REVIEW PAPER

# Internal corporate governance mechanisms as drivers of firm value: panel data evidence for Chilean firms

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**Abstract** The paper analyses to what extent ownership structure, capital structure, and dividend policy as corporate governance mechanisms drive the firm value. From a data panel of publicly quoted Chilean firms for the years 2002–2010, we find that there is an inverse U-shaped relationship between ownership concentration and firm value. The positive slope is supported by the supervision hypothesis; whilst the negative relation between ownership concentration and firm value is supported by the expropriation hypothesis. We also find that there is a positive impact of both leverage and the dividend pay-out on the firm value. In this case, these two mechanisms reduce the free cash flows which otherwise might be used opportunistically by managers in their own interests (free rider problem). Contrary to the previous empirical literature in Chile, it is found that the mere fact that a firm is affiliated to a business group/conglomerate impacts positively its value. This positive effect is basically driven by the development of intragroup capital markets, and the governance imposed by the rules of the conglomerate.

## 1 Introduction

There is extensive theoretical and empirical literature on the study of the relationship between different corporate governance mechanisms and the firm value. Most of this empirical literature is focused on the Anglo Saxon context where

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both the disperse ownership structures and the developed disciplining institutions are taken for granted. For instance, there is a number of works which find a non-monotonic relationship derived from the managerial ownership concentration and the firm value for firms operating in developed markets within common-law countries, such as firms in the Fortune 500 index (Morck et al. 1988), and those operating in the American Stock Exchange (McConnell and Servaes 1990; Hermalin and Weisbach 1991; Kole 1995). Nevertheless, little attention has been paid to other institutional contexts where the governance devises work differently. On this respect, the particular case of Chile offers an interesting scenario relative to the one observed in other more developed markets. The Chilean case presents at least five characteristic features that make its study especially relevant in terms of empirical findings and policy recommendations on governance that can be also applied to other countries in the region. Fist, differently than the dispersed ownership structure observed in common-law countries, the Chilean corporate structure presents highly concentrated ownership, which makes more plausible the expropriation of minority shareholders, and a widespread use of pyramid structures to separate cash from control rights, and opaque ultimate ownership identification (Lefort and Walker 2007b). Second, there are inefficient self-regulation practices concerning the capital markets (Lefort and González 2008). Third, the capital markets in Chile are relatively developed and characterized by a large participation of institutional investors (Gallego and Loayza 2000). Four, Chile is one of a handful of countries—particularly Latin-American countries—where a mandatory dividend of 30 % of net income is required (Gutiérrez-Urzúa et al. 2012) in order to protect the interest of minority shareholders. Finally, and also differently than in the market based countries like those enrooted in the common-law legal system, in Chile the banking system plays a major role financing firms' investment portfolios (Barth et al. 2004b; Bartholdy et al. 1997). Therefore, the agency problems between shareholder and managers might be properly addressed by capital structure decisions where bank financing acts as efficient corporate governance mechanism (Mongrut et al. 2010). Besides these arguments which make the Chilean case of particular interest, several empirical works suffer from two econometric problems in this kind of studies, named the endogeneity and the unobservable heterogeneity problems, which we try to address also in this work. In a recent review articulated by Brown et al. (2011), they argue that because of its breadth, the research in corporate governance is characterized by the lack of an unifying theory, how the models are specified, how the variables are defined and measured, and how the tests are applied. Therefore, we try to tackle at least some of these limitations in this paper. Thus, the goal of our paper is to determine to what extent firm value in the Chilean context is determined by ownership structure, capital structure and dividend policy as internal corporate governance systems.

   This paper contributes the current literature on corporate governance in different ways. First, we considered in the analysis the vertical (between managers and shareholders) and the horizontal (between controlling and minority shareholders) agency conflicts for the Chilean corporate sector. As it has been described above, the corporate sector and legal system in Chile differ substantially from that of the common-law countries which have been widely studied. So through this paper we

intend to shed light on whether the traditionally studied hypotheses in common-law countries behave in the same way for the particular case of Chilean firms. Second, we studied the non-monotonic relationship between firm value and ownership structure, which has not been yet properly addressed in the empirical literature for Chile. Third, in terms of the empirical analysis we improved the measure of the firm value through including in the analysis a proxy variable which considers the reposition cost of assets, not considered yet in the empirical literature for the Chilean corporate sector. Four, additionally, the econometrical analysis is enhanced by tackling properly the endogeneity and the individual heterogeneity problems. And five, we provide an insight into how the three most important internal corporate governance systems together drive the firm value for the Chilean firms.

The empirical findings support our research hypotheses. First, we find that there is a non-monotonic relation between firm value and the concentration of ownership. This result is supported by the supervision hypothesis which raises the firm value up to a threshold where the expropriation hypothesis becomes more popular, henceforth destroying value. Secondly, more leveraged Chilean firms solve more efficiently the agency problems of free cash flows, and therefore firm value tends to increase. Finally, payout policy also mitigates agency problems, increasing the firm value.

The rest of the paper continues with a literature review. Afterwards, the sample, variables and methodology used in the empirical analysis are described. Then the main results are displayed, and finally the paper draws its main conclusions.

## 2 Literature review and hypotheses development

While previous studies identify disciplinary devices such as managerial compensation policy, board characteristics, managerial labor market, and the market for corporate control (Adjaoud and Ben-Amar 2010; Bebchuk and Weisbach 2010; Chhaochharia and Grinstein 2007; Jensen 1986), we focus on ownership structure, dividend policy, and capital structure decisions as determinant of firm value. Since it is empirically demonstrated that good corporate governance leads to better or more efficient investment decisions and eventually to higher firm value, we try to observe how these three governance tools drive the value of Chilean firms.

### 2.1 Ownership structure

The most fundamental insight into the relationship between performance and ownership structure dates back to Berle and Means (1932), who argued that the separation of ownership and control of corporations reduces managers' incentives to maximize corporate efficiency, supporting their argument on agency costs. The way ownership is shared might alleviate or aggravate agency problems. In this context, it has been widely argued that concentrated ownership structures solve some agency problems because majority shareholders have an incentive to supervise their managers (Ang et al. 2000; Drees et al. 2012). This argument leads to a positive relationship between ownership concentration and firm value as posited by the

supervision hypothesis. Then, vertical agency conflicts which take into account the relationship between managers and shareholders might be reduced through concentrated ownership structures (Shleifer and Vishny 1986).

However, a highly concentrated ownership structure might cause the firm value to reduce, as highlighted by the expropriation hypothesis. Expropriation is the horizontal agency problem which takes place whenever majority shareholders use their decision making power in their own best interest, something which not necessarily corresponds with the one held by minority shareholders (de Miguel et al. 2004, 2005). As discussed later on, corporate ownership in Chile, with its high level of ownership concentration and the frequent use of pyramidal structures and conglomerates, differs from many other common-law countries (Lefort and Walker 1999–2000). The main agency problem in this context might not necessarily be the manager-shareholders conflict (as is the case in the US and in many Anglo Saxon countries) but the potential risk of expropriation of minority shareholders by the controlling shareholder (Shleifer and Vishny 1997; Dyck and Zingales 2004; He 2012; Laeven and Levine 2008).[1] The expropriation effect predicts a negative relationship between deviation from the one share-one vote rule and corporate governance best practices.

As a matter of fact, one of the most characteristic aspects of Chilean ownership structures is the widespread use of pyramid schemes as an effective way to exercise control over a wide variety of productive assets and a way of separating control from cash-flow rights in conglomerates (Lefort and Walker 2007a). Economic groups[2] in Chile tend to control several companies operating in different sectors of the economy, managing them in a coordinated way through formal and informal mechanisms (Lefort and González 2008). There is no a clear consensus about the impact of the affiliation to an economic group and the firm value however. Economic groups could be an efficient way for firms to deal with imperfect markets in Chile, establishing for instance, internal capital markets that compensate for the lack of more developed formal markets, setting the headquarters allocation of funds to the different business units in a credit constrained environment (Azofra et al. 2004). Moreover, Khanna and Palepu (2000) conclude that conglomerates are good to deal with corrupt governments, a highly regulated economy, and a poor legal system. Other benefits of conglomerate affiliation are, for instance, the synergies which arise when liquidating assets of specific units in response to general downturn (Shleifer and Vishny 1992), the risk diversification, and operation synergies such as

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[1] Shleifer and Vishny (1997) argue that in some countries the agency problem comes from the conflict between controlling owners and minority shareholders, instead of between managers and dispersed shareholders.

[2] Differently than other countries, business groups in Chile are formally defined as a set of companies which present such tight relationships and linkages in their property, management, administration, or credit liabilities, that there are grounds to believe that the economic and financial decisions of those companies are guided by or subordinated to the shared interest of the group, or that there are common financial risks in the credit obtained or in the financial instruments used (Article 96, Title XV, Mercado de Valores' Law 18.045, passed in October 21st, 1981). The list of economic groups is periodically updated by the *Superintendencia de Valores y Seguros* (Securities and Insurance Supervisor). Such publications have been released in different *Circulares* (Official Gazettes). The most recent one is *Circular* 1.664 (from April 10th, 2003).

economies of scale. In that sense, the conglomerate affiliation would increase the firm value. Nevertheless, group affiliation also exacerbates the risk of controlling shareholders expropriating minority shareholders by, for instance, among others: i) not paying dividends (He 2012); ii) controlling shareholders of economic groups have power over firms that exceeds their cash flow rights (Majluf et al. 1998). This discrepancy in cash flow rights and voting rights can create severe agency problems between controlling and minority shareholders, since it gives the former group substantial power over important strategic decisions while enabling them to avoid the full cost of any negative outcomes (Baek et al. 2004); and iii) when majority shareholders of conglomerates rely in a relatively small number of people in order to conduct business, and these people participate exclusively as board members of corporations affiliated to their group, representing the interests of the controller but not necessarily of the minority shareholders (Lefort and Walker 1999–2000). These arguments then would support a negative relation between the firm value and the conglomerate affiliation. This said, we believe that based on the weak existing corporate governance systems in Chile, the affiliation to a certain economic group should have more positive than negative impacts on the firm value, as long as the affiliation itself is used to compensate the governance inefficiencies.

Based on the arguments given above, our research hypotheses based on the ownership structure are:

**Hypothesis 1** The conjunction of the supervision and expropriation hypotheses stresses an inverse non-linear U-shaped relationship among the ownership structure and the firm value for Chilean firms.

