

Corporate Groups: Corporate Law, Private Contracting and Equal Ownership*

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In this paper we provide a simple and general framework that explains the nature of groups, their corporate governance problems and their ownership structures as the result of the double nature of the controlling shareholder in the group as both shareholder and stakeholder of the subsidiary. We use this framework to conduct an economic and empirical analysis that explores the limitations of regulation and shareholders' agreements to deal with this dual nature of the parent. Our analysis is able to explain the extreme ownership structures prevalent across groups as solution of last resort to unresolved corporate governance problems when regulation is inefficient and transaction costs limit the use of contracts to provide shared control. We go on to test these ideas conducting an empirical study that explains groups ownership structures and allows us to derive important policy implications. First, it exposes the structural limitations that corporate law encounters to contain the corporate governance problems of groups. Second, it calls for an acknowledgement of the crucial role of shareholders agreements in corporate governance. Shareholder agreements offer the best alternative to protect parent and subsidiary from mutual opportunism, while preserving the incentives to cooperate. Guarantying the enforceability of these contracts offers jurisdictions the most efficient way forward to reduce expropriation in corporate groups.

Keywords: Corporate Groups, Shareholders agreements, Minority protection, Minority expropriation, Contractual enforcement, Ownership structure.

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1. Introduction

The corporate group is the most common form of business organization among large and medium size corporations. In year 2019 the average number of subsidiaries of the top 50 companies in the MSCI World Index was 828, with a median number of 439¹. However, in spite of their prevalence and economic importance, the study of corporate groups is fragmented into several strands of literature -in economics, management, finance and law- that seem to be discussing different phenomena. Moreover, each strand analyses the problems that arise in groups using field specific language and methodologies that tend to ignore contributions from other areas.

In this paper we provide a simple and general framework that explains the nature of groups, their corporate governance problems and their ownership structures as the result of the double nature of the controlling shareholder in the group as both shareholder and stakeholder of the subsidiary. We use this framework to conduct an economic and empirical analysis that explores the limitations of regulation and shareholders' agreements to deal with this dual nature of the parent. Our analysis is able to explain the extreme ownership structures prevalent across groups as solution of last resort to unresolved corporate governance problems given the limited efficiency of regulation and the limits to the use of contracts in the group context.

Our analysis derives important policy implications. First, it exposes the structural limitations that corporate law encounters to contain the corporate governance problems of groups. Second, it acknowledges the role of shareholders agreements as an alternative, self-enforcing, mechanism to protect parent and subsidiary from mutual opportunism, while preserving the incentives to cooperate. Guarantying the enforceability of these contracts can help reduce expropriation in corporate groups.

We start our analysis in Section 2 by considering alternative definitions of the corporate group that can be found in different strands of the literature. The definitions we find in the legal and economic literatures emphasize the ownership of the parent that allows it to control the subsidiaries. On the other hand, the management literature stresses the joint production process between parent and subsidiary. We argue that groups are different from other types of

¹ The MSCI World Index is a market capitalization weighted stock market index of 1,585 companies across 23 developed markets countries. It is maintained by MSCI (Morgan Stanley Capital International), and is used as a common benchmark for 'world' or 'global' stock funds intended to represent a broad cross-section of global markets, since it covers approximately 85% of the free float-adjusted market capitalization in each country. The data on the number of subsidiaries for each company was retrieved from Bureau van Dijk's Orbis database based on the composition of the index as of December 2019. The first 50 companies by market capitalization are: Apple, Microsoft, Amazon, Facebook, Alphabet, Tesla, Johnson & Johnson, Jpmorgan Chase & Co, Visa, Procter & Gamble, Nvidia, Unitedhealth Group, Berkshire Hathaway, Nestle, Mastercard, Home Depot, Disney, Verizon Communications, Paypal Holdings, Roche Holding Genuss, Comcast Corp, Adobe, Bank of America, Netflix, Salesforce, Pfizer, Walmart, Coca Cola, Intel, Merck, At&T, Pepsico, Novartis, Abbott Laboratories, Asml Hldg, Thermo Fisher Scientific, Cisco Systems, Abbvie, Costco, Qualcomm, Nike, Chevron, Lvmh Moet Hennessy, Exxon Mobil, Broadcom, Mcdonald's, Accenture, Unilever, Medtronic. For the four companies not included in the Orbis database (Alphabet, Facebook, Paypal Holdings and Walmart) we retrieved the data on the number of subsidiaries from the 2019 financial statements of each company.

corporate alliances precisely because the parent firm is both a controlling shareholder and a major business stakeholder of the subsidiary, which allows the group to exploit complementarities between the assets of the parent and the subsidiary in many valuable and complex ways. This dual nature also explains the economic reasons for group formation that we separate into (i) exploiting opportunities for arbitrage regulation (by partitioning assets into parent and subsidiary); (ii) overcoming financial constraints to facilitate growth (by guarantying control of new assets with limited investment) and (iii) providing incentives to cooperate (by exploiting complementarities between the assets of the parent and the subsidiary).

We then devote Section 3 to the discussion of the severity of corporate governance conflicts in groups. The control of the subsidiary will generate conflicts of interest and opportunism between the parent and the minority. Both minority expropriation and holdup problems have been extensively researched in the legal, economic and management literature. Nevertheless, there are three characteristics of groups that make these problems more severe and more difficult to treat. First, the threat of expropriation not only reduces the incentives of the minority to fund the subsidiary, but also their ongoing incentives to cooperate and make other valuable contributions to the firm. Second, a potential holdup by the minority can destroy value beyond the assets in the subsidiary if it affects the assets in the parent company, which may be several orders of magnitude higher. Finally, increasing the ownership stake of the parent in the subsidiary (which works as the general solution for incentive alignment in a stand-alone company with a controlling shareholder) can harm the subsidiary by distorting the cooperation incentives of parent and minority.

Having ascertained the severity of corporate governance problems in groups, we then turn to the study of the mechanisms that can tackle these problems and make groups a stable organizational form. We use our framework to analyse three mechanisms and the relationships among them: (i) regulatory solutions offered by different jurisdictions to the problems of control in groups; (ii) shareholders' agreements as a way to share control independently of the ownership structure; and (iii) shared ownership and control arrangements based on equal ownership.

We first analyse corporate law rules, which differ markedly across jurisdictions. Many jurisdictions consider the parent as a controlling shareholder and apply standard corporate law. Other jurisdictions have developed specific regulatory framework for groups. We discuss their relative merits in Section 4, but conclude that both are very inefficient solutions to groups' corporate governance problems.

Corporate law only focuses on the ownership relationship between parent and subsidiary. Ownership is what confers control rights to the parent, and corporate law determines when and how the minority should be protected from the excesses in that control. However, corporate law ignores the stakeholder nature of the parent and offers little protection from opportunism that happens in standard everyday business transactions. This reduces significantly the efficiency of both ex-ante and ex-post rules. Ex-ante approval rules can avoid expropriation for a given value of the assets, but they reduce the value that can arise from joint use of the assets in the subsidiary. This happens because they damage the incentives to share information and the ability of the party with more information (the parent) to give instructions that can facilitate the joint use of the subsidiary's assets. To ameliorate this problem, some jurisdictions relax ex-ante approval rules and rely upon enhanced ex-post evaluation. Nevertheless, ex-post evaluations of harm caused to the minority are difficult to apply because they require the

evaluation of outside business options. These outside options may not exist in the case of a subsidiary that has been set up precisely to use its assets jointly with the assets of the parent.

Specific regulation addressed at corporate groups, while also different across countries, places much more emphasis on the business relations between parent and subsidiary and prioritizes joint value maximization. The aim of these regulations is to allow for maximization of the total value of the group based on the information available to the parent. Only then should one consider the problem of how to divide value. French and Italian rules on corporate groups consider the issue of the division of value a market problem. Assuming perfect bargaining at the incorporation stage, these rules rely on minority shareholders paying a lower price for a given stake in the subsidiary when the expectation of future expropriation increases. German laws on corporate groups make no such assumption and require transfers of value from the parent to the subsidiary when joint use of subsidiary's resources has resulted in a loss to the subsidiary. Nevertheless, these transfers face the same problem as other ex-post solutions to expropriation in the context of groups: the value of the subsidiary as a stand-alone company is almost impossible to evaluate.

Corporate law awards control rights as a function of ownership stakes, and minority protection is based on constraining these control rights in situations of conflict of interest. We argue that, given the inefficiency of regulations to deal with the corporate governance problems of corporate groups, the parties have found two alternative opt-out mechanisms. Interestingly, both alternatives differ in their treatment of control rights. Shareholder agreements decouple control rights from ownership rights and equal ownership arrangements commit the parties to share control.

In Section 5 we study the efficiency of shareholders' agreements in dealing with corporate governance problems in groups as compared to legal regulation. In corporate groups, if complementarities between the assets of parent and subsidiary are important, contracts hold a clear advantage over regulation. They liberate the ownership structure to use it as an incentive tool because it is no longer needed as a mechanism to resolve disputes. A typical example would be a situation where, while the parent contributes more effort and keeps the majority of the shares, the minority is protected by the contractual right to appoint a given number of directors. As a contrary example, consider the case where the parent has a reduced stake in the subsidiary providing its partner a greater share of the cash-flows and incentives to contribute more effort to the alliance; while, simultaneously, the shareholders' agreement gives the parent veto rights on certain key decisions that may affect the assets it has contributed. Relative to regulation, shareholder agreements offer two important advantages. First, they preserve the joint maximization effort and incentives to cooperate and, second, in case of disputes, wrongs done to the subsidiary can be assessed against by the terms of the contract. It is unnecessary to evaluate the hypothetical market value of the transactions that may not exist outside the group.

In a Coasean world, the parties setting up a subsidiary will contract an efficient solution in spite of the legal regulation in their jurisdiction. But this will not happen if there are significant transaction costs in the contractual process. In the case of groups there are two significant sources of transaction costs. The first one has to do with the asymmetric relationship between parent and subsidiary. By nature of its dual nature as shareholder and stakeholder of the subsidiary, the parent is likely to have superior bargaining power that can result in an inefficient contract. The second one refers to the limits of the parties' freedom to untie control from ownership and opt out of mandatory corporate law provisions. These limits are frequent in many jurisdictions and result in weak enforcement of shareholders agreements.

Section 6 discusses equal ownership arrangements as the third potential solution to corporate governance problems between parent and subsidiary. We start by studying the ownership structure of corporate groups using the information provided by Bureau van Dijk's Orbis database starting with over 750,000 parent-subsidiary links available across 190 different countries. Consistent with previous empirical studies we find that the ownership structure of groups is quite polarized. Wholly owned subsidiaries represent around 53% of the observations and among the remaining observations we find two spikes at 50-50% and at 50% plus one share structures. Given that regulatory arbitrage, facilitation of growth and cooperation incentives are the main drivers of group value, 50-50% ownership structures are puzzling. Wholly-owned subsidiaries may be effective for regulatory arbitrage but they cannot be used to cooperate. 50% plus one share structures can facilitate growth with reduced investment but generate large expropriation problems. Moreover, for subsidiaries where cooperation incentives can generate value, the optimal ownership stake should vary depending on the relative importance of the contribution of the parent and the minority owners of the subsidiary, and equal ownership arrangements seem very inefficient. Moreover, a 50-50% split implies a very costly decision-making process that will frequently end in deadlocks. Interestingly, turning to the data, we observe that the incidence of these ownership arrangements varies greatly across countries. This leads us to argue that 50-50% ownership structures are the mechanism of last resort to protect the subsidiary from corporate governance problems. We therefore hypothesise that 50-50% ownership structures appear when the legal and contractual protections in the subsidiary country suffer problems that make them unattractive to contain the corporate governance problems of corporate groups.

In Section 7 we test the hypothesis that we advance in the paper. We use the cross-section of parents and subsidiaries from Bureau van Dijk's Orbis and Osiris databases and merge these data with the World Bank's Ease of Doing Business (EODB) information on the quality of minority protection and contract enforcement across countries. With these data we test a logit model explaining the prevalence of equal ownership structures in groups. Our results show that the prevalence of equal ownership structures is (i) lower when the parent and or subsidiary's characteristics make the costs of lost cooperation incentives and potential deadlocks in decision making higher; (ii) independent of the quality of minority protection from expropriation in the country where the subsidiary is located; and (iii) lower for subsidiaries located in countries where the quality of contract enforcement is higher.

The empirical results give support to our analysis on two key policy points. First, they corroborate that, even in countries where legal protection from controlling shareholders is high, groups, because of the dual nature of the parent as controlling shareholder and stakeholder, still suffer from the threat of expropriation. Second, they indicate that poor contractual enforcement also limits the use of shareholders' agreements as an alternative mechanism to limit corporate governance problems.

2. Explaining Corporate Groups

Corporate groups have attracted interest from both regulators and academics in many different fields, from management to law, finance and economics. Nevertheless, there isn't a common definition and understanding of this phenomenon, and the studies across different literatures are siloed and poorly integrated.

In fact, different literatures offer different definitions of groups. The legal² and financial³ literature define groups around ownership and asset partitioning, while the management literature⁴ stresses the element of joint production that takes place within groups. Moreover, each strand of the literature focuses on very different issues. The legal literature is focused on how groups challenge the boundaries of legal entities and worries about how groups can circumvent bankruptcy, tax and labour laws⁵. The financial literature is more interested in the financial constraints explaining group formation and in the internal financial markets, resource misallocation and corporate governance problems associated with the separation of ownership and control in the group⁶. The managerial literature mainly discusses the differences in performance⁷, resource allocation and growth opportunities in groups versus markets⁸, and the strategic choices⁹ within groups.

² Some definitions offered by legal scholars are "Complex cluster of hundreds of corporate subsidiaries under the common control of a single corporate parent." (Ayotte & Hansman, 2013); "Assets that are economically integrated under common control and yet partitioned between distinct legal entities." (Iacobucci & Triantis (2007); and "Enterprise that is comprised of multiple legal entities linked by some degree of common ownership and control." Ho (2012).

³ Among economic and finance scholars we find definitions such as those provided by Claessens & Fan (2002): "A corporate organization where a number of firms are linked through stock-pyramids and cross-ownership."; Ginglinger et al. (2017): "Legally independent firms connected by ownership links."

⁴ Management scholars rarely talk about "groups", they usually refer to different manifestations of this phenomenon, such as foreign direct investment (FDI), transnational corporations or multinational enterprises (MNE) and joint ventures and minority equity alliances. In this literature business group are "organizations that can act as an intermediary between individual entrepreneurs and imperfect markets" (Khanna & Palepu, 2000). The idea is that groups allow for hierarchical resource allocation and overcome institutional voids, facilitating coordinated development of multiple interdependent industries (Morck & Nakamura, 2007). JV are "Firms which are jointly owned and actively co-managed by pre-existing independent firms that pool resources for specific objectives." (McCahery & Vermeulen, 2008). Alliances are defined in various ways: "A production team in which its partners play complementary roles." (Chong-En et al. 2004); "Pool of resources of different firms to gain strategic advantage, joint research and development and new product development efforts, reduce transaction costs or developing a new set of competencies in a short period of time." (Chaturvedi & Gaur, 2008).

⁵ Theoretical analysis of this issue are provided by Hansmann & Squire (2018) and Squire (2011). Empirical studies on how groups avoid taxes and labour laws are provided by Matheson (2008), Schön (2012), Desai, Foley & Hines (2006) and Egger & Radulescu (2011).

⁶ Two very good analyse of these problems are provided in Morck, Wolfenzon & Yeung (2005) and Bebchuk, Kraakman and Triantis (2000). Almeida & Wolfenzon (2006) present a theoretical model that explains how financial constraints can lead t group formation. Masulis, Pham & Zein (2011) provide an empirical study on how groups ease financial constraints.

⁷ Evidence on the performance of JV, alliances and MNE is provided by Seru (2014), Anderson et al. (2013), Sampson (2007) Pothukuchi et al. (2002) and Khanna and Palepu (2000).

⁸ We refer the interested reader to Khanna & Yafeh (2007) and Kandel et al. (2019).

⁹ On the strategic organizational choices for entry into new industries and markets see Heaton and Teece (2014). Leih & Teece (2014), Cuervo-Cazurra et al. (2007), Delios & Henisz (2003) and Henisz (2000).

Therefore, our first aim is to provide a stylized and workable definition of the corporate group that encompasses all these different visions and is able to explain the economic advantages of this form of organization.

2.1 Defining the corporate group

We define a corporate group as an association of two or more companies where one of these companies (the *parent*) is both a controlling shareholder and a significant business stakeholder of the other companies (the *subsidiary*). Notice that this definition, while simple, has several powerful properties.

First, it is able to capture all the variety of groups that we encounter in the market. In particular it includes, among others: (i) multinational enterprises (MNE), such as Coca Cola and its different foreign subsidiaries; (ii) joint ventures, such as the one between Starbucks and Tata Global beverages in the Indian market to combine expertise in both coffee and tea; (iii) horizontally or vertically integrated companies, such as Disney with both Pixar (horizontal) and ABC News (vertical) or (iv) conglomerates such as Sony with Sony Electronics, Sony Semiconductors, Sony Pictures, Sony Interactive Entertainment and Sony Mobile Communications.

Second, it clearly separates groups from other types of relationships between firms, such as strategic alliances, where there is a stakeholder relationship but no ownership link (e.g. MacDonald's and its franchises); financial holdings, where there is an ownership link between many companies but no stakeholder ties (e.g. Berkshire-Hathaway) and common ownership cases, where the ownership relationship can be strong, but there isn't any business relationship among the commonly held firms (e.g. the firms held by Government Pension Fund of Norway).

Moreover, our definition also incorporates and integrates the key elements of the different definitions of groups we find in the literature: common control underscored in the legal definitions; economic integration highlighted by economic researchers; and hierarchical resource allocation, co-management and pool of resources prevalent in management studies.

Additionally, while our definition states clearly the control component, it allows for this control to be structured in many different forms. We do not make distinctions depending on the ownership structure of the parent. Moreover, the group may be structured through horizontal ownership (with one firm P having direct stakes in each of the subsidiaries S_i) or vertical ownership (a pyramid with multiple layers, where P has a direct stake in S_1 which, in turn, has a direct stake in S_2 and so on). Moreover, each of the ownership connections may include dual-class shares (in the case of listed firms) and cross-holdings. While these ownership mechanisms can increase the separation between control and cash-flow rights, which has been extensively studied in the literature¹⁰, our focus is on the additional complexities that appear when the parent is a major business stakeholder, both in terms of benefits and of expropriation problems.

¹⁰ Separation of voting from cash-flow rights through the use of dual-class shares, pyramids, and cross-holdings is associated with minority expropriation reflected in lower market values (Claessens et al. 2000, Masulis et al. 2009). Interestingly, this market discount is more pronounced in family firms, in industries with higher amenity value and in countries with better investor protection (Bennedsen and Nielsen 2006). However, these mechanisms can also be a source of value for different reasons. When there is an active market for corporate control separation of voting from cash-flow rights can promote value increasing takeovers in firms with dispersed ownership (Burkart and Lee 2008). Moreover, Goshen and Hamdani (2016) propose that this separation can be necessary to allow an entrepreneur with a valuable long term strategy to pursue this strategy in a myopic market. Baran et al. (2019) provide empirical support showing firms with dual-class shares spend more on R&D and obtain more patents. Therefore, the impact of the

Finally, our definition is easy to formalize. Consider two groups of assets, A and B, that can be combined to produce some output. According to our definition, a group will appear when assets A and B are used together to obtain an output, but ownership of the two assets is partitioned and they are neither held together in the same firm nor in totally independent firms.

If the assets were wholly owned by different investors, they would reach independent values for their shareholders $V(A)$ and $V(B)$ -and a total value $V(A)+V(B)$ - and their business relationship would be governed only by contracts between these investors. At the other end of the spectrum, the assets may be held together by the same investor reaching a total value $V(A+B)$ for the shareholder and the business relationships would be governed by the control rights of the single owner. The difference between these two alternative models -contractual and ownership arrangements- is at the core of the property rights theory of the firm as first developed by Coase (1937) and Hart (1995). But, an alternative possibility is to create a group structure with a parent and a subsidiary. The parent company fully holds A and is worth $V_p(A)$. The subsidiary holds B with a value $V_s(B)$, and the parent has an equity stake α in the subsidiary, which is high enough to confer control rights.

Therefore, the group arrangement is socially optimal when:

$$V_p(A) + V_s(B) > \max[V(A+B); V(A)+V(B)].$$

As we will discuss in the next section, the total value generated in the group will be influenced both by the ownership rights of the parent and by the business relationships between the parent and the subsidiary that would not occur in a single firm or through arms-length contracting.

2.2 How do groups generate value?

Groups can be more valuable than alternative ownership arrangements when there are complementarities among assets that can be either held together or apart. In this section we will discuss the three main causes of this additional value generated by the group structure.

2.2.a. Regulatory arbitrage

The first reason why groups are valuable for the parent is that they offer the possibility to engage in regulatory arbitrage (RA). These are situations where a parent wants to exert complete control over all assets but chooses to create internal corporate partitions through subsidiaries to profit from regulatory loopholes. These loopholes may have to do with differences in taxation, labour regulations or bankruptcy laws across countries, industries or depending on firm size. Regulatory arbitrage can explain why many group structures are so complex and legally intractable¹¹.

Regulatory arbitrage increases the value of groups by allowing the firms in the group to circumvent regulations that bind shareholders with other stakeholders, such as debtholders, workers or tax authorities. To understand how RA works it is interesting to analyse first the case of labour regulations, where RA operates both at the country level and across countries. Within

separation of voting rights and cash-flow rights seems to depend on the firm's life cycle and Kim and Michaely (2019) and Cremers et al. (2018) find that firms with separation of ownership and control trade at a premium when the creator first takes them public but this premium becomes a discount in later years.

