THE BOARD STRUCTURE OF AFFILIATES IN BUSINESS GROUPS

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Abstract

This study explores how hierarchical business groups structure the boards of directors of their affiliated firms to control a potential agency conflict with the parent firm. We explore situations with different degrees of information asymmetries between the parent and the affiliate, derived from differences in the institutional context, to study how the structure of the affiliate board of directors varies with the relevance of the potential agency conflict between both firms. We find that the proportion of outside directors in an affiliated firm is positively related to that of the parent. We also find that the institutional difference between the context of the parent firm and the affiliate increases the proportion of outside directors in the affiliate and obstructs the transmission of the parent's board structure to the affiliate. These findings are consistent with the predicted preferences of inside and outside directors at the parent firm about the affiliate board structure to control the agency conflict between both firms. Our results suggest the importance of information asymmetries between parent and affiliate inside directors to the board structure of affiliated firms. The instrumental variable analysis shows evidence suggesting a top-down causality from the board structure of the parent company to the board structure of the affiliate. Our results remain robust in both wholly-owned and non-wholly owned affiliates.

Keywords: business groups; board structure; agency conflict; parent; affiliate; institutional context

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INTRODUCTION

Many firms belong to business groups (Leff, 1978), where several legally independent firms are linked by formal and informal ties - such as ownership ties or ethnic ties respectively - and share group resources (Granovetter, 2005; Mahmood, Zhu, & Zaheer, 2017). Business groups are common in both emerging and developed economies. In emerging economies, they are usually the big economic players, and many articles have focused on explaining their existence, which is mainly aimed at overcoming institutional voids (Chung & Luo, 2019; Khanna & Yafeh, 2007). In developed economies these groups are also relevant, and additional reasons – such as entrepreneurial activities, product and international diversification, and strategies to reduce taxes and to manage bankruptcy risk – explain their prevalence (Lechner & Leyronas, 2009; Nicodano & Regis, 2019; Zattoni, 1999). In both economies, the command and control structures of business groups are often preferred to relying on markets, and it is also preferred to have different independent legal entities linked in the business group than to have a multidivisional firm (e.g., to limit the risks and to share investment efforts, Dau, Morck, & Yeung, 2021).

In some economies, business groups are clearly identified through the use of available databases, for example with the Prowess database in the case of India (e.g., Chittoor, Kale, & Puranam, 2015; Lamin & Dunlap, 2011). However, when there are no secondary databases on business groups' affiliations, researchers have to identify the boundaries of business groups (e.g., Aguilera, Crespí-Cladera, Infantes, & Pascual-Fuster, 2020). In this article, to overcome this problem, we follow a recent line of research that identifies business groups based on ownership links, from databases containing a large number of firms from multiple countries (Belenzon,

Hashai, & Patacconi, 2019; Faccio, Morck, & Yavuz, 2021; Faccio & O'Brien, 2020; Masulis, Pham, & Zein, 2011). This allows us to expand the usual single-country focus of many articles (e.g., Almeida, Park, Subrahmanyam, & Wolfenzon, 2011). Consequently, we define business groups as collections of firms under the common control of a parent company, through equity blocks.[1]

We study hierarchical business groups linked by ownership ties, where the parent may exert clear control over affiliates. We assume control when the parent or a parent-controlled affiliate owns more than 50% of the shares of the affiliate, since we include both public and private firms (Belenzon et al., 2019). The 50% criterion also guarantees a correct identification of the parent company of each business group. In this type of business group there is a clear element of hierarchy, which implies that affiliates may receive instructions from the parent, in line with the overall strategy of the group. This generates a specific agency conflict in business groups; the affiliate (agent) may deviate from the instructions received from the parent company (principal), especially when there is asymmetric information between the parent and the affiliate (Ambos, Kunisch, Leicht-Deobald, & Steinberg, 2019; Dau et al., 2021; Kim, Prescott, & Kim, 2005).

Through agency theory (Fama & Jensen, 1983; Jensen & Meckling, 1976), we analyze the effect of the relationship between the parent and the affiliate on the board structure of affiliates (Ambos et al., 2019; Dau et al., 2021; Kim et al., 2005). The board of directors is the most relevant internal corporate governance mechanism of firms. Previous literature on board structure has focused on stand-alone firms (e.g., Boone, Casares Field, Karpoff, & Raheja, 2007; Hermalin & Weisbach, 1998; Linck, Netter, & Yang, 2008; Wintoki, Linck, & Netter, 2012), identifying different firm characteristics that affect their optimal board structure (e.g., the cost of adquiring relevant firm information by outside directors, Adams & Ferreira, 2007). However, little is

known about the board structure of business group affiliates, whose boards are different from the boards of stand-alone firms, given their hierarchical dependence on the parent company. The parent may affect the composition of the affiliate board in order to control the affiliate's executives, provide the necessary advising resources to these executives, and coordinate the affiliate with the rest of the business group.

In this article, we hypothesize three different effects of the parent on the composition of the boards of directors of affiliates (outsiders vs insiders), depending on the different institutional contexts where the business group operates.[2] First, consistent with the agency theory tenets, we expect that the parent firm will reproduce its corporate governance practices in the affiliate firm. When outside (inside) directors dominate the board of the parent firm, they may prefer outside (inside) directors to control the affiliated firm, to make sure that the affiliate's CEO follows the overall goals of the business group (Ambos et al., 2019). Affiliate's insiders (executives) are hierarchically below the affiliate's CEO and this may be an impediment to attempts to control the affiliate's CEO. However, affiliate inside directors have advantages over external directors when attempting to acquire relevant information about the affiliate (Adams & Ferreira, 2007), and the clear hierarchy in the business group facilitates the control of these affiliate's insiders by the parent firm's executives (O'Donnell, 2000).

Second, differences in the institutional contexts of the parent firm and the affiliate generate the need to adapt the affiliated firm to its local institutional setting (Rickley, 2018), and may also lead to relevant information asymmetries between the parent firm and the affiliate (e.g., Aguilera & Jackson, 2003, 2010). These information asymmetries facilitate the affiliate's CEO and the affiliate's executives being able to deviate from the interests of the parent firm. Therefore, outside directors may be better monitors of the affiliate. Consequently, we hypothesize a larger

proportion of affiliate outside directors when the difference between the institutional contexts of the parent and the affiliated firms increases.

Finally, considering the previous effect, we expect the inside directors of the parent firm to show a lower preference for inside directors at the affiliate when there is a larger information asymmetry between them and the affiliate's executives. Therefore, we argue a lower positive correlation of the board composition at the parent firm with the affiliate board when the institutional difference increases.

In summarizing, we expect that information asymmetries between parent executives and affiliate executives are also a relevant determinant of the board structure of affiliated firms. This complements the information asymmetries between insiders and outsiders as a determinant of the board structure documented in previous literature focused on stand-alone firms (e.g., Adams & Ferreira, 2007).

We focus our analysis on OECD countries, where hierarchical business groups are relevant agents. For example, firms belonging to business groups (parent firms and affiliates) in OECD countries represent around 20% of firms with more than nine employees. Furthermore, group firms within the range of 50-249 employees account for more than half of the total employment of the OECD countries' populations. Additionally, we impose another empirical filter in our main analysis, since we restrict our analysis to affiliates wholly owned by the parent firm (without principal-to-principal conflicts, Villalonga & Amit, 2006). This facilitates the focus on the specific relationship between the parent firm and the affiliate, since in the case of non-wholly-owned affiliates, there may be other shareholders with an interest in the composition of the affiliate board (e.g., to defend their interest from potential abuses by the parent firm, in strategies such as tunneling, Djankov, La Porta, Lopez-de-Silanes & Shleifer, 2008). In our sample,

wholly-owned affiliates represent 55% of all affiliates. In this type of affiliate, agency conflicts with the parent company may arise as a consequence of information asymmetries.

Our final sample covers 25,123 wholly-owned affiliates with parent firms located in 24 OECD countries with one-tier boards. These boards do not split the monitoring and advising functions between the two boards in the two-tier system. Our results suggest that the parent firm affects the board composition of affiliates, confirming all our hypotheses. First, the larger the percentage of outsiders on the board of the parent firm, the greater the percentage of outsiders on the board of affiliates. Second, the larger the difference between the institutional context of the parent firm and the affiliate, the greater the percentage of outside directors in the affiliate. Third, the larger the institutional differences between the parent and the affiliate, the lower the effect of the board composition at the parent firm on the board composition at the affiliate. We check the robustness of our results by using instrumental variables to address endogeneity concerns, showing evidence of causality from the board structure of the parent firm to the board structure of the affiliate. Our results also remain robust when we expand the analysis to non-wholly-owned affiliates.

Our analysis contributes: (i) to a better understanding of the implications of agency theory (Fama & Jensen, 1983; Jensen & Meckling, 1976) in the context of hierarchical business groups. The effect of the parent firm on the composition of the affiliate board is consistent with the argument that the board of the affiliate is a control mechanism of the agency conflict between the parent firm (principal) and the affiliate (agent) (e.g., Ambos et al., 2019; Kim et al., 2005; Kostova, Nell & Hoenen, 2016). We also contribute (ii) to the literature on corporate governance of business groups (Boyd & Hoskisson, 2010; Colli & Colpan, 2016; Dau et al., 2021), which mainly focuses on the direct effects of ownership, such as the tunneling activities in pyramidal business groups (La Porta, Lopez-De-Silanes, & Shleifer, 1999), paying little attention to the boards of directors

of firms within a business group. In this sense, we expand the sparse literature on the boards of directors of affiliates in business groups, meeting the calls by Aguilera et al. (2020) and Filatotchev and Wright (2011). Particularly, our article joins the small body of research that analyzes the internal corporate governance mechanisms of affiliates (e.g., Belderbos & Heijltjes, 2005, which studies the decision to hire expatriate managing directors in foreign affiliates, and Du, Deloof, & Jorissen, 2011, which analyzes the activity of their boards).