**Hypothesis 2** The affiliation to an economic group works as a mechanism to compensate the weak governance system in Chile which impacts positively the firm value.

## 2.2 Capital structure

In their seminal work, Modigliani and Miller (1958) offered evidence that capital structure is unrelated to the value of the firm. 5 years later, they relaxed the perfect market assumptions and added corporate taxation in their models (Modigliani and Miller 1963), suggesting that the value of a firm is enhanced as the debt level raises.[3] In the following lines we will describe three mechanisms by which leverage is used as a corporate governance and control device enhancing firm value. The first comes from the use of debt as a disciplining device (Harris and Raviv 1991; Barclay et al. 2003; Jensen and Meckling 1976). In that sense, highly leveraged capital structures increase the firms' insolvency risk and the chance of losing a manager's job (López and Saona 2007). Therefore, executives will improve their performance in order to avoid both inefficient liquidations and takeovers whenever firms are leveraged. Therefore, higher debt levels enhance firm value.

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[3] Modigliani and Miller (1963) deduced their findings on the fact that interest paid is tax-deductible and hence, firms would enjoy a debt tax shield when funding their activities by long-term debt.

The second way debt improves firm value is determined by the restrictions imposed by the debt agreements on the use of free cash flows available for investing in projects with negative net present value (Jensen 1986).[4] This is a self-disciplining internal governance practice that mitigates agency costs by imposing obligations on the use of corporate cash flows (Jensen and Meckling 1976). This problem is usually called the 'overinvestment problem'—or free rider problem—addressed by the consumption of perks (Jensen 1986; Jensen and Meckling 1976).[5] Therefore, higher debt is the way to reduce free cash flow available for discretional use by executives. In this case, managers are forced to generate enough cash periodically in order to serve the debt principal and interest payments.

Lastly, the third way debt might align the interests of managers and shareholders by overcoming the potential opportunistic behavior of managers is through the kind of restrictive covenants contained in debt agreements. Lenders typically protect themselves by including provisions that prohibit the management of the firm to significantly alter its business or financial risk (Eriotis et al. 2007). The debt covenants are *ex ante* restrictions on the *ex post* actions of executives. Barclay and Smith (1996) identify two kinds of debt covenants that restrict the firm's investment, pay-out, and financing policies. They can be either affirmative covenants (e.g. those requiring the firm to maintain specific working capital balances and certain profitability ratios) or negative covenants that either prohibit the firm from issuing additional debt unless a specified financial ratio is maintained or limit the firm to undertake certain investments and financing activities unless certain conditions are satisfied (e.g. to achieve certain earnings for paying dividends). Alternatively, if no protective covenants are accepted by the firm, creditors may demand higher returns, in the form of higher interest rates.

In Chile bank debt is one of the most important source of external financing (Saona and Vallelado 2005, 2010; Gallego and Loayza 2000), and because of its very nature this type of debt contains a blend of both kinds of debt covenants (Jara et al. 2012). Therefore, it is expected that the higher the debt levels, the tighter the contractual conditions on managers who are compelled to improve their performance, and doing so, to improve the firm value. Considering the arguments above, our hypothesis on capital structure and firm value states:

**Hypothesis 3**  There is a positive impact of leverage on firm value for Chilean firms.

## 2.3 Dividend policy

Another financial decision embedded in the firm's performance is the dividend policy. Under the assumptions of frictionless and perfect capital markets *a la* Modigliani and Miller (1958), the dividend policy is irrelevant for company value and shareholders'

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[4] The free cash flows are those available for the discretional use of managers once the future growth opportunities with positive net present values have been financed.

[5] Perks figure prominently among sources of agency costs in the early contribution of Jensen and Meckling (1976). Example of perks may be the costly private jests, plush offices, and private boxes at sports events, country clubs memberships, celebrities on payroll, extravagant entertainment expenses, and expensive art, among many others.

wealth. However, the dividend pay-out might play different roles in capital markets characterized by large gaps of information and that are far from perfect (La Porta et al. 2000; Setia-Atmaja 2009). In a recent research, He (2012) documents that dividends received by investors, particularly minority shareholders, depend on whether a country's legal system or a company's corporate governance can effectively constrain agency problems and force corporate insiders or majority shareholders to disgorge cash. This better control of the agency problems is then a source of the firm value. Similarly, Brockman and Unlu (2009) find that both the probability and amount of dividend payouts are significantly lower in countries with poor creditor rights. Specifically, the dividend policy works as a disciplining device in two different ways.[6]

On the one hand, the pay-out policy has a dimension that reduces discretional managerial behavior (Ferris et al. 2009; Jensen 1986). Acharya et al. (2011) argue that this internal governance device can mitigate agency problems and ensure that firms have substantial value, even with little or no external governance by investors. External governance, even if crude and uninformed, can complement internal governance and improve efficiency. From this perspective, a higher pay-out policy reduces the free cash flow which limits managerial discretionary behavior thereby increasing the firm value. This argument is in line with the outcome model of La Porta et al. (2000) in which firms pay dividends because of minority shareholders use legal rights to pressure corporate insiders or controlling shareholders to disgorge cash. This model predicts that dividends are higher in countries where legal systems provide strong protection to minority shareholders.

On the other hand, the pay-out policy improves managerial supervision by incorporating the market as supervisor (López and Saona 2007). A firm which periodically pays-out cash dividends is obligated itself to obtain external financial sources for financing its profitable investment projects. In these cases, the firm is scrutinized by outsiders in the capital markets from whence the company obtains the external funds, and therefore, the managerial behavior is supervised by the participants in such markets (Easterbrook 1984). This tighter supervision by capital markets aligns the interests between shareholders and managers thereby increasing firm value. This argument is associated to the substitute model of dividends developed by La Porta et al. (2000), where insiders pay dividends because they want to establish a good reputation for decent treatment of minority shareholders, a reputation than can help reduce the cost of raising external capital in the financial markets.

In Chile there is a mandatory dividend pay-out of at least 30 % of annual earnings.[7] Only a handful of French-civil law countries around the world apply mandatory dividends as a remedial legal protection for shareholders, who have relatively few other legal rights (La Porta et al. 2000). Then this mandatory dividend

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[6] Traditional theories explain that firms pay dividends to signal managers' information to the markets or to meet demand for pay-outs form some dividend clienteles (DeAngelo et al. 2004; Denis and Osobov 2008), but now it seems to be the agency theory approach the most popular in determining the dividend policy of companies (He 2012; Brockman and Unlu 2009).

[7] Law of Public Corporations No18.046 passed in October 22nd, 1981 establishes that the mandatory dividend is not required in case the company has accrued losses. Additionally, in its Art. 79 this law describes that the dividend must be taken out of the net income, which is defined as the annual earnings minus 10 % of the tax equity capital.

makes the Chilean case quite interesting in order to be analyzed. In fact, the recent work of Gutiérrez-Urzúa et al. (2012) concludes that Chilean firms increase dividend pay-out in order to disclose information about the future investment projects as well as to apply a fear treatment to shareholders.

Therefore, all the arguments above on how the dividend policy determines the firm value support our fourth hypothesis.

**Hypothesis 4**   There should be a positive relationship between the pay-out policy and the firm value for Chilean firms.

### 2.4 Previous empirical literature in Chile

Although there have been several attempts to test supervision and expropriation hypotheses of ownership structure jointly with capital structure and dividend policy as corporate governance mechanisms, these have been applied principally in common-law countries (Maug 1998; Demsetz and Villalonga 2001; Setia-Atmaja 2009; Gibson 2003), and to a lesser extent in civil-law countries such as Japan (Yafeh and Yosha 2003), and Spain (de Miguel et al. 2005). However, there are no empirical works developed for Chile. For instance, for the Chilean context there are works on the relationship between performance and ownership structure, but they do not address properly neither non-linear relations or the endogeneity issues amongst the variables involved (Silva et al. 2006). Moreover, these works do not include the other corporate governance mechanisms such as the dividend policy and the capital structure.

For the Chilean scenario, most works have taken into consideration the analysis of economic groups/holdings and the development of financial and legal systems in order to explain the performance of its firms (Lefort and Walker 1999–2000; Rainieri and Valenzuela 2001; Espinosa 2009; Silva et al. 2006). In the same vein, these works show, in general, a negative relationship between ownership concentration and the firm's performance. Nevertheless, in a recent similar study, Espinosa and Maquieira (2010) report that there is no relation between ownership structure and performance for the Chilean ADR-issuing companies, in the same way as in USA companies. This suggests that for a Chilean ADR-issuing firm the ownership concentration does not necessarily affect its performance. Silva et al. (2006) develop a non-linear model supported in a cubic relation between ownership concentration and performance. The main shortcoming of a cubic formulation is basically that this is an empirical issue with a weak theoretical support. Concerning alternative mechanisms of corporate governance, Azofra et al. (2004) include capital and ownership structures in their analysis but they do not study the dividend pay-out. In the same way, López and Saona (2005) analyze ownership structure jointly with leverage position as a corporate governance mechanism to reduce management's discretionary earning, but once again, they do not consider dividends in their analysis. Regarding conglomerates in Chile as a governance device, Khanna and Palepu (2000) analyse the extent to which firms benefit from their affiliation to business groups. In this case, the measure of benefits used by the authors is basically the return on assets. The main drawback of this measure is that it does not consider the shareholders' wealth maximization rule of thumb. Silva and Majluf (2008) show

evidence that performance depends on ownership concentration. However, the authors do not properly treat the unobserved heterogeneity of firms and the reverse causation between ownership and firm performance. As it can be seen then, most of the works developed for the chilean case have many drawbacks either in the theoretical configuration and/or in the empirical application. Therefore, with the analysis of results developed below we intend to tackle some of these weaknesses observed in the previous literature for the Chilean scenario.

## 3 Sample, variables, and methodology

### 3.1 Sample description

The data base used in our empirical analysis is compounded by 184 non financial firms quoted in the *Bolsa de Santiago de Chile* (The Stock Exchange of Santiago de Chile) for the period from 2002 to 2010. The conjunction of these 184 individuals and the 9 cross sectional periods allows us to set up an unbalanced data panel with 1,317 firm-year observations and with an average of 7.15 continuous observations per firm which allow us to use the data panel methodology. The dataset was obtained from the audited financial statements and stock quotations at the end of each fiscal year gathered into the Economatica Data Base. We excluded from the analysis all financial firms such as banks because the very nature of their business and their regulatory system might bias our findings. We also excluded observations with negative equity which are firms technically in bankruptcy (Booth et al. 2001; Vallelado and Saona 2011). For the affiliation of firms to conglomerates/business groups we used information provided by the *Superintendencia de Valores y Seguros* (Securities and Insurance Supervisor).