¹¹ Finding the ultimate owner of many conglomerates is extremely difficult as explained by Claessens, Djankov & Lang (2000). Empirical evidence on the difficulty that investors have following the ownership links in conglomerates is provided by Ginglinger, Hebert & Renneboog (2018) and Huang (2015).

a given country, rules on firing, unionization and even board representation are commonly unfavourable to bigger firms. Because of this, groups can economize on labour costs and shareholders and debtholders get a larger share of total surplus by splitting operations between several smaller subsidiaries¹². Social security and other labour regulations also differ markedly across countries and multinationals can save on labour costs, especially for low-skilled workers, by moving production to developing countries¹³.

Regarding the case of bankruptcy arbitrage, firms may organize into groups in order to segregate some assets from the firm's other assets for the sake of pledging those assets to a distinct group of creditors and increase the debt capacity of the group¹⁴. This can also reduce the cost of bankruptcy, shielding valuable assets from being seized by courts or creditors, especially in the case of international bankruptcies¹⁵.

Groups can also arbitrage taxes. In fact, transfer pricing is seen as an integral part of the group's management strategy, consisting in expensing high (low) cost goods and services in countries with high (low) tax rates¹⁶. By saving on taxes the group maximizes after-tax profits for its shareholders.

While escaping restrictive regulations will bring benefits to parent's and affiliates' shareholders, this benefit usually comes at the expense of other stakeholders and produces negative externalities and social costs. There is a large literature that studies the problems that this strategic behaviour has in terms of monopoly power, underdeveloped institutions and social costs. Hamdani et al. (2020) review this literature and document historical episodes where different countries have actively fought against powerful groups when public opinion has denounced their anti-competitive behaviour and political clout. There is also ongoing research on how to design multinational taxation¹⁷ and enterprise liability¹⁸ in order to reduce the opportunistic behaviour of business groups. In our analysis we will be restricting our discussion to the private value of groups that accrues to its shareholders and we will abstain from trying to determine the social value of corporate groups in a competitive economy¹⁹.

In terms of our formal modelling, we assume that the benefits from RA are a function of the ownership stake of the parent in the subsidiary, α :

$$V_P(A)+V_S(B) = V(A+B)+RA(\alpha) > V(A)+V(B) \text{ with } RA(\alpha)>0 \text{ if and only if } \alpha \leq \hat{\alpha}.$$

In cases where the main reason for group formation is to benefit from RA, we can expect the parent to wish to retain 100% ownership of the subsidiary²⁰. Therefore, deviations from 100%

¹² For an explanation of how this happens in Italy see Mancini, Pappalardo & de Nardis (2004).

¹³ Evidence on these differences and their impact can be found in Botero et al. (2004) and Harrison & McMillan (2011).

¹⁴ As explained by Posner (1976) and Hansmann, Kraakman & Squire (2006).

¹⁵ Interesting analysis of the problems of international bankruptcies can be found in Tung (2001) and McCormack (2012).

¹⁶ For an analyses of transfer pricing policies see Barnhouse, Booth & Wester (2012). Interestingly, many mergers are in fact caused by tax evasion reasons as explained in Meier & Smith (2020).

¹⁷ For two interesting discussions of this problem see Reuven (2016) and Desai & Hines (2003).

¹⁸ The legal literature on corporate bankruptcy studies de-partioning remedies for debtholders, like piercing the corporate veil (Beaver et al., 2016) and enterprise liability (Hansmann and Squire 2018) and how courts apply or should apply them.

¹⁹ The social value of groups is discussed in Khanna & Yafeh (2007) and Kandel et al. (2019).

²⁰ Part of the literature has tried to provide alternative explanations other than opportunistic reasons to wholly owned subsidiaries. One function of subsidiaries might be to reduce the transactions costs of

ownership should only arise as a means to formally prove that the two firms are separate entities to which different rules should be applied. This seems particularly important in the context of bankruptcy, because courts are more likely to apply “piercing the veil” rules when the level of ownership is very high²¹; and in the context of FDI, because many developing countries impose ownership restrictions on the percentage of shares that a foreign firm may own in a local firm.²²

Thus, we can assume that RA may depend on the ownership stake of the parent and be achieved only when this stake is lower than some arbitrary threshold $\hat{\alpha}$. This is why the benefits from RA are treated as a function of α , $RA(\alpha)$. If $\hat{\alpha}$ is high, so that the parent can own the subsidiary with a very high stake and still enjoy the benefits from RA, we would expect that these groups will suffer from shareholder opportunism and conflicts between shareholders and stakeholders, but it is unlikely that they will suffer corporate governance conflicts among shareholders. Nevertheless, if $\hat{\alpha}$ is low, the parent will be forced to give up a substantial fraction of ownership to minority interests, and this will generate both minority expropriation and holdup problems that, as we will discuss in the next section, will reduce the value of the group structure.

2.2.b. Facilitating growth under financial constraints

Group formation can facilitate the acquisition of complementary assets over time when financial constraints prevent internal growth. This may happen when a firm wants to acquire a new complementary asset but it has limited access to external financing because of capital market imperfections. In this case, growth is restricted by the availability of internal financing. Holding the new asset in a partially owned subsidiary allows the parent to use the new asset while sharing the cost (and the benefits) with other investors. If control of the new asset is important for the parent, ownership just above 50% in the subsidiary will guarantee this control with the minimum possible investment.

Almeida and Wolfenzon (2006) present a model that proves that groups of firms with pyramidal ownership structures can be an optimal ownership arrangement when external funds are costlier than internal funds and firms have a limited amount of retained earnings to fund their investments. Empirical evidence supporting this insight is provided by Masulis et al. (2011) showing that pyramidal groups are more prevalent in countries with limited availability of capital.

In terms of our model, we have a situation where joint ownership of assets A and B offers a higher value $V(A+B)$ than separated ownership (offering $V(A)+V(B)$) but joint ownership is not attainable because capital market imperfections prevent the owner of A from raising enough funds to acquire asset B. Group formation allows for a situation where asset B is controlled, and can be operated together with A, but only a fraction of the total cost of asset B needs to be paid for. Facilitating growth under financial constraints is therefore valuable in a situation in which

potential spin-offs by preserving transferable bundles of contracts. Specifically, Ayotte & Hansmann (2013) argue that “the bundled-assignability theory focuses on the utility of legal entities in providing liquidity to the owners of a business segment by facilitating free transferability of that segment to a new owner”.

²¹ Differences in “piercing the veil” regulations across countries are measured in Belenzon, Lee & Pataconi (2018).

²² These regulations are explained in Diaw (2004) and, for the Chinese case, in Wenxuan & Lee (2014). Interestingly, Desai et al. (2004) show that when host countries liberalize ownership restrictions US multinationals respond by using wholly owned affiliates instead of joint ventures.

$$V(A+B) > V_P(A) + V_S(B) = V(A) + V(B) + FG(\alpha) \text{ with } FG(\alpha) > 0 \text{ if and only if } \alpha > \bar{\alpha}.$$

In this case the optimal stake of the parent in the subsidiary will be the minimum that confers control of asset B so we will observe partially owned subsidiaries. The minimum stake could be just above 50% but, specially for large subsidiaries it may be below 50%. What confers value to the subsidiary is the joint operations between A and B and the owner of stake $1-\alpha$ benefits from sharing this value but does not necessarily add to it.

2.2.c. Cooperation incentives

The third reason why groups are valuable is the generation of cooperation incentives (CI) for the owners of complementary assets. This happens when it is not optimal for the parent to exert complete control over asset B because a third party can make a valuable contribution to this asset. And, in parallel, the value of asset B in the subsidiary benefits from its relationship to the parent's asset A. The benefits from generating CI explain the setting up of joint ventures and also the creation of subsidiaries in different countries, different industries, segments within the industry, etc.

When firms have different resources and capabilities, pooling them together can allow them to develop or produce products with higher efficiency and lower transaction costs²³. This may be especially important for firms with valuable intangible assets -such as patents, R&D knowledge, product quality reputation and even superior management techniques. Intangible assets can increase their value within a group structure because of the easy transferability of these assets and their "non-rival" nature. These characteristics allow their simultaneous exploitation by different firms, each of which can use these assets together with their own specific assets²⁴. Moreover, when the two firms are in different countries the local firm can bring valuable knowledge of local business networks, relevant regulations and practices business-related, and even awareness of cultural and political issues²⁵.

Cooperation incentives may also be the reason for setting up wholly owned subsidiaries. This happens when specific investments are better monitored (and managers better incentivized) when the assets are located in a new firm. This is in fact a common reason for spin-offs²⁶. Nevertheless, CI will typically be higher when the subsidiary is not wholly owned because, in this case, incentives are generated by offering an ownership stake to the party whose cooperation is sought. Therefore, in our formulation of group value we measure CI as a function of the minority's stake, $CI(1-\alpha)$. Cooperation between the owners produces higher total group value when:

$$V_P(A) + V_S(B) = \text{Max}[V(A+B); V(A)+V(B)] + CI(1-\alpha) \text{ with } CI(1-\alpha) > 0.$$

The value of α will determine the relative incentives to cooperate of the two owners. As a general rule, the optimal value of α that maximizes cooperation incentives requires that both firms share equally in the surplus²⁷. This implies that the owner with the more valuable contribution should get a higher ownership stake to compensate for the higher cost of its contribution, so that in equilibrium the marginal incentives to invest are equal. Thus, the optimal value of α will depend on the asymmetry between the two owners in terms of the amount and

²³ Chaturvedi & Gaur (2008) classify the many different reasons why firms cooperate.

²⁴ As explained by Gattai (2010).

²⁵ With evidence provided by Perkins, Morck & Yeung (2014) and Delios & Henisz (2004).

²⁶ See Krishnaswami & Subramaniam (1999).

²⁷ Early theoretical analyses are Bhattacharyya & Lafontaine (1995) and Holmström (1999).

quality of assets they contribute, their different research capabilities, cost structures and private information²⁸.

In this section, we have seen that groups may arise to reap benefits from regulatory arbitrage, relaxation of growth constraints and incentives to cooperate, and that the ownership structure of the group may determine the total gains. Nevertheless, so far, we have left aside issues related to governance and decision-making processes in the group that will be discussed in the next section.

3 Corporate Governance Conflicts in Groups

In this section we will explain the corporate governance conflicts that hinder group efficiency. The separation of the ownership of the subsidiary between the parent and other shareholders (measured by the stake α of the parent in the subsidiary) produces severe inefficiencies in the decision-making process of the group that can lead to both expropriation and holdup problems. Even though some of these conflicts may look similar to the ones we observe in stand-alone companies, the complementarities between the parent's asset, A, and the subsidiary's asset B generate an additional layer of complexity. This additional complexity caused by the double relationship of the parent with the subsidiary -as both shareholder and business stakeholder- can render these problems very difficult to handle.

The basic problems of corporate governance in firms with concentrated ownership are minority expropriation and holdup.

The problem of expropriation has been studied by vast literature focusing on the effects of concentrated ownership on firm performance. The first papers in this literature looked at the benefits that large shareholders bring to the firm by providing monitoring and reducing managerial agency costs²⁹. However, a more nuanced view soon appeared describing how large shareholders can take advantage of the wedge between cash flow rights and ownership rights to derive private benefits at the expense of minority shareholders³⁰. The economic importance of this theoretical account has been confirmed by multiple empirical studies showing reduced firm value when the control rights of the large shareholders differ from their cash flow rights³¹. These problems are even more acute when the controlling shareholder uses ownership mechanisms that increase the wedge between control and cash-flow rights, such as stock pyramids and cross-holdings³².

The holdup problem arises when firm value depends on the investments that each owner makes in the jointly owned firm, which leaves them vulnerable to potential opportunism from the other

²⁸ Different authors focus on different types of asymmetries. We refer the reader to Röller, Siebert & Tombak (2007), Belleflamme & Bloch (2000), De Bondt (1997), Veugelers & Kesteloot (1996), Darrough & Stoughton (1989).

²⁹ Among the first to model the role of large shareholders are Burkart, Gromb & Panunzi (1997) and Pagano & Röell (1998). This perspective has been more recently reassessed by Goshen & Hamdani (2016).

³⁰ Gompers, Ishii & Metrick (2003), Giannetti & Koskinen (2010) and Giroud & Mueller (2011) provide evidence showing that firms in which private benefits are likely to be high have lower market values and earn significantly lower stock returns.

³¹ Among them Claessens, Djankov & Lang (2000) and Faccio & Lang (2002).

³² See Bertrand, Mehta & Mullainathan (2002) and Baek et al. (2006).

owners³³ and reduces the attractiveness of joint ownership. Holdup risk threatens both the ownership and the business relationships that characterize groups and explains the use of contractual mechanisms and shareholder agreements typically found in close corporations³⁴.

Holdup threatens groups' ownership relationships when one party proposes a buying or selling price to dissolve the group, which is a common problem for joint ventures³⁵. Holdup also jeopardizes groups' business relationships, a very serious concern for strategic alliances and joint ventures that suffer from the fear of "dissipation"³⁶. It has been argued that the risk of holdup in groups can be reduced through the building of trust and commitment³⁷, and lack of trust is considered a major reason for the failure of strategic ventures³⁸.

The loss in value caused by the expropriation and holdup risk becomes clear when one analyses the maximization problem of the group. Recall that we have argued that groups are economically valuable when

$$V_p(A) + V_s(B) > \max[V(A+B); V(A) + V(B)].$$

And the first best approach to decision making in this setting is to maximize the joint value

$$\text{Max } [V_p(A) + V_s(B)].$$

However, the parent only holds a controlling stake α in the subsidiary, and its maximization problem differs from the problem above, becoming

$$\text{Max } [V_p(A) + \alpha V_s(B)].$$

Therefore, expropriation of the minority in the subsidiary, happens because, from the perspective of the parent, wealth transfers from the subsidiary to the parent become more attractive as α goes down. This can be captured in the model assuming a transfer cost c that allows the parent to move a fraction δ of valuable assets from the subsidiary to the parent

$$\text{Max } [V_p(A + \delta B/c) + \alpha V_s((1-\delta)B)]$$

$$\text{with } c \geq 1 \text{ \& } \delta \in (0,1).$$

If these wealth transfers are assumed to be costless ($c=1$) the only problem that appears is that the additional value is not allocated in a proportional fashion across the parent and the subsidiary, which reduces the incentives of the minority to contribute to the venture³⁹. Nevertheless, it is more realistic to assume that wealth transfers are costly ($c>1$), because wealth transfers may need covert means on transactions that are intuitively costly and/or they can make the subsidiary or the parent's operations less efficient. If transfers are costly, the total value generated by the group will be further damaged by the parent's ex-post incentives to

³³ For an analysis of holdup problems see Williamson (1985), Grossman & Hart (1986) and Rock & Wachter (2000).

³⁴ These contracts are explained in Chemla, Ljungqvist & Habib (2007) and Gomstian (2016).

³⁵ Auction systems such as the "Russian roulette" or the "Texas shoot-out" mechanism as solutions to resolve deadlocks in this setting are explained by McCahery & Vermeulen (2008).

³⁶ Dissipation of knowledge is especially acute when local counterparts of a foreign parent company are able to appropriate production secrets and copy final goods and potentially start a rival firm with the stolen knowledge (Gattai 2010, Rugman 1986).

³⁷ On problems of trust in alliances see Das & Teng (2001) and Chaturdevi & Gaur (2008).

³⁸ McCahery & Vermeulen (2008) find that the majority of joint ventures break down within seven years.

³⁹ For an analysis of this problem see Bebchuk & Roe (1999).

expropriate. For small values of α , the parent may choose a high transfer rate δ , even if c is large, so that a large part of total gains ($V_P(A+\delta B/c) + V_S((1-\delta)B)$) is lost through these transfers⁴⁰.

Notice also that if we were dealing with a stand-alone firm, increasing α would be the obvious solution to this problem⁴¹. But, in a group setting, increasing α does not necessarily increase the value of the group. First, the benefits of RA may be lost if the law imposes a maximum amount $\hat{\alpha}$ to allow for a differential regulatory framework for the subsidiary. Second, increasing the minimum necessary to get control, $\bar{\alpha}$, reduces the benefits from GF because it makes it more difficult to access complementary assets with scarce funds. Third, as the fraction $1-\alpha$ owned by the minority in the subsidiary decreases, CI are also reduced. In fact, since the minority only receives $(1-\alpha)V_S((1-\delta)B)$, as α increases the minority may also have incentives to jeopardize some of the business dealings between the parent and the subsidiary if this allows them to transfer value from the parent to the subsidiary, i.e. a negative δ . They can achieve this by moving part of B outside the group, which typically happens when minority partner uses skills and knowledge acquired in the subsidiary to start a competing firm⁴².

The existence of corporate governance conflicts in groups implies that we could have a situation where -even though the group is a valuable organizational form- there is an ample room for expropriation and holdup. This implies we may observe simultaneously

$$V_P(A) + V_S(B) > \max[V(A+B); V(A) + V(B)]$$

and

$$V_S(B) < V(B) \text{ or } V_P(A) < V(A).$$

Clearly, this situation does not constitute a stable equilibrium because either the parent or the minority would prefer to leave the group. And, it is true that empirically groups are often designed to last for short time periods and they have been observed to break up at high rates⁴³. However, the prevalence of group arrangements throughout the world implies that many groups have found alternative corporate governance solutions to contain these problems. In the next three sections we present in turn three alternative remedies and discuss their benefits and costs.

4 Group governance through regulation: Ownership based control

In a group the parent is a controlling shareholder of the subsidiary. Therefore, the legal remedies that have been developed to curtail the power of controlling shareholders can also be applied to the corporate group to control the corporate governance problems between parent and the minority interest in the subsidiary. In fact, as we will see, this is the approach that some countries, and, in particular, the US, use to monitor intragroup dealings.

⁴⁰ Gutiérrez & Sáez (2017) study the expropriation problem in a stand-alone company with a controlling shareholder and show that asymmetric information plays an important role in allowing the controlling shareholder to obtain private benefits at the expense of the minority.

⁴¹ See the theoretical analysis provided by Bennedsen & Wolfenzon (2000).

⁴² Formal analysis of this problem are found in Fosfuri (2000), Fosfuri, Motta & Ronde (2001) and Smith (2001).

⁴³ Evidence on break up rates is provided by Perkins, Morck & Yeung (2014), Makino, Chan & Beamish (2007) and Delios & Beamish (2004).

Nevertheless, this approach ignores that the parent is also a business stakeholder of the subsidiary. In groups, the decisions on how to manage the relationship between assets in the parent and the subsidiary do not only depend on the ownership rights of the parent, but also on business relationships between parent and subsidiary that links assets A and B. If legal remedies only curtail the power that stems from ownership rights and leave untouched the power that the parent can exercise as business partner, they will be too permissive and fall short of resolving expropriation. On the other hand, if legal remedies prevent the parent from exercising control over group business decisions when the parent's assets interact with the subsidiary's assets, they will severely reduce the value created by the group structure.

Probably, the awareness of the dual dimensions of the relationship between parent corporation and its affiliates has led some jurisdictions to develop special laws to regulate groups as a distinctive legal form. Nevertheless, as we will discuss, even these specific group regulations fail to offer workable solutions to this problem.

4.1 Legal remedies against expropriation by controlling shareholders

Controlling shareholders can bring both important benefits and serious problems in terms of corporate governance⁴⁴. The challenge for the regulator is to protect the minority while preserving the monitoring and idiosyncratic contributions of the controlling shareholder⁴⁵. In fact, there are two distinct approaches to this problem⁴⁶. Some jurisdictions, most notably the U.S., emphasize the fiduciary relationship that arises between the controlling shareholder and the minority. While others emphasize the legal right of any shareholder to freely vote its stake, irrespectively of its size.

Consider first the US case, where the focus is on the dominant managerial power of the controlling shareholder, rather than on its consideration as a shareholder. In cases of conflict of interests, US courts make the controlling shareholder liable for breach of its (managerial) fiduciary duties towards minority shareholders. This perspective emphasizes the agency costs and conflicts of interests of the controlling shareholder: in conflicted transactions this will result in minority expropriation, with the controlling shareholder obtaining a disproportionate share of the benefits. Moreover, controlling shareholders do not get a more favourable treatment due to their role as shareholders. On the contrary, they are subject to an even harsher review standard than managers - the entire fairness review- and additionally, the controlling shareholder bears the burden of proof.

Conversely, in most countries, and in particular in Continental European jurisdictions, majority voting is the automatic dispute resolution mechanism. And, although in some exceptional cases of conflicts of interest the conflicted shareholder must abstain from voting, the general rule is that there are no limits to the exercise of voting rights, in so far as the decision taken is -in a broad sense- lawful. Therefore, litigation mechanisms allowing the courts to nullify outrageous unlawful decisions are put in place.

Despite the differences, both approaches rely on a mixture of (albeit a dissimilar one) ex-ante rules and ex-post litigation, each facing its own limitations when dealing with corporate groups.

⁴⁴ See discussion about concentrated ownership in Section 3.

⁴⁵ This tension is explained in Djankov et al. (2008), Gilson & Schwartz (2013), and Gutiérrez & Sáez (2017).

⁴⁶ Gutiérrez & Sáez (2018) (claim that the protection of outside investors of European controlled companies largely relies on empowering active shareholders whereas the US has favored shielding passive investors through liability).

4.2 Reduced efficiency of ex-ante anti-expropriation measures in groups

In the context of stand-alone firms, different jurisdictions have converged to similar ex-ante rules⁴⁷. These ex-ante measures increase the decision rights of the minority shareholders or independent directors vis à vis the controlling shareholder in cases of conflict of interest. The common view is that these ex-ante approaches are quite effective to control salient operations that may give rise to substantial minority expropriation such as freeze-outs, excessive compensation, and RPT. By complying with these ex-ante restrictions, firms can avoid ex-post revision of conflicted transactions when this revision is inefficient because it is deemed harsh, costly or weak.

