Freedom of choice between unitary and two-tier boards: an empirical analysis

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Forthcoming in the Journal of Financial Economics 2014 in revised form

ABSTRACT

We examine board structure in France, which since 1966 has allowed firms freedom to choose between unitary and two-tier boards. We analyze how this choice relates to characteristics of the firm and its environment. Firms with severe asymmetric information tend to opt for unitary boards; firms with a potential for private benefits extraction tend to adopt two-tier boards. There is enhanced sensitivity of CEO turnover to performance at firms with two-tier boards, indicating greater monitoring. Our results are broadly consistent with the Adams and Ferreira (2007) model and suggest there are gains from allowing freedom of contract about board structure.

Keywords: Board of directors, two-tier board, unitary board, corporate governance, monitoring

JEL Classification: G32; G34

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The authors thank Eric de Bodt, Ettore Croci, François Derrien, François Degeorge, Daniel Ferreira, Ulrich Hege, Jayant Kale, and an anonymous referee for insightful comments and suggestions that substantially improved the paper. The financial support of the Fédération Bancaire Française Chair in Corporate Finance is gratefully acknowledged.

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Abstract

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1. Introduction

The board of directors is one of the mechanisms that helps to resolve the collective action problem intrinsic to corporate governance. This entity oversees the firm's activities, appoints managers, and undertakes both advisory and monitoring functions on behalf of shareholders. Among advanced economies, board structure has evolved into two broad types. One is a unitary (single) board structure that combines the advisory and monitoring functions intrinsic to its responsibilities, and that is composed of both managers and independent directors. The other is a two-tier (dual) board structure, consisting of a management board that manages the firm's operations, plus a separate supervisory board that excludes managers and is charged with overseeing the firm's activities, including the appointment and monitoring of corporate managers.

Through law or tradition, most countries have mandated one of these two structures. The United States and United Kingdom provide examples of unitary board structures, while Germany and Austria are considered prototypes of the two-tier board structure. The coexistence of these governance structures has engendered a long-standing debate in the finance and legal literatures about the advantages and disadvantages of unitary versus two-tier boards. Despite this large body of scholarship there has been little treatment of the underlying factors that would lead a firm to choose between the two forms of board structure, perhaps because in most countries firms have little choice in this regard. However, France, a country with the fifth largest economy in the world and a well-developed corporate sector, has permitted public firms since 1966 to adopt either a unitary or a two-tier board (and to reverse the decision) over the firm's life cycle. By allowing freedom of contract with respect to board structure, France provides a valuable

framework for a type of research about the choice of corporate board structure that cannot be conducted with U.S. data. In this paper, our objective is to use French data to analyze how the choice of board structure relates to characteristics of the firm and the environment within which a firm expects to operate. More specifically, we use logistic regressions to determine the factors that affect corporate choices about board structure using panel data for a large sample of publicly traded French firms that operate within a freedom of contract environment.

Hermalin and Weisbach (1998) argue that corporate governance arises as a solution to the firm's value optimization problem, with board independence determined through a bargaining game with the CEO, given the bounds of corporation law. A more specific frame of reference for our work is a formal theoretical model of board behavior by Adams and Ferreira (2007) that considers tradeoffs between board monitoring and advising functions, where active monitoring is associated with a reduced willingness of managers to provide information to board members.¹ Adams and Ferreira show that allowing the board to pre-commit to a lower degree of monitoring (i.e., lowering the probability that the CEO will be terminated) can induce greater information sharing by the CEO. As a result, under certain conditions a management-friendly board could enhance the effectiveness of decision-making with respect to project selection. However, Adams and Ferreira also find that when there is a substantial potential for managerial private benefits, efficiency may call for more intensive board monitoring, outweighing the negative effect on the CEO's willingness to share information. In the latter case, they note that such intensive monitoring falls within the comparative advantage of a two-tier board structure with its separation of advisory and monitoring functions. Unlike a unitary board where a single set of directors is responsible for both advising and monitoring managers, in a two-tiered structure each

¹ Adams (2009) reports survey evidence indicating that directors of Swedish companies recognize that there are tradeoffs between monitoring and information exchange, consistent with theories of tradeoffs in directors' roles.

board is able to adapt to its distinct role; that is, monitoring (i.e., the right to terminate the manager) is assigned to a board that does not carry out the advising function.² The greater monitoring intensity of (European) two-tier boards and the merits of such structures relative to American board structure is a well discussed topic in the comparative law literature (see, e.g., Conard, 1984; Roe, 1993; Romano, 1993).

For French firms, we find that when asymmetric information is severe, there is a greater likelihood of a unitary board structure, emblematic of Anglo-American firms. However, when the potential for private benefit extraction is high, French firms are more likely to adopt two-tier boards. Building on previous literature that indicates that poor performance affects CEO turnover, we show that the sensitivity of CEO turnover to firm performance is significantly greater with a two-tier board, corroborating the hypothesis that greater, that is more active, monitoring is associated with this type of board structure. We find no evidence that the separation of the positions of CEO and Chairman within a unitary board structure is a substitute for a two-tier board structure. In general, we find little evidence for any widespread effect of board structure on firm value, either in panel regressions or event studies of board structure changes, suggesting that the monitoring intensity of two-tier boards is not associated with lower firm value. Our results for two-tier boards indicate the usefulness of the Adams and Ferreira

² Harris and Raviv (2008) develop a theoretical model that, in a similar spirit, considers how a single board structure can be viewed as divided between insiders (managers) and outsiders. They show that when insiders' information is sufficiently valuable relative to outsiders' information, and information is sufficiently valuable relative to the agency (private benefits) problem, then it is efficient for insiders to have control; otherwise, it is efficient for outsiders to have control. Song and Thakor (2006), and Raheja (2005) also develop corporate board models of information transmission between CEOs and directors. Adams and Ferreira (2009) analyze the impact of CEO ownership and private benefits on the incentive of the CEO to share information with the board. However, none of these models consider the issue of a unitary versus a two-tier board.

(2007) framework which suggests that a friendly board may often be the appropriate form of governance, but for certain firms a two-tier board structure that fosters greater monitoring could be more appropriate.

La Porta, Lopez-de-Silanes, and Shleifer (1999) show that closely held firms (typically founder or family controlled) are an important aspect of the business landscape in most countries, across many different corporate law regimes. Closely held firms are also an element of the French corporate sector and thus our empirical analysis of board structure choice includes such firms operating within a single legal regime. We find that a unitary board structure is more likely when the CEO is a member of the control group, suggesting centralization of control at such firms. However, we find that a two-tier board structure is more likely for closely held firms when there are professional managers, a finding that is consistent with Graziano and Luporini's (2012) theoretical model which suggests that a two-tier board structure is efficient for such firms.

There are several reasons why an analysis of the factors that influence how French firms choose between unitary and two-tier board structures is relevant for the ongoing debate about corporate governance. First, in the U.S. where each state is empowered to legislate about board structure, the unitary board model has been universal, reflecting the dominance of the Model Business Corporation Act of the American Bar Association and the influence of Delaware with its rich body of case law. However, various legal scholars have long promoted the potential benefits of changing American law toward allowing a two-tier board structure (see, e.g., Manning, 1958; Vagts, 1966; Conard, 1984; Schoenbaum and Lieser, 1973; Owen, 2003; Dallas, 1997), and they have provided detailed proposals as to how such an incorporation statute could

be structured.³ Several of these scholars contend that the two-tiered board is a superior form of corporate governance structure relative to the Anglo-American unitary board, which they view as leading to a management dominated corporation. Other legal scholars are more agnostic about the relative effectiveness of the two alternative board structures but use a freedom of contract perspective to argue that state legislation should allow U.S. public corporations to have the option to adopt the two-tier board structure.⁴

Second, the rise of a single market in the European Union (with its largely borderless trade and non-discrimination based on nationality) has strengthened the freedom of a corporation to choose the EU country of its legal domicile (just as a U.S. firm can choose its state of domicile). In the EU each of the 27 member states (as of June 30 2013) has its own nationally mandated corporate structure, split in terms of heritage between unitary (14) and two-tier board (13) systems. However, an EU 2004 initiative allows business entities in member states the choice of a unitary or two-tier board structure by incorporating as a European company, *Societas Europaea* (SE). Following the 2004 EU initiative, several member states have proposed or completed legislation to allow state-domiciled firms a choice of board structure, suggesting a movement toward greater freedom of choice about board structure. We discuss this issue in further detail in Section 2.

Third, most studies of boards and corporate governance focus on the U.S., where public

³ There are also many legal scholars who defend the effectiveness of a management-dominated corporate structure (see, e.g., Berle, 1959) that is monitored by the market for corporate control, including some European legal scholars who argue for the superiority of the Anglo-American unitary board over that of the two-tier board structure.

⁴ For example, Roe (1993, p. 1993) concludes that although there is no clear evidence of the superiority of foreign corporate structures, the U.S. "...should want a legal regime that permits them. Right now, we have a legal regime that does not permit them."

firms typically have relatively dispersed ownership structures, reflecting the prevalence of passive institutional investors. This structure can foster the dominance of professional managers, and conventional wisdom, especially in the legal literature (see, e.g., Mace, 1971), is that corporate boards in the U.S. are captive to managers, reflecting the informational advantage of CEOs and their role in selecting directors, and the inability of most directors to devote the time and effort required to make well-informed decisions on complex business matters. Absent deteriorating firm performance, these factors lead to collegial boards that focus on advising and incentivizing executives, behavior that Adams and Ferreira (2007) suggest can often be an efficient form of governance due to asymmetric information. This perspective implicitly casts doubt on the efficiency of various regulatory actions and proposals that have been oriented toward strengthening the level of monitoring conducted by a unitary board.⁵ Because our study encompasses board structure choices over a long period of time for a large set of publicly traded French firms with a broad spectrum of ownership structures, including closely held firms and firms in which family members play key roles, it provides a useful tableau about the factors that influence the choice of board structure in a freedom of contract environment.

Fourth, from 1966 to 2001 French firms with a unitary board structure were required to have the same individual hold the two positions of CEO and Chairman. The two positions could be separated only by amending the corporate charter to adopt a two-tier board structure. However, via legislation enacted in 2001, French firms with a unitary board structure gained the freedom for the board to separate - or to unify - these two major corporate positions at any time without requiring input from shareholders or the need to shift to a two-tiered board structure.

⁵ Examples of such regulatory forces are Sarbanes-Oxley standards applied to all public firms and New York Stock Exchange requirements for boards of its listed companies, including the requirement that a majority of board members must be independent.

Thus, France allows us to test whether permitting a separation of the positions of CEO and Chairman is a substitute for a two-tier board structure.

Fifth, our work provides evidence about an ongoing legal debate regarding convergence of corporate governance toward the Anglo-American model. In recent years there has been a fundamental debate among academics and practitioners as to whether global corporate governance is converging to the Anglo-American model characterized by dispersed shareholder ownership and a unitary (one-tier) board of directors that in practice is passive with respect to top management. The alternative model, common in parts of Europe, is characterized by greater ownership concentration and a two-tier (dual) board of directors that can include representation for non-shareholder stakeholders (e.g., employees). Hansmann and Kraakman (2002) argue that global convergence to the Anglo-American model is ongoing and pervasive, reflecting the power of global competition, improved technology, and market liberalization that allow business activities and pools of investment to quickly and easily flow across national borders.⁶ Other scholars, such as Roe (1996), Bebchuk and Roe (1999) and Schmidt and Spindler (2002), are skeptical about global convergence, arguing that national differences in corporate governance structures are likely to persist and that no one system of corporate governance has proven itself to be competitively superior. In the latter view, economic, social, and cultural forces underlie observed differences in corporate governance structures, which once established, tend to persist and reflect efficient solutions to differing conditions. In this view, key differences in corporate governance will persist and there is unlikely to be convergence to the Anglo-American model.