As described in Table 1, this study involves the most important industrial sectors in the Chilean economy. The sample represents more than 91 % of the market capitalization excluding the financial sector. Table 1 also shows the panel composition in terms of firms and number of observations per industrial sector.

### 3.2 Construction of variables and model specification

The number of variables considered in the empirical analysis is directly related to the theoretical framework described above. Details on the construction of dependent and independent variables are given in the "Appendix". The dependent variable which is conventionally used in the literature has been measured through the Tobin's Q.[8] Due to this variable is typically being unobservable by outsiders; a

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[8] The theoretical definition of Tobin's Q coefficient is the ratio market value of the firm to replacement cost of assets. Nevertheless, Chung and Pruitt (1994) have compared the values of Q obtained by the method of Lindenberg and Ross (1981) with the market-to-book ratio, obtaining results showing that at least 96.6 % of the variability of Tobin's Q is explained by the market-to-book ratio. A similar correlation coefficient (96 %) is found by Perfect and Wiles (1994) between these two variables. The findings reported by Adam and Goyal (2008) show that, on a relative scale, the market-to-book assets ratio has the highest information content with respect to investment opportunities.

**Table 1** Panel data composition by industrial sector

| Industrial sector | Obs. | | Firms | | Mean mkt. cap. |
|---|---|---|---|---|---|
| | N | % | N | % | Thousand CL$ |
| Agriculture and fishery | 370 | 28.09 | 50 | 27.17 | 327,279.50 |
| Food and beverage | 201 | 15.26 | 28 | 15.22 | 409,187.80 |
| Construction | 19 | 1.44 | 4 | 2.17 | 209,736.60 |
| Electric energy | 224 | 17.01 | 29 | 15.76 | 1,298,098.00 |
| Mining | 103 | 7.82 | 13 | 7.07 | 276,666.70 |
| Paper pulp | 18 | 1.37 | 2 | 1.09 | 2,168,117.00 |
| Telecommunications | 47 | 3.57 | 8 | 4.35 | 349,232.00 |
| Textile | 17 | 1.29 | 4 | 2.17 | 8,603.00 |
| Transportation and services | 70 | 5.32 | 9 | 4.89 | 420,972.60 |
| Others | 248 | 18.83 | 37 | 20.11 | 201,073.20 |
| | 1,317 | 100.00 | 184 | 100.00 | |

common practice is to rely on proxy variables. For doing so, we used two alternative proxies for the Tobin's Q value: i) $Q1_{it}$ based on the alternative construction performed in Perfect and Wiles (1994) which considers the reposition cost of total assets, and ii) $Q2_{it}$ which is based on the widely used market-to-book ratio (Danbolt et al. 2002; Espinosa and Maquieira 2010; Adam and Goyal 2008).

The independent variables are associated with our three empirical hypotheses plus a number of control variables aimed at avoiding problems of misspecification. Concerning the first hypothesis about ownership structure, first we measure the ownership concentration ($Cn_{it}$) at 5 different levels (Espinosa 2009; Azofra et al. 2004; Saona and Vallelado 2005), and secondly, generate a dummy variable which identifies the affiliation of a firm to a onglomerate/business group ($GONGLOM_{it}$) to determine to what extent this affiliation enhances or destroys the firm value.

Concerning the second hypothesis about capital structure, we used the debt level ($DL_{it}$) variable (Frank and Goyal 2009; Saona and Vallelado 2012). For the third hypothesis on the dividend policy we used two alternative measures of the payout ratio, $DIV1_{it}$ (Pindado and De La Torre 2006), and $DIV2_{it}$ (Lefort and Walker 2007b; Adjaoud and Ben-Amar 2010).

As control variables we included conventional variables used in valuation models such as the firm's size ($SIZE_{it}$); the profitability or quality of investment projects ($PROF_{it}$); the collateral guaranty ($COLL_{it}$); and time ($DUMMYTEMP_{it}$) and industrial ($DUMMYIND_{it}$) dummy variables.

Then the model to be tested takes the following form:

$$Q1_{it} = \beta_0 + \beta_1 Cn_{it} + \beta_2 Cn_{it}^2 + \beta_3 DL_{it} + \beta_4 DIV_{it} + \beta_5 SIZE_{it} + \beta_6 PROF_{it}$$
$$+ \beta_7 COLL_{it} + \beta_7 CONGLOM_{it} + \beta_8 DUMMYTEMP_t + \beta_9 DUMMYIND_{it}$$
$$+ \eta_i + \eta_t + \varepsilon_{it}$$

$$(1)$$

where the error term is decomposed in $\eta_i$ which represents the firm-specific effect of each $i$ firm which captures all time-invariant variables such as managerial style and patterns of financial decisions, among others. The second component is $\eta_t$ which is the temporal effect for the $t$ periods considered in this study. The third component of the error term is $\varepsilon_{it}$ which is the stochastic error which varies cross-sectionally and over time.

### 3.3 Methodology

Due to the sample of data includes cross-sectional and time series information, the panel structure of our data is the most efficient tool to deal with the unobservable and constant heterogeneity of each firm included in the analysis. Additionally, the panel data methodology allows us to control for endogeneity or simultaneity problem (Arellano 2002), which might rise in some of the independent variables (e.g. ownership concentration, debt structure, and dividend policy). The relationships between the firms' characteristics and financial decisions must be interpreted carefully because of the possibility of observing spurious relations which foster endogeneity problems. An exogenous variable is that whose values are given and are not affected by the variable to be explained, which is said to be endogenous. Therefore, an econometric model that can deal with the endogeneity problem as well as the unobservable fixed effects of each firm is needed. Because in both of these problems, the independent variables are endogenous and correlated with the residuals of the regressions, therefore the OLS estimation is both biased and inconsistent (Brown et al. 2011). This econometric challenge might be overcome by using the generalized method of moments (GMM), which allows building instruments for those variables which are likely to be endogenous (Blundell and Bond 1998, 2002).

Hence, we come up with the two-step system estimator (SE) which considers the unobserved effect that transform the variables into first differences and uses GMM to deal with endogeneity problems. The system estimator involves equations in levels and in differences with their own instruments. For the equation in levels the instruments are the lagged differences of the independent variables, whilst for the equations in differences the instruments are the levels of the independent and dependent variables (Wooldrigde 2002; Arellano 2002). In this context, the choice of instruments is a key decision in handling the endogeneity problem. The variables that present this problem are ownership structure (de Andrés et al. 2004; Pindado and De La Torre 2004), leverage, and dividends (Setia-Atmaja 2009; Brown et al. 2011; Saona 2009).

To test the model specifications' validity, we use the Hansen/Sargan test of over identification of restrictions. This test examines the lack of correlation between the instruments and the error term. The AR1 and AR2 statistics measure first- and second-order serial correlation. We also compute the Wald-test of joint significance for all independent variables. Furthermore, we use the adjustment for small samples suggested by Windmeijer (2005) in order to improve the robustness of our results and avoid any potential downward bias in the estimated asymptotic standard errors.

## 4 Empirical results

### 4.1 Descriptive statistics

Table 2 describes the main statistics for the variables used in the empirical analysis. First of all, we can see that the firm's market capitalization represents 88.5 % of the replacement value of total assets for a typical firm ($Q$1). Nevertheless, the mean for $Q$2 is slightly above the unit (1.104) which means that in general, a typical Chilean firm generates value or has future growth options.

The high concentration of ownership in Chilean firms is not surprising. This device is widely used as a corporate governance mechanism when the enforcement of law is weak and/or when investors' rights are not well guaranteed by the institutional system (La Porta et al. 2008; Barth et al. 2004a; Demirgüç-Kunt and Levine 1996) such as is the case in Chile. This fact is revealed in the high concentration of ownership in the hands of the main five controlling shareholders. Table 2 reports that the main shareholder has, on average, 48.70 % of the outstanding shares. This concentration increases as long as we consider a higher number of shareholders in the calculation. For instance, the five most important (controlling) shareholders have on average three-fourths of the common equity in their hands (74.60 %).

The average debt level is 41.40 % of total assets which is also comparable with the findings in the previous empirical literature for the Chilean scenario (Saona 2007, 2011; de Andrés et al. 2004). The dividend policy for an average firm in Chile is about 50.04 and 42.70 % of net income and EBT, respectively. Profitability is

**Table 2** Descriptive statistics

| Variables | Mean | Median | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Q1 | 0.885 | 0.740 | 0.716 | 0.000 | 5.347 |
| Q2 | 1.104 | 0.842 | 1.056 | 0.001 | 9.810 |
| C1 | 0.487 | 0.471 | 0.250 | 0.040 | 1.000 |
| C2 | 0.619 | 0.631 | 0.233 | 0.078 | 1.000 |
| C3 | 0.683 | 0.693 | 0.221 | 0.103 | 1.000 |
| C4 | 0.719 | 0.749 | 0.206 | 0.115 | 1.000 |
| C5 | 0.746 | 0.780 | 0.194 | 0.120 | 0.999 |
| SIZE | 12.139 | 12.164 | 2.155 | 5.402 | 17.608 |
| DL | 0.414 | 0.414 | 0.225 | 0.000 | 1.000 |
| PROF | 0.061 | 0.057 | 0.128 | −0.924 | 0.856 |
| DIV1 | 0.504 | 0.392 | 0.510 | 0.000 | 3.926 |
| DIV2 | 0.427 | 0.323 | 0.475 | 0.000 | 5.132 |
| COLL | 0.459 | 0.482 | 0.273 | 0.000 | 0.999 |
| CONGLOM | 0.620 | 1.000 | 0.486 | 0.000 | 1.000 |
| Obs. | 1,317 | | | | |

The table describes the main descriptive statistics for the variables used in the empirical analysis. A description of the measure of the variables is provided in the "Appendix"

about 6 % of total assets, while fixed assets represent 45.90 % of total assets. In other words, a typical firm has, in general, a large proportion of assets to be used as both collateral and source of credit quality.

