Beyond Independence:
Social Networks in The Boardroom[*]

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Abstract

This paper provides empirical evidence consistent with the facts that (1) social networks strongly affect board composition and (2) *some* social networks are detrimental to corporate governance. To do this, we use a unique dataset on executives and outside directors of corporations listed on the Paris stock exchange over the 1992-2003 period. This data source is a matched employer employee dataset providing both detailed information on each director/CEO and information on the firm employing them.

Sociological evidence suggests that three types of networks coexist in the French business elite: Engineers, "regular" civil servants and politically involved civil servants. We use these observables to identify which network each CEO/director belongs to. We first find a very strong and robust correlation between the CEO's network and that of his directors. Also, the CEO's network, much more than the board's, is related to the identity of newly appointed directors. We take this as evidence that on average, the CEO uses his own social network to find out new directors, and thus does the shaping of the board. We then turn to economic effects and find two pieces of evidence consistent with the fact that networks of former bureaucrats, rather than those of former engineers, may be detrimental to corporate governance. First, we find that former civil servants are less likely to leave their CEO job when their firm performs badly. Secondly, CEOs who are former bureaucrats are more likely to accumulate directorships, even though their own firm performs badly. Both pieces of evidence suggest that social networks may in some cases impair board effectiveness.

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1   Introduction

That social networks affect market outcomes is a well-documented fact (see Granovetter, 1973 or Rees, 1966 for early references). The precise mechanisms through which networks operate are less well-known. To investigate such mechanisms, this paper focuses on the market for corporate directors, a labor market where network effects are likely to matter. First, they matter because hiring the right individuals is potentially difficult: an outside director is both a part time expert and a supervisor to the executive management. These are very specific and potentially distinct skills and a proper and transparent market for such jobs may not exist. Hence, being directly or indirectly known to the management or the firm's main owners is likely to be a strong comparative advantage to obtain a director seat. Social networks are therefore likely to affect the *matching function* of such a market with high frictions. Second, and because the director has two potential roles, expert and supervisor, the use of social networks to facilitate hiring may conflict with one of these roles. Hence, social networks may have an a priori ambiguous effect on economic efficiency. For instance, they can be used by an entrenched CEO to find an obedient supervisor or an incompetent expert, or used by a benevolent manager to find more easily an utterly adequate expert or a tough supervisor. The overall economic effect of social networks is a priori ambiguous in this context and can only be settled through an empirical investigation.

This paper tackles this question and provides empirical evidence consistent with the facts that (1) social networks strongly affect board composition and (2) *some* social networks are detrimental to corporate governance. In putting social relations to the fore, we thus look here at a determinant of corporate board effectiveness that has so far been ignored by all academics and most practioneers. In fact, professional economists have so far insisted more on board size, the fraction of independent directors or the number of director seats an executive can hold, and most corporate governance reports contain related recommandations. By emphasizing the potentially negative role of social networks, this paper explains why sound governance practices should include guarantees that the recruitment process of non executive directors be both *transparent* and *independent* from the management. In some instances, this is likely to be more important than setting a minimum number of independent directors or capping the number of director seats CEOs are entitled to hold outside the company.[1] To be true, most corporate governance reports include recommendations on the nominating committee, but accounting properly for social relations suggests they might have to go further in that direction, by, for example, professionalizing the recruitement of outside directors.

To look at social networks in the boardroom, we use a unique dataset on

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[1] France is an interesting case in point. It is the practice in this country that most directors sitting on corporate boards are outside directors in the american sense (Hermalin and Weisbach [2002]). However, three recent reports on best corporate governance practices (Viénot I in 1995, Viénot II in 1999 and Bouton in 2002) have strongly advocated the recruitment of independent directors, while putting less emphasis on their precise recruitment process.

CEOs and non executive directors of corporations listed on the Paris Stock Exchange over the 1992-2003 period. The resulting data source matches detailed information on each director/CEO with economic measures on their employing firm. Our sample of French directors is particularly well-suited to study the prevalence of social networks because social networks are easily identified and observed among (leading) French businessmen. The sociological literature indeed documents that among French business elites two broad, distinct, networks coexist: Engineers and former high ranking civil servants.[2] Within civil servants, those actively involved in politics form a well-defined "sub-network". Hence, data on social networks can be easily gathered by collecting individual level information on education, bureaucratic career and political affiliation (when politically involved). We do this using the French issue of the Who's Who and directories of alumni from ENA and Polytechnique, two of France's most prestigious Grandes Ecoles, overrepresented among top executives and the virtually unique way of entering high-level jobs in the civil service and, even more so, the "Cabinets Ministeriels", the politically-connected civil service jobs.

Turning to the results, our empirical investigation suggests that networks indeed shape corporate boards and that this might impair their effectiveness. We first find a very strong and robust correlation between the CEO's network and that of his directors. Also, the CEO's network, much more than the board's, is related to the networks newly appointed directors belong to. We take this as evidence that on average, the CEO uses his own social network to locate potential new directors, and thus as evidence that he is shaping the board. We then turn to economic effects and find two pieces of evidence consistent with the fact that networks of former bureaucrats, rather than those of former engineers, may be detrimental to economic outcomes and, therefore, affect corporate governance. First, we find that former civil servants are less likely to leave their CEO job when their firm performs badly. Secondly, CEOs who are former bureaucrats are more likely to accumulate directorships, even though their own firm performs badly. Both pieces of evidence suggest that some social networks may impair board effectiveness.

Aside from its contribution to the corporate governance literature, this paper also contributes to the emerging empirical economic literature on social networks in the labor market (see for example Bertrand, Luttmer and Mullainathan, 2000, Munshi, 2003). The first difference between these existing papers and ours is that we are able to observe networks at work much more directly, since we pursue our analysis at the firm level, where we observe both the referee (the CEO) and the applicant (the director). Because our data has strong, and we believe innovative, identifying power, we detail the econometrics of network effects identification. To our knowledge, no study on social networks in the labor market has so far been in a position to go to the level of detail examined here. In that sense, our data collection strategy is closer to what sociologists interested in business elites do: obtain information about (1) members of the elite and (2) ties

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[2]For english references see Swartz [1985,1986], Kadushin [1995], Frank and Yasumoto [1998]. French language references include Bauer and Bertin Mourot [1997], and Suleiman [1997a,b].

between individuals, for example through interlocking directorships. To some extent, the present paper also contributes to the sociological literature in that it analyzes a much broader sample than elite scholars generally use.[3] Hence, our description of the "ruling class" is less refined, but more representative of the French reality. Another contribution of our study is to provide information on the recent evolution of French business elites. Somewhat paradoxically, we find that, in spite of the state's retreat from economic life in the 1990s, the prevalence of former civil servants among top executives remains larger than ever in 2003. We suggest that the very process of privatizations might have caused this persistence.

Another difference with the labor literature is that, in the theories on the relation between job search and networks (Saloner, 1986, Montgomery, 1990), networks are generally a good thing:[4] well connected referees suggest new names to firms, who accept them because they can retaliate on the referee if the newly hired is not as good as expected. Hence, network "grease the wheels" of the labor market. What is specific about the market for directors is that firms may not be the ones choosing. Hence, there might be concerns about whether networks in the contrary impair economic efficiency. This is where we think our paper also contributes to the literature on corporate governance, and in particular the debate on what determines *board effectiveness*. So far, some academics interested in this question have focused on board size (Yermack, 1996), busy, overloaded, directors (Ferris, Pritchard and Janagathan, 2003, Perry and Peyer, 2003) and, above all, the role of independent directors (for a review, see Hermalin and Weisbach, 2002). But we are aware of no existing study on the role of social networks in corporate governance. Yet, accounting for social networks interferences in the board nomination process could be, we believe, a very important step towards designing sounder corporate governance practices.

The rest of the paper is organized as follows. Section 2 looks at the French elite from a historical and sociological perspective. This allows us to understand how the information on outside directors and executives has been gathered. Section 3 describes the dataset, providing additional descriptive information to section 2. Section 4 looks at the extent of networks and section 5 at their economic costs. Section 6 concludes.

2 The French Business Elite

2.1 Historical Perspective on the French Elite

For both historical and sociological reasons, France's economic elites have two distinctive features (Bauer and Bertin-Mourot, 1997, Swartz, 1985): first, they tend to be drawn from a handful of Grandes Ecoles, which form separated networks. Second, a big part of the contemporaneous French business elite

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[3]For instance, Kadushin(1995) studies 28 members of the French business elite. Frank and Yasumoto (1998) look at a "broader" sample of 125 people.

[4]Bentolila, Michellacci and Suarez (2003) are a recent exception.

4

comes from the civil service, with relatively homogeneous and standardized careers. These two features are easy to observe and will thus guide our empirical strategy.

2.1.1 The Tyranny of the Diploma

Bauer and Bertin-Mourot (1997) distinguish two particular features of the French business elite. The first one is "the tyranny of diploma": college degrees generally obtained before 25, tend to over-determine career prospects. Those students fortunate enough to obtain the most difficult and competitive degrees have almost guaranteed access to top jobs in the administration and/or the private sector. The French post-secondary educational system splits into two parts (Suleiman, 1997): the first one is the usual university system, which is both free and whose access after high school graduation is guaranteed by law. Most French universities have no right to select their incoming students; therefore, selection takes place along the way, inducing students to drop out after 2,3 or 4 years. Suleiman notes that in the mid 1990s, this system comprises some 1.2 million students.

The second part of the educational system is much smaller (some 50,000 students), more elitist and consists of a myriad of different schools (Grandes Ecoles). In most of these schools, tuition fees are negligible, but entrance takes place after the successful completion of a nationwide examination with a numerus clausus. Preparation to these exams is carried out in special classes (classes préparatoires), and takes two to three years after high school graduation. The bulk of these schools consists of engineering and business schools, though some of the most prestigious Grandes Ecoles do not fall in these categories. The French business elite is however mostly recruited within the two most prestigious Grandes Ecoles (Swartz, 1986): the Ecole Nationale d'Administration and Ecole Polytechnique. The Ecole Nationale d'Administration (henceforth ENA) was created after the second world war to supply the civil service with highly trained professionals. Ecole Polytechnique is an engineering school originally founded by Napoleon to recruit and train officers for the French military during the French Revolution, that gradually evolved into an engineering school. Nowadays, most of the class enter the private sector, but the best students during the years at Polytechnique (as measured by academic credentials, mostly in maths and physics) enter "en masse" the civil service. Other prestigious schools (Centrale, Les Mines, HEC etc.), less represented amongst top executives, have no tie with the civil service and all of their graduates join the private sector right after school.

