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# CORPORATE CONTROL AROUND THE WORLD

## Abstract

We provide an anatomy of corporate control around the world after tracing controlling shareholders for thousands listed firms from 127 countries between 2004 and 2012. The analysis reveals considerable and persistent differences across and within regions, as well as across legal families. Government and family control is pervasive in civil-law countries. Equity blocks in widely-held corporations are commonplace, but less so in common-law countries. These patterns apply to large, medium, and small listed firms. In contrast, the association between income and corporate control is highly heterogeneous; the correlation is strong among big and especially very large firms, but absent for medium and small listed firms. We then examine the association between corporate control and various institutional features. Shareholder rights against insiders' self-dealing activities correlate strongly with corporate control, though legal formalism and creditor rights less so. Corporate control is strongly related to labor market regulations, concerning, among others, the stringency of employment contracts, the power and extent of unions. The large sample correlations, thus, offer support to both legal origin and political-development theories of financial development.

JEL Classification: G30, K00, N20

Keywords: Corporate Control, Ownership Concentration, Law and Finance, family firms, Government ownership, investor protection, regulation

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# 1 Introduction

Understanding the driving forces and consequences of the various types of corporate control are core inquiries of corporate finance (La Porta, Lopez-de-Silanes, and Shleifer, 1999; Tirole, 2010). While most theory distinguishes between widely-held corporations with dispersed ownership and controlled firms where a dominant shareholder exerts control (Shleifer and Vishny, 1997), corporate structures are complex (Laeven and Levine, 2008). A binary distinction appears coarse, as in most widely-held corporations there are equity blocks (Edmans and Holderness, 2016). At the same time, pyramids that allow shareholders to influence decisions over their cash-flow rights and cross-holdings of equity in business groups are pervasive (Dyck and Zingales, 2004). And, ownership and control are often hidden behind companies incorporated in off-shore centers (Zucman, 2015). Following the influential contribution of La Porta, Lopez-de-Silanes, and Shleifer (1999), a voluminous literature studies ownership concentration and corporate control across countries, placing emphasis on investor protection rights and legal origin. The literature, however, has not reached a consensus even on the basic correlations, as there are hard-to-resolve issues.

The first issue relates to sample size and composition. As it is hard to identify control from the perplexing structures of corporate ownership, comparative studies work with samples covering typically large firms in a few countries. La Porta *et al.* (1999) examine the association between legal origin and control for the 20 largest listed firms in 27 advanced economies. Claessens, Djankov, and Lang (2000) study the association between legal origin/institutions and ownership in 2,980 firms in 9 East Asian countries; Faccio and Lang (2002) look across 5,232 firms in 13 Western European countries and Lins (2003) works with 1,433 firms in 18 emerging markets. Even when Holderness (2016a,b) reassesses the La Porta *et al.* (1999) results merging these data, he works with around 8,000 firms in 32 countries.

Heterogeneity is the second main issue. The size distribution of listed firms is highly skewed; in 2012 the average market capitalization in our sample is ten times larger than the median. Very large, medium, and small listed firms differ across numerous dimensions (see Gabaix, 2009, 2016) and control patterns may be quite heterogeneous (Tirole, 2010, Holderness, 2016b).

Third, there are measurement issues. It is hard to pinpoint controlling shareholders from the complex network of equity holdings and it is tricky to identify control in firms with multiple large shareholders. The patterns may change depending on the cutoff that researchers use to identify control (e.g., Holderness, 2009). Many work with databases of cash-flow rights, though looking at voting rights is conceptually more appealing. There is also measurement error on institutional proxies (e.g., Glaeser *et al.*, 2004).

In this paper, we progress on these fronts. Our first contribution is to provide a comprehensive description of corporate control for a wide sample of countries and listed firms. Relying on a plethora of sources (e.g., regulatory filings, company reports, government publications), we augment Bureau van Dijk's ORBIS database on corporate ownership to identify ultimate controlling shareholders from the

complex structures of corporate holdings. We apply both a simple cutoff approach that identifies as controlled those firms where a shareholder (state, family, other) has more than 20% of the voting rights and an alternative game-theoretic method based on the Shapley-Shubik voting power index to construct measures of corporate control for 42,700 listed firms from 127 countries from 2004 to 2012.<sup>1</sup> Given the wide use of equity blocks, we distinguish between three types of firms: widely-held corporations, widely-held corporations with one or more equity block(s), defined as voting rights in excess of 5%, and controlled firms with a dominant shareholder. We split controlled firms into state-controlled, family-controlled, and controlled by other listed or private firms. We provide an anatomy of corporate control with the newly compiled data. The descriptive analysis reveals large differences in corporate control around the world, a result that accords with earlier studies that worked with smaller and less representative samples. Corporate control patterns are persistent, as the 2007 – 2010 financial crisis did not alter them much.

Second, we re-examine the “reduced-form” correlation between corporate control (and ownership concentration) and legal origin. The large sample is useful, as most previous studies worked in smaller firm samples with limited country coverage. The big sample is also helpful in examining heterogeneity with respect to (w.r.t.) firm size and age, aspects that may affect control and in turn be affected by the institutional environment (Franks, Mayer, Volpin, and Wagner (2012), Foley and Greenwood (2010)).<sup>2</sup> The cross-country analysis reveals the following:

1. There are large differences in corporate control across legal families. The share of controlled firms is the highest among French civil-law countries, followed by German and then Scandinavian civil-law countries. The share of controlled firms is the lowest in common-law countries. The patterns are similar when we look at ownership concentration. These findings, which do not reflect continental, industry, or development differences, reaffirm the early results of the literature (e.g., La Porta *et al.* 1999) in a considerably broader sample of firms and countries.
2. Equity blocks are commonplace, as we observe them in more than 80% of non-controlled firms; this applies across all regions, in both civil-law and common-law countries. Yet, the share of widely-held firms with blocks is the highest in French civil-law and the lowest in common-law countries.
3. The significant cross-country correlation between corporate control and legal origin applies for large, medium, and small listed firms; it also applies for young and old firms. These results add to the

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<sup>1</sup>The Shapley-Shubik method is useful for measuring control in firms with multiple large shareholders and firms with dispersed ownership and blocks. It also allows an examination of the precision of the cutoff-based approach that the literature has so far employed.

<sup>2</sup>Franks, Mayer, Volpin, and Wagner (2012) study corporate control across 4,654 non-financial firms in the UK, France, Germany, and Italy. They find that as firms mature, ownership gets more dispersed in the UK, as compared to Italy, Germany, and France, where family control is higher for older firms. Foley and Greenwood (2010) document a similar pattern of ownership diffusion in countries with strong investor protection in a sample of 2,700 firms in 34 countries.

law and finance literature, as there were concerns that the link between investor protection and ownership dispersion reflects size and age (Holderness, 2016b).

4. Dispersed ownership correlates with GDP per capita (p.c.). However, this correlation is not particularly strong. And it masks sizeable heterogeneity. The negative correlation between income and corporate control is significant only in the sample of above-median-size firms; it is especially strong for big corporations (top 10% of global market cap firms). The correlation is zero in the sample of small and medium-sized public companies. This novel finding echoes the results of Hsieh and Klenow (2014), who show that productivity differences between Mexico, India, and the United States (US) are pronounced for (very) large firms and muted for small firms. Hsieh and Klenow (2014) hypothesize that this reflects medium-sized firms' inability to expand in emerging markets, because of financial frictions. Our results accord with their conjecture. At the same time, this finding shows that exploring heterogeneity employing large firm and country samples can yield new insights.

Third, we examine the correlation between corporate control and the institutional features that legal origin theories emphasize in a simple, but common framework<sup>3</sup>, employing multiple proxies of institutional quality to account for measurement error. The cross-country associations are not well-suited to advance causality; yet, they shed light on the aspects of the institutional environment that relate to corporate structure. The analysis reveals that:

1. Shareholder protection rights, namely corporate law provisions allowing legal action against managers who abuse their position, are systematically linked to dispersed ownership. This result is consistent with the core idea of the law and finance literature that corporate control substitutes for weak shareholder protection (La Porta *et al.*, 1997, 1999).
2. The correlation between control and creditor rights is small and statistically insignificant. This result reaffirms the finding of La Porta *et al.* (1999, 2006) that shareholders' rather than creditors' rights matter for corporate control.

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<sup>3</sup>For example, La Porta *et al.* (1999) focus on investor protection, Djankov *et al.* (2008) look on shareholder's rights, La Porta *et al.* (2006) examine securities legislation, and Mueller and Philippon (2011) connect family control to labor market institutions. All these (and other) studies look at the role of one (few) institution(s) in different country and firm samples.

Likewise, researchers have used firm-level data across countries to construct proxies of specific aspects of ownership and control, related to private benefits of control (Dyck and Zingales, 2004), the prevalence of business groups (Khana and Yafeh, 2007), state ownership of banks (La Porta, Lopez-de-Silanes, and Shleifer, 2002). Masulis, Pham, and Zein (2011) construct measures of family-controlled business groups in a larger sample of around 28,000 firms from 45 countries in 2002 and then relate their prevalence to various country and firm characteristics, such as pyramid structure, cross-holdings, etc. See also Almeida, Park, Subramanyan, and Wolfenzon (2011) for a comprehensive study of Korean business groups (*chaebols*).

3. Legal formalism, as reflected by various measures of the time needed to resolve disputes via courts, is weakly related to corporate control and ownership concentration, a result that challenges Djankov *et al.* (2008), who worked on a smaller sample.
4. Corporate control and ownership concentration are not much related to entry barriers.
5. There is a strong correlation between corporate control and labor regulation. In countries with a high percentage of controlled firms, labor legislation is sclerotic, imposing restrictions for overtime and firings; and union membership and power are relatively high. This result is consistent with political theories of corporate control that emphasize the role of post-Great Depression and World War II welfare-state policies in finance (Roe, 2000, 2006; Rajan and Zingales, 2003, 2004). These theories stress the interplay between controlling shareholders (families and the state), workers, and outside investors that labor laws shape. In the Pagano and Volpin (2005) formalization, controlling shareholders and corporate insiders collaborate with employers at the expense of minority-outside shareholders in countries with stringent labor legislation.

Our large sample findings, therefore, support both legal origin (e.g., Glaeser and Shleifer, 2002; La Porta *et al.* 1998) and political theories of corporate control (Roe, 2000; Rajan and Zingales, 2003, 2004, Pagano and Volpin, 2005). In line with the law and finance literature, corporate control is systematically linked to the legal origin and the protection of minority shareholders. In line with political theories, economic development, as reflected on GDP p.c., is also a strong correlate of control, though only for the (very) large firms that tend to be the most productive. Labor market (welfare state) legislation is also a strong correlate of corporate control, suggesting inter-linkages between finance and labor markets that most likely reflect the political equilibrium.

**Structure** In the next Section, we discuss the data on corporate ownership and describe the 20%-cutoff and the Shapley-Shubik method for identifying control. Section 3 presents the main patterns of corporate control around the world. Section 4 gives the associations between corporate control and legal origin. Section 5 reports the heterogeneity analysis. Section 6 examines the correlation between control and investor protection, legal formalism, product, and labor market regulations. In the last section, we summarize and discuss directions for future work.<sup>4</sup>

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<sup>4</sup>In the Online Appendix, we provide an overview of corporate control for the G-7 economies and the BRICs (Brazil, Russia, India, and China) over 2004 – 2012. This Appendix analysis relates to a somewhat distinct strand of the literature that studies the dynamics of control and ownership concentration using many firms over time in specific countries (see Morck *et al.*, 2005, for a collection of case studies). Aganin and Volpin (2005), Morck *et al.* (2005) and Murphy (2005) give historical narratives of the evolution of ownership, control, and corporate governance in Italy, Canada, and France, respectively. Franks and Mayer (2001) study the control of German corporations. Franks, Mayer, and Rossi (2009) and Franks, Mayer, and Miyajima (2014) study the evolution of ownership in the United Kingdom and Japan over the twentieth century. Kandel, Kosenko, Morck, and Yafeh (2015) provide a thorough historical analysis in the United States. Chernykh (2008) discusses the obscure ownership of Russian listed firms.

## 2 Data and Methodology

In this section, we first present the ownership data. Second, we give an overview of the main types of shareholders. Third, we discuss the construction of the corporate control proxies.

### 2.1 Ownership Data

Our objective is to construct proxies of corporate control for the maximum possible sample of publicly traded firms across the globe. We start with Bureau Van Dijk’s (BvD) ORBIS database that reports ownership information, year of incorporation, year of initial public offering and some accounting data for 46,699 publicly-traded firms over 2004 – 2012 from 134 countries. (While data is available since the 1990s, coverage improves considerably from 2003). BvD gathers ownership data from firms’ reports, stock exchange releases, company websites, press news, private correspondence, and agencies that themselves collect statistics on firm performance and ownership (e.g., ICAP in Greece, InfoCredit in Cyprus, etc.).

BvD reports voting rights, rather than cash-flow rights, taking into account dual shares, “golden shares”, and other special types of shares.<sup>5</sup> Hence, the BvD databases are suitable for identifying control (see also Massa and Zaldokas, 2017, Kalemli-Ozcan *et al.*, 2015, Franks, Mayer, Volpin, and Wagner, 2012). Mergers and acquisitions are included when completed. When an acquisition occurs in stages, BvD data measure voting rights owned to date.<sup>6</sup>

We match the BvD data to Datastream (Thompson Reuters) and Compustat (North America and Global) to get information on firms’ market capitalization, industry classification, and stock exchange. Many researchers have used the ORBIS database (e.g., Franks, Mayer, Volpin, and Wagner, 2012; Masulis, Pham, and Zein, 2011); however, there are inconsistencies and errors (e.g., double entries), and information is missing for many companies (see also Kalemli-Ozcan, *et al.*, 2017).

We checked the data and added information on control for firms with incomplete coverage with manual checks. We assembled ownership information for 10,857 (10,146) listed corporations (with market capitalization information) whose ultimate controlling shareholder could not be traced from the BvD databases by gathering information from close to 7,000 non-listed firms using: (i) financial data providers, such as Bloomberg, Dun & Bradstreet, Google Finance, Credit Risk Monitor, and Forbes; (ii) governmental publications; (iii) reports from regulatory agencies; (iv) country-specific news websites.<sup>7</sup> The Online

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<sup>5</sup>The BvD User Guide (2013) states. ” *The Ownership Database intends to track control relationships rather than patrimonial relationships. This is why, when there are two categories of shares split into Voting/Non-voting shares, the percentages that are recorded are those attached to the category voting shares.*” Our manual checks show that the classification looks appropriate [ENI (Italy), Portugal Telecom (before 2007), GDF Suez (France), and INPEX (Japan)].

<sup>6</sup>In discussion with BvD, they explained that when an acquisition occurs in stages, their data will reflect the actual voting rights owned to date. If company *A* buys 100% of company *B* in two stages of 50% each year; then at the end of the first year the data will show 50% voting rights for firm *A*, and in the second year the voting rights will be 100%.

<sup>7</sup>We tried to have representative coverage of the manual checks. However, it has proved to be ”easier” to get ultimate control information from relatively larger companies in developed and middle-income countries.



Appendix gives examples of the manually collected information.

A challenging task was identifying members of the same family and aggregating their voting rights, as typically they vote together. Using manual checks and applying name-matching algorithms, we partitioned the 63,839 different individual private shareholders into 20,334 families.<sup>8</sup> We assign all sovereign wealth funds into government.<sup>9</sup>

After the merging of the databases, data improvements and data "cleaning", we obtain a sample of 42,720 publicly traded firms from 127 countries over 2004 – 2012.<sup>10</sup> We work in three samples.

**Post-Crisis Dataset (2012)** The 2012 sample (with the widest single-year coverage) includes 27,913 publicly-traded firms in 126 countries.<sup>11</sup> We drop firms from 34 countries and financial "off-shore" centers that are not covered in Datastream or countries with just one firm.<sup>12</sup> This leaves us with 27,539 listed firms in 92 countries. To have representative coverage in each country, we require to have at least 20% of the incorporated listed firms and have at least 50% of the total market capitalization, as reported in Datastream. The sample drops slightly, as we lose 100 firms from 7 countries with thin equity markets.<sup>13</sup> The 2012 sample consists of 26,843 firms in 85 countries. These countries represent approximately 95.2% of global GDP and 85% of global population. The sample reflects approximately 89% of the total value of market equity in the world sample of Datastream and 83% of global market capitalization when we use World Bank's estimates.

Appendix Table 1a provides details on coverage. The sample includes industrial, emerging, and under-developed countries in all parts of the world. The average (median) coverage in terms of market capitalization across the 85 countries is 83.1% (85.7%); as we miss data on small firms (mostly in the United States, Canada, and Japan), the mean (median) coverage in terms of number of listed firms is 64.4% (65.5%). Coverage is almost perfect for 40 countries, as our data includes more than three-fourths of listed firms and coverage in terms of market capitalization exceeds 75% (e.g., Turkey, New

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<sup>8</sup>When family members hold voting shares in the same company at the same date, we aggregated their voting rights and assigned them to the family representative shareholder. In the aggregation we face a trade-off: On the one hand, we may aggregate voting rights of family members who are in dispute. On the other hand, by not aggregating voting rights of family members, we may mis-classify family-controlled firms.

<sup>9</sup>BvD often, but not always, assigns sovereign wealth funds as "government". For example, the Qatar Investment Authority and the Abu Dhabi Investment Authority are classified as "government" controlled agencies. But this is not the case for Temasek and Mubadala, the sovereign investment vehicles of Singapore and Abu Dhabi.

<sup>10</sup>Compared to the initial sample of 134 countries, we lose 36 firms in Bolivia, El Salvador, Fiji, Guatemala, Honduras, Iran, and Syria. We also lose 3,943 firms from other countries, because of missing market capitalization.

<sup>11</sup>Compared to the initial dataset we lose listed firms from Togo.

<sup>12</sup>Specifically: (1) We drop firms from Barbados, Anguilla, Bahamas, Bermuda, Cayman Islands, Curacao, Gibraltar, Isle of Man, Jersey, Liechtenstein, Virgin Islands and Rwanda, where we have just one firm and in Palestine. (2). Data on market capitalization are missing for firms in 21 countries: Belize, Benin, Cambodia, Cameroon, Faroe Islands, Gabon, Gambia, Georgia, Jamaica, Kyrgyzstan, Liberia, Macao, Malawi, Marshall Islands, Monaco, Mongolia, Niger, Panama, Senegal, Trinidad and Tobago, and Sudan.