As a first example of how ex-ante rules operate, consider Delaware law. After the MFW decision (*Kahn v. M&F Worldwide Corp.*)⁴⁸, if a transaction between a controlling shareholder and a company is approved by both an independent committee and a majority of minority shareholders, in case of litigation, the court will soften the standard of review⁴⁹. A different rationale for ex-ante rules is found in European jurisdictions where controlling shareholders are common but judicial review is not as effective as in the US⁵⁰. These jurisdictions, as well as the European lawmaker, have gradually adopted rules to limit the voting power of the controlling shareholder in conflicted transactions. In particular, the Related Party Transactions (RPT) Directive is the last example of this new regulatory approach to the problems of controlling shareholders, requiring Member States to implement special approval and disclosure mechanisms for listed firms⁵¹.

These ex-ante rules can be applied to corporate groups where the parent is a controlling corporation that has control over different legal entities (the subsidiaries or controlled firms). In fact, the only formal difference between the case of a group and the case of a controlling shareholder in a stand-alone corporation is that there are now two or more companies rather than one.

Notice that in terms of our model, applying ex-ante anti-expropriation measures to groups changes their maximization problem. If the parent must abstain from voting conflicted decisions taken by the subsidiary, only the interest of the subsidiary will be maximized. This amounts to solving separately two independent maximization problems

$$\text{Max } V_P(A) \ \& \ \text{Max } V_S(B).$$

This separation tries to guarantee that $V_S(B) > V(B)$, so that there is no minority expropriation; and $V_P(A) > V(A)$, so that there is no holdup. But, because the regulation has been designed for controlling shareholders, we are ignoring the additional problems that will arise because of the stakeholder nature of the parent in the group. As an example, consider the case where the parent is supplying inputs to the subsidiary, but ex-ante voting rules prevent the parent from determining the transfer pricing. As a stakeholder of the subsidiary, the parent, not being able to manipulate the price upwards, still retains the power to alter the quality of the supplies or

⁴⁷ For a review of these rules see Enriques (2017).

⁴⁸ See also Rock (2019).

⁴⁹ Licht (2020) argues that Delaware's corporate law is set on a trajectory that would eventually lead to reforming its doctrine of entire fairness as we now know it by retiring the doctrine's substantive fairness review prong and insisting on fully-informed consent as the only way for validating tainted transactions.

⁵⁰ Johnson et al. (2000) illustrate how law and judicial review accommodates tunneling in these countries through the analysis of several important legal cases from France, Belgium, and Italy.

⁵¹ On this see Davies et al. (2020), arguing that the requirements of Article 9c for approval of RPT have been watered down by member States and have limited impact.

withhold them from the subsidiary, thus reducing drastically the complementarities that make the subsidiary valuable. Specifically, there are three main reasons why ex-ante measures are inefficient in group settings.

4.2.a. Incidence of conflicted transactions

First, implementation costs of the ex-ante approach will be considerably higher in groups, where conflicted transactions are both frequent and conflicted. Subsidiaries have frequent business relationships among them and with the parent. Moreover, not only is the number of transactions with related parties larger but, additionally, they are more likely to be conflicted. Most of the assets of the parent are outside the subsidiary, which is not necessarily the case for a controlling shareholder, so strategic decisions aimed at maximizing total asset value will very often result in losses for the subsidiary. In other words, it may be better for the parent to reduce its profits from a particular subsidiary and pursue a business opportunity through another affiliate. This makes the interest of the parent as a controlling shareholder clash very often with the interest of the minority shareholders of a given subsidiary.

4.2.b. Information loss

Second, ex-ante measures require the controlling shareholder to abstain from voting, which implies some information loss, and this cost will be more acute in groups. In order to exploit asset complementarities, the group structure usually functions under unified control or group management; and information and instructions will usually flow from one firm, the parent, to the others, the affiliates⁵². Business decisions that affect the subsidiary are usually taken at a higher level, where the information from all subsidiaries can be aggregated. The decision is then implemented through instructions to the managers and directors of each subsidiary, who cannot have access to all the information produced by all the different affiliates. The fact that many strategic decisions are removed from each individual subsidiary introduces an additional layer of complexity, and reduces the efficiency of decisions made only by the disinterested directors of each subsidiary, compared to the case of a stand-alone firm with a controlling shareholder.

4.2.c. Threat of hold-up

Third, reducing the voting power of the parent can leave the parent vulnerable to holdup problems. In a stand-alone firm, curtailing the power of the controlling shareholder, and letting the minority pursue its interest in cases of conflicts of interest, is unlikely to generate substantial holdup problems⁵³. All the relevant assets are in the stand-alone company; simultaneously owned by minority and controlling shareholder. Therefore, in most circumstances, it will be in the best interest of the minority to increase the value of the firms' assets, which is beneficial both to them and to the controlling shareholder⁵⁴. In a group, a large part of the complementary assets is separately owned by the parent. Ex-ante rules, by increasing the voting power of the minority, place shareholders of the subsidiary in a powerful position to affect the value of the parent's assets. And the parent's assets may be several orders of magnitude larger than the assets in the subsidiary. Therefore, in groups it seems difficult to reduce minority expropriation

⁵² As explained in detail in Kim, Prescott & Min (2005).

⁵³ It might seem at a first glance that Majority of the Minority (MOM) approval disempowers controlling shareholders or allows the minority to holdup the controller and extract a higher part of the surplus, as argued by Goshen (2003). Nevertheless, Rock (2019) argues that the risk of strategical behavior seems not to be a real problem according to the American experience.

⁵⁴ Excluding perhaps situations that can give rise to empty voting by investment funds as explained by Hu & Black (2007).

problems by empowering the minority to control all business transactions without generating significant potential for holdup⁵⁵.

All these costs that ex-ante rules have in groups reduce the value of the group and may even imply that the total value of the group falls below the total value of the two individual firms. In this vein, it is worth noticing that in the European setting, the art. 9c (6) a) of the Directive 2007/36/EC that regulates related party transactions allows the member States to exclude ex-ante approval mechanisms “for transactions entered into between the company and its subsidiaries” provided that “national law provides for adequate protection of interests of the company, of the subsidiary and of their shareholders who are not a related party, including minority shareholders in such transactions”. If ex-ante approval is waived minority protection will come either from ex-post liability for the parent and/or compensation for the minority. Nevertheless, one can also interpret the Directive as encouraging the countries’ lawmakers to enact specific rules regulating corporate groups to opt out of ex-ante rules on RPT. In the next two subsections we will discuss in turn the ex-post measures and existing group specific regulations and evaluate the protection they offer for the minority shareholders of the subsidiary.

4.3 Reduced efficiency of ex-post anti-expropriation measures in groups

The effectiveness of ex-post litigation to solve conflicts of interests among shareholders varies greatly across jurisdictions depending on whether the controlling shareholder is considered a fiduciary and on the interplay between ex-ante rules and judicial review.

Consider first the case where the controlling shareholder is treated as a fiduciary (which is the case of Delaware). When the conflicted party is a controlling shareholder, both the burden of proof and the enhanced standard of scrutiny applied by the court -the entire fairness review- are harsher than in the case of managers. As a result, the liability risk for the controlling shareholder seriously increases. Nevertheless, complying with procedural steps -like the ex-ante independent board and majority of the minority approval- can substantially reduce the ex-post judicial scrutiny from the entire fairness test to a business judgement test. The application of this legal framework to groups reduces dramatically the attractiveness of this organizational form. Severe ex-post liability for the fiduciary controlling shareholder can only be avoided by strictly applying ex-ante rules that, as we have discussed above, are especially costly and difficult for groups⁵⁶.

Countries where groups are prevalent apply a more lenient standard of review for intra group transactions: ex-post strategies are softer on the controlling shareholder, who is not considered a fiduciary. Shielding the controlling shareholder from managerial liability greatly reduces the threat of ex-post review. Moreover, while the controlling shareholder may be required to abstain in conflicted transactions, the ex-ante rules in these countries are usually more relaxed for groups. Two different cases can illustrate these lenient standards.

⁵⁵ Nevertheless, Dammann (2019) at p. 237 argues that many business opportunity decisions made by the parent that do not qualify as self-dealing are under the radar of the regulation.

⁵⁶ As stated by the Delaware Supreme Court, in a parent-subsidiary situation, *Weinberger v. UOP, Inc* “Thus, individuals who act in a dual capacity as directors of two corporations, one of whom is the parent and the other subsidiary, owe the same duty of good management to both corporations, and in the absence of an independent negotiating structure or the directors’ total abstention from any participation in the matter, this duty is to be exercised in light of what is best for both companies”.

First, under Spanish law, ex-ante procedural steps are relaxed for groups (abstention of the conflicted party is not required), while ex-post mechanisms (specifically lawsuits allowing the nullification of corporate decisions) are strengthened by the reversal of the burden of proof. The parent, as a shareholder of the subsidiary, or its designees at the board of the subsidiary, are allowed to vote in relation to the operations between companies in the same group. However, in the event of a challenge of the approved operation, they are subject to the reversal of the burden of proof and must prove that the transaction was in accordance with the company's (the subsidiary) interest⁵⁷. In doing this, the Spanish literature considers that introducing in the law the reversal of the burden of proof for the nullification procedure of a conflicted transaction ensures that the judicial ex-post review satisfies the entire fairness standard and that the minority receives a fair deal⁵⁸.

Second, Andreas Engert offers an alternative approach to minority protection that relies on ex-post enforcement of the parent's designee directors' fiduciary duties for minority protection⁵⁹. He proposes that in corporate groups, directors' fiduciary duties can do the job of protecting the minority, while allowing for cooperation incentives. The parent, or its designee directors at the subsidiary's board, can use their voting power in conflicted transactions. But the designee directors, because of their fiduciary duties, must ensure that an appropriate share of the surplus from these intra-group transactions goes to the subsidiary. Otherwise, the subsidiary directors would be liable in case of litigation. In other words: *"to avoid breaching their duty to the corporation, directors have to refuse to sign a contract to the parent or another group entity if they perceived the price to be unfair to the subsidiary"*⁶⁰.

In both cases, the aim is to allow for centralized control of the group but ensuring that the minority is fairly treated. The parent can require the subsidiary to share private information and propose -and even vote- conflicted transactions as long as the directors fulfil their fiduciary duties. In terms of our model, under this view the parent maximizes its interest in the group, but there can be ex-post penalties if there is minority expropriation. Therefore, the maximization problem becomes

$$\text{Max } [V_p(A) + \alpha V_s(B)]$$

$$\text{Subject to } V_s(B) \geq V(B).$$

Along these lines, the protection of external shareholders relies on the understanding that the parent has the control rights to set the business strategy of the firm, and this favours complementarities. Moreover, minority shareholders of the subsidiary should only demand a fair distribution of the expected value. So, the key for enforcement is the comparison of $V_s(B)$ and $V(B)$, which requires determining fair value. It is quite obvious that these ex-post remedies will face three important problems.

4.3.a. Enforcement inefficiencies

⁵⁷ The projected arts. 231-bis.2 and 529 duovicies LSC, which excludes groups from the requirements of related party transactions via art. 9c. 6 a) of the Directive. In addition, major related party transactions (those exceeding 10% of the asset) are required to be submitted to the shareholders meeting, and the conflicted shareholder can vote without risking the reversal rule if the operation has previously been approved by the board without voting against the majority of independent directors.

⁵⁸ See Paz-Ares (2019).

⁵⁹ Engert (2016) explores the nature of control rights in the corporate group and shows the complexities relative to the control rights arising in a stand-alone firm.

⁶⁰ Engert, p. 26.

First, the enforcement of (managerial) fiduciary duties is underdeveloped in most jurisdictions outside the US. Therefore, the risk of liability is low both for controlling shareholders and for parent designee directors⁶¹. In these jurisdictions, cases of successful litigation against directors are very rare⁶². Moreover, the entire fairness test describes what a plaintiff must plead, and, when the reversal of proof operates what the defendant must demonstrate for the plaintiff not to prevail. Transplanting this judicial standard of review as a rule into company law does not ensure its adequate application by inexperienced judges, with a “mechanical” and “procedural” conception of decision making inside corporations, and lacking in business insight⁶³. In this sense, the stringent requirement that the transaction is entirely or objectively fair, breaks away from the traditional conception of the interest of the company applied by courts in these jurisdictions. As a matter of fact, in these jurisdictions, courts are prone to declare the business rationale of tainted transactions by powerful insiders to be according to the interest of the company⁶⁴. In any case, as the experience shows, even jurisdictions with great experience in assessing stringent ex-post measures are moving towards ex-ante approval mechanisms (namely, a property-rule regime that ensures the beneficiary’s fully informed consent)⁶⁵. All these reasons explain why at the EU level the protection of external investors in controlled firms has focused mainly on ex-ante consent-based protections which reallocate control rights in case of conflicted transactions.

4.3.b. Fair value determination

Second, determination of fair value (needed to ensure that the subsidiary received a reasonable price or share of the surplus) is particularly complex in business dealings between parent and subsidiary. Given that groups are set up to facilitate joint use of assets, most intra group transactions will be tailor-made to the specific requirements of the parent and subsidiary. In particular, affiliated companies may produce exclusively for other subsidiaries in the group, setting up an internal market inside the group structure. Finding comparable market transactions will be very difficult. Moreover, a fair value can only be assigned to transactions that actually took place, while in a group expropriation of the minority can happen by deviating operations to other subsidiaries. The (entire) fairness of the transaction is more difficult to evaluate in terms of opportunity costs for transactions that did not take place.

4.3.c. Conflicted fiduciary duties

Third, in groups, directors face increased agency costs related to the exercise of fiduciary duties. From a legal point of view, in many jurisdictions, boards are expected to be completely independent in their strategic choices and directors’ loyalty duties prevent them from sharing information or receiving instructions from a particular shareholder⁶⁶. This narrative is hard to reconcile with the functioning groups, because the parent’s appointed directors in the

⁶¹ As discussed by Gutiérrez & Sáez (2018). Regarding this issue, statements of strict loyalty requirements of directors serving on the board of a controlled subsidiary are very common in many European jurisdictions. Nevertheless, it is worth noticing that they may only be a formalistic expression of an idealized corporate model of director independence, deprived of a substantive tie to a duty of the controlling shareholder.

⁶² Gelter (2012), searching for derivative suits where self-dealing by controlling shareholders is alleged, finds only two cases in Germany, two in Italy, and one in France from 2000 to 2007.

⁶³ Licht (2020) argues that transplanting an “entire fairness” review to Israel has produced regression instead of progress in RPT regulation.

⁶⁴ For a discussion of this problem see Gutiérrez and Sáez (2018). Moreover, analyzing the case of legal transplants, some commentators have highlighted the power of local insiders, and countries’ cultural, legal and social institutions to make the transplant fail (Kanda & Milhaupt, 2003, and Licht, 2004).

⁶⁵ Licht (2019b) states: “Allowing fiduciaries to engage in RTPs in a liability-rule-like regime is tantamount to giving them a license to expropriate with impunity”.

⁶⁶ For a comparative legal perspective, see Gelter & Helleringer (2015).

subsidiaries offer a clear case of dual directorships (the director acts in a dual capacity and owes “undivided” loyalty to two different companies)⁶⁷. The narrative is not very functional or realistic either, because managers and directors are likely to receive valuable information from the controlling shareholder⁶⁸. In fact, designee directors are the means through which controlling shareholders exert control in the subsidiary⁶⁹.

In this context, it becomes an intractable challenge to determine whether directors have met their fiduciary obligations. Corporate opportunity doctrine shows the challenges that loyalty duties of directors pose in corporate structures involving the overlap of the parent and its affiliates in terms of ownership, board composition and industry⁷⁰. Moreover, as explained before, the directors of the subsidiary will typically have less information than the parent and will be expected to implement business decisions taken at the parent level and to follow parent’s instructions. Finally, even if the directors prevent an unfair transaction from happening, the parent, as a stakeholder, may find alternative ways of transferring value from the subsidiary to the parent⁷¹.

4.4 Group specific regulation

We have explained the limits that legal rules designed to generally deal with controlling shareholders encounter when applied to corporate groups. Interestingly, some jurisdictions have developed extensive specific group regulations. We focus on the effectiveness of these rules to prevent expropriation and classify them into two groups. One of them, where we include both the French and the Italian systems, is highly tolerant of expropriation. The other approach is the German group’s regulation, which, coming across as very protective of the minority interests, has serious practical limitations.

4.4.a. Limiting holdup: French and Italian group regulation

⁶⁷ It is very interesting to notice that in jurisdictions with controlling shareholders are common, like Germany, the issue has been discussed for employees’ representatives or minority representatives, but not for the elephant in the room, the controlling shareholders or the parent’s designees. Nevertheless, the doctrine applies to directors as a homogeneous group. Regarding this issue, Gelter & Helleringer explain that “According to what is probably the majority rule, instructions are not even possible when the corporation is part of the corporate group”.

⁶⁸ Regarding parent-subsidiary transactions in the US, Moscow (2002) argues that “Despite the rigidity of the general proposition that a representative director must act independently, cases allow promotion of a sponsor’s interest and transactions with the sponsor if reasonable procedures are followed”.

⁶⁹ Authors such as Hopt & Roth (2005) recommended appointed directors -such as creditors’ designees- either to abstain from voting, to recuse themselves, or to resign their position in case of conflicts of interests. Moscow (2002) argues “They should recuse themselves from transactions directly involving their sponsors and resign when a continuing conflict is unavoidable”.

⁷⁰ Rauterberg & Talley (2017) at p. 1095 claim that “there might be some value in allowing parties to prearrange how they would divide property rights over corporate opportunities”.

⁷¹ Consider, as an example, the problems for the directors voting on a merger that the parent has proposed. The price fixed for the merger may not be a market price and, therefore, directors, upholding their fiduciary duties, should vote against the merger. However, failure to complete the merger may lead the parent to drive production away from the subsidiary to an alternative supplier, and this would not be in the interest of the minority shareholders that the director is sworn to protect. The measures that typically protect minority shareholders in stand-alone company reduce the bargaining power the parent holds as a controlling shareholder of the subsidiary. Unfortunately, they can’t prevent the conflicted transaction to go through because of the high bargaining power that the parent has as key business stakeholder.

French and Italian models work under the assumption that being part of a group generates benefits for the minority of the subsidiary that are not quantifiable. These advantages, derived from being part of a group, are expected to offset the damages that intragroup transactions can cause to the subsidiary. According to this view, there is a long-term offsetting between the costs or sacrifices imposed to the subsidiary and the benefits of belonging to the group. The logic of the agreement is based on a *"I'll scratch your back and you'll scratch mine"* attitude. The formalization of this view implies that control rights are acquired when shares are issued or first bought, and the price arranged for this initial transaction should reflect all expected benefits and costs (including expected expropriation). Therefore, no compensation is offered ex-post.

The main consequence of this approach is that the parent enjoys freedom in the way it manages the subsidiary -even if it makes some decisions against the interest of the subsidiary-; as long as, on balance, the total cost of these decisions does not offset the benefits that other intra-group transactions represent for the subsidiary. The net benefit for the subsidiary is not measured for each individual transaction, but based on an evaluation of all operations. The key question here is whether and how judicial review can undertake in practice such a comprehensive examination, measuring effectively all the benefits and costs attributed to being part of a group⁷².

This is a rough explanation of the French Rozenblum or "overall balance" doctrine⁷³, which works as a safe harbour for conflicted transactions that are "in the interest of the group" (and may be harmful for the subsidiary). It is also comprised in statutes, arts. 2497-2497 septies Italian Codice Civile. This perspective has also received attention at the European level⁷⁴, probably, because in an economic area with many groups, this approach is cost effective and does not disrupt the status quo, even if this status quo is not the first best possible ex-ante economic arrangement.

In terms of our model, this approach implies that in conflicted decisions, the parent maximizes its total interest

$$\text{Max } [V_p(A) + \alpha V_s(B)].$$

And, the justification for doing this is that the minority owners of B accepted the arrangement embodied in the participation in the subsidiary belonging to the corporate group because they viewed that $V_s(B) > V(B)$. Therefore, French and Italian group regulation is based on the idea that minority shareholders entering this arrangement are able to price ex-ante their stock with perfect information, considering the future pros and cons of the long-term integration into the group. If the price is correct, there is no room for ex-post compensation once the group is in place⁷⁵. Two considerations are in place.

First, in most cases, it is unlikely that both the parent and the subsidiary are equally well informed and have comparable bargaining power, even at the initial stage. Moreover, the asymmetric information problem may be more or less severe depending on the type of group being created (e.g. asymmetric information may be more serious when setting up a joint venture

⁷² Hopt (2015) explains that French case law imposes three requisites to apply the doctrine: A stable group structure, a coherent group policy by the parent, and an equitable distribution of benefits and costs among subsidiaries.

⁷³ In France the abuse of corporate assets is a crime. Conac (2013) argues the Rozenblum doctrine has been developed by criminal courts to get managers off the hook as long as they acted in the best interest of the group.

⁷⁴ On this see the EU Action Plan on corporate law and corporate governance (2012). Tröger (2014) explains other initiatives like the Forum Europaeum Corporate Law Group, the High-Level Group of Company Law Experts, and the Reflection Group.

⁷⁵ Johnson et al. (2000) offer examples of this kind of reasoning (p. 22ss).

or when searching for a local partner in a foreign country than when spinning off part of a company).

Second, this view does not consider the impact that the permissive nature of this approach has on reinforcing the unequal bargaining power that parent and subsidiary will have when new agreements have to be negotiated. Since the parent is expected to expropriate at a high rate there will be no incentives for the minority to collaborate and make any contribution to the value of the subsidiary. While this may not be very damaging for groups that are formed to gain from regulatory arbitrage or to facilitate growth under financial constraints, it will substantially reduce the value of groups as a cooperation device.

4.4.b. Balancing holdup and minority expropriation: German group legislation

Under German group legislation, control rights linked to ownership prevail, but expropriation should be compensated ex-post by sharing profits⁷⁶. In conflicted decisions, joint interest should be the guiding principle for all. The parent is right in maximizing its joint interest in parent and subsidiary (with compensation offered ex-post) but the minority should also maximize the joint interest (so that holdup is not allowed). No compensation can be offered for holdup (with an implicit view that the value of the subsidiary is small relative to the value of the parent). The logic for this view is that the impact of any decision on the assets outside the subsidiary is bigger than the impact within the subsidiary. Therefore, any loss to the subsidiary is offset by a larger gain to the parent, and the parent can use part of that gain to compensate the subsidiary ex-post.

