Concentration of Power and Corporate Performance Variability

Alexandre Di Miceli da Silveira[a]*

School of Economics, Management and Accounting, University of São Paulo

Lucas Ayres B. de C. Barros[b]

Mackenzie Presbyterian University & School of Economics, Management and Accounting, University of São Paulo

January 12th, 2012

[a] Associate Professor of Finance and Accounting at the School of Economics, Management and Accounting of the University of São Paulo (FEA/USP). Tel: (+55) 11 5054-1888. e-mail: alexfea@usp.br (contact author).

[b] Professor of Finance at Mackenzie Presbyterian University, Professor of Finance and Accounting at School of Economics, Management and Accounting of the University of São Paulo (FEA/USP). +55 11 9645-4435. e-mail: lucasayres@mackenzie.br

* This paper has been partly carried out during the visiting period of Professor Alexandre Di Miceli da Silveira at Université Catholique de Louvain (UCL). The authors thank FAPESP (State of São Paulo Research Foundation) for the financial support. We thank Ricardo Leal for valuable comments. We also thank Angela Donaggio, Pedro Barros, and Rafael Sasso for excellent research assistance.

Concentration of Power and Corporate Performance Variability

Abstract

We investigate whether the concentration of power in the hands of individuals characterized as business leaders influences the variability of corporate performance. We do so by developing an original method to estimate the degree of concentration of power that takes into account both individual characteristics of business leaders as well as the functioning and composition of the board of directors. We carry out our analysis to 204 firms in France and find that firms under more powerful business leaders exhibit less performance volatility. Our interpretation is that although these firms are more exposed to the unilateral – and potentially more extreme – views of single individuals for decision-making, other forces – such as the lack of diversification of their personal assets, the desire to keep the *status quo* or the attachment to the firm's long term survival due to commitments to other stakeholders – seem to be stronger, inducing powerful business leaders to behave more conservatively in France. Our results contribute to the literature by showing that the impact of concentration of power on performance variability is not limited to an individual *vs.* collective decision making issue, also depending on aspects associated with the institutional environment as well as with characteristics of the business leaders.

Key-Words: Concentration of Power, Business Leadership, CEO Power, Individual and Collective Decision-Making, Functioning and Diversity of the Board of Directors.

EFMA Classification Codes: 150, 110.

1. Introduction

Corporate governance deals with the distribution of power over major decisions in publicly-held companies. In firms with one-tier board structures, these decisions can in practice be made either by a single individual holding the status of "business leader" or by the board of directors as a collegiate body. The strongest the business leader vis-à-vis the board, the closer the decisions in a given company will in fact resemble those made by single individuals rather than by groups. On the other hand, more active and effective boards could be more prone to exercise their legal power by scrutinizing more closely their business leaders' views, thus leading the company to be less dependent on individual decision-making.

Previous theoretical works in economics have shown that group decision-making should be less extreme than individual ones due to the so-called "diversification of opinions effect" (Sah and Stiglitz 1986, 1991). These arguments have been empirically corroborated by authors such as Adams and Ferreira (2009). After analyzing an unusual betting game played in Alaska, they conclude that group decisions are more moderate, either because they have to reach a compromise when their members disagree or because individuals with extreme opinions are less likely to be part of a group. Barber and Odean (2003) find similar results when analyzing investment in the stock market by investment clubs and individuals. However, earlier branches from the social psychology literature challenges this view, arguing that groups may end up making more extreme decisions, due to "risky shifts" (Stoner 1961; Wallach, Kogan, and Bem, 1964), "group polarization" (Moscovici and Zavalloni, 1969), or "groupthink" (Janis, 1973). Basically, this would result from a process of responsibility diffusion among group members, allowing them to feel less personal blame for bad outcomes.

This individual vs. collective decision making debate can be brought to the corporate arena. On the one hand, companies with higher concentration of power in the hands of their business leaders could experience greater variability of performance since their powerful

leaders tend to make more extreme decisions than to those reached by consensus by a group made up of several decision-makers (i.e. board members). On the other hand, other forces could impel powerful business leaders to behave more conservatively, making their companies incur in less rather than more variability of performance. For instance, powerful business leaders could be less diversified (when they are a relevant shareholder), be more attached to the firm's long term survival due to commitments with other stakeholders (when they are family-owners), be psychologically driven by a desire to preserve their *status quo* rather than risk losing control over their companies (when they are founders) or simply may want to "play it safe" in order to reduce the likelihood of being dismissed as a result of a sharp negative performance (when they are professional managers chosen in the market by their managerial abilities). Taken together, the contradictory forces at play and the absent of theories do not allow us to ex-ante determine whether a higher concentration of power would lead to an amplified or reduced firm-level performance volatility.

This issue has already been partially investigated in the financial economics literature. Adams, Almeida and Ferreira (2005) test whether firms whose CEOs have greater decision-making power experience more variability in performance. They conclude that performance is more volatile for firms run by powerful CEOs, especially in industries characterized by higher managerial discretion. However, their results have been challenged by Bebchuk et al. (2008) and Cheng (2008). Both authors do not find statistically relevant results on this issue, even after applying proxies and methods similarly to those used by Adams et al. (2005). In fact, Bebchuk et al. (2008) find opposite results, which they interpret as a tendency of dominant CEOs to "play it safe" and avoid firm-specific volatility. Therefore, there is mixed evidence on this line of research, with previous papers having been carried out in the US market.

These papers, however, present two potential limitations. Firstly, they do not fully take into account the board composition nor it is functioning as a source of mitigation of the

business leader power. Cheng (2008) is the only partial exception, investigating the impact of board size on performance variability. However, board size can be considered a poor measure of its effectiveness since it does not deal with the dynamics of the board. Specifically, two board characteristics may influence the concentration of power within companies: the board functioning and its diversity of views. Regarding the former, an active board could constrain individual influence over corporate decisions, thus limiting the impact of business leaders' idiosyncrasies on the variability of outcomes. This idea is supported both by the mainstream literature on corporate governance, based on agency conflicts, as well as by the behavioral literature, which argues that effective boards should be less prone to engage in collective biases such as "information cascades" or "excessive loyalty" to business leaderships (both concepts detailed ahead). Regarding board diversity, a more heterogeneous board could foster debates by bringing to the table different views on corporate issues, counterbalancing the business leader influence and reducing the risk arising from her individual judgment errors. Again, this view is also supported by the behavioral literature, since more heterogeneous boards are less likely to engage in "groupthink", a psychological problem that may lead groups to make extreme decisions.

The second limitation is that previous papers assume that the CEO is the sole locus of corporate power. However, Silveira and Barros (2011) provide evidence that the Chairman of the board (not necessarily holding the CEO title) sometimes can be considered the main business leader, especially in countries characterized by concentrated ownership structures.

Thus, previous papers in this line of research could have analyzed only part of the story, since it is important to consider that the business leader *de facto* power depends on how the board is composed and operates as well as identify who in fact is the business leader.[1] These are the gaps in the literature that this paper attempts to address.

We contribute by developing an original method to measure the degree of centralization of power in organizations with split CEO and Chairman[2] positions based on a two-step procedure: i) identification of the "business leader" by comparing the relative power of the Chairman *vis-à-vis* that of the CEO; and, ii) estimation of the business leader power by taking into account the board dynamics and composition together with her personal attributes. We believe that this procedure is essential to provide a cleaner test of the conjecture that the degree of concentration of power impacts the variability of corporate performance.

After conducting our analysis to 204 French companies, we find that the concentration of power is negatively associated with the variability of performance. Therefore, it seems that in France the forces impelling business leaders to behave conservatively overcome the argument that widespread dependence on individual decision-making should lead to higher performance volatility. Another possible interpretation of the results is that firms under more powerful business leaders reduce the market's uncertainty about their strategy and policies (especially in a post-crisis period), reducing the variability of their stock returns. Our main result opposes Adams et al. (2005) findings for the US market and are more aligned with Bebchuk et al. (2008) and Cheng (2008) results. In addition, we do not find that the influence of the concentration of power on the variability of performance is more pronounced in companies belonging to industries characterized as with high managerial discretion.

Overall, our paper brings three main contributions: i) we provide an improved and much broader method to measure the degree of concentration of power in companies with both dispersed or concentrated ownership structures, thus expanding the previous literature solely focusing on the CEO structural power in companies with dispersed ownership; ii) we investigate for the first time outside the US market the hypothesis that firms with more centralized decision-making have higher variability of results; and, iii) we provide evidence that the influence of the concentration of power on the variability of performance is not

limited to an individual *vs.* collective decision making debate, depending on other aspects associated with the institutional environment and characteristics of the business leaders.

Our paper fits in the literature that investigates whether internal leaders' idiosyncrasies matter for organizational outcomes. It also fits in the line of research that investigates the determinants of firm-level risk. Although a very relevant issue, as noted by the risk management problems with important corporations in the recent global financial crisis, research on this topic is surprisingly limited. The paper is organized as follows. In section 2 we discuss the previous literature on the three topics most closely related to our paper. In section 3 we develop our hypothesis based on previous theoretical and empirical work. Section 4 describes sample and data sources, as well as presents the operational definition of our main variables and empirical models. We present and discuss the results in section 5, including some robustness checks, and section 6 concludes.

2. Previous literature

This paper relates with at least three broad topics. The first analyzes whether group-decision making is systematically more moderate than those made by individuals. The second investigates whether internal leaders' idiosyncrasies really matter for organizational outcomes. Within this literature, some researchers have focused on CEOs as the main locus of corporate power, analyzing the impact of her dominance on performance. Finally, the third topic discusses the relationship between board effectiveness and CEO power, as well as the board's role on performance variability. The next subsections present a brief evolution of these literatures, which helps for the construction of our hypotheses.

2.1. Is decision-making by groups more moderate than by single individuals?

Different disciplines, including those of political economy and social psychology, have discussed the issue of individual vs. collective decision-making over the past decades.

On the economics literature, Sah and Stiglitz (1986, 1991) are the main authors in this debate. They develop an abstract model in their 1986 paper comparing the quality of decision-making by different types of economic systems or organizations. Due to limited individual capabilities and imperfect communication, collective decisions will have a relative advantage over individual ones regarding the rejection of bad projects.[3] On the other hand, collective decision-making will be disadvantaged regarding the acceptance of good projects (since they will be accepted only if several group members are convinced of that). Overall, the need for compromising between members should lead to less extreme decisions by organizations characterized by collective decision-making, as well as these entities should be less sensitive to the quality of key individuals. In their 1991 paper, they model the impact of centralized or decentralized decision-making authority on the selection of managers. Their main finding is that, in a centralized organization or economy, there should be a greater time-variability of the quality of managers.[4] As a result of the greater variability of managerial quality, they argue that more centralized organizations should face higher variance of its outputs or performance.

Sah (1991) extend these papers in a discussion over diversification vs. concentration of authority in political systems. He argues that less centralized societies should present lower volatility of wealth creation than societies under greater centralization, due to higher exposure to human fallibility.[5] He also predicts that higher performance volatility in autocratic regimes will be more dramatic if there are large differences among the abilities of individual decision makers. Sah's view have been corroborated by Rodrik (2000), who, after analyzing cross-national data of some countries, concludes that participatory political regimes are associated with significantly lower levels of aggregate economic instability.[6] The author speculates that the greater stability of democratic regimes is related to its propensity to moderate social conflict and induce compromise.

One of the most comprehensive applications of the conjecture that systems with collective decision-making tend to produce less extreme results have been carried out by Almeida and Ferreira (2002) in the political arena. After analyzing data from 138 countries from 1960-1989, they conclude that more autocratic societies have both more cross-country and within-country growth rates variability than more democratic ones. Still corroborating Sah's (1991) conjecture, they show that both the best and worst performers in terms of growth rates are more likely to be autocracies[7].

Moving away from the political economy discipline, Barber and Odean (2003) investigate the difference between decision-making by groups and individuals by analyzing their behavior in the stock markets. They compare the investment decisions of groups (stock clubs) and individuals in order to evaluate which places more weight on "good reasons" (e.g., a company featured on a list of most-admired companies) for their decisions. They find that, although both individuals and clubs are more likely to buy stocks associated with good reasons, groups have a stronger preference for reasons on their decisions. They interpret their finding as a consequence of the social dynamics within groups, which tends to lead them to emphasize good reasons more than individuals in order to reach compromise among their members for decision-making. It is also important to note that groups did not achieve superior performance than individuals in Barber and Odean (2003) sample: they only cared more for good reasons to be attached to decisions.

Another evidence of groups making more moderate decisions is presented by Adams and Ferreira (2009). They analyze a dataset of an unusual betting game played in Alaska to study differences on the outcomes of individuals and groups. As the main empirical result, they find strong evidence that group decisions are more predictable and moderate, either because groups have to reach a compromise when their members disagree (the so-called compromise effect) or because individuals with extreme opinions are less likely to be part of a

group (the so-called membership effect). They also contribute to the literature by developing a model in which these two effects interact and lead to an amplification of the moderating effect of endogenously formed groups. Finally, corroborating Barber and Odean (2003), they suggest that groups make more predictable decisions than individuals, in the sense of relying more on "hard evidence" collected by information pooling.

However, the theoretical and empirical support in the economics field for the idea that groups systematically make more moderate decisions than individuals is not unchallenged. A branch of the earlier social psychology literature has argued that, in some circumstances, groups end up making more extreme and risky decisions than individuals, due to "risky shifts[8]" (Stoner 1961; Wallach, Kogan, and Bem, 1964; Wallach and Kogan, 1965; Madaras and Bem, 1967) and "group polarization" (Moscovici and Zavalloni, 1969). The main argument behind such view is that there is a diffusion of responsibility among group members in the case of failure, allowing them to feel less personal blame for bad outcomes. As a result, group members would feel free to take greater risks[9]. Although subsequent works (Dion and Miller, 1970; Pruitt, 1971; Cecil, Cummings and Chertkoff, 1972) have criticized this initial conclusion by arguing that shifts toward caution could also occur in group discussions, it is at least not clear in the social psychology literature that groups should always make more moderate decisions.