⁶ Other examples of such factors include the growing importance of equity markets and global institutional investors (Coffee, 1999), the broad-based adoption of market-based managerial compensation schemes (Murphy, 2000), a widespread increase in leverage (Warner, 1998), and regulatory competition within the U.S. (Romano, 1993) that has led to substantial convergence on Delaware corporate law.

French equity markets are characterized by increasing international ownership and there are French-listed firms with global presence, developments that are consistent with the convergence hypothesis and imply that the revealed choices of French corporations about board structure should reflect competitive advantage rather than cultural heritage. However, our results run counter to the convergence hypothesis since we find that French firms have gradually increased their usage of two-tier board structures. Our findings also provide support for the freedom of contract view that by allowing corporate flexibility about the choice of board structure each firm can more efficiently respond to the evolution of the business environment in a manner that is suited to its individual needs and opportunities.

The remainder of the paper is organized as follows. In Section 2, institutional settings and freedom of contract in relation to choice of board structure in France and Europe are discussed. In Section 3, hypotheses and predictions are developed. Data collection is explained in Section 4, and empirical results are reported in Section 5. Conclusions are in Section 6.

2. Board structure choice in Europe

Despite the differences in legal mandates about board structure across countries and a body of legal literature that compares the unitary and two-tier board structures of various countries, there is no empirical work on the choice of unitary versus two-tier board structures. For many decades, the only major country that allowed firms a choice of board structure was France. More recently the EU's adoption of the structure of *Societas Europaea* (SE), which was transposed into national law between 2004 and 2007, has induced several European countries to change their national incorporation statutes so as to offer firms a choice of board structure. Therefore, the issue of a firm's choice of board structure has become an increasingly relevant policy issue.

2.1. *Societas Europaea (SE)*

EU regulations about SEs were the result of discussions dating from the 1960s about the possibility of establishing a European Company Statute (ECS) that would supplant national incorporation statutes (see, e.g., Blackburn, 1993; Eidenmüller, Engert and Hornuf, 2009). A central controversy focused on the issue of board-level representation of employees (co-determination), an element central to Germanic corporate governance but foreign to Anglo-American business history. Eventual compromises led to the idea of permitting European companies some choice of board structure by allowing each member state to decide how companies registered as SEs could choose among alternative models of board structure (with varying degrees of co-determination). The EU regulation applies only to SEs. Member states continue to decide the rules of corporate structure for non-SE firms. Although 1766 firms (reported by the European Trade Union Institute as of April 2013) have adopted the SE designation, 86% of these firms either conduct their local activities without any employees (Empty SE), have neither operations nor employees (Shelf SE), have fewer than five employees, or have not yet generated the filings needed for classification (UFO SE). SEs are predominantly private firms or subsidiaries of larger entities.

2.2. *Board structure choice in company law of European countries*

The lengthy debate about SE legislation spurred considerable discussion in the comparative law literature about the issue of regulatory choice with respect to board structure, with some attention focused on the unusual status of France, which allows firms freedom of choice about board structure. At least partly in response to this process, after 2004 nine countries have adopted new national corporation laws or codes that incorporate this key element of the French approach (in the Law of 24 July 1966) of allowing firms to choose between a unitary and

two-tier board: Italy (2004); Hungary, Luxemburg, Portugal, Romania, Slovenia (2006); Bulgaria (2008); Denmark (2010); and the Netherlands (2013). Thus, there has been a slow, but steady increase in national regulatory competition within the EU (suggestive of the competition for corporate chartering among U.S. states).

For reference, in Table 1 we list the member states of the EU and indicate the type of board structure originally in effect in each nation, and the year of the adoption of some choice of board structure for the countries for which this information is applicable. As indicated in the table, the two common law states in the EU, the U.K. and Ireland, follow the Anglo-American practice of requiring a unitary board structure. Other member states generally fall into three broad sub-categories of civil law: Franco-based (10 countries), Germanic (10 countries), and Scandinavian (3 countries) civil law. While there are numerous differences between the provisions of French and German corporation law, for our purposes two differences are particularly relevant. In the German code, first, a two-tier board structure is mandated for large firms, and second, a portion of the supervisory board must be allocated to labor representatives. The latter practice (co-determination) is based on the German principle that workers are important stakeholders in an enterprise and thus should have the right to participate in supervisory board decisions that affect the activities of the firm.⁷ Of the nine countries that have recently adopted corporate choice with respect to board structure, five countries can be deemed to follow the French form of civil code, three follow Germanic legal practices, and one is Scandinavian. Unlike France, most of these countries either have a limited set of exchange-listed firms or have only recently adopted provisions for board structure choice and thus they do not yet

⁷ In contrast, in the Anglo-Saxon (and French) sphere, the board is viewed as being responsible to its shareholders since they are the residual claimants of the firm, while other actors (e.g., workers) are viewed as writing contracts with the firm rather than being residual claimants.

offer the opportunity to generate the set of in-depth sample data that are needed for a systematic analysis of the determinants of board structure choice.

2.3. Board structure in France

Since 1966 France has allowed firms to freely adopt either a unitary or two-tier board structure when a firm is established and then to subsequently change (or revert back) to the alternative board structure at any time. The following material is an overview of French law with respect to board structure, but we note that individual corporate charters can offer hybrids for various specific points and that corporation law in France as in other countries evolves over time.

2.3.1. Unitary boards

Board size can range from three to 18 members; the proportion of seats held by managers cannot exceed one-third. The maximum term for a director is six years (the French company associations AFEP-MEDEF code, adhered to by many French firms, calls for a maximum of four years) and renewal is permitted. The board is charged with determining the company's strategic direction and supervising its implementation. The board appoints the CEO who is a member of the board, runs the company, and is fully empowered to act on its behalf. Thus, in a unitary board structure the CEO has full power to act in the firm's name and represents the company in its relations with third parties.

The French unitary board structure can be viewed as a form of centralized management that is broadly consistent with the Anglo-American framework. French law mandates an age limit of 65 for CEOs, a factor that tends to increase managerial turnover and lessens the potential for CEO entrenchment. Board decisions require a majority of members present, although the charter can provide for super-majority voting. While there are no legal requirements with respect to independent directors, since 2001 French firms have typically required that at least one-third to

one-half of the board be independent directors, reflecting the increasing prevalence of concerns about independence in the Anglo-American sphere (manifested in France through the AFEP-MEDEF code). French law does not cover the number or composition of board committees. However, French firms typically have three committees: audit, nomination, compensation.

2.3.2. Unitary boards with split CEO and Chairman positions

There has been a global trend in recent years toward separating the positions of CEO and Chairman (especially in the U.K. and to a lesser extent the U.S.), a practice that is often viewed as enhancing the board's monitoring capability (see, e.g., Brickley, Coles, and Jarrell, 1997; Dey, Engel, and Liu, 2011). Until the NRE Act of 2001 (Nouvelles réglementations économiques), French corporation law required firms with a unitary board structure to appoint a single individual to hold the positions of both Chairman and CEO. With the passage of the 2001 Act, French firms with a unitary board gained the freedom for the board to separate the chairmanship from the general management (CEO) of the corporation; i.e., it allowed unitary boards to separate or to unify the two major corporate positions at any time without requiring input from shareholders or the need to shift to a two-tiered board structure through a charter amendment. This legal change provides us with an opportunity to evaluate whether allowing a separation of the positions of CEO and Chairman at firms with a unitary structure is a substitute for a two-tier board structure.

2.3.3. Two-tier boards

French firms with a two-tier board structure have two separate boards: a supervisory board (conseil de surveillance) and a management board (directoire). The supervisory board is elected by shareholders and consists of from three to 18 members. This board nominates the CEO and members of the management board (consisting of up to seven members). No manager can serve as a member of the supervisory board. Members of the management board can be

dismissed by the supervisory board or by shareholder vote. The supervisory board sets the overall objectives of the firm, supervises the management board and can veto relevant decisions. Thus, the management board conducts the firm's day-to-day management, while the supervisory board monitors managers and their activities. Management board members are appointed for terms between two and six years (with renewal permitted); the typical term is four years. Practices regarding independent directors and committees on the supervisory board are the same as those for unitary boards.

2.3.4. Board structure changes

In conducting our research we examined corporate and shareholder materials related to each change in board structure that was observed over the period of analysis, including an assessment of the reasons provided for the change in structure, as well as how frequently the issue of board structure change arises.

The justifications for changes in board structures are diverse but can be grouped into several broad categories. For changes from unitary to two-tier boards, the most commonly reported reasons relate to obtaining more effective separation between monitoring and managerial decision making, providing a better equilibrium of power, enhancing collegiality among managers, improving transparency, and providing greater sensitivity to the firm's various stakeholders. In several cases the information submitted to shareholders indicates that a two-tier board structure is a more "up to date" or contemporary corporate structure than the more traditional unitary board. Most firms indicate that continuity of leadership will be maintained, but having current (independent) directors move to a supervisory board will afford greater distance between managers and directors. Other firms stress that relevant groups of managers can operate more effectively, collegially, and dynamically when there is a separate management

board that conducts business activities. For changes from two-tier to unitary boards, the major justification is generally simplification of structure: greater efficiency in decision making, enhanced ability to react quickly to events, and improved communications between managers and directors.

Materials provided for annual shareholder meetings make it clear that French firms actively consider governance issues, including the possibility of changing board structure, on at least a yearly basis, especially following the 1995 Vienot report's recommendations on French corporate boards. For example, Vivendi, which adopted a two-tier board structure in 2005 explains in a subsequent management board report filing (General Meeting April 2012) that: "Vivendi does not plan to change this governance structure which has worked well for eight years and appears well suited for good representation of the interests of shareholders." A similar example comes from Socit Generale in a recent annual report (General Meeting, May 22, 2012) which indicates that the board structure "... has been discussed every year ... [and] ... notes that given the proper functioning of the Board and of its Committees, the one-tier board model ...remains the most suitable..."

The general process of changing board structure for French listed firms is summarized below. Changes in board structure occur through an amendment to the Articles of Association (corporate charter). French corporation law provides that the procedure for changing between a unitary and two-tier board requires participation by both the board(s) and shareholders. It is the initial responsibility of the board to submit an amendment for a change in board structure; if there is a two-tier structure, both the management and supervisory boards must approve the amendment for a change to a unitary structure. The Works Council (if one exists) and the governance committee (if one exists) must also be consulted. In France, there are two types of general shareholder meetings. Ordinary general meetings (OMGs) are annual shareholder

meetings that approve the accounts, appoint and dismiss directors, and approve related actions, each of which requires a 50% majority vote by shareholders. Extraordinary general meetings (EMGs) are called for a special purpose such as amending the corporate charter. This category applies to proposals for a change in board structure, as well as authorizations for the issuance (or reduction) in common shares, or the sale or liquidation of the company. Each of these actions requires a two-thirds majority vote of the shareholders.⁸ OMGs and EMGs can be held separately but often are held jointly with separate agendas, specifying the relevant items for each, as well as participation information. The percentage of votes in favor of the change in structure usually ranges between 90 and 100%.