As expected, the two proxies for firm value $Q1$ and $Q2$ are highly correlated (0.95) as seen in Table 3, which means that these two measures can be used as alternative robustness variables. All variables which describe the ownership concentration at its different levels (from the main shareholder to the 5 most important/controlling shareholders) are negatively correlated with the firm value. This preliminary result denotes how important the expropriation of the wealth of minority shareholders in Chile is.

It is interesting to realize that there is no correlation between proxies for the dividend payout policy and the ownership structure. This means that there are no colineality problems. The preliminary results show a positive relation between the capital structure ($DL$) and the ownership structure, but not high enough to bias the results for colineality. It seems to be that these corporate governance mechanisms are compliments in Chile, as suggested in previous literature (Saona 2009; Saona and Vallelado 2005, 2010).

## 4.2 Multivariate analysis

In this part we empirically test our four research hypotheses. Table 4 panel A shows the regressions for the whole sample considering $Q1$ as the dependent variable. In this case, we have also included in the sample no-paying dividend firms and firms without debt.[9] The outputs of the regressions do not have problems of second order serial correlation, and the instruments used in the estimations are properly defined according to the Sargan-Hansen tests shown at the end of the table. Moreover, the variables considered in each regression are statistically significant as a whole (see Wald test).

In order to observe the inverse non-monotonic U-shaped form between value and ownership, the following condition must hold: $\beta_2 < 0 < \beta_1$. Accordingly, Table 4 panel A shows an inverse U-shaped relationship between each one of the different variables for ownership concentration and firm value ($Q1$) which allows us to accept our first hypothesis. The vertical conflict of interests between shareholders and managers—also called agency problem type I—is ameliorated due to the higher efficiency of controlling shareholders in disciplining managers. As discussed earlier, the literature has widely shown that a lower degree of legal protection to outside investors is associated with a higher degree of concentration of corporate ownership and the formation of economic groups (Himmelberg et al. 1999). Nevertheless, this value added by the ownership structure as an efficient device of governance has a limit. When the concentration achieves certain threshold (critical value) the supervision hypothesis is no longer active and the expropriation hypothesis takes its place, characterized by the destruction of value. The expropriation argument

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[9] Recall that if the company does not pay dividends or does not have any debt at all it means necessarily that the company does not use any of these governance devices (this issue will be discussed later on based on the results of Table 5).

**Table 3** Correlation matrix

| | Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Q1 | 1.00 | | | | | | | | | | | | |
| 2 | Q2 | 0.95 | 1.00 | | | | | | | | | | | |
| | | (0.00) | | | | | | | | | | | | |
| 3 | C1 | −0.14 | −0.10 | 1.00 | | | | | | | | | | |
| | | (0.00) | (0.00) | | | | | | | | | | | |
| 4 | C2 | −0.16 | −0.13 | 0.92 | 1.00 | | | | | | | | | |
| | | (0.00) | (0.00) | (0.00) | | | | | | | | | | |
| 5 | C3 | −0.16 | −0.14 | 0.85 | 0.98 | 1.00 | | | | | | | | |
| | | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | | | | |
| 6 | C4 | −0.16 | −0.15 | 0.81 | 0.95 | 0.99 | 1.00 | | | | | | | |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | | | |
| 7 | C5 | −0.16 | −0.15 | 0.78 | 0.92 | 0.97 | 0.99 | 1.00 | | | | | | |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | | | |
| 8 | SIZE | 0.08 | 0.03 | 0.05 | 0.05 | 0.06 | 0.07 | 0.10 | 1.00 | | | | | |
| | | (0.00) | (0.22) | (0.09) | (0.09) | (0.04) | (0.01) | (0.00) | | | | | | |
| 9 | DL | 0.15 | 0.09 | 0.04 | 0.09 | 0.11 | 0.12 | 0.12 | 0.34 | 1.00 | | | | |
| | | (0.00) | (0.00) | (0.12) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | | | | | |
| 10 | PROF | 0.20 | 0.15 | −0.09 | −0.07 | −0.06 | −0.04 | −0.03 | 0.17 | −0.17 | 1.00 | | | |
| | | (0.00) | (0.00) | (0.00) | (0.01) | (0.04) | (0.14) | (0.28) | (0.00) | (0.00) | | | | |
| 11 | DIV1 | 0.05 | 0.02 | −0.04 | −0.04 | −0.02 | −0.01 | 0.00 | 0.12 | −0.10 | 0.39 | 1.00 | | |
| | | (0.05) | (0.53) | (0.21) | (0.16) | (0.46) | (0.68) | (0.94) | (0.00) | (0.00) | (0.00) | | | |
| 12 | DIV2 | 0.04 | 0.01 | −0.04 | −0.04 | −0.02 | −0.01 | 0.00 | 0.06 | −0.14 | 0.34 | 0.87 | 1.00 | |
| | | (0.13) | (0.75) | (0.16) | (0.17) | (0.50) | (0.76) | (0.98) | (0.02) | (0.00) | (0.00) | (0.00) | | |

**Table 3** continued

| | Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | COLL | −0.13 | −0.04 | 0.05 | 0.00 | −0.03 | −0.05 | −0.08 | −0.05 | 0.02 | −0.05 | −0.04 | −0.06 | 1.00 |
| | | (0.00) | (0.12) | (0.07) | (0.96) | (0.21) | (0.05) | (0.00) | (0.10) | (0.51) | (0.10) | (0.20) | (0.02) | |
| 14 | CONGLOM | 0.06 | 0.01 | 0.14 | 0.11 | 0.10 | 0.09 | 0.10 | 0.43 | 0.09 | 0.12 | 0.10 | 0.08 | −0.08 |
| | | (0.04) | (0.70) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.01) |

The table shows the correlations coefficients among the variables, reporting $p$ values in parenthesis

**Table 4** Regression analysis with GMM system estimator

Panel A

| Variables | Q1 (1) | Q1 (2) | Q1 (3) | Q1 (4) | Q1 (5) |
|---|---|---|---|---|---|
| Intercept | 0.0246 | −1.1505*** | −1.4039** | −1.8824*** | −2.2125*** |
|  | 0.3116 | 0.4157 | 0.5848 | 0.7054 | 0.5171 |
| C1 | 1.7550* |  |  |  |  |
|  | 0.9935 |  |  |  |  |
| $C1^2$ | −1.6350* |  |  |  |  |
|  | 0.9043 |  |  |  |  |
| C2 |  | 8.0737*** |  |  |  |
|  |  | 1.0091 |  |  |  |
| $C2^2$ |  | −6.7465*** |  |  |  |
|  |  | 0.8952 |  |  |  |
| C3 |  |  | 8.8969*** |  |  |
|  |  |  | 1.8275 |  |  |
| $C3^2$ |  |  | −6.9288*** |  |  |
|  |  |  | 1.3663 |  |  |
| C4 |  |  |  | 9.3,823 *** |  |
|  |  |  |  | 2.1370 |  |
| $C4^2$ |  |  |  | −6.9600*** |  |
|  |  |  |  | 1.5357 |  |
| C5 |  |  |  |  | 8.9068*** |
|  |  |  |  |  | 1.5315 |
| $C5^2$ |  |  |  |  | −6.6130 *** |
|  |  |  |  |  | 1.0753 |
| SIZE | 0.0028 | −0.0158 | −0.0426** | −0.0435 * | −0.0088 |
|  | 0.0173 | 0.0202 | 0.0212 | 0.0224 | 0.0198 |
| DL | 0.5160*** | 0.4714** | 0.4422* | 0.4951** | 0.2965** |
|  | 0.1661 | 0.1980 | 0.2609 | 0.2252 | 0.1485 |
| PROF | 1.4790*** | 0.9048*** | 1.4520*** | 1.5772*** | 1.2722*** |
|  | 0.2224 | 0.2040 | 0.2611 | 0.2711 | 0.1900 |
| DIV1 | 0.0767*** | 0.0797*** | 0.0636*** | 0.0720*** | 0.0649*** |
|  | 0.0160 | 0.0163 | 0.0205 | 0.0219 | 0.0157 |
| COLL | −0.6679 *** | −1.1965 *** | −1.2592 *** | −1.0309 *** | −0.6580 *** |
|  | 0.1705 | 0.1895 | 0.2936 | 0.2596 | 0.1577 |
| CONGLOM | 0.5746*** | 0.5898*** | 0.7962*** | 0.8419*** | 0.8076*** |
|  | 0.0761 | 0.0806 | 0.2269 | 0.2153 | 0.0762 |
| Time dummies | Yes | Yes | Yes | Yes | Yes |
| Industry dummies | Yes | Yes | Yes | Yes | Yes |
| AR1 | −2.48** | −2.45** | −2.45** | −2.58*** | −2.43** |
| AR2 | 1.46 | 1.45 | 1.51 | 1.53 | 1.41 |
| Sargan-Hansen | 102.91*** | 98.43*** | 90.51*** | 89.3*** | 98.1*** |

**Table 4** continued

Panel A

| Variables | Q1<br>(1) | Q1<br>(2) | Q1<br>(3) | Q1<br>(4) | Q1<br>(5) |
|---|---|---|---|---|---|
| Wald | 215.24*** | 274.26*** | 95.75*** | 105.8*** | 220.4*** |
| Obs | 1,317 | 1,316 | 1,310 | 1,291 | 1,278 |
| Critical value | 0.537 | 0.598 | 0.642 | 0.674 | 0.673 |

Panel B

| Regressions | Critical values | (2)<br>0.598 | (3)<br>0.642 | (4)<br>0.674 | (5)<br>0.673 |
|---|---|---|---|---|---|
| (1) | 0.537 | 0.990* | 2.910* | 4.950** | 4.880** |
| (2) | 0.598 | | 5.350** | 16.070*** | 15.650*** |
| (3) | 0.642 | | | 2.800* | 2.630* |
| (4) | 0.674 | | | | 0.000 |

Panel A: The table shows the regression results for the GMM System Estimator. A detailed definition of variables is provided in the "Appendix". AR1 and AR2 correspond to the first- and second-order serial correlation tests. The Sargan-Hansen test is used in order to validate the chosen instruments. The Wald test is a Chi square test of the joint significance of all of the variables considered in the analysis. Critical Value is the threshold in the ownership concentration at which the firm value is maximized. Standard deviations are located beneath the regression coefficients. *, ** and *** indicate significance at the 10, 5 and 1 % levels, respectively

Panel B: The table describes the Wald-type test of non-linear restrictions for the differences among the critical values obtained in panel A above. *, ** and *** indicate significance at the 10, 5 and 1 % levels, respectively

supports the negative relation between deviation from the 'one share-one vote rule' and corporate governance best practices.