Moreover, we also provide new evidence that may help (iii) to expand the literature on the board composition of firms (e.g., Adams & Ferreira, 2007; Harris & Raviv, 2008; Hermalin & Weisbach, 1998; Kumar & Sivaramakrishnan, 2008; Raheja, 2005), showing how the boards of affiliates are affected by the parent firm. Our results suggest the relevance of information asymmetries between parent and affiliate executives as a determinant of the board structure of affiliated firms, in addition to the well-known relevance of information asymmetries between inside and outside directors (Adams & Ferreira, 2007). We also contribute (iv) to the literature on the effect of different institutional contexts on the corporate governance of firms (Aguilera & Jackson, 2003, 2010; Kavadis & Castañer, 2015; Rickley, 2018), showing the relevance of the differences in the institutional context between the parent firm and the affiliate on the design of the affiliate's board. Finally, we contribute (v) to the literature on the relevance of firms' ownership structures (Aguilera & Crespi-Cladera, 2016), analyzing the impact of a dominant corporate owner (the parent firm) on the composition of the board of affiliates.

In the next section, we revise the related literature and formulate our hypotheses. In Section Three, we describe our sample and methodology. In Section Four, we present our results, and in Section Five we discuss our results and conclude.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

There is sparse literature on the corporate governance of business groups (Boyd & Hoskisson, 2010; Colli & Colpan, 2016; Dau et al., 2021); the literature that does exist is mainly focused on the direct effect of ownership, especially in pyramidal structures (Johnson, La Porta, Lopez-De-Silanes, & Shleifer, 2000; La Porta et al., 1999). A relevant, but understudied, feature of the corporate governance of business groups is the agency conflict between the parent firm and its affiliates (Ambos et al., 2019; Dau et al., 2021; Kim et al., 2005). The board of directors is a relevant internal mechanism to mitigate such conflict, and also to coordinate the affiliate firm with the rest of the business group. However, little is known about the specific characteristics of the boards of directors of affiliates, although a notable exception is the work of Belderbos & Heijltjes (2005), which examines the relevance of expatriate managing directors in foreign affiliates. Thus, in Filatotchev and Wright (2011) and Aguilera et al. (2020), the authors call for research on the structures of boards of directors in business groups.

Focused on stand-alone firms, regulators around the globe promote board independence (Aguilera & Cuervo-Cazurra, 2009; Cuomo, Mallin, & Zattoni, 2016), although there is growing literature on optimal board structure, showing that a larger presence of outside directors may destroy shareholder value in some situations. For example, Hermalin & Weisbach (1998) show that a smaller presence of outside directors is better for shareholders' interests in the case of successful CEOs, who show superior decision-making capacities that have led to good performance of their firm in the past. Moreover, when the cost of acquiring relevant information to control the firm is too high, controlling mechanisms other than a board monitored by outsiders may be better for shareholders' interests (Harris & Raviv, 2008).

Following these theoretical advances, there is a stream of literature on empirical board structure, focused on stand-alone firms, which identifies the main determinants of optimal board structure (outsides vs insiders) and its empirical proxies (Boone et al., 2007; Lehn, Patro, & Zhao, 2009; Linck et al., 2008). These determinants are *firm complexity*, *monitoring and advising costs*, *private benefits for managers*, *ownership incentives*, and *CEO characteristics*. The literature has defined the board of directors as a controlling (agency theory, Jensen & Meckling, 1976) and advising mechanism (resource dependence theory, Pfeffer & Salancik, 1978). Therefore, the board should mitigate the agency conflicts of the firm (between shareholders and managers), and also the conflicts between large and minority shareholders (e.g., Villalonga & Amit, 2006), supervising the executives of the firm and protecting the interest of all shareholders. The board should also advise executives to make decisions that are in the best interests of shareholders.

In this sense, the determinants of optimal board structure consider both functions of the board of directors. The greater the complexity of a firm, the more relevant are outside directors who provide resources and knowledge to advise executives (Harris & Raviv, 2008). Monitoring and advising costs deteriorate the effectiveness of outside directors, so that mechanisms other than a board dominated by outsiders could be more suitable to control the firm (Adams & Ferreira, 2007; Harris & Raviv, 2008; Raheja, 2005). In any firm with relevant potential private benefits for managers, outside directors are necessary to minimize these benefits and protect the interests of shareholders (Adams & Ferreira, 2007; Harris & Raviv, 2008). Ownership incentives are also relevant when designing the optimal board structure (Raheja, 2005). For example, executives' ownership aligns their interests with shareholders' interests, and therefore there is less need of outside directors to supervise that executives make the proper decisions to generate shareholder value. Finally, the characteristics of the CEO are relevant. It is usually better for shareholders to

sanction less control over the CEO in the case of successful CEOs with positive past performance records (Hermalin & Weisbach, 1998), thereby necessitating fewer outside directors. More control over such CEOs may prevent the CEO from using their superior decision-making capabilities.

Business groups are composed of both public and private firms (Belenzon et al., 2019). Although most of the empirical articles on the optimal board structure of companies analyze public firms (Boone et al., 2007; Linck et al., 2008), the theoretical arguments about the optimal board structure of companies are also valid for private firms. Indeed, there is literature on the board structure of private firms that shows the relevance of the advising and monitoring functions (Westhead, 1999) in determining the board structure.

In the context of hierarchical business groups, where the parent firm may exert control over the affiliates, the board of affiliates is expected to be affected by the parent firm. The board of directors of the affiliate may play a relevant role to control the agency conflict between the parent firm and the affiliate (Ambos et al., 2019; Dau et al., 2021; Du et al., 2011; Kim et al., 2005; Maman, 1999). Figure 1 depicts all the agency and the principal-to-principal conflicts at the parent firm and affiliate levels. In addition to the agency conflict between shareholders and managers (1a; 1b), and the conflict between controlling shareholders and minority shareholders (2a; 2b), at the parent firm and at the affiliate levels respectively, there is an agency conflict between the parent firm and the affiliate (3). Figure 1 also shows, through arrows, which conflicts may potentially impact the structure of the boards of both the parent firm (1a; 2a) and the affiliates (1b; 2b and 3). Our analysis of wholly-owned affiliates simplifies this scenario and focuses on the interaction between the parent firm and the affiliate, avoiding the principal-to-principal conflicts at the affiliate level, since there are no other shareholders.

Insert Figure 1 about here

The optimal board structure theory (e.g., Adams & Ferreira, 2007; Harris & Raviv, 2008; Hermalin & Weisbach, 1998; Kumar & Sivaramakrishnan, 2008; Raheja, 2005) points out that firm-specific characteristics define the board structure to maximize the shareholders' value. In addition to these characteristics, identified in the board structure literature for stand-alone firms, we hypothesize that boards of affiliates are systematically affected by the parent firm. Moreover, to understand the differences of affiliate boards respect to stand-alone firms' boards, we must consider that, in the context of hierarchical business groups, there is an alternative relevant mechanism to control the affiliate. The parent firm's executives may control the affiliates' executives directly, acting as their hierarchical superiors in the business group (Ambos et al., 2019). Direct reporting of affiliate executives to parent firm's executives is a common practice (e.g., Ambos et al., 2019; Kriger, 1988; O'Donnell, 2000), especially in the case of wholly-owned affiliates (Ambos et al., 2019).

To develop our hypotheses on the board structure of affiliated firms (outsiders vs insiders), we consider the hierarchical superiority of the parent firm and, thus, the power of the parent firm's board to determine the structure of the affiliate board. We focus on the preferences of the parent firm's inside and outside directors about the affiliate's board structure. We posit that these directors want to make sure that the affiliate's CEO follows the instructions from the parent firm, and thus pursues the overall strategy and goals of the entire business group.

However, whenever there is information asymmetry between the parent firm and the affiliate, the affiliate's CEO may pursue other objectives, even in wholly-owned affiliates (Ambos et al.,

2019). Since the parent firm's executives may control the affiliate's executives directly (e.g., with direct reporting, O'Donnell, 2000), we expect the parent firm's insiders (executive directors) to prefer inside directors over outside directors in the affiliate in order to control the affiliate's CEO. This may happen because the affiliate's executives have superior access to relevant information about the affiliate (Adams & Ferreira, 2007; Harris & Raviv, 2008; Raheja, 2005). These inside directors would serve to guarantee that the affiliate's CEO promotes the interest of the parent firm. However, the affiliate's executives are hierarchically below the affiliate's CEO, and, thus, the information asymmetry between the parent firm's executives and the affiliate firm's executives diminishes the preference by insiders at the parent firm for insiders on the affiliate board. Furthermore, given this hierarchical dependence, we expect outside directors at the parent firm to prefer outside directors at the affiliate, in order to control its CEO. Since the power of the outside (inside) directors in the parent firm is larger the greater their proportion on the board, we formulate the following hypothesis:

Hypothesis 1. The larger the proportion of outside (inside) directors in the parent firm, the greater the proportion of outside (inside) directors on the board of the affiliate.

The information asymmetry between the parent firm and the affiliate facilitates the affiliate's CEO ability to deviate from the instructions received from the parent firm and makes the direct control of the affiliate's executives by the parent firm's executives more difficult. To explore the role of information asymmetry in the effect of the parent firm on the composition of the affiliate board, we set our analysis in situations with potentially large information asymmetries. See Bergh, Ketchen, Orlandi, Heugens, and Boyd (2019) for a review of information asymmetries in the management literature. Many business groups have affiliates overseas (Dau et al., 2021). Indeed, the internationalization of firms from developed economies is one of the reasons to create

business groups instead of multidivisional firms (Lechner & Leyronas, 2009). Internationalized business groups are exposed to different institutional contexts. Institutions may be defined as the rules and norms that guide how individuals, organizations, and markets interact with each other (North, 1990; Scott, 2001, 2003).

Previous literature has documented the relevance of the institutional context for the corporate governance of firms (e.g., Aguilera & Jackson, 2010), and the transmission of practices through different institutional contexts (e.g., Fiss & Zajac, 2004), identifying some types of investors as relevant drivers of this transmission, such as large institutional investors (e.g., Aggarwal et al., 2011; Kavadis & Castañer, 2015). We focus on the information asymmetries between the parent firm and the affiliate that may arise from being located in different institutional contexts (e.g., Aguilera & Jackson, 2003, 2010). The more different are the norms and rules for the interactions between individuals, organizations, and markets (institutions, e.g., North, 1990) in the parent firm's context than in the affiliate's context, the more difficult it is for the parent firm's executives to evaluate the actions and decisions of the affiliate's executives. Given this information asymmetry, we expect these institutional differences to reduce the preference of the parent firm's inside directors for inside directors at the affiliate. Therefore, we formulate the following hypothesis:

Hypothesis 2: The larger the institutional differences between the parent firm and the affiliate firm, the greater the proportion of outside directors on the board of the affiliate.