Among our sample of French firms, we find that when there is a change from unitary to two-tier board structures, over 80% of independent directors move from the unitary board to the supervisory board, a figure that closely matches the average turnover of directors at benchmark firms without changes in board structure, and that the number of committees is the same on the supervisory board as on the prior unitary board.

3. Hypotheses and empirical proxies

Our empirical work on board structure choice by French firms draws on two approaches to board activity: the monitoring approach and the advising approach. In this section, we discuss board structure variables suggested by theoretical modeling of boards, substitutes for board monitoring, and the case of closely held firms.

3.1. Theory on boards

In the first approach to modeling board activities, the primary responsibility of directors is

⁸ For a detailed English language description of French corporation law and corporate governance, see Aste (1999).

to hire a CEO and to make retention/termination decisions that are consistent with the central objective of obtaining high quality leadership for the firm (Lorsch and MacIver, 1989). This monitoring responsibility requires directors to collect information needed to evaluate whether the CEO should be retained.

In the second approach, the board is a management-friendly body that focuses on providing advice to the CEO. In this view, the board generally lacks the de facto authority to dismiss the CEO unless the firm sustains reverses or financial distress (Vafeas, 1999). More specifically, managers are assumed to have an influence on the selection of board members, encouraging their loyalty, while directors often have substantial outside responsibilities, limiting their ability to monitor or to challenge CEO actions. Since managers have more detailed knowledge of the firm than directors, the quality of the board's advice about the firm's direction and its investment choices is improved by the willingness of the CEO to provide information to the board. As a result, shareholders benefit from greater information flow between managers and boards while intensive monitoring can harm this information flow and lessen managerial initiative (Burkart, Gromb, and Panunzi, 1997).

As noted earlier, Adams and Ferreira (2007) develop a formal information-based model that has implications that relate to the choice of board structure by French firms. Adams and Ferreira consider the tradeoff between advising and monitoring responsibilities and derive conditions under which shareholder interests may be best served by a management-friendly board. Within this context they also consider the issue of a two-tier board structure. Adams and Ferreira model the board as having advising and monitoring roles, taking into account the conflict between these two responsibilities. For example, by pre-committing to a lesser level of monitoring (i.e., being management friendly), the board can induce a higher level of information-sharing by the CEO, which improves decision-making with respect to project selection,

especially when information asymmetry is high. They also derive conditions under which more intense board monitoring is efficient, despite its negative effect on information sharing. In these conditions, such as when managers can extract substantial private benefits, they suggest that a two-tier board structure may be effective because active monitoring (e.g., the right to fire the manager) is delegated to a supervisory board body that does not have a management role. In such circumstances, the two-tier structure may be more effective than a unitary structure.

For our analysis of French firms, the Adams and Ferreira framework suggests that board monitoring may be less important when there is a need for greater information flow between CEOs and boards, so intense board monitoring may be detrimental to the firm. The diversity of business activities, external monitoring mechanisms, and other characteristics across French firms implies that there are different levels of asymmetric information and private benefits, across firms and across time. Thus, the usefulness of active board monitoring, which Adams and Ferreira (2007) and various legal scholars suggest may be an important characteristic of supervisory boards (i.e., a two-tier structure), should vary across firms. These factors, as proxied by economic and financial variables, should affect the choice of French firms between a unitary and a two-tier board structure. We now proceed to discuss empirical variables that we use as proxies for asymmetric information and other factors that may influence this choice.

3.2. Board structure choice variables: asymmetry of information and private benefits

Legal and practitioner literature typically view boards as collegial and oriented toward fostering the flow of information between directors and management (see, e.g., Mace, 1971; Lorsch and MacIver, 1989). From this viewpoint, firms with considerable information asymmetry can enhance value by having friendly boards. Linck, Netter, and Yang (2008) examine the interplay between advising and monitoring on unitary boards and find that

information asymmetry, as gauged by high growth opportunities, high R&D expenditures, and high stock return volatility, is important for boards that they describe as friendly or more advising intensive. Examining the relation between firm value and boards in the U.S., Coles, Daniel, and Naveen (2008) find that insiders are valuable in high R&D firms, where firm-specific private information is important. As a result, we specify variables that proxy asymmetric information as potential determinants of French board structure choice, where we hypothesize that an increase in the severity of asymmetric information should decrease the benefit of more intensive board monitoring, implying a smaller likelihood of a two-tier board structure. To measure a firm's investment alternatives, which are likely to be correlated with asymmetric information, we specify a qualitative variable for firms in the high tech sector, and a quantitative variable, research and development expenditures scaled by total assets. We use both the standard deviation of firm share price and the relative bid-ask spread as measures of risk and asymmetric information.

Private benefits (such as insufficient managerial effort, empire building, and self-dealing) play a role in the Adams and Ferreira (2007) model by increasing the potential gain from more intensive board monitoring. Thus, we specify a variable for firms with eponymous names, based on the Gompers, Ishii, and Metrick (2010) view that insiders place a high value on private benefits at firms named for an individual in the control group. Using ICB (Industry Classification Benchmark) codes, we also specify a qualitative variable for media or entertainment-oriented firms, given the view of Demsetz and Lehn (1985) that control of such firms provides managers with non-pecuniary income (e.g., influence over public opinion and visibility for executives). Based on work by Gompers, Ishii, and Metrick (2010), we test a qualitative geographic variable that takes on the value of unity for a firm with a ratio of its sales to aggregate sales of listed firms in the same locality that is greater than 10%, where it is

assumed that such firms have a greater potential for private benefits extraction.

Prior literature finds that a multiple share class voting structure fosters managerial entrenchment and facilitates extraction of private benefits, since insiders bear only a fraction of the cost of the private benefits they extract from the firm (see, e.g., DeAngelo and Rice, 1983; Jarrell and Poulsen, 1988; Ruback, 1988; Gompers, Ishii, and Metrick, 2010). Thus, we specify a qualitative variable for firms with a multiple class share structure to test the hypothesis that a differential voting structure implies a greater need for monitoring, and thus an increased likelihood of a two-tier board structure.

3.3. Substitutes for board monitoring: leverage, blockholders, and foreign listing

Jensen (1986) contends that debt mitigates private information problems and lessens extraction of managerial private benefits. Diamond (1984) and Dewatripont and Tirole (1994) argue that creditors are effective monitors because they wield the threat of terminating managers (such as through bankruptcy or liquidation) when firm performance is poor, with control shifted to fixed claimants. As a result, firms with considerable leverage are likely to be monitored by creditors, reducing the gain from intensive board monitoring, and lessening the likelihood of a two-tier board structure. Thus, we specify a variable that measures firm leverage.

Grossman and Hart (1980), Shleifer and Vishny (1986), Admati, Pfleiderer, and Zechner (1994), and Bolton and von Thadden (1998) argue that blockholders have an incentive to produce information about the firm and actively monitor managers to reduce rent-seeking managerial activities, so a large shareholder is a substitute for board monitoring. Blockholders are more common in France than in the U.S., where institutional investors (e.g., pension funds, mutual funds and hedge funds) hold the preponderance of U.S. corporate stock and maintain equity positions for shorter periods than French institutional investors (Kojima, 1997). Also, U.S.

institutions face legal restrictions on their ability to influence corporate practices,⁹ so they are generally not considered as important a force for disciplining management as other blockholders. We specify a variable for the ratio of shares held by the largest shareholder to total shares as a potential source of monitoring. If a large shareholder is an effective substitute for board monitoring, it could lessen the likelihood of a two-tier board structure, whereas firms with dispersed structures could be more likely to adopt a two-tier board structure to provide more effective monitoring.

Prior research shows that a listing on a foreign exchange whose disclosure rules are stronger than the home country provides greater protection to minority shareholders, strengthens firm reputation, broadens the investor base, and improves the terms on which firms can issue new securities, thus lowering the cost of capital. This bonding hypothesis (Coffee, 2002) suggests that cross-listing in the U.S is a positive signal to dispersed shareholders and investors, given Coffee's (1991) emphasis on the role of U.S. institutional investors and their share trading in controlling corporate managers. French firms with U.S. exchange-listed ADRs must register with the SEC, generate financial statements consistent with U.S. accounting standards, and are exposed to potential shareholder litigation in U.S. courts. Such listings entail greater monitoring

⁹ There are some exceptions; e.g., CALPERS, at times has actively pressured managers. Black (1990) details federal regulations and restrictions that discourage shareholder actions and limit the ability of institutions and other blockholders to influence corporate outcomes. These restrictions discourage monitoring and are thought to lead institutions to prefer to sell their holdings in a poorly managed firm rather than attempt to influence management, a practice that is commonly referred to as the "Wall Street Rule." In the U.S. most financial institutions file form Schedule 14G with the SEC, which requires the shareholder to attest that its shares are not held for the purpose of changing or influencing control of the firm. Nevertheless, some researchers (see, e.g., Edmans, 2009) argue that stock liquidity and trading facilitate a threat of exit by large (passive) shareholders that can also serve as mechanism for disciplining managers.

and thus should lessen the likelihood of a two-tier board. We test this effect by specifying a qualitative variable for firms that have a listing on a major U.S. exchange.

3.4. Board structure choice in closely held firms

Unlike the U.S. and the U.K. where dispersed ownership predominates, a considerable proportion of listed firms in France are closely held, reflecting ownership by multiple family branches that in some cases has continued for decades. Such closely held firms may have a competitive advantage because of a longer time horizon and the fact that firm success can generate non-monetary rewards to group members. However, they could also underperform firms with dispersed ownership since group members may consume perquisites, pursue personal goals rather than the interests of dispersed shareholders, avoid profitable expansion that weakens their control, or value the option to pursue activities that do not enhance firm value. In some cases control group members have managerial positions and/or board seats, while other closely held firms employ professional managers. It can be anticipated that a CEO that is drawn from the control group is not selected from the full set of available CEOs. Family-based firms are a greater proportion of the listed firms in France and typically have longer histories than such firms in the U.S., where family-based firms are typically small and founder-based (Anderson and Reeb, 2003; Perez-Gonzalez, 2006).

Graziano and Loporini (2012) model board structure for closely held firms and conclude that a two-tier structure can be a useful device to delegate decisions on investment projects to professional managers. The two-tier board structure has the advantage of leaving initiative to the management board, so professional managers can exert greater effort in gathering information on projects without affecting the monitoring incentives of the dominant shareholders who sit on the supervisory board.

In the empirical literature, Bennedsen, Nielsen, Perez-Gonzales, and Wolfenzon (2007) find that CEOs drawn from the control group generally underperform relative to professional CEOs. Adams, Almeida, and Ferreira (2009) identify a positive effect of founder CEOs on firm performance, but Anderson, Duru, and Reeb (2009) find a negative effect. Villalonga and Amit (2006) find that closely held firms create greater value while the founder is the CEO, but minority shareholders are worse off at firms managed by a descendant.

This research implies that the choice of board structure should be sensitive to whether a firm is closely held and whether members of the control group play an active role in management. Thus, we examine the effect of being a closely held French firm on the likelihood of having a two-tier board structure and assess whether the presence of professional management at such firms is a factor associated with the type of board structure.