Grandes Ecoles graduates retain some ties after college not only because they studied together and formed friendships there (see Kadushin, 1995, and Frank and Yasumoto, 1998), but also through alumni networks and events. The number of people involved is so large that the resulting networks are loose and uncoordinated (although some best selling books of the early 1970s went as far as calling them "mafias"). However, having studied in a Grande Ecole naturally endows a graduate with a host of weak ties within business people

5

and, for ENA and Polytechnique graduates, within the high administration. Partly because of their ties with the civil service (more on this below), ENA and Polytechnique have historically been the most prestigious Grandes Ecoles, in spite of or perhaps because of, their small size. They train together some 500 new students a year. Firms appears to value their social connection (in particular with the administration, more on this below), their qualities, but also seem to rely on this elitist feature of the educationnal system to produce legitimacy in their organizations (see the case study in Bauer and Bertin-Mourot (1997), and also Burt, Hogarth and Michaud (2000)). As a result, they hire top Grande Ecole graduates at the top levels of the hierarchy instead of training and then promoting empoyees over the long term. This tendency for firms to hire managers from Grandes Ecoles dates back to the XIXth century, though at the time most French firms were still family owned, and family run. As some firms became more successful and larger, professional managers would be hired, and the top level hierarchies started to fill up with engineers from Polytechnique and Ecole Centrale (see Cassis (1997)). In the mid XXth century, firms started in addition to hire civil servants, as we will see now.

2.1.2 Civil Service and Business Elite

The second feature of the French economic elite is that a large fraction of it has been trained in the civil service. This flow from top level bureaucracy into business started after World War I. Until then, the state was small, held few levers over the economy. Capitalists sought to influence regulation through directly lobbying or bribing politicians from the parliament or the government (Garrigues (2002)). During World War I, high ranking civil servant had progressively risen in power as the state budget grew larger. In the early 1920s, diplomats and employees of the Ministry of Colonies seemed to have been particularly sought after by firms willing to set up subisdiaries abroad. In the 1930s, the state started to intervene more and more in the economy both through nationalizations and regulation.[5] At this point, the knowledge of the internal workings of the bureaucracy and useful connections started to be valued more and more by private firms, in particular in the financial industry.

In terms of the relation between business and administrative elites, the big shift occured however *after* WWII. First, in 1945 the government, then run by the unlikely coalition of Gaullists and communists, two dirigist political forces highly involved in the resistance, took control of most of the financial industry with the intent of channeling savings to priority industries under tight control of the Treasury (Melitz, 1990). In addition, it took over most utilities and some large manufacturing firms (like EDF, the electricity monopoly, and Renault, a large car maker). The Treasury and the ministry of industry therefore became,

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[5]Most French airlines were nationalised in 1933 and consolidated into what is now Air France. The national railways were created in a similar way in 1937. In 1936, a left wing coalition (Le Front Populaire) came into power, got a firmer hand on the Bank of France (then the private property by France's top financiers), enacted the two weeks of paid vacations and the 40 hours week (Asselain 1984)).

during these reconstruction times, the real centers of power in finance and industry (Garrigues, 2002). Simultaneously, ENA was created, which dramatically increased the supply of high ranking civil servants certified by a prestigious selection system explicitly based on education. The new prestige linked with civil service, along with the creation of this dedicated school created a new elite, mostly based on scholarly achievement and sharing a meritocratic republican ethos.

In a given class at ENA or polytechnique, the best students would systematically join one of the five most prestigious bureaucratic careers, or "corps d'Etat" (Suleiman, 1997 and also Kadushin, 1995), which train altogether some 50 people a year. Polytechnique graduates could join industry related corps d'Etat, the famous corps des Mines or the corps des Ponts et Chaussées. These career paths were designed to train future experts in industry, to serve both as political advisors and top level managers. Top ENA graduates would join the Inspection des Finances, the Conseil d'Etat or the Cour des Comptes. These careers were designed to produce experts in public finance and law (particularly important in a country were the State has its own jurisdiction). The typical high ranking civil servant career in the postwar years involved a few year in the treasury (for ENA graduates) or at the ministry of industry (for polytechnique graduates who joined the civil service), then as a technical advisor to the minister of industry, finance or the prime minister. With this experience, they would then joined the top management of a private or a state owned large company. To private firms, part of their value added came from their "carnet d'adresse" (adress book), built during their years at the top levels of the State, a very valuable asset in a country where State presence pervaded all industries, be it through regulation, subsidies, finance or mere influence.

By the early 1980s, ENA and Polytechnique graduates' involvement in the top management of French firms was pretty strong (see Swartz, 1986). It was even strengthened by the 1981 mass nationalizations undertaken by the then newly elected socialist government. In 1986, a strong policy reversal was implemented by the center right coalition led by Jacques Chirac: most of the State assets were privatized, with a temporary halt during the 1988-1993 period. The State progressively lost its direct grip over manufacturing industries, the financial industry; it deregulated the good and credit markets and reduced dramatically its subsidies (for a description of the financial liberalization, see Bertrand, Schoar and Thesmar, 2004).

The loss of power by the State did not, apparently, change the way French business elites were recruited - see Figures 1 and 2. Since most privatizations occured through IPOs and the privatized firms were large, the shareholder base was too dispersed for a controlling owner to emerge. Loyal top ranking bureaucrats could therefore remain at the head of the privatized companies. To further ensure that these management teams remained in power, protected from a possible takeover conducted by foreign investors, a network of cross shareholding and cross directorships ("the noyaux durs", or hard cores) was set up between privatized manufacturing firms, banks and insurance companies (Garrigues, 2002). The social connections created at school and through common

7

careers in the civil service helped to perpetuate a system in which old CEOs of formerly State-owned corporations started to chose their successors in a pool of young civil servants with similar training. In general, a congruent board of outside directors would approve these decisions.

With these two features of the French elite in mind, we turn to a more statistical analysis (next Section), but first, we briefly review sociological work that has used contemporary data.

2.2   Contemporary Sociological Evidence

As evidenced above, personal and business relations between members of the French elite have naturally developed from the bonds created during their post secondary education (see Burt, Hogarth and Michaud, 2001) and through common careers in the civil service (Swart, 1986, Kadushin, 1995). These relations have two prominent features. First, the sociological literature has shown that while these bonds most often tend to resemble "weak ties" between fairly competitive people, under some circumstances, these bonds can be very tight and described by their members as true "friendship".[6] Second, the French elite can be broken down into different cohesive subgroups, within which friendship bonds prevail, but between which competition and weaker ties are the norm. These two aspects will provide us with a simple way of collecting hard information on social networks within the French business elite.

As it turns out, sharing common educational, social or occupational background is a good proxy for "friendship relations". Charles Kadushin (1995) has studied the frienship relations among 28 members of the "inner circle" of the French financial elite (people whose influence was the largest among 125 most influent Frenchmen in business and economics). Consistently with the above discussion on the relation between bureaucratic and business elites, he shows that a past career in the French Treasury is highly correlated with being part of this "inner circle", other things beiing equal.[7] Moving on to friendship, he fiinds that two people of this circle are more likely to define themselves as "friends" when (1) both are ENA graduates, most often in the target sample members of the Grands Corps, (2) both were connected to the same political party (often because they worked as advisers when the party was in government) and (3) when their past career included a few years at the Treasury. Also, within this target sample, Kadushin finds that friends are more likely to seat on the same board of directors. Hence, objective measures of elite cohesiveness so far used by sociologists interested in networks and elites, such as similar education,

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[6]Leslie Mitchell De Quillacq (1992), an american born journalist, conducted in the early 1990s some 67 interviews among influential members of the business elite. In the words of one of them "Dinners, Luncheons, breakfasts, tête à tête... It's always the same who talk, always the same ones who are there. It doesn't stop. We meet all the time." (quoted from Kadushin (1995), p 210).

[7]As it turns out, membership to very exclusive clubs like Le Siècle, AFEP, Entreprise et Cité etc is also strongly correlated with the fact of being a member of the business elite. We do not, however, have access to this (very) private information and this clearly is a limitation of our study.

similar professional experience, or board interlocks (on this literature see the review by Mizruchi, 1995) seem to be perfectly applicable in our French context. While not entirely surprising - especially to French insiders - this will serve our purpose well, given that our data does not provide direct information on the family or friendship relations between individuals, but only information on education, socioeconomic background and past career. To some extent, Kadushin's study legitimates our empirical strategy, which relies on assuming that people with share strong features and a common background within a restricted world will be either willing to reciprocate favors (accumulating social capital through "reciprocity transaction") or willing to maintain their reputation vis à vis the same network (accumulating through "enforceable trust").

A second useful aspect of the French elite is that its members tend to cluster into different subgroups within which social cohesion is very high and between which there is some level of weak cooperation and competition (Frank and Yasumoto, 1998). Within subgroups (the "Corps d'Etat" for example), a high degree of cooperation is the norm, and members seek to accumulate social capital by building their reputation vis-à-vis the network as a whole, and not towards particular individuals (what Frank and Yasumoto call "enforceable trust"). With potentially competing subgroups, individuals seek more to build ties based on interpersonal reciprocity ("reciprocity transactions") and generally do not seek to construct a reputation with respect to the entire (alien) subgroup. Using a somewhat different methodology than Kadushin - but the same dataset – Frank and Yasumoto break the French elite down to three groups: right wing ENA graduates, left wing ENA graduates and non ENA graduates. Consistently with their hypothesis on between/within subgroup interaction, Frank and Yasumoto find that people are more likely to engage in hostile actions towards members of other subgroups than toward members of their own subgroups. In addition, they find that two people are more likely to engage in reciprocity transaction (help one another) when they do not belong to the same sub group. These results are useful to us in that they guarantee that various social networks actually do cluster the elite in several distinct groups.

3   The Data

3.1   Data Sets

Our final data set matches information on the employee – the CEO and the administrators – and on the employing firms. To construct it, we used mainly three different data sources: (1) the DAFSA yearbook of French listed firms provides us with firm level variables, (2) the French edition of the Who's Who gives us socioeconomic, career and educational information on CEOs and directors. The Who's Who is however not exhaustive, hence, (3) for ENA and Polytechnique graduates, Alumni Directories were used to obtain education and partial information on careers for those individuals not listed in the Who's Who.

All French firms listed on the stock market are required to issue an annual

report every year, which contains detailed accounting information. These corporate accounts have to be certified by two independent auditors. Using the annual reports, the DAFSA yearbook compiles listed companies accounts in a yearly publications. Available yearbooks go back to the 1950s, but unfortunately, detailed balance sheet and profit account information is only available from the 1984 issue. Given that French firm often take the form of business groups with myriads of subsidiaries, corporate account are always consolidated at the group level - although very often only the group leader is listed. We extracted this information from the 1988-1993 paper issues of the yearbook, and from its 1994-2003 electronic issues. We restricted ourselves to firms listed on the "premier marché" or "second marché", excluding those firms traded over the counter ("hors cote") or firms listed on the "nouveau marché" (a market for young firms with growth opportunities that was created in 1995). The "premier marché" consists of all firms whose market capitalization and volume traded exceed given thresholds. The "second marché" is a market for smaller, in general fairly mature, firms who are listed but whose volume is too low to enter the premier marché. Both markets have on average some 300 firms listed each year.