<sup>13</sup>We lose firms in Ecuador, Iraq, Kazakhstan, Mauritius, Tanzania, Vietnam, and Zimbabwe.

Zealand, France, Poland, Italy, Spain, Argentina). For 26 countries, coverage is high, as we have more than half of the listed firms and market capitalization exceeds 75% coverage (e.g., Sweden, Germany, Hong Kong, South Africa, Malaysia, Colombia). In 19 countries, coverage in terms of capitalization is high (average/median around 70%), but we have less than half of the listed firms. Examples include the United States where coverage in terms of market capitalization is 86.5%, but as we miss OTC-traded firms, coverage of listed firms is 41%. In India and South Korea coverage in terms of market cap is high (92.8% and 83.7%, respectively), but regarding the number of firms is around 40%.

**Pre-Crisis Dataset (2007)** We also work with the 2007 sample, the year with the widest coverage before the global financial crisis. Again we drop off-shore financial centers and tiny countries with no coverage of Datastream and require at least 20% of the number of listed firms and 50% of the total market capitalization. This leaves us with 25,976 firms in 74 countries (Kazakhstan is the only country included in the 2007 sample, but not in the 2012). The mean (median) coverage in terms of the number of firms is 66% (72%), while in terms of market capitalization the cross-country average (median) is 84% (87%). Appendix Table 1*b* gives details on coverage.<sup>14</sup> These 74 countries represent roughly 95% of global GDP and 77% of global population in 2007. Coverage is around 84% of the total value of global market equity in Datastream and 77% of World Bank’s estimates.

**Pooled 2004-2012 Sample (2004 – 2012)** We also estimate specifications pooling all firm observations in 2004 – 2012. This is useful as we employ a considerably larger dataset that includes 42,720 unique firms in 127 countries. The pooled cross-country mean (median) coverage in terms of the number of listed firms is 68% (74%), while in terms of market capitalization the average (median) is 82% (91%).

## 2.2 Types of Corporate Shareholders

Figure 1 reports the distribution of unique shareholder type using BvD categorization for 2012 (Appendix Figures 1*a* – *b* tabulate the statistics for 2007 and 2004 – 2012). These listed firms are held by 80,607 unique shareholders. The types of shareholders, as classified by BvD, are: (*i*) 36,823 private individuals or families (45.7%);<sup>15</sup> (*ii*) 25,210 privately held firms that are neither banks nor mutual nor pension funds nor nominee/trust/trustees (31.3%);<sup>16</sup> (*iii*) 2,295 publicly listed firms that are neither banks nor mutual or pension funds nor nominee/trust/trustees (2.85%);<sup>17</sup> (*iv*) 12,007 mutual funds, pension funds,

<sup>14</sup>Compared to the 2012 sample, we lose firms in Bangladesh, Bosnia, Botswana, Ivory Coast, Ghana, Israel, the Former Yugoslav Republic of Macedonia, Montenegro, Namibia, Serbia, Nigeria, Sri Lanka, Tunisia, Uganda, and Zambia.

<sup>15</sup>For example, Ma Huateng is the founder and main shareholder of Tencent Inc. William Gates is the key shareholder of Microsoft. Murray Edwards is the main shareholder of Canadian Natural Resources.

<sup>16</sup>For example, Rio Tinto International Holdings, a private firm, is a key shareholder of Turquoise Hill Resources, a Canadian mineral exploration and development company. Kar-Tess Holding, a Luxembourg-based private company, is a shareholder of Coca-Cola Hellenic Bottling Company. Ramsbury Invest AB, a privately held Swedish company is a shareholder of H&M.

<sup>17</sup>For example, Anheuser-Busch InBev, a multinational beverage company headquartered in Belgium is a shareholder of Companhia de Bebidas das Américas (Ambev), the Brazilian brewing company. A.P. Moller–Maersk, a Danish publicly listed

nominees, and trusts/trustees (14.9%);<sup>18</sup> (v) 1,343 banks (1.7%);<sup>19</sup> (vi) 655 private equity (PE) firms, venture capital (VC) firms, and hedge funds (HF) (0.8%);<sup>20</sup> (vii) 75 governments, public authorities, and regional states (0.1%);<sup>21</sup> and (viii) 2,199 others that include foundations, insurance companies, employees/managers/directors, and “unnamed aggregate shareholders” (2.7%).<sup>22</sup>

## 2.3 Identifying Control<sup>23</sup>

### 2.3.1 20% Cutoff-based

Identifying control is challenging as corporate law (on managerial power, shareholder rights, civil procedure) differs around the world. Moreover, ownership structures are involved, with cross-holdings, pyramids, and intermediate firms. Most previous works have abstracted from these issues and applied voting-rights cutoffs to identify controlled corporations. La Porta *et al.* (1999) identify firms as controlled if a shareholder (bank, individual, state, other firm) holds more than 20%. Lins, Volpin, and Wagner (2013) employ a 25% cutoff, while Laeven and Levine (2008) use 10%.

Using voting-rights cutoffs is transparent and straightforward to implement. We identify controlled firms as those where a shareholder (individual, family, state, another firm) has voting rights over 20%. Compared to earlier works, there are two differences. First, through the manual checks, we add the voting rights of all firms that a single individual (or family) uses to exercise control. For example, we add the voting rights of all firms that Igor Zyuzin used to control Mechel. In LVMH we add the voting shares of all firms related to Bernard Arnault. Second, we add the voting rights of all family members. In Fiat and in BMW, for example, we add the shares of all the Agnellis and Quandts (Appendix Figures 2a – 2e).

This procedure yields a rough split between controlled and widely-held corporations. In 2012, we get that 12,432 out of 26,843 listed firms (46.3%) have a shareholder (state, family, individual) with voting rights in excess of 20%. In 2007, out of 25,976 firms, 12,557 (48.3%) have a shareholder entity (e.g., family, individual, state, institutional investor) with voting rights exceeding 20%.

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conglomerate is a major shareholder of Danske Bank.

<sup>18</sup>For example, Aberdeen Asset Management PLC is a shareholder of the QBE Insurance Group Limited The Vanguard Group, an American investment management company and a large provider of mutual funds, is a shareholder of Exxon Mobil. BlackRock is a shareholder of HSBC Holdings.

<sup>19</sup>For example, the Commonwealth Bank of Australia is a shareholder of Qantas Airways. JPMorgan Chase & Co. is a shareholder of Total S.A. The Bank of Tokyo-Mitsubishi is a shareholder of Honda Motor Co.

<sup>20</sup>For example, Paulson & Co. a hedge fund sponsor is a shareholder of Wells Fargo. Sequoia Capital, a venture capital firm, is a shareholder of LinkedIn. KKR is a major shareholder of the Legrand group.

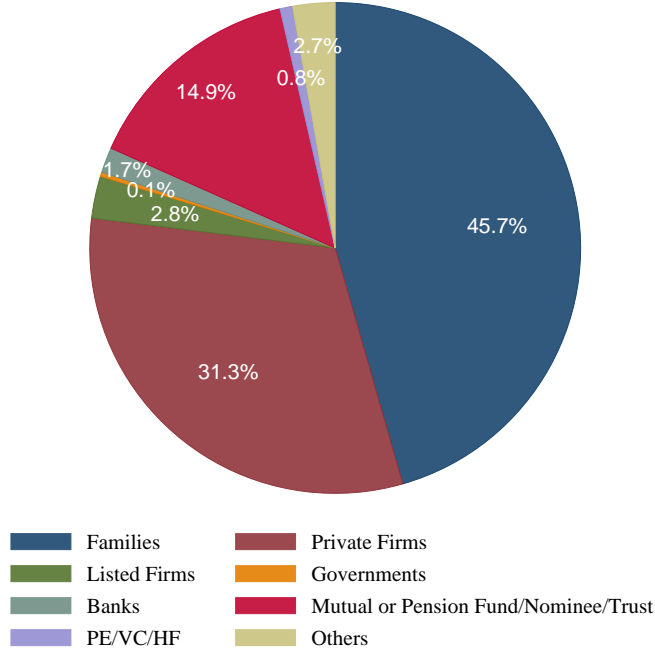
<sup>21</sup>For example, the government of Argentina is a shareholder of Yacimientos Petrolíferos Fiscales. The government of China holds a large stake in PetroChina Company. The government of India is a major shareholder of Coal India.

<sup>22</sup>For example, Teachers Insurance and Annuity Association of America, a trade association that provides life insurance and retirement annuities for people who work in the academic, research, medical, and cultural fields, is a shareholder of Alexandria Real Estate Equities, a company that provides office/laboratory and tech office space for lease.

<sup>23</sup>In the Supplementary Appendix we give more details on the absolute voting rights and the relative voting power control identification approaches and give firm examples.

### Distribution of Shareholders by Type in 2012

80,607 Unique Shareholders, in 26,843 Firms, 85 Countries



**Figure 1: Types of Shareholders of Listed Corporations around the World, 2012.** The Figure gives the distribution of shareholders in 2012 using Bureau van Dijk’s categorization. The sample includes 26,843 listed firms in 85 countries. There are 80,607 unique shareholders grouped into: (1) individuals or families; (ii) privately-held firms; (iii) publicly listed firms; (iv) mutual funds, pension funds, nominees and trusts; (v) banks; (vi) private equity (PE), venture capital (VC) and hedge funds (HF); (vii) governments, state agencies, and municipalities; and (viii) other, that includes insurance corporations, foundations, and employees/managers/directors.

### 2.3.2 Shapley-Shubik Power Index

Using simple cutoffs does not take into account the distribution of voting rights. First, if ownership is dispersed (and held by passive investors) then a shareholder may obtain control with a stake that is below the 20% of the 25% cutoff. For example, Onex Corporation, the Canadian investment firm, is controlled by Gerald Schwartz, who owns about 13%, as other shareholders hold much smaller stakes. Another example is Carrefour, which according to most accounts is controlled by Blue Capital, holding just 16.4%. Second, even large equity stakes (below 50%) may not yield control if other shareholders also hold big stakes. For example, in Novatek, Russia’s largest independent natural gas producer, there are four large shareholders (Leonid Michelson with around 28%, Volga Group with 23%, Total with 16% and Gazprom with 9.4%) and, hence, no single shareholder can independently control the firm. In EVRAZ, one of Russia’s largest steel and mining companies two shareholders hold voting-rights over 20% (R. Abramovich with 30.99%

and A. Abramov with 21.55%), while there are three other significant shareholders (A. Frolov with 10.76%, G. Kozovoy with 5.69%, and A. Vagin with 5.63%).

To accommodate such cases, we apply a control identification algorithm based on the weighted voting games literature pioneered by Shapley and Shubik (1954) and Banzhaf (1965); this literature uses relative -rather than absolute- voting power cutoffs that take into account the full distribution of shareholders' shares. In the Supplementary Appendix, we give details on the computation of the Shapley-Shubik measures that have not been widely used by the corporate finance literature. [Important exceptions include Rydqvist, 1987, 1992, Robinson and White, 1990, and Zingales, 1994]. The Shapley-Shubik algorithm delivers an almost equal split between controlled and widely-held corporations. In 2012, 13,717 out of 26,843 listed firms (51.1%) have a controlling shareholder, while in 2007, out of 25,976 firms, 13,384 (51.5%) have a controlling entity.

### **2.3.3 Comparison**

We compared the classification with the two approaches, as this allows to approximate how well the simple, but transparent, cutoff rule -that the literature has used so far- fares with the more elaborate, but computationally challenging Shapley-Shubik measure. In 2012 (26,843 firms) the two approaches yield the exact classification in 90.4% of the cases; 43.9% of the firms are controlled and that 46.5% are widely-held. The two methods produce different classifications for the remaining 9.6%. 636 firms are classified as controlled by the simple rule (as some shareholder holds more than 20%), but the Shapley-Shubik algorithm classifies them as non-controlled, due to the presence of competing shareholders with considerable voting power. 7.2% of the sample firms are classified as widely-held by the cutoff-rule (as no shareholder holds more than 20%), but the Shapley-Shubik algorithm suggests that they are controlled as ownership is dispersed and there is a substantial block shareholder.

Appendix Table 2 gives the country classification with the two methods. In countries with dispersed ownership (e.g., New Zealand, Australia, and the United Kingdom), the Shapley-Shubik method yields that some firms are controlled, though the largest shareholder holds less than 20%. In a few countries (e.g., Botswana, Spain, Lebanon, and Hungary), the share of controlled firms is larger with the cutoff rule, but differences are small. The firm (country) level correlation of the absolute and relative voting rights power measures is 0.80 (0.9), see Appendix Tables 7 and 8.

## **3 Patterns**

### **3.1 Corporate Control around the World**

We aim to provide the most complete-to-date characterization of control of publicly-traded corporations around the world. To start with, we classify firms as either "widely-held" or "controlled". We further

split widely-held firms into those with a block-holder (exceeding 5%) and those without any block.<sup>24</sup> Controlled firms fall into the following mutually exclusive categories reflecting the type of the dominant shareholder(s): (i) family/individual; (ii) private firms for which we could not trace the controlling shareholder; (iii) government, including municipalities and state agencies; (iv) private widely-held firms (multiple shareholders where none is substantial enough to control); and (v) widely-held listed firms.

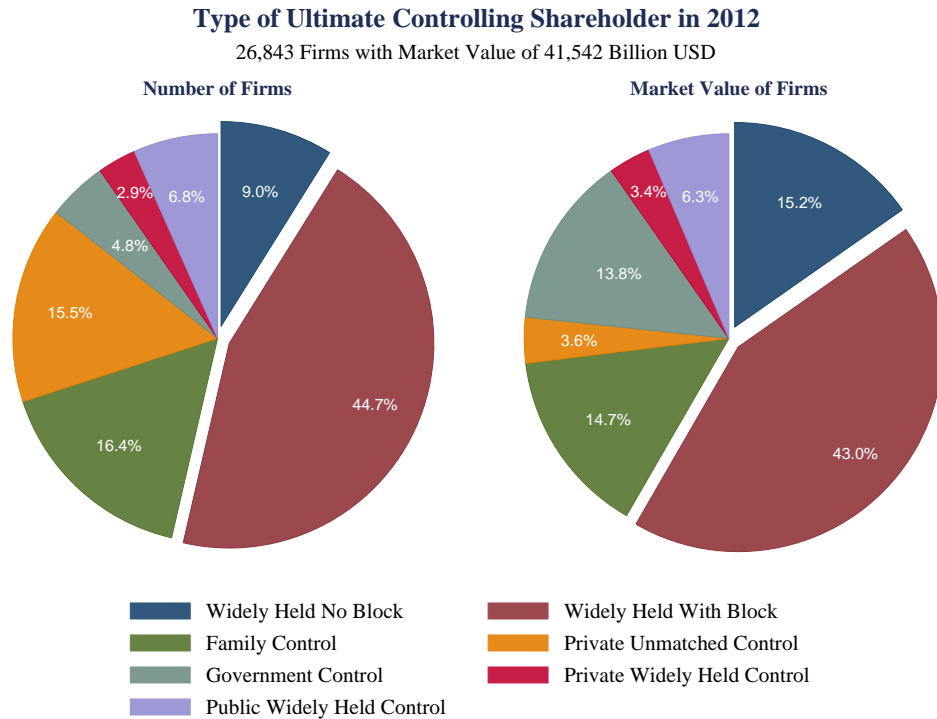
Figure 2 summarizes the patterns of corporate control in 2012 using arithmetic (left panel) and market-cap value-weighted (right panel) measures. (Appendix Figure 3 gives the statistics in 2007 that appear similar.) As the two control identification approaches yield similar classifications, we tabulate statistics only with the 20%-cutoff rule (and report in the Appendix the tabulations with the Shapley-Shubik approach). 45% of the listed firms in 2012 are classified as widely-held corporations. However, most widely-held firms have a block shareholder, a pattern that is consistent with country studies documenting that blocks are prevalent even in countries with strong investor protection, such as the United States (Holderness, 2009) and Japan (Franks, Mayer, and Miyajima, *et al.*, 2014). The share of widely-held corporations without a block shareholder is less than 10%, but since they are typically large, the market capitalization share is 15.2%. The government controls around 4.8% of firms; yet these firms amount to 13.8% of the total capitalization, as the state typically controls large utilities and banks. Family control is 16.4%. The share of unmatched private firms is 14.7%; but since these firms tend to be small, in market-capitalization terms they capture 3.6%. Widely-held private firms control about 2.9% of the firms. Widely held public firms control about 6.8% of the firms.

Table 1 gives corporate control in 2012 for each country with the 20%-cutoff rule.<sup>25</sup> Figure 3 provides a mapping of the considerable heterogeneity in corporate control around the world. The cross country mean is 0.63 (median 0.65), larger than the corresponding firm-level mean of 0.46, as we have many firms from countries with low shares of corporate control (United States, Canada, United Kingdom). On the one hand, the Berle and Means (1932) type of corporation with many small shareholders is almost absent in Africa (in Uganda, Ivory Coast, Ghana, Namibia, Botswana, and Kenya more than 75% of the firms are controlled) and in Eastern Europe (in the Czech Republic, Bulgaria, Lithuania, Romania, and Russia more than 75% of the firms have a controlling shareholder). On the other hand, the share of listed controlled firms is low (below 30%) in New Zealand, Canada, US, UK, Ireland, Australia, and Taiwan. There is non-negligible variability within regions. In Western Europe, the share of controlled firms ranges

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<sup>24</sup>Blockholders may be passive or more actively engaged in corporate decision; this may be related to their type, the legal system, and the power of other shareholders. As we do not have much information on block-shareholders' voting, we leave for future research the more in-depth examination of their role.

