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The influence of family and pyramidal ownership on corporate diversification in Chile

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ABSTRACT

In this paper we analyse the moderating effects of family nature and pyramidal ownership on the relationship between corporate diversification and performance in Chilean companies. Using a sample of 104 companies listed on the Santiago Stock Exchange between 2005 and 2016, we report a diversification discount. Second, we find that when firms are owned by a family, the relationship between performance and diversification is positive. However, when family ownership is pyramidal, the relationship between performance and diversification becomes negative.

1. Introduction

Recent studies on family firms have focused on examining how firms increase their performance (Wagner, Block, Miller, Schwens, & Xi, 2015), analyzing several features inherent of families such as CEO turnover, succession, entrepreneurship and corporate financial policy, among others (González, Guzmán, Pombo, & Trujillo, 2015; Rees & Rodionova, 2015). However, few attention has been given to the pyramidal ownership structures and its impact on the corporate decisions on family firms.

Two arguments can explain the influence of family control and the use of pyramidal ownership. On the one hand, the excess of control rights allows controlling shareholder to take advantage of pyramidal ownership structures and to search for private benefits of control throughout activities such as tunnelling,[1] thus maximizing the value of the base company (Claessens, Djankov, & Lang, 2000; Faccio & Lang, 2002). Alternatively, resources can be transferred to the listed company to boost its performance or to avoid default risk (Peng, Wei, & Yang, 2011). Thus, pyramidal ownership can be used to carry out both tunnelling and propping practices. On the other hand, if both the family firm's managers and the controlling shareholders interests converge, managers could be less inclined towards rent-seeking behaviour through financial policies (Kuo & Hung, 2012). This can be explained by stewardship theory, which supports a mutual interest convergence. When goal alignment between family insiders and outsiders is high, a stewardship environment will prevail (Pieper, Klein, & Jaskiewicz, 2008).

In this paper, we study the moderating effect of family ownership and the control enhancing mechanism (pyramidal structures) over the relationship between company performance and multi-segment corporate diversification for a sample of Chilean firms. Chile

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[1] Particularly, Tunnelling refers here to the transfer of resources from a low-level pyramid property structure company to another on a higher level (Johnson, Boone, Breach, & Friedman, 2000) while Propping is the other way around.

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provides a unique environment to test the effects of control-enhancing mechanisms on family. First, Chile has a Civil-Law-based tradition, with lower levels of investor protection than Common Law countries. Second, the use of pyramidal structures is highly characteristic of emerging markets such as Chile (Buchuk, Larrain, Muñoz, & Urzúa, 2014). Third, the most common agency conflict arises between majority and minority shareholders (Santiago-Castro & Brown, 2007). Fourth, ownership concentration is high. Fifth, the relationship between senior management and the family is generally very close and therefore minority shareholders can be expropriated by the administrators or owners using opportunistic means (Prencipe, Markarian, & Pozza, 2008). Finally, by mandatory law, the stock market regulator, *Superintendencia de Valores y Seguros* (*hereinafter SVS*) tracks the composition of business pyramids in the country.

Using a sample of 824 firm-year observations from 104 Chilean non-financial firms listed in the Santiago Stock Exchange for the period 2005–2016, our results show a negative relationship between family ownership and performance. In addition, we find that diversified companies impacts negatively firm's performance. However, when these companies are family owned, their performance turns positive. Finally, we report a negative relationship between performance and diversified companies for pyramidal-family ownership. Therefore, family-owned companies extract private control benefits through corporate diversification.

The article is structured as follows. Section 2 summarizes the theoretical framework and hypotheses; Section 3 presents the sample and methodology; Section 4 describes the results; and Section 5 concludes the paper.

2. Theoretical framework and hypotheses

2.1. Family ownership and performance firm

Globally, it has been widely documented that the most common form of business organization is the family ownership structure. Shleifer and Vishny (1986) find that in 55 per cent of companies, the major shareholder is a family group. Similarly, La Porta, Lopez-de-Silane, and Shleifer (1999) report that families are the controlling shareholders in 30% of large companies and 53% of small companies. Claessens et al. (2000) find that the majority of the large companies in East Asia are controlled by families (over 60% of the sample), and these owners participate in senior management. In Chile, Martínez, Stöhr, and Quiroga (2007) report that 75% of the companies are family owned, and Bonilla, Sepulveda, and Carvajal (2010) find that family-owned businesses makeup 68% of the listed companies.

