

ORIGINAL ARTICLE

Country-level governance quality, ownership concentration, and debt maturity: A comparative study of Brazil and Chile

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Abstract

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Research Question/Issue This study investigates the interplay between country-level governance quality and the capital structure choice at the firm level in Brazil and Chile. We examine the association between a firm's ownership concentration and its debt maturity structure and whether country-level governance quality influences this association.

Research Findings/Insights Using a large firm-level dataset from Brazil and Chile for the period 2008–2013, we find a positive association between low ownership concentration and debt maturity. However, this association becomes negative when the largest shareholder has high ownership concentration. This result suggests that long-term debt and ownership concentration act as substitute monitoring mechanisms. Moreover, debt maturity is inversely related to our aggregated index of country-level governance quality, suggesting that in countries with governance systems that effectively protect debt holders, firms with high benefits of control (high ownership concentration) will use debt with shorter repayment periods in order to benefit from frequent monitoring by debt holders. Overall, our results support the view that financial markets tend to pressure firms with high benefits of control or greater agency conflict to make a tradeoff between the benefits of control and the cost and maturity structure of debt financing.

Theoretical/Academic Implications This study contributes to the research on comparative corporate governance and capital structure. We also respond to recent calls to bridge the gap between under- and over-socialized views of corporate governance by examining the interplay between firm- and country-level governance variables. Our findings suggest a substitution effect between monitoring by equity holders and by debt holders, and that country-level governance quality exerts a disciplinary influence over a firm's choice of debt maturity structure.

Practitioner/Policy Implications Investors seeking to enter emerging markets such as Brazil and Chile can benefit from considering national governance factors that enhance debt holders' external monitoring effectiveness. Because our findings show the importance of considering and improving the quality of country-level governance, they are also useful for policy makers aiming to reform corporate governance practices in emerging markets.

KEYWORDS

Corporate Governance, Brazil, Chile, Country-level Governance Quality, Debt Maturity, Ownership Concentration

1 | INTRODUCTION

Corporate ownership and debt financing structures are influential factors in explaining firms' governance mechanisms and economic growth (Aslan & Kumar, 2012). For instance, large shareholder

ownership and short-term debt financing are considered governance mechanisms because they decrease managerial discretion (Shyu & Lee, 2009). However, firms' ownership structures and access to financing vary widely according to country-level governance mechanisms, particularly those related to legal origin, financial system development,

and investor protection (e.g., La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998, 2000). Therefore, in order to assess firm-level governance outcomes, it is important to understand the interplay between the quality of country-level governance and firm-level capital structure (Aslan & Kumar, 2014; Brown, Beekes, & Verhoeven, 2011). This provides the main motivation for the present study. We investigate the association between a firm's ownership concentration and its debt financing maturity structure, and whether country-level governance quality influences this association.

The choice between equity and debt, or between short- and long-term debt, has traditionally been regarded as one of the most critical financial decisions. Since the seminal work of Modigliani and Miller (1958) and Stiglitz (1974), who suggest that in a perfect market, leverage and debt maturity have no effect on firm value, several authors have addressed this issue, mainly by attempting to explain firm-level leverage and debt maturity choices by identified market imperfections (e.g., Flannery, 1986; Kane, Marcus, & McDonald, 1985; Modigliani & Miller, 1963; Ross, 1977). From a governance perspective, these firm-level choices are assumed to affect the degree of managerial discretion, and thereby to mitigate or exacerbate agency costs (Florackis, 2008). For instance, debt financing is assumed to decrease information asymmetry between managers and shareholders (Stulz, 1990) and to constrain managerial discretion by decreasing a firm's free cash flow (Jensen, 1986), opportunities for managerial empire building (Hart, 1995), underinvestment (Myers, 1977), and the risk-shifting problem (Barnea, Haugen & Senbet, 1980). Ownership concentration is also considered to be a governance mechanism that minimizes manager-shareholder agency problems in countries other than the US and the UK (Kumar & Zattoni, 2014; La Porta, Lopez-de-Silanes, & Shleifer, 1999), a perspective corroborated, among others, by Sánchez-Ballesta and García-Meca (2011) in Spain, Shuto and Kitagawa (2011) in Japan, La Bruslerie and Latrous (2012) in France, Alcock et al. (2012) in Australia, and Céspedes, González, and Molina (2010) in Latin America. However, most of the research on the determinants of debt maturity has been conducted in Anglo-Saxon countries.

Insofar as various corporate governance practices are prescribed from within and outside firms, they collectively make up the governance climate that either enables or constrains managerial and large shareholder discretion. Building on Aoki and Jackson (2008), we examine firm-level ownership concentration in relation to the quality of the national governance system in order to improve our understanding of firm-level capital structure decisions and governance mechanisms. We propose that long-term debt and ownership concentration may act as substitute monitoring mechanisms, and that this relationship may depend on the quality of the national governance system (García-Castro, Aguilera & Ariño, 2013; Ward, Brown, & Rodríguez, 2009). With a few exceptions (Fan, Titman, & Twite, 2012; Kirch & Terra, 2012; Qian & Strahan, 2007),¹ previous studies of debt maturity have been conducted within a single national governance system, and have therefore neglected interactions between debt financing, ownership concentration, and country-level governance quality.

We conduct a comparative study on a sample of publicly traded firms operating in two Latin American countries: Brazil and Chile. Despite certain similarities such as ownership concentration, legal origin, majority religion, and Latin American culture (Aguilera, Kabbach de

Castro, Lee, & You, 2012a), these countries differ substantially in terms of country-level governance factors. As shown in Table A1 in Appendix A, the mean values for all six governance indicators (Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption) compiled by Kaufmann, Kraay, and Mastruzzi (2011) are far superior in Chile compared to Brazil. For example, the mean index score for Rule of Law in Brazil is -0.14 , whereas in Chile it is positive at 1.32 . Similarly, for Government Effectiveness, Brazil shows a mean score of -0.09 compared to a positive mean score of 1.24 for Chile. Brazil is therefore classified as a poor governance country, with positive indexes for Voice and Accountability and Regulatory Quality only. In contrast, the Chilean governance environment is far superior to that of Brazil, and quite similar to that of the UK and the US (see Appendix A for further details). These two countries therefore provide a unique natural setting for examining the association between ownership concentration and debt maturity structure. Although a two-country comparative study may have limited generalization potential, the more concentrated focus has the advantage of better data control, "*while holding constant other factors that might be difficult to disentangle in [large] cross-country studies*" (Fan, Wei, & Xu, 2011: 207).

Our results indicate a nonmonotonic relationship between a firm's ownership concentration and its debt structure. The association between ownership concentration and debt maturity is positive for lower concentrations, but becomes negative when large shareholders own larger stakes in the firm, suggesting a substitution effect between monitoring by debt holders and by large shareholders. In addition, we find a significant effect of country-level governance quality on a firm's debt maturity structure, such that firms in countries with better governance systems – in our study, Chile compared to Brazil – use more short-term debt. Our results indicate that dominant large shareholders make a tradeoff between the private benefits of control and the agency cost of debt (Aslan & Kumar, 2014), and that country-level governance factors exert a disciplinary influence over large shareholders' choice of debt maturity structure. However, we find only weak support for the hypothesis that country-level governance quality strengthens the association between a firm's ownership and its debt maturity.

This study advances the research on cross-country corporate governance and capital structure in several ways. First, we respond to recent calls to bridge the gap between under- and over-socialized approaches to corporate governance research (Aguilera & Jackson, 2003; Kumar & Zattoni, 2013). We consider interactions between firm- and country-level governance variables and provide relevant insights into the relationship between ownership concentration and debt maturity structure. Furthermore, although listed UK and US firms are overrepresented in the empirical governance literature (Kumar & Zattoni, 2014), little is known about debt financing structure and ownership concentration choices in emerging markets such as Brazil and Chile. Second, we contribute to the recent research stream that addresses the impact of country-level governance environments on firm-level capital structure decisions (Aslan & Kumar, 2012; Lin, Ma, Malatesta, & Xuan, 2011; Shyu & Lee, 2009). Our findings suggest that an examination of country-level differences in terms of governance quality in relation to ownership concentration would provide a deeper understanding of debt maturity structure, which may explain the

inconclusive evidence on these issues to date. Third, we focus on the debt maturity choice – an arguably more appropriate variable than simple leverage (or debt financing) – to investigate the potential substitution effect between monitoring by equity holders and by debt holders (Fan et al., 2012; Kirch & Terra, 2012). Fourth, we examine a large sample of publicly traded firms operating in the two strongest Latin American economies: Brazil and Chile. This provides a rich dataset from countries that have enjoyed rapidly accelerating economies but with significant differences in national governance quality (Aguilera et al., 2012a). We examine several country-level governance factors (Daniel, Cieslewicz, & Pourjalali, 2012) beyond the legal system, as discussed by La Porta et al. (1998), to obtain a more comprehensive understanding of differences in governance across countries. Fifth, our empirical design allows comparisons with studies by Datta, Iskandar-Datta, and Raman (2005), García-Teruel and Martínez-Solano (2010), Guney and Ozkan (2005), Jiraporn and Kitsabunnarat (2007), and Marchica (2008), providing new insights into the relationship between debt maturity and ownership concentration in emerging markets.

The remainder of this document is structured as follows. The next section presents the theoretical background and hypotheses, followed by a third section describing the dataset and sample. The fourth section presents and discusses the empirical results, and the final section summarizes the conclusions.

2 | THEORETICAL BACKGROUND AND HYPOTHESES

In the words of Shleifer and Vishny (1997: 737), “*Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment.*” At the same time, agency problems within a firm are usually related to managerial discretion over free cash flow and information asymmetry between shareholders, debt holders, and managers (Jensen & Meckling, 1976; Myers, 1977). Firm-level governance mechanisms are therefore assumed to limit managerial discretion and ensure that managers respect the rights and interests of the firm’s suppliers of finance. Accordingly, ownership by large shareholders and debt maturity structure are considered governance mechanisms insofar as they limit managerial discretion (Florackis, 2008; Shyu & Lee, 2009).

