

Job networks and independent board appointments: evidence from US publicly quoted companies

Marie Lalanne*

February 15, 2016

Abstract

This paper investigates whether the probability of being hired as an independent director to the board of a company is affected by the candidate knowing one of the current sitting board members. If social networks are used for board recruitment, is it in the interests of shareholders? Understanding the mechanisms at work is important for policy recommendation: on the one hand, favoritism might take place at the detriment of shareholders but on the other hand, reliance on networks could allow a better screening of candidates. Unfortunately, the literature has suffered a lack of precise data on social connections. Using data on US publicly quoted companies from 2006 to 2011, prior employment links between candidates and the current directors sitting on the board are uncovered by studying the employment history of candidates and board members and determining whether they have previously worked together. This paper shows that historical connections with board members do increase the probability of being appointed as an independent director, and knowing the CEO in particular increases further this probability. However, the change in CEO compensation following the appointment is not significantly different for “connected” and “non-connected” appointing firms. This evidence seems to contradict the idea of rent-seeking executives appointing “friends” to their board.

JEL codes: L14, G34, M51

Keywords: social networks, board appointments, corporate governance

*SAFE Research Center, Goethe University of Frankfurt; lalanne@safe.uni-frankfurt.de

I am very grateful to Paul Seabright, who has made the data available to me and for his continued suggestions and support, to Thibault Laurent, for his decisive help with the data management, to Yann Bramoullé, Horst Entorf, Yinghua He and Thierry Magnac for their econometrics advice, and to seminar participants in Aix Marseille University. All remaining errors are mine.

1 Introduction

Independence on corporate board has been the subject of intense debates within the academic world and has also attracted a lot of attention from regulatory institutions. Because one of the roles of the corporate board is to monitor the executive team, independent directors are believed to be less subject to the agency problem and therefore better monitors than non-independent ones (Fama and Jensen (1983), Bebchuk and Fried (2004)). As a result, scholars have pushed towards more independence on corporate boards¹ and corporate governance guidelines have been established in this direction, such as the Sarbanes-Oxley Act in 2003 in the US².

However, directors that are legally independent can still be historically connected to the executives running the company. Board members of large publicly quoted companies consist of a small group of individuals from the overall population, have followed similar career paths and therefore have a high chance of having worked together by the past. Moreover, they are very likely to be recruited through word-of-mouth recommendation. As a result, there is a non negligible probability that these conventionally independent directors actually are socially connected to the executive team, therefore questioning their monitoring efficacy. This paper proposes to evaluate to which extend newly appointed independent directors also are socially independent from the executive team and what are the consequences of social connections between independent directors and executives for corporate governance.

Recruitment through social networks can be pursued for two opposite reasons. On the one hand, it can be the result of favoritism. In such case, board members favor “friends” over other candidates to fill available board seats. These “friends” might be less likely to monitor thoroughly executives and their corporate decisions³. On the other hand, social networks can be used as a screening device for recruitment; they provide better information

¹In an event study on sudden deaths of directors, Nguyen and Nielsen (2010) show that independence is beneficial for shareholders.

²Corporate boards composed of only independent directors might not be optimal either. As information from executives is necessary to make appropriate policy decisions, a mix of independent and executives is in the interest of shareholders, as Adams and Ferreira (2007) show. Coles et al. (2008) find some empirical evidence on firms with greater advising requirements.

³Haselmann et al. (2014) and Brandes et al. (2015) show evidence of the use of social contacts for favoritism in the allocation of credit between banks and firms and in the hiring of NBA players.

on candidates and allow to hire better suited individuals for the company^{4,5}. Understanding which mechanism dominates is of primary importance because it implies different policy responses. If favoritism is taking place, in the sense the use of personal connections for hiring is detrimental to corporate governance, recruitment through social networks has to be legislated. If, on the contrary, social networks provide more information and lead to better hires then regulatory institutions should let companies use them.

This paper uses data on independent board appointments in US publicly quoted firms from 2006 to 2011 to investigate first whether knowing sitting board members increases the probability of being hired by this board. The past employment history of candidates and board members is used to recover job networks, i.e. the employment links between candidates and board members created through their previous work at the same companies at the same time. Since nomination committee members and the CEO might have a larger influence in the board appointment process than other members, employment links between these particular members and job candidates are also recovered. In a second step, changes in CEO compensation one year after the board member recruitment are investigated. More precisely, CEO compensation of boards with a new “connected” board member is compared to CEO compensation of boards with a new “non-connected” board member to get insights into the detrimental or beneficial effect of recruitment through social connections.