Studies on family ownership, particularly those on family governance, have tackled the topic primarily through three theoretical perspectives: social capital theory, principle-agent theory (agency theory) and stewardship theory (Suess, 2014). Social capital theory describes the valuable assets and resources embedded in social relations and networks. Principal-agent theory describes the conflicting relationship between the two parties engaged in a contract. Type I agency problems involve the principal and the agent (Jensen & Meckling, 1976), while type II problems focus on conflicts between the minority and majority shareholders. Stewardship theory (ST) adopts a complementary perspective wherein it is assumed that agents (stewards) identify with the business and act in an altruistic, pro-organizational and cooperative way to guarantee benefits for the complete organization. In this context, an important number of research has reported evidence that The Stewardship Perspective (Le Breton-Miller & Miller, 2009; Miller & Le Breton-Miller, 2005) as well as The Principle-Agent Perspectives (Claessens, Djankov, Fan, & Lang, 2002; Morck, Wolfenzon, & Yeung, 2005) can explain the behaviour and performance of a family business. Based on these theories, the relationship between family ownership and business performance is not conclusive. On the one hand, it has been argued that the long-term orientation of family businesses and the alignment of interests from both managers and controlling shareholders can positively impact the business' performance. Accordingly, Maury (2006) reports that family ownership positively relates to the firm's financial performance in thirteen countries of Western Europe. It also shows that when a family has an active participation in the firm's management, financial performance is better than if it had a more passive role. Sraer and Thesmar (2007) find that French family businesses show a better performance than non-family ones. Kortelainen (2007) finds that family-owned businesses show a better financial performance in Norway than businesses not owned by families. Moreover, he reports that this better performance is found amongst *younger* and small companies. In Asia, Abdullah, Shah, Gohar, and Muhammad Iqbal (2011) report that for a sample of 158 firms in Pakistan, financial performance in family-run businesses is economically higher than those not owned by families, although the difference is not statistically significant. An and Naughton (2009) report that for Korea-based firms, family ownership is positively associated with the company's value. On the other hand, it has been argued that a high percentage of family ownership influences the selection of managers and directors by the family and transactions with companies related to the family group-amongst other actions families can carry out. This can lead to the adoption of potentially suboptimal policies that result in a poor performance of the company (Anderson & Reeb, 2003). Additionally, having a family as the controlling shareholder might lead to a poor performance if the family chooses to take advantage of its position and abandons profitable projects (Demsetz, 1983).

In Chile, studies have focused on the comparison between family-owned and non-family-owned companies. For example, Martínez et al. (2007) study the relationship between family ownership and financial performance of Chilean companies listed in the Santiago Stock Exchange between 1995 and 2004 and find that family-owned companies perform better financially than non-family-owned businesses do. Bonilla et al. (2010) find similar results to Chilean companies listed on the Santiago Stock Exchange between 1998 and 2007. In these studies, company performance is measured by the financial measurement of return on assets, ROA. It is noted that financial measurements used to assess company performance may be altered by manipulating accounting practices. In this sense, Jara-Bertin and Sepúlveda (2014) report manipulative accounting practices for a sample of Chilean companies during the same period considered by Bonilla et al. (2010), thus challenging the validity of the results. Moreover, the accounting measurement does not capture market expectations regarding company value. However, considering these expectations could lead to significant

differences in company value and its performance regarding a financial measurement.