4. Sample

Our sample consists of board structures of French corporations from 1998 through 2008 for all firms in the SBF250 index, which encompasses the 250 firms with the largest market capitalizations and the most actively traded shares on the Paris stock exchange. Details of ownership and board structure are collected from annual reports since some relevant data are not available in commercial databases. The aggregate market value of these firms represents on average (median) 92.5% (93.0%) of the market capitalization of all public firms in France. The sample is an unbalanced panel since some firms are delisted, while others enter the index. There are a total of 415 firms that are included in the index over the sample period. Of these, we exclude 39 firms: 16 are incorporated outside of France and operate pursuant to another

country's corporation laws, 13 are "sociétés en commandite par actions"¹⁰ that by law must have a two-tier board, and 10 lack required data. The final panel data comprise 3048 firm-years.

During the sample period there are 91 changes in board structure for firms in the SBF250 index. Of this group, there are 52 changes from unitary to two-tier boards and 39 changes from two-tier boards to unitary boards (15 of which had unitary boards at an earlier point in the sample period). In the shift from unitary to two-tier board structure, there is a decrease in typical (i.e., median) board size from ten to eight members ($p = 0.09$) and an increase in board size from ten to 11 members ($p < 0.01$) for shifts from a two-tier to a unitary board. Regardless of which type of change in structure occurs, there is little turnover of independent directors. On average 83% of the independent directors retain their membership for changes from unitary to two-tier boards and the figure is 81% for changes from two-tier to unitary boards. For matched samples of these firms the proportion of independent directors that retain their positions is almost exactly the same, 85% (the difference is not statistically significant). Thus, there is no evidence of disruption in board membership for French firms that change their board structure. Changes in structure both from unitary to two-tier boards and from two-tier to unitary boards are each associated with small increases in the number of committees, on average, 0.20 and 0.38, respectively, figures that are not significantly different ($p = 0.32$). Moreover, it should be noted that throughout the period of our analysis French firms in general (including those with no changes in board structure) have been gradually increasing the number of board committees,

¹⁰ Publicly listed sociétés en commandite par actions are limited partnerships based on a business model that includes at least one general partner and a number of limited partners that buy shares in the entity. The general partners have unlimited liability for all of the entity's debts. Other investors have a status similar to common stockholders. The remaining rules and organizational apparatus governing these entities are broadly similar to those that apply to limited liability corporations.

reflecting at least in part the recommendations of the Vienot reports of 1995-1999.

Yearly data about each firm are collected as of fiscal year-end. Accounting data are from WorldScope and stock market data are from DataStream. The definitions of all variables are reported in the Variable Index. In Panel A of Table 2, the data show a gradual rise in the proportion of firms with a two-tier board; the maximum percentage is 28.8% in 2005. Thus, with respect to the active debate in the comparative law literature as to whether there is a trend toward convergence toward the Anglo-American standard of unitary boards, we conclude that French firms appear to be modestly increasing their usage of two-tier boards rather than converging towards a unitary board structure.

Among firms with unitary boards, there has been a trend toward separating the positions of CEO and Chairman after the NRE Act of 2001 (prior to which one person was required to hold both positions). Since 2001, the proportion of firms that utilize the option of a unitary board with separate individuals holding the CEO and Chairman positions has gradually increased, reaching 20.9% by 2008. Thus, in France changes in board decisions about separating the CEO and Chairman have become a relatively common phenomenon.

In Panel B, means (medians) of various firm characteristics are reported for the full sample and are disaggregated between unitary and two-tier boards. There are significant differences in these characteristics, except for leverage, the stake of the largest shareholder, relative spread, and stock price performance. Firms with values of variables that indicate greater severity of asymmetric information, such as high tech firms or those with considerable R&D expenses, tend to have unitary boards. Firms with a high potential for private benefits, such as those with multiple share classes, tend to have two-tier boards. The subset of closely held firms, for the period that they are managed by first generation members of the control group, tend to have unitary boards. During the period closely held firms are managed by descendants or

professional managers, they tend to have two-tier boards.

5. Empirical results

Unlike firms in most of the EU, French firms since 1966 have had the freedom to choose between a unitary and a two-tier board structure and as we noted earlier some firms have changed their board structure more than once over the period of our analysis. Given the dichotomous nature of the choice of board structure, and the fact that a firm in effect faces this discrete choice each year during the sample period, we estimate a binomial logit model for board structure choice using the maximum likelihood method. The objective of the analysis is to determine the economic factors that are able to explain the discrete choice made by French listed firms. Intuitively, the binary dependent variable can be viewed as a reflection of the implicit choice that each firm makes each year between having a unitary versus a two-tier board. The regression coefficients of a logit are interpreted in a manner that is similar to a standard linear regression model, even though the dependent variable of interest reflects a binary choice where a one indicates a two-tier board and a zero indicates a unitary board for the relevant year. Thus, each coefficient can be interpreted as indicating the marginal change in the likelihood function that is associated with a unit change in the specified independent variable, holding all other independent variables constant, with a positive coefficient indicating a greater likelihood of a two-tier board.

Based on the literature of board structure choice, and more specifically the framework of Adams and Ferreira (2007) model, the likelihood of having a two-tier (rather than a unitary) board structure is specified as a linear function of a series of variables that reflect characteristics of the firm and its environment, encompassing theoretical considerations that could influence this choice. Several of the independent variables we specify in the logit regressions are qualitative, reflecting discrete attributes, while other variables are continuous. The objective is to determine

how these factors affect the choice of board structure each year, where the sign and significance of each coefficient provide an estimate of how a unit increase in a specified variable affects the marginal likelihood that a firm utilizes a two-tier rather than a unitary board structure. In this analysis, there may be clustering effects that could potentially bias the statistical significance of the results because of time series dependence (residuals for a given firm may be correlated over time) and cross-sectional dependence (residuals in a given year may be correlated across firms). Thus, in estimating logit regressions we apply procedures described in Petersen (2009) to adjust standard errors for clustering by firm and time.

5.1. Information asymmetry, private benefits, and sources of monitoring

Prior theoretical work implies that the greater the information asymmetry a firm faces, the greater the benefit to the firm when board members are relatively passive and permit management to pursue its informational advantages, rather than pursuing a policy of intensive managerial monitoring. In the context of the Adams and Ferreira model (2007), which specifically considers the potential merits and trade-offs of a two-tier system, it can be hypothesized that more intensive monitoring of managers is a comparative advantage of a supervisory board. This greater intensity of expected board monitoring reduces the potential for managerial self-dealing at the cost of lessening the collection of information from the CEO about the quality of the potential projects available to the firm. Thus, the likelihood of adopting a two-tier board structure should be negatively related to the severity of information asymmetry. In Table 3 coefficients of several information asymmetry proxies have signs that are consistent with this reasoning and are generally statistically significant, suggesting that greater asymmetric information is associated with unitary boards. The R&D and the high tech variables are each significant, suggesting a greater likelihood of unitary boards in these industries where it can be

expected that managers are likely to possess important informational advantages about the firm's potential projects. The coefficients of firm age and liquidity obtain the correct signs, but are not statistically significant, while the coefficients of volatility are generally significant. Overall, the results suggest that firms whose value is derived from growth options or intangible assets are more likely to utilize a unitary board.

In 2001, French law allowed unitary boards to separate (or to unify) the positions of CEO and Chairman, thus granting unitary boards the option, not previously available, to allow two different individuals to hold the two positions. We assess whether this flexibility about leadership positions within a unitary board structure reduces the likelihood of adopting a two-tier board structure (which ipso facto entails a separation of the positions) by specifying a post-2001 variable. We find that the coefficient of this variable is significantly positive, so the *ceteris paribus* likelihood of a firm having a two-tier board actually increases after 2001. This result indicates that the introduction into French corporation law of the option to separate the two positions within a unitary board structure did not reduce the likelihood of a firm having a two-tier board structure. This finding suggests that the separation of the two positions is not an effective substitute for the potentially more intensive monitoring associated with the supervisory board of a two-tier board structure.

Several proxy variables support the hypothesis that a high potential for private benefit extraction implies that a two-tier board structure is more likely to be an effective solution for corporate governance, consistent with Adams and Ferreira (2007). One, the coefficient for the qualitative variable for firms in the fields of media and entertainment, industries traditionally viewed as having a potential for a private benefits problem, implies that these firms are more likely to adopt a two-tier board structure. Two, the coefficient of the qualitative variable for firms with an important role in the local economy is also strongly positive. Three, the results for

the variable for multiple classes of voting rights suggests that firms with differential voting rights have a greater likelihood of adopting a two-tier board structure. Each of these variables has a statistically significant coefficient with the expected positive sign, suggesting the importance of the potential for private benefit extraction on a firm's choice of board structure. A qualitative variable for eponymous firms (Gompers, Ishii, and Metrick, 2010) is positive but not statistically significant.

We specify variables to reflect external monitoring of the firm's activities that could lessen the potential for private benefit extraction and thus lower the benefit and in turn the likelihood of a two-tier board structure. The variable for a U.S. stock exchange listing, which requires extensive disclosure to the SEC and U.S. exchanges, has a negative and statistically significant coefficient, suggesting an increased likelihood of a unitary board structure. Both leverage and the proportion of shares held by the largest shareholder obtain negative coefficients, but neither is statistically significant. The variable for firm size (the logarithm of total assets) obtains consistently positive coefficients but typically falls short of being significant, indicating that the size of the firm has relatively little influence on board structure.

Overall, the evidence supports the view that firm characteristics have an important influence on board structure and the intensity of monitoring. Greater severity of asymmetric information is associated with a greater likelihood of a unitary board, consistent with its greater propensity for information sharing between managers and directors, whereas when the potential for private benefit extraction is important, there is a greater likelihood of having a two-tier board structure, with its potential for greater monitoring. These findings are broadly consistent with the implications of the Adams and Ferreira (2007) model.

5.2. *Board structure in closely held firms*

We next examine the case of closely held firms, a salient aspect of business in France where many firms (including some internationally known companies) are family-controlled or influenced, a pattern that also occurs in many other countries. For closely held firms, members of the control group may have a greater incentive to gather information and to undertake effective monitoring (e.g., because of their long run horizon or concern for family reputation), but private benefit issues may also arise since the management of these firms may be oriented toward maximizing utility (including relevant perquisites) for founding families. We define closely held French firms as those where an individual or group of related individuals holds at least 10% of the shares outstanding. Based on this classification (data not reported in the tables), we find as expected that closely held firms in France have significantly fewer assets than other firms in the sample ($p < 0.01$) and are also younger ($p < 0.01$). Moreover, closely held firms have significantly smaller boards ($p < 0.01$) in both the unitary and two-tier categories (differences that typically amount to three fewer directors), and have longer CEO tenure ($p < 0.01$). There is no significant difference in the age of the CEOs ($p = 0.59$) of closely held firms versus other firms.

In the logit regressions reported in Table 4, being a closely held firm has an important effect on the choice of board structure. Several logit regression specifications that incorporate variables to distinguish between closely held firms where members of the control group participate in the firm's management versus closely held firms managed by professionals, indicate that this differentiation is an important factor affecting board structure. We also distinguish between closely held firms where the founder or a member of the first generation is the CEO of the firm versus closely held firms that are managed by descendants.