We have hypothesized that the proportion of outsiders in the affiliate is larger when the institutional difference between the parent firm and the affiliate increases, given the reduced preference by insiders at the parent firm for affiliate insiders. Therefore, the similarity in the board composition between parent firms and affiliates (more outsiders in the parent firm may

lead to more outsiders in the affiliate) formulated in Hypothesis 1 may be moderated by the degree of institutional difference between these firms. We expect that the transmission of the parent firm's board composition to the affiliate board will be lower when the institutional difference increases. Thus, we formulate the following hypothesis:

Hypothesis 3: The larger the institutional difference between the parent firm and the affiliate, the lower the positive correlation between the board composition at the parent firm and at the affiliate firm.

By testing these three hypotheses, we provide further knowledge about the influence of the parent firm on the board structure of affiliates, and on the usefulness of inside and outside directors in affiliates to control the agency conflict between the parent firm and the affiliates.

DATA AND METHODOLOGY

The sample analyzed in this study was derived from the database ORBIS, by Bureau van Dijk, a private company that collects financial data and information about ownership and governance of listed and non-listed firms that elaborate official accounting statements.[3] The initial dataset included 11,235,349 stand-alone companies located in more than 200 countries worldwide, for the year 2016. Out of these companies, we identified business groups based on ownership links between firms (collections of firms under the common control of a parent firm). The ownership threshold applied is more than 50%, and, thus, only considers control relations of majority owners. This allows us to establish business groups by firstly identifying the parent firm, and then the subsequent affiliates integrated into the hierarchical network. We were able to identify 3,398,487 firms within 879,427 business groups.

Due to missing or erroneous information on some key variables about governance and financial information, we apply a set of filters on sample cleaning (Panels A and B of Table 1). Moreover, as most of the parent firms are located in OECD countries – only 13% are located outside – we remove those business groups whose parent firm does not belong to OECD countries (Panel C of Table 1). This characteristic of our dataset might be due to variations in coverage by the ORBIS database in different countries. Therefore, to reduce the potential bias due to this difference in coverage, we first restrict our analysis to business groups with parent firms located in the 35 OECD countries, but with affiliates located elsewhere. Business groups from the 31 OECD countries for which data are available represent 21.05% of firms with more than nine employees, and show high representativeness of their total employment figures – for instance, firms in business groups with 10-49 employees and firms with 50-249 employees account for 20.73% and 51.28% of total employment of the OECD population, respectively.[4]

Second, to control for different types of the board system (one-tier vs. two-tier boards), we restrict our sample to those 28 OECD countries where the one-tier board system is allowed. Specifically, in countries where the two-tier board system is optional (e.g., France), we only consider parent firms and affiliates with one-tier boards.

Finally, analyzing wholly-owned affiliates allows us to focus on the relationship between the parent firm and the affiliate, avoiding principal-to-principal conflicts at the affiliate level; thus, we only consider wholly-owned affiliates (Panel D of Table 1). The final sample covers business groups composed of firms (6,128 parent firms and 25,123 affiliates) across 80 different industrial sectors (NACE two-digits) with parent firms from 24 OECD countries.[5] Table 1 shows that filters 1 and 4 (missing data on board composition) generate the largest loss of observations. These filters remove small firms (with average revenue of 46 € million compared to the average of 83 €

million for the firms in our final sample, and the difference is statistically significant). Moreover, three other filters generate a large percentage drop in the total number of firms in the sample: filters 5, 8, and 9. Unreported t-tests reveal that the average size of the firms in the final sample is equal to the average size of deleted firms in filter 5 (one individual board) and filter 9 (missing values in key variables). However, non-wholly-owned affiliates are larger than wholly-owned affiliates (filter 8).

Insert Table 1 about here

The dependent variable in this study is the percentage of outside directors over the total number of directors in the affiliate (*% Outsiders Affiliates*). The independent variables are: the percentage of outside directors over the total number of directors in the parent firm (*% Outsiders Parent Firm*); the absolute value of the difference between the World Governance Indicators (WGI) of the parent firm's country and the WGI of the affiliate's country (*ABS(Institutional Difference)*); and the interaction between the previous two independent variables (Hypotheses 1, 2, and 3, respectively). The WGI have been commonly used in previous literature to measure the distance between different institutional contexts (Kostova, Beugelsdijk, Scott, Kunst, Chua, & van Essen, 2020; Wu, Wang, Hong, Piperopoulos, & Zhuo, 2016).[6] We take the absolute value of the difference, since we do not expect that positive differences (when the institutional context of the parent firm is more developed than the institutional context of the affiliate) have a dissimilar effect to negative differences. The expected effect is due to the asymmetric information between the parent firm and the affiliate, generated by different institutional contexts.

Based on the optimal board structure literature (Linck et al., 2008), a range of control variables are included. These control variables are lagged one year and refer to 2015.[7] We use different proxies for the determinants of the board structure. For firm complexity (i), we use firm size, the relevance of debt in the capital structure, firm age, and the number of business segments. *Log Firm size (€ million)* is the log of total revenue. Relevance of debt in the capital structure (*LT Debt/Total Assets*) is calculated as the ratio of Long-term Debt/Total Assets. *Log Firm Age* is the log of the number of years since the establishment of the affiliate registered in ORBIS. *Log # Business Segments* is the log of the number of business segments where the affiliate operates, according to the two-digit industrial classification standards (NACE codes).

For monitoring and advising costs (ii), we use the standard deviation of the ROA, *(SD(ROA)),* calculated for the years 2007-2015, to approximate the asymmetric information between outsiders and insiders.

Regarding the detection of potential private benefits that could affect the board structure of firms (iii), we compute the free cash flow (*FCF*) as operating income before depreciation, minus total income taxes, interest expense, and dividends, all divided by total assets (Jensen, 1986; Lehn & Poulsen, 1989).

Concerning the specific ownership incentives (iv), we modify the proxies in Linck et al. (2008) to adapt the analysis to the type of affiliates we study. Linck et al. (2008) use the ownership of insiders and outsiders of the focal firm to detect ownership incentives. In the context of stand-alone firms, insiders' ownership aligns their interest with the interest of the shareholders, and outsiders' ownership generates an incentive to monitor insiders (executives). However, in our analysis, as the focal firm (affiliate) is wholly owned by the parent firm, we measure whether the affiliate's directors are owners of the parent firm, as a measure of ownership incentives and

consistent with the board structure theory (Raheja, 2005). Therefore, we include the percentage of ownership in the parent firm by the affiliate's insiders (*% Ownership by Sub Insiders in Parent Firm*) and by the affiliate's outsiders (*% Ownership by Sub Outsiders in Parent Firm*) as proxies of ownership incentives. The larger the affiliate insiders' ownership in the parent firm, the more aligned their interests are with the parent firm, therefore the lower the need for affiliate outside directors to control them (to guarantee they follow the instructions and goals of the parent firm). The higher the affiliate outsiders' ownership in the parent firm, the more motivated they are to ensure that the affiliate's insiders follow the instructions and goals of the parent firm. Therefore, we expect a positive correlation between the presence of outside directors in the affiliate and their level of ownership in the parent firm.

Among CEO characteristics (v), we proxy CEO ability through *ROA industry-adjusted*, calculated as the average of the difference between the ROA of the company and the ROA of the sector for the period 2007-2015 (Linck et al., 2008).

Finally, we consider that it is a common corporate governance practice of business groups to have some individuals simultaneously on the board of the parent firm and the board(s) of the affiliates – so-called interlocking directors (Collin, 1998; Keister, 1998; Maman, 1999). Therefore, if the same outside directors in the parent firm systematically hold outside director positions in the affiliates, we would detect a positive correlation between the percentage of outside directors in the parent firm and the affiliates. The reason behind this positive correlation would be that the parent firms' outside directors prefer to control the affiliates by sitting on the affiliates' board(s) themselves, not that they prefer outside directors over executive directors to control the affiliates. To isolate this potential effect, we also control for the percentage of outside directors in the parent firm who interlock with the affiliates of the business group (*% Interlocking*

Outsiders). See Table 2 for a summary of the description of all variables and their expected effect on the percentage of outsider directors in the affiliate.

Insert Table 2 about here

In this study, industry and country effects are controlled by the inclusion of dummy variables using two-digit standard industrial classification (NACE codes) and dummy variables by country. The empirical model explaining board structure in affiliates is as follows:

$$\begin{aligned} \%OutsidersAffiliates_{i,j} = \alpha + \beta_1 \%OutsidersParentFirm_i + \beta_2 ABS(InstitutionalDifference)_{i,j} \\ + \beta_3 \%OutsidersParentFirm_i \times ABS(InstitutionalDifference)_{i,j} \\ + \beta_4 LogFirmSize_{i,j(t-1)} + \beta_5 \left(LTDebt / TotalAssets\right)_{i,j(t-1)} + \beta_6 LogFirmAge_{i,j} \\ + \beta_7 SD(ROA)_{i,j(t-1)} + \beta_8 ROAindustry-adjusted_{i,j(t-1)} + \beta_9 \%InterlockingOutsiders_i \\ + \beta_{10} Log\#Bu\sin essSegments_{i,j} + \beta_{11} FCF_{i,j(t-1)} \\ + \beta_{12} \%OwnershipByAffInsidersInParentFirm_{i,j} + \beta_{13} \%OwnershipByAffOursidersInParentFirm_{i,j} + \varepsilon_{i,j} \end{aligned} \quad (1)$$

where the subscript *i* refers to the business group identifier, the subscript *j* denotes the affiliate identifier, and the *t-1* sub-index indicates the variables lagged one period. α is a constant, β_1 - β_{13} are the parameters for the explanatory variables, and $\varepsilon_{i,j}$ is the error term.

We test our three hypotheses by using the OLS method, which estimates the association between the board structure of affiliates and our independent variables, considering a set of control variables (Equation 1). We compute robust standard errors (Huber, 1967; White, 1980, 1982) clustered by business group to account for potential correlations among the error terms of observations of affiliates in the same group (Petersen, 2009). The final dataset applied in our analyses considers observations at the affiliate level (N=25,123 affiliates).