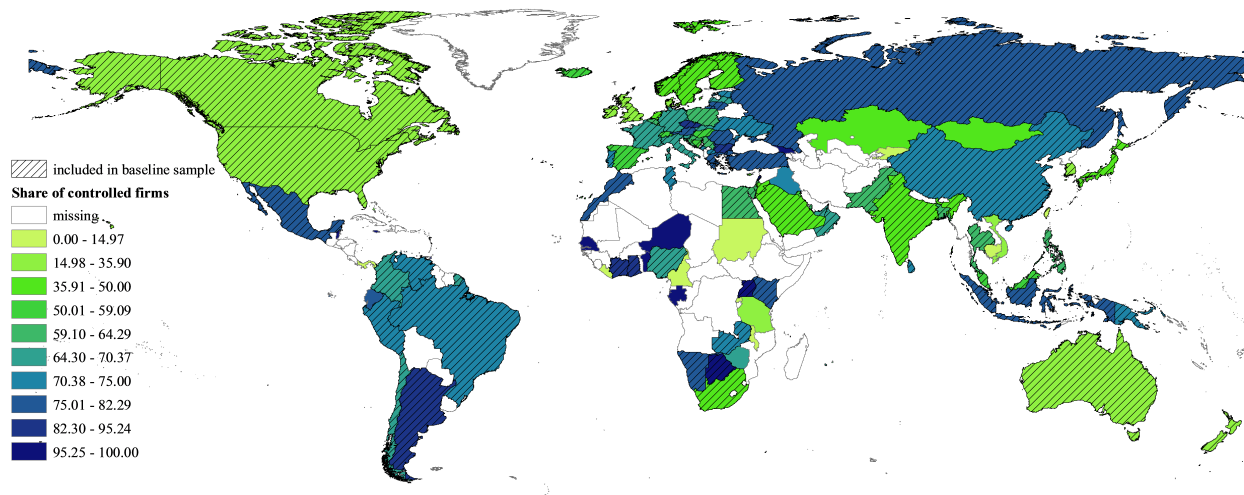
<sup>25</sup>Appendix Table 3 reports the statistics for corporate control in 2007. Appendix Figures 6 – 7a, b illustrate the variability of corporate control in 2007 around the world. Appendix Table 4 reports the corresponding shares of control when we use the Shapley-Shubik approach. Appendix Tables 5 and 6 report summary statistics of all variables at the firm and the country-level. Appendix Tables 7 and 8 report the correlation matrix.



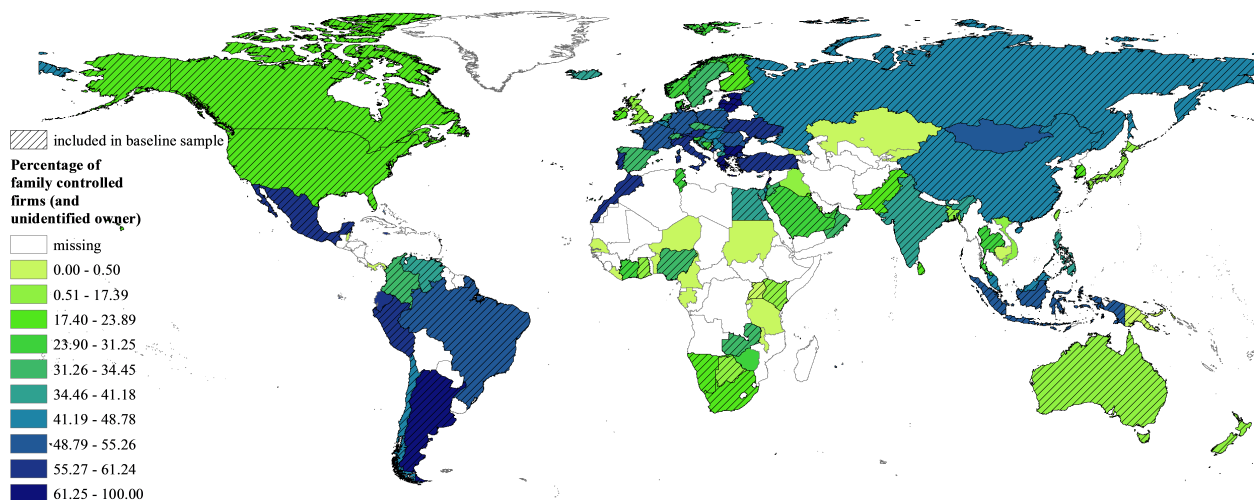
**Figure 2a-2b: Type of Controlling Shareholder Entities of Listed Corporations around the World.** The Figures give the distribution of the controlling shareholders in the 2012 sample that includes 26,843 firms in 85 countries with a total market capitalization of 41,542 billion US dollars. The left-panel figure gives the unweighted distribution; the right-panel figure gives the distribution, weighting firms by market capitalization. The identification of controlled corporations is based on the 20% absolute voting rights cut-off. Listed firms fall into the following categories, based on whether they have a controlling shareholder: (i) widely-held firms, without any block (5% of firm's voting rights); (ii) widely-held firms with at least one equity block (voting rights over 5% but below 20%); (iii) controlled by families or individuals firms; (iv) government controlled firms, (v) controlled by private (non-listed) firms; (vi) controlled by listed widely-held corporations firms; and (vii) controlled by private widely-held corporations firms. The Data Appendix gives detailed definitions. The Supplementary Online Appendix gives firm examples for all categories.

from around 80% in Austria, Malta, and Greece to around 20% in the United Kingdom and Ireland with Spain and Switzerland in the middle with 50%. In Asia, corporate control ranges from 78% in Indonesia to around 20% – 30% in Australia and Taiwan and around 47% in India.

**Family Firms** Figure 4a gives the global mapping of family-controlled firms. The cross-country mean (median) is 17.5% (16.7%). When we add firms controlled by unidentified private owners, as most of these firms are likely controlled by families/individuals (Faccio and Lang, 2002; Masulis, Pham, and Zein, 2011), the cross-country average (median) doubles. Family-control is pervasive in countries with strong family ties, such as Greece, Italy, Portugal, Argentina, and Lebanon (Alesina and Giuliano, 2014). There are few family-controlled listed corporations in Taiwan, Ireland, and Australia.

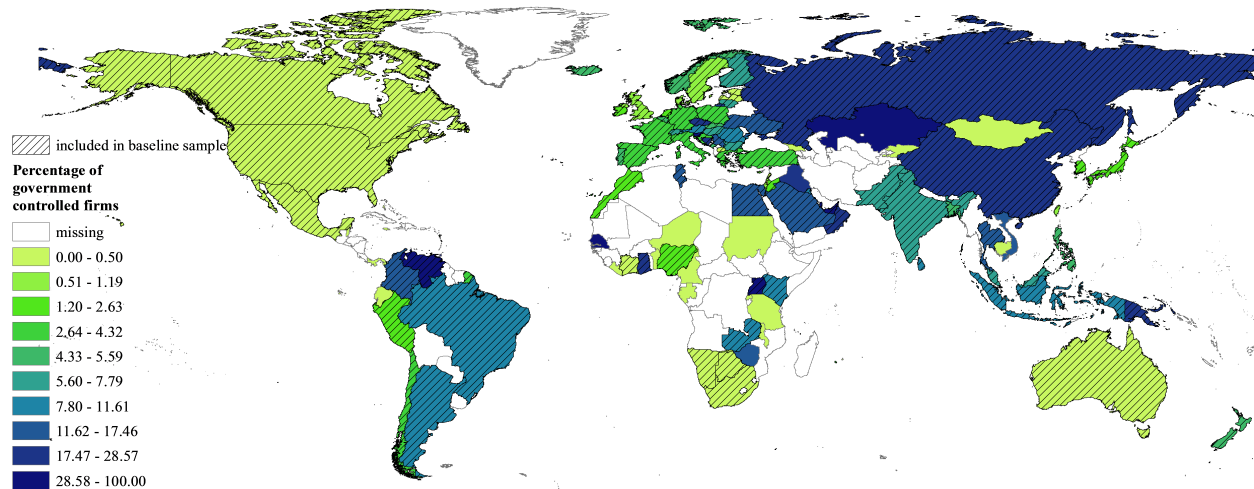


**Figure 3: Corporate Control around the World, 2012.** The figure provides a mapping of corporate control around the world in 2012. The sample includes 26,843 listed firms in 85 countries. The map gives the share of controlled (as compared to widely held) corporations for each country. Table 1 gives the country means.



**Figure 4a: Corporate Control by Families & Individuals around the World, 2012.** The figure provides a mapping of corporate control by families/individuals and private (non-listed firms with an unidentified controlling shareholder) in 2012. The sample includes 26,843 listed firms in 85 countries. Table 1 gives the country means.



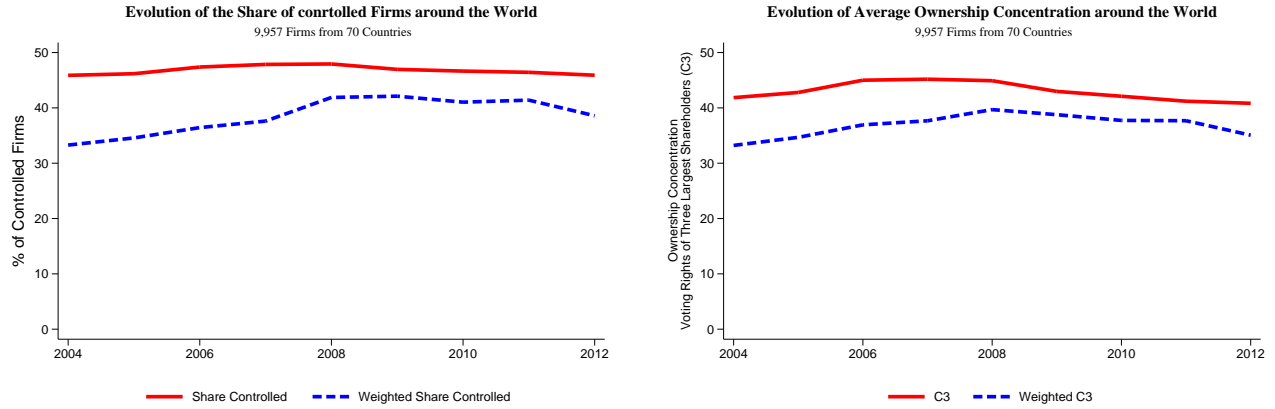


**Figure 4b: Corporate Control by Governmental Entities around the World, 2012.** The figure provides a mapping of corporate control by government entities (national/federal government, states, municipalities, and governmental agencies) in 2012. The sample includes 26,843 listed firms in 85 countries. Table 1 gives the country means.

**State-Controlled Firms** Figure 4b maps state control around the world. Government control is (close to) zero (less than 1%) in 18 countries (e.g., United States, Canada, Latvia, Estonia); it exceeds 20% in 11 countries, mostly in Africa (e.g., Uganda, Ghana), the Arab World (Oman, Qatar, UAE), and also Russia and China.

### 3.2 Ownership Concentration around the World

While our focus is on corporate control, we also calculate ownership concentration statistics summing the voting rights of the single, three, and five largest shareholders ( $C1$ ,  $C3$ , and  $C5$ ). The construction of these measures follows the literature (e.g., La Porta *et al.*, 1999; Faccio and Lang, 2002), though, in contrast to previous works, we add the voting rights of all family members (treating them as one representative shareholder). Table 1 reports the  $C1$  and  $C3$  and  $C5$  ownership concentration index for all 85 countries in 2012. (Appendix Table 3 reports the values in 2007 and Appendix Figures 8a – 8b give the global mapping). On average, the single largest shareholder (family) holds 31.5% of the equity of the publicly-traded corporations; and the largest three (five) shareholders (families) jointly control 41.7% (44.6%) of firm’s voting rights. The cross-country averages are larger, 41.3%, 53.1%, and 56%, respectively, as the sample is tilted towards countries with relatively low concentration. Ownership concentration that correlates strongly with corporate control (correlations exceeding 0.8) is the highest in Africa and Eastern Europe and the lowest in Taiwan, Canada, United States, United Kingdom, Australia, and South Korea.



**Figure 5a-5b: Evolution of Corporate Control and Ownership Concentration around the World, 2004-2012.** The figures portray the evolution of the share of controlled firms (left panel) and ownership concentration (right panel) over the period 2004-2012. The balanced panel covers 9,957 firms incorporated in 70 countries. The figures plot simple-arithmetic means and market capitalization weighted averages. A firm is classified as controlled when an individual/family, a private firm with an unmatched ultimate owner, the government, a widely held private firm, or widely held public firm hold more than 20% of the firm’s voting rights. The C3 ownership concentration index reflects the voting rights of the three largest shareholders, while treating family members as one representative shareholder with aggregated voting rights.

### 3.3 Trends in Ownership Concentration and Corporate Control

We examined the evolution of ownership concentration and corporate control during 2004 – 2012. This is a brief period to study dynamics; yet, as it includes the US financial meltdown of 2007 – 2009, the subsequent global recession, and the euro crisis, it allows examining the impact of large economic shocks on corporate structure. In Figures 5a-b we plot the evolution of *C3* and the share of controlled firms; as ORBIS coverage changes over time, we plot the concentration index and the corporate control share for a balanced sample of 9,957 firms in 70 countries. These firms’ capitalization in 2012 (2007) was \$41,542 billion (\$49,193 billion), approximately 74% of the total market cap in our sample in the two years. Concentration and control are persistent though there are changes. As we show in the Online Appendix, this pattern of stability is present across advanced economies and to a lesser extent in middle-income countries.

The stable share of controlled firms may either reflect that ownership does not change over time for any firm or that there are changes in control that cancel out (because widely-held corporations become controlled and at the same time controlled firms become widely-held). We examined this in detail looking at the sample of 9,957 firms for which we have information throughout 2004 – 2012 and for a larger sample of 15,930 firms with information in 2012 and 2007.

**2004-2012 Comparison** In the sample of 9,957 firms covering the full period, we observe 1,967 distinct firms that have stayed with the same controlling owner throughout this period (e.g., the Chinese Government controls Petrochina and the Porsche-Piech family controls Volkswagen). 4,412 firms have remained widely-held throughout 2004 – 2012 (e.g., Exxon Mobil, General Electric, Rio Tinto). So 64% of firms did not experience a change in corporate control. Of the remaining 36%, 607 firms have remained controlled throughout the period, but there was a change of the controlling entity. For example, Banco Patagonia (Argentina) was controlled by the Stuart Milne brothers until 2010, when Banco do Brasil bought the controlling stake. Bashneft (Russia) was controlled by Ural Rakhimov until mid-2009, when control passed to Vladimir Petrovich. The classification of the remaining 2,971 firms has changed from either being widely-held to having a controlling shareholder or/and vice versa.

**2007 vs. 2012 Comparison** For the 15,930 firms that we have information in 2007 and in 2012, 3,829 firms have the same controlling shareholder/owner (24%). In addition, 7,502 (47%) firms are classified as widely held in both 2007 and 2012. 1,461 (9%) have remained controlled, but there has been a change of the controlling shareholder. 3,138 (20%) firms have changed classification during the crisis period, either moving from being widely-held to controlled or vice versa.

## 4 Legal Origin and Corporate Control

In this section, we report the estimates linking corporate control with legal origin. First, we sketch the empirical specification. Second, we report the baseline results. Third, we distinguish between the main types of controlled corporations. Fourth, we report the associations between ownership concentration and legal origin. Fifth, we discuss some sensitivity checks.

### 4.1 Empirical Specification

Our baseline specification explores the cross-sectional association (in 2012 and in 2007) between corporate control and legal origin. It reads:

$$y_{i,c} = \phi\{LO'_c\Phi + X'_{i,c}\Gamma + Z'\Psi + a_s + a_r + \varepsilon_{i,s,c}\}. \quad (1)$$

The dependent variable ( $y_{i,c}$ ) is an indicator that equals one if a firm  $i$  in country  $c$  is controlled (by either an individual/family, a private firm for which we could not identify the ultimate shareholder, the government, or by a widely held private/public firm) and zero when the firm is widely held (with or without a block). As the dependent variable is binary, we estimate probit models with maximum likelihood, so  $\phi$  denotes the standard normal.

The key explanatory variables capture countries' legal family ( $LO_c$ ). We include French, German,

and Scandinavian civil-law legal origin indicator variables using common-law as the omitted category.<sup>26</sup>  $a_r$  are regional (continental) constants.<sup>27</sup> In many specifications, we include the log of per capita GDP ( $Z'$ ) that we take as a summary measure of economic, institutional, and financial development. Many permutations include sector constants,  $a_s$  (based on 2-Digit SIC Codes).  $X'_{i,c}$  are firm controls; following Holderness (2016a,b), we control for firm age (log number of years since incorporation) and size (log market capitalization).

We also run specifications pooling observations over 2004 – 2012, as this maximizes coverage (42,720 firms in 127 countries). The pooled specification is:

$$y_{i,c,t} = \phi\{LO'_c\Phi + X'_{i,c,t}\Gamma + Z'_{c,t}\Psi + a_s + a_r + a_t + \varepsilon_{i,s,c,t}\}. \quad (2)$$

The dependent variable denotes control of firm  $i$  in country  $c$  in year  $t$ .  $a_t$  are year constants; the control variables (GDP p.c., firm age, and capitalization) are time-varying.

Before reporting the results, it is important to stress that legal origin may affect corporate control via numerous channels, such as investor protection, court efficiency, product market regulation, labor laws (see La Porta, Lopez-de-Silanes, and Shleifer, 2008). The coefficients on the legal origin indicators capture the “reduced-form” relationship between legal family/tradition and corporate control. We should also stress that although countries’ legal system was shaped hundred(s) of years ago, mostly imposed by colonial powers, the estimates do not reflect causal relationships. Colonization was not random, and the identity of colonial powers may affect long-run development via other than legal origin features. The legal tradition is related to hard-to-account-for features relevant to corporate control. Roe (2006) stresses the considerable differences on warfare damages during the 20th century between common and civil law countries, while Damaska (1986) and other legal scholars emphasize differences on the role of government. Since the legal origin indicators (and GDP p.c.) take the same value for all firms in a country, we cluster standard errors at the country-level (Moulton, 1990).

## 4.2 Baseline Estimates

### 4.2.1 Probit Estimates

Table 2 reports the baseline results. Since probit coefficients are not readily interpretable, the table gives average marginal effects that reflect the difference in predictive likelihood that the company is controlled

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<sup>26</sup>We do not include a Socialist law indicator, as by the mid-2000s Eastern European and Asian countries that aligned with the Soviet Union had changed their legal systems (La Porta, Lopez-de-Silanes, and Shleifer, 2006).