Shareholders expect financial decisions such as debt financing to be made with a view to maximizing firm value. Because managers are assumed to have favorable private information about a project’s future cash flow, they are expected to avoid locking into long-term debt and to choose short-term debt to maximize shareholder value (Barnea et al., 1980; Datta et al. 2005; Jensen, 1986; Jensen & Meckling, 1976; Shyu & Lee, 2009). However, contracting short-term debt implies more frequent outside monitoring by lenders and credit rating agencies. Hence, entrenched managers (or dominant shareholders) may prefer longer-term maturity debt either to avoid scrutiny by outside agents or to increase the consumption of perquisites (Datta et al., 2005; Myers, 2001; Shuto & Kitagawa, 2011). According to financial theories, financial contracting is considered incomplete, because “*payouts [to debt holders] occur on the basis of the firm’s*

reported (and verifiable) earnings that differ from actual cash flows because of tunneling [by dominant shareholders]” (Aslan & Kumar, 2012: 2259). Moreover, country-level governance factors differ in the extent to which they facilitate external monitoring and enforcement of such contracts (Demirgüç & Maksimovic, 1999), and consequently, they differ in the constraints they impose on managerial and large shareholder discretion (Aslan & Kumar, 2014; Jiraporn & Kitsabunnarat, 2007; Schiehl, Ahmadjian, & Filatotchev, 2014). This provides our motivation to further investigate the association between ownership concentration and debt maturity, and whether country-level governance quality influences this association. In the next subsections, we develop our research hypotheses.

2.1 | Large shareholders and debt maturity

The theoretical literature on the capital structure–performance relationship begins with Jensen and Meckling (1976). Their analytical model posits that monitoring efforts by large shareholders and debt holders mitigate managers’ perquisite consumption and enhance firm value. Whereas large shareholders are assumed to diminish the so-called free-rider problem by closely monitoring management decision making (Demsetz & Lehn, 1985; Shleifer & Vishny, 1997; Zhang, 1998), debt holders are assumed to increase outside monitoring, thereby reducing managerial discretion over a firm’s free cash flow (Florackis & Ozkan, 2009; Shyu & Lee, 2009).

The monitoring effect of ownership concentration is explained by the large exposure of large shareholders to unsystematic risk (Zhang, 1998). Similarly, the maturity structure of debt financing is assumed to influence the monitoring strength of debt holders and their ability to constrain agency problems, because as short-term debt increases, so does the risk of liquidity default² (Datta et al., 2005). Therefore, short-term debt is assumed to increase outside monitoring of a firm and consequently reduce managerial discretion over the firm’s free cash flow (Jensen, 1986; Shyu & Lee, 2009). Short-term debt would also increase the likelihood of managerial empire building (Hart, 1995), underinvestment (Myers, 1977), and risk-shifting problems (Barnea et al., 1980). Accordingly, there may be a (negative) substitution³ effect between monitoring by debt holders and the proportionate ownership stake held by large shareholders. In other words, there should be a positive association between a firm’s ownership concentration and the proportion of its long-term debt, or debt maturity.

Nevertheless, it is difficult to theorize about the substitutive monitoring effect of debt maturity and large shareholders within the firm’s governance structure, because the presence of dominant shareholders also increases the payoff risk for debt holders. The theoretical literature posits that the monitoring incentives of large shareholders depend not just on their presence in the ownership structure but also on their degree of control over the firm, and more importantly, on the deviation between their control and cash flow rights (Hart & Moore, 1998, 1999). To illustrate, Aslan and Kumar (2012) demonstrate that the dominant shareholder’s ratio of control-to-cash flow rights increases the unconditional probability of default and lowers the debt holder’s payoff conditional on a default. It is assumed that a firm’s true cash flow is observable only to insiders, which enables controlling shareholders to tunnel, for example, by incurring indirect equity or direct

personal costs. Large shareholder tunneling can therefore hurt both minority shareholders and debt holders (e.g., Faccio & Lang, 2002; Faccio, Lang & Young, 2001; Huyghebaert & Wang, 2012; Young, Peng, Ahlstrom, Bruton, & Jiang, 2008).

Accordingly, at higher ownership concentration, the association between large shareholdings and debt maturity structure is expected to become negative. Thus, as ownership concentration increases, it initially yields a positive effect on a firm's expected cash flow due to closer monitoring by large shareholders, which produces a negative effect on the default risk. This means that firms have access to longer debt maturity without significantly raising their debt financing costs. However, large shareholdings also create agency risks and increase the default risk for debt holders through potential cash flow diversion into non-productive investments (tunneling). Consequently, the optimal debt maturity shrinks, because, "If firms with higher control concentration suffer greater agency costs, then dominant shareholders must trade off higher external financing costs with private benefits of control" (Aslan & Kumar, 2012: 2258). Moreover, dominant shareholders can overcome the coordination problem among dispersed shareholders during times of financial distress or bankruptcy restructuring by using optimal bargaining strategies, thus expropriating wealth from creditors for themselves to the detriment of minority shareholders (Aslan & Kumar, 2012).

Outside the US, the empirical evidence on the association between ownership concentration and debt maturity is inconclusive. Arslan and Karan (2006) in a sample of Turkish firms, Shyu and Lee (2009) in a sample of firms listed on the Taiwan Stock Exchange, and García-Teruel and Martínez-Solano (2010) in a sample of Spanish firms, find that ownership concentration is positively related to debt maturity. In contrast, Cai, Fairchild, and Guney (2008) in their study of Chinese firms and Deesomsak, Paudyal, and Pescetto (2009) in a multi-country sample find that ownership concentration is inversely related to debt maturity. These inconsistent results could be explained by the fact that, except for García-Teruel and Martínez-Solano (2010), previous studies have overlooked the potentially nonmonotonic association between ownership concentration and debt maturity structure.

In light of the above discussion, we propose a nonmonotonic association between ownership concentration and debt maturity. In other words, when the largest shareholder has relatively low ownership, an increase in ownership concentration reduces the risk of cash flow and asset diversion for debt holders due to closer monitoring by large shareholders. Consequently, the debt maturity lengthens. However, as the dominant shareholder's stake increases, so do the expropriation risks for debt holders, and consequently the debt maturity shortens. We therefore expect that in concentrated ownership economies such as Brazil and Chile, a firm's debt maturity (long-term debt) would initially increase with increasing ownership concentration, but would decrease at higher ownership concentration. This leads to the following hypotheses:

Hypothesis 1a. *Ownership concentration is negatively associated with debt maturity in firms with high concentration.*

Hypothesis 1b. *Ownership concentration is positively associated with debt maturity in firms with low concentration.*

2.2 | Country-level governance quality

In order to obtain equity or debt financing, firms must commit to contracts that control opportunistic behavior by managers and/or dominant shareholders. Contracts can enable commitment depending on both the firm's characteristics and the strength of country-level governance factors that affect external monitoring and contract enforcement (Demirgüç & Maksimovic, 1999). Taken together, country-level governance mechanisms shape the national institutional environment and the strength of firms' external monitoring forces (Judge, Douglas, & Kutan, 2008). Other authors suggest that country- and firm-level governance mechanisms work as intertwined systems to minimize agency problems such as self-dealing (Aguilera, Filatotchev, Gospel, & Jackson, 2008). Therefore, in this study, we also investigate whether country-level governance quality influences the association between a firm's ownership concentration and its debt maturity structure.

As discussed above, when large shareholders have excessive control over a firm, they may prefer to generate private benefits of control that are not shared by minority shareholders and debt holders (Barnea et al., 1980; Shleifer & Vishny, 1997). They can engage in either asset substitution (Jensen & Meckling, 1976) or tunneling of the firm's resources (Aslan & Kumar, 2012; Lins, 2003). Differential voting rights structures and pyramid structures are mechanisms that large shareholders can use to increase their control over cash flow rights, which lowers the cost of tunneling and increases the probability of expropriation (Claessens, Djankov, Fan, & Lang, 2002). In this way, large shareholders with significant equity stakes and the resulting influence over a firm's managerial decisions can use various means, combined with opacity, to achieve asset substitution and tunneling at the same time. More importantly, the loss in firm value that is borne by a large shareholder is inversely proportional to the difference between that shareholder's control and cash flow rights, which further increases the severity of expropriation.

Crossland and Hambrick (2007) suggest that country-level governance quality can both constrain and enable managerial and large shareholder discretion. According to La Porta et al. (1998: 1114), "The differences in legal protections of investors might help explain why firms are financed and owned so differently in different countries." These authors provide evidence that high-quality legal systems (e.g., legal protection for investors in the US) encourage dispersed ownership. In contrast, low-quality legal systems (such as those in Latin America) encourage concentrated ownership. Aoki and Jackson (2008) argue that country- and firm-level governance practices interact, and that national- and firm-level governance mechanisms show diverse relationship patterns. Additionally, Daniel et al. (2012) empirically demonstrate that firm-level governance practices are related to the country's institutional environment, while Lins (2003) shows that the impact of large shareholders on firm valuation is significantly influenced by the country's shareholder protection mechanisms. We contend that the effect of ownership concentration on debt maturity can be better understood by examining the concurrent disciplinary role of country-level governance quality in restraining large shareholder agency costs. From a debt holder perspective, what matters most is not what generates agency costs, but whether the behavior of dominant large shareholders increases a firm's default risk. Thus,

country-level governance quality can influence the debt maturity structure for a number of reasons. Strong creditor rights provide creditors with more power in bankruptcy situations: creditors are more likely to force repayment, take collateral, and gain control of borrowers' assets in case of bankruptcy, thereby reducing the default risk (Diamond, 1991). Strong country-level governance mechanisms also impose higher expropriation costs on dominant shareholders, thereby reducing a firm's likelihood of taking excessive risks or using asset substitution (Acharya, Amihud, & Litov, 2011; Aslan & Kumar, 2012).