Results show that, indeed, professional past connections with current sitting board members do increase the probability of getting a board seat. Particular connections to the CEO and members of the nomination committee increase further this probability. However, looking at the increase in CEO compensation between the year before and the year after the appointment reveals no differences between “connected” and “non-connected” firms. This last evidence seems to contradict the favoritism theory of recruitment through social networks.

⁴Cohen et al. (2008) show evidence of information transmission between mutual fund managers and corporate board members that shared education paths in security markets. Li (2015) and Brogaard et al. (2014) find evidence of the use of social networks as a screening device in the peer review at the US National Institutes of Health and in the peer review of economists’ research papers.

⁵Bertrand et al. (2014), Zinovyeva and Bagues (2015) and Duchin and Sosyura (2013) find evidence of both phenomena in the US Federal lobbying process, in academic promotions in Spain and in managerial appointments and capital allocations.

The rest of the paper is organized as follows. The next section briefly summarizes the existing literature. Section 3 explains how the main estimation challenges are dealt with and Section 4 describes the data. The section 5 presents results and the last section concludes.

2 Related literature

A few number of papers have investigated the impact of social network on corporate governance.

Simpson and Wright (2012) use data on UK firms from 1998 to 2008 and focus in particular on school and university networks, as well as memberships of exclusive private clubs. The authors find that social and professional connections matter for appointment; educational connections seem to have a lower impact on appointment but the authors argue that they could explain social connections (affiliations to the elite clubs). Estimation is feasible because the authors focus on the set of individuals on which they have social information on, thereby using a probably non-random sample of directors.

Barnea and Guedj (2009) study the impact of connectedness (they use various network centrality measures) through directorships on appointments of independent directors and corporate governance measures for US firms between 1996 and 2004. They find that firms with directors more central in the directorship network display worse corporate governance measures (higher CEO pay and less performance sensitivity of CEO turnover for example). They only focus on connections made through directorships, while our data allow us to also identify professional connections created within the firm and not necessarily on the board. Moreover, we are able to precisely recover the exact connection between any director candidate and the current sitting board members.

Also focusing on US firms but in more recent years (2000-2007), Fracassi and Tate (2012) look at the specific directors-CEO connections and their impact on firm value. They find evidence of a correlation between powerful CEOs and the number of directors-CEO connections. Also looking at the specific directors-CEO connections but using French data, Kramarz and Thesmar (2013) based their analysis on three types of networks (ENA, Polytechnique, two French elite schools, and the civil-servants network). Directors and CEOs from the same network are more likely to be on the same board and those connections have a negative impact on several corporate

governance measures, such as CEO turnover or value-creating acquisitions. While these two papers are enlightening on the particular effect of connections between directors and CEOs, we aim at understanding instead the role played by the broader professional connections of directors.

Finally, Hwang and Kim (2009) find that US boards socially independent display better governance practices than US boards which only are conventionally independent. Again the focus here is on the directors-CEO social connections and their effect on corporate governance measures but not on how they can affect the individuals' careers. Moreover, the social connections under investigation consist of "mutual alma mater, military service, regional origin, discipline, and industry", while we explicitly focus on those connections made during the professional life of directors.

3 Empirical strategy

We want to understand first, how professional connections of director candidates affect their likelihood of being appointed to a corporate board. In a second time, we aim at getting some insights on the mechanisms at work, that is to say whether social networks allow favoritism to take place or whether they allow a better screening of potential candidates.

3.1 Professional connections and board appointments

We regress a dummy variable representing an independent appointment on a dummy variable measuring whether the candidate knows at least one of the currently sitting board members from previous work history, and several controls. In some corporate boards, a nomination committee exists and has the role of proposing candidates when a board seat needs to be filled. Because nomination committee members have this peculiar role in the board appointment process and because the CEO might have some decision power in the matter⁶, we also recover professional connections of candidates with these particular board members.