EMPIRICAL ANALYSIS AND FINDINGS

Descriptive Analysis

Table 3 reports some descriptive statistics for all of the preceding variables discussed above. Panel A shows the distribution of the dependent variable, plus the independent and control variables at the level of the affiliate (i, j), while Panel B shows the main statistics for variables at the level of the parent firm (i). In our sample, 77.37% of board seats in affiliates are occupied by outside directors. On average, the age of the affiliates is around 24 years; this latter finding is similar to the results in Gaur, Kumar, & Singh (2014) for the case of affiliates of Indian business groups, and Tan & Meyer (2010) for Taiwanese affiliates. The average number of board positions in affiliates is almost four seats, in line with previous articles analyzing boards of private firms (e.g., Brunninge, Nordqvist, & Wiklund, 2007; Fiegener, Brown, Dreux, & Dennis, 2000). On average, boards in the parent firms are composed of almost five directors, of which almost 80% are outsiders.

Insert Table 3 about here

Table 4 shows the correlation matrix. Regarding Hypothesis 1, the percentage of outsiders on the board of the parent firm is significantly and positively correlated with the percentage of outside directors in affiliates (0.37), supporting this hypothesis. Table 4 also exhibits a negative and significant correlation between the absolute value of the difference in institutional contexts and the percentage of outside directors in the affiliate (-0.13), which opposes Hypothesis 2. According to Hypothesis 3, unreported results show that when comparing two different subsamples regarding the level of institutional distance (above and below the average

institutional distance), the correlation coefficient between the percentage of outside directors at the parent firm and at the affiliate is lower in the first subsample (0.02) than in the latter (0.43). VIF tests multicollinearity between the explanatory variables (Aiken & West, 1991). In our sample, VIF tests discard the existence of multicollinearity problems, since all the VIF statistics are well below 10, with the highest value being 1.22.

Insert Table 4 about here

Estimations of the Empirical Model

We estimate OLS regression of the percentage of outsiders on affiliates' boards, using the percentage of outside directors in the parent firm (Hypothesis 1), the absolute value of the institutional difference between both firms (Hypothesis 2), and the interaction of these two variables (Hypothesis 3) as independent variables, as well as controlling for other variables, as explained in Section 3. All the regression estimations include country and industry fixed effects.

The results are reported in Table 5. Model 1 contains only control variables, and the independent variables are gradually included, from Model 2 to Model 4. All the three hypotheses are supported by the results, with highly significant coefficients (p-value<0.001). The larger the percentage of outsiders in the parent firm, the greater the percentage of outsiders in the affiliate (Hypothesis 1). The larger the institutional difference (absolute value) between the parent and the affiliate, the greater the presence of outside directors in the affiliate (Hypothesis 2). Finally, in Model 4, the interaction term shows that the larger the institutional difference, the lower the effect of the corporate governance practices at the parent firm on the practices at the affiliate

level (Hypothesis 3). The average of the institutional difference variable is 0.07, which implies that in observations of affiliates with this institutional difference, the total coefficient of the percentage of outsiders at the parent firm is 0.15 (0.17-0.22*0.07). Unreported analysis shows that this effect is much lower in the observations of affiliates in the 95th percentile of the institutional difference variable (0.17-0.22*0.52=0.06).

In Model 5, we split the positive values of the institutional difference (when the parent firm is in a more developed context) and the negative values (when the affiliate is in a more developed institutional setting) to study whether the effect of the institutional difference depends on the direction of the difference. In this model, we take the absolute value for the case of negative differences. Model 5 exhibits that our results are almost equivalent for positive and negative institutional differences. Furthermore, the Wald test (unreported) cannot reject the null hypothesis that the coefficient of the positive institutional differences and the coefficient of the negative differences are equal. However, another Wald test rejects the null hypothesis that the interaction terms for both positive and negative institutional differences are equal, although only statistically significant at 10%. Therefore, we can conclude that there are no relevant dissimilarities when the institutional difference is positive or negative.

Regarding the control variables, Table 5 shows quite robust results. Six control variables show statistically significant coefficients in all models. As expected (see Table 2), the larger the size of the affiliate and the larger the percentage of the parent firm's outside directors who interlock with the boards of affiliates, the greater the percentage of outside directors at the affiliate. The two proxies for ownership incentives (ownership in the parent firm by affiliate directors) also have a highly significant coefficient with the expected sign. However, firm age and the standard deviation of ROA present lower statistical significance and an unexpected sign. For firm age, the

results suggest that older affiliates need less control by the parent firm. This is consistent with the lower need for advice and guidance for growth in older firms found by Field, Lowry and Mkrtchyan (2013). The standard deviation of ROA could proxy asymmetric information between the parent firm and the affiliate, and, consistently, we should expect a positive correlation with the percentage of the affiliate's outsiders, instead of the asymmetric information between inside and outside directors, as is usually assumed in the board structure literature of stand-alone firms (Linck et al., 2008).

Insert Table 5 about here

Robustness Tests

We implement different analyses to check the robustness of our results. First, we analyze whether we may claim causality from the parent firm to the affiliate firm. We focus this analysis on the correlation between the board structure of the parent and the affiliate firms, to disentangle whether the parent board indeed affects the affiliate board and not the opposite. For this analysis, we use an instrumental variable approach to address the issue of endogeneity. As an instrument of the percentage of outsiders at the parent firm, we use the recommended proportion of outside directors by the corporate governance regulation of the parent firm's country.

Our instrument only affects the percentage of outside directors at the parent firm and is not expected to affect the error term of our empirical model (we include country dummies at the affiliate level that account for differences in the regulation among countries). Therefore, this instrument fits with the standard requirements of instruments (Wooldridge, 2002, p. 83). Table 6

shows the estimation of models 2 to 4 of Table 5, using two different methods for instrumental variables (Two-Stage Least Squares and Limited Information Maximum Likelihood; Baum, 2006). All our results remain robust and corroborate causality from the board structure of the parent firm to the board structure of the affiliates.

Insert Table 6 about here

Second, we analyze whether our results are also valid for non-wholly-owned affiliates. Table 7 includes the estimation of models 2 to 4 of Table 5 in two subsamples: for non-wholly-owned affiliates and for all affiliates (wholly-owned and non-wholly-owned). Our results remain robust. Furthermore, in unreported analyses (available upon request) we consider the conflict between the parent firm and the other significant shareholders that may exist in non-wholly-owned affiliates (Villalonga & Amit, 2006). To control for this conflict, we include the difference between the voting rights and the economic rights of the parent firm in the affiliate as an additional control variable (La Porta et al., 1999; Masulis et al., 2011; Zattoni, 1999). We find a positive and significant coefficient for this variable, consistent with other significant shareholders promoting the presence of outside directors on the affiliate board to defend their interest against the parent firm. The remaining results are consistent with our previous analyses.

Insert Table 7 about here

Third, we deal with business groups that vary in their degree of internationalization and, therefore, in their exposure to different institutional contexts. Furthermore, we consider that there

is another relevant potential source of information asymmetry between the parent firm and the affiliate, which is industry diversification. We classify business groups in four possible combinations in terms of international and industry diversification: i) domestic and non-diversified business groups (all firms in the same country and industry), which make up 13.8% of the affiliates in our sample and have the lowest level of information asymmetry in terms of international and industrial diversification; ii) domestic and diversified business groups (all firms in the same country, but with firms in different industries), which are the most frequent (50.8% of affiliates); iii) internationalized and non-diversified business groups (firms in at least two countries and all firms in the same industry), which are the least frequent (1.08% of affiliates); and iv) internationalized and diversified business groups (firms in at least two countries and in different industries), which account for 34.2% of affiliates and have the highest level of information asymmetry.

To check the robustness of our results, we include a set of dummy variables for each type of these business groups in Table 8. The default group refers to those business groups with the lowest information asymmetry (domestic and non-diversified). Therefore, the set of dummy variables measures the differences with respect to this type of business group. Model 1 includes the direct effect of the dummy variables and Model 2 also includes the interaction of the dummy variables with the percentage of outsiders at the parent firm. In both models, we observe more outsiders on the affiliate boards the higher the information asymmetry in the business groups. Internationalized and diversified business groups have more outsiders in their affiliates than the other types of business groups (the coefficient of the associated dummy variable is 0.25 in Model 2). Finally, and consistent with our previous results, we find that the interaction term (which shows the difference in the coefficient of the percentage of outsiders at the parent firm in relation

to the default type of business group) is lower for those business groups with higher information asymmetry. Model 2 in Table 8 exhibits the lowest overall coefficient of the percentage of outsiders at the parent firm for internationalized and diversified business groups (0.28-0.24 = 0.04). Unreported Wald tests show that all these overall coefficients (the coefficient of the percentage of outsiders at the parent firm, plus the coefficient of the interaction term) are statistically different from zero. These results provide overall support to our previous results. In all types of business groups, there is a positive correlation between the corporate governance practices at the parent firm and at the affiliates (the overall coefficient analyzed above) (Hypothesis 1). Information asymmetries related to internationalization and industry diversification increase the relevance of outside directors at the affiliates, and decrease the transmission of corporate governance practices from the parent firm to the affiliates, consistent with our Hypotheses 2 and 3.

Moreover, we analyze subsamples of domestic business groups by country. In these subsamples, all observations of parent firms and affiliates are affected by the same institutional context. We use the most representative countries of their context in terms of the number of observations (UK as representative of Anglo-Saxon countries, Spain for Southern European countries, and Norway for Northern European countries). However, we exclude from the analysis those contexts where their most representative country has a low number of observations (e.g., we do not consider South Korea as representative of Asian countries because there are only 59 wholly-owned affiliates in their domestic business groups). Unreported analyses (available upon request) show robust results for Hypothesis 1.