A related view that group decisions could end up being more extreme stems from the collective bias of "groupthink". This term, formulated by social psychologist Janis (1973), means a mode of thought exhibited by group members trying to minimize conflict and reach consensus without critically analyzing and evaluating outside ideas. As a result, highly cohesive groups would be more likely to engage in groupthink and to make hasty, irrational decisions for fear of upsetting the group's balance.[10] The groupthink bias has been recently theorized in the economics literature by Bénabou (2009).

Another potential collective bias faced by groups are the so-called "information cascades".[11] It occurs when many individuals possess little private information regarding a group decision, relying heavily on the actions of others to guide them (Dorff, 2007[12]). As a result, the early actions of a few individuals[13] may result in a "cascade" effect, in which large numbers of people repeat the leaders' actions. In this case, the moderation effect by groups may not be achieved. According to Bikhchandani et al. (2001), two key conditions are necessary for the occurrence of information cascades: i) sequential decisions with subsequent actors observing decisions (but not information) of previous actors; and, ii) a limited action space (e.g. need to adopt / reject decisions in a limited time).[14]

2.2. Do managers' idiosyncrasies make difference?

The research about the impact of top executives on organizational outcomes has its roots in the management literature. Although there was earlier fragmented analysis on this topic, Hambrick and Mason (1984) were the first authors to provide a unified conceptual view of the impact of top executives on performance. They argue that organizational outcomes (including strategic choices and financial performance) should be partially predicted by managerial background characteristics such as age, tenure, functional background, education, socioeconomic roots, and financial position. Among the several empirical predictions of their broad model, they suggest that firms with younger managers would be more prone to pursue risky strategies and experience greater variability in profitability, and that firms whose top managers come disproportionately from lower socioeconomic groups would tend to engage in more acquisition strategies and unrelated diversification.

In the financial economics literature, Bertrand and Schoar (2003) pioneered the investigation of the impact of individual managers on firm policies. They find that manager's specific characteristics matter for a wide range of corporate decisions, suggesting differences

in "style" across top executives. Among their results, they find that older CEOs appear more conservative in their decision-making and that executives holding MBA degrees seem to follow more aggressive strategies.

The influence of CEO dominance over other executives and the board on performance

The impact of CEO power on performance was also initially analyzed in the management literature. Haleblian and Finkelstein (1993) examine the effects of CEO dominance over other top executives on the performance of 47 firms, finding that dominant CEOs performed worse in a turbulent environment than in a stable one.[15] They find this relation particularly more significant in an industry that confers top managers high discretion in making strategic choices (the computing industry) than in one characterized by low discretion (the natural gas industry). As a measure of CEO dominance over other top executives, they have used ten objective indicators dealing with four power dimensions created by Finkelstein (1992). Their most important result was to find that turbulence and discretion are two important complementary environmental dimensions affecting the relationship between top management attributes and performance.

Adams, Almeida and Ferreira (2005), provided the first empirical evidence on this issue in the financial economics literature. They investigate the hypothesis that CEOs with more decision-making power should experience more variability in performance, since risks arising from judgment errors would not be well diversified in companies with powerful CEOs. They employ three measures of CEO's structural power as proxies for this construct, based on his/her accumulation of president and Chairman titles, his/her status as a founder, and his/her status as the sole insider on the board. As the main result, they conclude that different measures of performance (stock returns, ROA, Tobin's Q) are significantly more

variable for firms run by powerful CEOs, especially in industries characterized by higher managerial discretion.[16]

Adams et al. (2005) results were recently challenged by Bebchuk, Cremers and Peyer (2008). In order to measure the relative importance of the CEO within the top executive team in terms of ability or power, the authors create a construct of "CEO centrality", measured by the fraction of the aggregate compensation of the top-five executive team captured by the CEO. Among their results, Bebchuk et al. (2008) find that CEO centrality is associated with lower firm-specific variability of stock returns over time. Additionally, they also find a negative relation between the accumulation of CEO and Chairman titles and performance variability, as well as a non significant relation between dummies for CEO-founder and stock return's variability. Therefore, they find opposite results than those of Adams et al. (2005) when applying similar variables. Bebchuk et al. (2008) argue that the differences might be partly due to difference in the samples. While Adams et al. (2005) have analyzed Fortune 500 from 1992-1999, they have analyzed all firms in ExecuComp database from 1992-2005. They interpret their results due to a greater tendency of dominant CEOs to "play it safe" and avoid firm-specific volatility (which would impose risk-bearing costs on them but could be less costly to diversified investors).

2.3. Board's effectiveness, business leader's power and performance variability

There is a vast literature on the influence of boards over financial outcomes which is beyond the scope of this paper. Therefore, we concentrate on the two topics closely related to our research: the possible endogeneity of boards' composition and effectiveness vis-à-vis CEO power, and the previous empirical evidence of the influence of boards' structure on performance variability.

Hermalin and Weisbach (1998) were the first authors to formally debate the possibility of a relationship between board's effectiveness and CEO power. The authors develop a model in which the board effectiveness is a function of its independence, which in turn is a function of negotiations between existing directors and the CEO over new nominees for the board. Therefore, they see the composition of the board as an endogenous process partially controlled by the CEO, depending on his/her bargaining power over the board.[17] Their model also predicts that CEO tenure and past firm performance (especially accounting measures) should be key determinants of the CEO bargaining power vis-à-vis boards. It's important to note, though, that Hermalin and Weisbach's (1998) model does not assume any active role for the shareholders, which may be a fragile assumption in environments characterized by high ownership concentration.

Chang (2008) is the most closely related empirical work associated with the focus of this paper. In the first study on this field explicitly taking into account board's structure, the author provides empirical evidence that firms with larger boards are associated with lower variability of corporate performance. In addition to the performance measures employed by Adams et al. (2005), the author also finds that firms with larger boards observe lower variability in other outcomes, such as total and abnormal accruals, extraordinary items, analyst forecast inaccuracy, R&D spending, and lower frequencies of acquisition and restructuring activities. He argues that his results are consistent with the view that it takes more compromises for a larger board to reach consensus, making decisions of larger boards less extreme and leading to lower performance variability. Therefore, he also offers support for the argument that groups reach more moderate decisions than individuals. Chang (2008) also partially challenge Adams et al. (2005) findings. By employing a stricter measure of CEO power[18] than used by Adams et al. (2005) as a control variable, he does not find evidence of a positive influence of CEO power on performance variability.

3. Development of the Hypotheses

As discussed in the previous section, the evidence on the relation between the concentration of power and the variability of performance is mixed. On the one hand, current mainstream economics literature points out that individual decision-making should be more extreme and unpredictable than those made by groups (although we should not rule out the possibility raised by earlier social psychology literature that sometimes groups could end up being more risky). As a result, companies with higher concentration of power in the hands of their business leaders should experience greater variability of performance since powerful leaders will tend to make less balanced decisions relative to those reached by consensus within a team.

On the other hand, business leaders – especially those who are founders, family owners or large shareholders of their companies – could be prone to behave more conservatively and incur into lower risks for three main reasons: i) they can be less diversified (when they are a large shareholder of the firm); ii) they can be more attached to the firm's long term survival due to commitments to other stakeholders (in cases where they are founders of family-owners); or iii) they can reduce the market's uncertainty about the firm's strategy and other business policies. In addition, when the business leader is a "market" CEO (a CEO picked by the company due to her managerial abilities instead of her personal shareholdings or links with controlling groups), another factor pointed out by Bebchuk et al. (2008) could reinforce a conservative attitude: they simply may want to "play it safe" in order to reduce the likelihood of being dismissed as a result of a sharp negative performance. This view is partially based on Bertrand and Mullainathan's (2003) results,[19] which show that, under certain circumstances, CEOs may prefer to "enjoy the quiet life" instead of engaging into empire building. Taken together, these arguments suggest that firms under more powerful business leaders could end up with less rather than more performance volatility.

In short, there are arguments for both a positive and a negative association between the concentration of power and the variability of corporate performance. Since there is an absent of theories regarding these issues, we do not take an ex-ante position and state hypothesis 1 in the null form:

H1. The level of concentration of power in the hands of the business leader is not associated with the variability of performance.

As second possibility is that the hypothetical influence of the concentration of power on performance volatility should be substantially different for companies in which their leaders have greater discretion. Hambrick and Finkelstein (1987) argue that managers have higher control over outcomes in high-discretion environments, thus making sense to analyze their individual effect on performance. On the other hand, they point out that the impact of business leaders' characteristics on performance outcomes should not be so clear when discretion is low. As a result, we expect that the impact of the concentration of power on performance variability should be particularly larger in high discretion industries:

H2. In case of a significant impact of the concentration of power on performance variability, this influence should be particularly pronounced in industries characterized by a high degree of managerial discretion, since business leaders face fewer environment constraints and have greater latitude of action in these companies.

4. Methodology

4.1. Sample and data sources

The construction of the variables necessary to calculate the degree of concentration of power requires detailed hand-collected data.[20] As a result, our sample is limited to 300 listed firms from France for 2010. Companies are chosen based on their market capitalization.[21]

French companies may opt for two corporate governance models: one with one-tier board of directors (*conseil d'administration*), similar to the Anglo-Saxon model and to most countries in the world, and one with two-tier boards, similar to the German corporate governance model (with a supervisory board, *conseil de surveillance*, and a management board, *le directoire*, composed by different people). About three-quarters (228) of the companies in our sample opt for the one-tier board structure. We restrict our sample to these companies because firms with supervisory boards are part of a philosophically different corporate governance model.[22] In addition, in line with other related studies,[23] we exclude 24 firms from the banking and insurance industries, conducting our analysis on the 204 remaining companies.

We choose a sample of French firms because it allows us to investigate the relationship between power and variability of performance in a different institutional setting than previous works on this field. Publicly-held companies in France are usually characterized by concentrated ownership structures, high proportion of family control as well as predominance of economic groups. Hence, power in French companies is likely to be even more centralized in the hands of the so-called "business leader" – sometimes simultaneously performing the role of CEO, Chairman and controlling shareholder – than firms in Anglo-Saxon markets. Adams et al. (2005), for instance, find particularly compelling evidence of the influence of CEO power on performance variability when the former is measured by the CEO status as a founder. As a result, the impact of strong business leaders on performance variability could indeed be stronger in countries such as France, where – as our data show ahead – about 50% of the companies are family-owned with entrepreneurs acting as CEOs and/or Chairmen of the board.

The corporate governance data are hand-collected directly from annual reports submitted to the France's regulatory agency *Autorité des Marchés Financiers* (AMF[24]). Accounting and stock market data are collected from Thomson One Analytics.

4.2. Theoretical and Operational definition of the main variables

4.2.1. Power within organizations

Power can be broadly defined as the capacity of individual actors to overcome resistance and exercise their preferences. Finkelstein (1992) pioneered the analysis of this subject in the corporate arena. He argues that there are four main dimensions to define power within organizations:

1. Structural Power: power based on the formal organizational structure and hierarchical authority, such as the accumulation of CEO and Chairman roles by a single individual;
2. Ownership Power: power deriving from the personal ownership position as well as to links with the founder of the firm;
3. Expert Power: power deriving from the expertise in a critical area for an organization;
4. Prestige Power: power based on personal prestige or reputation in the institutional environment (e.g. society, government, financial institutions, etc.) and among key stakeholders (e.g. suppliers, customers, employees, etc.) of the organization. The standing of an individual in the "managerial elite" is also considered part of her prestige power.

In this research, power is understood as the ability of an individual to make her views prevail in major corporate issues. It is also a concept related with managerial discretion. Since companies face different regulatory and environmental constraints, some offer to their agents more influence on decision-making over crucial decisions than others. Therefore, managerial power tends to matter depending on how much discretion managers have.

4.2.2. Step 1 for measuring the concentration of power – Identification of the business leader

The existing empirical literature on the effect of powerful agents departs from the premise that the CEO is the main locus of corporate power. This is probably a reasonable assumption in companies with highly dispersed ownership, where the absence of a relevant shareholder tends to make the CEO the natural leader.

However, Silveira and Barros (2011) recently challenged this view, showing – for companies with split Chairman and CEO roles – that Chairmen sometimes should be considered the most relevant decision makers instead of their CEOs. They do so by developing an original method for comparing the relative power of Chairmen vis-à-vis CEOs and applying it to French and Brazilian companies. They validate their results by a content analysis of annual reports as well as by a clinical research based on interviews and relevant news published in the media.

Given their conclusions, we assume that the first step to measure the degree of concentration of power in an organization is to identify which person – Chairman or CEO – is most likely to make her views prevail over major corporate decisions[25]. As a result, we apply the procedure developed by Silveira and Barros (2011) as our first step before estimate the degree of power concentration in an organization. Their method is comprised by seven questions[26] applied to the Chairman and CEO of companies with split top positions. The questions generates a 0 to 10 score for both. If the Chairman achieves a higher score, then she is considered the most powerful corporate agent. If the scores are equal or if the CEO achieves a higher score, then the CEO is considered the stronger internal authority.

4.2.3. Step 2 for measuring the concentration of power – Calculating the index of concentration of power

After identifying the business leader, we then assess the degree of concentration of power in her hands. The measures created by Adams et al. (2005) and replicated in subsequent papers focus mostly on the "structural" dimension of CEO power.[27]

In this paper, we develop a more comprehensive measure of concentration of power. Our measure is based on an index that takes into account two elements: the business leader individual power and the functioning and composition of the board. Each one is scaled in a 0 to 50 range, resulting in a 0 to 100 score.