We face two main issues with the estimation of such equation. First, variables measuring whether candidates are connected to sitting board members

⁶Zajac and Westphal (1996) and Shivdasani and Yermack (1999) show evidence of CEO involvement in the selection of directors.

might be endogenous. For example, it could be the case that two individuals were working together in the same firm because they are both highly talented and they also work together today again because of their talent. In such case, the effect we are trying to capture will just be a spurious network effect. We therefore need to control for unobserved individual characteristics, such as ability⁷. By a similar reasoning, it might be the case that firms with a particular corporate culture are hiring individuals with specific career paths. In such a case again, we will not be measuring any network effect and to prevent that, we need to control for unobserved firm characteristics. We will therefore estimate the following⁸:

$$\begin{aligned}
E_{ijt} &= \alpha Z_{jt} + \beta X_{it} + \delta_1 Board_{ijt} + \delta_2 CEO_{ijt} + \delta_3 Nomination_{ijt} + \gamma year_t \\
&+ FE_i + FE_j + \epsilon_{ijt}
\end{aligned}
\tag{1}$$

where

$E_{ijt} = 1$ if individual i is hired on board j at time t ;

Z_{jt} is a vector of firm j 's characteristics at time t ;

X_{it} is a vector of individual i 's characteristics at time t ;

$Board_{ijt} = 1$ if individual i knew at least one member of board j which appointed some director at time t ;

$CEO_{ijt} = 1$ if individual i knew the CEO of board j which appointed some director at time t ;

$Nomination_{ijt} = 1$ if individual i knew at least one nomination committee member of board j which appointed some director at time t ;

$year_t$ are year dummies;

FE_i are individual fixed effects;

FE_j are firm fixed effects.

The second issue we face is that we do not observe the pool of candidates. But we do observe the sample of all board members and top executives working in the top publicly US quoted firms. Board members usually sit on several boards. Their expertise in one sector (for example, in finance) might be required on the board of a firm operating in another sector (for example,

⁷Another way of tackling this endogeneity issue is to instrument the connections of candidates with the board by connections with the board of their own connections. The underlying idea of such a strategy is that "friends of friends" can help you getting a board seat only through the "friend" in common. This is work in progress.

⁸We will present results of several specifications; one with individual fixed effects and one with firm fixed effects. Not all individuals and firms are considered each year for appointments therefore preventing us from using both individual and firm fixed effects at the same time.

in the manufacturing sector). Firms might also want to appoint executives at other firms to their board. For all these reasons, it is difficult to argue that the sample of potential candidates is the sample of board members working in the sector of the appointing firm only⁹. Large firms are increasingly using the services of executive search firms to fill their positions, including the board ones. The corporate board establishes a list a criteria they want the new board member to fulfill. They provide this list to the executive search firm, who is then in charge of selecting suitable candidates. In order to select candidates, executive search firms rely on databases like the one used in this paper. In order to get a realistic pool of candidates for each board appointment, we look at the characteristics of the appointed director, with the assumption that these were the characteristics the board was looking for. We then use nearest neighbor matching technique on these characteristics to select the other potential candidates for the appointment. By varying the characteristics used to select the pool of candidates, the metric used to select neighbors¹⁰ and/or the number of candidates, we can test the robustness of our estimates¹¹.

3.2 CEO compensation of connected and non-connected boards

In order to get insights into the mechanisms underlying recruitment through social connections, we then look at CEO compensation one year after the independent appointment took place. We call connected (non-connected) firms, the firms who appointed directors that were (were not) professionally connected to board members at the time of appointment. In particular, we investigate whether the increase in CEO compensation is larger for connected firms than for non-connected firms. The rationale for such analysis is the following: if connected directors were recruited because of favoritism, we might observe some gift exchange going on. The board seat was awarded to the connected individual in exchange for a lighter monitoring of the executive team. In particular, the CEO might be granted a larger compensation package.

⁹Another difficulty is when the appointed director is not even a current top executive or a board member, such as university professors. In other words, the actual sample of individuals from which the pool of candidates is selected is much broader than the one we have data on. However, these peculiar profile types tend to be exceptional and almost all appointed directors are already working in the top hierarchy of a large publicly US quoted firm.

¹⁰Main results are presented using the Mahalanobis distance.

¹¹This is work in progress.

4 Data description

The analysis is based on an original dataset describing the career history of some 170,000 individuals working for US companies between 1999 and 2013. This database was provided to us by BoardEx Ltd, a UK supplier of data to headhunting companies. For firms to be included in the database, BoardEx requires them to reach a market capitalization above 1 million USD¹². Once this threshold is reached, analysts at BoardEx start collecting data on the career history of top executives and board members working at such companies from their résumés.

The main originality of this dataset is that it contains information on job network opportunities these individuals have had in the past. More specifically, by matching individuals' résumés, BoardEx provides the list of other individuals in the dataset with whom each individual has overlapped during the course of his career¹³. Connections measures used in this paper are therefore recovered by matching, for each appointment, the professional networks of the current sitting board members with the professional networks of director candidates.