Four, we address the possibility of finding differences in the corporate governance practices of business groups, depending on the type of ultimate owner of the business group (the owner of the

parent firm). In models 3 and 4 of Table 8, we analyze the effect of different business groups' ultimate owners. Particularly, we study whether business groups ultimately owned by either a family or the State behave differently than other business groups. Previous literature has shown that family firms behave quite differently to non-family firms (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuente, 2007), mainly to protect their socioemotional wealth, and families and the State are frequent ultimate owners around the world (La Porta et al., 1999). In Model 3, we observe that Hypothesis 1 is supported in the case of family business groups, but the statistical significance of the effect of institutional differences is much weaker than in our previous results (Hypotheses 2 and 3). In state-owned business groups (Model 4), we do not find significant results regarding our set of hypotheses.[8]

In our fifth robustness test, we restrict our analysis to affiliates located in OECD countries in order to control for the institutional idiosyncrasy of emerging economies that could affect the board structure of affiliates (Model 5 of Table 8). The results of the new estimations are robust, supporting all our hypotheses.

Finally, in performing the estimations, we exclude business groups with only two firms (the parent firm and an affiliate), since business groups with two firms may behave as stand-alone firms (Belenzon et al., 2019). Model 6 of Table 8 shows the robustness of our results in this subsample of affiliates. All our hypotheses are supported.

Insert Table 8 about here

DISCUSSION AND CONCLUSION

The aim of this study is to provide a better understanding of the corporate governance of business groups. Particularly, we focus on the board structure of affiliates of hierarchical business groups. For this purpose, we follow a recent line of research that identifies business groups from databases with a very large number of firms (Belenzon et al., 2019; Faccio et al., 2021; Faccio & O'Brien, 2020; Masulis et al., 2011). According to this, we define business groups as collections of firms under the common control of a parent firm, and we assume control when the parent firm or a parent-controlled affiliate owns more than 50% of the shares of the affiliate. This is consistent with Belenzon et al. (2019), whose authors also consider private firms. Furthermore, with such a criterion there is no doubt that the parent firm board is hierarchically above the affiliate board. The type of business groups we analyze are relevant economic actors, which are worthy of study. For example, within firms with 50-249 employees, these groups account for more than half of the total employment of OECD countries.

In addition to the usual agency conflicts between shareholders and managers, and the conflicts between controlling and minority shareholders in stand-alone firms, in business groups there is an additional agency conflict between the parent firm (principal) and the affiliate (agent) (Ambos et al., 2019; Dau et al., 2021; Kim et al., 2005; Kostova et al., 2016). In this scenario, the parent firm may address this additional agency conflict through the board of directors of the affiliate. To focus on the relationship between the parent firm and the affiliate, we perform our analysis in a sample of wholly-owned affiliates, which represents 55% of the total number of affiliates in our business groups. In such affiliates, there are no principal-principal conflicts (Villalonga & Amit, 2006). Information asymmetries between the parent firm and wholly-owned affiliates may facilitate the affiliates' CEO to deviate from the instructions received from the parent company

(Ambos et al., 2019). However, our results remain robust when non-wholly-owned affiliates are also considered.

Grounding on agency theory (Fama & Jensen, 1983; Jensen & Meckling, 1976), we aim to understand how the parent firm may influence the board structure of affiliates. We focus our analysis on the preferences of the parent firms' board, given its superior hierarchy in the business group. We expect that outside (inside) directors of the parent firm prefer outside (inside) directors at the affiliate. In this context, the parent firm's board may influence the composition of the affiliate's board to ensure that the affiliate's CEO follows the parent firm's instructions and the overall goals of the business group. Since the parent firm's executives may control the affiliate's executives directly (e.g., direct reporting, O'Donnell, 2000), and the affiliate's executives have more information about the affiliate than affiliate outside directors, we posit that the parent firm's insiders prefer the affiliate's inside directors to control the affiliate's CEO. However, the hierarchical dependence of the affiliate's insiders (executives) on the affiliate's CEO would justify the preference of the parent firm's outside directors for affiliate outside directors to control the affiliate's CEO. These two non-mutually exclusive preferences would generate a positive correlation between the board structure of the parent firm and the affiliate (Hypothesis 1).

We also consider the level of information asymmetry between the parent firm and the affiliate. The larger this information asymmetry is, the more feasible it is for the affiliate's CEO, and the affiliate's executives, to deviate from the instructions of the parent firm. Consequently, the larger the information asymmetry, the lower the preference of the parent firm's inside directors for having affiliate inside directors. We focus on institutional differences between the context of the parent firm and the context of the affiliate to identify scenarios with information asymmetry between the parent firm and the affiliate. We expect that the parent firm's executives may have

difficulties in understanding and supervising the actions and decisions of the affiliate's executives when the rules and norms of the interactions between individuals, organizations, and markets (that is, institutions, according to North, 1990; Scott, 2001, 2003) are different from the rules in the context of the parent firm. Therefore, the larger the institutional difference between the parent and the affiliate firms, the greater the relevance of affiliate outside directors (Hypothesis 2). Consequently, we also expect that the positive correlation between the board structure of the parent firm and the affiliate may be lower if the institutional differences between both firms increase (Hypothesis 3).

Regarding our results, we find support for our hypotheses. Our robustness analyses show evidence of causality from the board structure of the parent firm to the board structure of the affiliate (instrumental variables analysis). Furthermore, our results remain robust in different samples (e.g., including non-wholly-owned affiliates) and subsamples (e.g., in terms of internationalization and industry diversification). However, the type of ultimate owner of the parent firm (family or the State) may affect the affiliate's board structure. Therefore, we need further research to understand how the specific characteristics of some types of owners (e.g., families) affect the preferred structures of the affiliate's boards.

Finally, further research is needed to understand whether the standard determinants of the board structure of stand-alone firms may indeed have a different effect on affiliates' boards. Our results are quite consistent across all the estimated models. Firm size and the proxies of ownership incentives are statistically significant and show the expected sign agreed by the board structure theory (e.g., Linck et al., 2008). However, firm age and the standard deviation of firm performance are also statistically significant (with weaker significance), but with unexpected signs. Regarding the affiliate age, our conjecture is that the supervision of affiliates is more

difficult at the beginning, and this would justify the negative relationship between affiliate age and the relevance of affiliate outside directors. Generally, young firms tend to be in greater need of advice and guidance for growth (Field et al., 2013). Regarding the standard deviation of firm performance, we believe that in the context of business groups, this variable may be a proxy of information asymmetries between the parent firm and the affiliate, rather than information asymmetries between insiders and outsiders, as extant literature has considered for stand-alone firms. Consequently, we should expect a positive effect on the presence of affiliate outsiders.

Major Contributions

Our article is based on agency theory (Fama & Jensen, 1983; Jensen & Meckling, 1976). Part of our contribution is to explain the relevance of this theory tenets in understanding the board structure of the affiliates of business groups. We show how the corporate governance mechanisms at the parent firm level may affect the corporate governance mechanisms at the affiliate level, to thus control the parent firm-affiliate agency conflict (Ambos et al., 2019; Kim et al., 2005; Kostova et al., 2016).

Furthermore, our findings expand the sparse literature on the corporate governance of business groups (Boyd & Hoskisson, 2010; Colli & Colpan, 2016; Dau et al., 2021) through this analysis of the board structure of affiliates. Previous articles have mainly focused on the direct effect of ownership, analyzing issues such as the tunneling activities in pyramidal business groups (e.g., La Porta et al., 1999). However, little is known about the boards of directors in business groups, such as, for example, the decision to send expatriates as managing directors to foreign affiliates (Belderbos & Heijltjes, 2005). In this sense, we contribute to the sparse literature on the board of directors as a corporate governance mechanism in business groups, following the calls by Aguilera et al. (2020) and Filatotchev and Wright (2011).

We also contribute to the literature on the structure of boards (e.g., Adams & Ferreira, 2007; Harris & Raviv, 2008; Hermalin & Weisbach, 1998; Kumar & Sivaramakrishnan, 2008; Raheja, 2005), which is mainly focused on stand-alone firms, showing the role of the parent firm in order to understand the board structure of affiliates. Specifically, we show the relevance of information asymmetries between the executives of the parent and affiliated firms, complementing the asymmetries between insiders and outsiders studied in the previous literature (Adams & Ferreira, 2007). Furthermore, our results suggest that further theoretical development is needed to understand the board structure of affiliates of business groups, since we obtain evidence that some proxies of board structure determinants have the opposite effect of what the board structure theory predicts for stand-alone firms.

In addition, we address the international dimension of business groups and contribute to the literature on relationships between the institutional environment and the corporate governance practices of firms (Rickley, 2018), showing evidence of the influence of the institutional differences between the context of the parent firm and of the affiliate in the design of the affiliate board (Aguilera & Jackson, 2003, 2010; Kavadis & Castañer, 2015). Although we do not frame this study within theories of institutional isomorphism (e.g., DiMaggio & Powell, 1983), which suggest similarities between the boards of companies located in similar institutional contexts (Lynall, Golden, & Hillman, 2003), our results are consistent with them.

Finally, we contribute to the literature on the ownership structure as a corporate governance mechanism (Aguilera & Crespi-Cladera, 2016), focusing on the case of a controlling corporate owner. Specifically, we complement this stream of literature by showing the relevance of corporate controlling owners and of their own corporate governance mechanisms (at the parent firm) in determining the board structure of firms (the affiliates in a business group).

Our findings have practical implications both for practitioners and policy makers. First, our article is relevant for business groups, as we show how the parent firms influence the composition of the affiliate's board to address the agency conflict with the affiliates. Second, we also show that corporate governance regulators should consider the peculiarities of affiliates when developing norms and recommendations relevant to the board structure of firms. Finally, regulators concerned about the influence of foreign institutional contexts on the corporate governance practices of local firms should focus on parent firms located in countries with a similar institutional context.

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ENDNOTES

1. Previous literature on business groups also uses the term 'headquarters' for the controlling firm of the business group (e.g., Khanna & Palepu, 2000). For simplicity, we use the term 'parent' (Belenzon et al., 2019) in this article to refer to the controlling firm of the business group.

2. Outside directors are individuals who are not workers (executives) of the firm (e.g., Linck et al., 2008). In the case of the affiliated firm, outside directors are not current executives of the affiliate, while inside directors are current executives of the affiliate.

3. In the works of Belenzon et al. (2019) and Masulis et al. (2011), the authors also use databases from Bureau van Dijk in the identification of business groups.