The business leader individual power aims at assessing how relevant for the company is the Chairman or CEO (whoever is assumed as the main business leader) in terms of her structural, ownership, expert and prestige power. However, this potential or "ex-ante" power depends on how the board operates and is composed in order to fully manifest itself into effective or "ex-post" power. Therefore, we argue that individual power will only be fully effective when accompanied by deficient boards. As a result, we also evaluate the board in order to estimate the *de facto* degree of concentration of power.[28]

Since a more active board should constrain, at least partially, the business leader personal influence over key corporate decisions, we analyze the functioning of the board aiming at capturing its propensity to act passively. A passive board is understood as one with low degree of independence, who meets rarely and whose members are probably too busy to adequately perform their duties, among other factors.

Our analysis of the composition of the board aims at capturing its propensity to be too homogeneous or "narrow-minded" in its thinking. A less diverse board, especially in terms of age variation, gender, race and academic background may reduce its likelihood of challenging the business leader ideas with substantially different views.

Individual power of the business leader

Our measure of the business leader individual power takes into account the four dimensions developed by Finkelstein (1992). It is an extension of the seven-question index created by Silveira and Barros (2011) in order to identify whether the Chairman or CEO is the most powerful business leader. The index ranges from 0 to 15 and is presented in Table 1.

[Table 1 here]

Propensity to passivity of the board of directors

An "active" board of directors can be seen as one with an adequate functioning and independence, whose members have enough time availability to perform their duties, meet with reasonable frequency, and have no ties that could hinder their independence of thinking. This concept is recognized worldwide in several codes of best practices as well as by regulators. On the other hand, a passive board should be more likely to allow the business leader to promote her views on major decisions without relevant opposition. We measure this concept with an original index of the board propensity to act passively. Our index takes into account the number of directorships simultaneously held by board members, the number of board meetings per year, the number of board committees, the percentage of independent directors, and the percentage of CEOs from other companies sitting on the board.

Besides being aligned with worldwide best practice recommendations on the functioning of the board, the view that passive boards could end up being captured by strong business leaders is also supported by the behavioral literature, which argues that such boards could engage in information cascades or excessive loyalty to strong internal leaderships (Dorff, 2006; Burch, 2007).

Regarding information cascades, it is possible that directors coming up not well prepared for the meetings (with no time to deepen their understanding about the issues to be deliberated) and pressured by time to cast their vote on corporate issues may be induced to accept the opinion of the people who initially pointed out their views, generally the CEO, the Chairman or a senior executive interested in a particular outcome. This would happen if a director willing to conform to the opinion of the group decides not to risk damaging her own reputation by questioning the point of view of others without a strong understanding of the issues at hand.[29] In this context, one could conjecture that "busy" boards of directors[30] (with several directors holding directorships or executive positions in other companies) and boards whose agenda lies in the hands of strong business leaders could be more vulnerable to the behavioral problem of information cascades.

The problems derived from excessive loyalty to business leaders have been recently pointed out by Morck (2007, 2009). He bases his arguments in numerous social psychological studies initiated in the early 60's by Stanley Milgram in which most people agreed to inflict painful shocks in unknown people only because they were told to do so by an actor playing the role of a scientist. The Milgram experiments, subsequently replicated worldwide, have shown that people tend to have a nature intrinsically linked to loyalty to persons identified as legitimate authorities. By bringing this literature to the corporate governance landscape, Morck (2009) argues that problems of excessive loyalty, as when boards show obsequious deference to powerful CEOs and controlling shareholders, may be as economically important as the more familiar problems of insufficient loyalty of corporate insiders to shareholders. As a result, he suggests that more active boards should be less prone to engage in excessive loyalty to business leaders.

In short, the argument that more independent minded boards composed of people with sufficient time availability tend to be less passive to strong leaders is supported both by the

mainstream literature as well as by the behavioral one. The table below describes our index of the board propensity to passivity, which could also be interpreted as a proxy for the board tendency to engage in collective behavioral biases. The index ranges from 0 to 15. Larger scores indicate more passive boards, which in turn should be less likely to constrain the business leader discretion.

[Table 2 here]

Propensity to narrow-mindedness of the board of directors

A more heterogeneous board could offer more varied perspectives on a given issue, fostering debates and thus reducing the influence of the business leader's views. This has been already recognized by codes of best practices and regulators worldwide, which highlight the importance of more diverse boards in terms of gender, experiences and academic backgrounds, among other parameters. On the other hand, a more homogeneous or narrow-minded board (especially when board members have about the same age, gender, race and academic background as the business leader) could be an evidence of the Chairman or CEO influence on board composition, leading to lower questionings. This has been raised by Subrahmanyam (2008), who argues that more homogenous boards indicate that they belong to the same social network of the CEO, which reduces their propensity to scrutinize her.[31] The author employs measures of board's homogeneity, such as age, race and gender difference as proxies for the propensity of the board to be part of the CEO social network.[32] He finds that boards with greater non-Caucasian representation as well as fewer members who are also CEOs tend to be better-governed and assign lower levels of executive compensation, thus suggesting that a reduced likelihood of network formation improves governance.[33]

The idea that more homogeneous boards may have a tendency to reinforce the business leader's view instead of questioning it is also supported by the behavioral literature based on the concept of groupthink. In this case, some authors have argued that more homogeneous boards (in terms of gender, age and academic background, for example) should be more prone to amplify the business leader's initial perception on specific issues due to their lack of diversified views (Dorff, 2006; Burch, 2007; Leslie, 2009).

Therefore, although there are at least two interpretations for the argument that more heterogeneous boards will be less likely to accept the business leader's views without hard questioning, both the literature on social networking as well as the behavioral one coincides by calling for less homogeneous boards.

In this paper, this concept is measured by an original index that proxies for the board propensity to narrow-mindedness. Our index takes into account the percentage of women and foreigners serving on the board, the age variation between board members, the average tenure of board members and the presence of different academic backgrounds in the board. It ranges from 0 to 15 and is presented in the table below. Larger scores indicate higher homogeneity of the board, which in turn tends to reduce its propensity to curb the leader's power.

[Table 3 here]

Concentration of power in the hands of the business leader

Our measure of concentration of power is an index (iCon_Power) that takes into account two elements: i) the individual power of the business leader, and ii) the functioning and composition of the board. It ranges from 0 to 100 and is computed as follows:

$$iCon\_Power = \left[iIndividual\_Power + \left(\frac{iBoardPassivity + iBoardNMindedness}{2}\right)\right] * \left(\frac{100}{30}\right) \quad (1)$$

Where:

iIndividual_Power represents the business leader individual power, *iBoard_Passivity* represents the propensity to passivity of the board, and *iBoard_NMindedness* represents the propensity to narrow-mindedness of the board. We compute the average of *iBoard_Passivity* and *iBoard_NMindedness* in order to assign the same weight for the two elements comprising *iCon_Power*. We multiply the index by (100/30) to scale it in the range from zero to 100.

4.2.4. Performance variables

A higher concentration of power may influence major corporate decisions, possibly affecting either their operational profitability or the frequency of investor's revisions about the firm's prospects. Previous works such as Adams et al. (2005) and Cheng (2008) have carried out their analyses with both an accounting measure of performance (ROA) as well as measures based on market data (stock returns and Tobin's Q). Accordingly, we analyze three main measures of performance in this paper. From the accounting performance point of view, we focus on ROA (return on assets). From the market-based perspective, we analyze stock returns and PE (price-to-earnings) ratio. In addition, we also conduct analyses with ROE (return on equity) and PBV (price-to-book value) ratio for robustness purposes.

4.2.5. Control variables

We add control variables in our regressions usually employed by the previous literature on this field, such as firm size, age, financial leverage, investments, ownership structure and industry. The table below displays the control variables.

[Table 4 here]

5. Results

5.1. Descriptive results

Our analysis starts with the identification of the main business leader for the 59 companies of our sample with split Chairman and CEO roles.[34] After applying the procedure developed by Silveira and Barros (2011), we observe that in 69.5% of the French companies with split top positions the Chairman is most likely to perform the role of business leader for major decisions. As a result, differently from previous works on this field, we assume that in most cases where top positions are split, the Chairman rather than the CEO should be the person to be assessed in order to estimate the concentration of power. Given the originality (and possibly questioning) of our initial step, we also conduct analysis only for CEOs in the robustness checks section similarly to previous works on this field. As it is shown ahead, the results without this initial step are somewhat weaker but do not change substantially.

We then construct our index of individual power (iIndividualPower) for the person identified as more likely to be the business leader. Table 5 presents its descriptive statistics.

[Table 5 here]

Table 5 provides an overview about the characteristics of French business leaders. Question 1 suggests that the concentration of power is high: in about 71% of the firms the same person is in charge of the top two positions (in spite of strong pressure worldwide by governance activists in the past years for the split of Chairman and CEO roles). The other questions also corroborate this allegedly high concentration of power. The business leader is a founder or a relative of the founder of the firm in about 50% of the companies. Besides, the business leader individually holds more than 10% of the voting shares in about 52% of the companies.[35] Long tenures and multiple directorships are also common. 51.5% of French

bosses have ten or more years of leadership in their companies, whereas 64.2% hold board seats in at least five public companies.[36] We also observe that 58.8% of French bosses have graduated at elite universities, another sign of their social capital and prestige status.

We move to the issue of the functioning and composition of the board. Table 6 presents the descriptive statistics of the questionnaire applied in order to construct both indices of propensity to passivity (iBoardPassivity) and propensity to narrow-mindedness (iBoardNMindedness) of the board.

[Table 6 here]

According to the first half of Table 6, French boards hold a median of six meetings per year and have two board committees in place. On average, 31.0% of board members are deemed as independent. Regarding the time availability of directors, 38.5% of outside board members may be considered "busy" directors since they simultaneously hold five or more directorships in different companies. Besides, about 37.4% of outside directors are CEOs of other companies, reinforcing the view that a significant number of directors may not have sufficient time to carry out their work properly.

The second half of Table 6 details the composition of French boards. Women are rare. There is an average of only 10.5% of female board members. Even the percentage of foreign born members is higher, with 16.2% of foreigners sitting on French boards. It's also important to note that most of the female participation still tends to derive from family-ownership, with independent female board members being even rarer.[37] As an anecdotal example, the board with the highest percentage of women in our sample is composed by a controlling shareholder with his wife and two daughters, totaling 75% of female presence. Board members have an average of 57 years of age and the standard deviation of age is approximately10 years. Board

tenure is relevant, with board members holding their position for 6.3 years on average. Each board also contains a median of three different academic backgrounds among its members, suggesting some diversification of education.

Based on the variables presented in tables 5 and 6, we construct the three main indices necessary for measuring the degree of concentration of power: index of individual power (iIndividual_Power), index of the board propensity to passivity (iBoard_Passivity), and the index of the board narrow-mindedness (iBoard_NMindedness). These indices are finally assembled to compute the index of concentration of power (iCon_Power) in a 0 to 100 scale as indicated in equation 1. Table 7 presents the descriptive statistics of all indices.

[Table 7 here]

We finish this descriptive section by presenting some data from our control variables. Tables 8 and 9 summarize them.

[Table 8 here]

[Table 9 here]

Table 8 categorizes companies based on their ownership structures. About 50% of the largest listed French companies from our sample are controlled by families. About 30% are controlled by a group of large blockholders. In most of these cases, shareholder agreements define rules for the coexistence between different relevant blockholders. Widely-held companies are an exception: in only 11.3% of companies in our sample the largest shareholder owns 10% or less of the company's voting shares. State-control and control by foreigners, such as multinationals, comprise the remaining 8.8% of the sample.

Table 9 exhibit selected control variables. Boards have an average of 9.2 members (median 9.0). The concentration of voting shares is high. On average, French board members

hold (or represent institutions holding) 47.1% of the voting shares (median of 51.0%). The median firm in our sample has a market capitalization of USD 557 million, with operational revenues of USD 790 million and 38 years of age since its inception.

5.2. Concentration of power and variability of performance

The conjecture that firms under more powerful leaders have unusual variability in their outcomes should hold for both the volatility between firms as well as within firms over time. We start by focusing on the between-firms effect, i.e. the difference of performance variability of firms subjected to different degrees of concentration of power.[38] To do so, we follow previous research on this topic and apply Glejser's (1969) heteroskedasticity test.

This heteroskedasticity test – carried out by Adams et al. (2005), Bebchuk et al. (2008), and Cheng (2008) – uses cross-section data to examine the effect of concentration of power on the variance of firm performance. Glejser's test comprises two stages. The first consists in estimating a performance model in which different explanatory variables explain the absolute level of firm performance. The second regresses the absolute level of residuals from the initial performance model on the concentration of power and other controls possibly associated with performance variability. As pointed out by Cheng (2008), the residuals from the first stage represent ''unexpected'' performance, so the absolute value of these residuals serves as a reasonable proxy for the variability, or unpredictability of corporate performance.

For the regressions using monthly stock returns as performance variable, we compute absolute residuals similarly to Adams et al. (2005), from the following market model applied to each firm *i*:

$$STOCK\ RETURN_{it} = \beta_i MARKET\ RETURN_t + u_{it} \quad (2)$$

Where *Market Return* is computed as the monthly variation of the CAC-40 Euronext index and *t* ranges from January to December 2010.

For the regressions using ROA and PE as variables, we run the first regression on the absolute level of performance based on cross-sectional models suggested by the extant literature on this field, such as Morck et al. (1988), Adams et al. (2005), and Cheng (2008).

$$PERFORMANCE_{it} = \alpha + \beta_1 iCON\_POWER_{it} + \beta_2 SIZE_{it} + \beta_3 INVESTMENTS_{it} + \beta_4 AGE_{it} + \\ + \beta_5 FIN\_LEVERAGE_{it} + \beta_6 ROA_{it-1} + u_{it} \quad (3)$$

Where $PERFORMANCE_{it}$ represents ROA or PE; $iCON\_POWER_{it}$ represents the index of concentration of power; and, $SIZE_{it}$, $INVESTMENTS_{it}$, AGE_{it}, $FIN\_LEVERAGE_{it}$, and ROA_{it-1} represent variables controlling for other usual firm's attributes and past performance.