This paper focuses on 9,730 independent board appointments between 2006 and 2011 which involves a total of 3,814 firms and 8,525 appointed directors.

Table 1: Number of independent appointments by year

Year	Appointments	Directors	Firms
2006	1,459	1,417	1,119
2007	1,897	1,837	1,336
2008	1,769	1,705	1,224
2009	1,585	1,524	1,118
2010	1,584	1,545	1,141
2011	1,436	1,401	1,083
Total	9,730	8,525	3,814

The average appointed director is 56 years old and has sat on the board

¹²The firms in our analysis sample represent the overwhelming majority of the firms in the S&P 500 and NASDAQ 100 indexes.

¹³Notice that even though we have precise job information, such as salary, only starting from 1999, the network information is available since the beginning of the career of individuals. In other words, our professional networks measures are not subject to any truncation of the data in any particular year.

of roughly three publicly quoted firms. He has spent on average almost three years on the board of quoted companies. Female directors represent 14% of the sample. Appointing companies have an average board size of nine members, of which slightly less than eight are non executives and slightly more than seven are also independent¹⁴. In the majority of cases (54%), the chairman of the board also is an executive or the CEO of the company. When a nomination committee exists, it is composed of three members, which are non executives. The detailed statistics can be found in Tables 2 and 3.

Table 2: Summary statistics appointed directors

Variables	Mean	Std.Dev.	N
Age	56.07	8.08	8,509
Female	14%	-	9,730
Total years as an executive	9.76	11.24	9,730
Number of quoted board	2.69	2.34	9,730
Average years on quoted board	2.83	2.47	9,730
Highest Degree: BA	21.98%	-	8,509
Highest Degree: MA	46.05%	-	8,509
Highest Degree: PhD	21.06%	-	8,509
Degree Speciality: Business	36.10%	-	8,509
Degree Speciality: Social Sciences	11.13%	-	8,509
Degree Speciality: Finance	8.12%	-	8,509
Degree Speciality: Science	2.75%	-	8,509

¹⁴Non executive non independent directors are directors that have a material relationship with the firm, such as a shareholder or an officer of an organization that has a relationship with the firm.

Table 3: Summary statistics appointing companies

Variables	Mean	Std.Dev.	N
Sales	5,231.82	19,815.65	9,730
Number of employees	14.28	61.49	9,561
Market value	5,794.78	21,924.88	9,086
Sector: agriculture	0.11%	-	9,730
Sector: construction	1.06%	-	9,730
Sector: finance	19.14%	-	9,730
Sector: manufacturing	40.45%	-	9,730
Sector: mining	6.64%	-	9,730
Sector: public administration	0.43%	-	9,730
Sector: retail trade	6.03%	-	9,730
Sector: services	14.23%	-	9,730
Sector: transportation	9.61%	-	9,730
Sector: wholesale trade	2.29%	-	9,730
Board size	9.26	2.76	9,730
Number of NEDs*	7.85	2.73	9,730
Number of Independent NEDs*	7.29	2.66	9,730
Executive chairman	54%	-	9,730
Nomination committee size	3.20	1.94	9,730
Number of NEDs* on nomination committee	3.13	1.94	9,730

*Non Executive Directors.

Connected directors and firms are very different from non connected directors and non-connected firms. Therefore, it is very important to control for their characteristics to differentiate their effects from the effect of networks on appointment. Connected directors have higher experience than non connected directors; they have spent on average 14 years as executive versus 9 years for non connected directors, they have sat on 4 quoted boards versus 3 and they have spent on average 4 years on board versus 3. They also are more likely to be female. Connected firms are larger (in terms of sales, number of employees, market value and board size) but they are not more likely to have an executive chairman. Tables 4 and 5 show the detailed statistics.