<sup>27</sup>The World Bank assigns countries to the following regions: Sub-Saharan Africa, Middle East and North Africa, East Asia and the Pacific, Western Europe, Eastern Europe and Central Asia, and the Americas that combines North America (United States and Canada) and Latin America and the Caribbean.

across legal families.<sup>28</sup> Panel *A* reports specifications where we identify controlled firms with the 20%-cutoff, while Panel *B* gives analogous estimates when we use the Shapley-Shubik algorithm to identify control.

Column (1) reports unconditional estimates. The test of means suggests that the share of controlled firms, as identified by the cutoff rule, is higher in French civil law countries as compared to common law countries by 33.5 percentage points. The estimate when we use the Shapley-Shubik approach is somewhat smaller, 0.28. Both coefficients are highly significant. Compared to common-law countries, the share of controlled firms is roughly 18 (14) percentage points higher in German civil-law countries with the 20% cutoff rule (Shapley-Shubik algorithm). Differences in corporate control between common law and Scandinavian civil law countries are muted.

In column (2) we control for (log) GDP p.c. that enters with a significantly negative coefficient. The estimates on the French and German legal origin variables are not affected much. The coefficient on the French civil-law indicator is positive and highly significant in both panels; the likelihood of listed firms with a controlling shareholder, as compared to widely-held corporations, is 25 – 30 percentage points higher for countries whose legal system is built around the Napoleonic civil codes, as compared to (mostly) British colonies that have a common-law system. The German civil-law and the Scandinavian civil-law dummy variables enter with positive and significant estimates; the probability of a listed firm with a controlling shareholder is higher by 11 – 15 percentage points in German and by 8 – 10 percentage points in Scandinavian civil-law countries.

In column (3) we add continental fixed-effects. The regional constants are significant (coefficients not shown), as widely-held corporations are less frequent in Sub-Saharan Africa, Eastern Europe and Central Asia (Figure 3). The coefficient on the French legal origin indicator retains significance (0.25 in Panel *A* and 0.22 in Panel *B*). The estimates on German and Scandinavian legal origin indicators fall somewhat, and standard errors increase, rendering the coefficients insignificant. This is due to the limited within-region variation for some legal families. There are no Scandinavian civil law countries outside Western Europe and there are no common law countries in Eastern Europe and Central Asia. Differences between common and civil law countries (when we pool French, German, and Scandinavian civil law countries) are considerable in Sub-Saharan Africa, East Asia and the Pacific, and the Americas.

In column (4) we add industry constants and also control for log firm age and log market capitalization. Adding sectoral fixed-effects is *a priori* necessary, as there are differences in ownership structure across sectors (e.g., Faccio and Lang, 2002). Size and age may be related to the legal tradition and the stage of economic development (Holderness, 2016a). Both variables enter with coefficients that are small and statistically indistinguishable from zero. The insignificance suggests that it is not mechanical that as

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<sup>28</sup>We do so using STATA's "margins" dydx (discrete change effects) command.

firms mature ownership gets more dispersed (see also Claessens, Djankov, and Lang, 2000, and Franks *et al.*, 2012). The average marginal effects on the legal origin indicators retain their magnitude. Since the sample drops when we condition on firm age that is an insignificant correlate of control, in column (5) we omit it. Conditional on relevant regional features, industry characteristics, and GDP, the likelihood of controlled firms in French civil law countries is 20 – 23 percentage points higher as compared to common law countries.

In columns (6)-(7), we examine the association between control and legal origin in 2007. The likelihood (average marginal effect) that a listed firm is controlled appears 23 percentage points higher in French civil-law, as compared to common-law, nations. The likelihood of controlled firms is approximately 15 percentage points higher in German civil law countries. Corporate control is also higher in Scandinavian civil-law countries, though the coefficient (0.09 – 0.10) does not pass standard significance levels. The world crisis did not affect the association between corporate control and legal origin.

In columns (8)-(9), we report pooled across all years cross-sectional estimates (regression equation 2), as this maximizes firm and country coverage. Conditional on industry and regional differences, as well as log GDP p.c., the share of controlled firms is, on average, 26, 15, and 8 percentage points higher in countries of French, German, and Scandinavian civil law tradition, respectively.

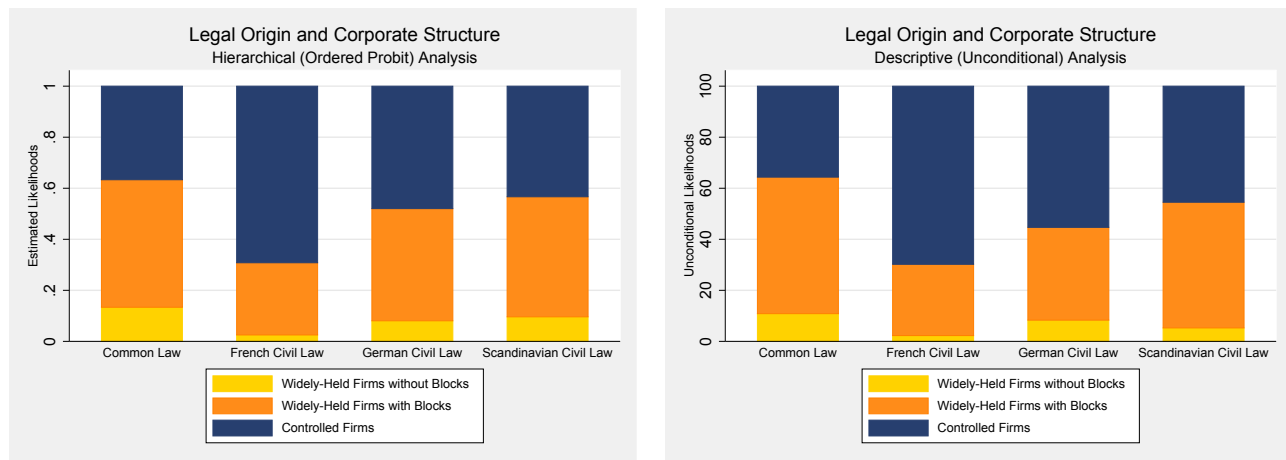
A couple of examples illustrate the regression estimates. The fraction of controlled firms in Malaysia, a common-law country, is 0.55, while the corresponding share in Indonesia, a Dutch colony with a French civil law system is 0.78. The share of controlled firms in Cyprus, a former British colony, is almost half of the analogous share in Greece, a French civil-law country (0.40 compared to 0.765). The share of controlled firms in common-law Nigeria is 0.68, while in French civil-law Ivory Coast is 0.93.

The analysis in Table 2 reveals that in our large sample of firms and countries the cross-country correlations between corporate control and legal origin are similar with the 20% cutoff rule and the more elaborate Shapley-Shubik power index. These results suggest that previous works, which relied on simple cutoff rules, were quite accurate, at least when the sample size is large.

#### 4.2.2 Hierarchical Analysis

In most instances, there is at least one block shareholder in widely held firms. For example, Bill Gates holds a significant stake in Microsoft. Blackrock and Fidelity hold blocks in Apple and Berkshire Hathaway in IBM. In Europe, Groupe Bruxelles Lambert holds a block on Total and the Kuwait Investment Corporation holds 5.7% of Daimler’s voting rights. Block shareholders can exert some control (see Edmans and Holderness, 2017). It is therefore essential (though not commonly done) to accommodate in the empirical analysis blocks as they are universal and because the results may change depending on how one classifies firms with dispersed ownership but with sizable blocks (Holderness, 2009).

We defined an ordered index (0, 1, 2) that accommodates heterogeneity on the degree (intensity) of



**Figure 6a-6b: Legal Origin and Corporate Structure. Conditional and Unconditional Likelihoods.** Figure 6a portrays the estimated likelihoods of the three main categories of corporate control (widely-held firms without blocks, widely-held firms with block(s), and controlled firms) from an ordered probit ML specification that links corporate control with legal origin over 2004-2012. The ordered probit (reported in column (8) of Table 3 – Panel A) associates a trichotomous index that takes the value of zero for widely held firms without a block, one for widely held firms with at least one block (over 5%), and two for firms with a controlling shareholder (of any type) with legal origin indicators that take the value of one for French civil-law, German civil-law, and Scandinavian civil-law countries, respectively, with common law serving as the omitted category. The specification also includes year fixed effects, industry fixed effects, and the logarithm of GDP per capita. Figure 6b portrays unconditional likelihoods of the three main corporate control categories across common law, French civil-law, Scandinavian civil-law, and German civil-law countries.

corporate control and estimated hierarchical model specifications that are tailored to study such phenomena (Wooldridge, 2002; Greene, 2011). The trichotomous index equals zero for widely held firms without any block (all shareholders hold less than 5% of voting rights); the index equals one for widely held firms with at least one block (over 5%) and equals two for controlled firms.<sup>29</sup> We then estimate ordered probit models (with maximum likelihood) associating the ordered index with legal origin.

Table 3 reports ordered probit coefficients (not average marginal effects as in the other tables) using the 20% cutoff rule (in Panel A) and the Shapley-Shubik approach (in Panel B). First, in most specifications the threshold parameters are statistically significant from zero and each other, suggesting that the ordered model fits the data better than the binary model. Second, the French legal origin indicator enters with a positive and highly significant estimate. Third, the coefficients on the German and Scandinavian civil-law dummies are positive, but not always significant. Fourth, log GDP p.c. enters with a significantly negative coefficient. Fifth, size and age do not systematically correlate with control. In Figure 6a we tabulate the estimated likelihoods (average marginal effects) of the three outcomes for each legal family

<sup>29</sup>While different blockholders may take a more passive or active role on corporate affairs, we do not distinguish between blockholder type (e.g., individual/family, pension, mutual or hedge fund), as we do not have precise information on their strategy. Moreover, blockholders' rights, as specified in corporate law and securities legislation, differ across countries.

using the specification with the rich set of controls in the 2004 – 2012 sample (column (8)), as this allows visualizing at which margin legal origin operates. For comparability Figure 6b plots the unconditional likelihoods. The marginal effects in Panel A imply that conditional on regional features and the level of development, the likelihood that a key shareholder will control a listed firm in French civil-law country is 66.4%, similar to the unconditional likelihood of 66.8%. The regression estimates further imply that in French civil-law countries 31% of listed firms will be widely-held with a block shareholder and only 2.8% of listed firms will have dispersed ownership without any block shareholder. These estimates are close to the simple means. Turning now to common-law countries, the estimates imply that 10% of listed firms are widely-held without a block and 57.5% of listed firms will be widely-held with a block. These estimates are close to the unconditional tabulations (12.5% and 53%, respectively).

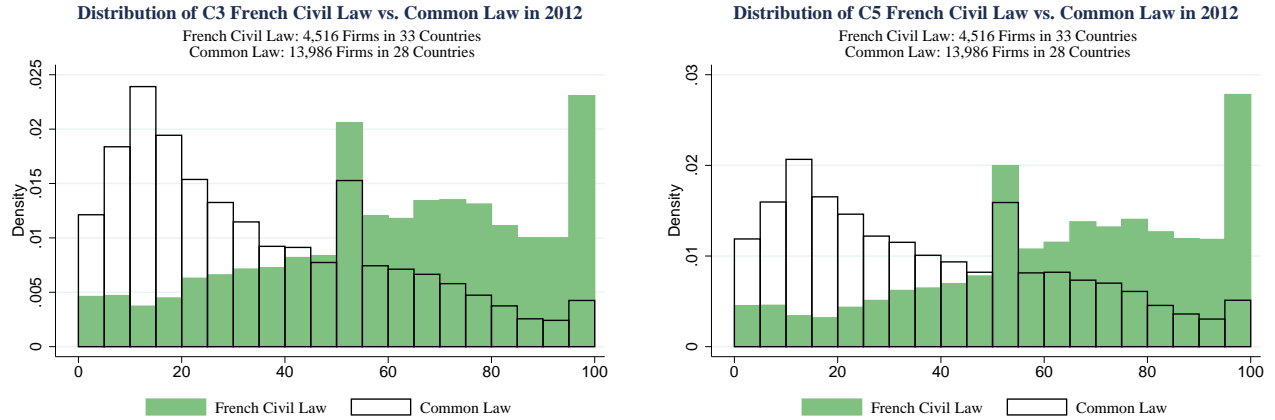
### 4.3 Ownership Concentration

Table 4 reports OLS estimates associating ownership concentration with legal origin. The unconditional specification in (1) shows that, compared to common-law countries, the voting rights share of the three largest shareholders is 25 percentage points higher in French legal origin countries. Ownership concentration is higher by 6 – 7 percentage points in German and Scandinavian civil-law countries. The legal origin indicators explain 10% of the total variance in ownership concentration. This is far from negligible, as country fixed-effects explain 25% of the variability. So, legal origin explains 40% of the variance captured by all country-level features.

Figures 7a – 7b give a graphical illustration of the differences in ownership concentration between common-law and French-civil-law countries in 2012 using the  $C3$  and  $C5$  measures. The figures overlap the histogram of ownership concentration for common-law (13,986 firms in 28) countries and French civil-law (4,516 firms in 33) countries. Ownership concentration in French civil-law countries is tilted to the right of the common law distribution. The median  $C3$  in common law countries is 29.01%, while in French civil law is 62.17%. The 25th percentile of the distribution of  $C3$  in common law countries is 13.84%, while in French civil-law is 42.98%. The 75th percentile of  $C3$  in common law countries is 51.96% and in French civil-law countries is 81.79%.

The estimate on the French civil law indicator is not affected by the inclusion of log GDP p.c., industry fixed-effects, and the firm controls. It drops somewhat when we add the regional constants. Conditional on GDP, industry and unobservable regional characteristics, the voting rights of the largest three shareholders are 15 percentage points higher in French civil-law, as compared to common-law countries. A couple of examples illustrate the regression estimates. The average value of the  $C3$  index for the 14 publicly-traded firms in Ghana, a former British colony with a common law system, is 63.1%, while the  $C3$  for the 14 firms incorporated in neighboring Ivory Coast, a French civil-law country, is 72.9%. (The GDP p.c. is similar in the two countries, around 1,500USD and so is total market capitalization, around 2 billion USD). In East





**Figure 7a-7b: Ownership Concentration across Common Law and French Civil-Law Countries.** The histograms portray the distribution of the C3 and the C5 ownership concentration measures for common law and French civil law countries in 2012. The sample includes 4,516 firms in 33 French civil-law countries and 13,986 firms in 28 common law countries. The C3 (C5) ownership concentration measures reflect the voting rights of the three (five) largest shareholders, while treating family members as one representative shareholder with aggregated voting rights. Table 1 gives the country means.

Asia, the mean of *C3* in French civil-law Indonesia is 63.4%, while in common-law Thailand is 45.2%.

#### 4.4 Sensitivity Analysis

The cross-country correlations are quite stable across years, methods to identify control, and the inclusion of firm controls. In the Supplementary Appendix, we report additional sensitivity checks (see Appendix Tables 9 – 17). First, the patterns are similar to alternative estimation techniques (linear probability models, logits, and multinomial logits) and alternative measures of ownership concentration. Second, we examined whether some regions drive these patterns. Differences between civil and common law countries are economically sizable in Western Europe, in Sub-Saharan Africa, and the Americas. Differences are also present in Asia and the Pacific, though the estimates are not statistically significant; in the Middle East and North Africa, there are no major differences in control across civil and common law countries. Third, we examined whether some specific country/ies drive the results. We dropped the United States, which consists of around 15 – 18% of the firm sample. The main patterns remain intact. We also estimated quite restrictive specifications dropping the top-three countries regarding the number of observations (United States, Canada, and China). Doing so reduces the sample by roughly 30%; we still get that corporate control is significantly higher in French civil-law countries.<sup>30</sup> Fourth, the results are similar (though a bit

<sup>30</sup>We also run specifications dropping even more countries with many firm observations. Although the sample drops by more than 40%, we still get that in French civil law countries there is higher ownership concentration. However, the estimates are imprecise and do not always pass standard significance thresholds.

more imprecise) when we average control (or ownership concentration) across firms in each country and run cross-country regressions.

## 5 Heterogeneity

The size distribution of publicly-traded firms is highly skewed (see Gabaix, 2009, 2016 and the references therein). In our sample, the mean market capitalization is 1.55 billion USD, while the median is ten times lower, 0.15 billion USD. Given such skewness, merely controlling for market capitalization may be inadequate. At the same time, the relationship between corporate control and legal origin may differ for small, medium, and large firms. Part of Holderness' (2016a,b) critique to La Porta *et al.* (1999) relates to the unequal distribution of listed firms. In this Section, we utilize the richness of the newly-compiled data to explore heterogeneity across firm size and age.

Table 5 reports the results. Panel *A* gives probit average marginal effects with the 20% cutoff rule. Panel *B* gives OLS estimates with ownership concentration. Both panels look at the 2012 sample; Appendix Tables 18 and 19 report analogous estimates in 2007 and 2004 – 2012. In column (1) we drop the top 1%, firms with a capitalization exceeding 30 billion USD, while in columns (2) and (3) we drop firms in the top 5% and the top 10%, respectively (7.4 and 3 billion USD). This is useful as the association between control and legal origin may stem from very large corporations. This is not the case. The French legal origin indicator continues to enter with a stable (0.23 in the control and 0.15 in the ownership concentration models) and statistically significant coefficient. The estimates on the German and Scandinavian civil law indicators are similar to the full-sample estimates, though they do not pass standard significance levels.

In (4) and (5) we split the sample using the median value of firm market capitalization. The French civil law indicator is highly significant in both samples. This result adds to the law and finance literature, as it demonstrates that the "reduced-form" link between corporate control and legal origin applies across both big and small listed corporations.

The regressions reveal an additional result. The negative association between log GDP p.c. and corporate control is particularly strong for large firms; the coefficient on log output per capita in the large firm sample is negative ( $-0.1$ ) and highly significant. In contrast, log GDP p.c. enters with an estimate that is close to zero and statistically insignificant in the small firm sample. A similar pattern applies with ownership concentration. This result while new in the corporate finance literature, echoes the findings of Hsieh and Klenow (2014), who studying plant-level productivity across firms' life cycle in Mexico, India, and the United States, find that differences are strong for large plants and at late stages of firms' life cycle. Our results add to these findings by showing that economic development relates to the corporate structure of large firms that tend to be the most productive (e.g., Syverson, 2011).