Consistent with the above discussion, we propose that country-level governance quality exerts pressure on firms with large shareholders to trade off the benefits of control against the cost of shorter debt maturity (Aslan & Kumar, 2014; Schiantarelli & Sembenelli, 1997). More specifically, the strength of a country's governance system would enforce rules that protect debt holders. Consequently, firms with high benefits of control, as in Brazil and Chile, would use debt with shorter repayment periods in order to benefit from frequent monitoring by debt holders. We therefore expect an inverse association between the quality of a country's governance system and firms' debt maturity structures. Moreover, good-quality country-level governance imposes higher expropriation costs, limits the power of controlling shareholders over firms, and increases the extent to which large shareholders can be monitored by the financial market, and more specifically, by debt holders (Aslan & Kumar, 2012). Accordingly, we contend that the negative effect of the strength of a country's governance system on firms' debt maturity structures is stronger in firms with high benefits of control (high ownership concentration). This leads to the following hypotheses:

Hypothesis 2a. *The quality of country-level governance is negatively associated with debt maturity.*

Hypothesis 2b. *In firms with high ownership concentration, the negative association between the quality of country-level governance and debt maturity is stronger.*

3 | RESEARCH METHODS

3.1 | Sample

Our sample consists of publicly traded firms operating in Brazil and Chile, the two strongest Latin American economies. Although their financial development has been similar, their national governance practices show some important distinctions (Aguilera et al., 2012a). For instance, both Brazil and Chile are emerging economies, and they share the same French legal origin (La Porta et al., 1998), the same Catholic religion (Djankov, McLiesh, & Shleifer, 2007), and a great part of their Latin American culture and history (Aguilera et al., 2012a). Their governance systems are classified as "emerging" (Judge et al., 2008), and the typical large shareholders consist of a family (Weimer & Pape, 1999). In addition, and more relevant to our study, the typical firm has a highly concentrated ownership structure.

Chile has the highest governance standards in Latin America. Appendix A shows that Chile's national governance practices are comparable to those of the US and UK, with effective enforcement of corporate laws that protect shareholders from expropriation by management and large shareholders. In the period 2008–2013, Chile's mean for our governance index is 1.30, compared to the US at 1.39 and the UK at 1.55. At .02, Brazil trails far behind. A similar pattern is seen for each of the six indicators that make up our aggregated governance index. On Control of Corruption and Regulatory Quality, Chile scores higher than even the US. In contrast, Brazil's laws, regulations, and governance codes are either in development or ineffectively enforced (Schiehll, Terra, & Victor, 2013). The Heritage Foundation considered Brazil the 118th freest economy in 2015, with Chile coming seventh (Miller & Kim, 2015). According to the World Bank, Chile has a stable economy, consolidated by a floating exchange rate and fiscal discipline policies, whereas Brazil has only recently attracted international investors (United Nations Conference on Trade and Development, 2013). Zervos (2004) found a similar total cost of domestic debt issuances between Brazil and Chile (2.39 percent and 2.74 percent of the issue size, respectively), but greater cost of domestic equity issuance in Brazil (4.39 percent) than in Chile (1.62 percent). In addition, Nenova (2003) and Dyck and Zingales (2004) found higher private benefits of control in Brazil than in Chile. Nenova (2003) found similar percentage points (roughly 23 percent) but extremely higher *t*-statistics in Brazil (12.5585) than in Chile (1.6466), which suggests a substantial economic significance of benefits of control for firms in Brazil. More notably, Dyck and Zingales (2004) obtained an outstanding 65 percent of Brazilian firms' market value as an estimate of the private benefits of control (the highest of the entire sample), versus around 18 percent for Chile.

We therefore contend that Brazil and Chile provide a unique natural setting for examining our research hypotheses on the interplay between country- and firm-level governance mechanisms, more specifically, debt maturity and ownership concentration. Chile has the strongest national governance practices in Latin America – a "well developed" national governance system – whereas Brazil has the largest Latin American economy but governance practices that are still evolving, and its national governance system is considered "underdeveloped" (Schiehll et al., 2013). A further advantage of focusing on these two Latin American countries is that we can better control for variations in certain primary environmental factors – in this case, variables that capture the quality of national governance – while keeping constant a range of other, equally important country-level factors – such as culture, development level, legal origin, and history – that could potentially blur the investigated associations (Schiehll & Martins, 2016).

We select the period from 2008 to 2013 for our analysis due to the availability of data on variables that capture ownership concentration in Chilean firms. We consider data on firm-level financial variables such as debt maturity and ownership concentration taken from *Económica* (Brazil) and *Superintendencia Valores y Seguros* (Chile). Due to their specific accounting practices and special arrangements for accessing foreign capital, we exclude firms operating in the finance, insurance, and funds industries.

Our sample is representative of listed (large and more liquid) Brazilian and Chilean firms. In Table 1 we compare the market value of the sample firms with national market indexes for the two countries, demonstrating that the sample is representative in terms of market value. Although long-term resources are less available in emerging than in developed economies (Fan et al., 2012; Kirch & Terra, 2012), both listed and private firms in Brazil and Chile have growing access to international capital markets (Fostel & Kaminsky, 2008). We perform winsorization at the 1 percent level in both tails to minimize the effect of outliers. The result is an unbalanced panel dataset with 1,382 firm-year observations for publicly traded firms operating in Brazil and Chile.

3.2 | Variable measurement

3.2.1 | Debt Maturity (*DebtM*)

In line with Alcock, Finn, and Tan (2012), Antoniou, Guney, and Paudyal (2006), Cai et al. (2008), Fan et al. (2012), García-Teruel and Martínez-Solano (2010), and Kirch and Terra (2012), we use the ratio of long-term debt to total debt as a measure of debt maturity. Table 2 shows that the mean *DebtM* for the period under study is around .627. Note that some firms in the sample use almost no long-term debt, whereas others use almost 100 percent. Table 2 also shows that the use of long-term debt increases by roughly 7 percent from 2008 to 2013. This may be due to the economic uncertainty following the financial crisis of 2007–2008, which shrank the long-term debt in the first years of our analysis.

Furthermore, Table 2 shows that firms with dual-voting shares use 2 percent less long-term debt than single-class firms do. This preliminary evidence supports our first hypothesis, that ownership concentration and long-term debt are negatively related due to the tradeoff made by controlling shareholders. Because the issuance of limited-voting shares potentially generates divergence between cash flow and control rights, firms with dual-voting shares are expected to use

less long-term debt. (Chilean dual-class companies appear to use more long-term debt, contradicting our proposal. However, we should underscore that they represent only 18 firms in our sample.)

3.2.2 | Ownership Concentration (*Own*)

We use a similar approach to that used by Faccio and Lang (2002) to capture the focal firms' ownership concentration (*Own*). First, we measure cash flow rights concentration by the total percentage of shares held by the firm's largest shareholder. In firms with dual-voting shares, which are prevalent in Brazil, this measure considers the number of the largest shareholder's voting shares plus the number of that shareholder's limited-voting shares (if any) divided by the firm's total number of outstanding shares. This variable captures the cash flow ownership (i.e., cash flow rights) by the firm's largest shareholder (*CFR*). Hoi and Robin (2010) and Schiehl et al. (2013) use a similar approach. Second, we measure the extent of the largest shareholder control rights (*CR*) over the focal firm's equity using the ratio of the number of voting shares owned by the largest shareholder to the total number of voting shares issued by the focal firm. This variable is assumed to capture the effective corporate control over the focal firm, or the decision power, held by the largest shareholder.

For both our ownership concentration variables (*CFR* and *CR*), we create dummy variables to classify our sample firms as having lower (*DL*) or higher (*DH*) ownership concentration. Similar to Aslan and Kumar (2012) and Claessens et al. (2002), we use a 20 percent threshold to classify firms as having a controlling shareholder. The variable *DL* is a dummy that equals 1 when the average equity stake of the firm's largest shareholder is below 20 percent, and *DH* is a dummy that equals 1 when the average equity stake of the firm's largest shareholder is above 50 percent, during the period under analysis. The 50 percent threshold for *DH* is selected because above that, the largest shareholder obtains undisputed decision-making power over the firm.

TABLE 1 Sample Representativeness in Terms of Market Value

	Companies in the sample and in the market index	Market index	Difference	p-value
Panel A - Brazil				
2008	\$6,337.34	\$7,702.32	-\$1,364.98	.643
2009	\$14,338.88	\$17,248.54	-\$2,909.66	.639
2010	\$15,965.45	\$19,044.22	-\$3,078.77	.660
2011	\$12,771.54	\$14,923.22	-\$2,151.68	.666
2012	\$13,232.19	\$15,389.92	-\$2,157.73	.657
2013	\$11,041.59	\$13,022.58	-\$1,980.99	.611
Total	\$12,322.84	\$14,609.63	-\$2,286.79	.278
Panel B - Chile				
2008	\$2,552.25	\$2,540.70	\$11.55	.987
2009	\$4,721.39	\$4,695.11	\$26.28	.984
2010	\$6,723.03	\$6,945.73	-\$222.70	.904
2011	\$4,946.67	\$5,241.14	-\$294.47	.819
2012	\$5,663.42	\$5,839.76	-\$176.33	.903
2013	\$4,696.13	\$4,894.10	-\$197.97	.878
Total	\$4,891.61	\$5,040.06	-\$148.45	.791

TABLE 2 Descriptive Statistics of the Dependent Variable Debt Maturity^a

Subsample	Minimum	Mean	Median	Maximum	SD	Obs.
By year						
2008	.000	.588	.639	1.000	.286	186
2009	.000	.600	.660	.997	.286	205
2010	.000	.638	.690	1.000	.255	186
2011	.000	.630	.713	1.000	.276	237
2012	.000	.627	.709	1.000	.276	289
2013	.000	.659	.737	1.000	.265	279
Total	.000	.626	.702	1.000	.274	1382
By country						
Brazil	.000	.626	.693	1.000	.268	1149
Chile	.000	.630	.742	1.000	.307	233
Total	.000	.626	.702	1.000	.274	1382
Single- vs. dual-class shares						
Single-class	.000	.637	.707	1.000	.270	794
Dual-class	.000	.612	.689	1.000	.280	588
Total	.000	.626	.702	1.000	.274	1382
Single- vs. dual-class shares by country						
Brazil & Single-class	.000	.642	.696	1.000	.252	579
Brazil & Dual-class	.000	.609	.688	1.000	.282	570
Chile & Single-class	.000	.624	.741	1.000	.314	215
Chile & Dual-class	.298	.705	.776	.918	.202	18
Total	.000	.626	.702	1.000	.274	1382

^aMeasured as long-term debt ÷ total debt.