The main finding on this respect is that these holdings or conglomerates efficiently protect the interests of majority shareholders but expropriate the wealth of minority shareholders when the ownership concentration exceeds a certain threshold. The results indicate that value is created as long as ownership is in the hands of the main shareholder and increases up to the level of 53.70 % (first column, bottom line in Table 4).[10] Once the ownership concentration exceeds this level, minority shareholders' wealth is expropriated. The analysis might be replicated for higher levels of concentration, for instance when the outstanding shares are in the hands of the two, three, four or five largest shareholders. As it can be seen at the end of Table 4, the critical level increases as the number of shareholders used to measure ownership also increases. This finding might be supported by Lefort and Walker (1999–2000), who argued that controllers of Chilean conglomerates hold more equity than strictly needed for control, fact that

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[10] The critical value can be obtained by deriving the firm value with respect to the ownership concentration. Letting this partial derivative equal zero, this breakpoint is $CV = -(\beta_1/2\beta_2) = 0.537$. The same procedure is applied for all the other regressions.

suggests that cash-flow benefits, expropriation in other words, associated to minority shareholders are relatively large.

Table 4 panel B is a sub-product of the results obtained in panel A. This panel shows that as the number of shareholders included in the measure for the ownership concentration increases, the threshold at which the firm value is maximized increases also. Moreover, the table indicates that the thresholds are statistically different from each other; except for the case when we compare the threshold obtained when ownership concentration is in hands of the 4 and 5 largest shareholders. As a consequence, there is no way to observe value creation whenever ownership concentration is in the hands of the 4–5 largest shareholders with two-thirds of the outstanding shares.

The second hypothesis suggests that the affiliation to a certain economic group is a source of value. According to the results, the affiliation to the economic groups' variable (*CONGLOM*) is consistently positive and statistically significant. This empirical finding allows to accept the stated hypothesis where the affiliation to a business group enhances the firm value by at least three processes: (1) as a response to market imperfections, (2) the solidarity norms and codes of behavior within business groups, and (3) pressing down the cost of capital throughout intra-group capital markets.

Capital structure decisions have been widely recognized as a governance mechanism since high debt levels reduce the free cash flows available for overinvestment or investment in projects which do not maximize wealth for current shareholders. As expected in our third hypothesis, the debt level (*DL*) is positively related with the firm value. Debt agreements have at least three different sources of value. Firstly, through higher bankruptcy risk when the debt level increases. With higher bankruptcy risk managers are more likely to be fired. Therefore executives will avoid this situation, improving their performance and enhancing the firm value. The second explanation for the positive and statistically significant relationship between leverage and the firm value is the solution of agency problems caused by free cash flows. Higher debt levels induce managers to use free cash flow for paying off debt which otherwise would be used suboptimally in the consumption of perks. And the third way debt contracts improve firm value is through the debt covenants embedded in this kind of agreement.

The marginal impact of the capital structure on firm value can be measured by the coefficient of the variable (*DL*) shown in Table 4. The average value of this coefficient is about 0.4442, which means that if the debt level increases by about one standard deviation (recorded in Table 2), the firm value measured by *Q*1 will be enhanced by 0.0999 (=0.4442*0225).

The relationship between dividends (*DIV*1) and firm value (*Q*1) is positive and statistically significant in all of the five regressions in Table 4. This means that dividends are a source of value creation for the shareholders of the firm. The important role that the pay-out policy can play as a device of corporate governance in Chile comes from, firstly, the idea that dividends can assist dispersed (or minority) shareholders in monitoring managers (or large controlling shareholders) by reducing the free cash flow that otherwise can be expropriated (Jensen 1986; Setia-Atmaja 2009); and second, the notion that companies that pay dividends periodically are forced to raise funds in the capital markets more frequently, and

therefore subject themselves to outside scrutiny (Easterbrook 1984; Brown et al. 2011). Comparatively, the dividend policy has a relatively lower impact on the firm value than the capital structure decisions. Considering the findings displayed in Table 4, if the average pay-out ratio (*DIV*1) increases by one standard deviation, the firm value (*Q*1) will also increase by 0.0364 (=0.0714*0.510), which is almost one-third of the impact caused by changes in the capital structure (see above discussion).

The control variables are also statistically significant and determine the value of the companies to a considerable extent. The firm size (*SIZE*) seems to be statistically significant in regressions (3) and (4) only (see Table 4). This partial evidence shows a negative impact of the firm size which means that the firm value is destroyed when the firm grows. The agency arguments support this finding sustaining that as the firm grows it is more difficult for outsiders to observe the managerial behavior and the agency costs are relatively higher than for smaller firms. The complexity in both managing and overseeing the firm fosters managerial opportunistic behavior as the firm gets bigger. Therefore, agency problems are severe for larger companies, and this causes the value of the firm to decline.

Profitability (*PROF*) is positively related with firm value; whereas the measure for collateral (*COLL*) is negatively correlated. In this last case, fixed assets by themselves are not a source of value for firms. This idea is more in line with the development stage of the Chilean economy. For developing economies the investment in R&D and in intangible assets such as human resources is an essential source of value. The Chilean institutional framework and financial system have experienced a remarkable development over the last 20 years pushing up the economy and fostering the efficiency of firms and their control; although they are still far from perfect. These elements seem to give a higher relative importance to the intangible capital (e.g. managerial capability, know how, etc.) which supports the negative relationship observed between the relative size of fixed assets and the firm value.

Table 5 replicates the results recorded in Table 4 but in this case it excludes both firms which do not pay dividends and/or firms which do not have debt outstanding on their books. We did it in order to test specifically to what extent the debt and the payout policy behave as governance devices and impact the firm value. Recall that if the firm does not pay dividends or does not have any debt at all it means that in these particular cases, these two financial decisions are not used as corporate governance systems. Hence, Table 5 helps us to isolate this effect.

Briefly, it can be observed that our four hypotheses hold (panel A of Table 5). Firstly, concerning ownership structure, the supervision hypothesis takes place and then the expropriation hypothesis once the threshold (critical level) of concentration is passed through. In other words, the firm value is enhanced as the concentration increases, but then the value is destroyed when the ownership concentration is exacerbated. The findings also disclose that the affiliation to a certain conglomerate is a source of value. Secondly, the debt and dividend decisions mitigate the free cash flow conflicts among managers and shareholders. In summary, all these three internal corporate governance instruments complement each other, basically due to the weak protection of minority investors by the institutional setting.

Aside from the previous findings, it is noteworthy that when we consider both paying dividends firms and firms with outstanding debt only in the estimations

**Table 5** Regression analysis with GMM system estimator

Panel A

|  | Q1 (1) | Q1 (2) | Q1 (3) | Q1 (4) | Q1 (5) |
|---|---|---|---|---|---|
| Intercept | −1.2677*** | −1.6351*** | −1.5345*** | −1.5171*** | −1.8932*** |
|  | 0.2905 | 0.3156 | 0.2766 | 0.3081 | 0.3474 |
| C1 | 3.4645*** |  |  |  |  |
|  | 1.0248 |  |  |  |  |
| $C1^2$ | −3.7912*** |  |  |  |  |
|  | 1.1269 |  |  |  |  |
| C2 |  | 5.5820*** |  |  |  |
|  |  | 0.9596 |  |  |  |
| $C2^2$ |  | −5.4208*** |  |  |  |
|  |  | 0.8925 |  |  |  |
| C3 |  |  | 5.1124*** |  |  |
|  |  |  | 0.8400 |  |  |
| $C3^2$ |  |  | −4.5116*** |  |  |
|  |  |  | 0.6496 |  |  |
| C4 |  |  |  | 4.8078*** |  |
|  |  |  |  | 0.9063 |  |
| $C4^2$ |  |  |  | −4.0856*** |  |
|  |  |  |  | 0.6472 |  |
| C5 |  |  |  |  | 5.5722 *** |
|  |  |  |  |  | 0.9716 |
| $C5^2$ |  |  |  |  | −4.5187*** |
|  |  |  |  |  | 0.6503 |
| SIZE | 0.0378** | 0.0437** | 0.0253 | 0.0143 | 0.0211 |
|  | 0.0185 | 0.0174 | 0.0168 | 0.0138 | 0.0146 |
| DL | 1.2307*** | 0.8876*** | 1.0842*** | 1.2527*** | 1.2098*** |
|  | 0.1541 | 0.1628 | 0.1418 | 0.1322 | 0.1261 |
| PROF | 2.2546*** | 2.1126*** | 1.8534*** | 2.0151*** | 2.0290*** |
|  | 0.1690 | 0.1458 | 0.1275 | 0.1113 | 0.1120 |
| DIV1 | 0.0388*** | 0.0314*** | 0.0325*** | 0.0314*** | 0.0259*** |
|  | 0.0106 | 0.0094 | 0.0087 | 0.0086 | 0.0083 |
| COLL | −0.1926 | −0.3545** | −0.4325** | −0.3362** | −0.2559* |
|  | 0.1644 | 0.1636 | 0.1818 | 0.1471 | 0.1440 |
| CONGLOM | 0.6317*** | 0.5785*** | 0.6156*** | 0.6329*** | 0.6029*** |
|  | 0.0285 | 0.0263 | 0.0263 | 0.0234 | 0.0226 |
| Time dummies | Yes | Yes | Yes | Yes | Yes |
| Industry dummies | Yes | Yes | Yes | Yes | Yes |
| AR1 | −3.08*** | −3.38*** | −3.44*** | −3.47*** | −3.61*** |
| AR2 | 1.09 | 1.07 | 1.28 | 1.24 | 1.12 |
| Sargan-Hansen | 96.22*** | 96.68*** | 94.55*** | 94.82*** | 95.36*** |
| Wald | 3,209.65*** | 2,644.21*** | 2,556.3*** | 3,112.08*** | 3,342.06*** |
| Obs | 1,024 | 1,024 | 1,021 | 1,012 | 1,006 |
| Critical value | 0.457 | 0.515 | 0.567 | 0.588 | 0.617 |

**Table 5** continued

Panel B

| Regressions | Critical values | (2) 0.515 | (3) 0.567 | (4) 0.588 | (5) 0.617 |
|---|---|---|---|---|---|
| (1) | 0.457 | 9.400*** | 31.380*** | 31.960*** | 49.780*** |
| (2) | 0.515 | | 6.950*** | 9.970*** | 20.170*** |
| (3) | 0.567 | | | 0.850 | 4.800** |
| (4) | 0.588 | | | | 1.600 |