After extracting the absolute value of the residuals $|\hat{u}|$ from the initial performance models described in equations 1 and 2, the second model is then estimated in order to investigate the null hypothesis of homocedasticity against the alternative that the variance of firm performance is a function of the concentration of power and other corporate attributes:[39]

$$|\hat{u}| = \alpha_{it} + \beta_1 iCON\_POWER_{it} + \delta^T X_{it} + e_{it} \quad (4)$$

Where the vector X_{it} contains control variables employed in the first-stage regression plus other corporate attributes such as industry and ownership dummy variables that could be associated with performance variability. As pointed out by Cheng (2008), the second model is based on the premise that factors that affect performance levels are likely to affect performance variability.

Table 10 presents the results of Glejser's (1969) heteroskedasticity test based on equation 4 for our three performance measures.

[Table 10 here]

The first row exhibits the results for our main variable of interest. The coefficients of our index of concentration of power are significantly negative for the absolute value of monthly stock return residuals (-0.001, $p<0.001$), annual ROA residuals (-0.002, $p<0.005$), and PE residuals (-0.923, $p<0.010$). Collectively, the results indicate that our measure of concentration of power is negatively associated with the variability of performance. The coefficients are also economically significant. As presented in Table 7, the mean (median) value of our index of concentration of power in the sample is 52.7 (52.3) and its standard deviation is 16.3. Therefore, a one standard deviation increase in the concentration of power is expected to result in a decrease, relative to the sample mean, of approximately: i) 20% in the absolute value of excess stock returns; ii) 48% in the absolute value of ROA residuals; and iii) 34% in the absolute value of PE residuals (these figures are computed as percentage decreases from their sample means of 0.08, 0.07, and 44.17, respectively).

In addition, Table 10 shows that larger firms have less variability of performance, as well as firms carrying out larger investments relative to their sizes. Regarding the type of control, family and foreign-control are positively associated with the variability of stock returns, although they do not seem to influence the variability of other performance measures.

We then move on to focus on the within-firm effect, by investigating the relationship between concentration of power and performance variability over time for each firm. We do this by applying a standard deviation test based on models employed in previous studies in this field (Adams et al., 2005; Cheng, 2008; Bebchuk et al., 2008).

We compute for each firm the standard deviation of monthly stock returns from January 2009 to December 2010, as well as the standard deviation of annual ROA and end of year PE for each firm from 2006 to 2010. We then regress these standard deviations on the same determinants of performance variability used in Table 10. Table 11 exhibits the results.

[Table 11 here]

As in Table 10, our results indicate a negative association between concentration of power and variability of performance. However, in this case we obtain statistical significance only for two out of the three performance measures: monthly volatility of stock returns (-0.002, $p<0.005$) and standard deviation of annual ROA (-0.001, $p<0.005$). The coefficient for PE, although negative, is not statistically significant. The results are also sizeable from the economic point of view. A one standard deviation increase in the concentration of power is expected to result in a decrease, relative to the sample mean, of approximately: i) 27% in the standard deviation of stock returns; and ii) 25% in the standard deviation of ROA (computed as percentage decreases from their sample means of 0.12 and 0.07, respectively).

In addition to our main variable of interest, Table 11 reinforces the evidence that larger firms display less variability of stock returns. The other control variables do not consistently show significant statistical results.

Overall, the results from both between-firms and within-firms effects in Tables 10 and 11 consistently suggest that our measure of concentration of power and the variability of performance are negatively related.

5.3. Regressions for hypothesis two: the role of managerial discretion

After testing our first hypothesis, we focus on the second one which argues that the impact of the concentration of power on performance variability should be stronger in industries characterized by a high degree of managerial discretion.

Hambrick and Finkelstein (1987) point out that managerial discretion is determined by characteristics of the environment (particularly from the industry), organization, and of the executive herself.[40] They apply this theoretical basis to construct measures of managerial

discretion across different industries[41] and also provide managerial discretion scores for seventeen four-digit SIC code industries.[42]

Adams et al. (2005) averaged Hambrick and Finkelstein (1987) measures by two-digit SIC code industry, constructing an indicator variable ("high discretion industry") equal to one for industries at the top 40% of the distribution of the two-digit SIC code rating of managerial discretion. We employ a similar approach in our research (implicitly assuming that the scores obtained in the US market are also valid for France. As a result, we split the sample into high and low-discretion industries and add an interaction term with the index of concentration of power in order to test H2.

Table 12 displays the results including the high-discretion industry dummy variable into our analysis and using stock returns as the performance variable. Columns 1 and 2 exhibit the result using Glejser test, whereas columns 3 and 4 show cross-sectional OLS regressions of the standard deviation of stock returns computed for each firm over the 2006-2009 period. Columns 1 and 3 examine the direct impact of the "high-discretion" industry variable, allowing us to check if performance is more variable in industries characterized by high-discretion. Columns 2 and 4 include an interaction term of our measure of the concentration of power and the high-discretion dummy, testing H2.

[Table 12 here]

Differently from Adams et al. (2005) for the US market, our results in columns 1 and 3 of Table 12 do not suggest that industries characterized as with high managerial discretion present higher variability of performance. One potential conjecture for this is that French companies exhibit more homogeneous variability of performance across different industries. As a direct consequence of this result, the interaction term of concentration of power and

managerial discretion of the industry also do not show significant results. On the other hand, the negative and statistically significant relationship between our measure of concentration of power and the variability of performance persists, indicating that the impact of the concentration of power on firm-level performance volatility is not sensitive to the degree of managerial discretion of the industry (at least as we measure it) to which the company belongs.

In Table 13, we replicate the regressions in Table 12 using ROA and PE as performance variables. For the sake of brevity, we report only the regressions that include both the high-discretion dummy variable and its interactions with the concentration of power.

[Table 13 here]

The results in Table 13 are mostly similar to Table 12, with the exception of one the ROA variability measures, which seems to be positively associated with degree of managerial discretion of the industry. For this variable, the influence of the concentration of power on performance variability becomes positive if the company belongs to a high discretion industry and remains negative otherwise.

Taken together, our results are not supportive of the hypothesis that the relationship between the concentration of power and the variability in performance is more pronounced in companies belonging to industries characterized as with high managerial discretion.

5.4. Robustness checks

Similarly to other indices from the corporate governance literature built from scratch, our broad index aiming at capture the degree of concentration of power is subject to questioning given its *ad hoc* characteristics. We identify three main areas of concern:

1. The application of an unusual initial step in order to identify who – the CEO or the Chairman – is the business leader;
2. The inclusion of board variables into the broad measure of concentration of power;
3. The construction of a 12-question questionnaire with subjective weights to compute our measure of individual power (iIndividual_Power).

We try to address these potential limitations by conducting extensive robustness checks. Regarding the two initial concerns, we run regressions using three alternative indices:

- Index of Concentration of Power applied to CEOs (iConPower_CEO): in this case, we suppress the first step of our procedure and compute our measure of concentration of power only to CEOs. (therefore following previous works on this field that assume that the CEO is always the most powerful individual);
- Index of Individual Power (iIndividual_Power): in this case, we suppress the board variables and reduce our measure of concentration of power to iIndividual_Power;
- Index of Individual Power applied to CEOs (CEO_Power): in this case, we suppress both the first step of our procedure as well as the two board variables, reducing our measure of concentration of power to iIndividual_Power applied to CEOs.

Tables 14 and 15 present the results of robustness checks using these three alternative measures of power against stock returns and ROA as performance measures.

[Table 14 here]

[Table 15 here]

Tables 14 and 15 evidence that our main result – a negative relation between concentration of power and performance variability – does not change with alternative measures of power. Although *t*-statistics are reduced in comparison with our original

estimations, the coefficients remain statistically significant whether or not we consider some Chairmen as business leaders and without the inclusion of board variables.

One could argue that it would be therefore better to adopt CEO_Power (the index of Individual Power applied only to CEOs) as the main measure of concentration of power, since it generates the same basic results and in addition is simpler to be constructed (since it does not require the initial comparison between Chairmen and CEOs nor the inclusion of board variables). However, we prefer to stick with iCon_Power as our original index because it is a more complete (and possibly more correct) measure from the corporate governance point of view as well as it provides a more refined score of concentration of power that is suggested by its slightly stronger results. We also highlight that the lack of substantial difference in our results with or without the initial step of our method that identifies the business leader could stem from the fact that in France about 70% of the companies have the same person in charge of both CEO and Chairman roles. Therefore, this step may be relevant only for 30% our sample. Since in many other countries there is a widespread split of these positions, future research investigating different institutional settings may indicate whether the first step of our procedure is crucial or not for measuring the degree of concentration of power.

The third main concern regarding our index deals with the subjective weights and questions chosen for it. We address this concern by running sensitivity analysis in two ways: by assigning the same weight for all questions and by dropping each question on a one-by-one basis to check whether results change. In both cases (omitted for space purposes) our results remain unchanged, reinforcing our conclusions.

We also run a factor analysis in addition to verify which questions comprising our index are more relevant for the negative correlation between the concentration of power and the variability of performance. We observe that three factors stand out: i) the presence of a founder or a relative of the founder as the business leader (question 4); ii) the percentage of

voting shares held by the business leader (question 5); and the tenure of the business leader (questions 6 and 11). Therefore, a sub-index comprising of these questions 4, 5, 6 and 11 would have generated the same results as the main original 12-question index. Anyway, we still prefer to stick with iCon_Power as our original index for the same reasons presented before in this section.

6. Conclusion

We provide both within-firm and between-firm evidence that the concentration of power is negatively associated with the variability of performance among French listed companies. We carry out our investigation after developing an original measure of the concentration of power that takes into account both personal characteristics of individuals characterized as business leaders as well as the functioning and diversity of the board of directors. Our results are robust to different specifications of our measure of power and to several robustness checks.

Although firms with more powerful leaders should be more exposed to the human fallibility of single decision makers – which could lead them to be subject to more extreme decisions – other forces seem to be more relevant in our sample, leading them to exhibit less variability of performance. Since business leaders in our French sample are frequently family-owners, founders or representatives of large controlling shareholders, these forces may include: i) the lack of diversification of their personal investments (when business leaders are relevant shareholders); ii) the attachment to the firm's long term survival due to commitments to other stakeholders (when they are family-owners); iii) the psychological desire to preserve their status quo rather than risk losing control over their companies (when they are founders); iv) the desire to "play it safe" in order to reduce the likelihood of being dismissed as a result

of a sharp negative performance (when they are professional managers); and, v) other cultural aspects of the French institutional environment.

Our main results go in line with the findings by Bebchuk et al. (2008) and Cheng (2008) but oppose those by Adams et al. (2005). In addition, differently from Adams et al. (2005), we do not find a stronger relationship between the concentration of power and the variability of performance in companies belonging to industries characterized as with high managerial discretion.

We contribute to the literature of the determinants of firm-level volatility by providing evidence that the influence of the concentration of power is not limited to an individual vs. collective decision making debate, also depending on other aspects associated with the institutional environment and characteristics of the business leaders. We also contribute methodologically by presenting an original and general procedure to measure the degree of concentration of power in companies with dispersed or concentrated ownership structures.

Our results nonetheless should be interpreted with caution due to important limitations. First, our proxy for the degree of concentration of power may capture other issues besides individual discretion, such as the personal attachment (both financial and affective) of business leaders towards their companies. If this is the case, then higher scores would be associated with more conservative attitudes. Since it is very difficult to disentangle discretionary power from personal attachment, we cannot rule out this possibility. Second, the individuals portrayed as "business leaders" in our research may not be the ones who are really in charge of major decisions in their companies. We cannot rule out, for instance, the possibility that somebody "pulls the strings" behind the curtains in some organizations, such as controlling shareholders that are not CEOs or Chairmen. Third, our measure of concentration of power is limited to 204 French companies computed for 2009, which limits our ability to carry out more sophisticated econometric tests that could reduce the probability

of spurious results. Endogeneity, especially those associated with reverse causality, is a plausible problem in our analysis due to our data limitations, weakening causal inferences.[43] Fourth, our results are only applicable to companies characterized by one-tier board structures. Although it is by far the most usual governance model worldwide, we cannot extrapolate our findings for companies under two-tier governance models.

Our work has implications for academics, investors and policy makers. For academics, it highlights the need to construct more sophisticated measures of the centralization of power that take into account other elements of individual power as well as the functioning and composition of the board. It also suggests that the relationship between power and firm-level volatility may depend on the institutional environment and corporate governance characteristics, such as the concentration of ownership structure and the presence of controlling shareholders. For investors and policy makers, our work provides evidence that firms may engage into more or less risky decisions depending on the profile and power of their business leaders. This evidence might contribute to the debate about recommended governance practices, especially in a post-crisis period where investors and regulators worldwide are concerned with the risk taking behavior of firms.

References

Adams, R., Almeida, H. & Ferreira, D. 2005. Powerful CEOs and their impact on corporate performance. ***Review of Financial Studies***, 18: 1403-1432.

Adams, R., Almeida, H. & Ferreira, D. 2009. Understanding the relationship between founder-CEOs and firm performance. ***Journal of Empirical Finance***, 16(1): 136-150.

Adams, R. & Ferreira, D. 2009. Moderation in groups: evidence from betting on ice break-ups in Alaska. Working paper available at SSRN: http://ssrn.com/abstract=594501

Almeida, H. & Ferreira, D. 2002. Democracy and the variability of economic performance. ***Economics and Politics***, 14(3): 225-257.

Amihud, Y. & Lev, B. 1981. Risk reduction as a managerial motive for conglomerate mergers. ***Bell Journal of Economics***, 12: 605–617.

Barber, B. M., Heath, C. & Odean, T. 2003. Good reasons sell: reason-based choice among group and individual investors in the stock market. ***Management Science***, 49: 1636-1652.