Along with accounting information, the DAFSA yearbook provides us with the names of the CEO (directeur général or président du directoire), the chairman (président du conseil d'administration or président du conseil de surveillance) and the no executive directors (administrateurs or membre du conseil de surveillance). Henceforth, we will use the words "non exeutive directors" and "directors" interchangeably, since their meanings are identical in the French context. As it turns out however, most CEOs (directeur général) also hold the title of chairman of the board (président du conseil d'administration). Only when the firm is a "société à directoire" (a special legal form imported from German law), is the CEO prevented from holding the chairman seat.

We retrieved information about CEOs and directors using two data sources. The first one is the Who's Who in France, a list of prominent people in politics, business and entertainment. For each individual, the available information is well standardized and includes self-reported measures of parent's occupation, place and date of birth, marital status, number of children, education, current occupation and past career (with both positions and firms' names). Each individual listed in the DAFSA database was coded using his or her first and last names. The matching process has been done by hand for all CEOs, Chairmen and Outside Directors from 1992 until 2003, using the 1994 and 2000 issues of the Who's Who. On average, some 51% of all CEOs of all listed corporations were retrieved in the Who's Who. Given that we look at the 1994 and 2000 issues of the Who's Who, this percentage shows a steady decline over the period under study, from some 60% in the beginning to 45% in 2003. This figure is somewhat lower for directors, with approximately 36% of them being listed in the Who's Who. Again, this percentage goes down from 40 to 27% over the period.

The second sources of data on directors and CEOs are the directories of both Polytechnique and ENA graduates, which are exhaustive, in contrast to

the Who's Who. These directories provide the obvious information about education, but no information about the socio-economic background and very little information about career (bureaucratic career - Corps d'Etat - if any). All CEO and director names present in the DAFSA database over the 1992 until 2003 were cross checked using these directories. Given that we are looking at directories of graduates, almost 100% of ENA and polytechnique graduates who were CEOs, chairmen or board members of our listed firms can be assumed to have been retrieved.[8]

The historical and sociological evidence surveyed above suggest to identify networks through education (in particular Polytechnique vs ENA graduates), through bureaucratic career (Top Administrative vs Top Engineering Corps d'Etat) and through political affiliation (Having served as an advisor to a Right Wing vs a Left Wing minister). In our empirical analysis, we focus on these 6 categories. Before though, we describe briefly the data to see how it is consistent with available sociological and historical evidence, and how it complements them.

3.2   The French Business Elite in the 1990s

Two important features emerge from a raw inspection of the data : first, the overall prevalence of Grande Ecole graduates and civil servants among directors and CEOs, and second, the stability of this pattern over the recent period.

[**Insert Tables 1,2**]

First, the data are fully consistent with the sociological and historical evidence outlined above: Over the 1992-2003 period, (1) ENA and Polytechnique graduates run the lion's share of French firms, and (2) Former civil servants, in particular those actively involved in politics also run a large share of firms. As can be seen from table 1, ENA and polytechnique graduates run, on average, some 20% of the firms; while this may appear small, their firms are on average very large, since they correspond to some 70% of all assets traded on the stock exchange (at book value). This pattern can still be found if we restrict the focus to members of the top five bureaucratic careers (Corps d'Etat), who run 8% of all firms, but more than 50% of all assets.[9] Former right wing advisors dominate the sample, as the left stayed away from political power from 1958 to 1981, so for a given age, former advisors are more likely to be right wing. Similar conclusions are obtained upon inspection of directors (table 2).

[**Insert Figures 1,2**]

Secondly, in spite of a vigourous process of privatization and deregulation in all sectors of the economy during the 1990s, civil servants remain prevalent

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[8]Apart from amiguity on the name and surname, as, for instance, when both are very common.

[9]A companion paper - Bertrand, Kramarz, Schoar, and Thesmar (2004) - investigates the behaviour of these CEOs more specifically using detailed firm level data.

amongst top executives of French corporations in the early 2000s. Figure 1 computes the change in the asset weighted share of CEOs from various categories. First, during the 1990s, civil servants with pure administrative background - ENA graduates, mostly member of the top Corps d'Etats - became more and more prevalent. Second, Polytechnique "engineers", either from the civil service or from the private sector declined sharply after 1999. Last, this movement started with the resuming of privatizations under the right wing government elected in 1993. SOEs run by former political advisors started to be sold to the public starting from that date, explaining the rise in the share of right and left wing advisors. In 1997, the socialist party won the elections, but did not halt the privatization process. However, more SOEs run by left wing CEOs were sold from that moment on, which explains the continuing rise in left wing CEOs and the relative decline in right wing CEOs.

Figure 2 looks at the trend in board composition: it shows the change in the (asset weighted) share of firms in which at least one ENA graduate, one Polytechnique graduate, etc is a board member. As it turns out these fractions are both very high and show a strong upward trend in the early 1990s, right when privatizations resume (1993). They then remain stable for all types of directors (between 70 and 90% have at least one director of either type), apart from engineers related to the civil service. This stability is striking, given that two reports on best corporate governance practices were issued in 1995 and 1999 (Viénot I and II). These reports strongly advocated the recruitement of "independent directors". But of course, "independent director" does not mean "non socially connected director".

Figures 1 and 2 display similar evolutions; this, along with sociological evidence on French elites, suggests a relation between board composition and the CEO's identity: ENA graduate CEOs may be more likely to appoint ENA graduates as non executive directors. A preliminary investigation indeed supports this claim: CEO's identity matters for shaping board composition. As table 3 shows for instance, the fraction of ENA graduates seating on the board of corporations run by ENA graduates is much higher than in other corporations. This is also true for Polytechnique graduates.[10]

[Insert Table 3]

A direct look at the data indeed suggests that social networks seem to underlie the composition of corporate boards. Such an investigation makes it unclear, however, which structural parameters we identify by just looking at table 3. Do we simply measure that ENA graduates are better directors, and hence more sought after ? Do we simply measure the fact that some firms naturally attract ENA graduates as directors and CEOs - potentially because they operate in regulated industries, or require more knowledge of the bureaucracy ? Or do we capture the fact that ENA CEOs run larger firms, that have larger boards and are thus more likely to appoint ENA directors ? To circumvent these difficulties,

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[10]Similar tables, using bureaucratic careers of political affiliation, are also compelling. We omitted them to save space.

before looking at the networks *per se*, we will first briefly describe the empirical model we use in our exploration of the data, and then derive simple, easy to estimate reduced forms to recover the parameters we seek to identify. This will help us interpret the results shown in table 3.

4 Empirical Strategy

Appointment of a director depends on each potential applicant's own social networks and whether it overlaps with that (those) of the CEOs. From this we can write a model that cannot be directly estimated from the data. However, this model generates reduced forms that can be estimated. Relations between the structural (economic) and the reduced forms that can be estimated are not straightforward. Therefore, this Section carefully spells out how the structural model translates into various estimable models.

4.1 The "Economic" Model

Consider the matched employer - employee panel where employees are indexed by i, firms by j and time by t. We assume the existence of several parallel (or overlapping) networks, which we index by k. Following Munshi (2003), we seek to identify whether belonging to a network similar to that of the firm's CEOs increases the chances of a given individual to be appointed at j's board. We thus start by formulating the following linear[11] probability employment model:

$$E_{ijt} = \alpha_i + \beta_j + \sum_k \left[\beta_j^k A_i^k + C_{jt}^k \left(\gamma + \sum_l \lambda_{kl}.A_i^l \right) \right] + \varepsilon_{ijt} \qquad (1)$$

where $E_{ijt} = 1$ when individual i works as a director of firm j at date t, and $E_{ijt} = 0$ else. k is an index for the network. $A_i^k = 1$ when individual i belongs to network k, and zero else. C_{jt}^k is equal to 1 when the CEO of firm j at date t belongs to network k, and zero else.

We introduce three kinds of (fixed) effects. The α_i coefficient is a fixed effect standing for the general propensity to become director of a listed firm. This effect can be correlated with A_i^k, the network to which i belongs. β_j stands for the general propensity of firm j to hire directors (thus have a large board). It may be correlated with C_{jt}^k, the CEO's networks (some CEOs, while belonging to particular networks, may prefer to hire larger boards), or uncorrelated to it (some firms simply tend to have larger boards, because they are large). β_j^k stands for the fixed tendency of certain firms to hire people from certain networks, independently of the CEO's identity.

We present now the parameters linked to the specific effect of a CEO's identity. First, some types of CEOs may tend to hire more directors than others,

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[11] Given that the probability for a given - even if well connected - individual to be hired at a given firm's board are small, a linear probability model might not be too wrong an approximation.

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which increases a given individual's chances to be appointed: this is captured by the γ parameter. Second, when a CEO belongs to network k, it may affect different categories of individuals according to their network l: λ_{kl} captures the impact on the probability for an individual belonging to network l of being hired by a CEO belonging to network k [12]

How do we test for the presence of social networks in this model ? If network effects are really present, and if we correctly measure network membership by our categories k, then we should observe that being appointed as a director in firm j occurs more frequently when the individual and the CEO share the same network (conditional on the various effects described just above). Hence,

$$H_0: \lambda_{kk} > \lambda_{kl} \text{ for all } l \neq k$$

corresponds to evidence of network effects in the patterns of nomination. Another hypothesis could be, similarly (though the meaning of it would be slightly different):

$$H'_0: \lambda_{kk} > \lambda_{lk} \text{ for all } l \neq k$$

4.2 The Firm Level Model

This section shows how model (1) may be written as a firm level model, and which parameters of (1) we are able to identify by aggregating our matched employer - employee data set into a firm level data set. Let us introduce a few more notations: let us write n_{jt} the total number of directors sitting at firm j's board at date t. $n_{jt}^k < n_{jt}$ is the number of directors of j who belong to network k. n_t^k is the total number of members of network k at date t and finally n_t is the total labor force.