Regressions do not consider non-paying dividend firms and firms without debt only

Panel A: The table shows the regression results for the GMM System Estimator. A detailed definition of variables is provided in the "Appendix". AR1 and AR2 correspond to the first- and second-order serial correlation tests. The Sargan-Hansen test is used in order to validate the chosen instruments. The Wald test is a Chi square test of the joint significance of all of the variables considered in the analysis. Critical Value is the threshold in the ownership concentration at which the firm value is maximized. Standard deviations are located beneath the regression coefficients. *, ** and *** indicate significance at the 10, 5 and 1 % levels, respectively

Panel B: The table describes the Wald-type test of non-linear restrictions for the differences among the critical values obtained in panel A above. *, ** and *** indicate significance at the 10, 5 and 1 % levels, respectively

(Table 5), the critical values of ownership concentration are slightly lower than those estimated with the entire sample (which includes firms with and without dividends and firms with and without debt). In order to check if such a difference is statistically significant, we used the test of non-linear restrictions. In this case, we test whether the critical value (threshold) in regression 1, Table 4, is the same as the critical value in regression 1, Table 5, and so forth for the other regressions. For instance, the null hypothesis takes the form $H0 : - \left( \beta_1^{table4} / 2\beta_2^{table4} \right) = 0.457$, which appears in Table 5. In this case it is accepted the fact that the critical value in the first column in Table 4 is different than 45.7 % (which is in the first column in Table 5). We repeated the analysis for the rest of the regressions and the results are consistently drawn in the same way. In other words, whenever the sample includes firms which use debt and pay-out as governance devices (such as in Table 5), the expropriation appears at relatively higher levels of ownership concentration than when we additionally consider in the sample non paying dividend firms and firms with no debt. This result sheds additional light on the fact that the three corporate governance tools under study are complement disciplining devices. Finally, the findings of Table 5 are also consistent with those of Table 4 concerning the marginal impact of both the capital structure decisions and the dividend policy. In general, changes in debt decisions –leverage– impact substantially the firm value relative to the changes in the dividend policy. Both financial decisions are statistically significant which means that they can be used together as complementary governance devices. As it has been widely discussed in governance literature for the Latin-American context, the characterized weak protection to minority investors must be reinforced by complementary mechanisms (Santiago et al. 2009).

As a last analysis of the pay-out policy, a dummy variable which measures the fact that a firm pays more than the mandatory dividend was created (DUMMY-DIV1). This dummy variable takes the value 1 if the firm pays more than 30 % of their earnings in dividends and zero otherwise. Table 6 shows that those firms

paying more than the mandatory dividend experience higher value. A dividend policy which pays more cash than the one required by law is the result of the pressure exercised by minority shareholders in order to force insiders to pay cash. According to this finding, a better investor protection is associated with a more generous pay-out policy to shareholder, which at the end of the day is translated in a higher firm value. These arguments are usually referred to as the rent seeking theory (Lefort and Walker 2007b), and in the context of an emerging economy like the Chilean one, which is characterized by a high ownership concentration and extensive use of pyramidal structures, the rent seeking theory of the effect of agency problems on pay-out policy seems to be particularly relevant in explaining the firm value.

### 4.3 Robustness checks

In order to test the consistency of our results we ran a series of robustness checks. Firstly, we reran the regressions in Tables 4 through 6 with $Q_2$ as the dependent variable. The findings are in line with those shown in Tables 4 through 6, except when we use $C1$ (proportion of shares in the hands of the main shareholder) which in several times is not statistically significant. All the other conclusions remain the same. Secondly, we used the alternative measure for dividends ($DIV2$). In this case we also ran the regressions for the subsample which excludes non paying dividend firms and firms without corporate debt; and once again the results are systematically in line with those described in the previous section. However, in a few cases the variable $DIV2$ was insignificant. For space saving reasons we did not include the tables showing these results, but they can be made available upon request to the authors. Finally, we tested the results of the multivariate analysis assuming fixed effects in the firms individually considered. So, Table 7 replicates the results of Tables 4, 5, and 6 but assuming that fixed effects exists. In this table the direction of the relations (signs) and their significance are reported only. In general, the results are still robust although some level of significance in the coefficients is lost, which do not invalidate the prior contrast of our hypotheses. We used the Hausman test to verify the existence of fixed effects and we verified that the individual effects are not correlated with the regressors. Despite of these results, we are still more confident on those based on the GMM system estimator due that we cannot dissociate the fact that some of our independent variables are strictly endogenous. The fixed effect system can deal with the individual heterogeneity but cannot properly manage the simultaneity problems. Therefore, we just let the fixed effect results as a measure of robustness and consistency of our results.

## 5 Conclusions

The goal of this paper was to determine to what extent the ownership structure, the capital structure and the dividend policy as governance devices determine firm value in the Chilean corporate sector. Concerning this goal we derived the following conclusions.

**Table 6** Regression analysis with GMM system estimator

Panel A

| | Q1 (1) | Q1 (2) | Q1 (3) | Q1 (4) | Q1 (5) |
|---|---|---|---|---|---|
| Intercept | −0.4690 | −1.5706*** | −1.4126*** | −1.9849*** | −2.1374*** |
| | 0.4355 | 0.2971 | 0.3587 | 0.4568 | 0.5362 |
| C1 | 2.8099** | | | | |
| | 1.4011 | | | | |
| $C1^2$ | −2.4847** | | | | |
| | 1.2522 | | | | |
| C2 | | 9.2242*** | | | |
| | | 0.8821 | | | |
| $C2^2$ | | −7.5183*** | | | |
| | | 0.8296 | | | |
| C3 | | | 7.3634*** | | |
| | | | 1.4714 | | |
| $C3^2$ | | | −5.8034*** | | |
| | | | 1.1259 | | |
| C4 | | | | 7.2641*** | |
| | | | | 1.7496 | |
| $C4^2$ | | | | −5.4840*** | |
| | | | | 1.2633 | |
| C5 | | | | | 7.3921*** |
| | | | | | 1.7692 |
| $C5^2$ | | | | | −5.6374*** |
| | | | | | 1.2414 |
| SIZE | 0.0148 | −0.0074 | −0.0074* | 0.0161 | 0.0274 |
| | 0.0213 | 0.0216 | 0.0208 | 0.0200 | 0.0193 |
| DL | 0.5478*** | 0.2228 | 0.2674 | 0.2851 | 0.1979 |
| | 0.2064 | 0.1909 | 0.1964 | 0.1790 | 0.1644 |
| PROF | 1.3681*** | 0.9291*** | 1.2029*** | 1.3441*** | 1.2817*** |
| | 0.2446 | 0.2050 | 0.1972 | 0.1867 | 0.1875 |
| DUMMYDIV1 | 0.0766** | 0.1007*** | 0.0922*** | 0.1109*** | 0.1201*** |
| | 0.0388 | 0.0363 | 0.0299 | 0.0285 | 0.0330 |
| COLL | −0.4642*** | −0.8478*** | −0.7383*** | −0.3618** | −0.2107 |
| | 0.1806 | 0.1811 | 0.2093 | 0.1779 | 0.1418 |
| CONGLOM | 0.7023*** | 0.6151*** | 0.7939*** | 0.8068*** | 0.7868*** |
| | 0.1555 | 0.0739 | 0.0867 | 0.0795 | 0.0723 |
| Time dummies | Yes | Yes | Yes | Yes | Yes |
| Industry dummies | Yes | Yes | Yes | Yes | Yes |
| AR1 | −1.84* | −1.80* | −1.86* | −1.87 | −1.86* |
| AR2 | 1.05 | 1.06 | 1.1 | 1.09 | 1.07 |
| Sargan-Hansen | 90.81*** | 94.56*** | 0.93*** | 93.39*** | 93.6*** |

**Table 6** continued

Panel A

|  | Q1 (1) | Q1 (2) | Q1 (3) | Q1 (4) | Q1 (5) |
|---|---|---|---|---|---|
| Wald | 114.37*** | 474.59*** | 341.62*** | 299.75*** | 382.13*** |
| OBS | 1,342 | 1,340 | 1,331 | 1,312 | 1,299 |
| Critical value | 0.565 | 0.613 | 0.634 | 0.662 | 0.656 |

Panel B

| Regressions | Critical values | (2) 0.515 | (3) 0.567 | (4) 0.588 | (5) 0.617 |
|---|---|---|---|---|---|
| (1) | 0.565 | 0.647* | 1.800* | 0.357* | 3.140* |
| (2) | 0.613 |  | 1.160* | 6.500** | 4.990** |
| (3) | 0.634 |  |  | 2.720* | 1.660 |
| (4) | 0.662 |  |  |  | 1.160 |

Panel A:The table shows the regression results for the GMM System Estimator. A detailed definition of variables is provided in the "Appendix". AR1 and AR2 correspond to the first- and second-order serial correlation tests. The Sargan-Hansen test is used in order to validate the chosen instruments. The Wald test is a Chi square test of the joint significance of all of the variables considered in the analysis. Critical Value is the threshold in the ownership concentration at which the firm value is maximized. Standard deviations are located beneath the regression coefficients. *, ** and *** indicate significance at the 10, 5 and 1 % levels, respectively

Panel B: The table describes the Wald-type test of non-linear restrictions for the differences among the critical values obtained in panel A above. *, ** and *** indicate significance at the 10, 5 and 1 % levels, respectively

First, the ownership structure behaves as an efficient corporate governance mechanism up to a certain threshold of concentration, supporting the supervision hypothesis. Beyond this threshold the firm value is destroyed, according to the expropriation hypothesis. This novel interpretation of agency problems highlights the critical role played by majority shareholders as controllers, on the one hand, and as expropriators of the minority shareholders, on the other hand. Tied to the ownership structure, this work highlights the critical role played by the economic groups as devices to mitigate the constraints and inefficiencies in capital markets.

Second, the capital structure and the dividend policy are also efficient governance devices because they control for the free rider problem, reducing the free cash flows which otherwise might be used by executives in suboptimal investment decisions.