Table 4: Summary statistics connected versus non connected directors

Variables	Connected		Non connected		Diff
	Mean (Std.Dev.)	N	Mean (Std.Dev.)	N	
Age	58.12 (7.81)	2,350	56.08 (9.40)	98,197	-2.037***
Female	13%	2,393	10%	105,558	-0.029***
Total years as an executive	13.70 (12.04)	2,393	9.24 (10.68)	105,558	-4.462***
Number of quoted board	4.13 (2.85)	2,393	2.62 (2.19)	105,558	-1.507***
Average years on quoted board	4.31 (2.86)	2,393	2.87 (2.32)	105,558	-1.437***
Highest Degree: BA	20.82%	2,238	24.11%	93,217	0.033***
Highest Degree: MA	47.63%	2,238	44.25%	93,217	-0.034**
Highest Degree: PhD	20.82%	2,238	20.43%	93,217	-0.004
Degree Speciality: Business	37.80 %	2,238	33.74%	93,217	-0.041***
Degree Speciality: Social Sciences	11.48%	2,238	10.67%	93,217	-0.008
Degree Speciality: Finance	7.51%	2,238	8.53%	93,217	0.010
Degree Speciality: Science	2.28%	2,238	3.13%	93,217	0.009*

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Summary statistics connected versus non connected appointing firms

Variables	Connected		Non connected		Diff
	Mean (Std.Dev.)	N	Mean (Std.Dev.)	N	
Sales	6,954.91 (23,285.95)	2,065	4,767.60 (18,746.03)	7,665	-2,187.3***
Number of employees	18.77 (76.12)	2,032	13.07 (56.85)	7,529	-5.699***
Market value	8,250.20 (26,354.99)	1912	5,140.37 (20,536.54)	7,174	-3,109.8***
Board size	9.74 (3.25)	2,065	9.13 (2.60)	7,665	-0.613***
Number of NEDs*	8.32 (3.17)	2,065	7.73 (2.59)	7,665	-0.595***
Number of Independent NEDs*	7.70 (3.00)	2,065	7.18 (2.55)	7,665	-0.524***
Executive chairman	52%	2,065	54%	7,665	0.0170
Nomination committee size	3.31 (2.07)	2,065	3.17 (1.90)	7,665	-0.135**
Number of NEDs* on nomination committee	3.24 (2.07)	2,065	3.10 (1.91)	7,665	-0.138**
Sector: agriculture	0%	2,065	0%	7,665	0.001
Sector: construction	1%	2,065	1%	7,665	-0.004
Sector: finance	16%	2,065	20%	7,665	0.037***
Sector: manufacturing	43%	2,065	40%	7,665	-0.026*
Sector: mining	7%	2,065	7%	7,665	-0.006
Sector: public administration	0%	2,065	0%	7,665	0.002
Sector: retail trade	7%	2,065	6%	7,665	-0.011
Sector: services	13%	2,065	14%	7,665	0.010
Sector: transportation	10%	2,065	9%	7,665	-0.008
Sector: wholesale trade	2%	2,065	2%	7,665	0.004

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Results

5.1 Professional connections do help getting a board seat

We first start with some descriptive evidence on the impact of professional connections. Table 6 shows that around 20% of appointed directors are directly connected to the board, i.e. they know at least one of the current sitting board member from previous employment history. When also considering the indirect connections, this percentage goes up to 75%. Moreover, the appointed directors indirectly connected to the board only are at 1.5 connection away from a current sitting board member. In other words, there is, on average, one person and a half between indirectly connected appointed directors and sitting board members. Out of ten board members, connected appointed directors know on average 2.4 sitting board members and 7.3% of appointed directors know the CEO. When a nomination committee exists (in 83.1% of the cases), appointed directors are connected to at least one member of the nomination committee in 9.7% of the cases.

Table 6: First evidence on the impact of job networks

	Mean	Std.Dev.	Min	Max	Freq.
Proportion connected to the board	0.212	0.409	0	1	2,065
Nb of board members connected to	2.409	2.430	1	17	2,065
Nb of board members	10.330	3.727	4	33	2,065
Proportion never connected to the board	0.231	0.421	0	1	2,245
Proportion indirectly connected to the board	0.557	0.497	0	1	5,420
Shortest path to reach the board*	2.512	0.680	2	7	5,420
Proportion connected to the CEO	0.072	0.259	0	1	705
Proportion of boards with a nomination committee	0.831	0.375	0	1	8,087
Proportion connected to the nomination committee	0.096	0.295	0	1	937
Observations	9,730				

*A shortest path of 1 implies that the director is directly connected to the board. A shortest path of 2 implies that the director is connected to another individual, himself directly connected to someone sitting on the board.

We now turn to the estimation of equation (1). Table 7 shows estimation results for three different specifications. In specification I, we do not

use fixed effects. Specifications II and III respectively include individual and firm fixed effects. Results are very similar across the three specifications. In all specifications we include several controls and report coefficients only for the most interesting variables. We use OLS estimation and cluster the robust standard errors at both the individual and firm level.