4. Out of the 35 OECD countries, by 2016, the Structural Business Statistics only covered 30 countries with available data on the number of enterprises. We complemented the OECD breadth with data from the United States Census Bureau in the case of enterprises located in the United States. We were not able to find available data for Canada, Chile, South Korea, and Mexico for 2016. Moreover, for employment figures, we have used data from 29 OECD economies. We were not able to find available data for Canada, Chile, Israel, Japan, South Korea, and Mexico for 2016.

5. After removing non-wholly-owned subsidiaries from the sample, Australia, Hungary, Luxembourg and Mexico have no observations with one-tier boards. Thus, the final sample only includes 24 OECD countries with one-tier boards.

6. WGI report aggregate and individual governance indicators for over 200 countries and consider six dimensions of governance, which include both formal and informal aspects consistent with the definition of institutions by North (1990): i) voice and accountability; ii) political stability and absence of violence/terrorism; iii) government effectiveness; iv) regulatory quality; v) rule of law; and vi) control of corruption. For more information on each of these dimensions, visit http://info.worldbank.org/governance/wgi/#home

7. This mitigates endogeneity concerns (Boone et al., 2007; Coles, Daniel, & Naveen, 2008). However, given the limitations of the ORBIS database, ownership and governance data refer to 2016.

8. Almost all the state-owned parent firms are wholly owned by the state and consistently, there is no ownership of the affiliate directors in the parent firm. This is why we omit the ownership incentives variables in Model 4 of Table 8.

Table 1

Sample Filters

Panel A: Treatment of Business Groups (BGs)				
		#Firms in BG	#BGs	Filter
		3,357,764	879,427	
1 filter			*704,204*	*Parent firms with missing data on board composition*
	Sample attrition	2,248,881	175,223	
2 filter			*57,094*	*Parent firms with a one-individual board (rubber stamping)*
	Sample attrition	2,148,551	118,129	
3 filter			*72,020*	*BGs with one firm -only the parent firm- (after filters in Panel B, C and D)*
	Sample attrition	2,076,531	46,109	
Panel B: Treatment of Affiliates				
		#Firms in BG	#BGs	Filter
		2,076,531	46,109	
4 filter		*1,795,003*		*Affiliates with missing data on board composition*
	Sample attrition	281,528	46,109	
5 filter		*85,122*		*Affiliates with a one-individual board (rubber stamping)*
	Sample attrition	196,406	46,109	
Panel C: OECD countries with one-tier boards				
		#Firms in BG	#BGs	Filter
		196,406	46,109	
6 filter			*6,198*	*BGs with parent firms located outside OECD countries*
	Sample attrition	172,760	39,911	
7 filter		*6,558*	*999*	*Parent firms/affiliates with two-tier boards*
	Sample attrition	166,172	38,912	
Panel D: Other filters				
		#Firms in BG	#BGs	Filter
		166,172	38,912	
8 filter		*58,912*		*Non-wholly-owned affiliates*
	Sample attrition	107,260	26,451	
9 filter		*76,009*		*Missing data in key variables*
Final sample		**31,251**	**6,128**	

Note: This table exposes the filters applied in the cleaning of the sample. It also shows the impact of the sample attrition on the sample size, in terms of firms within BGs and whole BGs. When we remove a business group, there is consequently a reduction of firms in the sample. *#Firms in BG* includes both the parent firms and affiliates. Panel A describes the filters implemented at the business group level, to discard whole business groups. Panel B describes the filters used to discard affiliates belonging to business groups included in the sample. Panel C describes the filters when only business groups with parent companies located in OECD countries are considered. Moreover, we only keep countries with one-tier boards. In countries where having two-tier boards is optional, we only keep parent firms and affiliates with a one-tier board. Finally, Panel D shows additional filters applied for the analysis of wholly-owned affiliates. Further details on sample attrition are available upon request.

Table 2

Variable Definitions

Variable	Measure	Unit	Source	Expected effect
Dependent variable (i,j)				
% Outsiders Affiliates	Percentage of outsiders over the total number of directors in affiliates	Percent	Own elaboration	
Independent variables (i,j)				
ABS (Institutional Difference)	Absolute value of the difference between the WGI in the parent firm's country and the WGI in the affiliate's country	Continuous	World Bank Own elaboration	(+)
Independent variables (i)				
% Outsiders Parent Firm	Percentage of outsiders over the total number of directors in the parent firm	Percent	Own elaboration	(+)
Control variables (i,j)				
Log Firm size (€ million)$_{(t-1)}$	Log of the total revenue of affiliates for the year 2015	Log	Orbis	(+)
LT Debt/Total Assets$_{(t-1)}$	Ratio of LT debt and Total Assets for the year 2015	Continuous	Orbis	(+)
Log Firm Age	Log of the number of years of the affiliate, from its creation until 2016	Log	Orbis	(+)
SD(ROA)$_{(t-1)}$	Std. Dev. of ROA (EBIT/Total Assets) for the years 2007-2015	Continuous	Orbis	(-)
ROA industry-adjusted$_{(t-1)}$	ROA industry-adjusted for the years 2007-2015	Continuous	Orbis	(-)
% Interlocking outsiders	Number of outsiders in the parent firm that interlock with the affiliates/Total number of directors in the parent firm	Percent	Own elaboration	(+)
Log # Business Segments	Log of the number of business segments where the affiliate operates	Log	Orbis	(+)
FCF$_{(t-1)}$	Free Cash Flow (operating income before depreciation, minus total income taxes, interest expense, and dividends) divided by total assets	Continuous	Orbis	(+)
% Ownership by Aff Insiders in Parent Firm	Percentage of ownership in the parent firm by affiliate inside directors	Percent	Own elaboration	(-)
% Ownership by Aff Outsiders in Parent Firm	Percentage of ownership in the parent firm by affiliate outside directors	Percent	Own elaboration	(+)

Note: The column 'Source' denotes whether variables have been created (own elaboration) or whether they have been obtained from a secondary database (e.g., Orbis). The column 'Expected effect' indicates the effect of each independent and control variable on the dependent variable, *% Outsiders Affiliates.* WGI means World Governance Indicators.

Table 3

Descriptive Statistics

Variable	# Observations	Mean	Std. Dev.
Panel A. Affiliate Level			
% Outsiders Affiliates	25,123	77.37%	0.26
ABS (Institutional Difference)	25,123	0.07	0.22
Firm size (€ million) $_{(t-1)}$	25,123	83.69	714.16
LT Debt/Total Assets$_{(t-1)}$	25,123	0.21	0.35
Firm Age (years)	25,123	23.77	17.95
SD(ROA) $_{(t-1)}$	25,123	0.32	21.01
ROA industry-adjusted$_{(t-1)}$	25,123	-0.01	0.99
# Business Segments	25,123	1.41	0.89
FCF$_{(t-1)}$	25,123	0.06	20.08
% Ownership by Aff Insiders in Parent Firm	25,123	4.30%	17.25
% Ownership by Aff Outsiders in Parent Firm	25,123	6.74%	20.75
Affiliate Board Size	25,123	3.70	1.96
Panel B. Parent Firm Level			
% Outsiders Parent Firm	6,128	78.47%	0.25
% Interlocking Outsiders	6,128	37.01%	0.38
Parent Firm Board Size	6,128	4.53	3.02

Note: This table exhibits descriptive statistics of the variables in the model. Affiliate level is based on observations of affiliates (N=25,123 affiliates). *Affiliate Board Size* is the average number of board positions in the affiliates. Parent firm level is based on observations of parent firms (N=6,128 parent firms). *Parent Firm Board Size* is the average number of board positions in the parent firm.

Table 4

Correlation Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	% Outsiders Affiliates													
(2)	% Outsiders Parent Firm	0.37												
		[0.000]												
(3)	ABS (Institutional Difference)	-0.13	-0.14											
		[0.000]	[0.000]											
(4)	Log Firm size (€ million)$_{(t-1)}$	0.03	-0.01	0.17										
		[0.000]	[0.000]	[0.000]										
(5)	LT Debt/Total Assets$_{(t-1)}$	0.03	0.04	-0.06	-0.18									
		[0.000]	[0.000]	[0.000]	[0.000]									
(6)	Log Firm Age	-0.02	-0.05	0.08	0.28	-0.18								
		[0.004]	[0.000]	[0.000]	[0.000]	[0.000]								
(7)	SD(ROA)$_{(t-1)}$	-0.01	-0.01	-0.00	-0.01	-0.01	-0.01							
		[0.277]	[0.347]	[0.709]	[0.397]	[0.410]	[0.104]							
(8)	ROA industry-adjusted$_{(t-1)}$	-0.01	0.01	-0.01	-0.01	-0.02	0.02	-0.04						
		[0.156]	[0.094]	[0.019]	[0.378]	[0.007]	[0.000]	[0.000]						
(9)	% Interlocking Outsiders	0.12	0.30	-0.20	-0.29	0.08	-0.10	-0.01	0.04					
		[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.390]	[0.000]					
(10)	Log # Business Segments	0.01	-0.02	0.02	0.14	-0.08	0.20	0.00	-0.01	-0.01				
		[0.058]	[0.009]	[0.000]	[0.000]	[0.000]	[0.000]	[0.896]	[0.333]	[0.100]				
(11)	FCF$_{(t-1)}$	-0.01	-0.01	-0.00	0.00	-0.00	-0.01	0.27	0.12	-0.00	0.01			
		[0.122]	[0.091]	[0.976]	[0.786]	[0.704]	[0.320]	[0.000]	[0.000]	[0.655]	[0.422]			
(12)	% Ownership by Aff Insiders in Parent Firm	-0.26	-0.15	-0.07	-0.10	0.01	-0.03	-0.00	0.01	0.06	-0.04	-0.00		
		[0.000]	[0.000]	[0.000]	[0.000]	[0.040]	[0.000]	[0.676]	[0.024]	[0.000]	[0.000]	[0.973]		
(13)	% Ownership by Aff Outsiders in Parent Firm	0.08	0.02	-0.09	-0.07	-0.00	-0.02	-0.00	-0.00	0.05	-0.04	-0.00	0.03	
		[0.000]	[0.000]	[0.000]	[0.000]	[0.619]	[0.001]	[0.652]	[0.965]	[0.000]	[0.000]	[0.645]	[0.000]	

Note: This table shows the correlation matrix. P-values are in brackets. N=25,123 affiliates. VIF statistics are well below 10, with the highest value of 1.22.