We also created dummy variables to represent the largest shareholder's identity. Firms whose largest shareholder is either an individual or another firm with the name of an individual are classified as family-owned (*Fam*). Firms with a financial institution (*Fin*) as the largest shareholder were identified by the following terms: "bank," "fund," "investment group," "private equity partners," "asset management," or other financial-related terms (in Portuguese or Spanish). When the largest shareholder is the government, a state, or a province of either Brazil or Chile, the firm is classified as state-owned (*State*).

Data for these variables are taken from two sources. Panel data on common (voting) and preferred (limited-voting) shares for the Brazilian firms are taken from *Economática*.⁴ Ownership panel data for Chilean firms, including common (voting) and preferred (limited-voting) shares, are hand-collected from *Superintendencia Valores y Seguros*⁵ (SVS), the equivalent of the US Securities and Exchange Commission (SEC). This database contains ownership data from 2008 onward. Consequently, our panel data start in 2008.

3.2.3 | Country-level Governance Quality (CGQ)

In line with Daniel et al. (2012) and Kirch and Terra (2012), data are collected from the *Governance Indicators Dataset* to capture the overall quality of national governance for the two countries. The *Governance Indicators Dataset* contains six aggregate indicators of country-level governance quality: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Using a similar approach to that used by Kirch and Terra (2012) and Lensink, Meesters, and

Naaborg (2008), we conducted a factor analysis to consolidate the effects of the six indicators (i.e., variables) into a combined indicator. Appendix A presents details on the six indicators, the factor loadings, and measurement reliability. Because most of the previous debt maturity research has been conducted in the UK and the US, Appendix A also presents UK and US national governance data for comparison with Brazil and Chile. Table A1 in Appendix A shows that Chile's governance quality is very similar to that of the UK and the US, and far superior to that of Brazil.

Three main reasons justify our use of a combined indicator to capture country-level governance quality. First, the governance indicators, as developed by Kaufmann et al. (2011), are time varying, whereas other indicators (e.g., those developed by Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2002), although widely used, are time constant.⁶ Because we use a panel dataset from a more recent period (2008–2013), we believe that Kaufmann et al.'s indicators are more suitable for our investigation. Second, the indices developed by La Porta et al. (1998) and La Porta et al. (2002) focus on investor protection laws. Brazil and Chile as well as most Latin American countries have civil law systems. We contend that indices that address a country's legal code alone would not effectively capture country-level governance differences between Brazil and Chile (Schiehl & Martins, 2016). In addition, we believe that Kaufmann et al.'s (2011) six indicators measure complementary aspects of national legal enforcement. Thus, by combining them, we can better capture country-level factors that together ensure shareholder and creditor rights. Third, the governance systems of Brazil and Chile have undergone significant improvements in the last

decade (e.g., Aguilera et al., 2012a), which would not be captured by an index based solely on the country's legal system. Examples include the "New Market" special listing section of the São Paulo Stock Exchange (*BM&FBovespa*) and the amendments to the Brazilian Corporate Law (more details in Aguilera, Desender, & Kabbach de Castro, 2012b; Schiehl et al., 2013).

3.2.4 | Control Variables

Consistent with the governance and corporate finance literature, we control for several firm- and country-level characteristics that may contribute to explain firms' debt maturity. According to Barclay, Marx, and Smith (2003), all capital structure decisions (concerning leverage and debt maturity) are made jointly. Therefore, following Barclay et al. (2003), we include leverage (*Lev*) and debt maturity (*DebtM*) on the right side of the equation with one lag time. We treat both variables as endogenous.

Brick and Ravid's (1985) analytical model suggests that the debt maturity structure and the term structure of interest rate (*Sprd*) are positively related. Borrowers prefer to increase the current value of a debt's interest tax shield in order to increase firm value. Because long-term debt is assumed to increase current tax shields, we expect a positive association between *DebtM* and *Sprd*. Similar to Antoniou et al. (2006), Barclay and Smith (1995), and Guedes and Opler (1996), we measure *Sprd* as the difference between the yield on a 10-year and a 3-month government bond at the year-end for all years in our panel dataset. We draw on two data sources: the OECD (2015) for Chilean firms and the *Brazilian National Treasure* database for Brazilian firms.

The literature also suggests that firms will lengthen their debt maturity if the expected tax shield is substantial. We therefore expect a firm's tax rate (*Tax*) to be positively related to the proportion of its long-term debt. Consistent with Guedes and Opler (1996), we use the ratio of taxes paid to total assets to measure the expected *Tax*.

A firm's growth opportunities (*GrOpp*) also play a role in the debt maturity structure (Schiantarelli & Sembenelli, 1997). Assuming that growth opportunities lead to higher information asymmetry, firms may prefer to use short-term debt in order to signal good future prospects to the market. We therefore expect firms' growth opportunities to be negatively associated with *DebtM*. In line with Antoniou et al. (2006), Datta et al. (2005), and Kirch and Terra (2012), we use the firm's market-to-book ratio to measure *GrOpp*.

We measure firm size (*Size*) by the natural logarithm of sales revenues. Because larger firms tend to disclose more and are followed more closely by financial analysts, which in turn facilitates access to debt financing (e.g., Antoniou et al., 2006; Kirch & Terra, 2012; Scherr & Hulburt, 2001), we expect a positive association between *Size* and *DebtM*.

To assess a firm's earnings quality, we measure its financial information opacity (*InfOp*). The accounting literature recognizes the potential for opportunistic managerial behavior in earnings management. Low earnings management (greater transparency) facilitates external monitoring of the firm by shareholders, financial analysts, and debt holders. We use Dechow and Dichev's (2002) approach to measure earnings quality. Thus, the residuals reflect the portion of changes in a firm's working capital that is not explained by its cash flow

realizations. Higher variability in these residuals means low earnings quality, or greater information *InfOp*, which is expected to be negatively associated with *DebtM*.

The liquidity risk (*Liq*) is related to the probability that a firm is unable to access external refinancing due to cash flow or liquidity problems (Diamond, 1991). Similar to Antoniou et al. (2006), Guney and Ozkan (2005), and Terra (2011), we measure *Liq* as the ratio of current assets to total assets. We assume that firms that expect their future cash holdings to deteriorate would prefer to borrow long-term to avoid frequent renegotiations. We therefore expect a negative association between *Liq* and *DebtM*.

Using Emery's (2001) analytical model, we control for asset maturity (*AMat*), measured as the ratio of net fixed assets to depreciation (Shyu & Lee, 2009). We assume that firms match their debt maturity structure to their assets in order to minimize overall costs. We therefore expect a positive association between *AMat* and *DebtM*.

According to the pecking order hypothesis (Myers & Majluf, 1984), information asymmetry leads managers to initially prefer to use internal resources, followed by external resources. Thus, if a firm is consistently profitable over time, the portion of third-party capital should be mostly trade credit, which is a short-term debt component (Kirch & Terra, 2012). Additionally, if transaction costs are positive, performing firms should prefer short-term debt in order to intentionally send a signal to investors about future improvements in the firm's quality (Flannery, 1986). In sum, profitability is either a source of internal capital or a signal that poor-quality firms cannot mimic. Both explanations suggest a negative relationship between profitability and *DebtM*. Similar to Fan et al. (2012), we use the firms' return on assets (*ROA*) as a proxy for profitability.

3.3 | Regression model

A major concern in governance research is the potential reverse causality between dependent and independent variables, in our case, a firm's ownership concentration and its debt financing choices (Alcock et al., 2012; Brown et al., 2011). Arguably, shareholders can compensate for weak investor protection by increasing their stakes in firm ownership, as discussed by La Porta et al. (1999). Therefore, we treat ownership concentration as endogenous in our modeling.

In order to test the hypotheses concerning the debt maturity decision, we estimate the following baseline dynamic panel data models:

For hypotheses 1a and 1b:

$$\begin{aligned} DebtM_{it} = & \beta_0 + \alpha_1 DebtM_{it-1} + \alpha_2 Own_{it-1} + \alpha_3 DL_i \\ & + \alpha_4 DL_i * Own_{it-1} + \alpha_5 CGQ_{ct} + \sum_{k=1}^K \alpha_{6+k} X_{ikt} \\ & + \sum_{l=1}^L \alpha_{6+k+l} Z_{ilit} + \varepsilon_{it} \end{aligned} \quad (1)$$

where *Own* refers to ownership concentration, as measured by either *CFR* or *CR*, and lagged by one time period due to endogeneity and reverse causation concerns. *CGQ* refers to our country-level governance quality factor for country *c*, where *c* is either Brazil or Chile. *DL* is a dummy variable for firms with low ownership concentration. *X* is a set of predetermined variables and *Z* is a set of exogenous variables.⁷

Holding other things constant, the marginal effect of *Own* on *DebtM* is given by:

$$\frac{\partial DebtM_{it}}{\partial Own_{it-1}} = \alpha_2 + \alpha_4 DL_i \quad (2)$$

That is, the sensitivity of *DebtM* to *Own* is $\alpha_2 + \alpha_4$ for firms with lower ownership concentration ($DL = 1$) and simply α_2 for firms with high ownership concentration ($DL = 0$). According to Hypotheses 1a and 1b, we expect this effect to be negative and significant when $DL = 0$ but positive and significant when $DL = 1$.