Specifically, in order to study the relationship between family ownership and performance in Chilean companies, we have focused our research from the Agency Theory perspective. We decided to do this by a number of reasons. Firstly, Chile is an emerging economy that bases its financing on public capital markets. As a matter of fact, during 2012–2015, the amount of corporate bonds issued by Chilean firms reached historical levels. Specifically, in that period a total of US$37 billion was issued, which is close to the amount issued in the previous eight years.[2] However, large companies of the biggest sectors (productive and services sectors) generate most of long term banking debt. This is true even for companies belonging to economic groups or participations (diversified companies) that, despite having developed internal capital markets, maintain close long-term relationships with banks (Majluf, Abarca, Rodríguez, & Fuentes, 1998). This corporate system, along with high ownership concentration, has facilitated the forming of pyramidal ownership structures, which have contributed to the transfer of wealth from minority shareholders to controlling ones. Secondly, the most common agency conflict is between majority and minority shareholders, the latter favouring expropriation of wealth for the benefit of the former (Santiago-Castro & Brown, 2007). Thirdly, when ownership concentration is high, it is generally controlled by a sole shareholder or a business consortium that creates business groups with pyramidal structures to enable excessive control (Lefort & González, 2008). Fourthly, the type of legal system also contributes to agency problems. Chile is under a Civil Law system with little legal protection for investors compared to the Common Law system (Bianco & Casavola, 1999; La Porta, Lopez-de-Silane, Shleifer, & Vishny, 1998; Volpin, 2002). Fifthly, ownership of Chilean companies belongs to families who make up diversified business groups (Lefort & González, 2008) where manager selection is done mainly by the controller who normally appoints in these positions members of his or her own family or professionals who maintain a very close business or friendship relationship with the controller or controlling family (Brunello, Graziano, & Parigi, 2003). Thus, managers have a higher incentive to remain in office for several years striving to keep the trust of the controlling family instead of reporting, for instance, better quality financial statements. In turn, many of the senior managers of family-owned companies are themselves executives with a long-term trajectory inside the family group (either on the same company or others of the family group). This way, the relationship between senior management and the family is generally very close and minority shareholders can be expropriated by opportunistic means and by the managers or owners (Morck & Yeung, 2003; Prencipe et al., 2008). Based on the above, we propose the following hypothesis.

Hypothesis 1. Family ownership is negatively related to the performance of Chilean companies.

Our study is in agreement with that of Le Breton-Miller, Miller, and Lester (2011) who argue that the larger the number of family directors, officers, generations and votes, the less common stewardship behaviour will be; the more common agency behaviour will be and the more executives will be susceptible to family influence, as it is the case of Chilean companies.

2.2. Family ownership and corporate diversification

We consider corporate diversification an indirect tunnelling activity. Several studies have reported a diversification discount, which implies the diversion of resources from minority shareholders to the controller (Berger & Ofek, 1995; Campa & Kedia, 2002; Hoechle, Schmid, Walter, & Yermack, 2012; Lang & Stulz, 1994). Jara-Bertin, Lopez-Iturriaga, and Espinosa (2015) and Jara, López-Iturriaga, and Espinosa (2015) conducted a similar study for the Chilean case.

Since family firms are highly concentrated and more developed in certain businesses, the question is how family ownership moderates the relationship between corporate diversification and performance in Chilean firms.

From a theoretical perspective, family firms seek survival (Casson, 1999), opting for diversification strategies that create value without harming socio-emotional wealth. Despite family firms bring more reluctant to diversify than others (Goranova, Alessandri, Brandes, & Dharwadkar, 2007), when they do decide to participate in new businesses they have to satisfy their particular objectives without reducing socio-emotional wealth.