With a few manipulations, it can be easily shown (see appendix) that an aggregation of model (1) writes as:

$$Y_{jt}^k = \left(\frac{n_{jt}^k}{n_t^k} - \frac{n_{jt}}{n_t} \right) = a_j^k + \sum_m b_t^{mk}.C_{jt}^m + u_{jt}^k \tag{2}$$

$$\text{with } b_t^{mk} = \lambda_{mk} - \sum_l \lambda_{ml} \frac{n_t^l}{n_t}$$

where Y_{jt}^k is the proportion of members of network k ending at the board of j in excess of the natural population proportion of people ending at the board of

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[12]Our model encompasses Munshi [2003]'s specification. In Munshi, the probability of being employed for an immigrant of community l is an increasing function of community's employment in the city (that would be of C_{jt}^l in our context where we need to replace city by firm). Hence, Munshi's equation would simply be:

$$E_{ijt} = \alpha_i + \beta_j + \sum_k \beta_j^k A_i^k + \lambda. \sum_k A_i^k.C_{jt}^k + \varepsilon_{ijt}$$

which amounts to assuming that the λ matrix is diagonal and that $\gamma = 0$. Our broader specification allows for networks overlap - as is more likely to be the case in our context than in Munshi's. In addition, it allows to control for heterogeneity in network strengths - something our dataset is probably more suited to study than Munshi's.

j. The fixed effect a_j^k stands for the fact that firm j may naturally (apart from its CEO's identity) have a propensity to hire members of k that is larger than the average propensity to hire from any network. The b_t^{mk} coefficient measures the relation between a CEO's identity and the board composition, controlling for the above fixed effects. These coefficients are not exactly equal to the λ's, because any network can be present at a given firm's board, as the mere result of its size in the natural population. the expected fraction of m, even in the absence of network effects, would be n_t^m/n_t. As a result, the specific effect on k will be *underestimated* in the "firm level" specification if we do not correct for this bias.

By comparing b^{kk} and b^{kl}, we are in a position to restate hypothesis H_0 in terms of the parameters estimated in (2):

$$H_0: \ b_{kk} > b_{kl} \ \text{for all} \ l \neq k$$

thus, by looking at the difference between the coefficients of C_{jt}^k in the regressions explaining (1) the proportion of members of k ending in j and (2) the proportion of members of l ending in j.

4.3 The Individual Level Model

Let us go back to the inital equation that expresses the detailed employer-employee relation. Let

$$\mu_{it}^k = \sum_j E_{ijt} C_{jt}^k$$

be the number of firms in which i is a director, whose CEO belongs to network k. We note μ_t^k, the sample number of members of network k, μ_{it}, the number of board seats held by individual i and μ_t the overall number of board seats in the sample at t. After a few manipulations, we can show (see appendix) that the aggregation of model (1) at the *individual* level leads to:

$$\frac{\mu_{it}^k}{\mu_t^k} - \frac{\mu_{it}}{\mu_t} = c_t^k + \sum_m d_t^{km}.A_i^m + v_{it}^k \tag{3}$$

$$\text{with} \ d_t^{km} = \left(\lambda_{km} - \left(\sum_l \lambda_{lm}.\frac{\mu_t^l}{\mu_t} \right) \right)$$

This model amounts to explain, with individual i's network, the excess share of boards in which i is sitting and where the CEO belongs to network k.

Again, it is not directly possible to estimate network strength from the reduced form parameter d_t^{km} As above, the test of hypothesis H'$_0$ of network presence amounts to comparing:

$$H'_0: \ d_t^{kk} > d_t^{lk}$$

i.e. the reduced coefficients of regressions with different networks k.

The major strength of this approach is that, in contrast to the previous method, it allows the analyst to control for all three kinds of fixed effects in the main model (1) *without introducing firm fixed effects.* Its cost is that identification of the effects rely on those individuals sitting on at least two boards.with different CEOs, since within the set of "mono-directors", Z_{it}^k does not vary with i.

4.4 Possible Biases

Notice that we could not recover the socio-economic background of all directors and CEOs, but only for those who happened to be reported in the Who's Who.[13] It could very well be that the probability of being in the Who's Who is correlated with the ability to become a director. Independently of being an ENA graduate, sheer charisma, high skill or intense networking activity could be correlated with someone's probability of becoming a director. This should not, however, be a problem given that this should be captured by α_i, an effect that our methodology accounts for.

Second, even if we introduce enough controls for constant heterogeneity, it might be that some temporary shocks may be good for the employment of connected networks both at the director and at the CEO level. This would lead our approach to *overestimate* the network effects. To see this, assume that the demand for CEOs can be written in a fashion similar to (1):

$$F_{ijt} = \delta_i + \eta_j + \sum_k \eta_j^k . M_i^k + \upsilon_{ijt} \tag{4}$$

where $F_{ijt} = 1$ when i is CEO of firm j at date t and zero else. $M_i^k = 1$ when i belongs to network k. This specification could even be extended to allow for a relation between board composition and the probability of being the CEO of the firm. In this case, we would face a reflection problem (see Manski, 1993), i.e. we would not be able to identify whether the correlation between board composition and CEO identity comes from the role of the CEO in directors' appointment or from the reverse. This aside, we can directly use (4) to compute C_{jt}^k:

$$
\begin{aligned}
C_{jt}^k &= \sum_i M_i^k F_{ijt} \\
&= \sum_i \delta_i . M_i^k + \eta_j . \sum_i M_i^k + \eta_j^k . \sum_i M_i^k + \sum_i \upsilon_{ijt} . M_i^k
\end{aligned}
$$

Let $\sigma_t^k = \sum_i M_i^k$ be the overall number of members of network k:

$$C_{jt}^k = \sigma_t^k . \left(\widehat{\delta}_t^k + \eta_j + \eta_j^k + \widehat{\upsilon}_{jt}^k \right)$$

At this point, we see that if υ_{ijt} is correlated with ε_{ijt}, C_{jt}^k is going to be correlated with the error term in (2), which will lead to biased estimates. In

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[13]Polytechnique and ENA graduates were all reported, however, given that we had access to the directory of all former students of these two schools.

other words, if the same people tend to be hired as CEOs and directors in firms because of temporary shocks, our estimates in (2) will be upward biased. Our identifying assumption in this context is therefore that there is no temporary correlation between υ_{ijt} and ε_{ijt}. Furthermore, permanent ones are taken care of by our fixed effects.

Third, measurement error - aside from handtyping errors, is not really an issue here, as it could be in Munshi: we know which network the CEO belongs to. Measurement error could however arise in our definition of various categories.

5   Evidence of Networks

This section looks at network effects using model (1) discussed in the above section; we estimate here the λ_{kl} parameters, who stand for the marginal probability, for a member of network l, to be a director in a firm run by a CEO belonging to network k. As we saw from the above section, two natural empirical strategies emerge, provided we are able to break down the populations of CEOs and directors into separate networks. As suggested by the historical and sociological literature of French elites, it seems to us fairly natural to use three alternative breakdowns. First, we break the sample down by education: we distinguish between graduates from Polytechnique, ENA and others. Second, we narrow the focus on top level bureaucrats: we look at members from Administrative Corps d'Etat (recruited among the best student at ENA) and members from top Engineering Corps d'Etat (recruited among the best students at Polytechnique). Third, we further narrow the focus on those former bureaucrats that were connected with politics and we split the sample into those former bureaucrats that were connected with the Right wing politicians and those who were connected with the Left wing politicians.

5.1   Evidence From Employment Regressions

Using these three alternative breakdowns, we run both the firm and the individual level regressions. The firm level level regression uses firm level data using the following specification:

$$\frac{n_{jt}^k}{n_t^k} - \frac{n_{jt}^0}{n_t^0} = a_t^k + b_{jt}^k + \sum_m \underbrace{(\lambda_{mk} - \lambda_{m0})}_{c_{km}} C_{jt}^m + u_{jt}^k \tag{5}$$

where j indexes the firm and t indexes time. k stands for the network under scrutiny. The left hand side variable is the fraction of members of network k that are employed in firm j *minus* the fraction of members of network 0 that are employed in firm j. In each of the three breakdowns into two networks (ENA/Polytechnique, Left/Right etc.), we define the reference category to be members of neither of the two big networks we are looking at (neither ENA nor Polytechnique, not politically affiliated, etc.). u_{jt}^k is an error term and the dummy C_{jt}^m is equal to 1 whenever firm's j CEO belongs to network k. We

will be interested in the coefficients of these dummy variables, who receive a very simple structural interpretation, since they measure the probability for a member of a given network k to be a director of a firm run by a member of network m, *minus* the probability that a member of k is a director in a firm run by a CEO that does not belong to any of the networks.

In the tables, we report the results of (5) without firm fixed effects b_{jt}^k, because our panel does not allow us to identify separately the effects of (1) a fixed tendency for a given firm to hire, say, ENA graduates and (2) the additional tendency due to the fact that currently, the CEO turns out to be a former ENA graduate himself. This limit mostly comes from the low turnover of ENA graduates and that their successor often is a new ENA graduate. We do not worry too much about this limit, however, because the second empirical approach will allow to investigate this effect since we will be using more detailed information at the director level. At this level, the data's identifying power is stronger. The individual level model indeed allows us to identifiy structural parameters similar to (5) controlling for firm's fixed propensity to hire in particular networks. Therefore, we also estimate the following equation at the individual level:

$$\frac{\mu_{it}^k}{\mu_t^k} - \frac{\mu_{it}^0}{\mu_t^0} = d_t^k + \sum_m \underbrace{(\lambda_{km} - \lambda_{0m})}_{f_{km}}.A_i^m + v_{it}^k \tag{6}$$

In equation (6), i stands for the director's index. The dependent variable is the fraction of director seats held by individual i among those belonging to a firm run by a CEO who is member of network k *minus* the overall fraction of "non connected seats" held by i. A_m^i is a dummy variable equal to 1 when i belongs to network k and its coefficient can be interpreted as the (marginal) probability for a member of m to be a director in a firm run by a member of k. [14]

[Insert Tables 4a,4b,4c]

Tables 4a, 4b and 4c run regressions (5) and (6) with breakdowns by education (table 4a), by bureaucratic career (table 4b) and political affiliation (table 4c). Estimates are obtained through OLS regressions which include industry dummies and allow for firm level (or individual level) heteroskedasticity. Each time, columns 1 and 2 provide estimates for the firm level model and columns 3 and 4 for the individual level model. First, note that both approaches yield similar estimates, which is not too surprising if we believe that model (1) is the true empirical model. As it turns out, taking into account that some firms may have a specific propensity to hire members of particular networks (the β_j^k in model (1)) does not affect the results, since estimates from firm level (where these effects are not accounted for) and from individual level regressions (where these effects are accounted for) provide similar patterns. Second, notice that

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[14] In fact, the consistency of both models with the initial structural model (1) can be tested by checking that:

$$c_{km} - f_{km} = c_{km'} - f_{km'} \text{ for all } m, m'$$

which turns out to be true, as will be apparent in the tables.

the coefficient on CEO's identity is always very strong, and economically significant, since the probability of belonging to a given firm is increased on average by some 0.5-1 percentage points by the CEO's belonging to the right network. This is sizeable, given that, with 600 firms, the probability of being employed in a given firm is on average some 0.2%.