In columns (6) and (7) we restrict estimation to large firms using the top 10% and the top 5% cutoff of market capitalization, respectively. The French legal origin indicator enters with a significantly positive coefficient that is quite similar to the full-sample estimate. The coefficient on log GDP p.c. increases in absolute value ( $-0.15$  in Panel *A* and  $-0.06$  in Panel *B*) implying that the positive relationship between economic development and widely-held corporations is particularly strong for very large firms.

In columns (8) and (9) we separately estimate the specifications for "young" and "old" firms, using the median firm age (22 years). Examining heterogeneity across firm age is useful, as earlier studies by Franks *et al.* (2012), Foley and Greenwood (2010), and Holderness (2016a,b) document that only in some countries firms that age manage to raise outside equity. The positive marginal effect of the French civil law is present and similar in magnitude in both sub-samples, showing again that the reduced-form link is quite strong. The negative GDP-control association applies to both young and old firms.

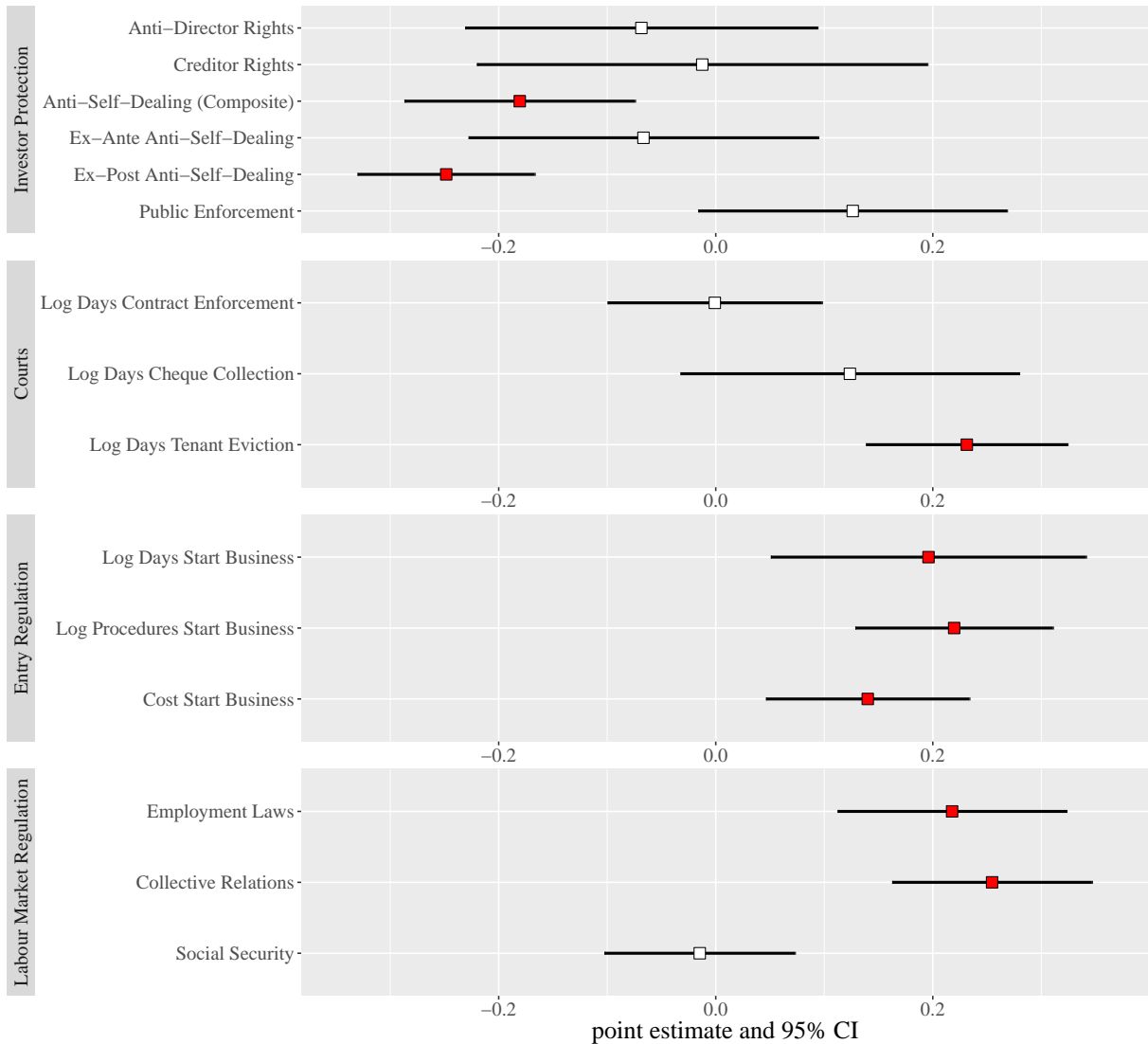
## 6 Institutional Correlates of Corporate Control

The law and finance literature (La Porta *et al.*, 1997, 1998) stresses the role minority shareholders rights against expropriation by company insiders in shaping corporate control. Legal origin is related to other institutional and regulatory features of capital, product, and labor markets (e.g., Djankov *et al.*, 2002, 2003, Botero *et al.*, 2004). As summarized by La Porta, Lopez-de-Silanes, and Shleifer (2006), in its "*strong form*" common law promotes dispute resolution with light state involvement and little regulation. In contrast, civil law is "*policy implementing, a strategy of social control*" over markets, that depends on professional judges, who interpret rather than create law, and a government with active involvement in markets (Beck, Demirguc-Kunt, and Levine, 2003). Legal scholars also stress the interconnection between civil law and an "interventionist" state that regulates tightly capital, labor, and product markets (Roe, 2000, 2006; Bebchuk and Roe, 1999).

In this section we examine the association of corporate control (and ownership concentration) with (*i*) proxies of investor protection; (*ii*) court efficiency; (*iii*) red tape in entry markets, and (*iv*) various aspects of labor market regulation.<sup>31</sup> The cross-country correlations do not identify causal effects, as there are various endogeneity concerns. Omitted variables, related, for example, to trust, social values, and religion (e.g., Guiso, Sapienza, and Zingales, 2004, 2006, 2011, Stulz and Williamson, 2003); reverse causation, as in countries with a high share of widely-held firms and diffuse ownership the economic and political elite may promote sound investor protection (Rajan and Zingales, 2004); and error-in-variables, as it is tricky measuring institutional capacity (for example the World Bank has revised a couple of times its methodology in measuring legal quality, barriers to entry, capital, product, and labor market institutions).

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<sup>31</sup>Appendix Table 23 shows that legal origin correlates significantly with proxies of investor protection rights, legal quality, entry, and labor market regulatory features. Appendix Tables 20 – 22 report summary and descriptive statistics. Appendix Tables 24 – 31 report sensitivity checks.



**Figure 8: Corporate Control and Institutions. Univariate Correlations. 2004-2012.** The figure shows the univariate correlation of various country-level institutional characteristics with the binary corporate control index in the 2004-2012 sample; the control index equals one if a firm is controlled (by either an individual/family, a private firm with an unmatched ultimate owner, the government, a widely-held private firm, or by a widely held public firm) and equals zero when the firm is widely held (with or without a block). For each characteristic listed on the vertical axis, the dot represents the value of the simple correlation of the variable with corporate control. The horizontal bars show the 95% confidence interval based on standard errors clustered at the country level. Red dots indicate statistically significant correlations at the 95% confidence level; white dots indicate statistically insignificant correlations. There are four broad institutional categories. (i) Investor Protection. This category includes variables of creditor and shareholder's rights. (ii) Courts efficiency variables that reflect the days needed to complete simple disputes in courts. (iii) Entry regulation variables that measure the days, procedures and associated cost of starting a business; and (iv) Labor market regulation variables reflecting employment protection legislation, collective action clauses, and social security acts. The Data Appendix gives detailed variable definitions and sources. The Supplementary Appendix gives summary statistics and the values for each country.

The cross-country associations are, however, useful in assessing the strength of the correlation of these features with corporate control.

Figure 8 gives a summary of the correlational analysis in the pooled 2004 – 2012 sample. The graph plots the *univariate* correlation between corporate control and institutional proxies of investor protection, courts quality, entry, and labor market regulation. The dots show the point estimate (bold red dots denoting statistically significant correlation) and the horizontal lines depict 95% confidence intervals (based on clustered at the country standard errors). In the remainder of this section, we discuss in more detail these correlations.<sup>32</sup>

## 6.1 Investor Protection

We commence our analysis examining the association between corporate control and investor protection, as this has been the mechanism emphasized by the law and finance literature explaining the “reduced-form” correlation between control and legal origin. Table 6 reports specifications, conditioning on industry fixed-effects, regional constants, and GPD p.c., in 2012, 2007, and the 2004 – 2012. For brevity, we report results with the 20%-cutoff rule.

In columns (1), (4) and (7) we proxy investor protection with a 0 – 6 shareholder protection index and 0 – 4 creditor rights index. The measures are retrieved from Djankov *et al.* (2007, 2008), who expand, correct, and update the original indicators of La Porta *et al.* (1997, 1998). We insert the two measures jointly, as their correlation is weak (0.26). There is no systematic association between corporate control and creditor rights. The average marginal effect on the anti-directors rights index is negative, but the coefficient does not pass standard significance thresholds. The results are similar with ownership concentration.

In columns (2),(5) and (8) we associate corporate control with the Djankov *et al.* (2008) anti-self-dealing index that quantifies the rights of minority shareholders against self-dealing transactions of corporate insiders. This composite index reflects ex-ante and ex-post private enforcement mechanisms available to minority shareholders to check self-dealing activities of managers and controlling shareholders. Ex-ante mechanisms include requirements for approvals of disinterested shareholders, disclosure mandates, and independent reviews by auditors or financial experts. Ex-post mechanisms include disclosure in periodic filings, access to evidence, and the easiness to sue managers and controlling shareholders for misconduct. Following Djankov *et al.* (2008), we include an index of public enforcement of shareholder’s rights. The anti-self-dealing index enters with a negative coefficient that is significant in the 2007 and the 2004 – 2012 samples. Better legal protection of minority shareholders from self-dealing transactions by company insiders is associated with a higher likelihood of widely-held listed firms. The public enforcement index is

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<sup>32</sup>In the Appendix we report analogous correlation figures in 2012 and 2007; we also report similar graphical illustrations for ownership concentration.

insignificant, pointing out that imprisonment and hefty fines are not much related to control.

In columns (3), (6) and (9) we enter in the regression both anti-self dealing measures; their correlation is 0.15. The ex-post anti-self-dealing index enters with a negative and highly significant estimate. The same applies in ordered probit estimation and OLS with ownership concentration. The average marginal effect in 2012 implies that a one standard deviation increase in the protection of minority shareholders against insiders' self-dealing activities is associated with an increased likelihood that the listed firm will be widely-held -as compared to controlled- by 7.5 percentage points.

## 6.2 Courts

Legal origin is related to the efficiency of the court system; Djankov *et al.* (2003) uncover differences across legal families on courts' formalism that in turn affects financial development. In Table 7 we associate corporate control (in columns (1)-(6)) and ownership concentration (in (7)-(9)) with the logarithm of the days it takes to resolve a simple dispute via the court system (from Djankov *et al.* 2007). Columns (1)-(3) report probit average marginal effects with the control indicator as the outcome variable; columns (4)-(6) report ordered probit coefficients with the trichotomous index of control; columns (7)-(9) give OLS estimates with the *C3* concentration index as the dependent variable. The specifications point to a weak association. The coefficient on the legal formalism proxy is small and does not pass standard significance thresholds. While in some permutations, the coefficient on the legal formalism proxy does pass significance levels, it turns insignificant when we identify control with the Shapley-Shubik method (Appendix Table 26). Given the somewhat inconclusive patterns, we also experiment with alternative measures of court efficiency from Djankov *et al.* (2003) on the days it takes to evict a tenant for non-payment and the days it takes to collect a bounced cheque. We find mostly insignificant and unstable cross-country correlations (see also Figure 8). Corporate control (and ownership concentration) is not much related to legal formalism.

## 6.3 Entry Regulation

Regulations in product markets impeding entry and protecting incumbents may affect corporate control through various mechanisms (Tirole, 1988, 2010). For example firms in oligopolistic markets, shielded from competition by entrants, can finance projects via retained earnings and will not depend much on external sources of financing. Thus, they will be much more likely to be controlled by families/individuals. State control may be higher in countries with more "interventionist" in product markets governments (Roe, 2006). In countries with concentrated ownership, corporate owners can lobby for protectionist policies.

In Table 8, we associate corporate control with three proxies of entry regulation, the log number of days and the log number of administrative procedures needed to start a business and the associated cost, as a share of GDP p.c. We use the measures compiled by the World Bank, as they cover more

countries than the original Djankov *et al.* (2002) data. For brevity, we report probit average marginal effects and report in the Appendix results with ownership concentration and the trichotomous index of control. The coefficient on the log number of days and the cost to start a new business is small and statistically indistinguishable from zero. There is some link between corporate control and the log number of procedures to start a new business, but the implied effect is small.

## 6.4 Labor Market Regulation

We then examined the correlation between corporate control and labor market institutions. Corporate control and welfare state policies have co-evolved historically, re-enforcing each other after the Great Depression and the World Wars (Rajan and Zingales, 2003, 2004). Mueller and Philippon (2011) argue that family firms can more easily get around stringent labor regulations. Roe (2006) posits that laws making it expensive to fire workers and regulations promoting unions prevent ownership diffusion. Pagano and Volpin (2005) develop a model where large private benefits of control nudges controlling shareholders to collaborate with employees by offering long-term contracts and other benefits in exchange for "effective protection" from hostile takeovers. Labor market regulation could affect corporate structure by raising the cost of bankruptcy, which in turn lowers external finance (Simintzi, Vig, and Volpin, 2015).

In Table 9, we associate corporate control and concentration with the three labor market regulation measures of Botero *et al.* (2004); (i) an "employment laws" index that reflects the existence and cost of alternative to the standard employment contract(s), overtime pay costs, dismissal procedures and firing costs; (ii) a "collective relations" index that reflects the statutory power of unions and the protection of workers via collective disputes resolution mechanisms; and (iii) a "social security" index measuring the level and duration of unemployment, health, old-age, disability, and death benefits.

There is a significantly positive correlation between control and the collective relations index. In countries where unions are powerful, a large fraction of workers are unionized, and where there are strong collective disputes resolution mechanisms, listed corporations are more likely to be controlled by families/individuals or the state, as compared to being widely-held. The estimate in the 2012 sample implies that a 0.20 point increase in the collective actions index, that corresponds to the mean difference between common-law (0.29) and civil-law countries (0.50), increases the likelihood that the firm is controlled by 12 percentage points. There is no systematic association between corporate control and social security legislation; and, while control is unconditionally related to collective relations index (Figure 8), the correlation turns insignificant once we control for log GDP p.c.

## 7 Conclusion

Employing diverse sources and conducting manual checks for thousands of firms, we extend the ORBIS database of corporate ownership and construct a new dataset depicting corporate control around the

world. Our database covers 42,720 listed firms from 127 countries between 2004 and 2012. Applying absolute cutoff-based and relative voting rights power measures, we classify firms as either controlled or widely-held also allowing for an intermediate category of widely-held firms, without a controlling shareholder, but with equity block(s).

Our analysis then proceeds in three steps. First, we provide an anatomy of corporate control around the world. Family control is pervasive across industrial, developing and frontier economies. State ownership is far from negligible, especially in terms of market capitalization, as in many countries (e.g., Russia, China, Brazil, India), the government holds controlling stakes in large firms.

Second, we examine the association between corporate control (and ownership concentration) and legal origin. Ownership is more concentrated and control by families and the government is more pervasive in French-civil law and to lesser-extent German civil-law countries. These patterns are present for big, medium, and small listed firms. While equity blocks in widely-held firms are common, they are more pervasive in French civil-law countries. Our analysis uncovers a new result: the negative correlation between development and corporate control is present only in the sample of large corporations; it is absent in below-median market capitalization firms, and it is strong in the global sample of very large firms. This heterogeneity suggests that financial frictions, associated with low GDP p.c., may prevent firms from raising equity and growing (Hsieh and Klenow, 2014, Rajan and Zingales, 2004).

Third, we associate corporate control to institutional features that the literature associates to legal origin. Provisions protecting minority shareholders from self-dealing activities of dominant shareholders are significant correlates of corporate control; this result supports one of the key insights of the law and finance literature on the substitutability of control and an unfriendly to shareholders institutional environment in the widest so far sample of firms and countries (La Porta *et al.* 2006). Corporate control is unrelated to creditors' rights protection and is weakly related to court efficiency. Labor market institutions correlate strongly with corporate control, suggesting spillovers from labor to capital markets and vice versa. Ownership concentration and the prevalence of controlled firms are higher in countries with strong employment protection laws and in countries with strong unions. This result is in line with the historical co-evolution of welfare state, family control, and direct government intervention in the economy (Roe, 2006; Rajan and Zingales, 2004); it also accords with political economy theories of corporate control modeling the alliances between controlling shareholders with workers at the expense of minority shareholders (e.g., Pagano and Volpin, 2005).

We view this paper as a first-step in reassessing some fundamental issues in corporate finance, related to the drivers and consequences of corporate ownership. Our analysis has abstracted from the exact role of blockholders on corporate affairs; blockholders may be passive or exert an active role, depending on country's institutions, the distribution of equity holdings, and their type (mutual funds, insurance, hedge



funds, state, family). Future work should put block-holding under the microscope. Future research should also try to "unbundle" family firms, distinguishing between established multi-generational family firms and new ones. Another issue that deserves follow-up work is examining the international dimension of corporate control, looking at country-pair factors, and investigating the role of tax heavens.