Bebchuk, L. A., Cremers, M. & Peyer, U. C. 2007. ***CEO Centrality***. NBER working paper W13701. Available at SSRN: http://ssrn.com/abstract=1079280

Bénabou, R. 2009. ***Groupthink: Collective Delusions in Organizations and Markets***. NBER Working Paper Series, v. w14764. Available at SSRN: http://ssrn.com/abstract=1352945

Bertrand, M. & Mullainathan, S. 2003. Enjoying the quiet life? Managerial behavior following antitakeover legislation. ***Journal of Political Economy***, 111(105):1043–1075.

Bertrand, M. & Schoar, A. 2003. Managing with style: the effect of managers on firm policies. ***Quarterly Journal of Economics***, 118(4): 1169-208.

Bikhchandani, S., Hirshleifer D., & Welch, I. 1992. A Theory of fads, fashion, custom, and cultural change as informational cascades. ***Journal of Political Economy***, 100(5): 992-1026.

Bikhchandani, S., Hirshleifer D., & Welch, I. 1998. Learning from the behavior of others: conformity, fads, and informational cascades. ***Journal of Economic Perspectives***, 12(3): 151-70.

Bikhchandani, S., Hirshleifer D., & Welch, I. 2001. ***Informational cascades and rational herding: an annotated bibliography***. Working Paper available at: http://www.info-cascades.info/

Burch, R. F. 2007. ***The myth of the unbiased director***. Working paper available at SSRN: http://ssrn.com/abstract=1007730

Cecil, E., Cummings, L., Chertkoff, J. 1973. Group Composition and Choice Shift: Implications for Administration. ***The Academy of Management Journal***, 16(3): 412-422. Available at http://www.jstor.org/stable/255002

Cheng, S. 2008. Board size and the variability of corporate performance. ***Journal of Financial Economics***, 87(1): 157-176.

Dion, R., Miller, B. 1970. Why do groups make riskier decisions than individuals? ***Advances in Experimental Social Psychology***, 5: 305-377. http://dx.doi.org/10.1016/S0065-2601(08)60094-5

Dorff, M. B. 2007. The group dynamics theory of executive compensation. ***Cardozo Law Review***, 8(5): 2025-2082.

Fich, E. & Shivdasani, A. 2006. Are busy boards effective monitors? ***The Journal of Finance***, 61(2): 689–724.

Fich, E. M. & White, L. J. 2005. Why do CEOs reciprocally sit on each other's boards? ***Journal of Corporate Finance***, 11(175-195)

Finkelstein, S. 1992. Power in top management teams: dimensions, measurement, and validation. ***The Academy of Management Journal***, 35(3): 505-538.

Fracassi, C. & Tate, G. A. 2008. ***External Networking and Internal Firm Governance***. Working paper available at SSRN: http://ssrn.com/abstract=1213358

Glaeser, E. L. & Sunstein, C. R. 2007. Extremism and social learning. Harvard Public Law Working Paper n. 08-14. Available at SSRN: http://ssrn.com/abstract=1150411

Glejser, H. 1969. A new test for heteroskedasticity. ***Journal of the American Statistical Association***, 64: 316-323.

Goyal, V. K. & Chul W. P. 2002. Board leadership structure and CEO turnover. ***Journal of Corporate Finance***, 8(1): 49–66.

Haleblian, J. & Finkelstein, S. 1993. Top management team size, CEO dominance, and firm performance: the moderating roles of environmental turbulence and discretion. ***The Academy of Management Journal***, 36(4): 844-863

Hambrick, D. C. & Mason, P. A. 1984. Upper echelons: the organization as a reflection of its top managers. ***The Academy of Management Review***, 9(2): 193-206.

Hambrick, D. C & Abrahamson, E. 1995. Assessing managerial discretion across industries: a multimethod approach. ***Academy of Management Journal***, 38(5): 1427-1441.

Hambrick, D. C., Finkelstein, S., Cho, T. S. & Jackson, E. M. 2005. Institutional theory as an explanation for recent increases in intraindustry heterogeneity and managerial discretion. ***Research in Organizational Behavior***, 26: 307–350.

Hermalin, B. E. & Weisbach, M. S. 1998. Endogenously chosen boards of directors and their monitoring of the CEO. ***American Economic Review***, 88(1): 96-118.

Janis, I. 1973. ***Victims of Groupthink: A psychological study of foreign-policy decisions and fiascoes***. Boston: Houghton-Mifflin Company.

Leslie, M. B. 2009. ***Conflicts of interest and nonprofit governance: the challenge of Groupthink***. Cardozo Legal Studies Research Paper n. 276. Available at http://ssrn.com/abstract=1477553

Madaras, G., Bem, D. 1968. Risk and conservatism in group decision-making. ***Journal of Experimental Social Psychology***, 4(3): 350-365. doi:10.1016/0022-1031(68)90062-0

Morck, R., Shleifer, A. & Vishny, Robert. 1989. Alternative mechanisms for corporate control. ***American Economic Review*** 7: 842-853.

Morck, R. 2007. ***Behavioral finance in corporate governance - independent directors and non-executive chairs***. Working paper available at SSRN: http://ssrn.com/abstract=979880

Morck, R. ***Generalized Agency Problems***. 2009. Working paper available at SSRN: http://ssrn.com/abstract=1508763

Moscovici, S. & Zavalloni, M. 1969. The Group as a Polarizer of Attitudes. ***Journal of Personality and Social Psychology***, 12(2): 125-135.

Pruitt, D. 1971. Choice shifts in group discussion: An introductory review. ***Journal of Personality and Social Psychology***, 20(3): 339-360. doi: 10.1037/h0031922

Rodrik, D. 2000. Participatory politics, social cooperation, and economic stability. ***American Economic Review***, 90(2): 140-144.

Sah, R. K. & Stiglitz, J. E. 1986. The architecture of economic systems: hierarchies and polyarchies. ***American Economic Review***, 76(4): 716-27.

Sah, R. K., & Stiglitz, J. E. 1991. The quality of managers in centralized versus decentralized organizations. ***Quarterly Journal of Economics***, 106(1): 289-295.

Sah, R. K. 1991. Fallibility in Human Organizations and Political Systems. ***Journal of Economic Perspectives*** 5(2): 67-88.

Shivdasani, A. & Yermack, D. 1999. CEO Involvement in the Selection of New Board Members: An Empirical Analysis. ***The Journal of Finance***, 54(5): 1829–1853. doi: 10.1111/0022-1082.00168

Silveira, A. M. & Barros, L. A. B. de C. 2011. **Who is the boss for major decisions? Chairmen – Not CEOs – as powerful leaders.** Working paper available at SSRN: http://ssrn.com/abstract=1874690

Stoner, J. 1961. A comparison of individual and group decisions involving risk Unpublished . In: Master's thesis, Massachusetts Institute of Technology, School of Industrial Management. Summary at http://dspace.mit.edu/bitstream/handle/1721.1/48923/riskycautiousshi00ston.pdf

Subrahmanyam, A. 2008. Social networks and corporate governance. ***European Financial Management***, 14(4): 633–662.

Wallach, M., Kogan, N. & Bem, D. 1964. Diffusion of responsibility and level of risk taking in groups. ***The Journal of Abnormal and Social Psychology***, 68(3): 263-274. doi: 10.1037/h0042190

Wallach, M. & Kogan, N. 1965. The roles of information, discussion, and consensus in group risk taking. ***Journal of Experimental Social Psychology***, 1(1): 1-19.

TABLE 1 – Index of business leader individual or *ex-ante* power (iIndividual_Power)

The table below details the index to measure the business leader individual power (iIndividual_Power). For companies with split CEO and Chairman positions, we initially apply the procedure developed by Silveira and Barros (2011) in order to define which individual (CEO or Chairman) is more likely to perform this role and then apply this questionnaire to the selected person. iIndividual_Power ranges from 0 to 15. Higher scores mean business leaders with more individual power. "Dimension of Power" indicates which of the four power dimensions created by Finkelstein (1992) the question fits into. * and ** denote questions applied solely to the CEO and Chairman, respectively. Section 2 provides further details on the rationale for the construction of this index.

#	Question	Answer	Dimension of Power	Rationale
1	Are Chairman and CEO positions held by the same person?	Yes = 2; No = 0	Structural Power	Individuals simultaneously holding the top two positions have authority over other executives as well as control over the board's agenda and information.
2	Is the business leader a member of the board's nomination, strategy or compensation committee?[44]	Yes = 1; No = 0	Structural Power	The presence on the board's nomination, compensation or strategic committee signalizes a leading role regarding the selection of new board members, compensation of executives or strategic direction of the firm.
3	Is the CEO the only insider (executive) on the board?*	Yes = 1; No = 0	Structural Power	If another top executive sits on the board, he is more likely to participate in high level decision-making with the CEO (Adams et. al., 2005, p. 1408).
4	Is the business leader a founder or a relative of the founder of the firm?	Founder = 3; Relative of the Founder = 2; No = 0	Ownership, Expert and Prestige Power	People who have founded the firm are more influential (adapted from Adams et. al., 2005, p. 1408). In addition, business leaders who are founders or their relatives may gain power through their often long-term interaction with the board (adapted from Finkelstein, 1992 p. 509).
5	Does the business leader hold more than 10% of the company's voting shares?[45]	Yes = 2; No = 0	Ownership Power	A Chairman or CEO with significant shareholdings will be more powerful than one without such a base of control (Finkelstein, 1992 p. 509). Besides, a representative of a controlling family or a shareholder holding the majority of the company's voting rights will more easily be able to push her views on relevant decisions.
6	Does the business leader hold her position for more than 10 years?[46]	Yes = 1; No = 0	Expert Power	More in-house years of experience may be decisive when making major decisions. Besides, long tenured leaders will have more bargaining power over boards (adapted from Adams et al., 2009, p. 10).
7	Has the company achieved an average return on assets (ROA) higher than the industry average in the past three years?[47]	Yes = 1; No = 0	Expert Power	Business leaders with strong past accounting performance increase their bargaining power within their companies (adapted from Hermalin and Weisbach, 1998).

#	Question	Answer	Dimension of Power	Rationale
8	Is the Chairman a former CEO of the company?**	Yes = 2; No = 0	Expert Power	A Chairman with a previous mandate as company's CEO has developed an internal ascendancy due to his/her unique long term experience and relationships in the company.
9	Is the ratio between CEO compensation and the compensation paid to other top executives above the median of the sample?*	Yes = 1; No = 0	Expert Power	The fraction of the aggregate compensation of the top-five executive team captured by the CEO is a proxy for the CEO centrality – the relative importance of the CEO within the top executive team (Bebchuk et. al., 2007, p. 1).
10	Does the business leader sit in four or more boards of other private companies?	Yes = 1; No = 0	Prestige Power	Business leaders may use directorships to establish and maintain contact or to increase their social stature. The greater the number of directorships, the greater the prestige status of an executive. (adapted from Finkelstein, 1992, p. 515).
11	Is the business leader tenure minus the average tenure of other board members above the average of the sample?	Yes = 1; No = 0	Prestige Power	Being in the board for much longer than other board members reinforces the power of the business leader due to informational advantages as well as unique expertise deriving from long tenure in the firm.
12	Did the business leader undergraduate from an elite university?[48]	Yes = 1; No = 0	Prestige Power	Prestige power and social networks may derive from the educational background. Therefore, business leaders with elite educational backgrounds may be more influential (adapted from Finkelstein, 1992).

TABLE 2 – Index of the board propensity to passivity (iBoard_Passivity)

The table below details the index constructed to measure the propensity of a board of directors to act passively (iBoard_Passivity). The index ranges from 0 to 15. The last column details the procedure for scoring.

#	Dimension	Rationale	Proxy	Procedure for scoring
1	**Time Availability of Board members in aggregate**	Too many board members busy with other positions reduce the probability of a profound analysis of the material sent in advance of the board's meetings, as well as their capacity to counter argue the proposals of the business leader.[49]	Concept of "busy boards",[50] in which a majority of outside directors hold five or more board seats (directorships) in other companies.	i. Compute the number of board positions held by each outside (non executive) board member; ii. Rank all firms in descending order according the percentage of outside board members acting in three or more boards, and assign: 0 →if the firm is ranked equal or under percentile P25; 1 →if the firms is ranked between P25 and P50; 2 →if the firms is ranked between P50 and P75; 3 →if the firm is ranked equal or above P75.
2	**Time Availability of Board members individually**	An outside board member acting as a CEO will be less likely to analyze board issues in depth before meetings and not so interested to confront another company's leader (since she could suffer the same scrutiny in her company). As a result, this should reduce her will to question the leader's view.	Percentage of outside board members simultaneously acting as CEOs of other firms.[51]	i. Compute the number of outside board members who simultaneously act as CEOs of other companies and divide by the number of outside board members; ii. Rank all firms in descending order according the percentage of outside board members acting as CEOs, and assign: 0 →if the firm is ranked equal or under percentile P25; 1 →if the firms is ranked between P25 and P50; 2 →if the firms is ranked between P50 and P75; 3 →if the firm is ranked equal or above P75.
3	**Independence of Board's members**	Board members not deemed as independent have a lower probability of opposing the views of the business leader than independent ones. Although independence may not be a sufficient condition for director's effectiveness, it is considered a necessary one.	Percentage of board members classified as independent.	i. Compute the percentage of independent directors in the board; ii. Rank all firms in descending order according the percentage of independent directors, and assign: 0 →if the firm is ranked equal or above percentile P75; 1 →if the firms is ranked between P50 and P75; 2 →if the firms is ranked between P25 and P50; 3 →if the firm is ranked equal or below P25.
4	**Board functioning and complexity of the board's agenda**	A board meeting few times per year will result in a board with a heavier agenda in each its meetings. As a result, its members will have less time for debating and presenting different views.	Number of board meetings per year	Compute the number of regular board meetings throughout the year and assign: 0 →If the board held more than ten regularly scheduled meetings per year; 1 →if he board held between seven to ten meetings per year; 2 →if the board held between four to six meetings per year; 3 →if the board held up to three meetings per year.
5	**Pre-discussion of board issues in other forums**	The presence of board committees allows greater in-depth debate of issues before board meetings, thus reducing the board passivity or propensity to engage in information cascades.	Number of board committees.	Compute the number of board committees composed by at least 50% of outside directors: 0 →If the board has three or more board committees; 1 →if he board has two board committees; 2 →if the board has one board committee; 3 →if the board does not have any board committee.