Professional connections do help getting a board seat as an independent board member. When connections with the board increase by 1 percentage point, the probability to get appointed to the board increases between 0.71 and 0.76 percentage points, depending on the specification. Being connected to the CEO or a member of the nomination committee increases further this probability. 1 percentage point increase in connection with the CEO (with a member of the nomination committee) increases the probability of getting a board seat by roughly 0.13 (0.06) percentage points.

It seems social networks are used for recruitment at the board level. The next section will shed some light at the mechanisms at work. In particular, is it the case that firms who appoint “connected” board member do award their CEO greater compensation?

Table 7: Impact of professional connections on board appointment

	I	II	III
Linked to the Board	0.733*** (0.0145)	0.710*** (0.0157)	0.755*** (0.0150)
Linked to the CEO	0.134*** (0.0128)	0.128*** (0.0160)	0.140*** (0.0133)
Linked to the Nomination Committee	0.0560*** (0.0140)	0.0593*** (0.0168)	0.0563*** (0.0145)
Female	0.0381*** (0.00299)		0.0396*** (0.00309)
Years as an Executive	0.0000454 (0.0000462)	0.00866*** (0.00117)	0.000204** (0.0000637)
Average years on Board	-0.00477*** (0.000391)	-0.0725*** (0.00242)	-0.00583*** (0.000489)
Number of Boards	-0.00114 (0.000602)	0.0290*** (0.00268)	-0.000476 (0.000774)
Number of Board Members	-0.000388 (0.000640)	0.000155 (0.00106)	-0.000948 (0.00176)
Executive Chairman	0.00166 (0.000910)	0.00134 (0.00154)	-0.000233 (0.00224)
Nomination Committee	0.00385* (0.00178)	0.00741* (0.00306)	0.00341 (0.00556)
Fixed effects	No	Individual	Firm
Other controls	Yes	Yes	Yes
Observations	107,951	98,529	107,949

Robust standard errors in parentheses, clustered by individuals and firms.

Other controls include sales, number of NEDs on board, number of independent NEDs on board, size of nomination committee, number of NEDs on nomination committee and sector and year dummies.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5.2 CEO with board “friends” do not have higher increases in compensation

Table 8 shows some descriptive statistics on CEO characteristics for firms which appointed a connected director and firms which appointed a non connected director¹⁵. For salary and total wealth of CEOs, connected firms do display significantly higher figures than non connected firms. In particular, CEOs of connected firms earn 19% higher salary and 162% higher total wealth, in comparison to CEOs of non connected firms. However, looking instead at changes in CEO compensation between the year preceding and the year following the appointment reveals a different story¹⁶. In Table 9, we observe that connected firms do not award greater increases in compensation compared to non connected firms. In Tables 10 and 11, we replicate the analysis by separating firms which appointed a director directly connected to the CEO himself and firms which appointed a director non connected to the CEO and find similar results. Therefore, even though connected and non connected firms are different in terms of how much they remunerate their CEOs, it does not seem that appointing a “friend” to the corporate board allows CEOs to extract more rent by awarding themselves higher compensation.

¹⁵We lose a few observations because of missing CEO compensation for 187 firms.

¹⁶We replicate the analysis for changes in compensation components between the year preceding the appointment and five years later but we unfortunately lose more than 50% of the sample. Because this casts some doubts on the resulting selected final sample, we therefore do not report these results here.

Table 8: CEO outcomes in the following year and connection of appointed director with the board

	Non Connected Appointed Director	Connected Appointed Director	Diff.
	Mean (Std.Dev.)	Mean (Std.Dev.)	
Time in CEO position	4.499 (5.117)	4.011 (4.816)	0.489***
Salary	350.3 (506.8)	416.9 (558.1)	-66.57***
Bonus	1,565.1 (4,324.8)	1,419.1 (2,309.9)	145.9
Direct Compensation	502.8 (1,700.7)	557.5 (1,233.0)	-54.68
Indirect Compensation	8,483.3 (16,883.9)	9,620.4 (13,191.3)	-1,137.1
Annual Compensation	9,181.7 (17,031.7)	10,290.7 (13,622.6)	-1,109.0
Total Wealth	78,627.0 (613,152.8)	206,189.1 (2,593,207.6)	-127,562.2*
Observations	9,543		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

All compensation components are measured in thousand of US dollars. Salary is the base annual pay. Bonus is the annual payment made in addition to salary. Direct Compensation is the sum of all cash based compensation. Indirect Compensation is the sum of shares awarded, estimated value of options awarded and long term incentive programs awarded. Annual Compensation is the sum of salary, bonus, value of shares awarded, value of long term incentive programs awarded and estimated value of options awarded. Total Wealth is the sum of equity held, estimated value of options held and long term incentive programs held.