Table 5

Parent Firms' Preferences over the Affiliate's Board Structure

Dependent variable: % Outsiders Affiliates					
	(1)	(2)	(3)	(4)	(5)
% Outsiders Parent Firm		.15 (14.97)	.15 (14.97)	.17 (16.10)	.17 (15.84)
		[0.000]	[0.000]	[0.000]	[0.000]
ABS (Institutional Difference)			.05 (5.06)	.18 (8.56)	
			[0.000]	[0.000]	
% Outsiders Parent Firm x ABS (Institutional Difference)				-.22 (-6.97)	
				[0.000]	
Institutional Difference (positive values)					.18 (6.85)
					[0.000]
ABS (Institutional Difference) (negative values)					.20 (6.67)
					[0.000]
% Outsiders Parent Firm x Institutional Difference (pos. values)					-.20 (-5.39)
					[0.000]
% Outsiders Parent Firm x ABS (Institutional Difference) (neg. values)					-.29 (-6.50)
					[0.000]
Log Firm size (€ million)$_{(t-1)}$	.01 (10.44)	.01 (10.11)	.01 (9.72)	.01 (9.76)	.01 (9.80)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
LT Debt/Total Assets$_{(t-1)}$	-.00 (-.37)	.00 (.00)	-.00 (-.04)	.00 (.05)	.00 (.08)
	[0.714]	[0.999]	[0.968]	[0.957]	[0.939]
Log Firm Age	-.01 (-3.04)	-.01 (-2.75)	-.01 (-2.91)	-.01 (-2.91)	-.01 (-2.92)
	[0.002]	[0.006]	[0.004]	[0.004]	[0.003]
SD(ROA)$_{(t-1)}$	.00 (2.17)	.00 (3.36)	.00 (3.44)	.00 (3.83)	.00 (3.80)
	[0.030]	[0.001]	[0.001]	[0.000]	[0.000]
ROA industry-adjusted$_{(t-1)}$	-.00 (-1.56)	-.00 (-1.40)	-.00 (-1.40)	-.00 (-1.38)	-.00 (-1.38)
	[0.120]	[0.161]	[0.162]	[0.167]	[0.167]
% Interlocking Outsiders	.06 (7.86)	.03 (3.44)	.03 (3.86)	.03 (3.62)	.03 (3.50)
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]
Log # Business Segments	-.00 (-.77)	-.00 (-1.00)	-.00 (-.87)	-.00 (-.96)	-.00 (-.97)
	[0.444]	[0.319]	[0.382]	[0.338]	[0.332]
FCF$_{(t-1)}$	.00 (.12)	.00 (.44)	.00 (.45)	.00 (.48)	.00 (.49)
	[0.902]	[0.660]	[0.656]	[0.630]	[0.625]
% Ownership by Aff Insiders in Parent Firm	-.00 (-42.01)	-.00 (-36.67)	-.00 (-36.05)	-.00 (-35.42)	-.00 (-35.42)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
% Ownership by Aff Outsiders in Parent Firm	.00 (5.51)	.00 (6.13)	.00 (6.35)	.00 (6.31)	.00 (6.26)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	.53 (7.97)	.45 (5.94)	.46 (5.93)	.45 (5.99)	.45 (5.98)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Industry dummies	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes
Observations	26,275	25,123	25,123	25,123	25,123
R-squared	.39	.40	.40	.40	.40

Note: Analysis of cross-sectional data of wholly-owned affiliates of business groups for the year 2016. The dependent variable is the percentage of outside directors over the total number of directors in the affiliates. t-1 denotes control variables lagged one period. See Table 2 for a description of the rest of the variables. Standard errors are robust (Huber, 1967; White, 1980, 1982) and clustered by business groups (Petersen, 2009). Values of t-statistics are in parentheses. *P*-values are in brackets.

Table 6

Robustness Test: Instrumental Variable Analysis

Dependent variable: % Outsiders Affiliates						
	2SLS			*LIML*		
	(1)	(2)	(3)	(4)	(5)	(6)
% Outsiders Parent Firm	.31 (5.32)	.20 (4.03)	.28 (4.09)	.31 (5.32)	0.20 (4.03)	.28 (4.09)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ABS (Institutional Difference)		.05 (4.97)	.27 (4.60)		.05 (4.97)	.27 (4.60)
		[0.000]	[0.000]		[0.000]	[0.000]
% Outsiders Parent Firm x			-.36 (-3.84)			-.36 (-3.84)
ABS (Institutional Difference)			[0.000]			[0.000]
Log Firm size (€ million)$_{(t-1)}$	.01 (9.63)	.01 (9.67)	.01 (9.60)	.01 (9.63)	.01 (9.67)	.01 (9.60)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
LT Debt/Total Assets$_{(t-1)}$	.00 (.39)	.00 (.10)	.00 (.36)	.00 (.39)	.00 (.10)	.00 (.36)
	[0.695]	[0.924]	[0.717]	[0.695]	[0.924]	[0.717]
Log Firm Age	-.01 (-2.24)	-.01 (-2.74)	-.01 (-2.56)	-.01 (-2.24)	-.01 (-2.74)	-.01 (-2.56)
	[0.025]	[0.006]	[0.010]	[0.025]	[0.006]	[0.010]
SD(ROA)$_{(t-1)}$	.00 (6.36)	.00 (4.07)	.00 (6.25)	.00 (6.36)	.00 (4.07)	.00 (6.25)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ROA industry-adjusted$_{(t-1)}$	-.00 (-1.24)	-.00 (-1.36)	-.00 (-1.28)	-.00 (-1.24)	-.00 (-1.36)	-.00 (-1.28)
	[0.000]	[0.175]	[0.200]	[0.214]	[0.175]	[0.200]
% Interlocking Outsiders	-.01 (-.54)	.02 (1.52)	.01 (.36)	-.01 (-.54)	.02 (1.52)	.01 (.36)
	[0.586]	[0.129]	[0.717]	[0.586]	[0.129]	[0.717]
Log # Business Segments	-.00 (-1.20)	-.00 (-.91)	-.00 (-1.12)	-.00 (-1.20)	-.00 (-.91)	-.00 (-1.12)
	[0.230]	[0.362]	[0.262]	[0.230]	[0.362]	[0.262]
FCF$_{(t-1)}$	.00 (.75)	.00 (.53)	.00 (.68)	.00 (.75)	.00 (.53)	.00 (.68)
	[0.455]	[0.596]	[0.494]	[0.455]	[0.596]	[0.494]
% Ownership by Aff Insiders in Parent Firm	-.00 (-16.94)	-.00 (-20.92)	-.00 (-15.45)	-.00 (-16.94)	-.00 (-20.92)	-.00 (-15.45)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
% Ownership by Aff Outsiders in Parent Firm	.00 (6.27)	.00 (6.41)	.00 (6.33)	.00 (6.27)	.00 (6.41)	.00 (6.33)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	.80 (18.36)	.77 (18.94)	.67 (10.48)	.80 (18.36)	.77 (18.94)	.67 (10.48)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,109	25,109	25,109	25,109	25,109	25,109
R-squared	.38	.40	.39	.38	.40	.39

Note: Analysis of cross-sectional data of wholly-owned affiliates of business groups for the year 2016. The dependent variable is the percentage of outside directors over the total number of directors in affiliates. The independent variable *% Outsiders Parent Firm* is instrumentalized by the recommended proportion of outside directors by the Corporate Governance regulation of the parent firm's country. Two methods are used: two-stage least squares (2SLS) and Limited Information Maximum Likelihood (LIML). t-1 denotes control variables lagged one period. See Table 2 for a description of the rest of the variables. Standard errors are robust (Huber, 1967; White, 1980, 1982) and clustered by business groups (Petersen, 2009). Values of t-statistics are in parentheses. *P*-values are in brackets.

Table 7

Robustness Test: Non-wholly-owned Affiliates

Dependent variable: % Outsiders Affiliates						
	Non-wholly-owned affiliates			*All affiliates*		
	(1)	(2)	(3)	(4)	(5)	(6)
% Outsiders Parent Firm	.10 (11.24)	.10 (10.95)	.12 (11.53)	.13 (16.90)	.13 (16.70)	.15 (18.08)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ABS (Institutional Difference)		.03 (3.56)	.11 (5.75)		.04 (5.47)	.14 (9.53)
		[0.000]	[0.000]		[0.000]	[0.000]
% Outsiders Parent Firm x ABS (Institutional Difference)			-.11 (-4.90)			-.16 (-8.25)
			[0.000]			[0.000]
Log Firm size (€ million)$_{(t-1)}$	.01 (6.21)	.01 (5.81)	.01 (5.71)	.01 (11.26)	.01 (10.74)	.01 (10.67)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
LT Debt/Total Assets$_{(t-1)}$	-.01 (-1.38)	-.01(-1.32)	-.01 (-1.31)	-.01 (-1.05)	-.01 (-1.03)	-.01 (-.96)
	[0.168]	[0.185]	[0.189]	[0.292]	[0.301]	[0.335]
Log Firm Age	-.00 (-1.08)	-.00 (-1.12)	-.00 (-1.11)	-.01 (-2.63)	-.01 (-2.74)	-.01 (-2.71)
	[0.280]	[0.261]	[0.266]	[0.009]	[0.006]	[0.007]
SD(ROA)$_{(t-1)}$	.00 (2.30)	.00 (2.33)	.00 (2.30)	.00 (3.77)	.00 (3.83)	.00 (4.34)
	[0.021]	[0.020]	[0.021]	[0.000]	[0.000]	[0.000]
ROA industry-adjusted$_{(t-1)}$	-.02 (-2.75)	-.02 (-2.75)	-.02 (-2.73)	-.00 (-1.35)	-.00 (-1.36)	-.00 (-1.35)
	[0.006]	[0.006]	[0.006]	[0.177]	[0.175]	[0.178]
% Interlocking Outsiders	.00 (.32)	.01 (.94)	.00 (.62)	.01 (2.64)	.02 (3.32)	.02 (2.93)
	[0.746]	[0.345]	[0.534]	[0.008]	[0.001]	[0.003]
Log # Business Segments	-.01 (-1.57)	-.01 (-1.56)	-.01 (-1.66)	-.00 (-1.75)	-.00 (-1.65)	-.01 (-1.81)
	[0.116]	[0.120]	[0.097]	[0.081]	[0.099]	[0.070]
FCF$_{(t-1)}$	.00 (1.13)	.00 (1.14)	.00 (1.13)	.00 (.63)	.00 (.63)	.00 (.66)
	[0.257]	[0.255]	[0.256]	[0.530]	[0.530]	[0.509]
% Ownership by Aff Insiders in Parent Firm	-.00 (-22.42)	-.00 (-21.66)	-.00 (-21.29)	-.00 (-40.07)	-.00 (-39.04)	-.00 (-38.37)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
% Ownership by Aff Outsiders in Parent Firm	.00 (5.13)	.00 (5.34)	.00 (5.43)	.00 (8.01)	.00 (8.31)	.00 (8.34)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	.62 (6.60)	.60 (6.19)	.59 (6.36)	.59 (6.12)	.56 (5.65)	.55(5.97)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20,805	20,793	20,793	45,928	45,916	45,916
R-squared	.47	.47	.47	.43	.43	.43

Note: Models 1-3 include analysis of cross-sectional data of non-wholly-owned affiliates of business groups for the year 2016. Models 4-6 include all affiliates. The dependent variable is the percentage of outside directors over the total number of directors in affiliates. t-1 denotes control variables lagged one period. See Table 2 for a description of the rest of the variables. Standard errors are robust (Huber, 1967; White, 1980, 1982) and clustered by business groups (Petersen, 2009). Values of t-statistics are in parentheses. *P*-values are in brackets.