The qualitative variable for closely held firms overall has a positive and statistically

significant coefficient, indicating a greater likelihood of utilizing a two-tier board structure. Moreover, the qualitative variable indicating the set of closely held firms with professional management obtains coefficients that are significantly positive, implying a greater likelihood of a two-tier board structure. This result is consistent with the prediction of Graziano and Luporini (2012) that in such a setting a two-tier board structure encourages managerial initiative. In 93% of the cases of closely held firms with professional management, members of the control group are represented on the supervisory board, which monitors the firm's activities. When the family management variable is disaggregated by generation, we find that a closely held firm managed by a descendant (or inheritor) is also more likely to have a two-tier board structure (with members of the control group universally present on the supervisory board), paralleling the case of professionally managed closely held firms. In contrast, when there is a founder or first generation CEO, a closely held firm is significantly more likely to adopt a unitary board structure.

Our findings indicate that professional management or management by a subsequent generation at a closely held firm increases the likelihood of a two-tier board structure while founder-run firms tend to have a unitary board structure. These results imply that the flexibility to change a French firm's governance structure from a unitary to a two-tier board may facilitate a transfer of management at a closely held firm away from its founder, assuming that more active monitoring by a separate supervisory board may become efficient for firms that migrate away from the involvement of the founder in active management. From a policy perspective, this reasoning implies that freedom of contract about board structure is valuable for the shareholders of closely held firms because it provides the flexibility to alter the choice of board structure as conditions evolve over the life cycle of a firm. Thus, it facilitates the transfer of managerial responsibilities between generations or from family managers to professional managers.

5.3. *Two-tier boards versus split leadership positions at unitary boards*

We further analyze French corporate governance by considering the 2001 option that allowed French firms with a unitary board structure to separate the positions of CEO and Chairman. Our objective is to assess whether the separation of positions, a decision made by board members, is a substitute for a two-tier board structure. Since a change in board structure is a charter action requiring a two-thirds majority vote of the shareholders, while leadership choices (by a unitary board) are a board action, the decision of a unitary board to appoint a single person or different individuals to these positions can be viewed as a subsequent stage of governance relative to basic board structure.

Given that after 2001 board structure and leadership choices are in practice sequential, we estimate sequential logit regressions to explain this process. The sequential logit model consists of estimating logistic regressions for each step or decision for the sample (subsample) that is relevant for making the decision. This approach consists of an additional logit regression that estimates the likelihood of splitting the two leadership positions, conditional on the firm having a unitary board structure.¹¹ Thus, a sequential logit model estimates the unconditional sensitivity of the likelihood of choosing a two-tier board structure as a function of firm and environmental characteristics, and then the likelihood, conditional on a unitary board structure being chosen, of

¹¹ We also estimated a simultaneous choice multinomial model. The estimated coefficients (not included in the tables but available from the authors) suggest conclusions that are broadly similar to the sequential logit. However, we note that a multinomial logit assumes that the random errors for each choice are independent, i.e., the independence of irrelevant alternatives assumption. This assumption implies that the choice between two alternatives is independent of other choices, so if one of the alternatives is removed the other alternatives will sustain a proportionate increase in their probability of being chosen. This assumption is not tenable in the French circumstances we are examining since the choice of a dual board structure necessarily separates the two positions.

separating or consolidating the positions of CEO and Chairman. We test whether variables that explain the choice of board structure are also able to explain the leadership decision, based on the hypothesis that a separate chairman position could be expected to encourage greater board monitoring while a combined position may encourage board passivity and lesser managerial monitoring.¹²

In Table 5, the results for the first stage of the sequential logit (explaining the likelihood of a unitary versus a two-tier board) closely parallel the earlier results and can be viewed as consistent with the Adams and Ferreira model since severe asymmetric information increases the likelihood of a firm having a unitary board, while a greater potential for the extraction of private benefits increases the likelihood of a two-tier board. However, in the second stage regression these variables do not explain the firm's choice with respect to the separation of leadership. Among the asymmetric information variables, both the R&D and high tech firm variables have the incorrect sign, suggesting that high tech firms with a unitary board structure tend to separate rather than combine the leadership positions. None of the variables that measure the potential for private benefits is significant, suggesting that among firms with a unitary board structure, a high potential for private benefit extraction does not increase the likelihood of splitting the leadership positions. Likewise, none of the variables that gauge external monitoring has a significant effect on leadership choice. Among closely held firms with a unitary board structure, firms with professional managers tend to split the leadership positions, while firms controlled by the founder or a member of the first generation not surprisingly tend to unify the positions. Also, the results

¹² There have been numerous empirical studies about the effectiveness of the alternative leadership structures for CEO and Chairman, but the consensus in the literature suggests that there is little systematic difference in performance between firms that separate the two positions from firms in which a single individual holds the two positions. For a review of such studies, see Dalton, Daily, Ellstrand, and Johnson (1998).

indicate that smaller and younger firms among the SBF250 tend to unify the leadership positions, while larger and older firms tend to separate them. Overall, the pattern of these results suggests that there is no evidence that separating the leadership positions within a unitary board structure is a substitute for a two-tier board structure.

5.4. Does a two-tier board structure foster more intensive CEO monitoring?

We test whether French firms with a two-tier board structure provide more intensive monitoring than firms with a unitary board, based on the well-established result that there is a higher likelihood of CEO turnover following periods of weak market-adjusted returns (see, e.g., Coughlan and Schmidt, 1985; Warner, Watts, and Wruck, 1988). Given our findings about the determinants of board structure and the Adams and Ferreira proposition that a two-tier board may have a comparative advantage at monitoring managerial performance, we examine whether CEO turnover is more closely related to performance for firms that have a two-tier board structure.

Logit regressions in Table 6 assess whether a two-tier board structure increases (decreases) the likelihood of CEO turnover in response to poor (superior) performance. The dependent variable is a binary variable that equals one for a firm year in which there is CEO turnover in the following year, and zero otherwise. Among the firms in the sample there are 296 cases of CEO turnover, including retirements, resignations, and dismissals. Consistent with prior literature we do not differentiate forced versus voluntary turnover. The results indicate that prior performance has a significantly negative effect on CEO turnover, consistent with prior findings in the literature. We also find that there is significantly lower CEO turnover at closely held firms, but neither firm size (measured by asset size) nor CEO tenure has an effect on CEO turnover. As expected, given retirement patterns in France, we find that CEO age has a significantly positive effect on CEO turnover.

When we include a variable for a two-tier board structure, the coefficient is not significant. However, the monitoring intensity of a two-tier board structure is tested by specifying an interaction variable for a firm's prior share price performance and the presence of a two-tier board structure. This interaction variable consistently has a significantly negative coefficient that is approximately twice the size of the coefficient of the performance variable. This finding implies that the sensitivity of CEO turnover to firm performance is approximately three times greater for firms with two-tier boards than for firms with unitary boards. This evidence suggests the greater monitoring intensity of a two-tier board structure and is consistent with the Adams and Ferreira (2007) contention that in certain circumstances a two-tier board structure can be expected to be associated with more active monitoring of CEO performance.

The specification of an interaction variable for the separation of the CEO and Chairman positions within a unitary board structure indicates that there is little effect on the sensitivity of CEO turnover to firm performance. Thus, although the regression results indicate that the separation of the two positions is associated with significantly higher CEO turnover, the separation of the top leadership positions does not alter the sensitivity of CEO turnover to the firm's share price performance. This result is consistent with our prior evidence that the separation of leadership positions within a unitary board structure is not a substitute for the more intensive monitoring conducted by a two-tier board. We also find that an interaction variable between share price performance and closely held firms is not significant. Overall, we conclude that a poorly performing firm with a two-tier board structure has a significantly greater likelihood of sustaining CEO turnover, confirming the greater monitoring intensity of a two-tier board structure.

5.5. Evidence on board structure and firm valuation

Within the context of the U.S., where all firms have unitary boards, Faleye, Hoitash, and Hoitash (2011) argue that the intensity of board monitoring has been largely driven by increased regulatory constraints, often involving legislative- and exchange-adopted rules governing board activities. Their evidence leads them to conclude that the more intensive board monitoring that has been induced by new regulations in the U.S. reduces firm value, suggesting the importance of the tradeoff between the intensity of board monitoring and the flow of information. In contrast, French firms can voluntarily adopt a two-tier board structure, which our results suggest fosters more intensive monitoring, if it is appropriate given the characteristics of their business operations and environment, or alternatively they can adopt a unitary board structure. Thus, in equilibrium, for our panel of firms the greater monitoring that is characteristic of a two-tier board structure in France should generally not have a significant relation (either positive or negative) with firm value; that is, board structure is presumed to be chosen as a part of the firm's solution to the issues it faces with respect to its overall governance.

To evaluate whether there is a relation between board structure and firm valuation, we estimate several regressions for our panel of data that explain firm value (the natural logarithm of Tobin's Q), as a function of a set of control variables plus a qualitative variable that indicates a two-tier board structure. Among the various control variables, we include firm leverage, tangible assets, capital expenditures (relative to assets), firm age, the size of the largest blockholder, and whether the firm is closely held. The results, reported in Table 7, indicate that there is no significant association between board structure and firm value regardless of the specification or the method of estimation that is employed (including the use of fixed effect regressions). Thus, for French firms as a whole the greater monitoring of a two-tier board is not associated with lower firm value.

However, when we create an interaction variable for the set of firm years in which a firm's characteristics indicate a relatively low potential for private benefits but a relatively high level of asymmetric information, a combination that the logit model suggests would be expected to lead to a unitary board structure, but the firm in fact has a two-tier board structure, we find evidence of an associated loss in value. More specifically, the interaction variable that indicates the presence of a two-tier board structure for this set of 30 firms and 138 firm-years (less than 5% out of the sample of 2943 firm-years) obtains a significantly negative coefficient, -0.156 (t-statistic of -2.22), suggesting a loss in value associated with this board structure choice during the relevant years. Of these 138 firm years, there are 58 firm years in which firms consistently appear to have this inappropriate structure, while 80 firm years are accounted for by firms that in due course either change their structure or the independent variables evolve so that the firm is no longer described by this interaction term. Disaggregating the interaction term for two-tier board choice between these two groups, it is the firms that consistently have the apparently inappropriate two-tier structure that generate the significantly negative coefficient, -0.229 (t-statistic of -4.14). For the remaining firms, the coefficient of the interaction term is negative, -0.102, but not statistically significant (t-statistic of -1.04). None of the other numerous interaction variables we tested for other groups of firms generated statistically significant coefficients (results not reported in the table but available upon request), suggesting that there is no broad association between firm value and the choice of board structure.

As is the case for many studies of corporate governance, this type of valuation analysis is susceptible to omitted variable bias. The concern is that both firm valuation and board structure are affected by unobservable heterogeneity of firm characteristics; i.e., there are unobservable factors that affect both the dependent and explanatory variables. Under the assumption that these characteristics do not vary over time, we use firm-fixed effects to address the concern that such

time-invariant firm characteristics might be driving our results (Table 7, regression 2). The results still indicate an insignificant relationship between two-tier boards and firm valuation.

Some researchers (e.g., Hermalin and Weisbach, 2003) hold the view that all research on corporate boards is complicated by the fact that board actions can be expected to affect future firm performance which in turn can induce future changes in board structure. From this perspective, our empirical results with respect to firm valuation have the potential to incorporate some element of simultaneity bias to the extent that the independent variables we utilize (including board structure) could be a function of prior (or expected) changes in the dependent variable (firm value); that is, it is plausible that (expected) firm valuation is a determinant of board structure choice. It is difficult to evaluate the severity of this potential bias for our analysis since our work is uniquely oriented toward exploring the effects of the choice between unitary and two-tier corporate boards. From this perspective, it would be difficult to outline a structural model that specifies the processes by which the adoption of a two-tier board influences the realization of relevant economic variables. Thus, it is unclear in which direction the simultaneity bias would go.