Decisions that produce low $V_S(B)$ are allowed if ex-post compensation is offered. This can be seen as a strict liability rule (Dammann, 2019), where the parent is free to maximize its joint interest under the restriction of paying compensation for expropriation. The parent faces the following problem,

$$\text{Max } [V_P(A) + \alpha V_S(B) - (1-\alpha)T]$$

$$\text{subject to } T = V(B) - V_S(B).$$

If the transfers were enforced and $V(B)$ was known and exogenous (ex-ante or ex-post) this approach would achieve first best because it would amount to maximizing

$$\text{Max } [V_P(A) + V_S(B) - (1-\alpha)V(B)].$$

Which, given $V(B)$, is the same as maximizing total value of parent and subsidiary. But, if $V(B)$ is not observable -neither ex-ante nor ex-post- the transfer is unlikely to be economically meaningful and it is difficult to enforce.

This approach recognizes the need to protect minority ex-post, departing from the idea that the minority is already well protected through ex-ante bargaining. German law on the books seems very complete and generous towards minority shareholders (including requirements for mandatory annual reports, special audits requested in court by the minority shareholders,

⁷⁶ Germany has a special corporate group law. Codified group law contemplates two different cases: contractual groups, created by contractual agreement, which are rare, and de facto groups, created by ownership. The rule applied to protect minority shareholders at the subsidiaries is annual compensation of the parent for all transactions that are contrary to the subsidiary's interest. A detailed analysis can be found in Hommelhoff (2001), Emmerich & Habersack (2013) and Tröger (2014). See also Alexander Scheuch (2016) on the liability issues related to this law.

examination by the board, etc.)⁷⁷, but in practice it has proved largely ineffective for their protection⁷⁸.

The main problem is that enforcement is very costly, in particular because it is almost impossible to identify and measure opportunity costs of decisions not taken. Informational asymmetry is hard to overcome through reporting rules or audits. Even if the parent is obliged to report all the disadvantages suffered by the subsidiary that resulted from the parent's influence, omissions are hard to uncover. A special audit can reveal or expose inconsistencies in the reported information, but it is unfit to discover business opportunities that are missing. Additionally, unlike the US case, law in action is not assisted by procedural rules on pretrial discovery (Dammann, 2019), which are more operative than extensive mandatory rights (on the books) for the minority. Finally, the board of the subsidiary might not have enough incentives to take legal action against the parent.

The policy conclusion that can be drawn from our review of the existing regulatory solutions is that neither corporate law approaches, nor specific group legislation are satisfactory in tackling the severe corporate governance problems that corporate groups face. Regulatory protection is based on the restriction of the ownership control rights of the parent in situations of conflict of interest arising in the subsidiary. However, in the next two sections we will look into two alternative self-enforcing approaches that allow groups to opt out of a given regulation and offer two alternative ways of sharing control. Shareholder agreements decouple control rights from ownership rights, while equal ownership arrangements commit the parties to share control and avoid giving control to any party.

5 Group governance through contracts: decoupling group ownership and control

In this section we will consider shareholder agreements as an alternative solution to expropriation problems in groups. To the extent contracts can act irrespectively of the country's legal rules, they can improve upon regulatory solutions. In this sense, in a Coasean world parties can bargain for efficient rules tailoring governance and corporate control. However, in a world with transaction costs (due, among others, to restrictions of contractual freedom), contracts will only achieve second best solutions. Our claim is that transaction costs may be high in jurisdictions reluctant to give contractual freedom to the shareholders and to uphold (potentially superior) corporate governance agreements which divert from mandatory corporate law.

5.1 Shaping control through contracts

The essential role of shareholder agreements is to make the voting power of shareholders a function of contract, rather than a function of ownership (Rauterberg, 2020). By doing so, shareholders opt out of the legal rules that govern corporations based on ownership. Sophisticated non-controlling investors (such as venture capitalists and private equity funds) use these agreements routinely to separate voting-rights from control-rights in stand-alone corporations⁷⁹. This means that rather than being treated as a minority that needs protection

⁷⁷ AktG paragraphs 312 ss.

⁷⁸ Nevertheless, the common opinion among German legal scholars has been of satisfaction for the completeness of this body of law, as explained in Trögger (2019) p. 446.

⁷⁹ Rauterberg (2020) argues that control is perhaps best understood as a multi-dimensional space with "at least two dimensions, residual control exercised directly through voting or the board and contractual

from the decision of the controller, they get to make decisions despite their reduced ownership stake (for instance, contractual arrangements securing representation on the board allows them to take an active part in controlling the corporation's decisions).

These ideas are confirmed by the theoretical and empirical literature showing that shareholders try to escape inefficient regulations by seeking contractual protection. Chemla, Habib and Ljungqvist (2004) analyse the typical provisions in joint-venture and private-equity agreements. These are rights of first refusal, buyout, sell-out and other option-like provisions that allow the partners to reallocate control while preserving the incentives they receive from cash-flow rights. The usefulness of contracts in decoupling cash-flow and control rights explains why buyout and sell-out rights (present in 34.35% of JVs) and option-like provisions are much more common in JVs with one-sided control (Habib and Mella-Barral, 2005, Nöldeke and Schmidt, 1998). These agreements appear even in listed firms and are very common in very large non-listed firms (i.e. "unicorns")⁸⁰. The typical contracts in these cases include veto rights over major corporate decisions, the composition of the board of directors, and loyalty duties. Additionally, the parties may contract the forum of litigation or mandate arbitration of claims.

5.2 Contracting over control as a governance mechanism in groups

Contractual solutions avoid many of the problems of regulation by offering ex-ante protection that can be tailored to the needs of the parties. Shareholders agreements will deal only with key conflicted transactions, such as directors' appointments, mergers and acquisitions, or sale of key strategic assets, which will be different in each case and depend on the particular complementarity that exists between the assets of the parent and subsidiary. Imagine the case of a US parent that manufactures state-of-the-art technology through a Chinese subsidiary; clearly patent protection to avoid "dissipation" will be a major source of conflict. However, as a counter example, we can think of a vertically integrated company which uses subsidiaries in different countries to distribute its finished products. In this case, conflict between partners is more likely to arise regarding exclusive distribution rights. Specific contracts can be tailored to these particular conflicts while leaving all other business decisions to be determined by directors according to ownership stakes and cooperation incentives.

This contractual solution is more efficient than ex-ante regulation. First, it reduces implementation costs for most business decisions not affected by the contract. Second, it allows for a more informed decision process where the parent and/or the directors nominated by the parent can make use of their superior information. Third, contracts can include veto rights for the minority for decisions that affect their strategic contribution to the venture and make them vulnerable to expropriation; while at the same time contracts do not shift control to the minority, therefore protecting parent's assets from minority holdup. Finally, contracting on loyalty duties may be crucial in a group setting to determine the allocation of corporate opportunities between the parent and subsidiaries and offer a waiver for some related party transactions⁸¹.

control rights" (p. 41). In contrast, Fisch (2020) states that "shareholders agreements are inappropriate tools for private ordering and that firm-specific tailoring of governance rights in both public and private corporations should be restricted to the charters and bylaws".

⁸⁰ With empirical evidence provided by Lerner, Chernenko & Zeng (forthcoming).

⁸¹ For a discussion of this issue see Rauterberg and Talley (2017).

These contracts act as a restriction on the type of decisions that can be taken without the agreement of both parties, and, therefore, the maximization problem faced by the parent changes to:

$$\begin{aligned} & \text{Max } [V_p(A) + \alpha V_s(B)] \\ & \text{Subject to: } V_p(A) > \widehat{V(A)} \text{ and } V_s(B) > \widehat{V(B)} \end{aligned}$$

Where, the contract details determine the minimum value thresholds that guarantee that the contract is not being breached, $\widehat{V(A)}$ and $\widehat{V(B)}$. Looking at this maximization problem we notice the advantages over the restrictions imposed by legal rules. First, joint maximization is respected, which preserves information and keeps implementation costs low. Second, of course, corporate governance problems may still arise for any $\alpha < 1$, but the evaluation and prevention of these problems does no longer depend on largely unobservable and unverifiable values $V(A)$ and $V(B)$ and are easier to verify ex-post through contract intermediation. These hypothetical and difficult to assess values are replaced by the implicit values which are determined ex-ante through the contractual agreements $\widehat{V(A)}$ and $\widehat{V(B)}$.

5.3 Obstacles for contract implementation

Effective contracting requires two pre-conditions that may be particularly difficult to satisfy in groups: symmetric information and equal bargaining power and an enabling approach to corporate law and efficient courts to enforce the parties preferred contractual arrangements.

5.3.a. Symmetric information and bargaining power

This first requirement is unlikely to be satisfied precisely because, as we have argued, groups appear when the controlling shareholder is also a key stakeholder, which usually implies superior information and enhanced bargaining power. In this context, when contracts are first drafted, they are likely to be biased in favour of the party with the greatest bargaining power. And, if contracts are not renegotiation proof, they will tend to be renegotiated afterwards in favour of the most powerful stakeholder (Eggleston, Posner and Zeckhauser, 2000). Nevertheless, in some cases, asymmetric information may favour the minority, especially in the case of multinational alliances where local joint venture partners have been shown to behave opportunistically, exploiting their superior knowledge of local rules (Henisz, 2000; Henisz & Delios, 2004). For example, Perkins et al. (2007) find that when joint ventures between pyramidal group-member firms and partners from countries where pyramids are rarer have significantly elevated failure rates; while joint ventures with partners from countries where pyramidal groups are ubiquitous are more likely to succeed. They attribute this higher failure rate to the lack of knowledge on the part of the foreign firm about how pyramidal groups organize their business strategy.⁸²

5.3.b. Enforceability of shareholders agreements

The second requirement for governance by shareholders agreements is contractual freedom. Shareholder agreements are a product of the legal environment that determines the level of trust and commitment of the parties to honor the agreements and acknowledge them in case of conflict. In other words, contracts will be effective to the extent that the legal system facilitates contracting over corporate control and its enforceability. There are two main restrictions on the enforceability of shareholders agreements.

⁸² Hamdani, Kosenko & Yafeh (2020) on p. 23 state that: "In common with the US and Japan, Israel has used structural measures specifically prohibiting pyramidal ownership, rather than corporate governance tools, which were initially favored by policymakers".

The first one refers to the different legal treatment that shareholder agreements receive compared to charters and bylaws. Parties can craft governance using corporate technology - charters and bylaws- or contractual technology -shareholders agreements-. Charters and bylaws can be altered according to corporate collective proceedings, and their terms bind non-consenting parties (both current and future shareholders), while shareholders agreements only bind their signatories (future shareholders are not bound unless they become a part to them). In parallel, charters and bylaws are constrained to allocate control rights alongside ownership, while shareholders agreements are not. Therefore, some agreements may not be considered enforceable because they would have effects over third parties (radical conceptions of legal personality may consider the corporation a third party) or be conflicted with the fiduciary duties of directors⁸³.

The second one refers to the mandatory nature of legal corporate governance, which differs across jurisdictions. The mandatory law perspective assumes that the fundamental features of corporate governance are established by law and shareholders cannot displace them: they have no power to opt out neither through private ordering in the charters or bylaws, or through shareholders agreements. Following this perspective, corporate governance is exclusively a matter of law, and shareholders cannot alter or contracted. In case of litigation, courts are likely to solve this tension between shareholder agreements and corporate law by declaring the contractual provisions unenforceable. This perspective largely disregards the flexibility that private ordering can bring to corporate governance which may be necessary specially for private companies with limited funding opportunities⁸⁴.

Some jurisdictions enjoy a largely enabling corporate law -allowing private ordering to facilitate innovation and enhancing efficiency⁸⁵-, whereas others rely heavily on mandatory law⁸⁶. In parallel, judicial systems review the validity of shareholders agreements either as contracts (with the only limits and boundaries of contract law) or through the lenses of corporate law (meaning that their terms may not conflict with corporate law). As a result, some jurisdictions facilitate private ordering, and nevertheless, governance by shareholder agreements enjoys a wider span of freedom than governance by charters and bylaws⁸⁷. In contrast, other jurisdictions are less enabling of private ordering either through charters and bylaws, or through shareholder agreements (those agreements that are inconsistent with the law or the bylaws will be deemed to be not enforceable)⁸⁸.

⁸³ Recent Delaware cases have questioned the ability of venture capital firms to choose their capital structures by contractual agreements, suggesting that a director that prioritizes the safety of preferred stock (whose benefit go to its contractual claimants) over the maximization of the value of common stock (accruing to residual claimants) may be in breach of her fiduciary duties. For a critical analysis see Bartlett (2015).

⁸⁴ Choi & Ming (2018) explain that private ordering advocates argue “corporate law should take a more enabling approach by minimizing the number of mandatory provisions and instead offer an optimal set of default (“off the rack”) terms, and enforce parties’ arrangements of their affairs (“private ordering”) in charters and bylaws.

⁸⁵ As discussed by Fish (2016).

⁸⁶ On these differences see Dammann (2014).

⁸⁷ Contracts among shareholders have a long tradition and are routinely enforced by courts in both the US (Thomson, 1990, pp. 393-394 and O’Neal & Thompson, 2005) and UK (Cadman, 2004).

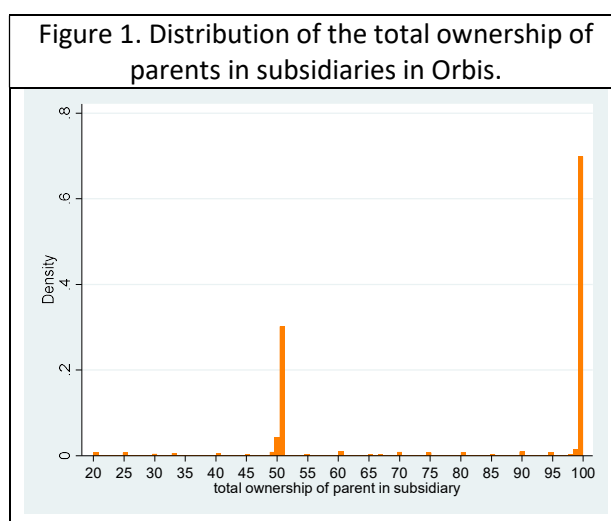
⁸⁸ It has been argued that in developing economies, such as Russia, contracts among shareholders encounter many enforcement issues in local courts (Gomtsian, 2012). Moreover, this problem is also

6 Group governance through extreme ownership structures: sharing control

Here we will discuss the use of equal ownership arrangements as anti-expropriation mechanism of last resort when regulatory solutions and contracts are inefficient.

To evaluate the prevalence of equal ownership arrangements in corporate groups we gather data from Bureau van Dijk's Orbis database as of May 2019. We downloaded all the parent-subsubsidiary links available from over 190 countries. This initial sample gives us a total of 755,431 unique parent-subsubsidiary links, where a subsidiary is defined as a firm where the parent's total ownership is at least 20% (below 20% the owned firm is formally considered as an investment rather than a subsidiary).

Figure 1 plots the distribution of ownership for these parent-subsubsidiary links and shows a strong bias towards extreme ownership arrangements. There are three spikes in the data. The first occurs because the parent owns 100% of the subsidiary in more than 53% of the links. The second spike with 23% of the observations occurs for an ownership level of 50.01%, which offers complete control with the minimum possible stake⁸⁹. The third smaller spike shows the equal ownership arrangements (where the parent owns exactly 50% of the subsidiary), which represent approximately 3% of the links.



present in developed economies such as Spain and Germany, where courts have often overruled private agreements and where the law keeps shareholders agreements at a lower level than mandatory rules. (The German position on shareholders' agreements is explained in Ulmer (2005, pp. 650 ss.), Hüffer (2008, §23, marginal 47) and Wicke (2006, pp. 1141-1143). For Spain, the problems for their enforcement in recent years are discussed in Sáez (2009) and Sáez and Bermejo (2010).

⁸⁹ Nevertheless, this may be an artificial spike caused by construction problems in the sample. Some of the equity stakes in Orbis are not given in a numerical format. In these cases we decode them following Kalemli-Ozcan et al. (2015) and Ginglinger & Renneboog (2018). In particular we replace a percentage with a leading ">" or "<" by the percentage after the symbol plus or minus 0.1%; the "WO" codes (wholly owned) are replaced by 100.00%; "NG" (negligible) by 0.01%; "CQP1" (50% plus 1 share) by 50.01%; "MO" (majority owned) by 50.01% (because according to the international accounting standards practice, majority ownership is at least 50% plus one share and the smallest stake reported by BvD is at two decimals, 0.01%). This replacement produces a large number of observations with equity stakes of 50.01%, some of which may in fact be equally distributed in above 50% and below 100%. To tackle this issue, in robustness tests we drop these observations and our results remain qualitatively unchanged.

The extreme ownership structure that we find is consistent with previous observations in the literature⁹⁰. In fact, if regulatory arbitrage is the main reason for setting up a subsidiary, it is very likely to lead to ownership structures where the subsidiary is wholly owned or owned up to the limit that allows the parent firm to escape the regulation. Interestingly in our sample the dominance of wholly owned subsidiaries is true both when the subsidiaries are foreign (58% wholly owned) and when they are domestic subsidiaries (49% wholly owned).

Secondly, if the group appears as the means to overcome financial constraints, gaining control of assets with the minimum required investment we would expect to see a concentration of cases just above 50% (50.01%), which explains the second spike we see in the data.

However, if the subsidiary was set up to reap benefits from cooperation between the different owners, we would expect a very different ownership structure. Recall that the benefits from cooperation will depend on the cash-flow rights of the minority owners of the subsidiary, determined by their stake $(1-\alpha)$. And, as we have discussed in Section 2, when the contributions of the owners to the venture are asymmetric (in terms of assets, research capabilities, cost structures, etc.) 50-50% structures do not provide good incentives for collaboration⁹¹. Therefore, we would expect to see α vary depending on the relative importance of the contribution of the parent and the minority owners of the subsidiary. But, this is not the case and, similarly to previous papers, we find that in our sample 50-50% equity allocations clearly dominate among partially owned subsidiaries⁹².

Therefore, it seems clear that by choosing 50-50% ownership firms are renouncing many benefits of collaboration. We believe the reason for this ownership arrangement is the search for an alternative mechanism for minority protection.

The equal ownership arrangement represents a discontinuity in the voting power of the parties. If the parent has more than 50% of the shares, by virtue of the majority rule, it can elect the entire board of directors of the subsidiary and make the final decision on all of the subsidiary's affairs which poses a serious threat of expropriation for the minority. If the parent owns 60% of the subsidiary it can make the decision to increase the price of the supplies it sells to the subsidiary in ten monetary units. The parent receives the full extra ten monetary units but only internalizes the extra cost for the subsidiary up to six monetary units. If the parent only owns 40% of the subsidiary, the situation is reversed and the remaining shareholders can by themselves make the decision to increase the price of the output they sell to the parent by ten monetary units. The parent would pay an additional ten units and would recover only four through the dealings with the subsidiary. With a 50-50% ownership structure none of the two parties can make a unilateral decision. They have to agree on every decision and they will only approve the transaction if both benefit from it.

Notice that in terms of our model a 50-50% division of ownership ensures no decision will be taken unless

$$V_S(B) > V(B) \text{ \& } V_P(A) > V(A).$$

⁹⁰ In line with our results, Desai et al. (2006) find that over 70% of foreign affiliates of US firms are wholly controlled and Belenzon, Hashai & Pataconi (2019) find that in groups in Western Europe 70% of subsidiaries are wholly- or almost wholly-owned by the ultimate shareholder.

⁹¹ See discussion and footnotes in Section 2.2.1.

⁹² Our results are consistent with the evidence provided by Hauswald & Hege (2006) who find that the ownership structure of subsidiaries and two thirds of two-parent joint ventures in Europe and US have 50-50% or 50.01% equity allocations.

This implies that rather than using ownership to fine tune collaboration incentives, ownership is used to limit the control rights that affect the probability of expropriation of the minority by the parent and the holdup possibilities of the minority, thus reducing the corporate governance problems in groups. But, as discussed above, they come with a great cost in terms of potential losses as to cooperation incentives and will also imply a very costly decision-making process that will frequently end in deadlocks⁹³.

This duality of equal ownership structures is formally analysed by Hauswald and Hedge (2006). They present a model where two owners have to contribute non-contractible resources to a joint venture and show that the optimal ownership structure is asymmetric, offering a greater stake to provide incentives to the party with the greater costs. But, when they extend the model by assuming that ownership can confer socially costly control benefits to the majority shareholder, the 50-50% is shown to be optimal for a wide range of model parameters⁹⁴. Testing the model empirically for a sample of US joint ventures they show that that parent firms are more likely to adopt 50-50% ownership allocations when the potential for value diversion or for parent-level spill-overs are high, or when their opportunity costs are comparable.

It seems clear that 50-50% structures work as a powerful anti-expropriation mechanism for groups, but they come with important costs that reduce the value created by the group. Interestingly, studying the data, we find very marked differences across countries in the use of these ownership structures, as shown in Table 1.

Parent country	N	100%	50-50%	50.01%	Subsidiary count	N	100%	50-50%	50.01%
USA	145,658	21	0	76	US	134,260	26	1	69
UK	73,412	74	3	10	UK	59,548	76	3	12
Germany	60,023	69	4	4	Germany	51,244	68	5	5
France	52,566	59	4	6	China	44,313	56	2	9
Japan	46,226	44	2	37	France	39,207	58	4	6
Italy	36,245	46	6	1	Spain	25,776	52	12	4
Spain	32,147	49	11	2	Netherlands	24,084	73	3	16
Netherlands	28,705	69	3	12	Japan	23,421	49	2	31
China	26,462	57	2	3	Italy	22,860	49	6	4
Australia	20,451	73	3	15	Australia	19,420	70	3	19
Sweden	19,548	78	3	7	Canada	15,047	37	1	55
Belgium	18,087	49	5	8	Singapore	13,221	71	2	13
Denmark	14,496	74	5	3	Sweden	13,180	77	2	9
India	13,353	64	4	3	India	12,536	50	5	9
Canada	11,959	45	1	47	Malaysia	11,660	69	1	9
Austria	11,291	68	5	2	Hong Kong	11,043	67	3	16
Switzerland	11,201	75	2	7	Poland	10,782	68	3	6
Singapore	10,517	66	3	10	Belgium	10,724	25	4	37
Malaysia	9,432	72	2	3	Brazil	9,123	45	4	16
Finland	8,286	78	2	4	Russian Federa	8,669	57	4	7

The table shows the top twenty parent and subsidiary countries by number of observations in Orbis, representing respectively 86% and 74% of the total number of observations. For each country it shows the total number of subsidiaries and the percentage of subsidiaries where the parent owns respectively 100%, 50% and 50.01% of the subsidiary.