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## A Data Appendix

### A.1 Firm-Level Variables

#### A.1.1 Corporate Control

**Controlled [20% Cutoff]:** The binary (0, 1) variable indicates corporate control when we apply the absolute 20% voting rights cutoff. The variable equals one if a firm is having a shareholder (or a group of shareholders controlled by the same ultimate owner) with direct voting rights in excess of 20%, and zero otherwise. The voting rights of all family members are aggregated. If more than one shareholder holds voting rights in excess of 20%, we pick the largest shareholder as the controlling shareholder. In the specific case where two or more unrelated shareholders (i.e., not family members and not corporate shareholders controlled by the same ultimate owner) hold exactly the same proportion of voting-rights and each is exceeding 20%, then the firm is classified as widely-held (and the binary variable equals zero). *Sources: Bureau van Dijk augmented by multiple sources; please see data description part in the Supplementary Online Appendix.*

**Controlled [Shapley-Shubik]:** The binary (0, 1) variable indicates corporate control when we apply the Shapley-Shubik relative voting power method. The variable equals one if a firm is having a shareholder (or a group of shareholders controlled by the same ultimate owner) with Shapley-Shubik voting power index that exceeds 0.75, and zero otherwise. We treat family members as one shareholder with aggregated voting rights. Please see the Supplementary Online Appendix for details on the computation of the Shapley-Shubik power index. *Sources: Bureau van Dijk augmented by multiple sources; please see data description part in the Supplementary Online Appendix.*

**Ordered Control Index:** Trichotomous (0, 1, 2) index of control that accommodates equity blocks in widely-held corporations. The variable takes the value of zero for widely-held firms without a block, i.e. all shareholders/families hold less than 5% of firm's voting rights. The variable takes the value of one for widely-held firms with at least one block (in excess of 5% of firm's voting rights). The index equals two for firms with a controlling shareholder (of any type). There are two vintages of this variable. The first is based on the identification of corporate control with the absolute 20% voting rights cutoff method. The second is based on the identification of corporate control with the Shapley-Shubik relative voting power method. *Sources: Bureau van Dijk augmented by multiple sources; please see data description part in the Supplementary Online Appendix.*

**Types of Corporate Control (Family/Individual, State, Widely-Held Private Firm, Widely-Held Public Firm, Unmatched Private Firm).** Binary (0, 1) variables that equals one if the firm is ultimately controlled by each of the five types of controlling shareholders and zero otherwise. There are two vintages of each of the five dummy variables. The first is based on the identification of corporate

control with the absolute 20% voting rights cutoff method. The second is based on the identification of corporate control with the Shapley-Shubik relative voting power method. *Sources: Bureau van Dijk augmented by multiple sources; please see data description part in the Supplementary Online Appendix.*

**Ownership Stake of Controlling Shareholder:** For controlled firms only, the voting rights of the controlling shareholder. *Source: Bureau van Dijk (see data description part in the Appendix).*

### A.1.2 Ownership Concentration

**C1:** Index of ownership concentration. The percentage of voting rights held by the largest shareholder. We treat family members as one shareholder with aggregated voting rights. *Source: Bureau van Dijk.*

**C3:** Index of ownership concentration. The percentage of voting rights held by the three largest shareholders. We treat family members as one shareholder with aggregated voting rights. *Source: Bureau van Dijk.*

**C5:** Index of ownership concentration. The percentage of voting rights held by the five largest shareholders. We treat family members as one shareholder with aggregated voting rights. *Source: Bureau van Dijk.*

### A.1.3 Control Variables

**Firm Age:** Years between the current year and the year of firm incorporation. *Source: Bureau van Dijk (BvD) and Datastream.*

**Firm Size:** Market Capitalization in million current US Dollars in a given year. *Source: Datastream.*

## A.2 Country-Level Variables

### A.2.1 Legal Origin and Main Controls

**English Common-Law, French Civil-Law, German Civil-Law, and Scandinavian Civil-Law**

**Legal Origin:** Indicator variables that equal one if the origin of the law of a country is English Common Law or the respective civil law family, and zero otherwise. *Source: La Porta et al. (1999, 2008).*

**GDP Per Capita:** Per capita Gross Domestic Product in Current US Dollars. *Source: World Bank, World Development Indicators.*

**Geographic Region:** Indicator variables that identify the geographic region of the firm (based on its country of incorporation). There are six regions: Asia and Pacific, Western Europe & Northern Europe, Eastern Europe & Central Asia, North and Latin America and the Caribbean, Middle East & North Africa, Sub-Saharan Africa. The regional classification follows the World Bank, but we aggregate North America with Latin America and the Caribbean.

**Industry:** Indicator variables that identify the main industry in which each firm operates. Each firm is assigned to one of 85 SIC-2 sectors (including one for missing data). *Sources: Bureau Van Dijk and*

*Datastream.*

### **A.2.2 Investor Protection**

**Creditor Rights Index:** The index -that ranges from 0 to 4- reflects the strength of creditor's rights, as specified in securities and corporate law legislation. A score of one is assigned when each of the following rights of secured lenders is defined in laws and regulations: First, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization. Second, secured creditors are able to seize their collateral after the reorganization petition is approved, i.e., there is no automatic stay or asset freeze. Third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as government or workers. Fourth, if management does not retain administration of its property pending the resolution of the reorganization. We use the mean value over the period 1978 – 2003. *Source: Djankov, Mc Liesh, and Shleifer (2007), who extend, revise and update the original index compiled by La Porta et al. (1997, 1998).*

**Revised Anti-directors Rights Index:** The index -that ranges from 0 to 6- reflects the protection of minority shareholders in corporate decision-making process, including the right to vote. A score of 1 is assigned when each of the following rights apply. (1) Vote by mail; (2) obstacles to the actual exercise of the right to vote (i.e., the law does not require or permit companies to require that shares be deposited before the shareholders meeting); (3) minority representation on the board of directors through cumulative voting or proportional representation; (4) an oppressed minority mechanism to seek redress in case of expropriation; (5) preemptive rights to subscribe to new securities issued by the company; and (6) the right to call a special shareholder meeting. *Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).*

**Ex-ante Anti-Self-Dealing Index:** The index -that ranges from 0 to 1- reflects the following aspects of legislation. First, disclosures by the buyer and the seller. Second, whether a positive independent review of the transaction is required, and whether the transaction must be approved by disinterested shareholders. *Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008), who extend, revise and update the original index compiled by La Porta et al. (1997, 1998).*

**Ex-post Anti-Self-Dealing Index:** The index -that ranges from 0 to 1- reflects post-transaction legal provision to hold the buyer and the seller liable for bad-faith, the ability of shareholders to sue or rescind the transaction, the ability of shareholders to access evidence on the transaction, and disclosure of evidence in periodic filings. *Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).*

**Composite Anti-Self-Dealing Index:** The composite variable is the average of the ex-ante and the ex-post private control for self-dealing measures. The index ranges from 0 to 1. *Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).*

**Public Enforcement Index:** The index -that ranges from 0 to 1- reflects fines and prison terms

regarding disclosure and approval of self-dealing transactions by managers and controlling shareholders. One quarter point when each of the following sanctions is available: (1) fines for the approving body; (2) jail sentences for the approving body; (3) fines and (4) jail sentence. *Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).*

### **A.2.3 Courts (Legal Formalism)**

**Days Contract Enforcement:** The number of calendar days to enforce a contract of unpaid debt worth 50% of the country's GDP per capita as of January 2003. *Source: Djankov, Mc Liesh, and Shleifer (2007).*

**Legal Formalism - days to collect a bounced check:** The number of calendar days (total duration) to collect a bounced check through the court system. *Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003).*

**Legal Formalism - days to evict a tenant:** The number of calendar days (total duration) to evict a tenant for non-payment of rent through the court system. *Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003).*

### **A.2.4 Entry Regulation**

**Days Start Business:** The number of calendar days required, or commonly done in practice, for an entrepreneur to start and formally operate an industrial or commercial business. *Source: World Bank's Doing Business (Starting a Business database) which is based on Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002).*

**Procedures Start Business:** The number of administrative procedures required by an entrepreneur to start and operate a business. *Source: World Bank's Doing Business (Starting a Business database) which is based on Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002).*

**Cost Start Business:** The direct costs (as a fraction of GDP per capita) to start-up and formally operate a business. *Source: World Bank's Doing Business (Starting a Business database) which is based on Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002).*

### **A.2.5 Labor Market Regulation**

**Employment Laws Index:** The index -that ranges from 0 to 1- is the average of the following aspects of labor market legislation: (1) Alternative employment contracts; (2) Cost of increasing hours worked; (3) Cost of firing workers; and (4) Dismissal procedures. *Source: Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004).*

**Collective Relations Index:** The index -that ranges from 0 to 1- measures the protection of collective relations laws as the average of: (1) Labor union power and (2) Collective disputes. *Source: Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004).*

**Social Security Index:** The index -that ranges from 0 to 1- measures social security benefits. It is the average of (1) Old age, disability and death benefits; (2) Sickness and health benefits; and (3) Unemployment benefits. *Source: Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004).*

**Table 1. Corporate Control and Ownership Concentration around the World in 2012**

		Ownership Concentration			Corporate Control							
					All Controlled	Percentage of Listed Firms Controlled by						
		Mean Firms	Mean C1	Mean C3	Mean C5	State	Families / Individuals	Private Firms (unmatched)	Widely-Held Private Firms	Widely-Held Public Firms	Widely Held blockholder	Widely-Held no blockholder
Argentina	79	64.7	69.8	70	93.7	8.9	38	24.1	12.7	10.1	6.3	0
Australia	1347	22.1	32.9	36.8	23.3	0.3	4.6	11.8	1.7	4.9	71.6	5.1
Austria	96	49.2	63.5	65.5	82.3	8.3	19.8	39.6	7.3	7.3	17.7	0
Bahrain	41	29.8	45.1	47.1	53.7	19.5	12.2	9.8	4.9	7.3	41.5	4.9
Bangladesh	46	38.1	45.6	47.7	63	4.3	8.7	8.7	26.1	15.2	28.3	8.7
Belgium	161	38.6	52.6	55.6	63.4	5.6	17.4	29.2	6.2	5	31.7	5
Bosnia & Herz.	83	47.7	63.4	67.9	51.8	18.1	6	20.5	6	1.2	42.2	6
Botswana	7	56.7	65.3	67.4	100	0	0	14.3	42.9	42.9	0	0
Brazil	276	47	60.5	63.2	71.4	9.1	22.8	29	3.6	6.9	27.2	1.4
Bulgaria	77	53.1	64.4	65.1	83.1	7.8	19.5	42.9	1.3	11.7	14.3	2.6
Canada	2019	25.5	31.6	32.2	26	0.3	12.5	7.7	2	3.4	70.7	3.4
Chile	182	44	58.6	63.8	67.6	3.8	8.8	37.9	4.9	12.1	29.1	3.3
China	1679	37.1	47.6	50.3	72.2	23.2	17.3	29.5	1.9	0.4	21.3	6.4
Colombia	35	46.7	56.8	59.7	68.6	14.3	25.7	8.6	0	20	31.4	0
Croatia	174	45.3	59.1	63.6	59.8	4	18.4	21.8	7.5	8	32.2	8
Cyprus	68	27.5	35.1	36.5	39.7	1.5	20.6	14.7	1.5	1.5	57.4	2.9
Czech Republic	21	63.6	68.1	68.1	95.2	23.8	14.3	19	9.5	28.6	4.8	0
Denmark	156	32	44.1	46.5	35.9	0.6	7.1	17.3	5.8	5.1	55.8	8.3
Egypt	87	41.9	52.6	55.7	62.1	12.6	11.5	25.3	6.9	5.7	29.9	8
Estonia	15	43.8	63.2	71.3	73.3	0	40	33.3	0	0	26.7	0
Finland	113	24.3	36.8	42.1	36.3	7.1	8.8	15	0.9	4.4	53.1	10.6
France	788	46.4	60.2	63.3	68	2.9	29.2	24.9	5.8	5.2	29.8	2.2
Germany	722	45.3	56.8	59.1	68.7	3.6	26.2	25.3	6.4	7.2	28.5	2.8
Ghana	14	51.9	63.1	66.6	92.9	28.6	7.1	7.1	7.1	42.9	7.1	0

Greece	229	44.2	57.1	58.6	76.4	3.1	51.5	12.7	1.3	7.9	22.3	1.3
Hong Kong	694	37.9	49.2	51.6	59.1	4.3	20.6	30.3	1.2	2.7	36.7	4.2
Hungary	39	38	61.9	66.6	59	7.7	20.5	25.6	0	5.1	41	0
Iceland	19	42.6	56.9	60.8	52.6	5.3	10.5	26.3	10.5	0	42.1	5.3
India	1478	27.3	35.7	38.4	47.2	5.6	21	13.6	0.9	6.1	40	12.8
Indonesia	250	51	63.4	65	78.4	8.8	11.6	42.4	2.8	12.8	19.2	2.4
Ireland	65	23.3	36.3	41	26.2	1.5	7.7	13.8	1.5	1.5	61.5	12.3
Israel	457	39.9	50.8	53	61.9	0.7	31.7	16.8	2.6	10.1	30.4	7.7
Italy	266	44	58.8	63.1	69.5	3.8	36.1	22.9	2.3	4.5	25.6	4.9
Ivory Coast	14	68	72.9	72.9	92.9	0	7.1	21.4	28.6	35.7	7.1	0
Japan	1452	28	32.5	34.1	47.3	1.4	4.2	7.9	2.1	31.7	43.5	9.2
Jordan	119	31.5	46.1	51.5	48.7	2.5	24.4	10.1	0.8	10.9	43.7	7.6
Kenya	19	44.6	53.8	55.6	78.9	10.5	5.3	5.3	15.8	42.1	15.8	5.3
Korea	817	21	24.1	24.4	35.6	1.2	17.4	5	1.1	10.9	49.9	14.4
Kuwait	155	32.1	43.8	45.9	52.9	11.6	9.7	13.5	5.2	12.9	46.5	0.6
Latvia	27	46	75.4	80.3	70.4	0	33.3	33.3	0	3.7	29.6	0
Lebanon	6	49.8	68.7	74.1	100	0	66.7	16.7	0	16.7	0	0
Lithuania	34	59.2	73.3	78.2	76.5	5.9	20.6	41.2	0	8.8	20.6	2.9
Luxembourg	44	36.7	48	49.9	59.1	4.5	27.3	13.6	11.4	2.3	34.1	6.8
Macedonia	8	48.2	53.2	53.3	75	0	0	37.5	12.5	25	12.5	12.5
Malaysia	528	33.3	46.2	51	54.7	5.9	16.1	26.7	0.8	5.3	40.2	5.1
Malta	17	47.4	58.3	60.2	88.2	5.9	5.9	35.3	35.3	5.9	5.9	5.9
Mexico	52	46.8	52.1	53.3	80.8	0	32.7	23.1	11.5	13.5	15.4	3.8
Montenegro	161	53.6	68.7	71.3	71.4	5.6	28	32.9	4.3	0.6	17.4	11.2
Morocco	58	57.8	84.1	88.7	77.6	1.7	19	41.4	8.6	6.9	22.4	0
Namibia	5	53.4	58	58.9	80	0	20	0	0	60	20	0
Netherlands	133	34.6	48.2	54.4	46.6	2.3	10.5	21.1	6	6.8	51.9	1.5
New Zealand	100	30.5	43.6	48.6	28	5	5	8	4	6	64	8
Nigeria	38	43.2	48.4	49.2	68.4	2.6	13.2	18.4	7.9	26.3	31.6	0
Norway	201	32.4	47.7	53.1	41.3	5	13.4	16.9	4	2	54.2	4.5
Oman	41	28.5	38.8	40.9	65.9	24.4	22	12.2	2.4	4.9	31.7	2.4
Pakistan	102	41.9	51.8	53.9	61.8	5.9	9.8	11.8	4.9	29.4	21.6	16.7
Papua New Guinea	4	38.5	41.3	41.4	75	25	0	0	25	25	25	0



Peru	129	52.4	70.4	73.7	74.4	1.6	27.1	34.1	0.8	10.9	24.8	0.8
Philippines	57	47.8	60.8	64.2	61.4	5.3	21.1	17.5	1.8	15.8	33.3	5.3
Poland	713	44.7	62.8	66.4	64.1	3.1	30.7	24.5	1.4	4.3	34.9	1
Portugal	54	45.5	66.7	73.4	72.2	5.6	40.7	18.5	3.7	3.7	25.9	1.9
Qatar	28	32.5	37.9	38.9	64.3	46.4	7.1	7.1	3.6	0	25	10.7
Romania	152	59	72.3	73.9	75.7	8.6	21.1	34.2	2.6	9.2	19.1	5.3
Russia	436	53.1	70.7	73.5	78.4	26.6	16.7	25.9	5.3	3.9	20.2	1.4
Saudi Arabia	119	28.4	40.8	43.3	48.7	12.6	11.8	14.3	5	5	49.6	1.7
Serbia	106	43.7	53.3	55.7	61.3	12.3	13.2	31.1	2.8	1.9	24.5	14.2
Singapore	511	30.1	36.9	38.7	48.5	5.9	19	17.2	1.4	5.1	34.8	16.6
Slovakia	41	49.8	68.2	71.5	68.3	4.9	7.3	41.5	2.4	12.2	29.3	2.4
Slovenia	54	34.2	51	57.3	64.8	29.6	7.4	22.2	3.7	1.9	22.2	13
South Africa	206	30.1	40.8	44.2	38.3	0.5	6.8	12.1	4.9	14.1	52.4	9.2
Spain	182	39.6	57.4	64.7	51.1	3.8	22	12.1	5.5	7.7	47.3	1.6
Sri Lanka	74	46	52.4	54.5	74.3	8.1	8.1	14.9	1.4	41.9	24.3	1.4
Sweden	337	28.7	37.7	40.8	42.7	1.2	13.4	19.3	3.6	5.3	47.8	9.5
Switzerland	276	37.9	49.4	53.3	51.4	6.9	19.9	14.5	5.4	4.7	42.4	6.2
Taiwan	962	12.3	18.7	21.6	15	0.6	2.2	3.8	0.8	7.5	47.2	37.8
Thailand	126	37	45.2	47	64.3	17.5	17.5	7.9	1.6	19.8	28.6	7.1
Tunisia	32	41.4	55.7	57.7	75	12.5	9.4	21.9	12.5	18.8	21.9	3.1
Turkey	296	50.1	63.3	64.5	76.7	2.7	29.1	29.1	7.1	8.8	22	1.4
Uganda	4	67.8	67.8	67.8	100	50	0	0	0	50	0	0
Ukraine	102	55.5	74.1	78.8	73.5	11.8	18.6	40.2	2	1	26.5	0
United Arab Emirates	94	36.9	51.6	55.1	68.1	37.2	19.1	7.4	2.1	2.1	31.9	0
United Kingdom	1347	19.5	31.9	37.1	20.6	0.9	10.1	5.7	1.2	2.7	66.3	13.1
United States	4461	21.4	30.5	33.9	28.4	0.2	16.2	6.2	3.4	2.4	57	14.6
Venezuela	14	40.5	47.1	48.8	71.4	35.7	14.3	21.4	0	0	21.4	7.1
Zambia	12	48.2	51	51.1	75	8.3	33.3	0	8.3	25	16.7	8.3

*Country Level Summary Statistics*

<b>Mean</b>	41.3	53.1	56	63.1	8.7	17.4	19.8	5.7	11.6	31.5	5.3
<b>Median</b>	42.6	52.6	55.6	65.9	5.3	16.7	18.4	3.6	6.9	29.3	4.2
<b>Standard Deviation</b>	11.5	13.1	13.4	19.1	10.5	11.7	11.4	7.6	12.6	16.4	5.8

The table reports the number of firms, the C1, C3, and C5 ownership concentration measures (reflecting the voting rights of the single, three, and five largest shareholders), the share of controlled firms, the share of controlled firms by each type (family-controlled, government-controlled, controlled by a private firm with an unmatched ultimate owner, controlled by a widely-held private firm, controlled by a widely held public firm), the share of widely-held firms with at least one block (stake >5%), and the share of widely-held corporations without any block. The sample covers 26,843 firms in 85 countries in 2012. The identification of controlled corporations is based on the 20% absolute voting rights cutoff. The table also gives the cross-country average, median, and standard deviation.