Table 8

Other Robustness Tests

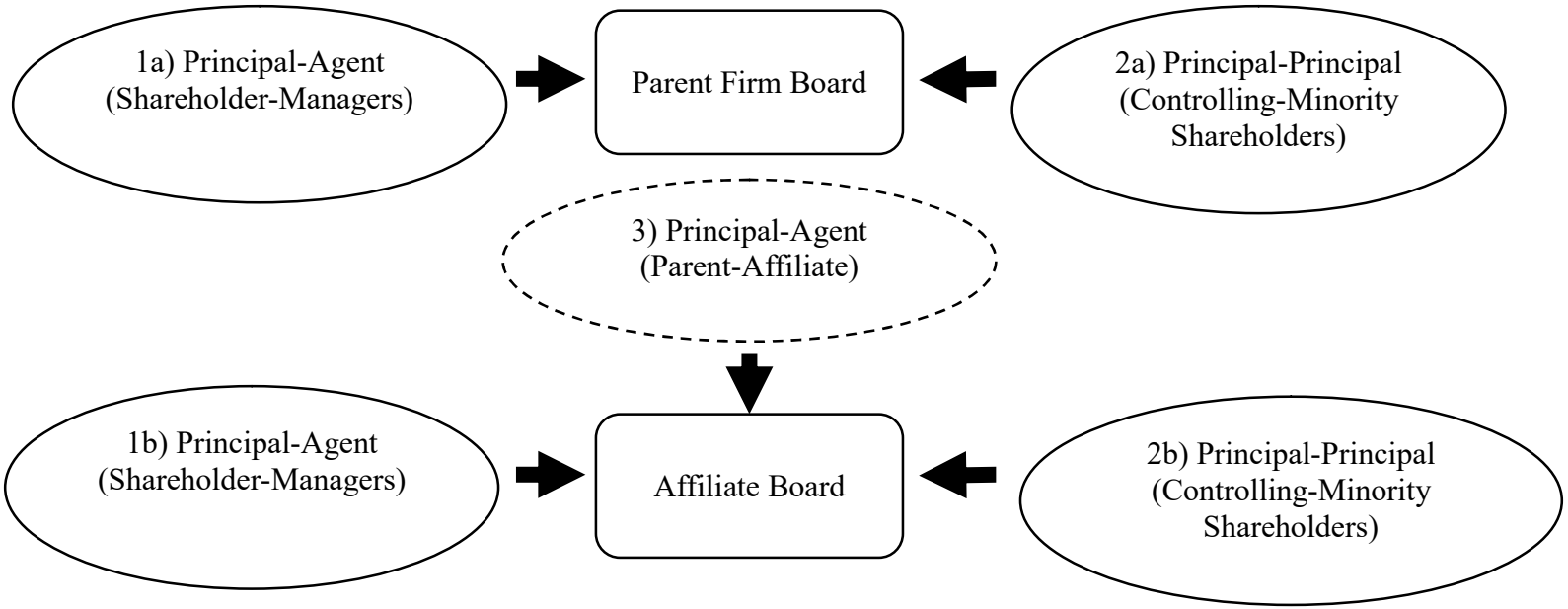
Dependent variable: % Outsiders Affiliates						
	Industrial and international diversification		*FBGs*	*State-owned BGs*	*Affiliates in OECD*	*BGs>2*
	(1)	(2)	(3)	(4)	(5)	(6)
% Outsiders Parent Firm	.16 (16.31)	.28 (13.97)	.24 (9.15)	.10 (1.17)	.17 (16.13)	.15 (12.45)
	[0.000]	[0.000]	[0.000]	[0.241]	[0.000]	[0.000]
ABS (Institutional Difference)			.13 (1.84)	-.05 (-.36)	.18 (8.36)	.14 (6.33)
			[0.065]	[0.716]	[0.000]	[0.000]
% Outsiders Parent Firm x ABS (Institutional Difference)			-.20 (-2.16)	.09 (.55)	-.21 (-6.72)	-.17 (-5.53)
			[0.031]	[0.582]	[0.000]	[0.000]
Log Firm size (€ million)$_{(t-1)}$	.01 (6.60)	.01 (6.08)	.01 (3.47)	.01 (1.81)	.01 (9.81)	.01 (7.17)
	[0.000]	[0.000]	[0.001]	[0.072]	[0.000]	[0.000]
LT Debt/Total Assets$_{(t-1)}$	.00 (.09)	.00 (.17)	-.00 (-.02)	-.02 (-.99)	-.00 (-.02)	-.00 (-.54)
	[0.932]	[0.864]	[0.986]	[0.325]	[0.981]	[0.589]
Log Firm Age	-.01 (-3.29)	-.01 (-3.59)	-.01 (-1.76)	.02 (1.38)	-.01 (-2.95)	-.00 (-1.51)
	[0.001]	[0.000]	[0.078]	[0.170]	[0.003]	[0.132]
SD(ROA)$_{(t-1)}$	.00 (6.28)	.00 (7.07)	.00 (5.55)	.00 (.49)	.00 (3.85)	.00 (8.34)
	[0.000]	[0.000]	[0.000]	[0.621]	[0.000]	[0.000]
ROA industry-adjusted$_{(t-1)}$	-.00 (-1.67)	-.00 (-1.55)	-.06 (-3.31)	-.02 (-.47)	-.00 (-1.38)	-.02 (-2.62)
	[0.095]	[0.120]	[0.001]	[0.640]	[0.168]	[0.009]
% Interlocking Outsiders	.05 (6.14)	.03 (4.63)	.01 (0.67)	.08 (3.73)	.03 (3.63)	.03 (2.96)
	[0.000]	[0.000]	[0.504]	[0.000]	[0.000]	[0.003]
Log # Business Segments	-.00 (-1.13)	-.00 (-1.04)	-.01 (-1.52)	.01 (.47)	-.00 (-1.00)	-.00 (-.66)
	[0.260]	[0.299]	[0.130]	[0.637]	[0.319]	[0.511]
FCF$_{(t-1)}$	.00 (.65)	.00 (.78)	-.02 (-1.03)	-.01 (-.35)	.00 (.50)	-.00 (-1.15)
	[0.515]	[0.433]	[0.303]	[0.727]	[0.620]	[0.251]
% Ownership by Aff Insiders in Parent Firm	-.00 (-34.91)	-.00 (-31.74)	-.00 (-19.44)		-.00 (-35.49)	-.00 (-27.74)
	[0.000]	[0.000]	[0.000]		[0.000]	[0.000]
% Ownership by Aff Outsiders in Parent Firm	.00 (7.85)	.00 (8.32)	.00 (6.28)		.00 (6.32)	.00 (4.26)
	[0.000]	[0.000]	[0.000]		[0.000]	[0.000]
Diversified & Domestic	.02 (4.76)	.06 (3.02)				
	[0.000]	[0.002]				
Non-diversified & Internationalized	.03 (1.83)	.15 (2.82)				
	[0.067]	[0.005]				
Diversified & Internationalized	.08 (12.27)	.25 (13.29)				
	[0.000]	[0.000]				
% Outsiders Parent Firm x Diversified & Domestic		-.04 (-1.81)				
		[0.071]				
% Outsiders Parent Firm x Non-diversified & Internationalized		-.16 (-2.39)				
		[0.017]				
% Outsiders Parent Firm x Diversified & Internationalized		-.24 (-10.20)				
		[0.000]				
Constant	.41 (4.93)	.34 (4.37)	.66 (11.89)	.56 (6.93)	.46 (6.06)	.47 (6.42)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,123	25,123	3,645	639	25,038	20,177
R-squared	.41	.41	.41	.68	.40	.40

Note: Analysis of cross-sectional data of wholly-owned affiliates of business groups for the year 2016. Models 1 and 2 account for international and industrial diversification. Models 1 and 2 include a set of dummy variables that takes the value of 1 for each type of business group, depending on this international and industrial diversification and 0 otherwise.

Diversified & Domestic refers to business groups in the same country but in different industries; *Non-diversified & Internationalized* refers to business groups in the same industry but in different countries; and *Diversified & Internationalized* refers to business groups in different countries and industries. Models 3 and 4 include a sub-sample of family business groups (FBGs) and state-owned BGs, respectively. Model 5 only includes affiliates located in OECD countries. The sample in Model 6 excludes business groups integrated by two firms (the parent firm and one affiliate). The dependent variable is the percentage of outside directors over the total number of directors in affiliates. t-1 denotes control variables lagged one period. See Table 2 for a description of the rest of the variables. Standard errors are robust (Huber, 1967; White, 1980, 1982) and clustered by business groups (Petersen, 2009). Values of t-statistics are in parentheses. *P*-values are in brackets.

Figure 1

Main Agency Conflicts in Business Groups



Source: Own elaboration