These data, together with our previous analysis highlighting the limitations of regulation and contracts to deal with corporate governance problems in groups, indicate that 50-50%

⁹³ The *Re Yenidje Tobacco Co Ltd* is a classic case of deadlock, where the ownership of the company was equally split between two owners who also had equal influence in the management of the company. After some time it was impossible for decisions to be made in the company, and eventually the court forced the winding up of the company. Bachmann et al. (2014) and Sørensen (2010) also discuss deadlocks that arise when the minority owners hold veto rights for specific decisions such as mergers, capital increases, dividend payments and/or the appointment of directors.

⁹⁴ Van Den Steen (2002) and Wang & Zhu (2005) also present theory models where equal shareholdings reduce cooperation but appear as a safeguard against expropriation unless the equity incentives of the dominant party are high enough to prevent private benefit extraction.

ownership structures are still used as a solution of last resort when the legal and contractual protection in a given country suffer crucial problems that make them insufficient to reduce expropriation problems in groups.

In Section 7 we will provide empirical evidence showing that the ownership structures prevalent across groups are the result of the complex interplay between the level of minority protection and the contractual freedom offered across jurisdictions and the particular characteristics of parent and subsidiary, which together determine the importance of corporate governance problems within the group.

7 Empirical evidence

In this section we want to test empirically the ideas that emerge from the previous discussion and imply that equal ownership structures for subsidiaries appear as a protection of last resort against expropriation when the legal protection of the minority is not good and the necessary preconditions for efficient contracting are not met.

7.1 Testable hypothesis

In particular, we have argued that 50-50% ownership structures appear as a protection of last resort. They are “last resort” solutions because, even though these equal ownership arrangements are likely to be very effective in alleviating opportunism (both on the part of the parent and the minority at the subsidiary), they are very costly in terms of incentives and will lead to disagreements in all decisions that may benefit one party more than the other, giving rise to an inefficient decision-making process. Therefore, we formulate our first testable hypothesis as follows:

Hypothesis 1. The prevalence of equal ownership structures will be lower when the costs arising from lost cooperation incentives and from deadlocks in decision making are expected to be higher.

Secondly, in relation to the legal protection of the minority, we have discussed how different legal systems offer different degrees of protection for minority shareholders relative to a controlling shareholder, with the US system being the most protective. But we have also argued that protections aimed at controlling shareholders are limited in their efficiency in solving expropriation in groups because of their inability to reduce the power of the parent as a business stakeholder of the subsidiary. This leads us to formulate our second testable hypothesis:

Hypothesis 2. The prevalence of equal ownership structures will be independent of the quality of minority protection from expropriation in the country where the subsidiary is located.

Finally, we have argued that shareholder agreements can be very efficient in protecting the minority shareholders and avoiding the need to use suboptimal 50-50% ownership structures, but the use of these agreements will depend on the quality of contract enforcement in the jurisdiction where the subsidiary is incorporated.

Hypothesis 3. The prevalence of equal ownership structures will be lower for subsidiaries located in countries where the quality of contract enforcement is higher.

7.2 Data and Sample selection

In order to test our three hypothesis we use Bureau van Dijk's Orbis database. We access the database on May 2019 and we downloaded all the parent-subsidiary links available from over 190 countries, obtaining a total number of 755,431 unique subsidiaries. Subsidiaries are defined as firms where the parent's total ownership is at least 20% (below 20% the owned firm is formally considered as an investment rather than a subsidiary). For each parent-subsidiary link we also retrieve from Bureau van Dijk's Osiris database information on the country of incorporation, date of incorporation and most recent sales figure for both the parent and the subsidiary and the direct and total ownership stake of the parent in the subsidiary, specifying the year when the data are observed. We also retrieve the parent's industry 2-digit NACE indicator. Unfortunately, data for the subsidiaries is often missing and our sample is reduced to 112,472.

We then match by country these sample by country with the World Bank's Ease of Doing Business (EODB) data. From these data we take for each country and year the scores measuring the quality of contract enforcement, the protection of minority investors, the tax rate, the ease of trading across borders, and the overall EODB score plus the GDP per capita. Finally, we also retrieve each country's legal origin from the University of Ottawa's *JuriGlobe: World Legal Systems project* which goes beyond the traditional common law-civil law divide to consider also countries of mixed origin and countries with customary or Muslim traditions.

7.3 Methodology and variables' construction

We then have one observation for each subsidiary-parent link coming from one specific year. We use this cross section to estimate the following logit model:

$$\text{Equal Ownership}_i = \alpha + \beta_{1,i} * \text{Cost of Equal Ownership}_i + \beta_{2,i} * \text{Subsidiary's Country Minority Protection Quality}_i + \beta_{3,i} * \text{Subsidiary's Country Contract Enforcement Quality}_i + \beta_{4,i} * \text{Control Variables}_i + \gamma * \text{Year}_i + \theta * \text{Parent's Industry}_i + \varepsilon_i \quad (1)$$

Where our dependent variable *Equal Ownership* is a dummy variable that takes the value one if the parent's total ownership in the subsidiary is exactly 50% and zero otherwise. Two remarks about this variable are necessary. First, notice that equal ownership refers to equal ownership between the parent and the minority interest as a whole, i.e. the minority interest as a whole represents a 50% stake. Unfortunately, we do not know how the stake of the minority is distributed. This means that the remaining stake may be held by one firm or individual or more than one. If the remaining stake were distributed among more than one owner the parent's stake would in practice convey a tighter control, but nevertheless, if the parent owns 50% it still has to conform to combined minority interests adding up to another 50% in order to make decisions. Second, the firms where ownership is unequal may have very different ownership structures. In many of them the parent owns 100% of the subsidiary. In most of our estimations we will drop these firms because we believe they are not comparable to equal ownership firms since most of them respond to a RA strategy and because in this case there is no conflict between shareholders. A different type of unequal ownership arrangements occurs when the stake of the parent is above 20% and below 50%. In many of these cases the subsidiary may be controlled by the parent with this smaller stake, but it is also possible that there is another parent, which is not in our sample, that has a stake above 50%. Because of this we also exclude these firms from most of our estimations. Therefore, our basic estimations compare subsidiaries with a parent's stake of 50% to subsidiaries with a parent's stake above 50% and below 100%. To ensure comparability we also run robustness test where we impose different upper limits of the parent's stake.

Our first hypothesis implies that the use of equal ownership arrangements should be inversely related to its costs, i.e. coefficient β_1 is expected to be negative. To test this first hypothesis we include four independent variables to proxy for the cost of equal ownership coming from inefficient decision making and loss cooperation incentives. *Subsidiary Size* (measured as the log of sales) and *Subsidiary Age* (years since incorporation) are included because bigger and older subsidiaries are expected to be more important for the parent and therefore the costs that equal ownership structures would represent would be larger for these types of subsidiaries both in terms of lost cooperation incentives and lost investment opportunities because of deadlocks in decision making in the subsidiary. We also include *Number of Subsidiaries*, which measures the total number of subsidiaries that the parent has as an inverse measure of the relative importance of the subsidiary for the parent. As the number of subsidiaries increases the threat of expropriation of a particular subsidiary is likely to increase, because it will be easier for the parent to move business across subsidiaries and the cost of equal ownership are reduced because of the relative lower importance of each subsidiary to the parent. Therefore, we expect the need for equal ownership arrangements to increase and the cost of equal ownership arrangements to decrease when the parent has many subsidiaries. Finally, the dummy variable *Different Country* is expected to be negatively correlated with the use of equal ownership arrangements. The cooperation of the local partner is expected to be more important for subsidiaries located in different countries because of the local knowledge they contribute to the relationship. Therefore, the lost cooperation incentives arising from equal ownership arrangements will be higher when the subsidiary is located in a different country and this is expected to make equal ownership arrangements less appropriate when the subsidiary is located in a different country.

Our second hypothesis states that prevalence of equal ownership structures will depend on the quality of minority protection in the country where the subsidiary is located. We have argued that traditional minority protection mechanisms -intended to shield minority shareholders from expropriation from a controlling shareholder in a stand-alone firm- are unlikely to be very efficient in a group setting. Therefore, we expect an insignificant value for our β_2 coefficient measuring the impact of the *Subsidiary's Country Minority Protection Quality*.

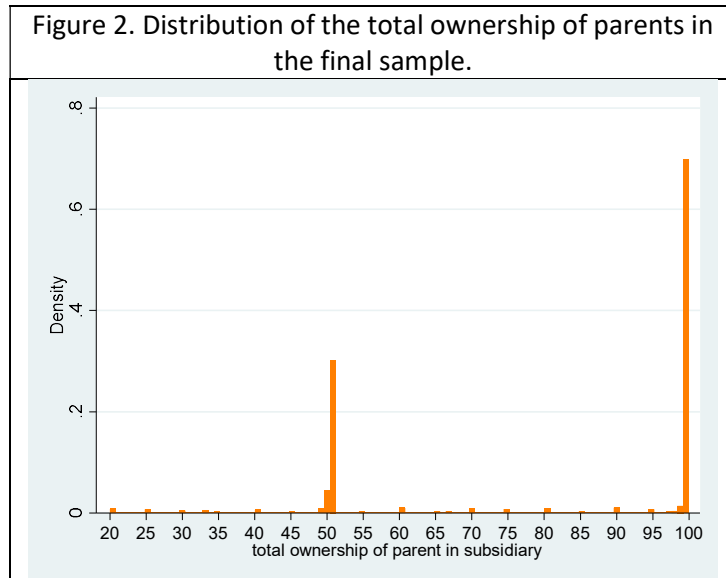
According to our third hypothesis we expect that contracts between parent and subsidiary will be more efficient in preventing expropriation in countries where the quality of contract enforcement is high and therefore we expect to find that equal ownership structures are less common for subsidiaries located in these countries. Therefore, if this hypothesis is correct we the β_3 coefficient which measures the impact of the *Subsidiary's Country Contract Enforcement Quality* should be negative, indicating that better contract enforcement reduces the need for equal ownership structures.

Finally, in all our regressions we control for *Parent Size* (log of sales) and *Parent Age* since bigger and older parents may have different preferences regarding the ownership structures of the subsidiaries. We also include as control variables the subsidiary country *Tax Rate*, *ETAB* (Ease of Trading Across Borders) and *GDP per capita* income since these variables may be important determinants of the setting up of a subsidiary. Fixed effects for the *Year* for which we observe the link and for the *Parent Industry* are included or excluded as indicated in each regression.

7.4 Descriptive statistics

Figure 2 plots the distribution of ownership in our final sample. Comparing this to Figure 1 we can see that they are quite similar, so the bias towards extreme ownership arrangements with three spikes is preserved in our smaller sample. The parent owns 100% of the subsidiary in more

than 58% of the links. This percentage goes up to 64% when we consider total ownership above 98%. Around 13% of the links have 50.01% ownership and equal ownership arrangements (50-50%) represent 2% of the links. The parent owns more than 20% but less than 50% only in 6.5% of the links. Finally links where the parent owns more than 50.01% and less than 98% are evenly distributed and account for the remaining 14.5% of the sample.



In Tables 2 and 3 we can see that the sample is distributed among many different parent and subsidiary countries. Although the positions of the countries in our reduced sample are different from the distribution on the whole database (shown in Table 1), the top twenty countries are almost the same. Western European countries, Japan and the US have the largest numbers of both parent and subsidiary companies in the sample and the ranking is not very different across tables. China has a smaller number of parent companies but a large number of subsidiaries in the sample, both domestic (i.e. owned by Chinese parents) and foreign. It is also important for our estimations that the sample is evenly distributed, and no one country dominates among neither parents or subsidiaries, although the parent country distribution is a little more concentrated than the subsidiary country distribution.

TABLE 2. Distribution of observations by parent's country											
(a) Number of subsidiaries				(b) Number of unique parents				(c) Number of foreign subsidiaries			
Country	N. obs.	Freq.	Cum. Freq.	Country	N. obs.	Freq.	Cum. Freq.	Country	N. obs.	Freq.	Cum. Freq.
Japan	12559	0.11	0.11	Netherlands	1049	0.09	0.09	France	6646	0.12	0.12
France	11145	0.10	0.21	UK	997	0.09	0.18	Japan	5830	0.11	0.23
UK	10056	0.09	0.30	France	850	0.08	0.26	UK	5200	0.10	0.33
US	9849	0.09	0.39	Germany	840	0.07	0.33	China	3973	0.07	0.41
Germany	8180	0.07	0.46	Italy	704	0.06	0.39	Italy	3639	0.07	0.48
Italy	5845	0.05	0.51	Japan	570	0.05	0.45	Spain	2798	0.05	0.53
Netherlands	5341	0.05	0.56	Spain	534	0.05	0.49	Germany	2164	0.04	0.57
Spain	4435	0.04	0.60	Singapore	453	0.04	0.53	Sweden	1863	0.04	0.60
China	4267	0.04	0.64	Sweden	449	0.04	0.57	US	1787	0.03	0.64
Sweden	3840	0.03	0.67	US	327	0.03	0.60	Malaysia	1691	0.03	0.67
Singapore	2746	0.02	0.70	Austria	314	0.03	0.63	Singapore	1650	0.03	0.70
Belgium	2635	0.02	0.72	Luxembourg	310	0.03	0.66	India	1376	0.03	0.73
Switzerland	2202	0.02	0.74	Belgium	266	0.02	0.68	Belgium	1227	0.02	0.75
India	2120	0.02	0.76	China	247	0.02	0.70	Russian Fed.	1012	0.02	0.77
Austria	2104	0.02	0.78	Hong Kong	222	0.02	0.72	Norway	941	0.02	0.79
Malaysia	1994	0.02	0.79	India	222	0.02	0.74	Netherlands	894	0.02	0.80
Denmark	1868	0.02	0.81	Denmark	212	0.02	0.76	Australia	763	0.01	0.82
Luxembourg	1735	0.02	0.83	Norway	201	0.02	0.78	Thailand	685	0.01	0.83
Australia	1556	0.01	0.84	Malaysia	168	0.01	0.79	Brazil	666	0.01	0.84
Norway	1539	0.01	0.85	Australia	158	0.01	0.81	Austria	596	0.01	0.85
Total	112472			Total	11250			Total	53196	100	

The table shows top twenty parent's countries by (a) number of subsidiaries, (b) number of unique parents and (c) number of foreign subsidiaries. Parent countries in the sample are: Albania, Algeria, Angola, Argentina, Australia, Austria, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Cambodia, Canada, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Finland, France, Gabon, Germany, Ghana, Greece, Guatemala, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Islamic Republic of Iran, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Lebanon, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macedonia (Fyrom), Malawi, Malaysia, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Montenegro, Morocco, Namibia, Netherlands, New Zealand, Nigeria, Norway, Oman, Pakistan, Palestinian Territories, Panama, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russian Federation, Saint Kitts and Nevis, Saint Lucia, San Marino, Saudi Arabia, Senegal, Serbia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom, United Republic of Tanzania, United States of America, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.

TABLE 3. Distribution of observations by subsidiary's country											
(a) Number of subsidiaries				(b) Number of domestic subsidiaries				(c) Number of foreign subsidiaries			
Country	N. obs.	Freq.	Cum. Freq.	Country	N. obs.	Freq.	Cum. Freq.	Country	N. obs.	Freq.	Cum. Freq.
France	10216	0.09	0.09	France	6646	0.12	0.12	UK	5003	0.08	0.08
UK	10203	0.09	0.18	Japan	5830	0.11	0.23	China	4321	0.07	0.16
China	8294	0.07	0.26	UK	5200	0.10	0.33	France	3570	0.06	0.22
Japan	6374	0.06	0.31	China	3973	0.07	0.41	Germany	3140	0.05	0.27
Italy	6117	0.05	0.37	Italy	3639	0.07	0.48	Singapore	2854	0.05	0.32
Germany	5304	0.05	0.41	Spain	2798	0.05	0.53	Spain	2489	0.04	0.36
Spain	5287	0.05	0.46	Germany	2164	0.04	0.57	Italy	2478	0.04	0.40
Singapore	4504	0.04	0.50	Sweden	1863	0.04	0.60	Poland	2102	0.04	0.44
Sweden	3353	0.03	0.53	US	1787	0.03	0.64	Belgium	1994	0.03	0.47
Belgium	3221	0.03	0.56	Malaysia	1691	0.03	0.67	Brazil	1874	0.03	0.50
India	3076	0.03	0.59	Singapore	1650	0.03	0.70	India	1700	0.03	0.53
US	3034	0.03	0.61	India	1376	0.03	0.73	Sweden	1490	0.03	0.56
Malaysia	2745	0.02	0.64	Belgium	1227	0.02	0.75	Czech Republic	1489	0.03	0.58
Brazil	2540	0.02	0.66	Russian Fed.	1012	0.02	0.77	Netherlands	1325	0.02	0.60
Poland	2503	0.02	0.68	Norway	941	0.02	0.79	Australia	1313	0.02	0.63
Russian Fed.	2239	0.02	0.70	Netherlands	894	0.02	0.80	Thailand	1261	0.02	0.65
Netherlands	2219	0.02	0.72	Australia	763	0.01	0.82	US	1247	0.02	0.67
Australia	2076	0.02	0.74	Thailand	685	0.01	0.83	Russian Fed.	1227	0.02	0.69
Thailand	1946	0.02	0.76	Brazil	666	0.01	0.84	Malaysia	1054	0.02	0.71
Norway	1888	0.02	0.77	Austria	596	0.01	0.85	Norway	947	0.02	0.72
Total	112472			Total	53196			Total	59276		

The table shows top twenty subsidiary's countries by number of observations (a), number of domestic subsidiaries (b) and number of foreign subsidiaries (c). Subsidiary countries in the sample are: Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Chad, Chile, China, Colombia, Congo, Costa Rica, Croatia, Cyprus, Czech Republic, Côte d'Ivoire, Democratic Republic of Congo, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Eswatini, Ethiopia, Fiji, Finland, France, Gabon, Georgia, Germany, Ghana, Greece, Grenada, Guatemala, Guinea, Guyana, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Islamic Republic of Iran, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macedonia (Fyrom), Madagascar, Malawi, Malaysia, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Montenegro, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palestinian Territories, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russian Federation, Rwanda, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Sao Tomé and Príncipe, Saudi Arabia, Senegal, Serbia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United Republic of Tanzania, United States of America, Uruguay, Vanuatu, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.

The industry distribution of the unique parent firms in the sample is shown in Table 4. As could be expected most of the firms are in manufacturing and trade but also in financial activities and professional, scientific and technical activities. Moreover, there is a significant number of firms in administrative and support services, information and communication and transportation.

Industry description	NACE codes	Number obs.	Frequency
A. Agriculture, forestry and fishing	01-03	105	0.01
B. Mining and quarrying	05-09	112	0.01
C. Manufacturing	10-33	3081	0.27
D. Electricity, gas, steam and air conditioning supply	35	78	0.01
E. Water supply; sewerage, waste management and remediation activities	36-39	32	0.00
F. Construction	41-43	254	0.02
G. Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	1264	0.11
H. Transportation and storage	49-53	376	0.03
I. Accommodation and food service activities	55-56	89	0.01
J. Information and communication	58-63	491	0.04
K. Financial and insurance activities	64-66	2710	0.24
L. Real estate activities	68	269	0.02
M. Professional, scientific and technical activities	69-75	1536	0.14
N. Administrative and support service activities	77-82	670	0.06
O. Public administration and defence; compulsory social security	84	15	0.00
P. Education	85	22	0.00
Q. Human health and social work activities	86-88	51	0.00
R. Arts, entertainment and recreation	90-93	31	0.00
S. Other service activities	94-96	59	0.01
T. Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	97-98	3	0.00
U. Activities of extraterritorial organisations and bodies	99	1	0.00
TOTAL		11249	

The table shows the distribution of parent firms (unique parents in the sample) by 2-digit NACE code industries.

Table 5 shows the summary statistics of our variables. The first variable is the ownership stake of the parent in the subsidiary that we already know is highly skewed with a majority of the subsidiaries being wholly owned. The average number of subsidiaries per parent is large, but this is due to a very skewed distribution with few parents having a very large number of subsidiaries and also to a sample composition problem because the parents with many subsidiaries appear many more times in the sample. When we look at the subsample of unique parents (there are only 11,250 unique parents in the sample), the average number of subsidiaries per parent drops to only 17. The parents are much older and much larger than the subsidiaries and, if we compare the mean values of the whole sample and the subsample of unique parents, we notice that the older and larger parents are also the ones that have a larger number of subsidiaries. Looking at differences between parent and subsidiary countries we can see that in the case of foreign links (when parent and subsidiary are located in different countries) the parent country has a significantly larger per capita GDP and a higher EODB score, however there are no significant difference in the enforcement of contracts and protection of minority interest scores. Finally, when we compare the whole sample with the subsample of firms where the parent owns exactly 50% of the subsidiary we notice that in these cases the subsidiaries tend to be younger and smaller and to be paired with larger parents, which is suggestive of potentially larger expropriation threats. However, these are only univariate differences in means where we do not control for the correlations among the different independent variables.