We further investigate the relationship between firm valuation and two-tier boards by considering the potential use of an instrumental variable (IV) approach to counter an endogeneity problem. However, it is difficult to find suitable instruments for such an analysis since to qualify as an instrument, a variable must be strongly correlated with the (suspected) endogenous variable (the choice of board structure), and yet not be correlated with the outcome variable (firm valuation). Since our determinants of board structure (such as proxies for private benefits, asymmetric information and family control/management) are correlated with firm valuation, these variables are inadequate instruments for this task. Moreover, the use of an instrument that is only weakly correlated with the regressor can be expected to elicit instrumental variable

estimates that are more severely biased than ordinary least squares estimates (Larcker and Rusticus, 2010).¹³

To gain further perspective on the relation between board structure and firm value we conduct event studies of announcements of changes in board structure, since event study methodology provides the financial market's unbiased assessment of the capitalized effect of a change in board structure on firm value. This empirical strategy is often viewed as a useful means of addressing issues with respect to the permanent effect of a corporate decision on firm value. Of the set of 91 board structure changes in our sample there are 83 events with a precise newswire or newspaper announcement date, without contemporaneous announcements of other major corporate actions (such as acquisitions). These data allow us to estimate the financial market reaction to the news of the proposed change in board structure. For this set of events the 3-day average excess return is negative but not statistically significant, -0.21% ($p = 0.75$). When the shifts in board structure are disaggregated between shifts from unitary to two-tier boards versus shifts from two-tier to unitary boards, the event study results are -0.87% ($p = 0.44$) and 0.60% ($p = 0.33$), respectively, and are also not statistically significant. In addition, the difference between these average excess returns is not significant ($p=0.28$).

We conclude that there is no evidence of an effect on firm value in response to announcements of proposed changes in board structure. We note that this finding of no significant share price effect may in part reflect the fact that initial public announcements often include other information for shareholders, such as items (typically of a routine nature) that relate to the shareholder meeting. Overall, the results for the firm value regressions together with

¹³ We conduct an additional test for reverse causality by estimating regressions in which the annual values of the regressors are replaced by their values during the prior year. We obtain qualitatively similar results.

evidence that there is an insignificant share price effect in event studies suggest that in general a change in board structure is not associated with a change in firm value.

5.6. Robustness

We conduct several robustness checks. In broad terms, the results, reported in Table 8, parallel our earlier results. First, given that our data are observed at year end, we estimate the basic logit regression excluding data for any year in which a firm enacts a change in its board structure since for at least part of the relevant year the firm had a board structure that differs from that indicated by the current year dependent variable. The pattern of results is unaltered by the omission of these years. Next, we estimate the basic logit regressions with qualitative variables for each calendar year rather than specifying a single qualitative variable for the years after 2001. Once again the pattern of the results remains unchanged. The pattern of results is also unaffected when the regression is estimated only over the subperiod after 2001, the period when firms with a unitary structure had the flexibility to split the top leadership positions. In addition, we estimate logit regressions that exclude financial firms (13% of the sample) and the results are again similar to earlier results.

We also estimate the effect on the choice of board structure when the French government is a shareholder in a firm. Share ownership gives the government direct access to precise information about the firm and its management, but the government also has political and economic interests that may induce it to pressure the firm to act in ways that are not in the interests of other shareholders (Bortolotti and Faccio, 2009; Faccio, 2006). We specify a qualitative variable when the French government is the largest shareholder in the firm, which occurs in 6% of the sample. The coefficient is not statistically significant at the usual confidence levels; the pattern of the remaining results remains the same.

6. Conclusions

In this paper, we analyze the determinants of board structure and provide perspective on the value of company freedom of contract by examining the case of corporate board structure in France, which has a long history beginning in 1966 of allowing firms to switch between a unitary and a two-tier board structure over the firm's life cycle. We evaluate a large sample of French public firms and analyze how the choice of board structure relates to characteristics of the firm and its environment. Our work builds on the finance and legal literatures about corporate boards. The theoretical model developed by Adams and Ferreira (2007) implies that maximization of shareholder value is often consistent with having a management-friendly (passive) board, but when there is a potential for managerial private benefits, efficiency may call for more intensive board monitoring. They suggest that in the latter case, there may be an advantage to having a two-tier board structure, which separates the advisory and monitoring functions, rather than having a governmental corporation statute impose a one-size-fits-all uniformity about board structure.

We find that firms with severe asymmetric information are more likely to opt for a unitary board structure, while firms with a potential for private benefits extraction are more likely to utilize a two-tier board structure. We also show that there is enhanced sensitivity of CEO turnover to firm performance when there is a two-tier board, indicating its greater monitoring intensity. Closely held firms controlled by founders or other first generation individuals tend to have a unitary board. Consistent with the prediction of the theoretical model of Graziano and Luporini (2012), closely held firms with professional management tend to have a two-tier board so as to encourage managerial initiative. Overall, our results are broadly consistent with the Adams and Ferreira (2007) model and suggest there are gains from allowing freedom of contract about board structure.

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Variable index: definitions

Variable	Definition
%SALES > 10%	Dummy variable : equals 1 if the ratio (Sales of firm i in year t / total sales of the companies incorporated in firm i's <i>département</i> in year t) is larger than 10% (Source: Worldscope)
AGE	Number of years since firm's IPO (Source: Annual reports)
ASSETS	Total assets at the end of the fiscal year (in euro millions) (Source: Worldscope)
CAPEX/ASSETS	Capital expenditures / Total assets (Source: Worldscope)
CEO AGE	CEO age (Source: Annual reports)
CEO+COB	Dummy variable: equals 1 if the firm has a one-tiered board structure and one individual is both CEO and Chairman (Source: Annual reports)
CEO/COB	Dummy variable: equals 1 if the firm has a one-tiered board structure and separate individuals hold the CEO and Chairman positions (Source: Annual reports)
CEO TENURE	CEO tenure in years (Source: Annual reports)
CHF	Dummy variable: equals 1 when (1) the largest shareholder owns at least 10% of the voting rights; (2) this shareholder is a member of the control group (direct ownership) or is a closely-held company (ultimate ownership, at the 20% threshold) (Source: Annual reports)
CHF.MGT	Dummy variable: equals 1 if the firm is closely-held and the CEO is a member of the control group (Source: Annual reports)
CHF.MGT.GEN1	Dummy variable: equals 1 if the firm is closely-held and the CEO is a 1 st generation member of the control group (Source: Annual reports)
CHF.MGT.HEIRS	Dummy variable: equals 1 if the the firm is closely-held and the CEO is a 2nd, third ... generation member of the control group (Source: Annual reports)
DUAL CLASS	Dummy variable: equals 1 if the company has issued non-voting shares or investment/voting certificates (Source: Annual reports)
EPONYMOUS	Dummy variable: equals 1 for an eponymous firm (Source: Annual reports)
HIGHTECH	Dummy variable: equals 1 when the firm belongs to the High Tech sector (as defined by Faccio and Masulis, 2005) (Source: Worldscope)
INDUSTRY	Industry dummies, based on the 1-digit SIC code (Source: Worldscope)
LEVERAGE	Ratio (Financial debts / Total assets) (Source : Worldscope)
LISTING USA	Dummy variable: equals 1 when the company is listed on the NYSE, NASDAQ or AMEX (Source: Datastream)
LN(AGE)	Ln (number of years since firm's IPO + 1) (Source: Annual reports)
LN(CEO AGE)	Ln(CEO AGE) (Source: Annual reports)
LN(CEO TENURE)	Ln(CEO TENURE + 1) (Source: Annual reports)
LN(TOBIN'S Q)	Ln(TOBIN'S Q) (Source: Worldscope)
LOG(ASSETS)	Log (Total assets) (Source: Worldscope)
LOW PB-HIGH AI	Dummy variable: equals 1 when firm's characteristics indicate a high level of asymmetric information (i.e., HIGHTECH is equal to 1 and/or RD/ASSETS is larger than its median value) and a low potential for private benefits (i.e., % SALES > 10, DUAL CLASS and PB INDUSTRY are equal to 0) (Sources: Worldscope, Datastream, Annual reports)
NB DIRECTORS	Number of directors (Source: Annual reports)
PB INDUSTRY	Dummy variable: equals 1 when the ICBSSC code of the company is 5500 (Media) or when the primary SIC code is 7911, 7922, 7929, 7933, 7941, 7948, 7991-3, 7996-7 and 7999 (Sport and Entertainment) (Source: Datastream)
PERF	Stock return – SBF250 index return for the year (Source: Datastream)
PRO.MGT	Dummy variable: equals 1 if the firm is closely-held and the CEO is a professional manager (Source: Annual reports)
RD/ASSETS	R&D expenses / Total assets (Source: Worldscope)
REL.SPREAD	[Ask-Bid]/[(Ask+Bid)/2]*100 (annual average) (Source: Datastream)
S1 CFR	Direct cash-flow rights of the largest owner (in %) (Source : Annual reports)
STATE	Dummy variable: equals 1 when (1) the largest shareholder owns at least 10% of the voting rights; (2) this shareholder is a government (direct ownership) or a government-owned company (ultimate ownership, at the 20% threshold) (Source: Annual reports)
TANGIBLE ASSETS	Property, plants and equipment / Total assets (Source: Worldscope)
TOBIN'S Q	(Total assets – book value of common equity + market capitalization) / Total assets (Source: Worldscope)
TTS	Dummy variable: equals 1 if the firm has a two-tiered board structure (Source: Annual reports)
VOLAT	Stock price volatility over the year, computed with monthly returns (Source: Datastream)
Y>2000	Dummy variable: equals 1 for the years 2001 to 2008

Table 1
Board structure in the European Union

Information as of June 30, 2013 for the 27 member states of the European Union regarding original board structure type (unitary or two-tier), the year a member state passed legislation to allow a choice of board structure (where applicable), and the legal code heritage (common law or civil law); Malta and Cyprus are classified as hybrid since their codes reflect histories of civil law plus common law as British colonies. For board structure and year of the relevant change in the member state's corporation law, sources used include: "Getting the Deal Through Online" which provides international comparative guides to law and regulation in numerous jurisdictions (but not all EU states), the ECGI website (with links to national corporate governance codes), and a compilation of local documents (in various languages) detailing relevant corporation law. Sources for types of legal codes are: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008), and Siems (2007).

	Original board structure		Year choice adopted	Legal code heritage
	Unitary	Two-tier		
Austria		1		German Civil Law
Belgium	1			French Civil Law
Bulgaria		1	2008	German Civil Law
Cyprus	1			Hybrid
Czech Republic		1		German Civil Law
Denmark		1	2010	Scandinavian Civil Law
Estonia		1		German Civil Law
Finland	1			Scandinavian Civil Law
France	1		1966	French Civil Law
Germany		1		German Civil Law
Greece	1			French Civil Law
Hungary		1	2006	German Civil Law
Ireland	1			Common Law
Italy	1		2004	French Civil Law
Latvia		1		German Civil Law
Lithuania		1		French Civil Law
Luxemburg	1		2006	French Civil Law
Malta	1			Hybrid
Netherlands		1	2013	French Civil Law
Poland		1		German Civil Law
Portugal	1		2006	French Civil Law
Romania	1		2006	French Civil Law
Slovakia		1		German Civil Law
Slovenia		1	2006	German Civil Law
Spain	1			French Civil Law
Sweden	1			Scandinavian Civil Law
United Kingdom	1			Common Law

Table 2**Descriptive statistics of sample firms**

The sample comprises 3,048 firm-year observations from 376 SBF250 listed firms in France from 1998-2008. Panel A contains data about board structure. Panel B contains accounting, financial and ownership data for the full sample, variables used in the CEO turnover analysis and in the valuation analysis. Variable definitions are in the Index. Student t-statistics and Wilcoxon z-statistics test for the difference in means and medians. Asterisks denote statistical significance based on two-sided tests at the 1% (***), 5% (**) and 10% (*) level, respectively.