**Table 2. Corporate Control and Legal Origin. Probit (ML) Estimates**

**Panel A. Absolute (20%) Voting Rights Cutoff of Corporate Control**

	2012 Sample					2007 Sample		2004-2012 Sample	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
French Legal Origin	0.3368*** (0.0369)	0.2995*** (0.0302)	0.2549*** (0.0537)	0.2328*** (0.0574)	0.2326*** (0.0533)	0.2615*** (0.0588)	0.2325*** (0.0586)	0.2569*** (0.0576)	0.2375*** (0.0577)
German Legal Origin	0.1781** (0.0754)	0.1518** (0.0626)	0.1265 (0.0770)	0.1194 (0.0753)	0.1200* (0.0713)	0.1620** (0.0746)	0.1488** (0.0706)	0.1552** (0.0751)	0.1458** (0.0716)
Scandinavian Legal Origin	0.0524 (0.0402)	0.1084*** (0.0330)	0.0674 (0.0840)	0.0650 (0.0855)	0.0568 (0.0829)	0.0993 (0.0770)	0.0901 (0.0748)	0.0826 (0.0804)	0.0783 (0.0777)
Log Market Capitalization				0.0119 (0.0090)			0.0007 (0.0068)		0.0069 (0.0078)
Log Age				-0.0000 (0.0121)			0.0141 (0.0105)		0.0058 (0.0107)
Log GDP Per Capita		-0.0667*** (0.0155)	-0.0607*** (0.0208)	-0.0580*** (0.0197)	-0.0546*** (0.0196)	-0.0412** (0.0199)	-0.0365* (0.0198)	-0.0512** (0.0197)	-0.0459** (0.0194)
Regional Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	No	No	Yes	Yes	No	Yes	No	Yes
Year Fixed Effects	No	No	No	No	No	No	No	Yes	Yes
Pseudo R-squared	0.05	0.07	0.07	0.09	0.09	0.06	0.08	0.06	0.08
Observations	26843	26843	26843	21743	26835	25976	23538	225082	197087
Countries	85	85	85	85	85	74	74	127	122

**Table 2. Corporate Control and Legal Origin. Probit (ML) Estimates, cont.**  
**Panel B. Relative (Shapley-Shubik) Voting Rights Cutoff of Corporate Control**

	2012 Sample					2007 Sample		2004-2012 Sample	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
French Legal Origin	0.2829*** (0.0400)	0.2518*** (0.0337)	0.2182*** (0.0540)	0.2128*** (0.0582)	0.2037*** (0.0538)	0.2468*** (0.0573)	0.2278*** (0.0578)	0.2393*** (0.0559)	0.2295*** (0.0561)
German Legal Origin	0.1369* (0.0750)	0.1147* (0.0644)	0.0914 (0.0782)	0.0970 (0.0787)	0.0913 (0.0733)	0.1439** (0.0680)	0.1422** (0.0657)	0.1376* (0.0711)	0.1372* (0.0695)
Scandinavian Legal Origin	0.0376 (0.0394)	0.0835** (0.0337)	0.0591 (0.0827)	0.0641 (0.0839)	0.0525 (0.0816)	0.1037 (0.0722)	0.1002 (0.0721)	0.0865 (0.0754)	0.0857 (0.0736)
Log Market Capitalization				0.0043 (0.0104)			-0.0068 (0.0066)		-0.0017 (0.0083)
Log Age				-0.0022 (0.0122)			0.0096 (0.0100)		0.0036 (0.0102)
Log GDP Per Capita		-0.0559*** (0.0158)	-0.0476** (0.0200)	-0.0458** (0.0204)	-0.0417** (0.0195)	-0.0399** (0.0192)	-0.0366* (0.0196)	-0.0451** (0.0190)	-0.0410** (0.0194)
Regional Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	No	No	Yes	Yes	No	Yes	No	Yes
Year Fixed Effects	No	No	No	No	No	No	No	Yes	Yes
Pseudo R-squared	0.03	0.04	0.05	0.07	0.06	0.05	0.06	0.05	0.06
Observations	26843	26843	26843	21743	26835	25976	23538	225082	197087
Countries	85	85	85	85	85	74	74	127	122

The table reports firm-level probit (maximum-likelihood) estimates (marginal effects). The dependent variable is an indicator that takes on the value of one if a firm is controlled (by either an individual/family, a private firm with an unmatched ultimate owner, the government, a widely-held private firm, or by a widely held public firm) and zero when the firm is widely held (with or without a block). The key explanatory variables are legal origin indicator variables that take the value of one for French civil-law, German civil-law, and Scandinavian civil-law countries, respectively, with common law serving as the omitted category. Panel A reports estimates when we use the 20% voting rights cutoff rule to identify controlled corporations. Panel B reports estimates when we use the Shapley-Shubik relative voting power approach to identify controlled corporations. The specifications in columns (1)-(5) are estimated in the 2012 sample; the specifications in columns (6)-(7) are estimated in the 2007 sample; the specifications in columns (8)-(9) are estimated in the pooled 2004-2012 sample that maximizes coverage (42,720 firms). The specifications in columns (3)-(9) include continental fixed effects (constants not reported), following World Bank's regional classification. The specifications in columns (4), (5), (7) and (9) include industry fixed effects, using SIC-2 sectoral classifications (85 sectors, constants not reported). The pooled specifications in columns (8)-(9) also include year fixed effects (constants not reported). The specifications in columns (2)-(9) control for the logarithm of GDP per capita in a given year. The specifications in columns (4), (7), and (9) include as controls log firm age and log market capitalization. The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 3. Corporate Control and Legal Origin. Ordered Probit (ML) Estimates**

**Panel A. Absolute (20%) Voting Rights Cutoff of Corporate Control**

	2012 Sample					2007 Sample		2004-2012 Sample	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
French Legal Origin	0.8335*** (0.1053)	0.7672*** (0.0873)	0.6380*** (0.1489)	0.6057*** (0.1590)	0.6056*** (0.1460)	0.6833*** (0.1393)	0.6225*** (0.1433)	0.6574*** (0.1436)	0.6254*** (0.1481)
German Legal Origin	0.3214 (0.2199)	0.2709 (0.2012)	0.2015 (0.2264)	0.2113 (0.2184)	0.2120 (0.2075)	0.3696** (0.1804)	0.3384* (0.1739)	0.3240* (0.1905)	0.3138* (0.1880)
Scandinavian Legal Origin	0.1257 (0.0884)	0.2294*** (0.0839)	0.1181 (0.2154)	0.1205 (0.2161)	0.1092 (0.2093)	0.2245 (0.1680)	0.2117 (0.1693)	0.1960 (0.1871)	0.1964 (0.1856)
Log Market Capitalization				0.0287 (0.0224)			0.0050 (0.0152)		0.0158 (0.0186)
Log Age				-0.0113 (0.0346)			0.0332 (0.0281)		0.0106 (0.0295)
Log GDP Per Capita		-0.1306*** (0.0452)	-0.1157** (0.0516)	-0.1154** (0.0510)	-0.1048** (0.0505)	-0.0785* (0.0444)	-0.0748 (0.0475)	-0.1061** (0.0469)	-0.1011** (0.0509)
cutoff 1	-1.1605*** (0.0796)	-2.5090*** (0.4869)	-2.3568*** (0.5037)	-2.1626*** (0.5064)	-2.2699*** (0.5008)	-2.1082*** (0.3946)	-2.1540*** (0.4547)	-2.2231*** (0.4291)	-2.1533*** (0.4994)
cutoff 2	0.3238*** (0.1017)	-1.0141** (0.4694)	-0.8537* (0.5088)	-0.6633 (0.5199)	-0.7461 (0.5027)	-0.4548 (0.3852)	-0.4566 (0.4465)	-0.7078 (0.4310)	-0.5986 (0.5052)
Regional Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	No	No	Yes	Yes	No	Yes	No	Yes
Year Fixed Effects	No	No	No	No	No	No	No	Yes	Yes
Observations	26843	26843	26843	21751	26843	25976	23546	225082	197115
Countries	85	85	85	85	85	74	74	127	122

**Table 3. Corporate Control and Legal Origin. Ordered Probit (ML) Estimates, cont.****Panel B. Relative (Shapley-Shubik) Voting Rights Cutoff of Corporate Control**

	<b>2012 Sample</b>					<b>2007 Sample</b>		<b>2004-2012 Sample</b>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
French Legal Origin	0.7047*** (0.1050)	0.6483*** (0.0909)	0.5437*** (0.1424)	0.5447*** (0.1538)	0.5242*** (0.1399)	0.6386*** (0.1323)	0.5989*** (0.1374)	0.6055*** (0.1357)	0.5917*** (0.1399)
German Legal Origin	0.2416 (0.2124)	0.1991 (0.1966)	0.1330 (0.2202)	0.1663 (0.2176)	0.1537 (0.2029)	0.3282** (0.1623)	0.3209** (0.1587)	0.2854 (0.1786)	0.2923 (0.1785)
Scandinavian Legal Origin	0.0992 (0.0904)	0.1843** (0.0902)	0.1052 (0.2055)	0.1220 (0.2059)	0.1033 (0.1989)	0.2337 (0.1510)	0.2314 (0.1558)	0.2032 (0.1719)	0.2096 (0.1704)
Log Market Capitalization				0.0146 (0.0246)			-0.0104 (0.0144)		-0.0006 (0.0189)
Log Age				-0.0143 (0.0336)			0.0239 (0.0266)		0.0064 (0.0279)
Log GDP Per Capita		-0.1078** (0.0443)	-0.0883* (0.0492)	-0.0906* (0.0516)	-0.0775 (0.0487)	-0.0755* (0.0434)	-0.0750 (0.0466)	-0.0933** (0.0449)	-0.0902* (0.0495)
cutoff 1	-1.1899*** (0.0860)	-2.3023*** (0.4621)	-2.1093*** (0.4731)	-2.0150*** (0.5113)	-2.0881*** (0.4838)	-2.1046*** (0.3952)	-2.2906*** (0.4488)	-2.1379*** (0.4142)	-2.1566*** (0.4913)
cutoff 2	0.1565 (0.0961)	-0.9496** (0.4537)	-0.7504 (0.4831)	-0.6438 (0.5238)	-0.7124 (0.4865)	-0.5508 (0.3895)	-0.6893 (0.4406)	-0.7382* (0.4167)	-0.7130 (0.4955)
Regional Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	No	No	Yes	Yes	No	Yes	No	Yes
Year Fixed Effects	No	No	No	No	No	No	No	Yes	Yes
Observations	26843	26843	26843	21751	26843	25976	23546	225082	197115
Countries	85	85	85	85	85	74	74	127	122

The table reports firm-level (ordered) probit (maximum-likelihood) coefficients. The dependent variable is an ordered index of corporate control. The trichotomous index that serves as the dependent variable takes the value of zero for widely held firms without a block (all shareholders/families hold less than 5% of firm's voting rights); the index takes the value of one for widely held firms with at least one block (in excess of 5%), the index equals two for firms with a controlling shareholder (of any type). The key explanatory variables are legal origin indicator variables that take the value of one for French civil-law, German civil-law, and Scandinavian civil-law countries, respectively, with common law serving as the omitted category. Panel A reports estimates when we use the 20% voting rights cutoff rule to identify controlled corporations. Panel B reports estimates when we use the Shapley-Shubik relative voting power approach to identify controlled corporations. The specifications in columns (1)-(5) are estimated in the 2012 sample; the specifications in columns (6)-(7) are estimated in the 2007 sample; the specifications in columns (8)-(9) are estimated in the pooled 2004-2012 sample that maximizes coverage (42,720 firms). The specifications in columns (3)-(9) include continental fixed effects (constants not reported), following World Bank's regional classification. The specifications in columns (4), (5), (7) and (9) include industry fixed effects, using SIC-2 sectoral classifications (85 sectors, constants not reported). The pooled specifications in columns (8)-(9) also include year fixed effects (constants not reported). The specifications in columns (2)-(9) control for the logarithm of GDP per capita in a given year. The specifications in columns (4), (7), and (9) include as controls log firm age and log market capitalization. The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.



**Table 4. Ownership Concentration and Legal Origin. OLS Estimates**

	2012 Sample					2007 Sample		2004-2012 Sample	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
French Legal Origin	0.2534*** (0.0245)	0.2373*** (0.0249)	0.1591*** (0.0377)	0.1523*** (0.0396)	0.1497*** (0.0368)	0.1628*** (0.0308)	0.1444*** (0.0313)	0.1594*** (0.0344)	0.1482*** (0.0347)
German Legal Origin	0.0734 (0.0536)	0.0616 (0.0514)	0.0226 (0.0478)	0.0212 (0.0475)	0.0242 (0.0455)	0.0384 (0.0399)	0.0280 (0.0393)	0.0373 (0.0419)	0.0318 (0.0423)
Scandinavian Legal Origin	0.0644** (0.0305)	0.0890*** (0.0317)	0.0143 (0.0584)	0.0161 (0.0583)	0.0131 (0.0544)	0.0341 (0.0425)	0.0276 (0.0424)	0.0326 (0.0494)	0.0298 (0.0475)
Log Market Capitalization				0.0074 (0.0048)			-0.0003 (0.0032)		0.0053 (0.0040)
Log Age				-0.0037 (0.0080)			0.0136* (0.0074)		0.0064 (0.0078)
Log GDP Per Capita		-0.0302** (0.0143)	-0.0287** (0.0145)	-0.0239* (0.0137)	-0.0251* (0.0142)	-0.0106 (0.0125)	-0.0092 (0.0139)	-0.0223* (0.0126)	-0.0192 (0.0137)
Regional Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	No	No	Yes	Yes	No	Yes	No	Yes
Year Fixed Effects	No	No	No	No	No	No	No	Yes	Yes
R-squared	0.10	0.12	0.16	0.20	0.18	0.14	0.16	0.14	0.17
Observations	26843	26843	26843	21751	26843	25976	23546	225082	197115
Countries	85	85	85	85	85	74	74	127	122

The table reports firm-level OLS estimates. The dependent variable is the C3 index of ownership concentration that reflects the voting rights held by the 3 largest shareholders (while treating family members as one representative shareholder with aggregated voting rights). The key explanatory variables are legal origin indicator variables that take the value of one for French civil-law, German civil-law, and Scandinavian civil-law countries, respectively, with common law serving as the omitted category. The specifications in columns (1)-(5) are estimated in the 2012 sample; the specifications in columns (6)-(7) are estimated in the 2007 sample; the specifications in columns (8)-(9) are estimated in the pooled 2004-2012 sample that maximizes coverage (42,720 firms). The specifications in columns (3)-(9) include continental fixed effects (constants not reported), following the World Bank's regional classification. The specifications in columns (4), (5), (7) and (9) include industry fixed effects, using SIC-2 sectoral classifications (85 sectors, constants not reported). The pooled specifications in columns (8)-(9) also include year fixed effects (constants not reported). The specifications in columns (2)-(9) control for the logarithm of GDP per capita in a given year. The specifications in columns (4), (7), and (9) include as controls log firm age and log market capitalization. The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 5A. Corporate Control and Legal Origin. Heterogeneity**

Sample	<u>Excl. Top 1%</u> (1)	<u>Excl. Top 5%</u> (2)	<u>Excl. Top 10%</u> (3)	<u>Small</u> (4)	<u>Large</u> (5)	<u>Top 10%</u> (6)	<u>Top 5%</u> (7)	<u>Young</u> (8)	<u>Old</u> (9)
French Legal Origin	0.2283*** (0.0580)	0.2273*** (0.0592)	0.2259*** (0.0598)	0.2321*** (0.0687)	0.1816** (0.0571)	0.1757** (0.0657)	0.2002*** (0.0538)	0.2119*** (0.0568)	0.2409*** (0.0594)
German Legal Origin	0.1177 (0.0753)	0.1165 (0.0757)	0.1126 (0.0758)	0.0963 (0.0931)	0.0913 (0.0638)	0.1005 (0.0776)	0.0776 (0.0756)	0.1352 (0.0763)	0.0849 (0.0705)
Scandinavian Legal Origin	0.0583 (0.0866)	0.0523 (0.0879)	0.0447 (0.0881)	0.0258 (0.0908)	0.0768 (0.0948)	0.1750 (0.1060)	0.2422* (0.1143)	0.0879 (0.0803)	0.0273 (0.0861)
Log Market Capitalization	0.0132 (0.0089)	0.0146 (0.0093)	0.0157 (0.0091)	0.0017 (0.0070)	0.0056 (0.0113)	-0.0098 (0.0152)	-0.0317 (0.0241)	0.0183* (0.0083)	0.0039 (0.0094)
Log Age	0.0012 (0.0120)	0.0036 (0.0120)	0.0053 (0.0117)	0.0206* (0.0091)	-0.0041 (0.0135)	-0.0145 (0.0135)	-0.0265 (0.0177)	-0.0008 (0.0179)	0.0126 (0.0198)
Log GDP Per Capita	-0.0576** (0.0196)	-0.0544** (0.0193)	-0.0502** (0.0190)	-0.0152 (0.0148)	-0.1001*** (0.0197)	-0.1496*** (0.0293)	-0.1446*** (0.0281)	-0.0532* (0.0254)	-0.0520*** (0.0138)
Regional Fixed-Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.09	0.09	0.09	0.09	0.12	0.20	0.24	0.11	0.10
Observations	21522	20645	19562	10894	10841	2154	1076	11000	10737
Countries	85	85	85	83	85	78	78	83	84