TABLE 5. Descriptive statistics												
Variable	N. obs.	Mean	Std.Dev.	p1	p25	p50	p75	p99	Unique parents	Foreign links	Domestic links	50-50% links
									11,250 obs.	59,276 obs.	53,196 obs.	2,278 obs.
									Mean	Mean	Mean	Mean
Total ownership of parent in subsidiary	112,472	84.42	23.41	23.22	59.99	100	100	100		84.56	84.28	50
N of subsidiaries per parent	112,472	185.4	501	1	10	29	152	2,439	17.38	229.90	135.90	190.90
Parent's age (in years)	112,472	51	41.18	180	69	34	22	12	34	55	46	51
Subsidiary's age (in years)	112,472	28	21.10	107	33	23	14	5		27	29	22
Parent's revenue (million US\$)	100,456	14,620	36,110	0	66.21	279.85	8,763	200,000	809.02	19,250	9,897	21,450
Subsidiary's revenue (million US\$)	112,472	305.20	3,513	0	15	33	99	4,687		253.30	363	195.40
Parent GDP per capita (current US\$)	112,468	40,531	19,077	1,733	32,407	40,361	48,675	107,627	40,762	46,405	33,987	38,507
Subs. GDP per capita (current US\$)	112,440	33,465	20,370	2,006	12,360	38,387	44,350	81,734		31,993	35,106	32,458
Parent Ease of Doing Business score	111,760	77.03	6.54	54.52	75.57	77.94	82.15	85.44	76.74	78.23	75.69	76.02
Subs. Ease of Doing Business score	111,719	75.40	7.47	55.22	71.83	76.54	80.38	85.57		74.90	75.95	74.74
Parent Enforcement of Contracts score	112,165	67.66	8.58	36.56	65.26	68.69	72.18	84.15	67.13	67.62	67.70	66.48
Subs. Enforcement of Contracts score	111,719	67.72	9.750	39.34	64.25	68.69	73.47	84.15		67.52	67.95	66.93
Parent Protection of Minority Interests score	112,339	68.35	9.36	50	62	68	72	86	68.34	67.77	69.00	68.16
Subs. Protection of Minority Interests score	112,458	68.67	10.32	43.33	62	68	76	86		68.28	69.11	68.50
Parent Tax score	112,081	70.33	19.02	35.46	62.66	67.25	82.99	100	73.25	73.61	66.67	69.13
Subs. Tax score	111,719	69.58	20.37	29.73	52.68	69.33	85.10	100		71.07	67.92	69.35
Parent Trading Across Borders score	112,081	91.12	10.48	56.45	86.51	92.52	100	100	92.26	92.78	89.27	92.08
Subs. Trading Across Borders score	111,719	88.52	12.77	57.42	84.10	92.01	100	100		87.86	89.27	88.67

The table shows the descriptive statistics of the sample. All variables are as defined in Section 7.3. For each variable the first eight columns show respectively the number of observations, the mean value, the standard deviation, and the 1st, 25th, 50th (median), 75th and 99th percentiles. The last four columns show the mean value of the variables for four different subsamples: unique parents in the sample, foreign links (with parent and subsidiary from two different countries), domestic links (with parent and subsidiary are from the same country) and for the links where the parent owns exactly 50% of the subsidiary.

Finally, Table 6 shows the correlation coefficient among the different variables. We find that most variables are significantly correlated but the correlation coefficients are in general very low. The only large and significant are found for the per capital GDP and the different variables taken from the EODB database, which tend to be positively correlated.

TABLE 6. Correlations among the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Total ownership of parent in subsidiary	1																			
2 N of subsidiaries per parent	0.04*** (0.00)	1																		
3 Parent's age (in years)	0.0054*** (0.00)	0.1728*** (0.00)	1																	
4 Subsidiary's age (in years)	0.0003 (0.90)	0.0344*** (0.00)	-0.1549*** (0.00)	1																
5 Parent's revenue (million US\$)	0.014*** (0.00)	0.3495*** (0.00)	0.2895*** (0.00)	-0.0715*** (0.00)	1															
6 Subsidiary's revenue (million US\$)	-0.016*** (0.00)	0.0277*** (0.00)	0.0225*** (0.00)	-0.0622*** (0.00)	0.091*** (0.00)	1														
7 Parent GDP per capita (current US\$)	0.1964*** (0.00)	0.1341*** (0.00)	0.0776*** (0.00)	-0.053*** (0.00)	0.1078*** (0.00)	0.0066*** (0.00)	1													
8 Subs. GDP per capita (current US\$)	0.148*** (0.00)	0.1682*** (0.00)	0.0245*** (0.00)	-0.0067** (0.01)	0.103*** (0.00)	0.0356*** (0.00)	0.2127*** (0.00)	1												
9 Parent Ease of Doing Business score	0.1781*** (0.00)	0.1643*** (0.00)	0.102*** (0.00)	-0.0623*** (0.00)	0.1312*** (0.00)	0.0075*** (0.00)	0.6545*** (0.00)	0.197*** (0.00)	1											
10 Subs. Ease of Doing Business score	0.1561*** (0.00)	0.091*** (0.00)	0.0288*** (0.00)	-0.071*** (0.00)	0.0292*** (0.00)	0.0049*** (0.00)	0.3611*** (0.00)	0.2867*** (0.00)	0.4795*** (0.00)	1										
11 Parent Enforcement of Contracts score	0.0778*** (0.00)	0.1019*** (0.00)	-0.0112*** (0.00)	0.018*** (0.00)	0.0749*** (0.00)	0.0114*** (0.00)	0.3498*** (0.00)	0.1695*** (0.00)	0.5327*** (0.00)	0.2079*** (0.00)	1									
12 Subs. Enforcement of Contracts score	0.0594*** (0.00)	0.0396*** (0.00)	-0.0212*** (0.00)	0.0368*** (0.00)	0.0072*** (0.00)	0.0095*** (0.00)	0.1715*** (0.00)	0.297*** (0.00)	0.2394*** (0.00)	0.5055*** (0.00)	0.4337*** (0.00)	1								
13 Parent Protection of Minority Interests score	0.0779*** (0.00)	0.0597*** (0.00)	-0.0109*** (0.00)	0.0097*** (0.00)	0.0198*** (0.53)	0.0011 (0.00)	0.0644*** (0.00)	0.0509*** (0.00)	0.4895*** (0.00)	0.2405*** (0.00)	0.04*** (0.00)	0.0195*** (0.00)	1							
14 Subs. Protection of Minority Interests score	0.0971*** (0.00)	0.0444*** (0.00)	0.014*** (0.00)	-0.0085*** (0.00)	0.0027** (0.02)	-0.0016 (0.38)	0.1166*** (0.00)	0.0885*** (0.00)	0.2546*** (0.00)	0.6052*** (0.00)	0.0214*** (0.00)	0.1298*** (0.00)	0.4247*** (0.00)	1						
15 Parent Tax score	0.1199*** (0.00)	0.0304*** (0.00)	0.0209*** (0.00)	-0.0109*** (0.00)	0.037*** (0.00)	0.0102*** (0.00)	0.3652*** (0.00)	-0.0356*** (0.00)	0.4606*** (0.00)	0.2276*** (0.00)	-0.0161*** (0.00)	-0.0364*** (0.00)	0.4429*** (0.00)	0.2357*** (0.00)	1					
16 Subs. Tax score	0.0907*** (0.00)	0.0297*** (0.00)	0.0196*** (0.00)	-0.0082*** (0.00)	0.0058*** (0.00)	0.0056*** (0.00)	0.1521*** (0.00)	-0.173*** (0.00)	0.2282*** (0.00)	0.4263*** (0.00)	-0.0602*** (0.00)	-0.0638*** (0.00)	0.2601*** (0.00)	0.4203*** (0.00)	0.4839*** (0.00)	1				
17 Parent Trading Across Borders score	0.0099*** (0.00)	0.0247*** (0.00)	0.0483*** (0.00)	-0.0599*** (0.00)	0.0418*** (0.00)	-0.0182*** (0.00)	0.4372*** (0.00)	-0.045*** (0.00)	0.5376*** (0.00)	0.2455*** (0.00)	0.1754*** (0.00)	0.0736*** (0.00)	0.1242*** (0.00)	0.0388*** (0.00)	0.0536*** (0.00)	0.0088*** (0.00)	1			
18 Subs. Trading Across Borders score	0.0559*** (0.00)	0.0181*** (0.00)	-0.004*** (0.00)	-0.0662*** (0.00)	-0.0198*** (0.00)	-0.0167*** (0.00)	0.2493*** (0.00)	0.0287*** (0.00)	0.2918*** (0.00)	0.6896*** (0.00)	0.0878*** (0.00)	0.2898*** (0.00)	0.0656*** (0.00)	0.288*** (0.00)	0.0341*** (0.00)	0.1796*** (0.00)	0.4823*** (0.00)	1		
19 Parent Piercing the Veil score	-0.1076*** (0.00)	0.0274*** (0.00)	0.0099*** (0.00)	0.0091*** (0.00)	0.0015 (0.29)	-0.0094*** (0.00)	-0.0434*** (0.00)	-0.0055*** (0.00)	-0.3495*** (0.00)	-0.1184*** (0.00)	-0.0536*** (0.00)	-0.0209*** (0.00)	-0.5905*** (0.00)	-0.2411*** (0.00)	-0.5264*** (0.00)	-0.238*** (0.00)	0.0812*** (0.00)	0.0589*** (0.00)	1	
20 Subs. Piercing the Veil score	-0.1132*** (0.00)	-0.0083*** (0.00)	-0.0258*** (0.00)	0.0172*** (0.00)	-0.0049*** (0.00)	-0.0071*** (0.00)	-0.0178*** (0.00)	0.0285*** (0.00)	-0.1831*** (0.00)	-0.2563*** (0.00)	-0.0243*** (0.00)	-0.0299*** (0.00)	-0.3414*** (0.00)	-0.552*** (0.00)	-0.29*** (0.00)	-0.4403*** (0.00)	0.093*** (0.00)	0.0587*** (0.00)	0.6157*** (0.00)	1

The table shows the Pearson correlation coefficients between the variables and the p-values in parenthesis. The stars indicate the level of significance as follows: *** p<0.01; ** p<0.05; *p<0.1.

7.5 Results

We test our three hypothesis estimating equation (1) with different sets of dependent variables. The results from these logistic regressions are presented in Table 7. In all these estimations the dependent variable is a dummy that takes the value one when the total ownership of the parent in the subsidiary is exactly 50% and zero for any value between 50% and 100% (wholly owned subsidiaries are excluded).

The first three columns in Table 7 include our control variables and different fixed effects, which are afterwards maintained in columns four through six. Most of these control variables are significant and their values are quite stable across the different estimations. We see that equal ownership structures are more likely when the parent firm is older and smaller. This could indicate that younger and more sophisticated parents are more likely to use contractual solutions rather than extreme ownership arrangements. Among the controls for the subsidiary's country characteristics the only significant across specifications is the ease of trading across borders (ETAB) score. A greater ETAB score can potentially correlate with more vertical and horizontal integration of operations between parent and subsidiary and therefore a higher potential for expropriation through business transactions that would be consistent with a higher need of protection from opportunism and the use of 50-50% ownership structures.

Column 4 introduces the variables used to proxy for the measure the relative cost of equal ownership, which, according to our first hypothesis, should reduce the probability of observing equal ownership arrangements. Surprisingly we do not observe any effects for the subsidiaries size but, as implied by the first hypothesis, we find that older subsidiaries, foreign subsidiaries and subsidiaries that belong to smaller groups are less likely to be held under an equal ownership arrangement.

The cost of inefficient decision making implicit in 50-50% ownership is likely to be larger for older subsidiaries because they are more likely to be more integrated into the group and more important for the overall smooth running of group operations. The negative relationship between subsidiary's age and use of 50-50% ownership also is consistent with the idea that because of the deadlocks that they can cause, these ownership structures are not likely to be very stable. For foreign subsidiaries the value of the foreign partners cooperation is expected to be large and equal ownership is unlikely to be optimal to incentivize their contribution to the group. Finally, we interpret the positive relationship between the number of subsidiaries in the group and the prevalence of equal ownership arrangements as indicating that, as the relative importance of the subsidiary for the parent goes down, there is both more potential for expropriation and a lower cost of inefficient decision making in any particular subsidiary.

In columns 5 and 6 we can see the effect of the level of legal protection awarded to minority shareholders (column 5) and of the quality of contract enforcement (column 6) in the subsidiary's country. The insignificant coefficient for the minority protection score confirms our analysis in Section 4 and our second hypothesis. Because of the dual nature of parents as both controlling shareholders and business stakeholders of the subsidiaries, corporate law does not appear to be an important source of appealing solutions to the corporate governance problems of groups. The insignificance of the coefficient on the minority protection score indicates that this is true even in countries where the law is more effective in preventing expropriation from controlling shareholders in stand-alone companies.

Finally, in order to test our third hypothesis and confirm the policy implications that we derived in Section 5, we run a regression which incorporates all the previous variables and adds the

variable that measures the quality of contract enforcement in the country where the subsidiary is located (column 6). We find a negative and significant relationship between the quality of contract enforcement in the subsidiary's jurisdiction and the use of equal ownership arrangements. This suggests that better contract enforcement allows the owners to draft (and to anticipate their enforcement) shareholders' agreements that can prevent conflicts of interest in the subsidiary and that reduce the use of 50-50% ownership structures as anti-expropriation devices of last resort.

TABLE 7: Estimation results						
Dependent variable: 50-50% dummy	1	2	3	4	5	6
Subs. Enforcement of Contracts score						-0.00681** (0.00265)
Subs. Protection of Minority Interests score					0.000876 (0.00295)	0.000637 (0.00291)
Log Subsidiary's revenue (million US\$)				-0.0138 (0.0167)	-0.0135 (0.0167)	-0.0128 (0.0167)
Subsidiary's age (in years)				-0.0275*** (0.00178)	-0.0275*** (0.00178)	-0.0278*** (0.00178)
Dummy Foreign Subsidiary				-0.245*** (0.0540)	-0.245*** (0.0540)	-0.239*** (0.0540)
N of subsidiaries per parent				0.000164*** (4.82e-05)	0.000164*** (4.82e-05)	0.000163*** (4.82e-05)
Log Parent's revenue (million US\$)	-0.0853*** (0.00729)	-0.0874*** (0.00738)	-0.0924*** (0.00855)	-0.103*** (0.00994)	-0.103*** (0.00994)	-0.100*** (0.00997)
Parent's age (in years)	0.00297*** (0.000609)	0.00295*** (0.000611)	0.00285*** (0.000656)	0.00447*** (0.000685)	0.00446*** (0.000685)	0.00435*** (0.000687)
Subs. Trading Across Borders score	0.00684*** (0.00215)	0.00600*** (0.00216)	0.00634*** (0.00219)	0.00816*** (0.00229)	0.00812*** (0.00230)	0.00841*** (0.00229)
Subs. Tax score	0.00213* (0.00118)	0.00207* (0.00121)	0.00178 (0.00124)	0.00168 (0.00130)	0.00149 (0.00145)	0.00138 (0.00145)
Subs. GDP per capita (current US\$)	8.17e-07 (1.39e-06)	1.16e-06 (1.39e-06)	1.31e-06 (1.43e-06)	2.33e-06 (1.51e-06)	2.29e-06 (1.52e-06)	3.54e-06** (1.60e-06)
Constant	-2.599*** (0.217)	-2.490*** (0.219)	-3.232*** (0.555)	-2.435*** (0.565)	-2.480*** (0.585)	-2.079*** (0.605)
Year FE	N	Y	Y	Y	Y	Y
Industry FE	N	N	Y	Y	Y	Y
Observations	34,526	34,516	34,489	33,086	33,086	33,086
Chi ²	176.65	199.58	790.58	1070.14	1070.23	1076.77
p-value	0	0	0	0	0	0
Pseudo R ²	0.012	0.013	0.052	0.075	0.075	0.076

The table shows the results from the estimation of the logit model explaining group ownership structures. Wholly owned subsidiaries are excluded. The dependent variable is a dummy variable that takes on the value one if the total ownership of the parent in the subsidiary is exactly 50%. Fixed Effects are as indicated. Standard errors in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. All other variables are as defined in Section 7.3.

To confirm these results, we run some additional tests shown in Table 8. To facilitate comparability, the first column in Table 8 is the same as the last column in Table 7, showing the importance of contract enforcement quality in the subsidiaries' country of location and indicating that, when enforcement is strong the parties can address corporate governance problems through shareholders' agreements and there is less need for 50-50% ownership structures. In Section 5 we argued that good enforcement is a necessary condition for the drafting of shareholders' agreements but we also explained that differences in bargaining power would result in less efficient contracting. In column 2 of Table 8 we find support for this result by introducing in the estimation the interaction between the quality of contractual enforcement and the difference in age between the parent and the subsidiary, which we interpret as a proxy for the different bargaining power of the parent and the other shareholders of the subsidiary. We find a positive and significant value for this interaction term, which corroborates the idea that, even if there is good contract enforcement, contracts may not offer enough protection against expropriation by the parent when the relative bargaining power of subsidiary and parent is highly biased in favour of the latter.

We also want to rule out the possibility that our contract enforcement score is merely capturing some effect which is due to the positive correlation between the different measures in the EODB database. Column 3 includes the subsidiary's country overall EODB score and we find that, although the correlation between both variables reduces the coefficient of the EC score, it is still negative and significant, while the overall EODB score and the PMI score are not significant. Additionally, in column 4 we introduce the parent's country scores (because half of the subsidiaries are domestic we introduce the difference in scores rather than the level for the parent's variables) and we find no changes in the value and the significance of the subsidiary's country EC score but we find that good contract enforcement in the parent's country is also an important determinant of the type of ownership structure. Good contract enforcement in the parent's country has a smaller but significant negative impact on the probability of resorting to equal ownership, implying that if the parent operates in a home environment with EC it is more likely to use shareholder agreements irrespectively of the quality of EC in the subsidiary's country.

Finally, we are also concerned that our Protection of Minority Interest score cannot capture the differences between jurisdictions where there is specific legislation dealing with corporate groups and this may be the reason why this variable is not significant. To capture this potential additional effect, we introduce in column 5 additional dummy variables indicating whether the subsidiary is part of a German, Italian or French group (with both the parent and the subsidiary located in one of these countries). We also include US groups because we have argued that in the US minority protection is reinforced by the consideration of the controlling shareholder as a fiduciary of the minority. These variables are significant but for German and Italian groups they indicate that groups located in these jurisdictions are more likely to have subsidiaries held with a 50-50% ownership stake. Nevertheless, for US groups the probability of equal ownership structures is very reduced, which supports the idea that the litigation risk makes these structures dangerous for the parent.

Summing up our results, we find confirmation for our analysis of the corporate governance problems of groups and the relative importance of corporate law, shareholders' agreements and extreme ownership structures as mechanisms that groups can use to contain these problems. Our empirical results show: (i) that 50-50% ownership is more likely to arise when the costs of inefficient decision making caused by this structure are less relevant for the parent (because the subsidiary is younger, domestic or because the parent has many other subsidiaries): this confirms our first hypothesis relative to the high costs and loss of cooperation incentives caused by 50-50% ownership; (ii) the quality of the protection of minority interests in the jurisdiction where the subsidiary is located does not affect the decision to adopt an extreme ownership structure, which is consistent with the second hypothesis we raised on the inefficiency of corporate law to deal with the corporate governance problems of groups; (iii) we find consistent support for the idea that when jurisdictions score high in the enforcement of contracts, shareholders agreements can effectively function as an alternative anti-expropriation solution that does not distort the ownership structure of the corporate group.

TABLE 8: Additional results for the quality of contract enforcement and the protection of minority interests					
Dependent variable: 50-50% dummy	1	2	3	4	5
Subs. Enforcement of Contracts score	-0.00681** (0.00265)	-0.0119*** (0.00321)	-0.00557* (0.00308)	-0.0107*** (0.00328)	-0.00583** (0.00291)
Subs. EC score*(Parent age-Subs. Age)		0.000167*** (6.15e-05)			
Subs. Ease of Doing Business score			-0.00584 (0.00738)		
Diff. in ECsc between parent and subs.				-0.00840** (0.00361)	
Diff. in PMIsc between parent and subs.				2.57e-05 (0.00398)	
Diff. in TABsc between parent and subs.				0.0281*** (0.00361)	
Diff in taxsc between parent and subs.				0.00616*** (0.00192)	
Diff. in GDPpc between parent and subs.				-1.04e-05*** (2.22e-06)	
Subs. Protection of Minority Interests score	0.000637 (0.00291)	0.000994 (0.00291)	0.00182 (0.00327)	0.00266 (0.00387)	0.00300 (0.00296)
US Group					-3.331*** (0.712)
German Group					1.134*** (0.162)
Italian Group					0.247** (0.121)
French Group					0.140 (0.119)
Log Subsidiary's revenue (million US\$)	-0.0128 (0.0167)	-0.0128 (0.0167)	-0.0124 (0.0167)	-0.00914 (0.0167)	-0.00778 (0.0169)
Subsidiary's age (in years)	-0.0278*** (0.00178)	-0.0168*** (0.00444)	-0.0277*** (0.00179)	-0.0277*** (0.00178)	-0.0274*** (0.00179)
Dummy Foreign Subsidiary	-0.239*** (0.0540)	-0.244*** (0.0541)	-0.243*** (0.0542)	-0.266*** (0.0591)	-0.227*** (0.0582)
N of subsidiaries per parent	0.000163*** (4.82e-05)	0.000160*** (4.83e-05)	0.000163*** (4.82e-05)	0.000178*** (4.88e-05)	0.000152*** (4.93e-05)
Log Parent's revenue (million US\$)	-0.100*** (0.00997)	-0.100*** (0.00997)	-0.0999*** (0.0100)	-0.0890*** (0.0103)	-0.0945*** (0.0100)
Parent's age (in years)	0.00435*** (0.000687)	-0.00683 (0.00421)	0.00436*** (0.000686)	0.00377*** (0.000703)	0.00388*** (0.000693)
Subs. Trading Across Borders score	0.00841*** (0.00229)	0.00822*** (0.00229)	0.00963*** (0.00276)	0.0252*** (0.00311)	0.00552** (0.00245)
Subs. Tax score	0.00138 (0.00145)	0.00132 (0.00145)	0.00194 (0.00161)	0.00526*** (0.00176)	0.00219 (0.00160)
Subs. GDP per capita (current US\$)	3.54e-06** (1.60e-06)	3.58e-06** (1.60e-06)	4.10e-06** (1.74e-06)	-2.94e-06 (2.02e-06)	4.97e-06*** (1.64e-06)
Constant	-2.079*** (0.605)	-1.747*** (0.616)	-1.975*** (0.619)	-3.676*** (0.661)	-2.217*** (0.611)
Year FE	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y
Observations	33,086	33,086	33,086	32,953	33,086
Chi ²	1076.77	1084.5	1077.39	1158.75	1208.81
p-value	0	0	0	0	0
Pseudo R ²	0.076	0.076	0.076	0.082	0.085
The table shows the results from the estimation of the logit model explaining group ownership structures. Wholly owned subsidiaries are excluded. The dependent variable is a dummy variable that takes on the value one if the total ownership of the parent in the subsidiary is exactly 50%. Fixed Effects are as indicated. Standard errors in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. All other variables are as defined in Section 7.3.					