Panel A: Board structures

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Sample
Firm-years	202	242	280	306	306	297	285	281	286	285	278	3048
TWO-TIER	19.3%	19.0%	20.0%	24.8%	27.5%	27.9%	28.1%	28.8%	26.6%	25.3%	24.8%	25.0%
UNITARY	80.7%	81.0%	80.0%	75.2%	72.5%	72.1%	71.9%	71.2%	73.4%	74.7%	75.2%	75.0%
CEO+COB	80.7%	81.0%	80.0%	74.2%	64.1%	62.0%	58.9%	56.2%	58.7%	55.8%	54.3%	65.4%
CEO/COB	0.0%	0.0%	0.0%	1.0%	8.5%	10.1%	13.0%	14.9%	14.7%	18.9%	20.9%	9.6%

*Panel B: Accounting, financial and ownership characteristics**B.1. Total sample (N=3048 firm-year)*

	Full sample			Unitary board		Two-tier board		Means	Tests for difference in		
	Mean	Median	St Dev	Mean	Median	Mean	Median		Medians		
Firm-years		3048			2286		762				
ASSETS	18161	585	105586	18227	572	17964	621	0.06		-3.19	***
LOG(ASSETS)	2.94	2.77	0.95	2.91	2.76	3.02	2.79	-2.77	***	-3.19	***
NB DIRECTORS	8.94	8.00	4.03	9.02	8.00	8.70	8.00	1.92	*	1.60	
<i>Asymmetric information</i>											
AGE	18.02	11.00	20.57	16.69	11.00	21.98	13.00	-6.19	***	-5.30	***
HIGHTECH	0.15	0.00	0.35	0.17	0.00	0.07	0.00	7.10	***	7.04	***
LN(AGE)	2.55	2.48	0.86	2.50	2.48	2.71	2.64	-5.89	***	-5.30	***
RD/ASSETS	0.02	0.00	0.06	0.02	0.00	0.01	0.00	5.92	***	6.76	***
REL.SPREAD	1.54	1.04	3.28	1.59	1.04	1.40	1.05	1.42		0.30	
VOLAT	0.11	0.08	0.09	0.11	0.09	0.09	0.08	4.45	***	4.84	***
<i>Private benefits</i>											
%SALES>10%	0.22	0.00	0.41	0.19	0.00	0.31	0.00	-6.79	***	-6.75	***
DUAL CLASS	0.02	0.00	0.15	0.01	0.00	0.05	0.00	-5.47	***	-5.45	***
EPONYMOUS	0.24	0.00	0.43	0.22	0.00	0.29	0.00	-3.89	***	-3.89	***
PB INDUSTRY	0.07	0.00	0.25	0.05	0.00	0.12	0.00	-7.09	***	-7.04	***
<i>Monitoring</i>											
LEVERAGE	0.25	0.23	0.22	0.25	0.23	0.25	0.23	0.25		-1.02	
LISTING USA	0.07	0.00	0.26	0.09	0.00	0.04	0.00	4.56	***	4.55	***
S1 CFR	0.43	0.46	0.25	0.43	0.46	0.43	0.46	-0.01		-0.12	
<i>Closely held firms</i>											
CHF	0.64	1.00	0.48	0.63	1.00	0.69	1.00	-3.37	***	-3.36	***
CHF.MGT	0.40	0.00	0.49	0.45	0.00	0.27	0.00	8.81	***	8.70	***
CHF.MGT.GEN1	0.27	0.00	0.45	0.34	0.00	0.08	0.00	14.46	***	13.99	***
CHF.MGT.HEIRS	0.13	0.00	0.34	0.11	0.00	0.19	0.00	-5.88	***	-5.85	***
PRO.MGT	0.24	0.00	0.43	0.18	0.00	0.43	0.00	-14.19	***	-13.74	***
STATE	0.06	0.00	0.24	0.06	0.00	0.07	0.00	-0.75		-0.75	

B.2. Variables used in the CEO turnover analysis (N=2932)

Firm-years	2932		2198			734					
PERF	0.08	<i>0.01</i>	0.63	0.09	<i>0.01</i>	0.06	<i>0.02</i>	1.28		-0.87	
CEO AGE	53.89	<i>54.00</i>	8.26	54.51	<i>55.00</i>	52.03	<i>52.00</i>	7.10	***	7.33	***
LN(CEO AGE)	3.97	<i>3.99</i>	0.16	3.99	<i>4.01</i>	3.94	<i>3.95</i>	6.58	***	7.33	***
CEO TENURE	8.78	<i>6.00</i>	8.79	10.07	<i>7.00</i>	4.90	<i>3.00</i>	14.26	***	<i>14.12</i>	***
LN(CEO TENURE)	1.85	<i>1.95</i>	1.00	1.99	<i>2.08</i>	1.42	<i>1.39</i>	13.87	***	<i>14.12</i>	***

B.3. Variables used in the valuation analysis (N=2943)

Firm-years	2943		2204			739					
CAPEX/ASSETS	0.05	<i>0.04</i>	0.06	0.05	<i>0.04</i>	0.05	<i>0.04</i>	-1.33		-2.36	**
TOBIN'S Q	1.67	<i>1.31</i>	1.34	1.73	<i>1.32</i>	1.49	<i>1.30</i>	4.29	***	2.12	**
LN(TOBIN'S Q)	0.37	<i>0.27</i>	0.46	0.39	<i>0.28</i>	0.32	<i>0.26</i>	3.74	***	2.12	**
TANGIBLE ASSETS	0.21	<i>0.15</i>	0.20	0.20	<i>0.14</i>	0.21	<i>0.17</i>	-0.71		-1.98	**

Table 3
Choice of board structure

This table presents a logit regression analysis of the choice of a two-tier board structure. The dependent variable equals 1 when the firm has a two-tier board structure. The sample contains 3,048 observations. Variable definitions are in the Index. Standard errors are corrected using Petersen's (2009) double clustering approach (firm and year); z-statistics are reported in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	(1)	(2)	(3)	(4)	(5)
LOG(ASSETS)	0.091 (0.72)	0.024 (0.18)	0.154 (1.26)	0.262** (2.10)	0.103 (0.70)
<i>Asymmetric Information</i>					
RD/ASSETS	-10.905** (-2.35)	-10.952** (-2.33)			-8.500* (-1.87)
HIGHTECH	-1.225*** (-2.63)	-1.191** (-2.52)			-0.927* (-1.85)
VOLAT	-2.154** (-2.20)	-1.695* (-1.78)			-1.033 (-1.23)
LN(AGE)		0.163 (1.30)			0.105 (0.80)
REL.SPREAD		-0.027 (-0.79)			-0.013 (-0.38)
<i>Private benefits</i>					
PB INDUSTRY			1.426*** (3.01)		1.111** (2.30)
% SALES>10%			0.753*** (3.01)		0.640** (2.50)
DUAL CLASS			1.166** (2.30)		0.946* (1.76)
EPONYMOUS			0.316 (1.21)		0.171 (0.62)
<i>Monitoring</i>					
LISTING USA				-1.104** (-2.22)	-0.899* (-1.69)
LEVERAGE				-0.286 (-0.58)	-0.596 (-1.04)
S1 CFR				-0.098 (-0.24)	-0.508 (-1.14)
Y>2000	0.457*** (5.63)	0.426*** (4.82)	0.455*** (5.12)	0.394*** (4.63)	0.475*** (4.58)
CONSTANT	-2.618*** (-3.34)	-2.846*** (-3.47)	-3.403*** (-4.03)	-3.124*** (-3.89)	-2.890*** (-3.21)
INDUSTRY DUMMIES	Y	Y	Y	Y	Y
Observations	3048	3042	3048	3048	3042
Pseudo R ²	0.062	0.065	0.065	0.030	0.094
% Concordant	0.751	0.752	0.758	0.750	0.763

Table 4**Board structure and closely held firms**

This table presents a logit regression analysis of the choice of a two-tier board structure. The dependent variable equals 1 when the firm has a two-tier board structure. The total sample contains 3,048 observations. Variable definitions are in the Index. Standard errors are corrected using Petersen's (2009) double clustering approach (firm and year); z-statistics are reported in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	(1)	(2)	(3)	(4)	(5)
LOG(ASSETS)	0.238*	0.151	0.076	0.051	-0.009
	(1.93)	(1.22)	(0.58)	(0.32)	(-0.05)
<i>Closely held firm attributes</i>					
CHF	0.420*				
	(1.78)				
CHF.MGT		-0.263		-0.614*	
		(-0.96)		(-1.93)	
PRO.MGT		1.146***	1.166***	1.045***	1.105***
		(4.14)	(4.23)	(3.58)	(3.79)
CHF.MGT.GEN1			-1.432***		-1.554***
			(-4.11)		(-3.85)
CHF.MGT.HEIRS			0.976***		0.490
			(3.06)		(1.25)
<i>Asymmetric information</i>					
RD/ASSETS				-9.922**	-10.812**
				(-2.01)	(-2.31)
HIGHTECH				-0.897*	-0.754
				(-1.69)	(-1.31)
VOLAT				-0.784	-0.454
				(-1.13)	(-0.67)
LN(AGE)				0.044	-0.067
				(0.31)	(-0.46)
REL.SPREAD				-0.037	-0.071
				(-0.67)	(-1.00)
<i>Private benefits</i>					
PB INDUSTRY				1.065**	0.945*
				(2.19)	(1.87)
% SALES>10%				0.795***	0.674**
				(3.00)	(2.47)
DUAL CLASS				1.322**	0.957
				(2.02)	(1.46)
EPONYMOUS				0.272	0.134
				(0.91)	(0.45)
<i>Monitoring</i>					
LISTING USA				-0.802	-0.670
				(-1.39)	(-1.13)
LEVERAGE				-0.713	-0.329
				(-1.15)	(-0.59)
S1 CFR				-0.214	-0.216
				(-0.44)	(-0.43)
Y>2000	0.408***	0.383***	0.412***	0.479***	0.507***
	(5.04)	(4.14)	(4.05)	(3.92)	(4.03)
CONSTANT	-3.506***	-3.135***	-3.005***	-2.676***	-2.300**
	(-4.71)	(-4.53)	(-3.96)	(-3.10)	(-2.45)
INDUSTRY DUMMIES	Y	Y	Y	Y	Y
Observations	3048	3048	3048	3042	3042
Pseudo R ²	0.027	0.075	0.133	0.153	0.188
% Concordant	0.750	0.744	0.765	0.774	0.791

Table 5**Board structure: two-tier board versus unitary board with split positions**

