N	Mean (%)	Median (%)
Appointing firm connected to CEO	566	1.33***	0.62***
Appointing firm not connected to CEO	1,030	1.04***	0.61***
P-value of test of difference		0.26	0.56

Table 11: Director election voting results at focal firm

The table shows the change in voting results of the focal director at the focal firm after he obtains additional directorships in other firms. The sample consists of 1,468 focal firm-focal director appointment observations from 2003 to 2012. We obtain voting results from the Institutional Shareholder Services (ISS) Voting Analytics database. We calculate the *Excess Ratio For*, defined as the difference between the proportion of 'For' votes less the average proportion of 'For' votes of all directors on the same board. The proportion of 'For' votes is defined as the number of 'For' votes divided by sum of 'For' and 'Withhold' (or 'Against') votes. We calculate the value of *Excess Ratio For* for the focal director just prior to his additional appointment and also the value post-appointment. We exclude the voting results in the appointment year. We express the numbers for *Excess Ratio For* in percentage points in the table. We separate the sample of appointments based on whether the appointing firm is connected to the focal firm's CEO or not. *T*-tests (signed rank tests) are used to test the null hypothesis of whether the mean (median) *Excess Ratio For* is zero. The *P*-values from two-sample *t*-tests (Wilcoxon-Mann-Whitney tests) which test whether the mean (median) *Excess Ratio For* is significantly different across the two subsamples are also reported in the third row. In Columns 6 and 7, we report the change in *Excess Ratio For* between the post-appointment results and the pre-appointment results. The numbers in *italics* are the *P*-values from the difference-in-difference tests which test whether the change in *Excess Ratio For* is significantly different between the two subsamples. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

		Pre-appointment		Post-appointment		Post-Pre (DID)	
	N	Mean (%)	Median (%)	Mean (%)	Median (%)	Mean (%)	Median (%)
Appointing firm connected to CEO	434	-0.31	0.36***	-0.31	0.24***	0.00	-0.12
Appointing firm not connected to CEO	1,034	-0.04	0.28***	-0.59***	0.10***	-0.55**	-0.17***
P-value of test of difference		0.33	0.96	0.38	0.25	*0.16*	*0.09**