TABLE 3 – Index of the board narrow-mindedness (iBoard_NMindedness)

The table below details the index constructed to measure the propensity of a board of directors to suffer from the lack of more diversified views in its debates (iBoard_NMindedness). The index ranges from 0 to 15.

#	Dimension	Rationale	Proxy	Procedure for scoring
1	**Gender variability**	Greater gender variability among board members is associated with less homogeneous boards.	Percentage of women serving on the board.	i.Estimate the percentage, p, of women in the board and calculate the entropy measure, defined by $\sum_{i=1}^{2} p \log_2 p$; ii.Rank all firms in ascending order according the entropy measure; iii.Estimate the percentiles P25, P50, and P75, and assign; 0 → if the firm is ranked equal or above percentile P75; 1 → if the firm is ranked between P50 and P75; 2 → if the firm is ranked between P25 and P50; 3 → if the firm is ranked equal or under P25.
2	**Age variability**	Larger age variability among board members should be associated with less homogeneous boards.	Standard deviation of age among board members.	i.Calculate the standard deviation of board members' age and rank all firms in descending order according the standard deviation of board member's age; ii.Estimate the percentiles P25, P50, and P75, and assign: 0 → if the firm is ranked equal or above percentile P75; 1 → if the firm is ranked between P50 and P75; 2 → if the firm is ranked between P25 and P50; 3 → if the firm is ranked equal or under P25.
3	**Cultural variability**	Greater variability of cultural background among board members should be associated with more heterogeneous boards, with more diverse views on strategic issues.	Percentage of foreigners in the board.	i.Estimate the percentage, p, of foreigners on the board and calculate the entropy measure, defined by $\sum_{i=1}^{2} p \log_2 p$; ii.Rank all firms in ascending order according the entropy measure; iii.Estimate the percentiles P25, P50, and P75, and assign: 0 → if the firm is ranked above P75; 1 → if the firm is ranked between P50 and P75; 2 → if the firm is ranked between P25 and P50; 3 → if the firm is ranked under P25.
4	**Average Board Tenure**	Directors who have joined the board long time ago could be more prone to develop a "club mentality", reinforcing their views and avoiding confrontation.	Mean tenure of board members. The tenure is calculated as the number of years since the director's first appointment to the board.	i. Calculate the average tenure of all directors and rank firms in descending order; ii. Estimate the percentiles P25, P50, and P75, and assign: 0 → if the firm is ranked equal or below P25; 1 → if the firm is ranked between P25 and P50; 2 → if the firm is ranked between P50 and P75; 3 → if the firm is ranked equal or above P75.
5	**Academic background variability**	Greater variability of academic backgrounds among board members should be associated with less homogeneous boards.	Classification of board members into four academic backgrounds: 1. Business (finance, economics, etc.); 2. Engineering / Technical; 3. Legal / Lawyers; 4. Others.	Based on the classification of academic background of each director, assign: 0 → if the four academic backgrounds are present in the board; 1 → if three academic backgrounds are present in the board; 2 → if two academic backgrounds are present in the board; 3 → if all board members have the same academic background.

TABLE 4 – Control variables

The table below describes the control variables used in this study. With the exception of the variables related to the ownership structure and board of directors, all variables and their respective definitions are collected from Thomson One Analytics database.

#	Name of Variable	Definition
1	Identity of the Controlling Shareholder	Set of five dummy variables classifying the ownership structure into five categories: Family control – companies controlled by individuals or families; Government control – State owned companies; Foreign control – companies controlled by foreigners, such as multinationals; Institutional or Shared control – companies controlled by institutional investors such as private equity or pension funds or by a pool of shareholders involving at least one individual and one institution acting in concert; Widely held firm – companies with dispersed shareholding structure (in which the largest shareholder holds less than 10% of voting shares).
2	Firm size	Natural logarithm of the firm's total annual revenues.
3	Financial leverage	(Short term debt & current portion of long term debt + long term debt) / total assets
4	Firm age	Number of year since the company's foundation.
5	Investments	Annual CAPEX (capital expenditures) / annual revenues.
6	Stock price volatility	Standard deviation of monthly returns during the year.
7	Beta	Measure of systematic or non-diversifiable risk calculated based on between 23 and 35 consecutive month end price percent changes and their relativity to a local market index.
8	Total Investment Return	[(market price year end + dividends per share + special dividends) / last year's market price year end] -1
9	Stock price return	Market price at the end of the period / market price at the beginning of the period) - 1
10	Price to earnings ratio	Stock market price / most recent earnings per share
11	Price to book-value ratio	Stock market price / book value per share
12	Return on assets	(Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) * (1 – Tax Rate))) / Last Year's Total Assets
13	Return on equity	(Net Income before Preferred Dividends – Preferred Dividend Requirement) / Last Year's Common Equity
14	Market capitalization	Total market value of the company based on year end price and number of shares outstanding
15	High discretion industry	Dummy variable that assumes the value of one for companies belonging to industries characterized by Hambrick and Abrahamson (1995) as with high managerial discretion: two-digit SIC code industry 20 to 39 (manufacturing) and 70 to 89 (services).
16	Industry	11 industry dummy variables classified by proprietary I/B/E/S sector names: basic industries, capital goods, consumer durables, consumer non durables, consumer services, energy, finance, health care, public utilities, technology, transportation.

TABLE 5 – Index of business leader individual power (iIndividual_Power): descriptive statistics

The table below presents the aggregate results after applying the questionnaire to calculate the index of business leader's individual power (iIndividual_Power) described in Table 1. The index has been applied to 215 French companies for 2010.

Question	% of Yes
1. Are Chairman and CEO positions held by the same person?	71.1%
2. Is the business leader member of the board's nomination, strategy or compensation committee?	52.5%
3. Is the CEO the only insider (executive) on the board?	41.1%
4. Is the business leader a founder or a relative of the founder of the firm?	50.0%
5. Does the business leader hold more than 10% of the company's voting shares?	52.0%
6. Does the business leader hold her position for more than 10 years?	51.5%
7. Average return on assets higher than the industry average in the past three years?	52.0%
8. Is the Chairman a former CEO of the company?	17.7%
9. Is the ratio between CEO compensation and the compensation paid to other top executives above the median of the sample?	56.4%
10. Does the business leader sit in four or more boards of other private companies?	64.2%
11. Is the business leader tenure minus the average tenure of other board members above the average of the sample?	41.7%
12. Did the business leader undergraduate from an elite university?	58.8%

TABLE 6 – Index of propensity to passivity (iBoard_Passivity) and to narrow-mindedness (iBoard_NMindedness) of the board: descriptive statistics

This table presents the descriptive statistics of the indices of board propensity to passivity and of board narrow-mindedness described in Tables 3 and 4, respectively. The indices have been applied to 215 French companies for 2010.

	Index of board propensity to passivity (iBoard_Passivity)					**Index of board narrow-mindedness (iBoard_NMindedness)**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Descriptive Statistics	**% busy outside board members**	**% outside members acting as CEOs of other firms**	**Percentage of board members classified as independent.**	**Number of board meetings per year**	**Number of board committees**	**% of women in the board**	**% of foreigners in the board**	**St. dev. of age among board members**	**Mean tenure of board members**	**Number of different backgrounds in the board**
Mean	38.2%	37.4%	31.0%	6.5	1.7	10.5%	16.2%	9.1	6.3	2.5
Median	38.0%	40.0%	33.3%	6.0	2.0	9.1%	11.1%	8.8	5.5	3.0
Minimum	0.0%	0.0%	0.0%	2.0	0.0	0.0%	0.0%	1.5	0.0	1.0
P25 (Percentile 25%)	16.7%	17.8%	16.7%	4.0	0.0	0.0%	0.0%	7.2	3.4	2.0
P75 (Percentile 75%)	60.0%	55.6%	45.5%	8.0	3.0	17.0%	25.0%	11.0	8.3	3.0
Maximum	100.0%	100.0%	88.9%	24.0	6.0	75.0%	88.9%	20.1	27.3	4.0
Standard-deviation	27.6%	24.5%	21.6%	3.0	1.4	11.9%	19.6%	3.3	4.2	0.9

TABLE 7 – Summary of all indices

The table below presents the descriptive statistics of four indices: index of business leader's individual power (see Table 1); index of boards' propensity to passivity (see Table 2); index of board's narrow-mindedness (see Table 3); and the index of concentration of power (iCon_Power). iCon_Power is calculated by $iCon\_Power = \left[iIndividual\_Power + \left(\frac{iBoard\_Passivity + iBoard\_NMindedness}{2}\right)\right] * \left(\frac{100}{30}\right)$. The multiplication by 100 and division by 30 is made in order to scale the index in a zero to 100 range. The indices have been calculated for our sample of 215 French companies for 2010.

Descriptive Statistics	iIndividual_Power	iBoard_Passivity	iBoard_NMindedness	iCon_Power
Mean	8.1	7.6	7.7	**52.7**
Median	8.0	7.9	7.1	**52.3**
Minimum	0.0	0.0	2.1	**19.8**
P25 (Percentile 25%)	5.0	5.0	5.7	**40.2**
P75 (Percentile 75%)	11.0	10.0	9.3	**65.3**
Maximum	15.0	15.0	15.0	**83.6**
Standard-deviation	3.3	3.2	2.6	**16.3**

TABLE 8 – Ownership structure: descriptive statistics

The table below presents the descriptive statistics of the ownership structure of our sample with 215 French companies for 2010. It classifies firms into five categories of controlling shareholders: 1) family-controlled; 2) state-controlled; 3) controlled by foreign companies (e.g. multinationals); 4) shared-control (controlled by institutional investors such as private equity or pension funds or by a group of shareholders involving at least one individual and one institution acting in concert); and, 5) companies with dispersed shareholding structure, where the largest shareholder holds less than 10% of voting shares.

Type	Ownership structure: Identity of the controlling shareholder	%
1	Family-controlled	50.0%
2	State-controlled	3.4%
3	Controlled by foreign companies	5.4%
4	Shared-control	29.9%
5	Widely-held companies	11.3%

TABLE 9 – Selected control variables: descriptive statistics

The table below presents the descriptive statistics of selected control variables for our sample with 215 French companies for 2010.

Descriptive Statistics	Board size	% Voting shares held by board members	2009 Market capitaliza-tion (USD MM)	2009 Revenues (USD MM)	Firm age
Mean	9.2	47.1%	6,014.8	7,843.9	57.1
Median	9.0	51.0%	556.8	790.8	38.0
Minimum	3.0	0.0%	58.2	1.6	2.0
P25 (Percentile 25%)	6.0	25.6%	173.0	220.4	21.0
P75 (Percentile 75%)	11.0	68.2%	3,144.2	3,793.4	78.0
Maximum	21.0	96.6%	143,977.8	160,677.1	344.0
Standard-deviation	3.7	28.2%	18,035.9	20,449.2	54.5

TABLE 10 – Heteroskedasticity tests for performance measures as a function of the concentration of power and other control variables

Table 10 shows the results of using Glejser's (1969) method to test whether the variance in performance is greater in firms in which our measures of concentration of power are larger. To perform the tests for stock returns we initially construct excess stock returns $\hat{u}_i$ for firm *i* from the market model: $stock\ return_{it} = b_1 * market\ return_t + u_{it}$, where *t* ranges from January 2009 to December 2009. We construct ROA residuals using the following model: ROA = b_0 + b_1*iConPower + b_2*Firm Size + b_3*Firm Age + b_4*Financial leverage + b_5*Investments. We construct residuals for $\hat{u}_i$ for price-to- earnings (PE) from the following regression: PE = b_0 + b_1*iConPower + b_2*Firm Size + b_3*Firm Age + b_4*Financial leverage + b_5*Investments + b_6*Return on Assets$_t$ + b_6*Return on Assets$_{t-1}$. We then regress the absolute value of the residuals from these regressions on iConPower and control variables. Table 4 describes the operational definitions of all control variables. All regressions include eleven industry dummy variables classified by proprietary I/B/E/S sector names. Robust t-statistics are in parentheses. ***, ** and * denote significance at the 1, 5, and 10% levels, respectively.

Variables	(1) Absolute value of excess stock returns	(2) Absolute value of ROA residuals	(3) Absolute value of PE residuals
Concentration of Power (iConPower)	**-0.001*** **	**-0.002** **	**-0.923***
	(-4.23)	**(-2.43)**	**(-1.83)**
Firm size	**-0.009*** **	**-0.018*** **	**-16.653***
	(-6.49)	**(-4.02)**	**(-1.78)**
Financial leverage	**0.002*** **	0.002	3.906
	(2.78)	(0.53)	(1.64)
Firm age	**-0.005** **	0.001	11.589
	(-2.03)	(0.18)	(1.11)
Investments	**-0.011*** **	**-0.010** **	-2.969
	(-4.40)	**(-2.15)**	(-0.39)
Family control	**0.030*** **	-0.060	10.984
	(3.64)	(-0.81)	(0.68)
Foreign control	**0.044*** **		-32.843
	(3.65)		(-1.30)
Institutional or Shared control	**0.014***	-0.055	-6.134
	(1.89)	(-0.66)	(-0.32)
Widely held firm	0.012	-0.053	54.045
	(1.44)	(-0.61)	(1.41)
Government control		-0.058	
		(-0.66)	
Industry dummies	YES	YES	YES
Constant	0.344***	0.642***	393.434**
	(7.34)	(3.52)	(2.18)
Number of observations	2352	201	201
R-squared	0.0752	0.244	0.094
F- statistic	6.48	1.992	1.201

TABLE 11 – Cross-sectional regressions of standard deviation of performance measures on the concentration of power and other control variables

Table 11 shows cross-sectional OLS regressions of the standard deviation of performance measures, computed for each firm over 2006-2009 on iConPower and several control variables averaged for the 2006-2009 period. In column I, the dependent variable is the standard deviation of monthly stock returns. In columns II and III, the dependent variables are the standard deviation of ROA and PE. Table 4 describes the operational definitions of all control variables. All regressions include eleven industry dummy variables classified by proprietary I/B/E/S sector names. Robust t-statistics are in parentheses. ***, ** and * denote significance at the 1, 5, and 10% levels, respectively.