Third, this does not constitute very strong evidence of network importance per se, since we simply compare members of two networks to "mostly unconnected" directors. We thus test whether, for a given director, the probability of being employed in a firm run by a CEO of the *same* network is significantly higher. In other words we ask in the "firm level" model whether $c_{kk} > c_{km}$, for all m, and in the "individual level" model whether $f_{kk} > f_{km}$, for all m. These tests are performed in the bottom rows of each table 4a,4b and 4c. As it turns out, the most important networks, as estimated with the data at hand, are ENA, former left wing advisors, former top bureaucrats of engineering or administrative background. This strongly confirms the evidence from Kadushin (1995) and Franck and Yasumoto (1998).

5.2 Appointments: The Role of the CEO

An important question raised by the previous regression results is whether CEO's identity matters, or whether it is simply a proxy for the board's identity. Imagine for instance that the CEO holds no real power in appointments, and that all the power in these matters rests with the board of directors. In this case, the board is going to appoint CEOs that are similar to the set of directors, and the causal relation is reversed. Though this is still evidence of social networks interfering with the labor market, the direction of the relation matters for corporate governance. Indeed, if the board turns out to be chosen by the firm's CEO - Shivdasani and Yermack (1999) suggest this might very well be the case in the US -, the directors' ability to monitor the management on behalf of the shareholders might be severely impaired.[15]

To look at this issue, we do two things. First, we reestimate model (1), by looking at *appointments* rather than employment. Hence, $E_{ijt} = 1$ when i is appointed by firm j at date t. We use the firm level aggregation and thus correlate the CEO's identity with the firm's hiring policy, thus providing, we think, a more stringent test of social interactions.[16] We then ask whether the CEO's identity in these appointment regressions is a proxy for initial board composition by including in the regression the past number of directors in the board of

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[15] Claude Bébéar, the former CEO of AXA and a prominent figure in French business, a large French insurance company argues that "board members are in general reluctant to fire the president. One general assembly after the other, a CEO has "his" men appointed on the board of directors. They owe him their seats. After a few years, the CEO seats with a board composed through personnal ties, various free masoneries, student friendship and so forth." (Bébéar (2003)).

[16] We also ran - results non reported - individual level regressions using appointments instead of employment, with pretty much the same estimates and success.

either networks. This amounts to running the following modified version of (5):

$$\frac{n_{jt}^k}{n_t^k} - \frac{n_{jt}^0}{n_t^0} = a_t^k + b_{jt}^k + \sum_m c_{km}.C_{jt}^m + \sum_m c'_{km}\#A_{jt}^m + u_{jt}^k$$

where the left hand side variable is now the share of newly hired members of network k hired by firm j minus the share of newly hired directors by j. $\#A_{jt}^m$ is now the number of members of network m *already* sitting on the board of j. Note that such a regression could *not* be estimated using employment instead of appointment - as in the specifications shown above - since we might have faced the well known reflexion problem: if A and B are similar and sitting on the same board, then it is difficult to know whether A sits because of B or the contrary. By introducing some dynamics, this methodology argues that A matters if A was on the board *before* B was.

[Insert Tables 5a,5b,5c]

The results of these firm level regressions for our three selected networks are given in tables 5a (education),5b (bureaucratic career) and 5c (politics related networks). Estimation is again made using OLS, allowing for flexible correlation across observations of a same firm. Industry and year dummies are included, and to avoid spurious correlation, explanatory variables are lagged by one year. In each of these tables, columns 1 and 2 look at the equivalent of (5), that is assuming $c'_{km} = 0$. Columns 3 and 4 add the board composition variables.

The regression results from columns 1 and 2 in all specifications confirm the findings of the previous section; education, career and politics based network affect the allocation of director to firms, even when we look at nominations. Results from columns 3 and 4 are consistent with the idea that CEO's identity, not board composition, explain selective director appointments. As it turns out, the c'_{km} coefficients on board composition are significant and strongly positive. In addition, they display small network effects: an ENA dominated network is slightly more likely to appoint a new ENA director than a Polytechnique dominated one. These network effects are however small and do not differ significantly from each other. As a result from these small board based network effects, inclusion of these terms reduces somewhat the difference between the effect of a Polytechnique CEO and an ENA CEO, but the difference remains strongly significant. A Polytechnique CEO still tends to hire many more Polytechnique directors, once we take the board composition effect into account. Reassuringly, this effect also shows up strong and significant when we look at bureaucratic careers and political connections, in particular amongst engineers. All in all, it seems that social networks are somehow used by the CEO to appoint directors, not the contrary. The question is now to see whether that is detrimental or favorable to corporate governance.

6 Consequences of the Prevalence of Networks

The above section suggests that the CEO is the driving force shaping board composition. The question at this point is whether this is a good thing for the firm, because the CEO works best with directors of similar background, or a bad thing because it might impair the board's ability to monitor and control the CEO effectively. Most of the labor economics literature on social networks and the labor market argues that networks are actually a good thing from the firm's viewpoint. When we look at directors, things might be very different. A simple way to see why social networks might be bad theoretically is within the context of the two-tier agency model used by Laffont and Tirole (1993) in another context: a principal (the shareholder) delegates a task (management) to an agent (the CEO). To ensure that the task is properly done, the principal hires a supervisor (the board of directors) who reports the misconducts of the agents. This framework shows how corporate boards allow to reduce the agency costs of the separation of ownership and control. The problem in this context is however that the CEO and the board may have an agreement, through which the agent bribes the supervisor in exchange for his silence. These side contracts are not really enforceable, since the supervisor is not supposed to receive bribes from the agent. They can, however, become sustainable through repeated interactions. If the agent and the supervisor share the same friends or social milieu, then punishment through ostracism becomes much easier to implement. Also, the exchange of favors becomes much easier between members of the same social network. Hence, side contracts are much easier to implement between the agent and the supervisor when they belong to the same network. As a result, if the CEO has a say in the composition of the board, hiring people from a similar network allows him to extract more informational rents. In such a case, referrals are a bad thing for the firm.

This line of argument is behind the whole empirical literature on outside directors in finance. We look here at whether usual suspects of bad corporate governance - CEO turnover to performance sensitivity, multi directorships - are affected by CEOs being members of social networks.

6.1 CEO Turnover

As argued above, an important function of the board of director in a corporation is to discipline the management so that it acts in the interests of the firm's shareholders. In some extreme cases, when it becomes clear that a change in strategy is needed and cannot be implemented by the current management, this might force the CEO to resign. This is, however, likely to occur too late if some directors and the CEO belong to the same social network and are tied by social connections. Then, the CEO might be able to retaliate on any hostile action undertaken by his directors, even if he loses his job, or in contrast might be able to bribe - because of their common relations - his directors more efficiently.

Hence, we postulate that well connected CEOs are less likely to be forced out when their firm performs badly. There are additional reasons to believe in

this connection between corporate governance and CEO turnover: for instance, Dahya, Mc Connel and Travlos (2003) have shown that those british companies that complied with the Cadbury code of good conduct in the early 1990s experienced an increase in CEO turnover to performance sensitivity. In their review of literature, Hermalin and Weisbach (2002) recall that board composition affects CEO turnover.

Following Dahya et alii, for each type of network - ENA, polytechnique graduates, administrative vs engineering bureaucrats etc - we run the following logistic regression:

$$T_{jt} = \alpha + \beta ROA_{jt} + \delta controls_{jt} + \varepsilon_{jt} \qquad (7)$$

where T_{jt} is a dummy variable equal to 1 when the CEO loses his job over the next year. ROA_{jt} is the industry adjusted return on assets of the firm. Since this equation is estimated separately across networks, β can vary. In particular, we expect it to be lower when the CEO belongs to a strong social network, in which case we have shown above that the CEO contributes to shaping the board, and when he uses this network to pick loyal directors.

[**Insert Table 6**]

We restrict ourselves to the sample of CEOs aged less than 65, in order to reduce the chances that turnover is due to retirement[17]; our result are however,not sensitive to restricting ourselves to CEOs with less than 60 years old - (with more restrictions the number of exits becomes too small to identify the parameters precisely enough). Table 7 reports the estimates of equation (7) for various network types. First, on average, the sensitivity of turnover to performance is strongly negative and significant. When we break the sample by CEO types, it turns out that only Polytechnique graduates display such a negative relation. For all other groups, all related in one way or another to the civil service - ENA graduates, former top ranking civil servant - the relation is either non existent, or positive, which suggests very little discipline indeed ! Apart from Polytechnique graduates, all the "non connected" CEOs also tend to display this negative relation. However, the coefficients are not very precisely estimated, hence differences across networks are not always very significant. To summarize, table 7 provides evidence consistent with the fact that bureaucracy related networks are more detrimental to corporate governance than engineer related networks.

6.2 Are Connected CEOs Too Busy to Mind Their Own Business ?

Most well connected CEOs tend to accumulate directorships. Table 8 computes the fraction of CEOs that have, in addition to their executive job, 1, 2, 3 or 4 non executive director seats in other listed companies. It presents this distribution

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[17]The distribution of CEO age at departure date is given in figure 3

for all CEOs, ENA and Polytechnique graduates, as well as former civil servants. The difference between ENA graduates, former civil servants and other CEOs is enormous. Nearly half of all CEOs members of administrative Corps d'Etat hold at least two directors seats on the board of listed companies.

[**Insert Table 7**]

Can CEOs who accumulate director seats still do a good job at running their own firm ? On the one hand, the time that a CEO spends sitting at the board of another company is obviously lost for the company he runs. But on the other hand, by sitting at other companies' boards, the CEO can learn about his competitors or other businesses and accumulate information that may be useful for the firm he runs. Which effect does dominate is an open empirical question. A small literature on US executives has tried to adress it by looking at the correlation between the number of seats held by each CEO and its own firm performance (see for example, Booth and Deli, 1996, Ferris, Janagathan and Pritchard, 2003). The problem with this methodology is that good executives are likely to make good non executive directors, and therefore be very much sought after. This induces a positive correlation between the number of seats and corporate performance. Using Tobin's q as a measure of performance, Booth and Deli find a negative correlation, which they interpret as the fact that firms with little growth opportunities can send their CEOs to other places, without much cost. Using ROA as firm's performance, Ferris et al. find a very strong positive correlation. Both papers conclude that multidirectorship might not be a bad thing after all. These conclusions are slightly nuanced in a recent paper by Perry and Peyer [2004], who show that market reactions to CEO appointment as director of another corporation are positive when the receiver firm is in a related industry, and negative on other circumstances.

In our sample of French CEOs, we follow Ferris et al. and compute the correlation between the number of seats held and their own company's accounting performance - as measured by return on assets. We expect this correlation to be lower than average if social networks are used by powerful CEOs to pick obedient directors. In contrast, it may be larger than average if social networks provide a good way of screening among applicants and providing discipline.