Similarly, for Hypotheses 2a and 2b:

$$DebtM_{it} = \beta_0 + \alpha_1 DebtM_{it-1} + \alpha_2 Own_{it-1} + \alpha_3 CGQ_{ct} + \alpha_4 DH_i \quad (3)$$

$$+ \alpha_5 DH_i * CGQ_{ct} + \sum_{k=1}^K \alpha_{6+k} X_{ikt} + \sum_{l=1}^L \alpha_{6+K+l} Z_{ilt} + \varepsilon_{it}$$

where *DH* is the dummy variable for firms with high ownership concentration and the remaining variables are the same as for equation 1).⁸

Holding other things constant, the marginal effect of *CGQ* on *DebtM* is given by:

$$\frac{\partial DebtM_{it}}{\partial CGQ_{ct}} = \alpha_3 + \alpha_5 DH_i \quad (4)$$

That is, the sensitivity of *DebtM* to *CGQ* is $\alpha_3 + \alpha_5$ for firms with high ownership concentration ($DH = 1$) and simply α_3 for firms with low ownership concentration ($DH = 0$). According to Hypotheses 2a and 2b, we expect this effect to be negative and significant when $DH = 0$ but negative and significant as well as greater when $DH = 1$.

Note that we use dummy variables to test for a nonmonotonic effect of ownership concentration on debt maturity instead of a more conventional nonlinear specification, for two reasons: first, the hypotheses make a clear distinction between low and high ownership concentration, which is captured by either the control rights (*CR*) or cash flow rights (*CFR*) of the largest shareholder; and second, a nonlinear specification, such as a quadratic term, would impose too much structure on the data for a functional form that is essentially unknown. Our use of a dummy variable yields qualitatively similar estimates, but with the advantage of more intuitive and directly interpretable results (for more details, see Berlemann, Enkelmann & Kuhlenkasper, 2015; Fahrmeir, Kneib, Lang, & Marx, 2013). Nevertheless, for comparison purposes, we also report the results using a simple quadratic specification.

We estimate equations 1 and 3) using a generalized method of moments (GMM) procedure called the system (SYS) GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998) and operationalized by Roodman (2009b). In order to avoid the instrument proliferation problem, we “collapse” the instrument matrix, as explained by Roodman (2009a). This method has several advantages over alternative estimation approaches: it is more efficient, consistent, and asymptotically normal, and it reduces the finite sample bias. It is also robust to measurement errors in the regressors, which is of particular interest for the investigation at hand. In short, it is eminently suitable for dealing with endogeneity stemming from measurement errors, omitted variables, feedback effects, or simultaneity (Blundell & Bond, 1998; Blundell, Bond, & Windmeijer, 2000). A

further advantage is that it can incorporate time-invariant measures. This allows the inclusion of country, industry, and year dummies as well as our information opacity measure (a time-invariant variable, discussed below). No other method based on first-difference instruments would allow including these variables.

3.4 | Univariate analysis

Table 3 presents the descriptive statistics. Note the high ownership concentration for both countries. On average, the largest shareholder holds sway over 49 percent of the control rights in Brazilian firms and 44 percent in Chilean firms, with 40 percent and 44 percent of the cash flow rights, respectively. To compare, the average ownership concentration is about 43 percent in Arslan and Karan's (2006) sample of Turkish firms and about 32 percent in García-Teruel and Martínez-Solano's (2010) sample of Spanish firms. Our Brazilian and Chilean data are therefore consistent with previous studies in emerging markets and civil law countries.

Additionally, Table 3 shows that, on average, Brazilian firms are more leveraged, pay more taxes, are larger, hold larger portions of current assets, have shorter asset maturity, and operate under higher information opacity than Chilean firms. Table 3 shows that the *CGQ* factor is substantially higher in Chile (about 1.3) than in Brazil (only .02). In addition, no discernible differences are seen in performance, growth opportunities, or term spread.

Table 4 presents the correlations between the variables. As expected, *CR* and *CFR* are positively correlated, but the correlation is less than one (.82), suggesting a small deviation from the one-share-one-vote rule. Given that all the remaining variables show low intercorrelations, major collinearity problems are not expected.

TABLE 3 Descriptive Statistics

	Mean Brazil	Mean Chile	Difference	Difference (p-value)
<i>DebtM</i>	.626	.630	-.005	.818
<i>CR</i>	.490	.444	.046	.010
<i>CFR</i>	.398	.439	-.041	.012
<i>Lev</i>	.416	.360	.056	.000
<i>ROA</i>	.041	.048	-.007	.196
<i>Tax</i>	.016	.012	.004	.005
<i>GrOpp</i>	1.391	1.306	.085	.119
<i>Size</i>	27.305	26.645	.660	.000
<i>Liq</i>	.422	.365	.057	.000
<i>AMat</i>	18.899	25.736	-6.837	.026
<i>InfOp</i>	.112	.049	.063	.000
<i>Sprd</i>	.009	.015	-.006	.488
<i>CGQ</i>	.020	1.298	-1.278	.000

Descriptive statistics for the variable *CGQ* are presented in Appendix A, Table A1.

DebtM is long-term debt ÷ total debt. *CR* and *CFR* are measured as described above. *Lev* is total debt ÷ total debt plus equity. *ROA* is the return on firms' assets. *Tax* is taxes paid ÷ total assets; *GrOpp* is the market-to-book measure; *Size* is the logarithm of sales; *Liq* is measured by current assets ÷ total assets; *AMat* equals net fixed assets ÷ depreciation. *InfOp* is measured according to Dechow and Dichev (2002). *Sprd* is the difference between the yield on a 10-year and a 3-month government bond.

TABLE 4 Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) <i>DebtM</i>	1.00															
(2) <i>CR</i>	.01	1.00														
(3) <i>CFR</i>	-.01	.82*	1.00													
(4) <i>Lev</i>	.23*	.01	-.02	1.00												
(5) <i>ROA</i>	.00	.04	.07*	-.34*	1.00											
(6) <i>Tax</i>	-.08*	.04	.02	-.18*	.62*	1.00										
(7) <i>GrOpp</i>	.00	-.10*	-.04	-.08*	.45*	.56*	1.00									
(8) <i>Size</i>	.32*	.05*	-.01	.22*	.15*	.15*	.16*	1.00								
(9) <i>Liq</i>	-.40*	-.16*	-.16*	-.02	.07*	.10*	.10*	-.04	1.00							
(10) <i>AMat</i>	.05*	.01	.05	.02	-.12*	-.12*	-.05*	-.11*	-.14*	1.00						
(11) <i>InfOp</i>	-.17*	-.03	-.03	.08*	-.18*	-.09*	-.07*	-.22*	.30*	.03	1.00					
(12) <i>Fam</i>	-.08*	-.20*	-.23*	.00	.02	-.01	.01	-.04	.23*	.02	.10*	1.00				
(13) <i>Fin</i>	-.08*	-.23*	-.14*	-.01	-.04	.02	.09*	-.05*	.04	.02	.07*	-.16*	1.00			
(14) <i>State</i>	.14*	.00	-.06*	-.07*	-.02	-.02	-.06*	.19*	-.17*	.00	-.08*	-.10*	-.11*	1.00		
(15) <i>Sprd</i>	.01	-.03	-.05	.09*	-.08*	-.02	.04	.04	.01	.00	.08*	.05	-.01	.03	1.00	
(16) <i>CGQ</i>	.01	-.07*	.07*	-.10*	.04	-.08*	-.03	-.13*	-.10*	.06*	-.30*	-.14*	.18*	-.10*	-.35*	1.00

Descriptive statistics for variable *CGQ* are presented in Appendix A, Table A1.

* $p < .05$. *DebtM* is long-term debt \div total debt. *CR* and *CFR* are measured as described above. *Lev* is total debt \div total debt plus equity. *ROA* is the return on firms' assets. *Tax* is taxes paid \div total assets; *GrOpp* is the market-to-book measure; *Size* is the logarithm of sales; *Liq* is measured by current assets \div total assets; *AMat* equals net fixed assets \div depreciation. *InfOp* is measured according to Dechow and Dichev (2002). *Fam*, *Fin*, and *State* are dummies that equal 1 if the controlling shareholder is classified as a family member, a financial institution, and a government institution, respectively. *Sprd* is the difference between the yield on a 10-year and a 3-month government bond.

Table 5 shows that past performance has an influential association with both debt maturity and ownership concentration, as measured by *CFR* and *CR*. High *ROA* firms (i.e., above the third quartile) use about 5 percentage points more long-term debt than low *ROA* firms (i.e., below the first quartile). In addition, the difference in *CR* between high and low *ROA* firms does not diverge significantly from zero, whereas the difference in *CFR* is about 3.3 percentage points (p -value = .064). Taken together, these initial findings indicate that more *CFR* increases performance, which may decrease the default risk and allow firms to access longer maturity financing without substantially increasing financing costs. Overall, Table 5 indicates that better performing firms have longer debt maturity and higher *CFR* concentration. In the next section, we present the results of our empirical analysis.

4 | EMPIRICAL RESULTS

Table 6 presents the results of the regression analysis for pooled Brazilian and Chilean firms using either *CR* (models I–V) or *CFR* (models VI–X) as ownership concentration measures. We use a number of

model specifications to provide further insight into our research hypotheses. As mentioned above, we estimate equations 1 and 3 (and their alternative specifications 1b and 3b) by SYS GMM. The standard errors are robust to heteroskedasticity and autocorrelation within residuals. The instrument sets are valid for all specifications. According to the Arellano–Bond test for autocorrelation in the residuals of the first-difference equation, the null hypothesis of no first-order autocorrelation is rejected, but not the null hypothesis of no second-order autocorrelation, which is consistent with independent errors from the levels equation.