Variables	(1) Standard deviation of stock returns	(2) Standard deviation of ROA	(3) Standard deviation of PE
Concentration of Power (iConPower)	**-0.002****	**-0.001****	-0.399
	(-2.19)	**(-2.38)**	(-1.29)
Firm size	**-0.015****	**-0.014*****	-5.761
	(-2.66)	**(-4.20)**	(-1.38)
Financial leverage	**0.005***	-0.001	2.423
	(1.88)	(-0.23)	(1.50)
Firm age	-0.009	-0.007	-2.221
	(-1.13)	(0.94)	(-0.45)
Investments	**-0.128*****	-0.007	-7.955
	(-3.09)	(-0.93)	(-1.53)
Family control	0.119	0.339	-2.471
	(0.38)	(1.52)	(-0.16)
Foreign control		**0.651***	6.151
		(1.85)	(0.22)
Institutional or Shared control	-0.157	0.177	-2.957
	(-0.77)	(0.86)	(-0.19)
Widely held firm	0.298	0.041	30.024
	(0.64)	(1.35)	(1.33)
Government control	-0.330		
	(-1.21)		
Industry dummies	YES	YES	YES
Constant	0.623***	0.444***	169.282*
	(3.68)	(4.32)	(1.93)
Number of observations	200	201	201
R-squared	0.22	0.27	0.110
F statistic	4.000	3.250	1.490

TABLE 12 – Stock return variability as a function of the concentration of power interacted with industry ratings of managerial discretion

Table 12 shows whether our measures of the concentration of power have greater impact on the variability of performance when business leaders are in industries where they are likely to have more discretion. We construct our measure of managerial discretion using Hambrick and Abrahamson's (1995) ratings of managerial discretion for seventy four-digit SIC code industries. Following Adams et al. (2005) procedure, we average their measures by two-digit SIC code industry and then construct a variable which is equal to 1 if the firm belongs to an industry in the top 40% of the distribution of the rating of managerial discretion. We examine the direct role of this variable in columns I and III, and we interact with our measures of the concentration of power in columns II and IV. Columns I and II show the result using Glejser test, and columns III and IV show cross-sectional OLS regressions of the standard deviation of stock returns computed for each firm over the 2006-2009 period. The regressions are carried out on our measures of concentration of power and the same controls used in Tables 10 and 11. The coefficients and t-statistics on the controls are omitted for the sake of brevity. The regressions do not include industry dummies because they are collinear with industry ratings. Robust t-statistics are in parentheses. ***, ** and * denote significance at the 1, 5, and 10% levels, respectively.

Variables	(1) Absolute value of excess stock returns	(2) Absolute value of excess stock returns	(3) Standard deviation of stock returns	(4) Standard deviation of stock returns
High discretion industry	-0.006	-0.009	-0.012	0.043
	(-0.82)	(-0.45)	(-0.87)	(0.92)
Conc. of power (iConPower)	**-0.001*** **	**-0.001*** **	**-0.001** **	**-0.001***
	(-2.86)	**(-2.93)**	**(-2.17)**	**(-1.87)**
Conc. of power * High discretion		0.001		-0.001
		(0.16)		(-1.21)
Family control	-0.122	-0.125	0.004	0.009
	(0.71)	(0.70)	(0.14)	(0.31)
Foreign control				
Institutional or Shared control	-0.028	-0.028	-0.023	-0.019
	(-1.65)	(-1.64)	(-1.16)	(-0.94)
Widely held firm	-0.285	-0.287	0.248	0.278
	(-1.60)	(-1.59)	(0.54)	(0.58)
Government control	**-0.420** **	**-0.425** **	**-0.041***	-0.028
	(-2.22)	**(-2.22)**	**(-1.65)**	(-0.95)
Industry dummies	YES	YES	YES	YES
Other controls	YES	YES	YES	YES
Constant	YES	YES	YES	YES
Type of test	Glejser	Glejser	Variability over time	Variability over time
Number of observations	196	196	200	200
R-squared	0.305	0.305	0.195	0.203
F statistic	3.261	3.180	4.870	3.590

TABLE 13 – Stock return variability as a function of the concentration of power interacted with industry ratings of managerial discretion

In this table, we replicate the tests reported in Table 12 using ROA and price-to-earnings (PE) as alternative performance measures. We construct our measure of managerial discretion using Hambrick and Abrahamson's (1995) as reported in Table 13. Columns I and II show the result using Glejser test, with ROA and PE residuals being constructed as described in Table 10. Columns III and IV show the result of cross-sectional OLS regressions of the standard deviation in ROA and PE, computed for each firm over the 2006-2009 period. The regressions are carried out on our measures of concentration of power and the same controls used in Tables 10 and 11. The coefficients and t-statistics on the controls are omitted for the sake of brevity. The regressions do not include industry dummies because they are collinear with industry ratings. Robust t-statistics are in parentheses. ***, ** and * denote significance at the 1, 5, and 10% levels, respectively.

Variables	(1) Absolute value of ROA residuals	(2) Absolute value of PE residuals	(3) Standard deviation of ROA	(4) Standard deviation of PE
High discretion industry	**0.156****	-126.776	0.408	-51.019
	(2.34)	(-1.59)	(1.02)	(-1.32)
Conc. of power (iConPower)	-0.001	**-1.711****	-0.001	**-0.735***
	(-1.10)	**(-1.98)**	(-1.24)	**(-1.84)**
Conc. of power * High discretion	**-0.003****	1.943	-0.001	0.787
	(-2.31)	(1.48)	(-1.20)	(1.28)
Family control	-0.043	18.160	-0.029	-15.552
	(-0.64)	(1.11)	(-0.93)	(-0.59)
Foreign control		-8.414		
		(-0.43)		
Institutional or Shared control	-0.044	9.813	-0.048	-13.718
	(-0.57)	(0.07)	(-1.57)	(-0.58)
Widely held firm	-0.045	68.720	-0.023	20.981
	(-0.56)	(1.59)	(-0.56)	(0.72)
Government control	-0.025		**-0.059***	-16.993
	(-0.32)		**(-1.69)**	(-0.64)
Industry dummies	YES	YES	YES	YES
Other controls	YES	YES	YES	YES
Constant	YES	YES	YES	YES
Type of test	Glejser	Glejser	Variability over time	Variability over time
Number of observations	201	199	201	201
R-squared	0.286	0.110	0.262	0.120
F statistic	1.993	0.863	2.820	1.331

TABLE 14 – Robustness checks: alternative measures of concentration of power against stock returns

Table 14 exhibit the results of using Glejser's (1969) method to test whether the variance in performance is greater in firms in which our measures of concentration of power are larger. Three alternative measures of concentration of power are used: i) iConPower_CEO: iCon_Power (see Table 7) applied only to CEOs (assuming that the CEO is always the most powerful individual); ii) iIndividual_Power: 12-question index of individual power (Table 1) excluding board variables; iii) CEO_Power: iIndividual_Power applied only to CEOs. To perform the tests for stock returns we construct excess stock returns $\hat{u}_i$ for firm *i* from the market model: $stock\ return_{it} = b_1 * market\ return_t + u_{it}$, where *t* ranges from January 2009 to December 2010. We then regress the absolute value of the residuals on the measures of concentration of power and on several control variables. Table 4 describes the operational definitions of all control variables. All regressions include eleven industry dummy variables classified by proprietary I/B/E/S sector names. Robust t-statistics are in parentheses. ***, ** and * denote significance at the 1, 5, and 10% levels, respectively.

Variables	(1) Absolute value of excess stock returns	(2) Absolute value of excess stock returns	(3) Absolute value of excess stock returns
Concentration of Power : iConPower_CEO	**-0.001*** **		
	(-3.752)		
Concentration of Power : iIndividual_Power		**-0.003*** **	
		(-3.031)	
Concentration of Power : CEO_Indiv_Power			**-0.003*** **
			(-2.521)
Firm size	**-0.010*** **	**-0.008*** **	**-0.083*** **
	(-6.229)	**(-6.258)**	**(-5.948)**
Financial leverage	**0.002*** **	**0.002** **	**0.002** **
	(2.658)	**(2.240)**	**(2.111)**
Firm age	**-0.004***	**-0.006** **	**-0.005** **
	(-1.854)	**(-2.323)**	**(-2.150)**
Investments	**-0.013*** **	**-0.011*** **	**-0.012*** **
	(-4.751)	**(-4.239)**	**(-4.476)**
Family control	**0.025*** **	**0.026*** **	**0.020** **
	(3.137)	**(3.021)**	**(2.553)**
Foreign control	**0.044*** **	**0.047*** **	**0.046*** **
	(3.620)	**(3.859)**	**(3.839)**
Institutional or Shared control	0.011	**0.013***	0.010
	(1.508)	**(1.802)**	(1.422)
Widely held firm	0.013	0.012	0.013
	(1.603)	(1.429)	(1.618)
Government control			
Industry dummies	YES	YES	YES
Constant	0.338***	0.338***	0.297***
	(7.091)	(7.091)	(6.890)
Number of observations	2352	2352	2352
R-squared	0.073	0.070	0.069
F- statistic	6.47	6.33	6.46

TABLE 15 – Robustness checks: alternative measures of concentration of power against Return on Assets (ROA)

Table 15 exhibit the results of using Glejser's (1969) method to test whether the variance in performance is greater in firms in which our measures of concentration of power are larger. Three alternative measures of concentration of power are used: i) iConPower_CEO: iCon_Power (see Table 7) applied only to CEOs (assuming that the CEO is always the most powerful individual); ii) iIndividual_Power: 12-question index of individual power (Table 1) excluding board variables; iii) CEO_Power: iIndividual_Power applied only to CEOs. We construct ROA residuals using the following model: ROA = b_0 + b_1*iConPower + b_2*Firm Size + b_3*Firm Age + b_4*Financial leverage + b_5*Investments. We then regress the absolute value of the residuals on the measures of concentration of power and on several control variables. Table 4 describes the operational definitions of all control variables. All regressions include eleven industry dummy variables classified by proprietary I/B/E/S sector names. Robust t-statistics are in parentheses. ***, ** and * denote significance at the 1, 5, and 10% levels, respectively.

Variables	(1) Absolute value of ROA residuals	(2) Absolute value of ROA residuals	(3) Absolute value of ROA residuals
Concentration of Power : iConPower_CEO	**-0.002*** **		
	(-2.89)		
Concentration of Power : iIndividual_Power		**-0.007***	
		(-1.76)	
Concentration of Power : CEO_Power			**-0.006****
			(-2.10)
Firm size	**-0.018*** **	**-0.015*** **	**-0.015*** **
	(-3.93)	**(-3.67)**	**(-3.59)**
Financial leverage	0.001	0.001	-0.001
	(0.38)	(0.06)	(-0.08)
Firm age	0.002	-0.001	0.001
	(0.36)	(-0.21)	(0.02)
Investments	**-0.013*** **	**-0.009****	**-0.012****
	(-2.72)	**(-2.10)**	**(-2.57)**
Family control	-0.076	-0.073	-0.090
	(-0.89)	(-1.01)	(-1.04)
Foreign control			
Institutional or Shared control	-0.063	-0.060	-0.067
	(-0.69)	(-0.72)	(-0.74)
Widely held firm	-0.052	-0.057	-0.054
	(-0.56)	(-0.65)	(-0.59)
Government control	-0.059	-0.062	-0.062
	(-0.64)	(-0.70)	(-0.67)
Industry dummies	YES	YES	YES
Constant	0.614***	0.549***	0.529***
	(3.88)	(3.36)	(3.64)
Number of observations	201	201	201
R-squared	0.229	0.228	0.214
F- statistic	1.95	2.19	2.29