In table 9, we present estimates of the following regression:

$$n_{it} = \alpha + \beta ROA_{it} + controls + \varepsilon_{it}$$

where n_{it} is the number of board the CEO i sits on at date t. The upper panel of table 9 provides estimates with year dummies as only controls. The lower panel provides estimates with the CEO's firm's log assets, board size and industry as additional controls. All residuals ε_{it} are clustered at the individual i level.

[**Insert Table 8**]

As it turns out, the overall correlation between own firm performance and seat accumulation is strongly negative in France, as opposed to the US results.

This suggests, to say the least, that the market for directors might be more competitive in the US. An even more interesting result though is that this correlation is *more* negative when CEOs are ENA graduates or former civil servants, but not when they are Polytechnique graduates. This is evidence consistent with former engineers networks less detrimental to corporate governance than former civil servants / ENA graduates.

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8 Appendix

8.1 Data Appendix

The overall firm dataset has 8,359 firm x year observations over the 1992 - 2003 period, which corresponds to approximately 700 firms listed on the stock market every year. The firm panel is unbalanced, with a fairly high turnover, with some 50 firms entering and leaving the panel every year. While entry corresponds to firms going public, exit means most of the time delisting - few of these exits are actuall bankruptcy. In our sample, firms delist because they are taken over or because owners repurchase listed shares (for a careful study of exit and entry in this panel, see Sraer and Thesmar (2004)).

Table 1 is broken down into 4 sub panels. It provides us with firm level descriptive statistics at the firm level about (1) CEO characteristics (2) board characteristics (3) firm characteristics and (4) performance. Aside from the features described in the main text, we see from table 1 that the average corporate board contains some 7 members, and some 50% of all board have at least one ENA or polytechnique graduate. Again, these directors tend to seat on the board of very large corporations, since one randomly chosen Franc of asset among listed firms has 9 chances out of ten to be supervised by a board comprising at least one ENA *or* one polytechnique graduate.

When we turn to firm characteristics, some 14% of them were formerly state owned and were privatised after 1986; they are very large, and account for a staggering 62% of all asset traded. Ownership is concentrated since the largest block holder holds on average some 51% of all shares; some of the firms are controlled by a family (see Sraer and Thesmar (2004)) or are spinoffs of another firm. Over the period, which contains a recession (1992-1996), a recovery (1997-2000) and another recession (2001-2003), the average return on assets is 7% and return on equity is 17%. The average age is large (61 years) but since we excluded firms traded OTC and on the "Nouveau marché", our sample is biased toward old firms.

Table 2 describes the non executive directors of these firms. Grandes Ecoles graduates and civil servants are also prevalent among non executive directors. All directors are followed over the 1992-2003 period, which makes a database of 53,236 name x year observations: this corresponds to approximately to some 4,500 people each year. Descriptive statistics for directors are provided in table 2. On average, these directors hold some 0.1 CEO job in another listed firm. Each director sits on average on 1.8 board seats.

8.2 Identifying Power of the Firm Level Model

In terms of the above notations, these four sets of variable write:

$$n_{jt}^k = \sum_i A_i^k E_{ijt}, \; n_{jt} = \sum_i E_{ijt}, \; n_t^k = \sum_i A_i^k, \; n_t = \sum_i 1$$

hence by using model (1) to get an expression of E_{ijt}, we can compute n_{jt}^k explicitly:

$$
\begin{aligned}
n_{jt}^k &= \sum_i A_i^k . \left\{ \alpha_i + \beta_j + \sum_m \left[\beta_j^m A_i^m + C_{jt}^m \left(\gamma + \sum_l \lambda_{ml} . A_i^l \right) \right] + \varepsilon_{ijt} \right\} \\
&= \sum_i \alpha_i . A_i^k + \beta_j \sum_i A_i^k + \beta_j^k \sum_i A_i^k \\
&\quad + \sum_m C_{jt}^m \left(\gamma \sum_i A_i^k + \lambda_{mk} . \sum_i A_i^k \right) + \sum_i A_i^k \varepsilon_{ijt}
\end{aligned}
$$

which leads to:

$$
\frac{n_{jt}^k}{n_t^k} = \widehat{\alpha}_t^k + \beta_j + \beta_j^k + \sum_m (\gamma + \lambda_{mk}) C_{jt}^m + \widehat{\varepsilon}_{jt}^k \tag{8}
$$

where:

$$
\widehat{\alpha}_t^k = \frac{\sum_i \alpha_i . A_i^k}{\sum_i A_i^k}, \ \widehat{\varepsilon}_{ijt}^k = \frac{\sum_i A_i^k . \varepsilon_{ijt}}{\sum_i A_i^k}
$$

so that $\widehat{\alpha}_t^k$ is the average fixed effect (ability to find any kind of directorship) of all members of network k.

At this stage, we need a benchmark to get rid of β_j. We thus compute board size n_{jt}:

$$
\begin{aligned}
n_{jt} &= \sum_i \left\{ \alpha_i + \beta_j + \sum_m \left[\beta_j^m A_i^m + C_{jt}^m \left(\gamma + \sum_l \lambda_{ml} . A_i^l \right) \right] + \varepsilon_{ijt} \right\} \\
&= \sum_i \alpha_i + \beta_j . \sum_i 1 + \sum_m \beta_j^m . \sum_i A_i^m \\
&\quad + \sum_m \gamma C_{jt}^m . \sum_i 1 + \sum_{m,l} \lambda_{ml} . C_{jt}^m . \sum_i A_i^l + \sum_i \varepsilon_{ijt}
\end{aligned}
$$

which rewrites:

$$
\frac{n_{jt}}{n_t} = \widehat{\alpha}_t + \beta_j + \sum_m \left\{ \beta_j^m . \frac{n_t^m}{n_t} + C_{jt}^m \left[\gamma + \sum_l \lambda_{ml} \frac{n_t^l}{n_t} \right] \right\} + \widehat{\varepsilon}_{jt} \tag{9}
$$

where:

$$
\widehat{\alpha}_t^k = \frac{\sum_i \alpha_i}{\sum_i 1}, \ \widehat{\varepsilon}_{ijt}^k = \frac{\sum_i \varepsilon_{ijt}}{\sum_i 1}
$$

so that $\widehat{\alpha}_t^k$ is the average fixed effect (ability to find any kind of directorship) of all the labor force.

We now substract (9) from (8) and get:

$$
\frac{n_{jt}^k}{n_t^k} - \frac{n_{jt}}{n_t} = \left(\widehat{\alpha}_t^k - \widehat{\alpha}_t \right) + \left(\beta_j^k - \sum_m \beta_j^m . \frac{n_t^m}{n_t} \right) + \sum_m \left(\lambda_{mk} - \sum_l \lambda_{ml} \frac{n_t^l}{n_t} \right) C_{jt}^m + \left(\widehat{\varepsilon}_{jt}^k - \widehat{\varepsilon}_{jt} \right)
$$

which more compactly rewrites as:

$$Y_{jt}^k = a_j^k + \sum_m b_t^{mk} . C_{jt}^m + u_{jt}^k$$

8.3 Identifying Power of the Individual Level Model

Let

$$\mu_{it}^k = \sum_j E_{ijt} C_{jt}^k$$

be the number of firm in which i is a director, whose CEO belongs to network k. Again, we use model (1) to compute this number:

$$
\begin{aligned}
\mu_{it}^k &= \sum_j C_{jt}^k \left\{ \alpha_i + \beta_j + \sum_m \left[\beta_j^m A_i^m + C_{jt}^m \left(\gamma + \sum_l \lambda_{ml}.A_i^l \right) \right] + \varepsilon_{ijt} \right\} \\
&= \alpha_i \sum_j C_{jt}^k + \sum_j \beta_j . C_{jt}^k + \sum_m \left(\sum_j \beta_j^m C_{jt}^k \right) A_i^m \\
&\quad + \gamma \sum_j C_{jt}^k + \left(\sum_l \lambda_{kl}.A_i^l \right) . \sum_j C_{jt}^k + \sum_j C_{jt}^k . \varepsilon_{ijt}
\end{aligned}
$$

let

$$\mu_t^k = \sum_j C_{jt}^k$$

be the overall number of firms headed by a CEO of network k:

$$\frac{\mu_{it}^k}{\mu_t^k} = \alpha_i + \overline{\beta}_t^k + \gamma + \sum_m \left(\overline{\beta}_t^m + \lambda_{km} \right) . A_i^m + \overline{\varepsilon}_{it}^k \tag{10}$$

We now need to find a reference in order to remove the individual fixed effect. We now compute the number of directorship held by a single individual i a date t:

$$
\begin{aligned}
\mu_{it} &= \sum_j E_{ijt} \\
&= \sum_j \left\{ \alpha_i + \beta_j + \sum_m \left[\beta_j^m A_i^m + C_{jt}^m \left(\gamma + \sum_l \lambda_{ml}.A_i^l \right) \right] + \varepsilon_{ijt} \right\} \\
&= \alpha_i . \sum_j 1 + \sum_j \beta_j + \sum_m \left(\sum_j \beta_j^m \right) A_i^m + \gamma \sum_m \left(\sum_j C_{jt}^m \right) \\
&\quad + \sum_m \left(\sum_j C_{jt}^m \right) \left(\sum_l \lambda_{ml}.A_i^l \right) + \sum_j \varepsilon_{ijt}
\end{aligned}
$$

29

again, we divide by μ_t, the overall number of firms at date t:

$$\frac{\mu_{it}}{\mu_t} = \alpha_i + \overline{\beta}_t + \gamma + \sum_m \left(\overline{\beta}^m + \sum_l \lambda_{ml}.\frac{\mu_t^l}{\mu_t} \right) A_i^m + \overline{\varepsilon}_{it} \qquad (11)$$