Table 9: Changes in CEO outcomes and connection of appointed director with the board

	Non Connected Appointed Director	Connected Appointed Director	Diff.
	Mean (Std.Dev.)	Mean (Std.Dev.)	
Change in Salary	0.271 (12.35)	0.966 (22.09)	-0.695
Change in Bonus	3.085 (51.33)	0.319 (1.660)	2.766
Change in Direct Compensation	0.118 (12.32)	1.190 (24.18)	-1.072
Change in Indirect Compensation	2.521 (26.61)	2.781 (31.66)	-0.260
Change in Annual Compensation	2.136 (66.23)	5.289 (117.2)	-3.153
Change in Total Wealth	7.738 (122.2)	1.129 (14.55)	6.609
Observations	9,543		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

All compensation components are measured in thousand of US dollars. Salary is the base annual pay. Bonus is the annual payment made in addition to salary. Direct Compensation is the sum of all cash based compensation. Indirect Compensation is the sum of shares awarded, estimated value of options awarded and long term incentive programs awarded. Annual Compensation is the sum of salary, bonus, value of shares awarded, value of long term incentive programs awarded and estimated value of options awarded. Total Wealth is the sum of equity held, estimated value of options held and long term incentive programs held.

Table 10: CEO outcomes in the following year and connection of appointed director with the CEO

	Non Connected Appointed Director	Connected Appointed Director	Diff.
	Mean (Std.Dev.)	Mean (Std.Dev.)	
Time in CEO position	4.456 (5.083)	3.630 (4.662)	0.826***
Salary	364.4 (519.7)	364.3 (507.8)	0.0719
Bonus	1,565.8 (4,084.2)	1,066.1 (1,286.7)	499.7
Direct Compensation	519.1 (1,658.6)	456.3 (832.3)	62.81
Indirect Compensation	8,747.4 (16,434.9)	8,815.9 (10,948.3)	-68.57
Annual Compensation	9,434.7 (16,632.7)	9,542.1 (11,209.7)	-107.4
Total Wealth	111,561.2 (1,416,602.6)	72,681.6 (456,024.6)	38,879.6
Observations	9,543		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

All compensation components are measured in thousand of US dollars. Salary is the base annual pay. Bonus is the annual payment made in addition to salary. Direct Compensation is the sum of all cash based compensation. Indirect Compensation is the sum of shares awarded, estimated value of options awarded and long term incentive programs awarded. Annual Compensation is the sum of salary, bonus, value of shares awarded, value of long term incentive programs awarded and estimated value of options awarded. Total Wealth is the sum of equity held, estimated value of options held and long term incentive programs held.

Table 11: Changes in CEO outcomes and connection of appointed director with the CEO

	Non Connected Appointed Director	Connected Appointed Director	Diff.
	Mean (Std.Dev.)	Mean (Std.Dev.)	
Change in Salary	0.447 (15.72)	0.228 (2.173)	0.219
Change in Bonus	2.625 (46.83)	0.267 (1.618)	2.358
Change in Direct Compensation	0.403 (16.50)	-0.0896 (0.952)	0.492
Change in Indirect Compensation	2.532 (27.96)	3.249 (27.60)	-0.717
Change in Annual Compensation	3.063 (84.72)	0.855 (6.493)	2.208
Change in Total Wealth	6.406 (110.4)	2.597 (26.21)	3.809
Observations	9,543		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

All compensation components are measured in thousand of US dollars. Salary is the base annual pay. Bonus is the annual payment made in addition to salary. Direct Compensation is the sum of all cash based compensation. Indirect Compensation is the sum of shares awarded, estimated value of options awarded and long term incentive programs awarded. Annual Compensation is the sum of salary, bonus, value of shares awarded, value of long term incentive programs awarded and estimated value of options awarded. Total Wealth is the sum of equity held, estimated value of options held and long term incentive programs held.