This table presents a sequential logit regression analysis of the choice of board structure. In the first step, the dependent variable equals 1 when the firm has a two-tier board structure; in the second step, the dependent variable equals 1 when the CEO and Chairman positions are split. Since the separation of the CEO and Chairman positions became permissible in 2001, the sample is restricted to the period 2001 to 2008. Variable definitions are in the Index. Firm-clustered z-statistics are reported in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	(1)		(2)		(3)	
	Two-tier vs. unitary	Split vs. not split	Two-tier vs. unitary	Split vs. not split	Two-tier vs. unitary	Split vs. not split
LOG(ASSETS)	0.034 (0.23)	0.521*** (2.95)	0.043 (0.29)	0.514*** (2.92)	-0.080 (-0.48)	0.390** (2.04)
<i>Asymmetric information</i>						
RD/ASSETS	-10.908** (-2.24)	3.701*** (2.71)	-10.745** (-2.22)	3.697*** (2.69)	-12.842** (-2.56)	2.813* (1.65)
HIGHTECH	-0.730 (-1.41)	1.234** (2.43)	-0.729 (-1.40)	1.239** (2.42)	-0.582 (-0.96)	1.332** (2.54)
VOLAT	-0.940 (-1.04)	-0.725 (-0.38)	-0.961 (-1.04)	-0.719 (-0.38)	-0.591 (-0.75)	-0.108 (-0.09)
LN(AGE)	0.097 (0.66)	0.505*** (2.71)	0.095 (0.64)	0.508*** (2.75)	-0.083 (-0.51)	0.250 (1.22)
REL.SPREAD	-0.005 (-0.20)	-0.010 (-0.36)	-0.005 (-0.19)	-0.010 (-0.36)	-0.050 (-0.68)	-0.033 (-0.38)
<i>Private benefits</i>						
PB INDUSTRY	1.291** (2.55)	0.075 (0.15)	1.291** (2.54)	0.076 (0.15)	1.054** (2.01)	-0.404 (-0.61)
% SALES>10%	0.560** (2.02)	-0.602 (-1.47)	0.559** (2.01)	-0.607 (-1.50)	0.606** (2.03)	-0.386 (-0.88)
DUAL CLASS	1.255* (1.68)	0.276 (0.32)	1.252 (1.64)	0.313 (0.36)	1.357* (1.69)	0.595 (0.61)
EPONYMOUS	0.186 (0.64)	0.241 (0.72)	0.166 (0.56)	0.267 (0.79)	0.148 (0.46)	0.559 (1.35)
<i>Monitoring</i>						
LISTING USA	-0.911 (-1.62)	0.137 (0.33)	-0.901 (-1.61)	0.125 (0.30)	-0.679 (-1.11)	0.103 (0.22)
LEVERAGE	-0.695 (-1.12)	0.420 (0.86)	-0.691 (-1.10)	0.416 (0.86)	-0.440 (-0.75)	0.530 (1.00)
S1 CFR	-0.555 (-1.13)	0.680 (1.17)	-0.593 (-1.16)	0.728 (1.17)	-0.230 (-0.41)	0.868 (1.44)
<i>Closely held firm attributes</i>						
CHF			0.095 (0.37)	-0.100 (-0.29)		
PRO.MGT					0.935*** (3.28)	1.265*** (3.40)
CHF.MGT.GEN1					-1.722*** (-3.64)	-2.847*** (-3.01)
CHF.MGT.HEIRS					0.401 (0.92)	-0.363 (-0.54)
CONSTANT	-2.248** (-2.34)	-5.688*** (-5.17)	-2.304** (-2.42)	-5.654*** (-5.20)	-1.467 (-1.43)	-4.560*** (-4.35)
INDUSTRY DUMMIES	Y	Y	Y	Y	Y	Y
Observations	2321		2321		2321	
Wald statistic	46.18***		46.88***		78.97***	

Table 6
CEO turnover and board structure

This table presents a logit regression analysis of CEO turnover as function of the firm's board structure. The dependent variable equals 1 if the firm's CEO leaves the CEO position during the following year. The total sample contains 2,932 firm-year observations, during which there were 296 cases of CEO turnover. The reduced number of firm-year observations is due to missing data about CEO characteristics. Variable definitions are in the Index. Standard errors are corrected using Petersen's (2009) double clustering approach (firm and year); z-statistics are reported in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	(1)	(2)	(3)	(4)	(5)
PERF	-0.705** (-2.48)	-0.525* (-1.78)	-0.709** (-2.45)	-0.520* (-1.79)	-0.708** (-2.32)
TTS		0.206 (1.29)		0.281 (1.60)	0.210 (1.32)
PERF*TTS		-1.050** (-2.00)		-1.058** (-2.10)	-1.041** (-2.03)
CEO/COB			0.196 (1.35)	0.351*** (2.58)	
PERF*CEO/COB			0.065 (0.06)	-0.132 (-0.13)	
S1 CFR	0.057 (0.20)	0.080 (0.29)	0.056 (0.20)	0.081 (0.29)	0.079 (0.29)
CHF	-0.814*** (-4.07)	-0.852*** (-4.04)	-0.824*** (-4.29)	-0.877*** (-4.35)	-0.845*** (-4.14)
PERF*CHF					0.307 (0.86)
LN(CEO AGE)	2.510*** (4.79)	2.573*** (4.88)	2.544*** (4.89)	2.648*** (5.13)	2.575*** (4.87)
LN(CEO TENURE)	0.009 (0.22)	0.036 (0.79)	0.027 (0.60)	0.076 (1.61)	0.037 (0.80)
VOLAT	2.296** (2.28)	2.464** (2.33)	2.324** (2.33)	2.546** (2.44)	2.403** (2.44)
LOG(ASSETS)	-0.038 (-0.40)	-0.041 (-0.41)	-0.045 (-0.48)	-0.055 (-0.55)	-0.042 (-0.42)
CONSTANT	-12.604*** (-6.20)	-12.931*** (-6.30)	-12.751*** (-6.34)	-13.263*** (-6.66)	-12.932*** (-6.29)
YEAR DUMMIES	Y	Y	Y	Y	Y
INDUSTRY DUMMIES	Y	Y	Y	Y	Y
Observations	2932	2932	2932	2932	2932
Pseudo R^2	0.057	0.061	0.057	0.062	0.061
% Concordant	0.899	0.899	0.899	0.899	0.899

Table 7
Board structure and firm valuation

This table presents multivariate regression analysis where the dependent variable is the natural logarithm of Tobin's Q. Variable definitions are in the Index. Equation (2) uses firm fixed effects. Equations (1) and (3) include both year and industry dummies and standard errors are corrected using Petersen's (2009) double clustering approach (firm and year); t-statistics are reported in parentheses and asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	(1)	(2) (Fixed effect)	(3)
TTS	-0.036 (-1.27)	0.037 (0.98)	0.015 (0.50)
LOW PB-HIGH AI			0.139*** (3.09)
LOW PB-HIGH AI * TTS			-0.156** (-2.22)
LOG(ASSETS)	-0.089*** (-3.71)	-0.340*** (-4.72)	-0.094*** (-4.03)
LEVERAGE	-0.274 (-1.45)	-0.143 (-1.40)	-0.239 (-1.28)
TANGIBLE ASSETS	-0.156* (-1.79)	0.258 (1.55)	-0.158* (-1.81)
CAPEX/ASSETS	0.614** (2.32)	0.557*** (2.87)	0.631** (2.45)
LN(AGE)	-0.080*** (-3.43)	-0.260*** (-3.93)	-0.074*** (-3.16)
CHF	-0.017 (-0.46)	0.026 (0.61)	-0.014 (-0.38)
S1 CFR	-0.072 (-0.91)	-0.006 (-0.07)	-0.027 (-0.36)
CONSTANT	1.001*** (7.76)	1.881*** (8.11)	0.956*** (7.41)
YEAR DUMMIES	Y	Y	Y
INDUSTRY DUMMIES	Y	N	Y
Observations	2943	2943	2943
R ²	0.246	0.713	0.259
Adjusted R ²	0.240	0.669	0.252

Table 8
Robustness checks

Logit regression analysis of the choice of a two-tier board structure is reported where the dependent variable equals 1 when a firm has a two-tier board. The total sample has 3,048 observations. In equation (1) we exclude data for the year of a board change. In equation (3) the sample period is 2001-2008. In equation (4) financial companies are excluded. Standard errors are corrected using Petersen's (2009) double clustering approach (firm and year); z-statistics are in parentheses and asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

Sample	Exclude Δ year (1)	Full sample (2)	Year>2000 (3)	Nonfinancials (4)	Full sample (5)
LOG(ASSETS)	0.037 (0.22)	0.057 (0.36)	-0.014 (-0.10)	-0.214 (-1.19)	0.009 (0.06)
<i>Asymmetric information</i>					
RD/ASSETS	-9.767* (-1.91)	-9.611* (-1.95)	-11.677** (-2.25)	-9.362* (-1.92)	-10.101** (-1.97)
HIGHTECH	-0.868 (-1.54)	-0.890* (-1.67)	-0.703 (-1.34)	-0.985* (-1.80)	-0.903* (-1.67)
VOLAT	-0.832 (-1.14)	-0.85 (-1.12)	-0.801 (-1.23)	-0.976 (-1.27)	-0.91 (-1.15)
LN(AGE)	0.041 (0.28)	0.051 (0.35)	0.039 (0.26)	0.218 (1.36)	0.073 (0.51)
REL.SPREAD	-0.033 (-0.59)	-0.045 (-0.74)	-0.027 (-0.56)	-0.079 (-1.10)	-0.045 (-0.75)
<i>Private benefits</i>					
PB INDUSTRY	1.160** (2.32)	1.070** (2.19)	1.222** (2.48)	1.134** (2.26)	1.098** (2.22)
% SALES>10%	0.833*** (3.07)	0.803*** (3.02)	0.736*** (2.73)	0.720*** (2.58)	0.803*** (3.03)
DUAL CLASS	1.362** (2.01)	1.308** (1.99)	1.636** (2.17)	1.373* (1.88)	1.227** (1.97)
EPONYMOUS	0.33 (1.07)	0.269 (0.91)	0.311 (1.04)	0.302 (1.02)	0.298 (1.00)
<i>Monitoring</i>					
LISTING USA	-0.83 (-1.38)	-0.856 (-1.46)	-0.881 (-1.47)	-1.205* (-1.96)	-0.795 (-1.34)
LEVERAGE	-0.773 (-1.21)	-0.729 (-1.17)	-0.783 (-1.30)	-0.887 (-1.31)	-0.716 (-1.17)
S1 CFR	-0.184 (-0.36)	-0.206 (-0.42)	-0.205 (-0.40)	-0.355 (-0.65)	-0.328 (-0.64)
<i>Closely held firm attributes</i>					
CHF.MGT	-0.628* (-1.89)	-0.614* (-1.93)	-0.781** (-2.46)	-0.705** (-2.12)	-0.471 (-1.39)
PRO.MGT	1.033*** (3.37)	1.062*** (3.61)	0.867*** (2.93)	1.008*** (3.18)	1.201*** (3.68)
STATE					0.755 (1.64)
Y>2000	0.422*** (3.22)				
CONSTANT	-2.872*** (-3.21)	-2.819*** (-3.31)	-2.071** (-2.35)	-2.050** (-2.29)	-2.825*** (-3.32)
YEAR DUMMIES	N	Y	Y	Y	Y
INDUSTRY DUMMIES	Y	Y	Y	Y	Y
Observations	2951	3042	2321	2638	3042
Pseudo R^2	0.158	0.155	0.152	0.178	0.159
% Concordant	0.778	0.774	0.769	0.779	0.772