As predicted by Hypothesis 1a, in our baseline specification for equation 1 (Table 6, columns I, II, VI, and VII) *Own* is a negative and significant determinant of *DebtM* at the 5 percent level. In fact, all specifications in Table 6 support this negative association. However, this effect becomes insignificant for the alternative specification for equation 1b) when *CFR* is used as a proxy for *Own* (Table 6, column VIII). We obtain a similar result in columns IX and X, despite consistent negative signals. Overall, the results in Table 6 support Hypothesis 1a that ownership concentration and debt maturity are negatively associated.

TABLE 5 Debt Maturity and Ownership Characteristics According to Firm Profitability

	Low ROA (below 1st quartile)	Medium ROA (1st to 3rd quartile)	High ROA (above 3rd quartile)	High – Low	High – Low (p -value)
Firm-year obs.	346	690	346		
<i>DebtM</i>	.560	.668	.613	.056	.012
<i>CR</i>	.491	.467	.505	.014	.490
<i>CFR</i>	.400	.394	.433	.033	.064

DebtM is long-term debt \div total debt. *CR* and *CFR* are measured as described above. *ROA* is the return on firms' assets. Low *ROA* comprises all companies with *ROA* below .95% (1st quartile); High *ROA* comprises all companies with *ROA* above 7.84% (3rd quartile).

TABLE 6 GMM Estimated Effects of Ownership Concentration and Country-level Governance Quality on Debt Maturity

	Exp. Sign	Own = Control rights (CR)										Own = Cash flow rights (CFR)										
		I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X	
DebtM	+	.305**	.308**	.295**	.306**	.297**	.352**	.347***	.311**	.351***	.358***	.305**	.308**	.295**	.306**	.297**	.352**	.347***	.311**	.351***	.358***	
Ow	-	.137	.132	.136	.137	.132	.140	.134	.136	.122	.131	-.410**	-.389**	-.385**	-.510**	-.316**	-.400*	-.437**	-.243	-.145	-.229	-.229
DL	+	.166	.171	.164	.200	.137	.213	.217	.200	.206	.161	.282	.184	.184	.184	.184	.181	.181	.181	.181	.181	.181
DL × Own	+	.929*	.479									.960**	.461									
Ow ²	+			-.317										-.940*								
DH	-			.480			.132							.571								
CGQ × DH	-				.129					.122												
CGQ × Own	-				-.036		.189				.013											
CGQ	-	-.704**	-.736**	-.702**	-.672**	-.697**	-.801***	-.795***	-.843***	-.751**	-.750**	-.704**	-.736**	-.702**	-.672**	-.697**	-.801***	-.795***	-.843***	-.751**	-.750**	
Lev	-	.307	.304	.303	.334	.301	.303	.300	.302	.304	.292	.307	.304	.303	.334	.301	.303	.300	.302	.304	.292	.292
ROA	-	-.133	-.130	-.146	-.153	-.120	-.165	-.171	-.190*	-.127	-.119	-.133	-.130	-.146	-.153	-.120	-.165	-.171	-.190*	-.127	-.119	-.119
Tax	+	.104	.107	.106	.107	.099	.108	.111	.115	.098	.097	.104	.107	.106	.107	.099	.108	.111	.115	.098	.097	.097
GrOpp	-	.025	.042	.016	.018	.058	.053	.057	.079	.142	.060	.025	.042	.016	.018	.058	.053	.057	.079	.142	.060	.060
Size	+	.195	.199	.191	.196	.186	.200	.198	.196	.188	.188	.195	.199	.191	.196	.186	.200	.198	.196	.188	.188	.188
Liq	-	-.1271	-.1146	-.1213	-.1330	-.1299	-.1086	-.991	-.1081	-.1071	-.1142	-.1271	-.1146	-.1213	-.1330	-.1299	-.1086	-.991	-.1081	-.1071	-.1142	-.1142
AMat	+	.880	.890	.890	.912	.859	.866	.876	.906	.833	.844	.880	.890	.890	.912	.859	.866	.876	.906	.833	.844	.844
InfOp	-	-.055	-.059	-.059	-.061*	-.048	-.051	-.062	-.056	-.044	-.047	-.055	-.059	-.059	-.061*	-.048	-.051	-.062	-.056	-.044	-.047	-.047
	+	.038	.037	.037	.036	.037	.041	.040	.040	.039	.039	.038	.037	.037	.036	.037	.041	.040	.040	.039	.039	.039
	-	.041	.034	.037	.041	.041	.035	.033	.032	.042	.051	.041	.034	.037	.041	.041	.035	.033	.032	.042	.051	.051
	+	.053	.048	.044	.051	.049	.052	.051	.046	.043	.044	.053	.048	.044	.051	.049	.052	.051	.046	.043	.044	.044
	-	.001	.008	-.022	.012	-.029	.021	.035	.002	.005	-.029	.001	.008	-.022	.012	-.029	.021	.035	.002	.005	-.029	-.029
	+	.146	.143	.144	.177	.137	.144	.140	.144	.149	.139	.146	.143	.144	.177	.137	.144	.140	.144	.149	.139	.139
	+	.000	.000	.000	.000*	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000*	.000	.000	.000	.000	.000	.000	.000
	-	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	-	-.259	-.014	-.258	-.623	.024	.362	.310	.252	.557	-.021	-.259	-.014	-.258	-.623	.024	.362	.310	.252	.557	-.021	-.021
	+	1.154	1.153	1.077	1.212	1.089	1.185	1.180	1.221	1.251	1.243	1.154	1.153	1.077	1.212	1.089	1.185	1.180	1.221	1.251	1.243	1.243

(Continues)

TABLE 6 (Continued)

	Exp. Sign	Own = Control rights (CR)										Own = Cash flow rights (CFR)									
		I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
<i>Fam</i>	?	-.088	-.089	-.082	-.061	-.080	-.032	-.026	-.010	.005	-.007	-.080	.086	-.149**	-.146**	-.129*	.075	-.040	.089	.093	.086
<i>Fin</i>	?	.090	.089	.090	.090	.086	.080	.083	.078	.071	.079	-.148**	-.135**	.064	.067	.070	.066	.070	.070	.070	-.107*
<i>State</i>	?	-.132	-.104	-.104	-.104	-.096	-.062	-.040	.016	-.012	-.041	.082	-.694	.081	.081	-.062	-.040	.089	.089	.086	-.041
<i>Spred</i>	+	-.679	-.560	-.661	-.744	-.694	-.745	-.674	-.821	-.880	-.841	.804	.802	.803	.796	.800	.832	.818	.834	.834	.833
Constant	?	-.841	-.686	-.692	-.829	-.850	-.795	-.723	-.656	-.1094	-.1152	1.331	1.201	1.106	1.308	1.252	1.300	1.260	1.139	1.062	1.087
Marginal Effects																					
$\partial DebtM / \partial Own (DL = 1)$.540	.488									.523	.464								
$\partial DebtM / \partial CGQ (DH = 1)$																					
Number of observations		1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382
Number of firms		339	339	339	339	339	339	339	339	339	339	339	339	339	339	339	339	339	339	339	339
Average observations per firm		4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077	4.077
Number of instruments		78	84	82	84	82	84	84	82	84	82	82	84	82	84	82	84	82	84	82	82
Hansen: p-value		.141	.206	.124	.111	.169	.090	.173	.146	.119	.138	.141	.206	.124	.111	.169	.090	.173	.146	.119	.138
AR(1): p-value		.001	.001	.001	.001	.001	.001	.001	.001	.000	.001	.001	.001	.001	.001	.001	.001	.001	.001	.000	.001
AR(2): p-value		.578	.693	.584	.580	.581	.661	.791	.704	.653	.692	.578	.693	.584	.580	.581	.661	.791	.704	.653	.692
Industry, Country and Year Dummies		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Appendix A, Table A1 presents descriptive statistics for CGQ.

Standard errors presented in parentheses. The dependent variable is *DebtM* given by long-term debt ÷ total debt. *Own* is measured respectively by CR and CFR, as described above. *DL* is a dummy that equals 1 for all companies whose mean of *Own* is below 20%. *DH* is a dummy that equals 1 for all companies whose mean of *Own* is above 50%. *Lev* is total debt ÷ total debt plus equity. *ROA* is the return on firms' assets. *Tax* is taxes paid ÷ total assets; *GrOpp* is the market-to-book measure; *Size* is the logarithm of sales; *Liq* is measured by current assets ÷ total assets; *AMat* equals net fixed assets ÷ depreciation. *InfOp* is measured according to Dechow and Dichev (2002). *Fam*, *Fin*, and *State* are dummies that equal 1 if the controlling shareholder is classified as a family member, a financial institution, and a government institution, respectively. *Spred* is the difference between the yield on a 10-year and a 3-month government bond. The endogenous variables are: lagged *DebtM*, *Lev*, *Own* and the identity of the controlling shareholder dummies (and any interaction term with one of these variables). All remaining firm-level variables are treated as predetermined. *Spred*, industry, year, and country dummies and CGQ are treated as exogenous. *DebtM*, *Lev*, and *Own* are lagged by one time period. The coefficients are robust to heteroskedasticity and autocorrelation. Predetermined variables are instrumented by first differences and levels *t* – 1 to *t* – 3. Endogenous variables are instrumented by first differences and lags *t* – 2 to *t* – 4. Exogenous variables are their own instrument. We “collapse” the matrix of instruments as in Roodman (2009a).

**p* < .1,

***p* < .05,

****p* < .01.

In order to test Hypothesis 1b, which posits a positive association between ownership concentration and debt maturity for lower ownership concentration by the largest shareholder, we use a dummy variable (*DL*) to capture whether the largest shareholder's *Own* is below 20 percent (Aslan & Kumar, 2012; Claessens et al., 2002). We then interact this dummy with our measure of the largest shareholder's *CR* and *CFR* to assess the differential effect of ownership concentration on debt maturity for firms with low ownership concentration by the largest shareholder, as specified in equation 1. As predicted by Hypothesis 1b, we expect a positive coefficient for the interaction term and a positive (or at least a non-negative) marginal effect of *Own* on *DebtM* when *DL* = 1. In fact, columns II and VII show that *Own* remains negative and significant and that the interaction between *DL* and *Own* is positive and significant. The point estimate for the interaction term is also larger in absolute value than the *Own* coefficient. The marginal effect of *Own* on *DebtM* ($\partial \text{DebtM} / \partial \text{Own}$) for lower concentrations (*DL* = 1) is also positive, although insignificant.

In addition, we use a simple quadratic specification⁹ to test for monotonicity of the association between *Own* and *DebtM*. As mentioned above, because this specification imposes too much structure on the relationship between the variables, the results should be interpreted with caution. Table 6, columns III and VIII, report the findings. The coefficient of the quadratic term is negative, as predicted by Hypothesis 1b, but insignificant when the proxy for ownership is *CR* (significant at the 10 percent level for *CFR*). Thus, albeit not definitive, this alternative specification also provides partial support for our main argument that the relationship between ownership concentration and debt maturity is nonmonotonic.

These results support Hypothesis 1b, which, taken together with the results for Hypothesis 1a, support a nonmonotonic association between ownership concentration and debt maturity. In other words, the effect of ownership concentration on debt maturity is positive at low ownership concentration but becomes negative at high ownership concentration.

Table 6 also presents the results for the test of Hypotheses 2a and 2b. Consistent with the predicted negative association between *CGQ* and *DebtM*, *CGQ* is negative and significant for all specifications (columns I–X), supporting Hypothesis 2a. Because good-quality country-level governance may curb expropriation by large shareholders, Hypothesis 2b predicts a stronger effect of *CGQ* on *DebtM* for more tightly controlled firms. Therefore, in order to test Hypothesis 2b, we interact a dummy variable (*DH*) – designed to capture firms in which the largest shareholder's *CR* or *CFR* exceeds 50 percent – with *CGQ* according to equation 3. The results are reported in Table 6 (columns IV and IX). We expect a negative coefficient for this interaction term, such that the effect of *CGQ* is stronger for tightly held firms than for the average firm. Although the coefficient for the interaction term is indeed negative, it is not statistically significant. As predicted by Hypothesis 2b, we expect a stronger negative marginal effect of *CGQ* on *DebtM* when *DH* = 1. Indeed, columns IV and IX show that the marginal effect of *CGQ* on *DebtM* ($\partial \text{DebtM} / \partial \text{CGQ}$) for high ownership concentrations (*DH* = 1) is not only negative and significant, but also larger in absolute value than for low ownership concentrations (*DH* = 0). This result supports Hypothesis 2b.

To further investigate this result, we interacted *Own* directly with *CGQ*. The results are given in Table 6, columns V and X. According to our reasoning in Hypothesis 2b, we expect a positive and significant coefficient, as both *Own* and *CGQ* are negatively associated with *DebtM*. Contrary to our expectations, however, the coefficient is insignificant.

Overall, the coefficients for the firm-level control variables are not statistically significant. *Lev* shows a negative coefficient, as expected, suggesting that firms trade off longer maturities against lower debt financing (*Lev* significantly affects *DebtM* only in Table 6, Column VIII). The coefficients of *GrOpp* are consistently negative, whereas they are consistently positive for *AMat*, as expected. However, the coefficient is only marginally significant, and only in Table 6, column IV. In addition, *ROA*, *Tax*, *Liq*, and *InfOp*, our measures of firm-level information asymmetry, are not significant. However, significant results are obtained for firms in which the largest shareholder is a financial institution: they consistently use more short-term debt. This may be due to an implicit guarantee that the financial institution will provide emergency financing in situations of tight liquidity. Other main shareholder identities (*Fam* and *State*) obtain insignificant results. Finally, *Sprd* is consistently negative but insignificant across all specifications. This result is in line with the findings of Barclay and Smith (1995) and Guedes and Opler (1996) that firms tend to choose shorter-term debt with widening spread between long and short interest rates, because shorter-term interest is the least expensive source of debt financing. However, this result goes against Brick and Ravid's (1985) model.

4.1 | Robustness checks

In order to investigate the robustness of our results to the (arbitrary) choice of ownership concentration thresholds, we re-estimate equations 1 and 3 using a sample-based measure.¹⁰ Given space constraints, the results are not reported, but are available upon request. We substitute our dummies for low and high ownership concentration, respectively, with the first and third quartiles of *CR* and *CFR* held by the largest shareholder. The results corroborate the previous results. *Own* remains negative and significant, as predicted, and the interactions between the new *DL* dummy and the proxies for *Own* are positive and largely significant (*p*-values = .106 and .036, respectively, for *CR* and *CFR*). The coefficient for the interaction term is also larger in absolute value than the coefficient for *Own*. Moreover, the conclusions for Hypotheses 2a and 2b remain unchanged. The effects of *CGQ* on *DebtM* remain consistently negative and significant. Nevertheless, the robustness tests do not support Hypothesis 2b, because the interaction terms between *DH* and *CGQ* are not statistically significant.

We conducted some additional robustness checks. First, because we use an unbalanced panel dataset, and in order to minimize data loss effects due to the differencing transformation, we run the same models as in Table 6, but using the forward orthogonal deviations proposed by Arellano and Bover (1995) instead of differencing transformation. The qualitative results are unchanged: a negative and significant coefficient for *Own* and a positive coefficient for the interaction *DL* × *Own* (*p*-value = .187 and .128, respectively, for *CR* and *CFR*). Moreover, *CGQ* is again negative and significant at the 5 percent level. Moreover, *Tax* and *GrOpp* show a negative and significant

association with *DebtM*, and the Hansen test *p*-values are within the range .40 to .70.

Second, we re-estimate the models in Table 6 using (1) all available lags of the endogenous variables, and (2) the small-sample corrections to the covariance matrix. The results are qualitatively similar to those presented in Table 6. Taken together, the results from these alternative estimations confirm the robustness of the results presented in Table 6.

5 | DISCUSSION AND CONCLUSIONS

This study examines the interplay between country-level governance quality and the firm-level choice of debt maturity. More specifically, we investigate the association between a firm's ownership concentration and its debt maturity structure, and whether country-level governance quality affects this association. To test our hypotheses, we use a panel data set (2008–2013) containing 1,382 firm-year observations of publicly traded firms operating in the two largest Latin American economies: Brazil and Chile.

The results provide substantial support for our research hypotheses. We find a positive association between ownership concentration and debt maturity at lower ownership concentrations, which is consistent with the monitoring effect of large shareholders. This association becomes negative at higher ownership concentrations, supporting the hypothesis that debt maturity shrinks when equity stakes become disproportionate. Taken together, our results suggest a nonmonotonic relationship between ownership concentration and debt maturity in Brazilian and Chilean companies. These findings corroborate those of García-Teruel and Martínez-Solano (2010) in a sample of Spanish firms. Furthermore, they support the substitution effect between firm-level governance mechanisms, as explained by Rediker and Seth (1995) and Ward et al. (2009). Our research setting comprises firms characterized by principal–principal agency conflict and operating in two civil law countries (Young et al., 2008). Civil law countries tend to have weak creditors' rights (Djankov et al., 2007) and weak debt enforcement (Djankov et al., 2008). Therefore, we interpret our results as evidence that creditors who anticipate cash flow diversions by dominant shareholders – such as in Brazil, where firms tend to have higher ownership concentration and tend to issue more dual-voting shares (compared to Chile) – will make longer-term debt less available or more expensive when ownership concentration becomes disproportionate.

We also find a negative association between debt maturity and the quality of the national governance environment. Thus, the strength of the country-level governance mechanisms (here, Chile's governance quality is superior to that of Brazil) influences firms with high benefits of control to use debt with shorter repayment periods so as to benefit from frequent monitoring by debt holders. This is consistent with the argument that external governance mechanisms exert a disciplinary influence, under which firms with high benefits of control tend to make a tradeoff between the benefits of control and the maturity structure of debt financing (Aslan & Kumar, 2014; Schiantarelli & Sembenelli, 1997). We also find partial support for Hypothesis 2b, in the sense that the disciplinary influence of country-level governance quality on a firm's debt maturity tends to be sensitive to the largest shareholder's

disproportionate ownership of the firm. However, this evidence is not robust to the different specifications of our regression model.

This study makes a number of contributions to the research on cross-country corporate governance and capital structure. We consider interactions between firm- and country-level governance variables and provide valuable insights into the relationship between a firm's ownership concentration and the maturity structure of its debt financing. For instance, by comparing Brazil and Chile, two countries with similar legal origin, majority religion, culture, and history (Aguilera et al., 2012a), we better control for the extent to which these firms are subject to similar external tradeoffs of governance configurations. Furthermore, because listed UK and US firms are overrepresented in the empirical governance literature (Kumar & Zattoni, 2014), little is known about capital or ownership concentration choices in emerging markets. We examine publicly traded firms in the two strongest Latin American economies: Brazil and Chile, which have enjoyed rapidly accelerating economies but differ substantially in terms of country-level governance quality.

We also contribute to the recent research stream that addresses the impact of the country-level governance environment on firm-level capital structure decisions. We show that considering country-level governance quality in relation to ownership concentration can provide a deeper understanding of between- and within-country differences in the use of debt and debt maturity. Moreover, we concurrently examine several national governance factors beyond the legal system, as discussed by La Porta et al. (1998), to gain a more comprehensive understanding of cross-country governance differences. Our findings are therefore useful for investors seeking to enter emerging markets such as Brazil and Chile. We show that investors can benefit from considering national governance factors that enhance debt holders' external monitoring effectiveness. Because our findings indicate the importance of considering and improving the quality of country-level governance, they are also useful for policy makers attempting to reform corporate governance practices in emerging markets.