6 Conclusion

Using data on independent board appointments in US publicly quoted companies between 2006 and 2011, this paper finds some evidence that job networks shape board composition. More specifically, having previously worked with current sitting board members increases the probability of being ap-

pointed to this board. Additionally knowing the CEO of the company or members of the nomination committee further increases the probability. A comparison of CEOs' compensation change one year after the appointment shows no significant difference between firms which appointed a connected director and firms which appointed a non connected director. This last result seems to contradict the idea of rent-seeking executives appointing "friends" to their board, at the detriment of shareholders' interests.

Individuals' social networks are much broader than the set of professional connections. Non professional contacts are likely to matter as well for recruitment, furthermore in different ways. By investigating the influence of non professional connections with respect to professional ones on appointments, we could get further evidence on the role of social networks for recruitment as screening devices. Contacts met at university, at the army or in a charity or a golf club are less likely to have precise information on the skills of individuals. Therefore, further work will aim at measuring the extent to which non professional connections also help getting board positions. By comparing their effect and the effect of professional connections, we could get further insights into the importance of accessing relevant information for recruitment.

Finally, CEO compensation is only one aspect of a firm corporate governance. Other aspects, such as pay for performance sensitivity, turnover to performance sensitivity or mergers and acquisitions transactions, should be investigated to get a broader picture of the corporate governance of a firm. Such investigations will help strengthening the results highlighted in this paper.

References

- [1] Renee B Adams and Daniel Ferreira. A theory of friendly boards. *The Journal of Finance*, 62(1):217–250, 2007.
- [2] Lucian A Bebchuk and Jesse M Fried. *Pay without performance: The unfulfilled promise of executive compensation*. Harvard University Press, 2009.
- [3] Marianne Bertrand, Matilde Bombardini, and Francesco Trebbi. Is it whom you know or what you know? an empirical assessment of the lobbying process. *American Economic Review*, 104(12):3885–3920, 2014.
- [4] Leif Brandes, Marc Brechot, and Egon Franck. Managers external social ties at work: Blessing or curse for the firm? *Journal of Economic Behavior & Organization*, 109:203–216, 2015.
- [5] Jonathan Brogaard, Joseph Engelberg, and Christopher A Parsons. Networks and productivity: Causal evidence from editor rotations. *Journal of Financial Economics*, 111(1):251–270, 2014.
- [6] Lauren Cohen, Andrea Frazzini, and Christopher Malloy. The small world of investing: Board connections and mutual fund returns. *Journal of Political Economy*, 116(5):951–979, 2008.
- [7] Jeffrey L Coles, Naveen D Daniel, and Lalitha Naveen. Boards: Does one size fit all? *Journal of Financial Economics*, 87(2):329–356, 2008.
- [8] Ran Duchin and Denis Sosyura. Divisional managers and internal capital markets. *The Journal of Finance*, 68(2):387–429, 2013.
- [9] Eugene F Fama and Michael C Jensen. Separation of ownership and control. *Journal of Law and Economics*, pages 301–325, 1983.
- [10] Cesare Fracassi and Geoffrey Tate. External networking and internal firm governance. *The Journal of Finance*, 67(1):153–194, 2012.
- [11] Ilan Guedj and Amir Barnea. Director networks. *Working Paper*, 2009.
- [12] Rainer Haselmann, David Schoenherr, and Vikrant Vig. Lending in social networks. *Working Paper*, 2014.
- [13] Byoung-Hyoun Hwang and Seoyoung Kim. It pays to have friends. *Journal of Financial Economics*, 93(1):138–158, 2009.

- [14] Francis Kramarz and David Thesmar. Social networks in the boardroom. *Journal of the European Economic Association*, 11(4):780–807, 2013.
- [15] Danielle Li. Expertise vs. bias in evaluation: Evidence from the NIH. *Working Paper*, 2015.
- [16] Bang Dang Nguyen and Kasper Meisner Nielsen. The value of independent directors: Evidence from sudden deaths. *Journal of Financial Economics*, 98(3):550–567, 2010.
- [17] Anil Shivdasani and David Yermack. Ceo involvement in the selection of new board members: An empirical analysis. *The Journal of Finance*, 54(5):1829–1853, 1999.
- [18] Helen Simpson and Edmund Wright. Social networks and boardroom appointments: who you know matters. *Working Paper*, 2012.
- [19] Edward J Zajac and James D Westphal. Director reputation, ceo-board power, and the dynamics of board interlocks. *Administrative Science Quarterly*, 41(3), 1996.
- [20] Natalia Zinovyeva and Manuel Bagues. The role of connections in academic promotions. *American Economic Journal: Applied Economics*, 7(2):264–292, 2015.