Third, the weak market for corporate control in Chile makes these three internal corporate governance tools compliments. Finally, we might draw some implications for different stakeholders. For instance, when the market for corporate control is not well developed, the internalization of certain mechanisms always generates opportunistic behaviors such as rent consumption by majority shareholders at the expense of minority shareholders. Therefore, as a policy issue, regulators, policy makers, and the institutional framework in Chile should develop in such a way that the corporate sector might rely more on external governance devices than on

**Table 7** Robustness analysis with estimations with fixed effect

| Variables | Replicated results of Table 4 | | | | | Replicated results of Table 5 | | | | | Replicated results of Table 6 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 (1) | Q1 (2) | Q1 (3) | Q1 (4) | Q1 (5) | Q1 (1) | Q1 (2) | Q1 (3) | Q1 (4) | Q1 (5) | Q1 (1) | Q1 (2) | Q1 (3) | Q1 (4) | Q1 (5) |
| Intercept | −** | −** | −*** | −*** | −*** | −*** | −** | −*** | −*** | −*** | − | − | −*** | −*** | −* |
| C1 | +*** | | | | | +* | | | | | +*** | | | | |
| C1² | −** | | | | | −** | | | | | −*** | | | | |
| C2 | | +*** | | | | | +*** | | | | | +** | | | |
| C2² | | −* | | | | | − | | | | | − | | | |
| C3 | | | +** | | | | | +*** | | | | | +*** | | |
| C3² | | | −*** | | | | | −*** | | | | | −** | | |
| C4 | | | | +** | | | | | +*** | | | | | +*** | |
| C4² | | | | −** | | | | | −** | | | | | −** | |
| C5 | | | | | + | | | | | +** | | | | | +* |
| C5² | | | | | − | | | | | − | | | | | − |
| SIZE | −*** | + | −*** | −** | − | −*** | −** | −*** | − | − | +*** | +* | + | + | +* |
| DL | +** | +*** | +*** | + | +* | +** | +*** | +*** | +*** | +** | +*** | +*** | + | +** | +* |
| PROF | + | + | +** | +** | +* | +*** | +*** | +** | +*** | +** | + | + | +** | +** | +* |
| DIV1 | +** | + | + | +** | +** | +* | +* | +** | + | +** | | | | | |
| DUMMYDIV1 | | | | | | | | | | | +* | + | +** | +* | + |
| COLL | −*** | −*** | −*** | −*** | −*** | −*** | −*** | −*** | −*** | −*** | −** | −*** | −*** | −*** | −** |
| CONGLOM | − | − | +** | +*** | +* | − | + | + | +*** | +*** | +*** | + | + | +*** | +*** |
| Time dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Obs | 1,317 | 1,316 | 1,310 | 1,291 | 1,278 | 1,317 | 1,024 | 1,024 | 1,021 | 1,012 | 1,342 | 1,340 | 1,331 | 1,312 | 1,299 |

This table summarizes the replicated results of Tables 4, 5, and 6 through fixed effects

internal mechanisms. The generation of unifying policies in terms of codes of conduct, disclosure of information, and protection of minority claimants, among others, is the challenge policy makers will face out for the current decade. The improvement of exogenous governance devices will eventually improve the performance of the Chilean corporate sector.

This work is not absent of limitations and drawbacks. The main one is perhaps the analysis concerning the ownership structure. Due to limited access to the nature and identification of the controlling shareholders and managerial ownership, we were not able to figure out, for instance, what the role was of family firms on firm value, on the one hand, and how managerial ownership drives value creation, on the other. Hence, as a future research line, following Baek et al. (2004) it would be interesting to study in what extent the firm value changes during a period of economic crisis, and how the value creation is determined by both the nature of the shareholder and internal/external CEOs.

## Appendix

Dependent variables

Firm value:

$$Q1 = \frac{MkCptz_{it} + TD_{it}}{K_{it}}$$

where $MkCptz_{it}$ is de market capitalization computed as the product among the year-end close price per share and the number of shares outstanding per $i$ firm; $TD_{it}$ is the total liabilities at the year $t$; and $K_{it}$ is the replacement value of firms' assets which is estimated in Perfect and Wiles (1994) as follows:

$$K_{it} = RNP_{it} + RINV_{it} + (TA_{it} - BNP_{it} - BINV_{it})$$

where $RNP_{it}$ is the replacement cost of net property, plant, and equipment (net fixed assets); $RINV_{it}$ is the replacement value of inventories, $TA_{it}$ is the total assets; $BNP_{it}$ is the book value of net property, plant, and equipment; and $BINV_{it}$ is the book value of inventories.

$$RNP_{it} = RNP_{it-1}\left[\frac{1+\phi_t}{1+\delta_{it}}\right] + I_{it}$$

For $t > t_0$ where $t_0$ is the 1 year of observations for a given company in this study; whilst $RNP_{ito} = BNP_{ito}$. Moreover, $\phi_t$ is the growth of capital good prices in year $t$ which is defined by the Gross Domestic Product (GDP) deflactor. In other words, $\phi_t = \frac{NomGDP_t}{RealGDP_t}100$, where $NomGDP_t$ is the nominal GDP and $RealGDP_t$ is the real GDP, both reported by the National Institute of Statistics of Chile. $\delta_{it}$ is the real depreciation rate defined as $\delta_{it} = \frac{Dep_{it}}{BNP_{it}}$, where $Dep_{it}$ is the annual book depreciation.

$I_{it}$ is the new investment en property, plant, and equipment or capital expenditure which is defined as $I_{it} = BNP_{it} - BNP_{it-1} + Dep_{it}$.

$$RINV_{it} = BINV_{it}\left[\frac{2WPI_t}{WPI_t + WPI_{t-1}}\right]$$

where $WPI_t$ is the wholesale price index reported by the National Institute of Statistics of Chile. This estimation for the replacement value of inventories assumes that the inventory accounting method is the average cost. For this method, the value of inventories reported at time $t$ is approximately equal to the average of the prices at $t - 1$ and $t$. Alternative measure for firm value:

$$Q2 = \frac{MkCptz_{it} + TD_{it}}{TA_{it}}$$

Independent variables

Ownership structure:

$$Cn_{it}$$

where $Cn_{it}$ (where $n = 1\ldots5$) denotes the percentage of common shares held by the main shareholder to the five most important shareholders. In the estimation we have also used these variables squared to test the supervision and expropriation hypotheses.

Dividends:

$$DIV1_{it} = \left|\frac{Dividends_{it}}{NI_{it-1}}\right|$$

where $Dividends_{it}$ are the cash annual dividends and $NI_{it-1}$ is the net income.[11]

$$DIV2_{it} = \frac{Dividends_{it}}{K_{it}}$$

Firm size: $SIZE_{it} = Ln(K_{it})$ defined as the natural logarithm of the replacement cost of total assets $Ln(K_{it})$. The natural logarithm transformation is the usual method when dealing with a variable which takes large and positive values.

Quality of investment projects: $PROF_{it} = \frac{EBT_{it}}{TA_{it}}$ where $EBT_{it}$ are the earnings before taxes.

Collateral:

$$COLL_{it} = \frac{BNP_{it}}{TA_{it}}.$$

# References

Acharya VV, Myers SC, Rajan RG (2011) The internal governance of firms. J Finance 66(3):689–720. doi:10.1111/j.1540-6261.2011.01649.x

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[11] We used this widely used measure for dividend payout ratio even though many times the paid cash dividends may come from earnings attained in different years.

Adam T, Goyal V (2008) The investment opportunity set and its proxy variables. J Financial Res 31(1):41–63

Adjaoud F, Ben-Amar W (2010) Corporate governance and dividend policy: shareholders' protection or expropriation? J Business Finance Acc 37(5–6):648–667. doi:10.1111/j.1468-5957.2010.02192.x

Ang JS, Cole RA, Lin JW (2000) Agency costs and ownership structure. J Finance 55(1):81–106

Arellano M (2002) Sargan's instrumental variables estimation and the generalized method of moments. J Business & Econ Static 20(4):450–459

Azofra V, Saona P, Vallelado E (2004) Estructura de propiedad y oportunidades de crecimiento como determinantes del endeudamiento de las empresas chilenas. Revista ABANTE 7(2):105–145

Baek J-S, Kang J-K, Suh Park K (2004) Corporate governance and firm value: evidence from the Korean financial crisis. J Financial Econ 71 (2):265–313. doi:10.1016/S0304-405X(03)00167-3

Barclay M, Smith C (1996) On financial architecture. Leverage, maturity, and priority. Journal of Applied Corporate. Finance 8(4):4–17

Barclay M, Max L, Smith C (2003) The joint determination of leverage and maturity. J Corp Finance 9(2):149–167

Barth J, Caprio G, Levine R (2004a) Bank regulation and supervision: what works better? J Financial Intermed 3(2):205–248

Barth JR, Caprio G Jr, Levine R (2004b) Bank regulation and supervision: what works best? J Financial Intermed 13 (2):205–248. doi:10.1016/j.jfi.2003.06.002

Bartholdy J, Boyle G, Stover R (1997) Corporate capital structure and regulation of bank equity holdings: some international evidence. Multinatl Finance J 1(1):60–80

Bebchuk LA, Weisbach MS (2010) The state of corporate governance research. Rev Financial Stud 23(3):939–961. doi:10.1093/rfs/hhp121

Berle A, Means G (1932) The modern corporation and private property. McMillan, New York

Blundell R, Bond S (1998) Initial conditions and moment restrictions in dynamic panel data models. J Econ 87:115–143

Bond S (2002) Dynamic panel data models: a guide to micro data methods and practice. Portuguese Econ J 1(2):141–162

Booth L, Aivazian V, Demirgüç-Kunt A, Maksimovic V (2001) Capital structures in developing countries. J Finance 56(1):87–130

Brockman P, Unlu E (2009) Dividend policy, creditor rights, and the agency costs of debt. J Financ Econ 92(2):276–299. doi:10.1016/j.jfineco.2008.03.007

Brown P, Beekes W, Verhoeven P (2011) Corporate governance, accounting and finance: a review. Accounting & Finance 51(1):96–172. doi:10.1111/j.1467-629X.2010.00385.x

Chhaochharia V, Grinstein Y (2007) Corporate governance and firm value: the impact of the 2002 governance rules. J Finance 62(4):1789–1825. doi:10.2307/4622317

Chung K, Pruitt S (1994) A simple approximation of Tobin's Q. Financ Manage 23(3):70–74