7.6 Robustness tests

To ensure the robustness of our results we conduct a number of additional tests using alternative subsamples and using additional variables.

First, we rerun our estimation in column 6 from Table 7 extending and restricting the sample of firms depending on the parent's ownership stake. In our basic regressions we use subsidiaries where the parent's ownership is equal or above 50% and below 100% (i.e. excluding wholly owned subsidiaries). In Table 9 we repeat this estimation for several subsamples. In the first column we extend the sample to include all subsidiaries where the parent's ownership is above 20%. In the second column we have all firms with ownership equal or above 50%. In the third column we take our basic sample but exclude the subsidiaries for which Orbis database does not offer a percentage of ownership but simply states that parent has a majority stake ("MO") or an indication that the ownership of the parent is above 50% (">50%"). As explained in Section 6, when substituted for an ownership stake of 50.01% these observations generate a spike in the ownership distribution which may be biasing our results. In columns 4, 5 and 6 we go back to our original sample but with ownership levels below 95%, 90% and 80% respectively to make sure the ownership stakes are not too different. Our three hypothesis are confirmed for all these alternative samples.

TABLE 9: Results for ownership subsamples						
	1	2	3	4	5	6
	>20%	>=50%	>=50% & <100% & excluding MO	>=50% & <95%	>=50% & <90%	>=50% & <80%
Dependent variable: 50-50 dummy						
Subs. Enforcement of Contracts score	-0.0122*** (0.00253)	-0.0132*** (0.00255)	-0.00925*** (0.00264)	-0.00474* (0.00259)	-0.00456* (0.00261)	-0.00455* (0.00264)
Subs. Protection of Minority Interests score	-0.00321 (0.00275)	-0.00390 (0.00277)	0.00523* (0.00295)	0.00161 (0.00290)	0.000516 (0.00291)	-0.000137 (0.00292)
Log Subsidiary's revenue (million US\$)	-0.00687 (0.0162)	0.000466 (0.0164)	-0.0356** (0.0172)	0.00593 (0.0167)	0.00378 (0.0166)	0.00780 (0.0168)
Subsidiary's age (in years)	-0.0227*** (0.00174)	-0.0230*** (0.00176)	-0.0262*** (0.00179)	-0.0257*** (0.00176)	-0.0255*** (0.00176)	-0.0256*** (0.00177)
Dummy Foreign Subsidiary	-0.185*** (0.0513)	-0.230*** (0.0514)	0.0871 (0.0550)	-0.328*** (0.0540)	-0.339*** (0.0544)	-0.372*** (0.0548)
N of subsidiaries per parent	0.000168*** (4.81e-05)	0.000194*** (4.82e-05)	0.000368*** (6.08e-05)	0.000140*** (4.94e-05)	0.000138*** (4.96e-05)	0.000130*** (4.98e-05)
Log Parent's revenue (million US\$)	-0.0643*** (0.00983)	-0.0701*** (0.00987)	-0.0297*** (0.0109)	-0.123*** (0.00963)	-0.129*** (0.00968)	-0.141*** (0.00979)
Parent's age (in years)	0.00264*** (0.000646)	0.00284*** (0.000642)	0.00306*** (0.000744)	0.00508*** (0.000670)	0.00488*** (0.000678)	0.00497*** (0.000682)
Subs. Trading Across Borders score	0.00282 (0.00219)	0.00225 (0.00220)	0.000977 (0.00232)	0.0135*** (0.00232)	0.0142*** (0.00232)	0.0155*** (0.00235)
Subs. Tax score	-0.00189 (0.00141)	-0.00157 (0.00142)	0.00149 (0.00144)	4.37e-05 (0.00148)	-5.60e-06 (0.00149)	0.000157 (0.00151)
Subs. GDP per capita (current US\$)	4.37e-07 (1.57e-06)	8.97e-08 (1.58e-06)	1.82e-05*** (1.62e-06)	-1.27e-06 (1.63e-06)	-2.22e-06 (1.64e-06)	-3.84e-06** (1.65e-06)
Constant	-2.366*** (0.596)	-2.059*** (0.598)	-2.661*** (0.606)	-1.224*** (0.435)	-1.010** (0.437)	-0.746* (0.442)
Year FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
Observations	93,300	87,265	20,172	27,120	25,421	23,362
Chi ²	798.07	842.97	930.86	804.9	847.33	929.73
p-value	0	0	0	0	0	0
Pseudo R ²	0.044	0.047	0.076	0.06	0.064	0.072

The table shows the results from the estimation of the logit model explaining group ownership structures for three subsamples as follows: (i) all subsidiaries where parent's ownership is above 20%; (ii) subsidiaries where parent's ownership if equal or above 50%; and (iii) subsidiaries where the parent's ownership is equal or above 50% excluding cases where the Orbis database quotes ownership as "MO" (standing for majority ownership). The dependent variable is a dummy variable that takes on the value one if the total ownership of the parent in the subsidiary is exactly 50%. Fixed Effects are as indicated. Standard errors in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. All other variables are as defined in Section 7.3.

We are also concerned that contract enforcement and protection of minority interest are correlated with broader legal characteristics of the countries and we may be capturing some omitted variable bias in our results.

La Porta et al. (1997 and 1998) argue that different legal measures of investor protection vary in a systematic way depending on the legal origin of the jurisdiction and that common law origins offer greater protection to minority investors than civil law origins. The reason for this may be that Common Law can adapt faster to investors' changing requirements because it develops through case law rather than through legislation that takes longer to respond to market innovations.⁹⁵ Alternatively, common law may also be more business friendly because judges are said to be more independent from the Government in Common Law systems than in Civil Law systems and less likely to be captured by interest groups.⁹⁶ Moreover, authors like Klerman et al. (2011) and Licht et al. (2005) claim that the legal origin variables may also be capturing other more general historical and cultural differences across countries.⁹⁷

To correct for this potential bias, we run our main regression again introducing controls for the legal origins of the subsidiaries' countries. In Table 10 we can see that there are significant differences in the quality of contract enforcement and protection of minority interests across legal origin groups. In particular, countries of Scandinavian and German legal origin have very high contract enforcement and protection of minority scores, followed by Common Law countries. Therefore, the potential bias is that our results on the quality of contract enforcement and minority protection are actually capturing other more general legal differences across countries.

⁹⁵ As argued by Beck (2003).

⁹⁶ On this hypothesis see the historical account of Rajan & Zingales (2003).

⁹⁷ In fact, authors like Klerman et al. (2011) and Licht et al. (2005) claim that the legal origin variables may also be capturing other more general historical and cultural differences across countries.

TABLE 10. Countries by legal origin				
Legal Origin	ECsc	PMisc	Obs.	Countries
CIVIL LAW	60.38	54.98	64,424	
Civil French	54.24	45.55	27,544	Angola, Argentina, Belgium, Benin, Bolivia, Cambodia, Cape Verde, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, France, Guatemala, Haiti, Honduras, Laos, Luxembourg, Mexico, Netherlands, Nicaragua, Panama, Paraguay, Peru, Romania, San Marino, Spain, Suriname, Thailand, Uruguay, Venezuela, Vietnam
Civil German	64.99	62.02	29,333	Albania, Armenia, Austria, Azerbaijan, Belarus, Bosnia and Herzegovina, Brazil, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Germany, Greece, Hungary, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Macedonia (FYROM), Montenegro, Poland, Portugal, Russian Federation, Serbia, Slovakia, Slovenia, Switzerland, Tajikistan, Turkey, Ukraine, Uzbekistan
Civil Scandinavian	70.55	70.80	7,547	Denmark, Finland, Iceland, Norway, Sweden
COMMON LAW	59.24	55.04	17,534	Antigua and Barbuda, Australia, Bahamas, Barbados, Belize, Canada, Fiji, Grenada, Ireland, Jamaica, Kiribati, Marshall Islands, New Zealand, Palau, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Tonga, Trinidad and Tobago, United Kingdom, United States of America
MIXED LAW	51.54	46.81	30,321	
Mixed Civil French	47.33	35.57	416	Algeria, Burkina Faso, Burundi, Cameroon, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Guinea, Indonesia, Lebanon, Madagascar, Mali, Niger, Rwanda, Senegal, Syrian Arab Republic, Togo, Tunisia
Mixed Civil German	56.80	53.06	16,105	China, Guinea-Bissau, Japan, Sao Tomé and Príncipe, South Korea
Mixed Civil Other	53.44	58.50	1,461	Botswana, Iraq, Israel, Jordan, Malta, Mauritius, Palestinian Territories, Saint Lucia, South Africa, Sri Lanka, Vanuatu, Zimbabwe
Mixed Common	53.68	52.00	8,616	Cyprus, Eswatini, Ghana, Guyana, Hong Kong, India, Kenya, Lesotho, Liberia, Malawi, Micronesia, Namibia, Nepal, Nigeria, Philippines, Samoa, Sierra Leone, Singapore, Uganda, United Republic of Tanzania, Zambia
Mixed Customary	51.11	52.50	13	Bhutan, Mongolia, Mozambique, Papua New Guinea
Mixed Muslim	52.27	45.59	3,710	Bahrain, Bangladesh, Brunei Darussalam, Egypt, Gambia, Islamic Republic of Iran, Kuwait, Libya, Malaysia, Mauritania, Morocco, Oman, Pakistan, Qatar, Somalia, Sudan, United Arab Emirates, Yemen
MUSLIM LAW	45.65	36.22	193	Afghanistan, Maldives, Saudi Arabia
This table shows the legal origin of the countries in the sample and the across countries average Enforcement of Contracts and Protection of Minority Interest scores by legal origin. The legal origin for each country is taken from the University of Ottawa's JuriGlobe: World Legal Systems project. The civil law origin is subdivided into three subgroups: French civil law, German civil law and Scandinavian civil law. The mixed law group is also subdivided into four groups depending on the type of law that dominates in the country in combination with any of the others. We also subdivide the mixed law countries where civil law dominates into French, German and Other following the classification of Klerman et al. (2011).				

To explore the possible bias caused by the correlation between our legal variables and legal origins, in Table 11 we introduce controls for the legal origins of the subsidiary countries. The omitted category is Common Law Legal Origin. Therefore, the coefficients on these variables must be interpreted in relationship to the Common Law group. The first column includes all mixed origins countries in the mixed origins group, while in the second column we reassign the countries in the mixed groups to the legal origin that dominates in the country and leave in the mixed group only the countries with mixed Civil Law origins that cannot be traced to either French or German origins plus the countries with mixed tradition. The results are stronger in the first column, indicating that the separate classification works better than the reassigned one.

TABLE 11: Results controlling for legal origins		
	1	2
	Extended Mixed Legal	Reduced Mixed Legal
Dependent variable: 50-50% dummy	Origin group	Origin group
Subs. Enforcement of Contracts score	-0.00457* (0.00271)	-0.00768*** (0.00265)
Subs. Protection of Minority Interests score	0.00869*** (0.00319)	0.00286 (0.00357)
Log Subsidiary's revenue (million US\$)	0.00603 (0.0167)	0.00238 (0.0167)
Subsidiary's age (in years)	-0.0277*** (0.00179)	-0.0278*** (0.00179)
Dummy Foreign Subsidiary	-0.279*** (0.0544)	-0.266*** (0.0536)
N of subsidiaries per parent	0.000163*** (4.81e-05)	0.000159*** (4.80e-05)
Log Parent's revenue (million US\$)	-0.0912*** (0.00967)	-0.0955*** (0.00956)
Parent's age (in years)	0.00478*** (0.000653)	0.00479*** (0.000654)
Subs. Trading Across Borders score	0.00467* (0.00281)	0.00843*** (0.00280)
Subs. Tax score	0.00153 (0.00150)	0.00124 (0.00152)
Subs. GDP per capita (current US\$)	5.87e-06*** (1.85e-06)	2.26e-06 (2.00e-06)
French Legal Origin	0.457*** (0.108)	0.00575 (0.102)
German Legal Origin	0.742*** (0.114)	0.123 (0.105)
Scandinavian Legal Origin	0.859*** (0.133)	0.526*** (0.125)
Mixed Legal Origin	0.515*** (0.102)	-0.263 (0.256)
Muslim Legal Origin	1.288*** (0.383)	0.246 (0.152)
Constant	-2.413*** (0.453)	-1.475*** (0.443)
Year FE	Y	Y
Industry FE	Y	Y
Observations	33,112	33,106
Chi ²	760.55	715.81
p-value	0	0
Pseudo R ²	0.054	0.05

The table shows the results from the estimation of the logit model explaining group ownership structures when we control for the legal origin of the subsidiary country as presented in Table 10. The excluded category is Common Law Legal Origin. In column 1 the Mixed Legal Origin group included all countries with mixed origins irrespectively of the legal origin that dominates its law (85 countries). In column 2 the Mixed Legal Origin group only includes countries where no legal origin dominates (16 countries), with all the other countries that were initially in this group have been assigned to their dominant legal origin. The dependent variable is a dummy variable that takes on the value one if the total ownership of the parent in the subsidiary is exactly 50%. Fixed Effects are as indicated. Standard errors in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. All other variables are as defined in Section 7.3.

Three results are worth mentioning. First, the quality of contract enforcement maintains its significance and magnitude as a predictor of a lower probability of equal ownership. Second, the protection of minority interest score becomes significant (although with the opposite sign to what one may explain). This can be interpreted as evidence of a significant correlation between minority protection and legal origin. Finally, all the legal origins in the table, except the Scandinavian group, have a significantly higher incidence of equal ownership structures than the common legal origin. Therefore, common legal origin -either because of better corporate law or because of other historical or cultural aspects- seems to offer stronger protection against conflicts of interest between parents and subsidiaries.

8 Conclusions

In this paper we study corporate groups and their corporate governance problems. We start by offering a novel, simple and powerful definition of the corporate group that stresses the dual nature of the parent as both owner and business stakeholder of the subsidiaries. We use this notion for several purposes. First, identify the two reasons for group creation (regulatory arbitrage, facilitating growth and cooperation incentives). Second, to explore the severe conflicts of interest that arise between parents and subsidiaries.

We argue that corporate law, shareholders agreements and ownership structures provide alternative ways to deal with these conflicts.

Corporate law allocates control according to ownership stakes and sets (i) ex-ante exceptions to this control when there is a high risk of expropriation and (ii) ex-post penalties and compensation when the value of the subsidiary has been reduced by the conflicted decisions of the parent. Nevertheless, corporate law typically ignores the stakeholder nature of the parent and, because of this, legal rules that can curtail expropriation in stand-alone firms may prove ineffective or undesirable when dealing with corporate groups.

Shareholders' agreements offer protection from conflicts of interest by decoupling ownership rights from control rights. These contracts among shareholders are usually drawn by the parties at the beginning of their relationship, and they are specifically designed to prevent expropriation while preserving both the parent's and the minority's incentives for cooperation. The incentives for cooperation will be determined by the ownership stake that each party holds and the contract commonly does not modify. However, the decision rights that can give rise to expropriation will be re-allocated by the contract to ensure that parent and subsidiary get a fair treatment. The efficiency of shareholders agreements will be critically determined by the balance between the bargaining power of the shareholders drafting the contract, but, more importantly in terms of policy implications, by the quality of contract enforcement in each jurisdiction.

Equal ownership arrangements force shareholders to share control of the subsidiary. This is a solution of last resort to the expropriation problem because it curtails expropriation at the cost of adapting a very ineffective decision process. In our empirical tests we provide evidence that equal ownership arrangements are in fact used as the last resort when subsidiaries are located in countries where the quality of contract enforcement is poor.

These results have important policy implications for the regulation of corporate groups. Important jurisdictions have developed specific legislation for corporate groups to deal with their severe corporate governance problems. However, our analysis and empirical findings suggest that group corporate governance would benefit from greater flexibility and better enforcement of shareholders agreements.

References

- Action Plan: European corporate law and corporate governance -a modern legal framework for more engaged shareholders and sustainable companies (2012)
- AktG parágrafos 312 ss.
- Almeida, Heitor V.; Daniel Wolfenzon (2006) "A Theory of Pyramidal Ownership and Family Business Groups" *The Journal of Finance* 61(6) p.2637–2680
- Anderson, Shannon W.; Christ, Margaret H.; Dekker, Henri C.; Sedatole, Karen (2013) "The Use of Management Controls to Mitigate Risk in Strategic Alliances: Field and Survey Evidence" *Journal of Management Accounting Research* 26(1)
- Ayotte, Kenneth; Henry Hansmann (2013) "Legal Entities as Transferable Bundles of Contracts" *Mich. L. Rev.* 111 p.715
- Bachmann, Gregor; Horst Eidenmüller; Andreas Engert; Holger Fleischer; Wolfgang Schön (2014) "Regulating the closed corporation" De Gruyter. Berlin, Boston.
- Baek, Jae-Seung; et al. (2006) "Business Groups and Tunneling: Evidence from Private Securities Offerings by Korean Chaebols" *The Journal of Finance* 61(5) p.2415–2449
- Baran, Lindsay; Forst, Arno; Via, Marc (2019) "Dual Class Share Structure and Innovation" Available at SSRN: <https://ssrn.com/abstract=3183517>
- Bartlett, Robert (2015) "Shareholder Wealth Maximization as Means to an End" *Seattle University Law Review* 38
- Bebchuk, L.; Kraakman; R. Triantis, G. (2000) "Stock pyramids, cross-ownership, and dual class equity: The mechanisms and agency costs of separating control from cash-flow rights" In *Concentrated Corporate Ownership*. National Bureau of Economic Research Conference Volume. R. Morck, Ed. University of Chicago Press. Chicago.
- Bebchuk, Lucian A.; Roe, Mark J. (1999) "A Theory of Path Dependence in Corporate Ownership and Governance" *Stanford Law Review* 52 p.127-170
- Beck, Thorsten; Asli Demirguc-Kunt; Ross Levine (2003) "Law and Finance: Why does Legal Origin Matter?" *J. Comp. Econ.* 31 p.653
- Belenzon, S; Hashai, N; Pataconi, A. (2019) "The architecture of attention: Group structure and subsidiary autonomy" *Strat Mgmt J.* 40 p.1610– 1643
- Bennedsen, Morten; Nielsen, Kasper (2006) "The principle of proportional ownership, investor protection and firm value in Western Europe" *Journal of Banking and Finance* 34 p.2212–2229.
- Bennedsen, Morten; Wolfenzon, Daniel (2000) "The balance of power in closely held corporations" *Journal of Financial Economics* 58(1-2) p.113-139
- Bertrand, M.; Mehta, P.; Mullainathan, S. (2002) "Ferretting out Tunneling: An Application to Indian Business Groups" *Quarterly Journal of Economics* 117 p.121-148
- Bhattacharyya, Sugato; Francine Lafontaine (1995) "Double-Sided Moral Hazard and the Nature of Share Contracts" *The RAND Journal of Economics* 26(4) p.761–781
- Botero, Juan Carlos; Djankov, Simeon; La Porta, Rafael; Lopez de Silanes, Florencio; Shleifer, Andrei (2004) "The Regulation of Labor" *Quarterly Journal of Economics* 119(4)
- Burkart, Mike; Lee, Samuel (2008) "One share - one vote: the theory" *Review of Finance* 12(1) p.1-49.
- Burkart, Mike; Gromb, Denis; Panunzi, Fausto (1997) "Large Shareholders, Monitoring, and the Value of the Firm" *The Quarterly Journal of Economics* 112(3) p.693–728;
- Cadman, J. (2004) "Shareholders' Agreements" 4th ed., Thomson/Sweet & Maxwell. London.
- Chaturvedi, Sankalp; Gaur Ajai S. (2008) "A Dynamic Model of Trust and Commitment Development in Strategic Alliances" *IIMB Management Review* 21 p.173-188
- Chemla, Gilles; Ljungqvist, Alexander; Habib, Michel (2007) "An Analysis of Shareholder Agreements" *Journal of the European Economic Association* 5(1) p.93-121
- Choi, A. H.; G. Ming (2018) "Contractarian theory and unilateral bylaws amendments" *Iowa Law Review* 105 p.12
- Chong-En, Bai; Zhigang Tao; Changqi Wu (2004) "Revenue Sharing and Control Rights in Team Production: Theories and Evidence from Joint Ventures" *The RAND Journal of Economics* 35(2) p.277-305
- Claessens, Stijn; Fan, Joseph P.H. (2002) "Corporate Governance in Asia: A Survey" *International Review of Finance* 3(2) p.71-103