[1] In fact, the discrepant results in the previous works may be partially due to board characteristics omitted from their analysis.
[2] Although the board of directors may have a Chairman or Chairwoman, we use the more diffused terminology Chairman in the paper. It must be understood as a board of directors chaired either by men or women.
[3] Sah and Stiglitz (1986, p. 720).
[4] Sah and Stiglitz (1991, p. 292).
[5] Sah (1991, p. 70). The concept of human fallibility is based on the idea that people can make good or bad decisions, differing in their decision-making abilities. As a result, in societies with a small group of people deciding, the risk arising from human fallibility should not be well diversified. Almeida and Ferreira (2002, p. 226) provide a good example on that: "Suppose a chief executive makes all his/her decisions alone. If he is of the good type, he will make good decisions more often than if he were of the bad type. Suppose now the chief executive and a second party, say the parliament, must agree before a policy is implemented. The parliament again can be either of a good or of a bad type. The average quality of decisions might not have changed, but if the quality of both the chief executive and the parliament are not perfectly correlated ex ante, the likelihood that a proposed good or bad policy is vetoed by one of the parties is higher than it was before. Therefore, fewer policies would be adopted and, there would be less variability in outcomes in this less centralized society".
[6] Rodrik (2000, p. 140).
[7] Another interesting result from Almeida and Ferreira (2002) is that they find a greater variability of policies among centralized societies. Specifically, they find that autocracies seem to be more heterogeneous than democracies in some policies like government spending in education, the black market premium, the protection of property rights and the regulation of businesses.
[8] The initial researches in this area employed the term "risky shift" after realizing that some groups debating on specific problems have become more risky on them than the individual views initially expressed by their members on the same problems.
[9] Wallach and Kogan (1965) also argued that "affective bonds" formed during group debates facilitate a spread of responsibility onto other group members and, hence, encourage a shift toward risk.
[10] In the presence of groupthink, members of the group avoid promoting viewpoints outside the comfort zone of consensus thinking. According to Leslie (2009), "Desire for consensus, approval and group solidarity can cause group members to ignore information that contradicts the view of the majority or dominant group members, and to reach a decision that solidifies their position within the group. The more cohesive the group, the more likely that group members will view loyalty to the group as more important than engaging in a truly deliberative process. The more complex the subject under review, the more likely that groupthink will occur."
[11] Also known as "bandwagon effect", "social cascades", "herd behavior", and "argumentum ad populum".
[12] According to the author, when people make a decision sequentially, and that decision is public, at some point in the decision chain, individuals may begin to ignore their private information in favor of the group's views. This response may be a rational calculation that the group has more information than any single individual. Alternatively, it may represent an attempt to preserve reputation, at the expense of making an incorrect decision. The author also points out that the behavior of individuals involved in information cascades may be rational. Particularly when the actor has little other information, following the lead of the group may represent the best strategy. If each person in the group makes an independent decision, based on his or her own information and ignoring those who preceded him or her, then the group's decision should contain a great deal of information. Information cascades arise, however, when most people adopt the "follow the group" strategy rather than making an independent decision. When most individuals ignore their own information in favor of following the majority, the group's decision contains only the information of the first few decision-makers.
[13] Whose power may stem not from superior information or wisdom, but merely from temporal primacy.
[14] Bikhchandani, Hirshleifer and Welch (1992, 1998, 2001) developed several papers on this field. The authors argue that an informational cascade occurs when it is optimal for an individual, having observed the actions of those ahead of him, to follow the behavior of the preceding individual without regard to his/her own information. According to the authors, localized conformity of behavior and the fragility of mass behavior can be explained by informational cascades. For more information, please see http://www.info-cascades.info/ and http://cascades.behaviouralfinance.net/
[15] Haleblian and Finkelstein (1993) also analyze the impact of the size of top management teams on performance, finding that firms with larger managerial teams performed better in turbulent environments.
[16] Adams et al. (2005) find particularly compelling results when using the status of the CEO as founder as a proxy for CEO power. Although not discussed in their paper, their results offer another possible explanation derived from the behavioral corporate finance literature: the founder-CEO proxy could similarly be viewed as a measure of overconfidence, since there's a relevant literature of social psychology that shows that entrepreneurs tend to be more overconfident than average people. Finally, in order to refute the view that their results were

driven by endogeneity problems, they run robustness checks with two unusual instrumental variables: dead founders (a dummy variable taking the value of one if the founder died before the start of the sample and zero otherwise), and the number of founders of the firm.

[17] According to Hermalin and Weisbach (1998, p. 98): "When a firm has an extremely able CEO, he will be able to use his/her bargaining position to ensure a relatively weak board throughout his/her career".

[18] Chang (2008) used a dummy variable equal to one if all of the following three conditions are met: the CEO is a founder of the company, the chair of the board, and the only employee on board.

[19] Bertrand and Mullainathan (2003) analyze the adoption of state-level antitakeover laws to empirically map out managerial preferences. They find that when managers are insulated from takeovers, worker wages rise, and both the destruction of old plants and the creation of new plants falls, with null net effects on corporate size. They interpret their results as a suggestion that poorly governed managers may prefer to avoid the difficult decisions and costly efforts associated with shutting down old plants or starting new plants, as well buying peace with their workers by higher wager.

[20] On average, the entire corporate governance analysis of each firm in the sample required about 45 minutes of analysis from a senior researcher.

[21] Of course this choice bias the sample towards the largest companies. However, it's important to note that this bias conspires against the hypothesis of finding systematic effects of powerful CEOs on performance variability, since single individuals might be much more influential in smaller organizations, where there is a lower organizational inertia.

[22] The one-tier model with a board of directors, adopted by about 75% of the French companies from our sample, is a model similar to the one adopted worldwide, including in Anglo-Saxon countries. In this model, the Board is responsible for main strategic decisions (with the scope varying from company to company depending on their statutes). In this model, therefore, the Board should make business decisions. On the other hand, the two-tier model requires the supervisory board to perform two basic roles: i) to nominate the members of the management board and ii) to control/supervise the management board's decisions. So, in this model, the running of the company (including decision making about main business decisions) is clearly allocated in the hands of the management board, with the supervisory board being responsible for an ex-post control (this model does not allow an individual to be part at same time at of both supervisory and management boards). This view is corroborated by the prescriptions of the French Law (Code de Commerce). According to Article 225-35, the role of the Board of Directors (Conseil d'Administration) is to "determine the activity of the company and oversees their implementation. Subject to the powers expressly granted to the shareholders and within the corporate purpose, it considers any matter affecting the proper functioning of society and through its proceedings, the matters concerning it". On the other hand, Articles Article 225-68 and 225-64 determines that "the supervisory board (Conseil de Surveillance) exercises permanent control over the management of the company by the directors", and that "the executive board (Le Directoire) is vested with extensive powers to act in all circumstances on behalf of the company. He carries within the corporate purpose and subject to those expressly granted by law the supervisory board and shareholder meetings". Since the Law prescribes a philosophically different governance model between one-tier and two-tier companies, we choose to exclude the later in order to avoid undue comparisons. We recognize that this can lead to a selection bias and that our results cannot be extrapolated to firms with different governance models, such as those with two-tier boards. However, we think that this potential shortcoming is not as bad as trying to put in the same basket firms with philosophically distinct governance models. More information about French Corporate Law can be found at http://droit-finances.commentcamarche.net/legifrance/3-code-de-commerce.

[23] Bertrand and Schoar (2003), Adams et al. (2005), and Cheng (2008), among others, have also exclude companies from these industries in their samples.

[24] www.info-financiere.fr. In France, companies must submit a Reference Document (Document de Référence) including a report on corporate governance and internal controls (Rapport sur Gouvernement d'Entreprise et Contrôle Interne). In addition, board positions in France can be occupied by firms (legal entities) as well as by individuals. When this is the case, we compute the personal data of the person representing the legal entity in the board, since she will be in charge of making decisions and supervise management on behalf of the legal entity that she represents. The French corporate governance model also contemplates the role of the censor (censeur), a non mandatory agent present in some companies. The censors are elected by shareholders. Their mission is to ensure the application of statutes, review annual accounts and report their observations to the general meeting of shareholders. Since they do not have any decision power and we are interested in the outcomes from corporate decision-makers, we have not taken into account censors in our analysis.

[25] It is important to note that Silveira and Barros (2011) do not dispute that CEOs are in charge of day-to-day operational decisions: they simply point out that, for major corporate decisions, another agent (in their case the Chairman of the board) could play the main role.

[26] The seven questions are the following: 1) Is the chairman or the CEO the company's founder or his/her relative? 2) Is the chairman a former CEO of the company? 3) Who – chairman or CEO – has more experience as a company's manager? 4) Who – chairman or CEO – holds more company's shares? 5) Is the chairman or the CEO a member of the board's nomination, compensation or strategic committee? 6) Is the CEO a member of the board? 7) Does the CEO sit in two or more boards of other for profit companies? For further details about the rationale of each questions as well as criteria for scoring, please see Silveira and Barros (2011).

[27] This limitation is recognized by Adams et al. (2005, p. 1408): "Thus, we focus mostly on structural power… Our paper therefore does not provide evidence that all forms of CEO power are related to performance variability".

[28] The positive influence of CEO structural power on performance variability obtained by Adams et al. (2005) indicates that, on average, the boards of directors of the companies from their sample did not mitigate adequately the CEO power. An important issue is to know whether this effect could have been even stronger when passive boards were present or weaker/insignificant with effective boards. This is exactly the goal of this research.

[29] Dorff (2006) raises this possibility, arguing that the problems associated with executive compensation in the US market can be at least partially attributed to the collective biases of information cascades and groupthink. According to the author, "Board members are rarely experts on executive compensation. Public company directors are generally either CEOs of other public companies or firm lawyers, investment bankers, former politicians, or prominent academics. Of these groups then, only CEOs are at all likely to have a detailed comprehension of the incentive effect of such immensely complicated pay packages". Another academic support for this view comes from González (2002), who develops a theoretical model about the board's dynamics which leads to the prediction that, under normal circumstances, independent directors will tend to follow a leader, consequently acting under herding behavior. His prediction has been corroborated by an experimental study conducted by González, Modernell and París (2006), who find that, when is voting done in sequence, (CEO first, then two outside directors), the second outside director tends to ignore his own signal and follow the other director's decision, suggesting the presence of a herding behavior in the boardroom.

[30] For a deeper discussion about "busy" boards, see Fich and Shivdasani (2006) and Santos et al. (2008). Santos, R. L. Silveira, A. M. & Barros, L. A. B. de C. 2009. Board Interlocking in Brazil: Directors' Participation in Multiple Companies and its Effect on Firm Value. Working paper available at http://ssrn.com/abstract=1018796

[31] According to Subrahmanyam (2008, p. 653): "Board members often share such attributes with their CEOs. Thus, boards have a disinclination to monitor CEOs because they wish to preserve their social capital, and this phenomenon lowers firm values".

[32] Fracassi and Tate (2009) provide empirical evidence corroborating the idea that social networks between board members and CEOs influence boards' decisions.

[33] Subrahmanyam (2008, p. 654) also predicts that his predictions could be even stronger outside Anglo-Saxon countries: "The impact of networks on governance may be even stronger in collectivist cultures such as those in Asia. Even within Europe, for bank-based economies such as Germany, there may be more control exerted on governance that minimizes the role of networks, whereas in economies with more dispersed ownership, the deleterious effects of networks may not be easily controlled and mitigated. In addition, cultures such as Italy which retain close kinship ties than northwestern Europe may have more network effects than others".

[34] For the remaining firms of our sample, both positions are held by the same persons, eliminating the dichotomy about who is the real corporate leader.

[35] For comparison purposes, only 9% of CEOs in Adams et al. (2005) sample are founder. Besides, CEOs in both Adams et al. (2005) and Cheng (2008) hold on average tiny 2% of their company's shares.

[36] One could conjecture that the widespread presence of multiple directorships may be the result of France being a small and more centralized country, making social networks relatively more relevant.

[37] Only 46 out of 180 female board members are deemed as independent (25.5%).

[38] As pointed out by Adams et al. (2005), the nature of the corporate governance samples, with many firms and relatively few years, suggests that panel results might be primarily driven by between-firm variations in performance.

[39] The model is specified by using heteroskedasticity-corrected standard errors.

[40] Regarding the environmental factors, they specify seven industry-level factors that should be key determinants of the level of managerial discretion: i) product differentiability; ii) market growth; iii) industry structure; iv) demand uncertainty; v) quasi-legal constraints or regulation; vi) powerful outside forces (e.g. suppliers, consumers, etc.); and, vii) capital intensity.

[41] Their results are subsequently validated by a panel of academics as well as a panel of securities analysts.

[42] It's also important to note that the level of managerial discretion should not be static over time in a given country. For instance, Hambrick et al. (2005) provide evidence that many industries became more heterogeneous in the US market in the 1980-2000. This suggests an increasing level of managerial discretion and, consequently,

a growing importance of top executives for organizational outcomes in the latter years of the century. They interpret their findings as a result of several macrosocial factors moving towards reducing the isomorphic pressures on firms in the US market.

[43] For instance, the firm volatility or absolute performance could influence the business leader power, ending up in a reverse causality problem. The ideal solution for this potential problem would be to find out an exogenous instrument highly correlated with our measure of power and at the same time not influence by past firm performance or volatility. Similarly to previous works on this field, we do not have any plausible instrument to be employed. As a result, we cannot be sure about causality going from powerful leaders towards the volatility of performance. In addition the empirical tests using the standard-deviation of performance variables from the 2006-2009 years also assume that the concentration of power is constant throughout such period, something questionable.

[44] If the company does not have any board committee, the score will also count as 1, since it evidences that board members will have few opportunities to discuss issues without the presence of the CEO.

[45] The threshold of 10% above which CEOs are considered "relevant shareholders", could be changed depending on the descriptive statistics of the sample. For instance, we can consider CEOs as relevant shareholders when their shareholdings are above the P75 of the sample.

[46] The threshold of 10% above which CEOs are considered "long tenured", could be changed depending on the descriptive statistics of the sample. For instance, we can classify as long tenured CEOs those with tenures above the P75 of the sample.

[47] For CEOs with less than three years in the position, the score should be zero.

[48] The essence of this question is to differentiate corporate leaders who have frequented universities traditionally attended by local elites. In the French case, we assign one point for leaders who attended one of the Grand Écoles. These are higher education establishments who have traditionally produced most of France's high-ranking civil servants, politicians and top executives, as well as many scientists and philosophers. A list of the Grand Écoles is available at http://en.wikipedia.org/wiki/Grandes_écoles. We also assign one point to corporate leaders who carried out their undergraduate studies abroad, such as in US or UK universities. Finally, CEOs with no clear indication of where they have undergraduate received zero score.

[49] An important issue should be pointed out regarding this proxy. Shivdasani and Yermack (1999) find that busy directors are more likely to be appointed to the board when the CEO has more influence over the process of nomination of new directors. Therefore the percentage of "busy" directors in a given board could itself be interpreted as proxy of CEO power as well.

[50] Fich and Shivdasani (2006) develop a measure of "busy boards", in which a majority of outside directors hold three or more directorships (board seats). They find that firms with busy boards are associated with weaker corporate governance, have lower market-to-book value, weaker profitability, and lower sensitivity of CEO turnover to firm performance. They also find that independent but busy boards display CEO turnover to firm performance indistinguishable from those insider-dominated boards. Overall, their results clearly indicate that serving on too many boards may be detrimental to the quality of corporate governance, rendering directors to be ineffective monitors of corporate management.

[51] Fich and White (2005) find that in the US market in1991 about one company in seven was in a relationship whereby the CEO of one company sat on a second company's board and the second company's CEO sat on the first company's board. They conclude that these reciprocal CEO interlocks primarily benefit the CEOs rather than their shareholders.