Danbolt J, Hirst I, Jones E (2002) Measuring growth opportunities. Applied Financial Econ 12:203–212

de Andrés P, San Martín P, Saona P (2004) Decisiones financieras en la empresa chilena: una mirada a través de las oportunidades de crecimiento. Revista ABANTE 7(1):3–34

de Miguel A, Pindado J, de la Torre C (2004) Ownership structure and firm value: new evidence from Spain. Strateg Manag J 25(12):1199–1207. doi:10.1002/smj.430

de Miguel A, Pindado J, De La Torre C (2005) How do entrenchment and expropriation phenomena affect control mechanisms?Corporate Governance. Int Rev 13(4):505–516. doi:10.1111/j.1467-8683.2005.00445.x

DeAngelo H, DeAngelo L, Skinner DJ (2004) Are dividends disappearing? dividend concentration and the consolidation of earnings. J Financ Econ 72(3):425–456. doi:10.1016/s0304-405x(03)00186-7

Demirgüç-Kunt A, Levine R (1996) Stock market development and financial intermediaries: stylized facts. World Bank Econ Rev 10:291–321

Demsetz H, Villalonga B (2001) Ownership structure and corporate performance. J Corp Finance 7(3):209–233

Denis D, Osobov I (2008) Why o firms pay dividends? international evidence on the determinants of dividend policy. J Financ Econ 89(1):62–82. doi:10.1016/j.jfineco.2007.06.006

Drees F, Mietzner M, Schiereck D (2012) Effects of corporate equity ownership on firm value. Rev Manag Sci:1–32. doi:10.1007/s11846-012-0080-2

Dyck I, Zingales L (2004) Private benefits of control: an international comparison. J Finance 59:537–600

Easterbrook FH (1984) Two agency-cost explanations of dividends. Am Econ Rev 74(4):650–659

Eriotis N, Vasiliou D, Ventoura-Neokosmidi Z (2007) How firm characteristics affect capital structure: an empirical study. Manag Finance 33(5):321

Espinosa C (2009) Estructura de propiedad y desempeño de la firma: el caso chileno. Academia, Revista Latinoamericana de Administración 43:41–62

Espinosa C, Maquieira C (2010) Desempeño y concentración de la propiedad en empresas chilenas emisoras de amerian depositary receipts (ADR). Cuadernos de Administración de Bogotá (Colombia) 23(40):95–116

Ferris S, Sen N, Unlu E (2009) An international analysis of dividend payment behavior. J Bus Finance & Acc 36(3 & 4):496–522

Frank M, Goyal V (2009) Capital structure decisions: which factors are reliably important? Financ Manage 38(1):1–37. doi:10.1111/j.1755-053X.2009.01026.x

Gallego F, Loayza N (2000) Financial structure in Chile: macroeconomic development and microeconomic effects. Economía Chilena 3(2):5–30

Gibson MS (2003) Is corporate governance ineffective in emerging markets? J Financial Quant Analysis 38(1):231–250

Gutiérrez-Urzúa M, Yañez-Alvarado M, Umaña-Hermosilla B (2012) Análisis de la política de pago de dividendos en empresas chilenas. Estudios Gerenciales 28(123):27–42

Harris M, Raviv A (1991) The theory of capital structure. J Finance 46(1):297–355

He W (2012) Agency problems, product market competition and dividend policies in Japan. Accounting & Finance 52(3):873–901. doi:10.1111/j.1467-629X.2011.00414.x

Hermalin BE, Weisbach MS (1991) The effects of board composition and direct incentives on firm performance. Financ Manage 20(4):101–112. doi:10.2307/3665716

Himmelberg C, Hubbard R, Palia D (1999) Understanding the determinants of managerial ownership and the link between ownership and performance. J Financ Econ 53(3):353–384

Jara M, Moreno M, Saona P (2012) Non-Linear relationship between growth opportunities and bank debt: a panel data analysis of chilean firms. Academia, Revista Latinoamericana de Administración 50:44–65

Jensen M (1986) Agency cost of free cash flow, corporate finance, and takeovers. Am Econ Rev 72(6):323–329

Jensen M, Meckling W (1976) Theory of the firm: managerial behaviour, agency cost and ownership structure. J Financ Econ 3(4):305–360

Khanna T, Palepu K (2000) The future of business groups in emerging markets: long-run evidence from Chile. Acad Manage J 43(3):268–285

Kole SR (1995) Measuring managerial equity ownership: a comparison of sources of ownership data. J Corp Finance 1(3–4):413–435. doi:10.1016/0929-1199(94)00012-J

La Porta R, Lopez-de-Silanes F, Shleifer A, Vishny R (2000) Agency Problems and Dividend Policies around the World. J Finance 55(1):1–33

La Porta R, Lopez-de-Silanes F, Shleifer A (2008) The economic consequences of legal origins. J Econ Lit 46(2):285–332

Laeven L, Levine R (2008) Complex ownership structures and corporate valuations. Rev Financial Stud 21(2):579–604. doi:10.2307/40056829

Lefort F, González R (2008) Hacia un mejor gobierno corporativo en Chile. Revista ABANTE 11(1):17–37

Lefort F, Walker E (1999–2000) Ownership and capital structure of Chilean conglomerates: Facts and hypotheses for governance. Revista ABANTE 3(1):3–27

Lefort F, Walker E (2007a) Do markets penalize agency conflicts between controlling and minority shareholders? Evidence from Chile. Dev Econ 45(3):283–314

Lefort F, Walker E (2007b) The effect of corporate governance practices on company market valuation and payout policy in Chile. In: Chong Lopez-de-Silanes (ed) Investor protection in Latin America. Stanford University Press, Stanford, pp 235–289

Lindenberg E, Ross S (1981) Tobin's Q ratio and industrial organization. J Bus 54(1):1–32

López F, Saona P (2005) Earnings management and internal mechanisms of corporate governance: empirical evidence from Chilean firms. Corp Owne Cont 3(1):17–29

López F, Saona P (2007) Endeudamiento, dividendos y estructura de propiedad como determinantes de los problemas de agencia en la gran empresa española. Cuadernos de Economía y Dirección de Empresa 31:119–146

Majluf N, Abarca N, Rodríguez D, Fuentes L (1998) Governance and ownership structure in Chilean economic groups. Revista ABANTE 1(1):111–139

Maug E (1998) Large shareholders as monitors: is There a trade-off between liquidity and control? J Finance 53(1):65–98. doi:10.1111/0022-1082.35053

McConnell JJ, Servaes H (1990) Additional evidence on equity ownership and corporate value J Financial Econ 27 (2):595–612 doi:10.1016/0304-405X(90)90069-C

Modigliani F, Miller M (1958) The cost of capital, corporation finance and the theory of investment. Am Econ Rev 68(3):261–297

Modigliani F, Miller M (1963) Corporate income taxes and the cost of capital: a correction. Am Econ Rev 53(3):433–443

Mongrut S, Fuenzalida D, Pezo G, Teply Z (2010) Explorando Teorías de Estructura de Capital en Lationoamérica. Cuadernos de Administración de Bogotá (Colombia) 23(41):163–184

Morck R, Shleifer A, Vishny RW (1988) Management ownership and market valuation: an empirical analysis. J Financ Econ 20:293–315. doi:10.1016/0304-405x(88)90048-7

Perfect S, Wiles K (1994) Alternative constructions of Tobin's Q: an empirical comparison. J Emp Finance 1:313–341

Pindado J, De La Torre C (2004) Why is ownership endogenous? App Econ Lett. 11(14):901–904. doi:10.1080/1350485042000267003

Pindado J, De La Torre C (2006) The role of investment, financing and dividend decisions in explaining corporate ownership structure: empirical evidence from Spain. Eur Financial Manag 12(5):661–687. doi:10.1111/j.1468-036X.2006.00272.x

Rainieri R, Valenzuela P (2001) El valor de las estructuras de propiedad en el desempeño de las empresas chilenas (1990–2000). Segundo Encuentro de Finanzas. Santiago

Santiago M, Brown CJ, Báez-Díaz A (2009) Prácticas de gobierno corporativo en América Latina. Academia, Revista Latinoamericana de Administración 43:26–40

Saona P (2007) La teoría de agencia y el entorno institucional como marco de análisis de la decisión de endeudamiento de las empresas no financieras de Chile y España. Spanish J Finance Acc XXXV 132:945–947

Saona P (2009) Corporate governance in Chile. In: López F (ed) Codes of good governance around the world. Nova Science Publishers Inc., New York, pp 87–98

Saona P (2011) Endeudamiento Bajo la Teoría de Agencia y el Enfoque 'Law & Finance': Un Estudio para Chile y España, 1st edn. Editorial Académica Española, Saarbrücken

Saona P, Vallelado E (2005) Ownership structure and growth opportunities as determinants of bank debt: evidence from Chilean companies. Manag Res 3(2):119–134

Saona P, Vallelado E (2010) Is the use of bank debt as a governance mechanism conditioned by the financial system? The cases of Chile and Spain. Appl Econ 42(13):1709–1726

Saona P, Vallelado E (2012) Firms' capital structure under akerlof's separating equilibrium. Spanish J Finance Acc XLI 156:471–495

Setia-Atmaja LY (2009) Governance mechanisms and firm value: the impact of ownership concentration and dividends. Corp Govern: An Int Rev 17(6):694–709

Shleifer A, Vishny R (1986) Large shareholders and corporate control. J Political Econ 94 (3, Part 1):461–488

Shleifer A, Vishny R (1992) Liquidation values and debt capacity: a market equilibrium approach. J Finance 47(4):1343–1366

Shleifer A, Vishny R (1997) A survey of corporate governance. J Finance 52(2):737–783

Silva F, Majluf N (2008) Does family ownership shape performance outcomes? J Business Res 61(6):609–614. doi:10.1016/j.jbusres.2007.06.035

Silva F, Majluf N, Paredes R (2006) Ownership structure and performance: empirical evidence from Chilean firms. Corp Own & Cont 3(4):173–181

Vallelado E, Saona P (2011) An integrated model of capital structure to study the differences in the speed of adjustment to target long term debt ratio among developed countries. Int J Banking Acc Finance 3(4):258–293

Windmeijer F (2005) A finite sample correction for the variance of linear efficient two-step GMM estimators. J Econ 126:25–51

Wooldridge J (2002) Econometric analysis of cross section and panel data. The MIT Press, The MIT Press

Yafeh Y, Yosha O (2003) Large shareholders and banks: who monitors and how? Econ J 113:128–146