**Table 5B. Ownership Concentration and Legal Origin. Heterogeneity**

Sample	<u>Excl. Top 1%</u> (1)	<u>Excl. Top 5%</u> (2)	<u>Excl. Top 10%</u> (3)	<u>Small</u> (4)	<u>Large</u> (5)	<u>Top 10%</u> (6)	<u>Top 5%</u> (7)	<u>Young</u> (8)	<u>Old</u> (9)
French Legal Origin	0.1501*** (0.0399)	0.1493*** (0.0404)	0.1490*** (0.0409)	0.1536*** (0.0452)	0.1296*** (0.0399)	0.1190*** (0.0409)	0.1507*** (0.0422)	0.1447*** (0.0388)	0.1549*** (0.0405)
German Legal Origin	0.0202 (0.0475)	0.0198 (0.0475)	0.0177 (0.0468)	0.0255 (0.0532)	-0.0161 (0.0461)	-0.0084 (0.0587)	-0.0323 (0.0591)	0.0390 (0.0468)	-0.0101 (0.0491)
Scandinavian Legal Origin	0.0115 (0.0590)	0.0094 (0.0597)	0.0048 (0.0599)	-0.0089 (0.0595)	0.0278 (0.0665)	0.0630 (0.0700)	0.0966 (0.0584)	0.0308 (0.0520)	-0.0074 (0.0613)
Log Market Capitalization	0.0083* (0.0046)	0.0101** (0.0047)	0.0114** (0.0047)	0.0053 (0.0040)	-0.0025 (0.0063)	-0.0106 (0.0079)	-0.0101 (0.0140)	0.0108** (0.0041)	0.0020 (0.0050)
Log Age	-0.0030 (0.0080)	-0.0018 (0.0080)	-0.0013 (0.0076)	0.0039 (0.0073)	-0.0044 (0.0097)	-0.0047 (0.0119)	-0.0099 (0.0114)	-0.0228*** (0.0084)	0.0168 (0.0127)
Log GDP Per Capita	-0.0235* (0.0137)	-0.0222 (0.0135)	-0.0203 (0.0129)	-0.0051 (0.0095)	-0.0424** (0.0163)	-0.0603*** (0.0224)	-0.0563** (0.0238)	-0.0226 (0.0156)	-0.0193 (0.0127)
Regional Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.2	0.2	0.2	0.24	0.19	0.27	0.33	0.22	0.21
Observations	21530	20654	19571	10905	10846	2180	1097	11006	10745
Countries	85	85	85	83	85	78	78	83	84

The table explores heterogeneity with respect to firm size and firm age in the 2012 sample. Panel A reports firm-level probit model (maximum likelihood) estimates (marginal effects). The dependent variable is an indicator that takes on the value of one if a firm is controlled (by either an individual/family, a private firm with an unmatched ultimate owner, the government, a widely-held private firm, or by a widely held public firm) and zero when the firm is widely held (with or without a block). Controlled firms are those where a shareholder (e.g. state, individual, family, other firm) is holding more of 20% of firm's voting rights. Panel B reports firm-level OLS estimates. The dependent variable is the C3 index of ownership concentration that reflects the voting rights held by the 3 largest shareholders (while treating family members as one representative shareholder with aggregated voting rights). The key explanatory variables are legal origin indicator variables that take the value of one for French civil-law, German civil-law, and Scandinavian civil-law countries, respectively, with common law serving as the omitted category. In columns (1), (2), and (3) we drop the largest in terms of market capitalization firms, using the global top 1%, 5%, and 10% cut-off, respectively. In columns (4) and (5) we focus on small and large firms using as a cut-off the (world-sample) median value of firm market capitalization. In columns (6) and (7) we restrict estimation to large firms in terms of market capitalization using the top 10% and the top 5% global market capitalization cut-off, respectively. In columns (8) and (9) we focus on relatively young and relatively old firms using as cut-off the (world-sample) median of firm age (years since incorporation), which is 22 years. In all specifications, we control for the logarithm of GDP per capita in 2012. All specifications include regional fixed effects (constants not reported), following the World Bank's regional classification; industry fixed effects, using SIC-2 sectoral classifications (85 sectors, constants not reported); and firm-level controls for size (log market capitalization) and age (log number of years since incorporation). The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 6. Corporate Control and Investor Protection.**  
**Probit (ML) Estimates**

Sample	2012			2007			2004-2012		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Anti-Director Rights Index	-0.0328 (0.0208)			-0.0095 (0.0283)			-0.0225 (0.0259)		
Creditors Rights	-0.0219 (0.0403)			-0.0363 (0.0398)			-0.0272 (0.0416)		
Anti Self Dealing Index		-0.1619 (0.1606)			-0.2886** (0.1135)			-0.2622** (0.1231)	
Public Enforcement		0.0345 (0.0495)			0.0796 (0.0506)			0.0683 (0.0495)	
Ex Ante Private Self Dealing			0.0191 (0.0980)			-0.1279 (0.0883)			-0.0768 (0.0917)
Ex Post Private Self Dealing			-0.3528*** (0.1320)			-0.2356* (0.1379)			-0.3080** (0.1400)
Log GDP Per Capita	-0.0605** (0.0264)	-0.0637* (0.0346)	-0.0543** (0.0253)	-0.0475 (0.0287)	-0.0490 (0.0306)	-0.0435 (0.0288)	-0.0531* (0.0276)	-0.0548* (0.0323)	-0.0455* (0.0268)
Regional Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes
R-squared	0.08	0.07	0.08	0.06	0.07	0.07	0.06	0.07	0.07
Observations	25688	25751	25751	25383	25460	25460	215941	216581	216581
Countries	62	64	64	59	61	61	67	69	69

The table reports firm-level probit (maximum-likelihood) estimates (marginal effects), associating corporate control with proxy measures of investor protection rights. The dependent variable is an indicator that takes on the value of one if a firm is controlled (by either an individual/family, a private firm with an unmatched ultimate owner, the government, a widely-held private firm, or by a widely held public firm) and zero when the firm is widely held (with or without a block). For the identification of controlled corporations we use the 20% voting rights cutoff. The key explanatory variables are proxy measures of shareholders and creditors protection rights. The revised anti-directors rights index -that ranges from 0 to 6- reflects the protection of minority shareholders in corporate decision-making process, including the right to vote. A score of 1 is assigned when each of the following rights apply. (1) Vote by mail; (2) obstacles to the actual exercise of the right to vote (i.e., the requirement that shares be deposited before the shareholders meeting); (3) minority representation on the board of directors through cumulative voting or proportional representation; (4) an oppressed minority mechanism to seek redress in case of expropriation; (5) pre-emptive rights to subscribe to new securities issued by the company; and (6) the right to call a special shareholder meeting. The ex-ante private control of self-dealing index –that ranges from 0 to 1- reflects the following aspects: First, disclosures by the buyer and the seller. Second, whether a positive independent review of the transaction is required, and whether the transaction must be approved by disinterested shareholders. The ex-post private control of self-dealing index –that ranges from 0 to 1- reflects post-transaction legal provision to hold the buyer and seller liable for bad faith, the ability of shareholders to sue or rescind the transaction, the ability of shareholders to access evidence on the transaction, and disclosure of evidence in periodic filings. The composite anti-self-dealing index is the average of the ex-ante and the ex-post private control for self-dealing 0-1 range measures. The public enforcement index -that ranges from 0 to 1- reflects disclosures requirements for self-dealing transactions by managers and controlling shareholders. All variables are retrieved from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008). The creditor rights index ranges from 0 to 4; a score of one is assigned when each of the following rights of secured lenders is defined in laws and regulations: First, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization. Second, secured creditors are able to seize their collateral after the reorganization petition is approved, i.e., there is no automatic stay or asset freeze. Third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as government or workers. Fourth, if management does not retain administration of its property pending the resolution of the reorganization. The index is retrieved from Djankov, Mc Liesh, and Shleifer (2007), who extend, revise and update the original index compiled by La Porta et al. (1997, 1998). In all regressions we use the mean value over 1978-2003. The specifications in columns (1)-(3) are estimated in the 2012 sample; the specifications in columns (4)-(6) are estimated in the 2007 sample; the specifications in columns (7)-(9) are estimated in the pooled 2004-2012 sample that maximizes coverage (42,720 firms). All specifications include continental fixed effects (constants not reported), following World Bank’s regional classification, industry fixed effects, using SIC-2 sectoral classifications (85 sectors, constants not reported), and the logarithm of GDP per capita. The pooled specifications in columns (7)-(9) also include year fixed effects (constants not reported). The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 7. Corporate Control and Legal (Courts) Formalism**

Sample	Corporate Control			Ordered Index of Corporate Control			C3		
	2012	2007	2004-2012	2012	2007	2004-2012	2012	2007	2004-2012
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Log days contract enforcement	-0.0424 (0.0436)	-0.1029* (0.0578)	-0.0899* (0.0521)	-0.0950 (0.1145)	-0.2560* (0.1399)	-0.2182* (0.1256)	-0.0079 (0.0283)	-0.0477 (0.0291)	-0.0372 (0.0287)
Log GDP Per Capita	-0.0852** (0.0336)	-0.0974*** (0.0343)	-0.0959*** (0.0333)	-0.1808** (0.0864)	-0.2260*** (0.0871)	-0.2224*** (0.0849)	-0.0409* (0.0220)	-0.0448** (0.0224)	-0.0477** (0.0203)
Regional Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	No	No	Yes	No	No	Yes	No	No	Yes
R-squared	0.07	0.06	0.06	0.04	0.05	0.05	0.15	0.13	0.14
Observations	26336	25729	220046	26344	25737	220072	26344	25737	220072
Countries	76	67	94	76	67	94	76	67	94

The table associates corporate control and ownership concentration with an index of court (legal) formalism. Columns (1)-(3) report reports firm-level probit (maximum-likelihood) estimates (marginal effects). The dependent variable is an indicator that takes on the value of one if a firm is controlled (by either an individual/family, a private firm with an unmatched ultimate owner, the government, a widely-held private firm, or by a widely held public firm) and zero when the firm is widely held (with or without a block). For the identification of controlled corporations we use the 20% voting rights cutoff. Columns (4)-(6) report firm-level ordered probit (maximum-likelihood) coefficients. The dependent variable is an ordered index of corporate control. The trichotomous index takes the value of zero for widely held firms without a block (all shareholders/families hold less than 5% of firm's voting rights); the index takes the value of one for widely held firms with at least one block (in excess of 5%), the index equals two for firms with a controlling shareholder (of any type). Columns (7)-(9) report firm-level OLS estimates. The dependent variable is the C3 index of ownership concentration that reflects the voting rights held by the 3 largest shareholders (while treating family members as one representative shareholder with aggregated voting rights). The main explanatory variable (log days contract enforcement) describes the number of calendar days to enforce a contract of unpaid debt worth 50% of the country's GDP per capita as of January 2003. The variable is retrieved from Djankov, Mc Liesh, and Shleifer (2007). The specifications in columns (1), (4), and (7) are estimated in the 2012 sample; the specifications in columns (2), (5), and (8) are estimated in the 2007 sample; the specifications in columns (3), (6), and (9) are estimated in the pooled 2004-2012 sample that maximizes coverage (42,720 firms). All specifications include continental fixed effects (constants not reported), following World Bank's regional classification, industry fixed effects, using SIC-2 sectoral classifications (85 sectors, constants not reported), and the logarithm of GDP per capita. The pooled specifications in the 2004-2012 sample also include year fixed effects (constants not reported). The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.

**Table 8. Corporate Control and Entry Market Regulation**  
**Probit (ML) Estimates**

Sample	2012			2007			2004-2012		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Log Days Start Business	0.0318 (0.0380)			0.0247 (0.0479)			0.0283 (0.0452)		
Log Procedures to Start Business		0.1215** (0.0520)			0.1219** (0.0485)			0.1280*** (0.0465)	
Cost Start Business			0.0004 (0.0017)			0.0016 (0.0020)			0.0010 (0.0017)
Log GDP Per Capita	-0.0521 (0.0388)	-0.0510* (0.0270)	-0.0655* (0.0375)	-0.0433 (0.0405)	-0.0362 (0.0248)	-0.0433 (0.0364)	-0.0467 (0.0387)	-0.0421* (0.0244)	-0.0522 (0.0355)
Regional Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes
R-squared	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
Observations	26476	26476	26476	25787	25787	25787	220957	220957	220957
Countries	79	79	79	69	69	69	106	106	106

The table reports firm-level probit (maximum-likelihood) estimates (marginal effects), associating corporate control with proxy measures of entry regulation. The dependent variable is an indicator that takes on the value of one if a firm is controlled (by either an individual/family, a private firm with an unmatched ultimate owner, the government, a widely-held private firm, or by a widely held public firm) and zero when the firm is widely held (with or without a block). For the identification of controlled corporations we use the 20% voting rights cutoff. The key explanatory variables are proxy measures of red tape and entry barriers in 2006. They reflect: (i) The log number of calendar days required, or commonly done in practice, for an entrepreneur to start up and formally operate an industrial or commercial business; (ii) The log number of administrative procedures required by an entrepreneur to start and operate a business; and (iii) The direct costs (as a fraction of GDP per capita) to start-up and formally operate a business. These variables are retrieved from World Bank's Doing Business database and are based on Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002). The specifications in columns (1)-(3) are estimated in the 2012 sample; the specifications in columns (4)-(6) are estimated in the 2007 sample; the specifications in columns (7)-(9) are estimated in the pooled 2004-2012 sample that maximizes coverage (42,720 firms). All specifications include continental fixed effects (constants not reported), following World Bank's regional classification, industry fixed effects, using SIC-2 sectoral classifications (85 sectors, constants not reported), and the logarithm of GDP per capita. The pooled specifications in columns (7)-(9) also include year fixed effects (constants not reported). The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.



**Table 9. Corporate Control / Ownership Concentration and Labor Market Regulation**

Sample	Corporate Control			Ordered Index of Corporate Control			C3		
	2012	2007	2004-2012	2012	2007	2004-2012	2012	2007	2004-2012
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Employment Laws	0.0484 (0.1692)	-0.0583 (0.1487)	-0.0178 (0.1630)	0.0627 (0.4919)	-0.0134 (0.3841)	0.1107 (0.4332)	0.0905 (0.1226)	0.0415 (0.1165)	0.0883 (0.1163)
Collective Relations	0.5449*** (0.1751)	0.7625*** (0.1427)	0.6959*** -0.1539	1.4145*** (0.5299)	1.8238*** (0.3893)	1.6220*** (0.4387)	0.2676** (0.1250)	0.3360*** (0.1029)	0.2974*** (0.1070)
Social Security	0.0306 (0.2509)	0.0004 (0.1784)	0.0437 -0.2113	0.1148 (0.6738)	0.1456 (0.4016)	0.2148 (0.5135)	0.0086 (0.1409)	0.0231 (0.0879)	0.0452 (0.1029)
Log GDP Per Capita	-0.0775* (0.0431)	-0.0735* (0.0373)	-0.0788** -0.0389	-0.1793 (0.1108)	-0.1739* (0.0916)	-0.1849* (0.0986)	-0.0373 (0.0246)	-0.0296 (0.0204)	-0.0370* (0.0209)
Regional Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	No	No	Yes	No	No	Yes	No	Yes	Yes
R-squared	0.08	0.09	0.09	0.06	0.07	0.06	0.17	0.16	0.16
Observations	25760	25411	216489	25768	25418	216518	25768	25418	216518
Countries	65	61	77	65	61	77	65	61	77

The table associates corporate control and ownership concentration with proxies of labor market regulation. Columns (1)-(3) report firm-level probit estimates (marginal effects). The dependent variable is an indicator that takes on the value of one if a firm is controlled and zero when the firm is widely held (with or without a block). For the identification of controlled corporations we use the 20% voting rights cutoff. Columns (4)-(6) report firm-level ordered probit coefficients. The dependent variable is an ordered index of corporate control. The trichotomous index takes the value of zero for widely held firms without a block (all shareholders/families hold less than 5% of voting rights); the index takes the value of one for widely held firms with at least one block (in excess of 5%), the index equals two for firms with a controlling shareholder (of any type). Columns (7)-(9) report firm-level OLS estimates. The dependent variable is the C3 index of ownership concentration that reflects the voting rights of the 3 largest shareholders (while treating family members as one representative shareholder with aggregated voting rights). The employment laws index –that ranges from 0 to 1- reflects the following aspects of labor market legislation: (1) Alternative employment contracts; (2) Cost of increasing hours worked; (3) Cost of firing workers; and (4) Dismissal procedures. The collective relations index –that ranges from 0 to 1- measures Labor union power and collective disputes. The social security index –that ranges from 0 to 1- measures social security benefits. It is the average of (1) Old age, disability and death benefits; (2) Sickness and health benefits; and (3) Unemployment benefits. All variables are retrieved from Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004). The specifications in columns (1), (4), and (7) are estimated in the 2012 sample; the specifications in columns (2), (5), and (8) are estimated in the 2007 sample; the specifications in columns (3), (6), and (9) are estimated in the pooled 2004-2012 sample that maximizes coverage (42,720 firms). All specifications include continental fixed effects (constants not reported), industry fixed effects (constants not reported), and the logarithm of GDP per capita. The 2004-2012 sample specifications also include year fixed effects (constants not reported). The Data Appendix gives detailed variable definitions and sources. Heteroscedasticity adjusted and clustered at the country-level standard errors are reported in parentheses below the estimates. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively.