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Group Affiliation and Ownership Concentration as Determinants of Capital Structure Decisions: Contextualizing the Facts for an Emerging Economy

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ABSTRACT: This study considers the firm's affiliation with business groups and the ownership structure as determinants of leverage decisions in Chilean firms. The major findings show that group-affiliated firms take advantage of internal capital markets and transactions with related parties (e.g., low transference price or loans at competitive interest rates) that reduces the demand for external debt. Majority shareholders in affiliated firms behave as controllers of managers, on the one hand, and avoid the supervisory role of debt, on the other hand. In stand-alone firms, supervision led by majority shareholders is complemented by the monitoring role of debt through higher levels of leverage. We conclude that further developments in capital structure theories adjusted to the particularities of the different institutional contexts are needed.

KEY WORDS: business groups, capital structure, Chilean firms, ownership concentration, panel data

JEL CLASSIFICATION: G32

Capital structure decisions have become a controversial and recurring issue in corporate finance. The findings of Modigliani and Miller (1958); (Modigliani and Miller 1963), to this day, continue to inspire researchers to study the determinants of the leverage decision. On this particular issue, Myers (1984) raises the question: "How do firms choose their capital structures?" and answers succinctly: "We don't know." Currently, there is still no consensus on the capital structure puzzle and on its determinant factors (Myers 1984; Myers and Majluf 1984). In addition, there is no universal theory of the debt-equity choice, and no reason to expect one, because of the coutless number of factors that might explain the behavior of a company. However, there are useful conditional theories. In fact, in their survey, Beattie, Goodacre, and Thomson (2006) state that despite the theoretical developments over the past few decades concerning the capital structure decisions, our understanding remains incomplete, in spite of having been highly relevant for executives (Bancel and Mittoo 2004; Graham and Harvey 2001). In this vein, the study of an emerging market country such as Chile challenges the existing theories and suggests the inclusion of new factors into the analysis due to the particularities of emerging markets' corporate environments (Bekaert and Harvey 2002).

In this article, we examine the effect of a distinctive feature of emerging markets' corporate environments over leverage decisions: the firms' affiliation to a business group. Prior literature has extensively debated the benefits and disadvantages of the relation between business groups and corporate financial policies. On the one hand, in business groups, firms are generally linked to pyramidal and cross-ownership relations, and the same controlling shareholder holds the control of several firms. In this way, business groups can be harmful to minority shareholders because pyramids cause a separation between voting rights and cash flow rights (Boubaker and Labégorre 2008), so they

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can exacerbate the agency costs given the possibility of private benefit extraction through different mechanisms such as investment in non-value maximizing projects, tunneling, and perk consumption (Bebchuk, Kraakman, and Triantis 2000; Bona, Pérez, and Santana Martín 2011; Ruiz Mallorquí and Santana Martín 2009). When controllers look to enjoy private benefits, capital allocation within business groups can be less efficient and result in underinvesting in the more profitable firms or overinvesting in the weaker subsidiaries (Ozbas and Scharfstein 2010; Scharfstein and Stein 2000). These inefficiencies suggest that these agency problems would encourage controllers to take more debt to engage in private benefit extraction activities (Atanasov et al. 2010; Jiang, Lee, and Yue 2010).

On the other hand, the existence of internal capital markets also suggests the ability of business groups to overcome financial frictions from external markets, especially in emerging economies (Khanna and Tice 2001). The internal capital markets arise from the existence of diversified business lines, which allow firms to reduce their operating risk more efficiently and improve their debt capacity, also known in the literature as the coinsurance effect (Lewellen 1971). Because of diversification, if business groups' firms experience high earnings volatility in some periods, the potential costs of financial distress are lower compared to non-business groups' firms due to the possibility of cross-subsidization in order to protect the group's reputation (Chakraborty 2015). In addition, those firms with limited access to external funds can benefit from the financial support of the other firms into the group. The financial literature has showed evidence consistent with internal efficiency on business groups (Almeida and Wolfenzon 2006; Gopalan, Nanda, and Seru 2007; Masulis, Pham, and Zein 2011; Wagner et al. 2015). Buchuk et al. (2014) state that internal capital markets can allocate funds more efficiently than the external capital markets when managers have the right incentives and good information about investment opportunities. Thus, efficiency motivations of internal capital markets within business groups suggest that firms will prefer internal debt allocation over external, so business groups' affiliated firms will present lower levels of external leverage. However, this relationship has to be considered carefully because lower levels of leverage due to the existence of internal capital markets allow firms to avoid the scrutiny of external markets, resulting in more asymmetric information problems (Carney et al. 2015).

We focus on Chilean firms for several reasons. First, although business groups are prevalent around the world, the affiliation to business groups is highly characteristic of emerging markets (Barca and Becht 2001; Buchuk et al. 2014) such as Chile. Claessens, Djankov, and Klapper (2000) show that 4 out of 10 Chilean firms are associated with business groups, which are generally controlled by family ties through pyramidal corporate ownership structures (Almeida and Wolfenzon 2006; Chakraborty 2013; Claessens, Djankov, and Klapper 1999; Claessens, Djankov, and Lang 2000; Levy 2009) which allow the creation of internal capital markets within the conglomerates (Buchuk et al. 2014; Khanna and Tice 2001; Scharfstein and Stein 2000). Second, although the definition of a business group varies extensively across researchers and countries (Khanna and Yafeh 2005), as prescribed by the Chilean financial regulator (*Superintendencia de Valores y Seguros*, hereafter *SVS*), which provides us with an objective and unambiguous definition of business groups according to Law No. 18045 on Capital Markets, Title XV, Article 96, they are described as a "set of entities that present such links in their ownership, management or credit liability, which presume that the economic and financial performance of their members is guided by the common interests of the group or subordinated to them or that exist common financial risks in the credits granted to them or in the acquisition of securities they issue." The SVS oversees tracking the composition of business groups in the country and has been publishing this information monthly since 2002.[1] We follow this specific definition of business groups for the Chilean context because it makes our findings comparable with those of previous empirical studies in Chile, is consistent, and has not technically changed since it was applied.[2]

The contribution of this article is twofold. First, compared to other studies for the Chilean context (Azofra, Saona, and Vallelado 2004; Espinosa et al. 2012), this article fills the gap in the literature by allowing us to compound a more comprehensive approach than that usually applied in the empirical literature by considering the characteristics of the corporate ownership structure in Chile and the firms' affiliation to business groups. Second, we suggest certain implications for regulators and policy

makers. By identifying conditions in which business groups operate, we state the needs for improvements of the current corporate governance legislation aimed to protect the interests and rights of minority shareholders and creditors.

Using a sample of 982 firm-year observations from 119 Chilean firms listed in the *Bolsa de Comercio de Santiago* for the period 2002–2014, our results confirm a negative relationship between business group affiliation and leverage. Firms affiliated with business groups tend to show different behavior related to capital structure decisions than stand-alone firms. A plausible explanation is that the existence of internal capital markets appears to overcome the financial frictions from external markets, moving business groups' firms to prefer internal resources and showing lower levels of leverage. In a nutshell, affiliated companies substitute external debt with intragroup lending, as well as the fact that they seem to substitute debt discipline with ownership discipline. However, since non-affiliated firms cannot take advantage of internal capital markets, they incur more debt by complementing ownership discipline with debt discipline as governance mechanisms.

The article continues in the second section with the literature review and the development of the research hypotheses. The third section describes the data set, variables, and the methodology used in the empirical analysis. The fourth section summarizes the main results, and the final section presents the conclusions.

Hypothesis Development: Business Groups and Ownership Structure in the Chilean Corporate Sector

Although Chile is categorized as a French Civil-Law country (La Porta, Lopez-De-Silanes, and Shleifer 2008), its financial system is widely oriented toward the capital markets as well as to banking (Djankov et al. 2008).[3] Chile is the most financially sophisticated market of the South American region (Beck et al. 2008; La Porta et al. 1998).

In the last decades, corporate environment has been dominated by the presence of diversified business groups[4] and relatively simple pyramidal structures.[5] According to Lefort and Walker (2007), at the beginning of the 2000s, almost 70% of the non-financial listed Chilean firms were controlled by some of approximately 50 business groups that represented more than 90% of the market total assets. Up until December 2015, the *SVS* recorded a total of 126 business groups comprising 537 firms.[6]

Previous literature has suggested several benefits of belonging to a business group. In general terms, the financial literature reports evidence consistent with internal financing motives of business groups (Almeida et al. 2011; Gopalan, Nanda, and Seru 2007; Masulis, Pham, and Zein 2011; Wagner et al. 2015). The evidence has shown that business groups could be more efficient in terms of performance and the use of internal capital markets in Chile. For instance, Khanna and Palepu (2000) show that Chilean conglomerates benefit from diversification strategies that allow them to present greater levels of long-run performance. Buchuk et al. (2014) find evidence that suggests that the existence of internal capital markets is not a mechanism to expropriate minority shareholders. In fact, their results state that internal capital markets could be part of an efficient corporate governance environment. In this sense, the controlling shareholders within the group might act benevolently with other intra-group firms and provide funding. They also argue that those firms that get intra-group loans might improve the return on equity because the cost of lent funds cannot be greater than the prevailing interest rates. Therefore, a substitution effect might be expected from external financing to intra-group financing for affiliated companies. Specifically, we expect that business groups present a negative influence over external leverage.

Similarly, the ownership structure plays a crucial role as a corporate governance mechanism (Yafeh and Yosha 2003). Thus, the higher the number of shares in the hand of the same shareholder, the higher will be his or her incentive to control managers. This eventually reduces agency problems by aligning the interests of managers and internal shareholders (La Porta, Lopez-De-Silanes, and Shleifer 1999). Lins (2003) studied the relation between ownership structure, and particularly family ownership structure, and firm value for 18 emerging economies. Some of his results show that there are

significant differences in the configuration of the ownership structure between countries with better or worse protection of the shareholders' rights.

As a matter of fact, one of the most important characteristics of Chilean firms' ownership structure is the widespread use of pyramidal structures (Lefort and Walker 2007). The relatively high ownership concentration in Chile, in comparison to other more developed countries, is the natural response to the weaker investor protection of external shareholders. However, although principal-agent conflict might be efficiently monitored by controlling shareholders, another agency problem might arise. In this case, the wealth of minority shareholders might be expropriated by the power of majority shareholders. Thus, the role of ownership structure as a governance device might be beneficial for creditors, if majority shareholders efficiently reduce the agency problems between shareholders and managers, supporting a positive relation between debt and ownership concentration. But it might also be harmful for creditors if the controlling shareholder pushes managers toward asset substitution problems by undertaking riskier projects. In such a scenario, the wealth of creditors is expropriated, which would explain a negative relationship between debt and the ownership concentration. Therefore, the relationship between ownership concentration and debt level will be positive or negative depending on which hypothesis is stronger—either the alignment of interests or the asset substitution argument (Antoniou, Guney, and Paudyal 2008; Hernández-Cánovas, Mínguez-Vera, and Sánchez-Vidal 2016; Wu 2004).

The previous arguments might also be used for the analysis of insiders' ownership in Chile. Executives and directors usually have significant proportions of outstanding stocks in their portfolios. Consequently, it might be observed that there is either an alignment of their interests with those of shareholders or a disjoint effect that is observed when managers expropriate creditors with suboptimal investment policies, called the managerial entrenchment conflict. Hence, agency issues might drive a positive or negative relationship between insider ownership and debt level in Chilean firms (Florackis and Ozkan 2009).

Sample, Variables, and Methodology

Sample Description

The empirical analysis was done with an unbalanced panel data of 119 non-financial firms listed in the Santiago Stock Exchange (*Bolsa de Comercio de Santiago de Chile*) for the period from 2002 to 2014, compounding a total of 982 firm-year observations. Information on financial reports and information about the ownership structure were obtained from the Thomson Reuters' Eikon. Information on firms' affiliation to business groups is publicly available and was obtained from the SVS web page. As in similar studies, we exclude from the analysis all financial firms, companies technically in bankruptcy (e.g., those with negative common equity), and those with no available information for the construction of our variables.

Variables Measurement and Model Specification

The variables considered in the empirical analysis are directly related to the theoretical framework described above. We use leverage (LevB) at book value (Frank and Goyal 2009; Welch 2011) as our dependent variable, calculated as the total debt as the sum of debt outstanding with banks and public debt over the firm's total assets.[7] Whether to measure the ratio at market or book value has been widely debated in the literature (Parsons and Titman 2008; Vallelado and Saona 2011). Papers that use either measure of leverage achieve comparable results (Faulkender and Petersen 2006; Flannery and Rangan 2006). From an operational point of view, on the one hand, the book value of the debt ratio implies the cumulative use of retained funds, debt and equity thereby revealing the actual financial policy of the firm (Chen and Zhao 2006), while on the other hand, a measure based on market values could give too much importance to the recent changes in the equity (Lang, Ofek, and Stulz 1996). Additionally, Graham and Harvey (2001) provide survey evidence that managers are concerned mostly

with book values. Hence, based on these arguments, we use book values for the debt ratio in our baseline model. Hovakimian, Opler, and Titman (2001) find that the choice between book and market values does not influence empirical results significantly, and Bowman (1980) shows that the correlation between book leverage (LevB) and market leverage (LevM) is very high as our data actually show (see Table S1). Additionally, as a consequence of the large volatility of market capitalization in Chile (Lizarzaburu Bolaños et al. 2015), leverage at market value (LevM) was not used in the baseline regressions to minimize the potential bias of the main results. Nevertheless, as robustness checks of our results, we include the estimates using leverage over the market value of assets in the Table S4 (Supplementary Material). As observed in this table, the main results correspond with those of the baseline model exhibited in Table 2.

The characteristics of the ownership structure are measured with different variables. The first measure is the concentration of shares (OWN1) in hand of the main shareholder. The second one is the log transformation of the proportion of shares in hand of the two largest shareholders (LnOWN2) according to Demsetz and Villalonga (2001) defined as Ln[OWN2/(1-OWN2)], where OWN2 denotes the fraction of shares owned by the two largest shareholders. We used this transformation to obtain a symmetric distribution of the variable because its value was largely skewed. In Table 3, we also used the ownership in hand of the second shareholder as an alternative ownership covariate (OWN2). It is important to note that by introducing the LnOWN2 and OWN2 variable, we assume no existence of conflicts between the two reference shareholders. In fact, we introduced the second largest shareholders because generally in Chilean firms the controlling shareholder is the same as the second largest shareholder by using pyramidal structures (Majluf et al. 1998; Silva, Majluf, and Paredes 2006). Additionally, we used the insider ownership proxy (CLOHD) provided by Thomson Reuters Eikon, which is defined as the ownership that is closely held and represents the fraction of outstanding shares held by holding companies, employees, and insiders (e.g., managers, officers, and directors).[8] Companies that are closely held tend to be resistant to hostile takeovers, since the majority of shares are held within a relatively small, interested group of shareholders, and consequently the use of closely held variable assumes a convergence of interest between all the closely held participants.[9] The purpose of this variable is to measure the proportion of shares held by shareholders, who are directly related with the company or perform management or supervisory roles. These stocks are assumed not to be publicly traded in the same manner as common shares. Thus, closely held shares involve shareholders that do not necessarily have executive (e.g., managers) or monitoring (e.g., member of the board of directors) duties inside the firm but do have a certain level of direct or indirect making decision power, such as the case of holding companies. Finally, we use a dummy variable that identifies the affiliation of the firm to a business group (BG), similarly to the procedure applied in previous literature (Buchuk et al. 2014; Majluf et al. 1998).

We introduce several control variables that are typically considered as determinants of the debt level. First, we introduce firm's size (SIZE), computed as the natural logarithm of the firm's total assets (Frank and Goyal 2009). We use this variable in the analysis because large firms are generally more diversified and have less volatile cash flow streams (Ghosh 2007), which reduces the default risk, increasing debt capacity. In addition, large firms are better at debt contract negotiation, which eventually reduces the transaction costs (Booth et al. 2001; Espinosa et al. 2012; Frank and Goyal 2009). Regarding these arguments, we expect a positive relationship between the firm's size and its debt level.

Second, we entered profitability measured as the earnings before interest and taxes over total assets (PROF). Pecking order theory suggests that profitable firms are likely to have more retained earnings. Thus, a negative relation between debt and past earnings should be expected (Harris and Raviv 1991; Rajan and Zingales 1995; Shyam-Sunder and Myers 1999; Titman and Wessels 1988). However, trade-off theory posits that the relationship between profitability and leverage is positive. This theoretical approach suggests that more profitable firms have a greater capacity to obtain external funds in order to take advantage of tax shields (Fama and French 2002).

Third, we also used tangibility (TANG), which is measured as the net property, plants, and equipment over total assets. The literature suggests that tangibility of assets is a guarantee for creditors

that reduces informational asymmetries (Almeida and Campello 2007). Hence, financing through debt might be more expensive for firms with a higher proportion of intangible assets (Myers 1984; Myers and Majluf 1984) because creditors are less likely to get their funds back in case of bankruptcy (Graham 2000; Rajan and Zingales 1995). These arguments support a positive relationship between asset tangibility and debt level.

Fourth, we separately introduce two alternative proxies of growth opportunities: GO1, which is computed as the addition of the firm's market capitalization and total debt and divided by the total assets; and GO2, which corresponds to the market to book value of common equity, estimated as the market capitalization over total common equity. Myers (1977) predicts that debt level is negatively related to growth opportunities. From a signaling perspective, the evidence has supported this negative relation (Titman and Wessels 1988), since growth opportunities are intagible in nature and cannot be collateralized (Cantillo and Wright 2000). According to Parsons and Titman (2008), the market to book value of common equity is one of the strongest and most reliable predictors of leverage, regardless of whether book or market leverage is used as the dependent variable.

Fifth, we entered the non-debt tax shield (NDTS) as the annual depreciation charge over total assets (Vallelado and Saona 2011). DeAngelo and Masulis (1980) extend Miller (1977) analysis showing that the irrelevance theorem of debt is extremely sensitive to realistic and simple modifications in the treatment of corporate taxation. They show that the existence of non-debt tax shields such as depreciation deductions or investment tax credits is sufficient to overturn the leverage irrelevancy theorem.

Finally, a set of time (Dummtemp) and industry (Dummind) specific dummy variables were also included in the estimates. So, the model to be tested takes the following form:

$$\begin{aligned} Lev_{it} = {} & \beta_0 + \beta_1 BG_{it} + \beta_2 OWN_{it} + \beta_3 SIZE_{it} + \beta_4 PROF_{it} + \beta_5 TANG_{it} + \\ & \beta_6 GO_{it} + \beta_7 NDTS_{it} + \beta_8 Dummtemp_t + \beta_9 Dummind_i + \eta_i + \eta_t + \varepsilon_{it} \end{aligned} \quad (1)$$

Where the error term is decomposed in η_i that represents the unobservable firm-specific effect of each *i* firm that captures all time-invariant components (e.g., managerial style, patterns of financial decisions, among others); η_t that is the temporal effect for the *t* periods considered in this study, and the stochastic error term ε_{it} that varies cross-sectionally and over time.

Methodology

Because of endogeneity problems in panel data, ordinary least squares estimators can provide coefficients that are biased. Thus, Blundell and Bond's (1998) generalized method of moments (GMM) System Estimator is used. The GMM System Estimator deals with the endogeneity issues in the relation between capital structure decisions, ownership, and growth opportunities, among others (De Miguel and Pindado 2001). Specifically, we estimate a GMM two-step System Estimator (SE) with adjusted standard errors for potential heteroskedasticity as a superior estimation method (Blundell and Bond 1998). Because the existence of weak instruments can lead to poor asymptotic precision in finite samples (Alonso-Borrego and Arellano 1999; Blundell, Bond, and Windmeijer 2000), the SE specifications use two kinds of (simultaneous) equations with their own instruments. The first category of equations is in levels, and its instruments are the lagged differences in the dependent and the independent variables. The second category consists of equations in first-differences with the levels of the dependent variable and the independent variables as instruments (Bond 2002; Wooldrigde 2002).

The Hansen statistics are used for examining the lack of correlation between the instruments and the error term (Hansen, Heaton, and Yaron 1996). F-test of joint significance for all independent variables is computed as well as the non-linear restrictions test for the interaction between business group variable and ownership measure variables, which corresponds to the multiplication between the dummy variable for affiliation to business groups (e.g., BG) and the alternative variables used to measure ownership structure features (e.g., OWN1, OWN2, LnOWN2, and CLOHD). The second-

order autocorrelation test among the variables as well as variance inflation factor (VIF) is also computed to ensure inexistence of the autocorrelation problems.

Results

Descriptive Statistics

From Table 1, we can derive the following observations. First, concerning ownership structure for the whole sample, on average, 43.0% of outstanding shares are in the hands of the controlling shareholder, something that is far higher than what is needed to exercise control (Lefort and Walker 2000). Moreover, for our period of analysis, about 52.0% of Chilean firms in our sample are affiliated within some business group (BG), and systematically these firms have shown higher concentration of the ownership by the majority shareholders (OWN1 and LnOWN2) as well as the shares owned by insiders (CLOHD). This is not a surprising finding, knowing that affiliated firms are a complex web of family-owned firms with pyramidal structures (Donelli, Larraín, and Urzúa 2013).

Second, about 23.6% of the total assets are financed with debt (LevB). The same measure of leverage but this time at market value shows that the average debt level is 30.7% of the addition of a company's market capitalization and total debt. These results are comparable with previous studies for the Chilean corporate sector (Espinosa et al. 2012) and from other economies (Rajan and Zingales 1995). The comparison of LevB between group-affiliated and independent firms reveals that the latter have a higher proportion of debt outstanding in their books than the former. Third, the two alternative proxies of growth opportunities, GO1 and GO2, are higher than one (1.186 and 1.969 times, respectively), meaning that the market has a generally positive perception about the company's prospects. Additionally, the descriptive statistics show that non-affiliated firms have on average more growth opportunities than affiliated firms (measured through the two proxies). The descriptive statistics also show that group-affiliated firms are more profitable (PROF) than outside group firms. According to

Table 1. Descriptive statistics.

			Business Group		
			Yes	No	
Variable	Mean	Std. Dev.	Mean	Mean	Difference
LevB	0.236	0.134	0.219	0.255	0.036***
LevM	0.307	0.223	0.297	0.317	0.020
GO1	1.186	1.431	1.018	1.373	0.355***
GO2	1.969	2.939	1.645	2.325	0.680***
SIZE	26.046	1.703	26.591	25.445	–1.146***
PROF	0.083	0.096	0.097	0.078	–0.019**
TANG	0.425	0.218	0.410	0.441	0.032**
OWN1	0.430	0.223	0.453	0.404	–0.049***
OWN2	0.145	0.104	0.144	0.146	0.002
LnOWN2	0.491	2.185	0.681	0.282	–0.400***
CLOHD	0.803	0.161	0.819	0.787	–0.032**
NDTS	0.035	0.023	0.032	0.039	0.007***
BG	0.524	0.500	1.000	0.000	–1.000***
Obs.	982		514	468	

This table reports both descriptive statistics (mean and the standard deviation) and a means-difference test between affiliated firms and non-affiliated firms about the study variables. Variable definitions are provided in section 3.2. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 2. Regression analysis.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	0.026*	0.029*	0.024	0.025	0.039**	0.051***
	(0.015)	(0.017)	(0.017)	(0.017)	(0.016)	(0.016)
PROFIT	–0.409***	–0.450***	–0.448***	–0.488***	–0.578***	–0.599***
	(0.131)	(0.153)	(0.155)	(0.175)	(0.106)	(0.105)
TANG	0.246*	0.199	0.135	0.104	0.113	–0.014
	(0.135)	(0.134)	(0.199)	(0.191)	(0.121)	(0.107)
GO1	–0.068***		–0.064***		–0.069***	
	(0.014)		(0.014)		(0.014)	
GO2		–0.035***		–0.032***		–0.030***
		(0.006)		(0.006)		(0.007)
NDTS	–0.777	–1.026	–0.716	–0.872	0.049	0.649
	(0.986)	(1.026)	(1.081)	(1.053)	(0.856)	(0.967)
OWN1	0.083*	0.086*				
	(0.044)	(0.051)				
LnOWN2			0.010**	0.012**		
			(0.005)	(0.006)		
CLOHD					–0.110*	–0.092*
					(0.063)	(0.051)
BG	–0.147**	–0.148**	–0.153**	–0.157**	–0.059*	–0.073*
	(0.063)	(0.065)	(0.069)	(0.066)	(0.035)	(0.038)
Constant	–0.303	–0.357	–0.185	–0.195	–0.518	–0.853*
	(0.400)	(0.461)	(0.469)	(0.470)	(0.424)	(0.441)
Observations	934	934	982	982	825	825
Number of iden	115	115	119	119	113	113
Industy FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
F-Test	9.110	14.40	14.66	20.04	7.895	8.560
Auto(2)	0.120	0.237	0.413	0.266	0.143	0.356
Hansen p-value	0.840	0.834	0.626	0.724	0.785	0.815

Dependent variable is LevB. This table reports the panel data GMM system estimator regression results. The ownership structure variables, growth opportunities, and profitability have been considered as endogenous variables and have been properly instrumented by the GMM system estimator. Industry and time dummy variables are included in the estimations but not reported. Second-order serial correlation contrasts have been tested. The Hansen contrasts represent the test of over-identifying restrictions, asymptotically distributed as a χ^2. In all cases, the F test reveals that the models are statistically significant. Robust standard error in parenthesis. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Claessens, Djankov, and Klapper (1999), capital-constrained firms may establish internal capital markets that allocate scarce capital among member firms more efficiently, which leads to economic benefits and greater profits. Consequently, it is expected that affiliated companies may be more profitable than outside group firms. This preliminary finding is in line with the beneficial arguments of business group affiliated firms, which corresponds to their ability to overcome market frictions (Buchuk et al. 2014). We report correlation among variables in Table S1 (see Supplementary Material, available online).

Table 3. Estimates with interacted variables.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SIZE	0.019*	0.014	0.009	0.033**	0.035**	0.033**	0.025**	0.041**
	(0.011)	(0.014)	(0.013)	(0.015)	(0.014)	(0.013)	(0.013)	(0.017)
PROFIT	−0.225**	−0.274*	−0.251*	−0.258**	−0.297**	−0.267**	−0.291**	−0.318***
	(0.112)	(0.148)	(0.135)	(0.109)	(0.124)	(0.128)	(0.164)	(0.121)
TANG	0.212	0.318**	0.197*	0.127**	0.079	0.133*	0.030	0.023
	(0.137)	(0.129)	(0.112)	(0.061)	(0.134)	(0.064)	(0.127)	(0.103)
GO1	−0.069***	−0.079***	−0.063***	−0.070***				
	(0.021)	(0.016)	(0.012)	(0.016)				
GO2					−0.028***	−0.032***	−0.023***	−0.028***
					(0.007)	(0.007)	(0.005)	(0.007)
NDTS	−0.145	−0.238*	−0.227***	−0.168	−0.356**	−0.398**	0.324	0.509
	(0.900)	(0.121)	(0.085)	(0.612)	(0.129)	(0.145)	(0.312)	(0.740)
OWN1	0.141**				0.171**			
	(0.067)				(0.061)			
OWN1*BG	−0.297***				−0.335***			
	(0.061)				(0.074)			
*OWN1+OWN1*BG*	*−0.156**				*−0.164**			
	(0.090)				*(0.091)*			
OWN2		0.170**				0.226**		
		(0.072)				(0.081)		
OWN2*BG		−0.444***				−0.459***		
		(0.101)				(0.101)		
*OWN2+OWN2*BG*		*−0.274**				*−0.233**		
		(0.124)				*(0.127)*		
LnOWN2			0.003**				0.001**	
			(0.000)				(0.000)	
LnOWN2*BG			−0.005**				−0.005**	
			(0.000)				(0.000)	
*LnOWN2+LnOWN2*BG*			*−0.002**				*−0.004**	
			(0.000)				*(0.000)*	
CLOHD				−0.115*				0.041**
				(0.059)				(0.020)
CLOHD*BG				−0.089**				−0.119**

				(0.038)				(0.055)
*CLOHD+CLOHD*BG*				*−0.204****				*−0.078****
				(0.070)				*(0.058)*
Constant	−0.206	−0.071	−0.164	−0.385*	−0.628	−0.563	−0.262	−0.684
	(0.416)	(0.401)	(0.398)	(0.204)	(0.395)	(0.373)	(0.360)	(0.456)
Observations	934	982	982	825	934	982	982	825
Number of iden	115	119	119	113	115	119	119	113
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Test	5.93	7.38	9.20	5.27	6.02	7.12	8.41	5.08
AR(2) p-value	0.190	0.351	0.451	0.380	0.215	0.371	0.187	0.415
Hansen p-value	0.291	0.305	0.279	0.524	0.754	0.643	0.315	0.471

Dependent variable LevB. This table reports the panel data GMM system estimator regression results. Ownership structure variables, growth opportunities, and profitability have been considered as endogenous variables and have been properly instrumented by the GMM System Estimator. Industry and time dummy variables are included in the estimations but not reported. Second-order serial correlation contrasts have been tested. The Hansen contrasts represent the test of over-identifying restrictions, asymptotically distributed as a χ^2. In all cases, the F test reveals that the models are statistically significant. Linear restriction tests are estimated for the interacted variables. Robust standard errors in parenthesis. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Multivariate Analysis

Under the assumption of stationarity of the panel, Blundell and Bond (1998) show that their GMM System Estimator is more efficient than the original Arellano and Bond (1991) estimator. Consequently, we used a Fisher-type contrast to test the null hypothesis that all the panels contain a unit root to test the stationarity of the variables in the models (Choi 2001). This test was used since it does not require strongly balanced data, as is our case. A Fisher-type test for panel data unit roots follows a meta-analysis perspective. That is, the test conducts unit-root tests for each panel individually and then combines the p-values from these tests to produce an overall test. We report the panel data unit root test in Table S2 (see Supplementary Material, available online).

In Table 2, we first present the results corresponding to Equation (1) where the dependent variable is the leverage at book value (LevB). The efficiency of the methodology depends on the assumption that the dependent and the other explanatory variables are valid instruments and that the error terms do not exhibit serial correlation. To address this, we show the second-order serial correlation AR(2) test under the null hypothesis that there is no serial correlation of the error term. This test is distributed as a standard normal. The Hansen contrast is used to test the over-identifying restrictions that the instruments are valid. This test is distributed as a Chi-squared under the null hypothesis of instruments validity. As observed in Table 2 (and in the subsequent table), we accept the null hypothesis of validity of instruments in all specifications, indicating that it is appropriate to treat firm-specific characteristics as exogenous. The second-order serial correlation AR(2), which detects autocorrelation in levels, reveals that the model is properly specified, despite the fact that the hypothesis of the inexistence of first-order serial correlation cannot be rejected as expected (not tabulated for space-saving reasons). Although not reported, we also used the variance inflation factor (VIF) to ensure inexistence of the autocorrelation problems.

Table 2 shows that the affiliation to business groups' dummy variable (BG) is negatively related to leverage (LevB) across all the models. This finding is in accordance with the descriptive statistics observed in Table 1, where companies inside groups showed a lower level of debt (at book value) than firms outside groups. Therefore, capital structure decisions of affiliated firms are different from those decisions in non-affiliated firms. As we previously argued, business group affiliation gives incentive for firms to consider internal capital markets as a substitute for external funding.

Regarding ownership features, results in Table 2 show how the number of shares held by controlling shareholders (OWN1 and LnOWN2) impacts positively on debt level. The supervisory role of majority shareholders supports the monitoring hypothesis that eventually reduces the agency costs, and consequently, it becomes easier for firms to issue debt. Controlling shareholders are argued to reduce the scope of managerial opportunism, resulting in lower direct agency conflicts between management and shareholders (Shleifer and Vishny 1986). As Brailsford, Oliver, and Pua (2002) suggest, corporate debt ratios are likely to be an increasing function of the level of share ownership of controlling shareholders, *ceteris paribus*, as our findings show. Similarly, in a study that analyzes the endogeneity between debt and ownership concentration, Ganguli (2013) argues that higher debt coupled with concentrated shareholding might help resolve the collective action problem and reduce managerial discretion. Supporting this argument, Pindado and De La Torre (2011) record that debt increments are promoted by outside owners when managers are entrenched, which may describe the case of Chilean firms where investors' rights are weakly protected relative to other more developed markets (Silva et al. 2008).

An additional explanation for the positive relationship between debt level and concentrated shareholding is supported by the pecking order approach (Myers 1984). This theory suggests that market information is asymmetrically shared and, consequently, if the company issues equity to finance a project, it will have to do it at less than the prevailing market price, which represents bad news about the company's prospects. This signals that the shares are overvalued and the management is not confident to serve the debt if the project happens to be financed by debt (Ganguli 2013). However, if debt is used to finance the project, it is constitutive of a good signal that management is confident on the future cash flows for serving the debt. Hence, controlling shareholders may encourage managers to

use debt before equity in financing decisions, supporting the positive relationship between our ownership concentration measures and the firm's leverage.

However, when the variable that measures the percentage of shares held by officers and/or directors (CLOHD) is considered, the relationship with debt becomes negative at the standard levels of significance. Many explanations are plausible. First, when insiders own a substantial proportion of outstanding shares, their personal default risk increases at high levels of debt, and consequently, they will reduce the debt outstanding. An alternative explanation is supported by the entrenchment hypothesis (Claessens et al. 2002; Alberto De Miguel, Pindado, and De La Torre 2005). This approach suggests that when managers have a considerable proportion of company shares in their personal portfolios, their interests will not be aligned with the minority shareholders' interests nor with creditors' interests. This might cause the asset substitution problem at the expense of creditors, who will be reluctant to lend funds to firms with problems like these and will respond by rationing credits. In Table 1, the mean value of the CLOHD variable is 80.3%, which is far greater than the optimal level needed to exercise efficient control. Other arguments that can explain our results rely on the managerial incentives to raise external debt. Florackis and Ozkan (2009) and Ganguli (2013) show that a greater level of managerial ownership results in higher managerial opportunism and, consequently, less incentive to raise external debt in order to avoid monitoring. That is, if managers are not subject to internal scrutiny from the large shareholders, then they avoid monitoring produced by lenders. Additionally, according to Brailsford et al. (2002), since the occurrence of bankruptcy or financial distress will result in loss of employment, potential impairment of future employment, and potentially lower earning capacity of managers, they suggest that self-interested managers have incentives to reduce corporate debt to a level that is less than optimal.

Finally, as a robustness check we estimate two different analyses. First, we estimate the baseline models using OLS two-way fixed effect panel data reported in Table S3 (see Supplementary Material, available online). What is unique about the two-way fixed effects estimator is that another adjustment is made in order to address the consequences of simultaneously including firm- and time-specific effects in the regression model (Wallace and Hussain 1969). Second, in Table S4, we replace the leverage at book value (LevB) as dependent variable by the leverage at market value (LevM). In both tables, the results observed are consistent with the evidence in Table 2 regarding the influence of ownership features and business group affiliation on leverage decisions.

A further analysis concerning the ownership structure and its differential impact on affiliated companies and companies outside groups is conducted with the introduction of interacting terms of ownership and business groups, as is shown in Table 3. In this case, we multiplied the ownership variables (OWN1, OWN2, LnOWN2 and CLOHD) with the BG dummy variable and created OWN1*BG, OWN2*BG, LnOWN2*BG, and CLOHD*BG. Before the interpretation of these interacting terms, it was necessary to run linear restriction tests to figure out if the linear combinations of estimators are statistically significant. In all the cases, as shown in the table, we rejected the null hypothesis that the linear combinations of the interacting estimators are equal to zero. Estimates are tabulated in Table 3. In this table we can observe, for instance, that OWN1 and OWN1*BG variables are statistically significant at the standard levels of confidence (e.g., see models (1) and (5)). Hence, when firms are affiliated within a business group (e.g., BG = 1), the marginal effect on leverage is negative when ownership concentration of majority shareholders increases (see the linear combination OWN1+OWN1*BG). However, if firms are not affiliated (e.g., BG = 0), leverage increases in the same direction as the ownership in hand of the majority shareholders. This result confirms those already found in the previous table.

To test the robustness of such an important finding, we computed alternative linear combinations with OWN2 and LnOWN2 variables, representing the proportion of shares in hand of the second majority shareholder (OWN2), and the logarithmic transformation of the ownership in hand of the two majority shareholders (LnOWN2). We apply this transformation because the original variable (e.g., ownership held by the two majority shareholders) is highly skewed. We followed Demsetz and Villalonga (2001) in applying this transformation to obtain a symmetric distribution of this measure

of ownership. In both cases (see models (2) and (6) for OWN2 and (3) and (7) for LnOWN2), we consistently observe that leverage drops when corporate ownership structure gets more concentrated in affiliated companies as recorded in the liner combinations OWN2+OWN2*BG and LnOWN2 +LnOWN2*BG. Nevertheless, such a relationship is still positive when firms are not affiliated with any business group. Altogether, these findings reveal the differential role of ownership structure on capital structure decisions between affiliated and non-affiliated firms. In a nutshell, on the one hand, affiliated companies substitute external debt by intragroup lending, and on the other hand, they can substitute debt discipline by ownership discipline. However, since non-affiliated firms cannot take advantage of internal capital markets, they incur more debt by complementing ownership discipline with debt discipline as a governance mechanism.

Finally, the last corporate ownership variable on the spot is CLOHD, which represents the ownership addressed by executives and directors. The linear combination CLOHD+CLOHD*BD in estimations (4) and (8) still shows that a marginal change in closely held shares impacts negatively on leverage for the subsample of affiliated firms. This result supports the previous findings that managers shun debt monitoring by cutting outstanding debt. Results for non-affiliated companies, however, are not that clear because CLOHD reports a change in sign between models (4) and (8). Hence, we cannot assert that managers try to avoid debt discipline when their ownership increases in the firms they manage.

Conclusions

According to various theories, the potential drivers of capital structure decisions are still a mystery. With this work, we attempt to shed some light on the determinants of capital structure for firms in institutional contexts that have somehow been omitted from empirical analyses, such as the Chilean corporate sector and its particularities, basically driven by the ownership structure of corporations and their affiliation to business groups. We conclude the following:

First, looking at the whole sample, the positive effect of firm size and tangibility as well as the negative effect of growth opportunities, profitability on firm leverage verify the postulates of the main theories on capital structure decisions tested for contexts of developed countries. Therefore, some conclusions and expected relationships hypothesized for Anglo-Saxon context are also verified for the Chilean case.

Second, and perhaps more importantly, we observe some relations that are intrinsic to the institutional system in Chile. For instance, the general wisdom in economics is that business groups tend to be viewed as efficient responses to the existence of transaction costs in an economy by internalizing certain market inefficiencies (Khanna and Palepu 2000). Eventually, business groups strengthen their internal structures and processes in ways that will enable them to increase their role as intermediaries in different markets such as capital markets and labor markets, among others. However, more than 15 years after the findings of Khanna and Palepu (1999) for the Chilean corporate sector, we still observe the contradiction with the traditional view that liberalization and improvements in the capital markets are likely to reduce the role of diversified business groups as intermediaries in the economy. Such a conclusion was also reached more recently by Larraín and Urzúa (2016), and our own findings seem to show similar results as well, although from a capital structure perspective. Our results demonstrate that when majority shareholders of affiliated firms increase their stakes, companies issue less debt to avoid lenders' scrutiny and discipline. In this case, our results show that firms take advantage of the internal capital markets. However, when firms are not affiliated, as shareholders increase their proportion of shares in the company, the leverage ratio increases as a mechanism to reduce the potential free cash flow problems. Therefore, although the Chilean economy has experienced a deep improvement in reducing transaction costs through more developed financial markets, deregulation, and transparency in financial reporting in the last three decades, we observe that intra-business group transactions are still relevant. As a result, firms might become even more profitable if they are pursued as part of a business group that can act as intermediary between firms and imperfect

markets. For instance, usage of internal capital markets by using the intra-group resources helps firms to get internal financing when the external one is even more costly than in developed economies.

Third, our study contributes to the academic discussion about the leverage decisions and to the strategic decisions made by both practitioners and policy-makers. Concerning the practitioners, this work allows them to compare the leverage decision between group-affiliated and non-affiliated firms. Regarding policy makers, the study provides evidence that the current institutional context requires better corporate governance legislation to foster the protection of the rights of both minority shareholders and firms' creditors.

Fourth, and related to the corporate ownership, we observe that the closely held shares impact negatively on the level of debt. This finding shed additional light on the erroneous incentives of managers who try to protect their personal default risk and avoid the lenders' scrutiny with lower levels of debt. This is what we observe in our results: when the marginal proportion of shares in hand of insiders increases, leverage decreases, and particularly in affiliated firms.

From these conclusions, we derive a few recommendations for policy makers and regulatory authorities. An imbalance is observed between the development of capital markets and resilience (and growth) of business groups across time. When the former enhances, it is expected that the role of the latter decreases. But this does not seem to be the case in Chile. Why? Two explanations are plausible. One, on the market side, although capital markets have developed substantially in the last three decades, serious market imperfections remain that justify the existence and predominance of business groups. Second, business groups have gained such a level of political and economic power that private benefits and accumulation of wealth (e.g., through transference prices at less than the market prices) keep them building empires that eventually negatively impact resource allocation. Consequently, policy makers and supervisory authorities are recommended to develop tasks aimed to improve market efficiency even further, and to regulate the way business groups develop cross-related economic activities, in such a way that does not distort market competition. This recommendation is in line with recent corporate events in Chile, such as the SQM case, where the controlling shareholder has held a hard dispute with other reference shareholders and minority shareholders (such as the pension fund managers and other institutional investors), which led the controlling shareholder to look for strategies to consolidate the control by making some institutional investors step down temporarily from the board of directors.

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Supplemental Data

Supplemental data for this article can be access on the publisher's website.

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Notes

1. http://www.svs.cl/sitio/mercados/grupos.php (accessed in January 2017).

2. As a matter of fact, this definition does not differ substantially from Cuervo-Cazurra (2006), or Mazumdar (2012), who narrowed the concept to a set of legally-separate firms with stable relationships operating in multiple, strategically unrelated activities and under common ownership and control.

3. The market capitalization has averaged 117% of the GDP between 2009 and 2014. Also, the relative weight of the banking industry in the economy is about 70% measured as the credit by deposit money banks as a share of the GDP over the same period (Beck, Demirgüç-Kunt, and Levine 2000). Chile's financial depth, measured as the sum of the bank deposits, private mortgages, domestic public debt, corporate bonds and market capitalization as a share of the GDP, increased from 46% in 1981 to 276% in 2011 (WEF 2009, 2012).

4. Since the privatization process during the 70s and 80s, only a few private agents could take part in it, triggering the subsequent concentration of firms' ownership structures and the formation of business groups in the hands of influential families (Buchuk et al. 2014; Silva, Majluf, and Paredes 2006). Consequently, the main agency problem in Chilean firms is between majority and minority shareholders rather than between shareholders and executives.

5. The Law No. 18046 of Public Companies states that cross-holdings among firms are forbidden. This restriction makes the pyramidal structures relatively simple and straightforward to understand.

6. According to Capital Markets Law No. 18045 (Title XV, pp. 39–44), a firm belongs to a business group if any of the follow conditions hold: (i) the firm has the same controller as other firms, and the controller holds at least 25% of direct ownership; (ii) a significant portion of the firm's assets are allocated to business groups; or (iii) the firm is controlled by one or more firms that belong to a business group controlled by an ultimate shareholder.

7. To address properly the agency problems discussed in this study, we excluded from the leverage measures the net amount of debt with related parties (which is the case for affiliated firms).

8. The original Thomson Eikon's definition includes government ownership. However, we checked one by one the entirely ownership structure of each firm-year, and we can assert that government do not participate into the ownership structure of our sample.

9. We thank an anonymous referee for suggesting us these additional arguments.

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