We are now set to substract (11) from (10) and obtain in the process:

$$\frac{\mu_{it}^k}{\mu_t^k} - \frac{\mu_{it}}{\mu_t} = \left(\overline{\beta}_t^k - \overline{\beta}_t \right) + \sum_m \left(\lambda_{km} - \left(\sum_l \lambda_{lm}.\frac{\mu_t^l}{\mu_t} \right) \right).A_i^m + \left(\overline{\varepsilon}_{it}^k - \overline{\varepsilon}_{it} \right)$$

or:

$$Z_{it}^k = c_t^k + \sum_m d_t^{km}.A_i^m + v_{it}^k$$
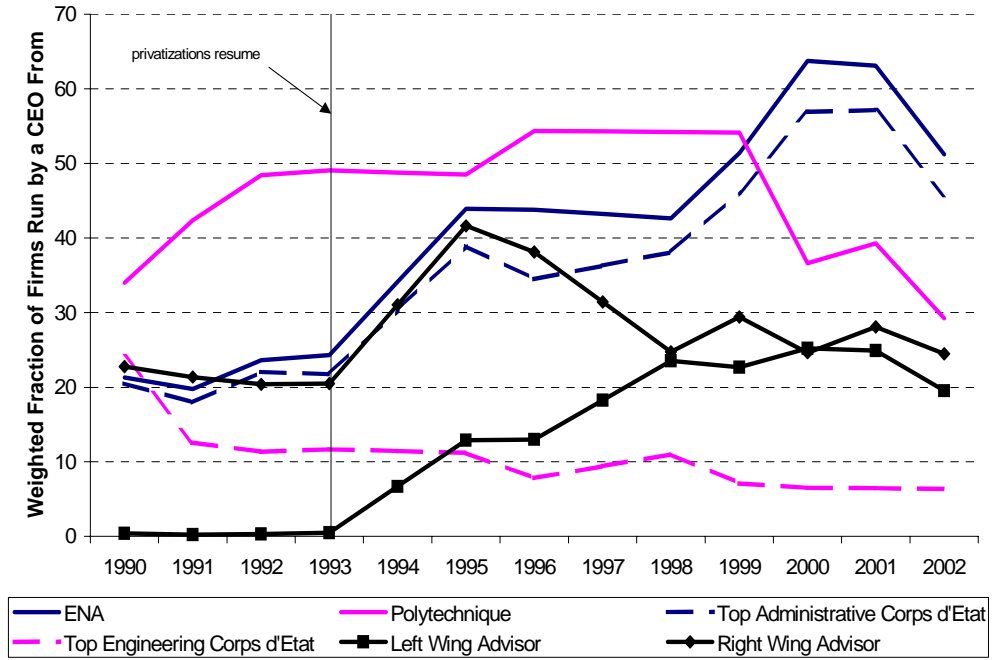
9   Figures

Figure 1: Characteristics of the CEOs of France's Listed Corporations : 1990-2003
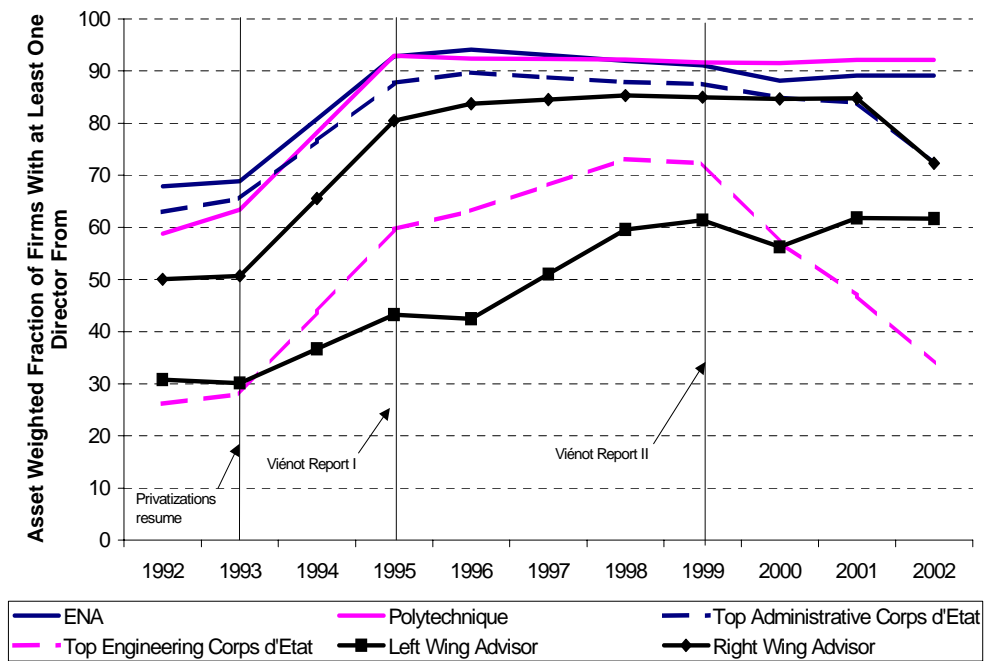
Figure 2: Board Composition of French Listed Corporations : 1992 - 2003
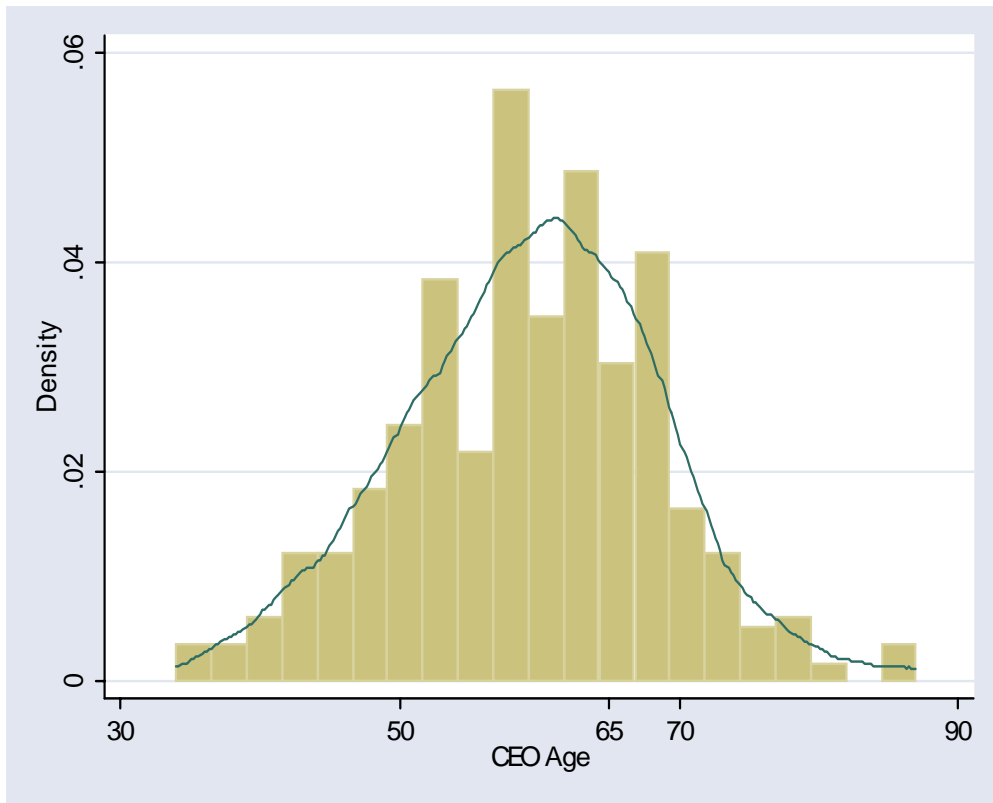
Figure 3: Distribution of CEO Age When Leaving the Firm

10 Tables

Table 1: Firm Level Summary Statistics

	Mean	Std Dev.	Min	Max	Asset Weighted Mean
CEO Background					
CEO is ENA graduate	0.07	0.26	0	1	0.52
CEO is Polytechnique	0.12	0.32	0	1	0.43
CEO is administrative "Corps d'Etat"	0.04	0.20	0	1	0.46
CEO is engineering "Corps d'Etat"	0.04	0.18	0	1	0.09
CEO is in Who's Who	0.58	0.49	0	1	0.88
CEO former right wing advisor	0.08	0.27	0	1	0.44
CEO former left wing advisor	0.02	0.15	0	1	0.17
Outside Directors					
Total Number	7.2	3.9	1	26	-
At least one ENA graduate	0.27	0.44	0	1	0.87
At least one polytechnique	0.32	0.47	0	1	0.88
At least one top administrative Corps	0.20	0.40	0	1	0.82
At least one top engineering Corps	0.12	0.33	0	1	0.58
Firm Characteristics					
Former SOE	0.14	0.35	0	1	0.62
Currently SOE	0.05	0.21	0	1	0.14
Pct shares held by major block holder	51.7	25.8	0	100	31.0
Firm Performance					
Assets (bn Euros)	4,6	28,6			-
Return on Assets	0.07	0.07	-0.16	0.28	-
Return on Equity	0.17	0.20	-0.89	1.04	-
Tobin's Q	1.3	0.8	0.3	6.9	-
Age (years)	61	49	0	325	-

Note: French public firms over the 1994-2001 period. Source: DAFSA diary of public
firms for the names of the directors. Who's Who and School Diaries

Table 2: Director Level Summary Statistics

	Mean	Std Dev.	Asset weighted mean
Positions			
# of CEO seats	0.1	0.4	0.3
# of director seats held	1.8	1.8	2.7
Past Career and Education			
ENA graduate	0.19	0.40	0.37
Polytechnique graduate	0.22	0.42	0.31
Top administrative Corps	0.13	0.33	0.31
Top engineering Corps	0.06	0.24	0.11
Is in Who's Who	0.38	0.48	0.58
Advisor to Left Wing Government	0.05	0.22	0.08
Advisor to Right Wing Government	0.13	0.33	0.26
Age	60	10	-

Note: French public firms over the 1994-2001 period. Source: DAFSA diary of public firms for the names of the directors. Who's Who and School Diaries

Table 3: Preliminary Evidence on Networks

	All	CEO Education ENA	Polytechnique	Neither
% with at least one ENA director	28	64	49	22
% with at least one Polytechnique	41	61	70	35
Average # of ENA directors	0.5	1.6	1.1	0.3
Average # of Polytech. Directors	0.7	1.4	1.6	0.6
Average % of ENA directors	6	15	10	4
Average % of Polytech. directors	9	14	18	7

Note: French public firms over the 1992-2001 period. Source: DAFSA diary of public firms for the names of the directors. Who's Who and School Diaries

Table 4a: Focusing on Polytechnique and ENA Networks

	"Firm Level"		"Individual Level"	
	(1)	(2)	(1)	(2)
	ENA graduate	Polytechnique	ENA graduate	Polytechnique
CEO is ENA	0.6***	0.2***	0.6***	0.3***
	(0.1)	(0.1)	(0.2)	(0.0)
CEO is Polytechnique	0.3***	0.3***	0.1***	0.2***
	(0.1)	(0.1)	(0.0)	(0.0)
Year dummies	yes	yes	yes	yes
18 Industry dummies	yes	yes	yes	yes
Observations	7,675	7,675	43,858	43,858
Test ENA(1)=ENA(2)	0.00***		0.00***	
Test Poly(1)=Poly(2)	0.19		0.06*	

Note: OLS estimates - Standard errors between brackets. Residual are allowed to be correlated across observations of the same firm. All explanatory variables are lagged by one year. Source: DAFSA yearbook of listed companies for accounting variables and Who's Who in France (1994 and 2000 issues) for directors' education. Polytechnique and ENA graduates directories for CEOs.