- Claessens, Stijn; Simeon Djankov; Larry H.P Lang (2000) "The separation of ownership and control in East Asian corporations" *Journal of Financial Economics* 58(1-2) p.81-112
- Coase, Ronald H. (1937) "The Nature of the Firm" *Econometrica* 4 p.386
- Conac, Pierre-Henri (2013) "Director's Duties in Groups of Companies – Legalizing the Interest of the Group at the European Level" *EUR. CO. & FIN. L. REV.* 10(2) p.194-226
- Cremers, K. J. Martijn; Lauterbach, Beni; Pajuste, Anete (2020) "The Life-Cycle of Dual Class Firm Valuation" *European Corporate Governance Institute (ECGI) - Finance Working Paper No. 550/2018*, Available at SSRN: <https://ssrn.com/abstract=3062895>
- Cuervo-Cazurra, A.; Maloney, M.; Manrakhan, S. (2007) "Causes of the difficulties in internationalization" *Journal of International Business Studies* 38(6) p.709-72
- Damman, Jens (2019) "Related party transactions and intragroup transactions" In *The law and finance of related party transactions*. L. Enriques and T. Troegger, Eds. Cambridge University Press.
- Dammann, Jens (2014) "The Mandatory Law Puzzle: Redefining American Exceptionalism in Corporate Law" *Hastings L.J.* 65 p.441-499
- Darrough, Masako N; Stoughton, Neal M (1989) "A Bargaining Approach to Profit Sharing in Joint Ventures" *The Journal of Business* 62(2) p.237-70
- Das TK, Teng B-S. (2001) "Trust, Control, and Risk in Strategic Alliances: An Integrated Framework" *Organization Studies* 22(2) p.251-283
- De Bondt, Raymond (1997) "Spillovers and innovative activities" *International Journal of Industrial Organization* 15(1) p.1-28
- Delios, A.; Beamish, P. W. (2004) "Joint venture performance revisited: Japanese foreign subsidiaries worldwide" *Management International Review* 44 p.69-91
- Delios, A.; Henisz, W. J. (2003) "Political hazards, experience and sequential entry strategies: the international expansion of Japanese firms, 1980-1998" *Strategic Management Journal* 24 p.1153-64
- Desai, Mihir A.; Foley, C. Fritz; Hines, James Rodger (2006) "The costs of shared ownership: Evidence from international joint ventures" *Journal of Financial Economics* 73(2)
- Desai, Mihir A.; Foley, C. Fritz; Hines, James Rodger (2006) "The Demand for Tax Haven Operations" *Journal of Public Economics* 90(3) p.513-531
- Desai, Mihir A.; Hines, James R. Jr. (2003) "Evaluating International Tax Reform" *National Tax Journal* 56(3) p.487-502
- Directive 2017/828 into Directive 2007/36/EC through its new Article 9c ("Transparency and approval of related party transactions").
- Djankov, Simeon; La Porta, Rafael; Lopez-de-Silanes, Florencio; Shleifer, Andrei (2008) "The law and economics of self-dealing" *Journal of Financial Economics* 88(3) p.430-465
- Egger, Peter H.; Radulescu, Doina Maria (2011) "Labour Taxation and Foreign Direct Investment" *The Scandinavian Journal of Economics* 113(3) p.603-636
- Emmerich, Volker; Mathias Habersack (2013) "Konzernrecht" 13th ed., C.H. Beck. München.
- Enriques, Luca et al. (2017) "Related Party Transactions" In *The Anatomy of Corporate Law*. Reinier Kraakman et al., Eds.3th ed. Oxford University Press.
- Faccio, M.; Lang, L. (2002) "The ultimate ownership in Western European corporations" *Journal of Financial Economics* 65(3) p.365-395
- Fisch, Jill E. (2020) "Private Ordering and the Role of Shareholder Agreements" *European Corporate Governance Institute - Law Working Paper No. 538/2020*. Available at SSRN: <https://ssrn.com/abstract=3667202>
- Fish, J. (2016) "The new governance and the challenge of litigation bylaws" *Brook. L. Rev.* 81 p.1637
- Fosfuri A. (2000) "Patent Protection, Imitation and the Mode of Technology Transfer" *International Journal of Industrial Organisation* 18(7) p.1129-1149
- Fosfuri A.; Motta M.; T. Ronde (2001) "Foreign Direct Investment and Spillovers through Workers Mobility" *Journal of International Economics* 53 p.205-222
- Gattai, Valeria (2010) "Firm's intangible assets and multinational activity: Full versus shared ownership" *The Journal of International Trade & Economic Development* 19(4) p.553-589
- Gelter, Martin (2012) "Why Do Shareholder Derivative Suits Remain Rare in Continental Europe?" *Brooklyn Journal of International Law* 37 p.843
- Gelter, Martin; Helleringer, Genevieve (2015) "Lift Not the Painted Veil! To Whom Are Directors' Duties Really Owed?" *University of Illinois Law Review* 2015(3) p.1069-1118

- Giannetti, M.; Y. Koskinen (2010) "Investor Protection, Equity Returns, and Financial Globalization" *Journal of Financial and Quantitative Analysis* 45(1) p.135-168
- Gilson RJ; A Schwartz (2013) "Constraints on Private Benefits of Control: Ex-ante Control Mechanisms Versus Ex-post Transaction Review" *Journal of Institutional and Theoretical Economics* 169 p.160-83
- Ginglinger, Edith; Hebert, Camille; Renneboog, Luc (2018) "Are Investors Aware of Ownership Connections?" *European Corporate Governance Institute ECGI - Finance Working Paper No. 525/2017*. Available at SSRN: <https://ssrn.com/abstract=3667202>
- Giroud, X.; H. Mueller (2011) "Corporate Governance, Product Market Competition, and Equity Prices" *The Journal of Finance* 66 p.563-600
- Gompers, P.; J. Ishii; A. Metrick (2003) "Corporate Governance and Equity Prices" *Quarterly Journal of Economics* 118(1) p.107-155
- Gomstian, Suren (2012) "The enforcement of shareholder agreements under English and Russian law" *Journal of Comparative Law* 7(1) p.115
- Gomstian, Suren (2016) "Contractual Mechanisms of Investor Protection in Non-Listed Limited Liability Companies" *Vill. L. Rev.* 60 p.955
- Goshen, Zohar (2003) "The efficiency of controlling corporate self-dealing: Theory meets reality" *Cal. L. Rev.* 91 p.402
- Goshen, Zohar; Hamdani, Assaf (2016) "Corporate Control and Idiosyncratic Vision" *Yale Law Journal* 125
- Grossman, Sanford J.; Oliver D. Hart. (1986) "The costs and benefits of ownership: A theory of vertical and lateral integration" *Journal of Political Economy* 94(4) p.691-719
- Gutiérrez, María; Maribel Sáez (2017) "A Contractual Approach to Discipline Self-dealing by Controlling Shareholders" *Journal of Law, Finance and Accounting* 2(1) p.173-204
- Gutiérrez, María; Maribel Sáez (2018) "Strong shareholders, weak outside investors" *Journal of Corporate Law Studies* 18(2) p.282
- Hamdani, Assaf; Kosenko, Konstantin; Yafeh, Yishay (2020) "Regulatory Measures to Dismantle Pyramidal Business Groups: Evidence from the United States, Japan, Korea and Israel" *CEPR Discussion Paper No. DP15342*. Available at SRN: <https://ssrn.com/abstract=3030652>.
- Hansmann, Henry; Reinier Kraakman; Richard Squire (2006) "Law and the Rise of the Firm" *Harv L.Rev* 119 p.1333
- Hansmann, Henry; Squire, Richard (2018) "External and Internal Asset Partitioning: Corporations and Their Subsidiaries" In *The Oxford Handbook of Corporate Law and Governance*. Jeffrey N. Gordon and Wolf-Georg Ringe, Eds. Oxford University Press.
- Harrison, Ann E.; McMillan, Margaret (2011) "Offshoring Jobs? Multinationals and Us Manufacturing Employment" *The Review of Economics and Statistics* 93(3) p.857-875
- Hart, Oliver (1995) "Firms, Contracts and Financial Structure" Oxford University Press USA. New York.
- Hauswald, Robert B.H.; Hege, Ulrich (2006) "Ownership and Control in Joint Ventures: Theory and Evidence" *AFA 2004 San Diego Meetings*. Available at SSRN: <https://ssrn.com/abstract=3723531>.
- Heaton, Sohvi; Teece, David J. (2014) "Market Entry Strategies". Available at SSRN: <https://ssrn.com/abstract=302924>.
- Henisz, W. J. (2000) "The institutional environment for multinational investment" *Journal of Law, Economics and Organization* 16 p.334-364
- Ho, Virginia Harper (2012) "Theories of Corporate Groups: Corporate Identity Reconceived" *Seton Hall L. Rev.* 42 p.879
- Holmström, Bengt (1999) "Managerial Incentive Problems: A Dynamic Perspective" *The Review of Economic Studies* 66(1) p.169-182
- Hommelhoff, Peter (2001) "Protection of Minority Shareholders, Investors and Creditors in Corporate Groups: The Strengths and Weaknesses of German Corporate Group Law" *EUR. BUS. ORG. L. REV.* 2 p.61-80
- Hopt, Klaus J. (2015) "Groups of Companies: A Comparative Study of the Economics, Law, and Regulation of Corporate Groups" In *The Oxford Handbook of Corporate Law and Governance*. Jeffrey N. Gordon and Wolf-Georg Ringe, Eds.
- Hopt, Klaus J.; Markus Roth (2005) "4 Grosskommentar Aktiengesetz" . Klaus J. Hopt and Herbert Wiedemann. Eds.

- Hu, Henry T. C.; Black, Bernard S. (2007) "Hedge Funds, Insiders, and the Decoupling of Economic and Voting Ownership: Empty Voting and Hidden (Morphable) Ownership" *Journal of Corporate Finance* 13 p.343-367
- Huang, X. (2015) "Thinking Outside the Borders: Investors' Underreaction to Foreign Operations Information" *Review of Financial Studies* 28(11) p.3109-3152
- Hüffer, U. (2008) "Aktiengesetz" 8 Aufl., C. H. Beck. München.
- Iacobucci, Edward M.; George G. Triantis (2007) "Economic and Legal Boundaries of Firms" *Virginia Law Review* 93 p.515
- Johnson, Simon; Rafael La Porta; Florencio Lopez-de-Silanes; Andrei Shleifer (2000) "Tunneling" *The American Economic Review* 90(2) p.22-27
- Kahn v M & F Worldwide Corp 88 A3d 635 (2014).
- Kalemli-Ozcan, S.; Sorensen, B.; Villegas-Sanchez, C.; Volosovych, V.; Yesiltas, S. (2015) "How to construct nationally representative firm level data from the ORBIS global database". NBER Working Paper No 21558. Available at: https://www.nber.org/system/files/working_papers/w21558/w21558.pdf
- Kanda Hideki; Curtis J. Milhaupt (2003) "Re-Examining Legal Transplant: The Directors Fiduciary Duty in Japan Corporate Law" *AM. J. COMP. L.* 51 p.887
- Kandel, Eugene; Konstantin Kosenko; Randall Morck; Yishay Yafeh (2019) "The great pyramids of America: A revised history of U.S. business groups, corporate ownership, and regulation, 1926–1950" *Strategic Management Journal* 40(5) p.781-808
- Khanna, Tarun; Krishna Palepu (2000) "Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups" *The Journal of Finance* 55(2) p.867-891
- Khanna, Tarun; Yishay Yafeh (2007) "Business Groups in Emerging Markets: Paragons or Parasites?" *Journal of Economic Literature* 45(2) p.331-372
- Kim, Bongjin; Prescott, John E.; Kim, Sung Min (2005) "Differentiated governance of foreign subsidiaries in transnational corporations: an agency theory perspective" *Journal of International Management* 11(1) p.43-66
- Goshen, Zohar; Hamdani, Assaf (2016) "Corporate Control and Idiosyncratic Vision" *Yale Law Journal* 125(3) p. 560-795.
- Kim, Hyunseob; Michaely, Roni (2019) "Sticking around Too Long? Dynamics of the Benefits of Dual-Class Voting" *European Corporate Governance Institute (ECGI) - Finance Working Paper No. 590/2019*. Available at SSRN: <https://ssrn.com/abstract=3145209>
- Klerman, Daniel M.; Paul G. Mahoney; Holger Spamann; Mark I. Weinstein (2011) "Legal Origin or Colonial History?" *Journal of Legal Analysis* 3(2) p.379-409
- Krishnaswami, Sudha; Venkat Subramaniam (1999) "Information Asymmetry, Valuation, and the Corporate Spin-Off Decision" *Journal of Financial Economics* 53(1)
- La Porta, Rafael; Florencio Lopez-de-Silanes; Andrei Shleifer; Robert Vishny (1997) "Legal Determinants of External Finance" *Journal of Finance* 52 p.1131
- La Porta, Rafael; Florencio Lopez-de-Silanes; Andrei Shleifer; Robert Vishny (1998) "Law and Finance" *J. Pol. Econ.* 106 p.1113
- Leih, S.; Teece, D. (2014) "Market entry strategies" In *Palgrave Encyclopedia of Strategic Management*. D. Teece and M. Augier, Eds. Palgrave Macmillan. London.
- Lerner, Josh; Sergey Chernenko; Yao Zeng (forthcoming) "Mutual Funds as Venture Capitalists? Evidence from Unicorns" *Review of Financial Studies*
- Licht, Amir (2020) "Farewell to Fairness: Towards Retiring Delaware's Entire Fairness Review" *Del. J. Corp. L.* 44 p.1
- Licht, Amir N. (2004) "Legal Plug-Ins: Cultural Distance, Cross-Listing, and Corporate Governance Reform" *BERKELEY J. INT'L LAW.* 22 p.195
- Licht, Amir N. (2019) "Be Careful What You Wish for: How Progress Engendered Regression in Related Party Transaction Regulation in Israel" In Luca Enriques and Tobias Tröger, eds., *The Law and Finance of Related Party Transactions*. Cambridge University Press.
- Makino, S.; Chan, C.; Isobe, T.; Beamish, P. (2007) "Intended and unintended termination of international joint ventures" *Strategic Management Journal* 28 p.1113-1132
- Mancini, Massimo; Pappalardo, Carmine; de Nardis, Sergio (2004) "Evaluating the Impact of Labour Market Regulation on the Size Growth of Firms". Available at: https://www.nber.org/system/files/working_papers/w21558/w21558.pdf

- Masulis, Ronald W.; Peter Kien Pham; Jason Zein (2011) "Family Business Groups around the World: Financing Advantages, Control Motivations, and Organizational Choices" *The Review of Financial Studies* 24(11) p.3556-3600
- Masulis, R.W.; Wang, C.; Xie, F. (2009) "Agency Problems at Dual-Class Companies" *The Journal of Finance* 64 p.1697-1727.
- Matheson, J.H. (2008) "The modern law of corporate groups: An empirical study of piercing the corporate veil in the parent-subsidiary context" *North Carolina Law Review* 87 p.1091
- McCahery, Joseph A.; Vermeulen, Erik P.M. (2008) "Corporate Governance of Non-Listed Companies" Oxford University Press Online.
- McCormack, Gerard (2012) "Universalism in Insolvency Proceedings and the Common Law" *Oxford Journal of Legal Studies* 32(2) p.325-347
- Meier, Jean-Marie; Smith, Jake (2020) "Tax Avoidance through Cross-Border Mergers and Acquisitions". Available at SSRN: <https://ssrn.com/abstract=637121>
- Morck, Randall; Daniel Wolfenzon; Bernard Yeung (2005) "Corporate Governance, Economic Entrenchment and Growth" *Journal of Economics Literature* 43 p.657-722
- Morck, Randall; Masao Nakamura (2007) "Business Groups and the Big Push: Meiji Japan's Mass Privatization and Subsequent Growth" *Enterprise and Society* 8(3) p.543-601
- Moscow, Cyril (2002) "The Representative Director Problem" *Insights* 16(12) p.3
- O'Neal, F. Hodge; Robert B. Thompson (2005) "O'Neal and Thompson's Close Corporations and LLCs: Law and Practice Volume 1, Section 5" 3th revised edition, Thomson West. Eagan (Minnesota).
- Pagano, Marco; Alisa Röell (1998) "The Choice of Stock Ownership Structure: Agency Costs, Monitoring, and the Decision to Go Public" *The Quarterly Journal of Economics* 113(1) p.187-225
- Paz-Ares, Cándido (2019) "¿Derecho común o derecho especial de grupos? Esa es la cuestión" *Civitas. Cizur Menor (Navarra)*.
- Perkins, Susan; Randall Morck; Bernard Yeung (2014) "Innocents Abroad: The Hazards of International Joint Ventures with Pyramidal Group Firms" *Global Strategy Journal* 4(4)
- Posner, Richard A. (1976) "The Rights of Creditors of Affiliated Corporations" *U Chi L Rev* 43 p.507-517
- Pothukuchi, Vijay K.; Damanpour, Fariborz; Choi, Jaepil; Chen, Chao C.; Park, Seung Ho (2002) "National and Organizational Culture Differences and International Joint Venture Performance" *Journal of International Business Studies* 33(2) p.243-265
- Rajam, Raghuram G; Luigi Zingales (2003) "The Great Reversals: the Politics of Financial Development in the Twentieth Century" *Journal of Financial Economics* 69(1) p.5
- Rauterberg G.; E. Talley (2017) "Contracting out of the fiduciary duty of the loyalty: an empirical analysis of corporate opportunities waiver" *Columbia law review* 117 p.1075 ss
- Rauterberg, Gabriel V. (2020) "The Separation of Voting and Control: The Role of Contract in Corporate Governance" . Available at SSRN: <https://ssrn.com/abstract=3639640>
- Reuven, S. Avi-Yonah (2016) "Hanging Together: A Multilateral Approach to Taxing Multinationals" *Mich. Bus. & Entrepreneurial L. Rev.* 5 p.137
- Rock, Edward B. (2019) "Majority of the minority approval in a world of active shareholders" In *The law and finance of related party transactions*. Luca Enriques and Tobias H. Tröger, Eds. Cambridge University Press.
- Rock, Edward; Michael L. Wachter (2000) "Waiting for the Omelette to Set: Match-Specific Assets and Minority Oppression" In *Concentrated Corporate Ownership*. Randall K. Morck, Ed. De Gruyter.
- Röller, L.-H.; Siebert, R; Tombak, M.M. (2007) "Why Firms Form (or do not Form) RJVS" *The Economic Journal* 117 p.1122-1144
- Rugman, A. (1986) "New Theories of the Multinational Enterprise: an Assessment of Internalisation Theory" *Bulletin of Economic Research* 38 p.101-118
- Sáez, I.; Gutiérrez, N. (2010) "Specific Investments, Opportunism and Corporate Contracts: A Theory of Tag-along and Drag-along Clauses" *European Business Organization Law Review* 11(3) p.423-458
- Sáez, M^a Isabel (2009) "Los pactos parasociales de todos los socios en Derecho español. Una materia en manos de los jueces" *InDret* 3
- Sampson, Rachelle C. (2007) "R&D Alliances and Firm Performance: The Impact of Technological Diversity and Alliance Organization on Innovation" *The Academy of Management Journal* 50(2) p.364-386

- Scheuch, Alexander (2016) "Konzernrecht: An Overview of the German Regulation of Corporate Groups and Resulting Liability Issues" EUR.CO.L. 13 p.191
- Schön, Wolfgang (2012) "Taxing Multinationals in Europe" Working Paper of the Max Planck Institute for Tax Law and Public Finance No. 2012-11. Available at SSRN: <https://ssrn.com/abstract=3637204>
- Seru, Amit (2014) "Firm boundaries matter: Evidence from conglomerates and R&D activity" Journal of Financial Economics 111(2) p.381-405
- Shleifer Andrei; Robert Vishny (1997) "A Survey of Corporate Governance" Journal of Finance 52 p.737
- Smith, P. (2001) "Patent Rights and Bilateral Exchange: a CrossCountry Analysis of US exports, FDI, and Licensing" Journal of International Economics 55 p.411-440
- Sørensen, Karsten Engsig (2010) "Duty of Loyalty of Shareholders - A Possible Remedy for Conflicts in SMEs?" In Company Law and SMEs. Mette Neville and Karsten Engsig Sørensen, Eds. Thomson Reuters.
- Squire, R. (2011) "Strategic liability in the corporate group" The University of Chicago Law Review 78 p.605
- Thompson, Robert B. (1990) "The Law's Limit on Contracts in a Corporation" Journal of Corporation Law 15(3) p.377-416
- Tröger, Tobias Hans (2014) "Corporate Groups" In German and Nordic Perspectives on Corporate and Capital Market Law. Holger Fleischer; Jesper Lau Hansen; and Wolf Georg Ringe, Eds.
- Tröger, Tobias Hans (2019) "Germany's Reluctance to Regulate Related Party Transactions" In The Law and Finance of Related Party Transactions (International Corporate Law and Financial Market Regulation). Luca Enriques and Tobias H. Tröger, Eds. Cambridge University Press.
- Tung, Frederick (2001) "Is International Bankruptcy Possible?" Michigan Journal of International Law 23 p.31
- Ulmer P. (2005) "Satzungsgleiche Gesellschaftervereinbarungen bei der GmbH?" FS Röhricht.
- University of Ottawa, World Legal Systems Website, <http://www.droitcivil.uottawa.ca/world-legal-systems/eng-monde.html>.
- Van Den Steen, Eric (2002) "Equity Participations, Hold-Up, and Firm Boundaries". Available at SSRN: <https://ssrn.com/abstract=2185282>
- Veugelers, Reinhilde; Katrien Kesteloot (1996) "Bargained Shares in Joint Ventures Among Asymmetric Partners: Is the Matthew Effect Catalyzing?" Journal of Economics 64(1) p.23-51
- Wang, Susheng; Zhu, Tian (2005) "Control Allocation, Revenue Sharing, and Joint Ownership" International Economic Review 46(3) p.895-915
- Wenxuan Hou; Edward Lee (2014) "Split Share Structure Reform, corporate governance, and the foreign share discount puzzle in China" The European Journal of Finance 20(7-9) p.703-727
- Wicke, Hartmut (2006) "Schuldrechtliche Nebenvereinbarungen bei der GmbH –Motive, rechtliche Behandlung, Verhältnis zum Gesellschaftsvertrag: DStR" C. H. Beck. München.
- Williamson, O.E. (1985) "The Economic Institutions of Capitalism" Free Press. New York.