Despite the relevant findings, this study has certain limitations, which suggest promising avenues for further research. It would be instructive to expand the sample to include firms in other Latin American countries that feature greater heterogeneity in ownership concentration, greater access to long-term resources, and different national governance practices. This will certainly be the focus of our next investigation. Future studies could also use better measures of debt maturity or combine debt maturity with other aspects of debt financing, such as debt covenants and long-term debt renegotiation. This would provide a more nuanced portrait of the dynamic interplay between monitoring by debt holders and equity holders. Due to limited data availability, we could not consider any form of pyramid control, and consequently the divergence between control and cash-flow rights may have been underestimated in our sample. Addressing pyramid control could bring new insights into these issues in future. Finally, future studies could explore the interplay between debt maturity and other firm-level governance mechanisms to improve our understanding of the substitution and complementary effects among internal (firm-level) governance mechanisms. Despite these limitations, this study responds to recent calls to bridge the gap between under- and over-socialized views of corporate governance research (Kumar &

Zattoni, 2013; Schiehl et al., 2014). In short, we consider interactions between firm- and country-level variables and provide relevant insights into the relationships between ownership concentration and debt financing.

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ENDNOTES

- ¹ Qian and Strahan (2007) find that debt holder protection is associated with higher long-term bank loans, Fan et al. (2012) find that weaker laws and less corruption are associated with higher leverage, and Kirch and Terra (2012) find a positive association between the institutional quality index and long-term debt.
- ² The literature distinguishes between liquidity default and strategic default. Whereas the latter is due to tunneling by insiders (management or dominant shareholder), the former occurs when a firm's cash flow is insufficient to cover promised debt payments (Aslan & Kumar, 2012)
- ³ The substitution effect means that an increase in the second mechanism directly replaces a portion of the first mechanism, while the overall functionality of the system remains constant (Rediker & Seth, 1995; Ward et al., 2009).
- ⁴ *Economatica* (<https://economatica.com/>) is a specialist in the development of systems for investment analysis. It addresses capital markets of the major economies of Latin America and the United States.
- ⁵ Source: <http://www.svs.cl/> > Mercado de Valores > Entidades fiscalizadas > Emisores de Valores de Oferta Publica.
- ⁶ Guillén and Capron (2016) offer a time-varying index but they do not cover all the period of our data. The Doing Business project also offers a time-varying index, but the variation is virtually non-existent.
- ⁷ We also test a standard quadratic specification for the same model as follows:

$$\text{DebtM}_{it} = \beta_0 + \alpha_1 \text{DebtM}_{it-1} + \alpha_2 \text{Own}_{it-1} + \alpha_3 \text{Own}_{it-1}^2 + \alpha_4 \text{CGQ}_{ct} \quad (1b)$$

$$+ \sum_{k=1}^K \alpha_{5+k} X_{ikt} + \sum_{l=1}^L \alpha_{5+K+l} Z_{ilt} + \varepsilon_{it}$$

- ⁸ We also experiment with an alternative specification interacting the effects of country-level CGQ and firm-level Own:

$$\text{DebtM}_{it} = \beta_0 + \alpha_1 \text{DebtM}_{it-1} + \alpha_2 \text{Own}_{it-1} + \alpha_3 \text{CGQ}_{ct} \quad (3b)$$

$$+ \alpha_4 \text{Own}_{it-1} * \text{CGQ}_{ct} + \sum_{k=1}^K \alpha_{5+k} X_{ikt}$$

$$+ \sum_{l=1}^L \alpha_{5+K+l} Z_{ilt} + \varepsilon_{it}$$

- ⁹ See note 7 above.

- ¹⁰ We are grateful to the Associate Editor for this suggestion.

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APPENDIX A

Our variable that captures country-level governance quality has a panel structure. However, the factor analysis is limited to two dimensions. Consequently, we estimate factor loading for each analyzed year

in order to build a time series with the extracted annual factor. The average KMO measure was .885 (lowest value = .876), indicating factor suitability. The mean Eigenvalue was 5.02, explaining approximately 83.74 percent of the variance. Table A1 presents the descriptive statistics for the six variables.

Table A1 presents the six variables: Voice and Accountability, Political Stability, Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. In Kaufmann et al. (2011), these variables are aggregate indicators based on data provided by 33 organizations and consolidated in 35 data

TABLE A1 Descriptive Statistics for the Country-level Governance Quality Variables

	BRA	CHI	UK	US	BRA	CHI	UK	US	BRA	CHI	UK	US
Panel A	Voice & Accountability				Political Stability & Absence of Violence				Government Effectiveness			
2008	.51	1.00	1.33	1.12	-.29	.41	.46	.56	-.09	1.17	1.64	1.60
2009	.49	1.01	1.31	1.09	.16	.59	.11	.43	-.10	1.23	1.50	1.50
2010	.53	1.09	1.29	1.12	.01	.67	.40	.44	-.04	1.26	1.56	1.55
2011	.47	1.08	1.30	1.11	-.14	.46	.35	.60	-.12	1.26	1.55	1.51
2012	.43	1.06	1.32	1.13	.05	.34	.41	.63	-.12	1.25	1.53	1.51
2013	.37	1.09	1.32	1.08	-.28	.37	.48	.61	-.08	1.25	1.47	1.50
Mean	.47	1.06	1.31	1.11	-.08	.47	.37	.55	-.09	1.24	1.54	1.53
Difference A	.59				.56				1.35			
Difference B			.45				.26				.96	
SD	.05	.04	.02	.02	.20	.12	.14	.10	.05	.03	.07	.06
Median	.49	1.08	1.32	1.11	-.14	.41	.41	.56	-.10	1.25	1.55	1.51
Panel B	Regulatory Quality				Rule of Law				Control of Corruption			
2008	.07	1.54	1.77	1.54	-.37	1.27	1.66	1.61	-.02	1.32	1.66	1.41
2009	.11	1.48	1.59	1.39	-.22	1.27	1.73	1.58	-.12	1.35	1.60	1.26
2010	.16	1.46	1.74	1.43	.00	1.32	1.76	1.63	.00	1.49	1.56	1.26
2011	.18	1.48	1.66	1.45	-.01	1.36	1.64	1.61	.15	1.52	1.58	1.27
2012	.09	1.54	1.64	1.29	-.11	1.37	1.69	1.60	-.07	1.56	1.64	1.38
2013	.07	1.48	1.77	1.26	-.12	1.34	1.67	1.54	-.12	1.52	1.68	1.28
Mean	.11	1.50	1.70	1.39	-.14	1.32	1.69	1.60	-.03	1.46	1.62	1.31
Difference A	1.38				1.46				1.49			
Difference B			.74				1.05				.75	
SD	.05	.03	.08	.10	.14	.04	.05	.03	.10	.10	.05	.07
Median	.10	1.48	1.70	1.41	-.12	1.33	1.68	1.61	-.05	1.51	1.62	1.28
Panel C	Factor											
2008					-.03	1.25	1.59	1.46				
2009					.05	1.30	1.49	1.37				
2010					.12	1.36	1.56	1.39				
2011					.09	1.31	1.48	1.38				
2012					.05	1.32	1.52	1.39				
2013					-.02	1.30	1.54	1.33				
Mean					.04	1.30	1.53	1.39				
Difference A					1.26							
Difference B							.79					
SD					.06	.03	.04	.04				
Median					.05	1.30	1.53	1.38				

Note: Difference A refers to the mean difference between Brazil and Chile. Difference B refers to the mean difference between the UK plus the US and Brazil plus Chile divided by 2. Following Kaufmann et al. (2011), we interpret (1) Voice and Accountability as measures of freedom of expression, free media, and the extent to which citizens participate in government selection; (2) Political Stability as a measure of the likelihood of unconstitutional coups; (3) Government Effectiveness as a measure of the quality of public and civil services, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies; (4) Regulatory Quality as a measure of the government's ability to formulate and implement policies and regulations; (5) the Rule of Law as a measure of agents' confidence in property rights, the police, the courts, and the quality of contract enforcement; and (6) Control of Corruption as a measure of public power being used for private gain. For a more complete description, see Kaufmann et al. (2011). Eigenvalues, the variance accumulated by the factors, the factor loadings, and the KMO measures are not presented here but are available upon request.

sources. It is important to note that these data reflect the worldwide perceptions of citizens, firm survey respondents, and experts. The six variables range from -2.5 to $+2.5$, with higher values indicating strong country-level governance quality, or better governance.

La Porta et al. (1998) focus on legal rules for investor protection and their enforcement. Most Latin American countries have a civil law system. Therefore, we are unable to compare governance environments with respect to the legal system code alone. We believe that all six measures are correlated to enforcement, and hence broadly to investor protection. Generally speaking, Regulatory Quality and Rule of Law measure perceptions of the government's ability to implement regulations and enforce contracts and property rights. Government Effectiveness measures the political pressures on public and civil services and government credibility. Political Stability and Control of Corruption are measures of potential unconstitutional threats and the extent to which public power is used for private benefits, respectively.

Moreover, Voice and Accountability denote citizens' participation in government selection and freedom of expression.

Note that in Table A1 the mean values for these six variables are far superior in the UK and US than in Brazil, but not much higher than in Chile. For example, the mean value for Rule of Law in Brazil is $-.14$, whereas in Chile, the UK, and the US it is positive at 1.32 , 1.69 , and 1.60 , respectively. A similar difference is noticed in Government Effectiveness: Brazil shows a mean value of $-.09$, whereas Chile, the UK, and the US show positive mean values of 1.24 , 1.54 , and 1.53 , respectively. Brazil is therefore classified as a poor governance country, with only Voice and Accountability and Regulatory Quality showing positive values. Table A1 also highlights that the mean values for National Governance Quality are 1.30 for Chile and $.04$ for Brazil, versus 1.53 and 1.39 for the UK and US, respectively. In general, the Chilean governance environment appears to be far superior to that of Brazil, and quite similar to that of the UK and US.