Table 4b: Focusing on Administrative and Engineering Bureaucratic Careers

	"Firm Level"		"Individual Level"	
	(1)	(2)	(1)	(2)
	Administrative	Engineering	Administrative	Engineering
CEO is Administrative	1.0***	0.4***	1.0***	0.7***
"Corps d'Etat"	(0.2)	(0.1)	(0.1)	(0.2)
CEO is Engineering	0.6***	0.9***	0.4***	1.1***
"Corps d'Etat"	(0.2)	(0.2)	(0.1)	(0.1)
Year dummies	yes	yes	yes	yes
18 Industry dummies	yes	yes	yes	yes
Observations	7,675	7,675	43,858	43,858
Test Adm(1)=Adm(2)	0.00***		0.05**	
Test Eng(1)=Eng(2)	0.08*		0.00***	

Note: OLS estimates - Standard errors between brackets. Residual are allowed to be correlated across observations of the same firm. All explanatory variables are lagged by one year. Source: DAFSA yearbook of listed companies for accounting variables and Who's Who in France (1994 and 2000 issues) for directors' education. Polytechnique and ENA graduates directories for CEOs.

Table 4c: Focusing on Political Connection of Former Top Level Bureaucrats

	"Firm Level"		"Individual Level"	
	(1)	(2)	(1)	(2)
	Right	Left	Right	Left
CEO if connected to the Right	0.6***	0.6***	0.6***	0.4***
	(0.2)	(0.2)	(0.2)	(0.2)
CEO is connected to the Left	0.5***	1.5***	0.5***	1.3***
	(0.2)	(0.4)	(0.2)	(0.3)
Year dummies	yes	yes	yes	yes
18 Industry dummies	yes	yes	yes	yes
Observations	7,675	7,675	12,532	12,532
Test RW(1)=RW(2)	0.74		0.38	
Test LW(1)=LW(2)	0.05**		0.02**	

Note: OLS estimates - Standard errors between brackets. Residual are allowed to be correlated across observations of the same firm. All explanatory variables are lagged by one year. Source: DAFSA yearbook of listed companies for accounting variables and Who's Who in France (1994 and 2000 issues) for directors' education. Polytechnique and ENA graduates directories for CEOs.

Table 5a: Polytechnique and ENA Networks - Appointments

| | "Firm Level" | | | |
	(1) ENA	(2) Poly.	(1) ENA	(2) Poly
CEO is ENA	0.12***	0.04***	0.06***	0.02***
	(0.02)	(0.01)	(0.01)	(0.01)
CEO is Polytechnique	0.06***	0.05***	0.01	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Nber of ENA on board	-	-	0.03***	0.01***
			(0.01)	(0.00)
Nber of Poly. on board	-	-	0.02***	0.01***
			(0.00)	(0.00)
Year dummies	yes	yes	yes	yes
18 Industry dummies	yes	yes	yes	yes
Observations	7,303	7,303	6,711	6,711
Test ENA(1)=ENA(2)	0.00***		0.01***	
Test Poly(1)=Poly(2)	0.83		0.02**	

Note: OLS estimates - Standard errors between brackets. Residual are allowed to be correlated across observations of the same firm. All explanatory variables are lagged by one year. Source: DAFSA yearbook of listed companies for accounting variables and Who's Who in France (1994 and 2000 issues) for directors' education. Polytechnique and ENA graduates directories for CEOs.

Table 5b: Bureaucratic Career Related Networks - Appointments

| | "Firm Level" | | | |
| | (1) | (2) | (1) | (2) |
	Adm.	Eng.	Adm.	Eng.
CEO is Administrator	0.19***	0.08***	0.12***	0.05**
	(0.03)	(0.02)	(0.03)	(0.02)
CEO is Engineer	0.07***	0.19***	0.01	0.16***
	(0.02)	(0.04)	(0.02)	(0.04)
Nber of Adm. on board	-	-	0.06***	0.02***
			(0.01)	(0.01)
Nber of Eng. on board	-	-	0.03***	0.04***
			(0.01)	(0.01)
Year dummies	yes	yes	yes	yes
18 Industry dummies	yes	yes	yes	yes
Observations	7,303	7,303	6,711	6,711
Test Adm.(1)=Adm.(2)	0.01***		0.05**	
Test Eng.(1)=Eng.(2)	0.00***		0.00***	

Note: OLS estimates - Standard errors between brackets. Residual are allowed to be correlated across observations of the same firm. All explanatory variables are lagged by one year. Source: DAFSA yearbook of listed companies for accounting variables and Who's Who in France (1994 and 2000 issues) for directors' education. Polytechnique and ENA graduates directories for CEOs.

Table 5c: Politics Related Networks - Appointments

| | "Firm Level" | | | |
| | (1) | (2) | (1) | (2) |
	Right	Left	Right	Left
CEO is Right Wing	0.15***	0.11***	0.11***	0.04
	(0.03)	(0.04)	(0.03)	(0.04)
CEO is Left Wing	0.09**	0.40***	0.01	0.29***
	(0.04)	(0.11)	(0.04)	(0.12)
Nber of Right on board	-	-	0.04***	0.05***
			(0.01)	(0.01)
Nber of Left on board	-	-	0.06***	0.09***
			(0.02)	(0.02)
Year dummies	yes	yes	yes	yes
18 Industry dummies	yes	yes	yes	yes
Observations	7,303	7,303	6,711	6,711
Test Right.(1)=Right.(2)	0.28		0.13	
Test Left.(1)=Left.(2)	0.01***		0.02**	

Note: OLS estimates - Standard errors between brackets. Residual are allowed to be correlated across observations of the same firm. All explanatory variables are lagged by one year. Source: DAFSA yearbook of listed companies for accounting variables and Who's Who in France (1994 and 2000 issues) for directors' education. Polytechnique and ENA graduates directories for CEOs.

Table 6: CEO Turnover: Do Networks Matter ?

	Losing CEO Position in the Forthcoming Year						
	All	ENA/Poly.	Neither	ENA	Poly.	C. Servant	Not S.C.
Panel A: No Controls							
Industry Adj. ROA	-6.6***	-5.8**	-6.7***	-2.2	-7.3***	-2.7	-7.6***
	(1.3)	(2.4)	(1.6)	(3.5)	(2.7)	(2.6)	(1.5)
Observations	2,297	671	1,626	255	438	510	1,787
Industry Adj. ROE	-1.8***	-1.6**	-1.9***	-1.7*	-1.5*	-1.3**	-2.0***
	(0.4)	(0.6)	(0.6)	(0.9)	(0.9)	(0.7)	(0.6)
Observations	2,184	629	1,555	236	415	487	1,697
I.A. Stock Return	-0.8***	-1.0***	-0.7**	-0.1	-1.7***	-0.6	-1.0***
	(0.3)	(0.4)	(0.3)	(0.5)	(0.4)	(0.4)	(0.3)
Observations	2,213	763	1,450	353	449	594	1,619
Panel B: With Controls							
Industry Adj. ROA	-5.5***	-5.0*	-6.9***	-7.5	-10.2*	-0.2	-7.7***
	(0.6)	(2.9)	(2.1)	(5.6)	(5.7)	(3.4)	(2.1)
Observations	1,581	453	1,068	142	287	350	1,163
Industry Adj. ROE	-1.9***	-1.6	-2.2***	-3.9**	-0.9	-1.4	-2.2***
	(0.6)	(1.0)	(0.7)	(1.9)	(1.2)	(1.1)	(0.7)
Observations	1,538	435	1,043	136	275	341	1,129
I.A. Stock Return	-1.3***	-1.1**	-1.4***	0.0	-2.1***	-0.6	-1.6***
	(0.3)	(0.6)	(0.5)	(0.9)	(0.8)	(0.7)	(0.4)
Observations	1,566	527	985	245	300	416	1,089

Note: Logit estimates - Standard errors between brackets. Sample of all firms run by a CEO aged less than 65. This table displays the CEO turnover to corporate performance sensitivity. The first panel simply regresses the fact that the CEO will lose (or quit) his job in the next year on industry adjusted measures of annual corporate performance (Return on assets, return on equity and annual stock return). The second panel adds many controls in this regression: the fraction of equity held by the dominant block holder, whether the firm has been privatized or not, industry and year dummies, log(assets) and a dummy equal to zero if the CEO is also the chairman of the board (société à directoire). The first column looks at the whole sample, the second column reestimate the model on the subsample of ENA and polytechnique graduates. Columns 4 and 5 estimate the model separately for Polytechnique and ENA graduates. Columns 6 and 7 break the sample down into firms run by former civil servants and others. In all regressions, residuals are allowed to be correlated across observations of the same firm.

Table 7: Number of Director Seats Held by Connected CEOs

	Sample	ENA	Polytechnique	Top Adm. Corps	Top Ing. Corps
No Seat	70	40	47	32	38
One Seats	14	18	22	20	26
Two Seats	7	13	9	12	13
Three Seats	3	7	8	11	10
Four Seats or More	6	32	14	25	13
	100	100	100	100	100

Note: Statistics for all directors in the Who's Who. Source:

Table 8: Are Connected CEOs Too Busy to Mind Their Business As Directors
?

| | # of director seats held | | | | | | |
	All	ENA/Poly.	Neither	ENA	Poly.	C. Servant	Not S.C.
Panel A: No Controls							
Own Firm ROA	-6.4***	-7.6***	-5.8***	-13.9***	-5.5**	-10.8***	-4.9***
	(0.9)	(1.6)	(1.1)	(2.7)	(2.4)	(1.9)	(1.4)
Observations	5,286	952	4,334	320	662	601	2,222
Panel B: With Controls							
Own Firm ROA	-5.5***	-7.7***	-4.0***	-12.4***	-5.3**	-11.0***	-4.0***
	(1.2)	(1.6)	(1.5)	(2.9)	(2.6)	(2.0)	(1.0)
Observations	2,855	768	2,087	286	506	601	2,222

Note: Logit estimates - Standard errors between brackets. Sample of all firms run by a CEO aged less than 65. This table displays the CEO turnover to corporate performance sensitivity. The first panel simply regresses the fact that the CEO will lose (or quit) his job in the next year on industry adjusted measures of annual corporate performance (Return on assets, return on equity and annual stock return). The second panel adds many controls in this regression: the fraction of equity held by the dominant block holder, whether the firm has been privatized or not, industry and year dummies, log(assets) and a dummy equal to zero if the CEO is also the chairman of the board (société à directoire). The first column looks at the whole sample, the second column reestimate the model on the subsample of ENA and polytechnique graduates. Columns 4 and 5 estimate the model separately for Polytechnique and ENA graduates. Columns 6 and 7 break the sample down into firms run by former civil servants and others. In all regressions, residuals are allowed to be correlated across observations of the same firm.