Gómez-Mejía, Haynes, Núnez-Nickel, Jacobson, and Moyano-Fuentes (2007), propose a model in which family firms are adverse to socio-emotional wealth loss. According to Cennamo, Berrone, Cruz, and Gomez-Mejia (2012), socio-emotional wealth includes elements such as the desire to maintain family control, the family's identification with the company, the presence of emotional links and the desire to ensure the firm's survival. The family's utility function thus maximizes both socio-emotional wealth and financial performance (Gómez-Mejía, Cruz, Berrone, & De Castro, 2011). The desire to maintain control of the firm and to preserve family links leads to priority being given to socio-emotional wealth versus financial performance (provided that the firm's survival is not at risk), and families are willing to sacrifice greater profits due to a corporate diversification strategy for the same of socio-emotional wealth.[3] When comparing family and other enterprises, then, diversification is expected to have a positive impact on the family-business performance. On the other hand, from the view point of agency theory a conflict may arise in which case diversification strategies facilitate the expropriation of the wealth of minority shareholders in favour of the family, with a negative impact on performance. Diversification enables the use of tunnelling practices (Johnson et al., 2000), with which the family can expropriate part of the wealth of minority shareholders by transferring assets elsewhere, or by transferring cash flow between firms to favour family interests (Lins & Servaes, 2002). Diversification also allows family members to work in the corporation's different companies (nepotism), with a negative effect on performance (Faccio, Lang, & Young, 2001). Given these arguments, it is difficult to quantify whether or not

[2] See Financial Stability Report 2016, Banco Central de Chile.

[3] Recent empirical results obtained by Hernández-Trasobares and Galve-Górriz (2017) for a sample of family and non-family businesses suggest that diversification and performance may not have a significant relation in the family business group.

tunnelling practices have a more negative impact on the effect of diversification on performance, compared to a diversification processes in non-family groups, in which they depend on more or less managerial discretion.

Given that there are models and empirical evidence to support either a positive or a negative relation regarding the relationship between corporate diversification and performance in the presence of family ownership, we have two hypotheses:

Hypothesis 2a. Family control has a positive moderating effect on the relationship between corporate diversification and performance in Chilean firms.

Hypothesis 2b. Family ownership has a negative moderating effect on the relationship between corporate diversification and the performance of Chilean companies.

2.3. Pyramidal ownership (excess of control rights)

In broad terms, the literature finds that the greater the excess of control rights over cash flow rights, the greater the opportunities to engage in private benefit extraction from minority shareholders; this is done by transferring resources amongst the companies that are under a control chain, diverting resources to elude creditors and expropriating corporate opportunities (Johnson et al., 2000; Shyu & Lee, 2009).

Conversely, Shyu and Lee (2009) report a negative relationship between control rights and excessive short term debt, suggesting that short term debt loaners, in practice, are monitors who control expropriation activities of major shareholders. Regarding the total debt ratio, Paligorova and Xu (2012) evidence that pyramidal structured companies, on average, show higher debt ratios, giving support to arguments related to the use of higher debt ratios and the increase in expropriation risk. Thus, higher leverage ratios in firms that present pyramidal ownership imply more potential of expropriation.

The concentrated ownership structure and the involvement of family members in management result in less separation between shareholders and managers and can lead to possible conflict between controlling family shareholders and minority shareholders (Sacristán-Navarro, Gómez-Ansón, & Cabeza-García, 2011). In such environment, depending on the type of control, family members may have incentives to prioritize their own interests at the expense of minority investors (Liu, Luo, & Tian, 2015). Clearly, a key issue for family firms is the intensification of the family control and the way to achieve it (Villalonga & Amit, 2009). If excessive control is achieved using pyramidal ownership, the controller of the company would have even more incentives to divert resources from minority shareholders of that company, by, for example, diversifying the product line. In this context, the benefits of product diversification would not be received by the company itself, but rather by the company at the base of the pyramid, thereby causing the performance of the initial family-owned company to drop. In this way, corporate diversification could be considered an indirect tunnelling activity for family-owned pyramidal companies. Thus, our hypothesis is as follows:

Hypothesis 3. Family and pyramidal ownerships have a negative impact on the relationship between corporate diversification and the performance of Chilean companies.

3. Sample and methods

3.1. Sample

We consider a panel of 104 companies listed on the Santiago Stock Exchange between 2005 and 2016, providing an unbalanced panel with 824 observations.

Financial accounting information is obtained from Thompson Reuters and Economatica. Consistent with comparable research, we use control chain methodology to identify the ultimate family (or family group) shareholder of the pyramidal structure, that is, the shareholder who effectively controls the firm (La Porta et al., 1999).[4] In this process we follow the weakest link plus direct participation to compute voting rights.[5] Cash flow rights are computed as the multiplication of indirect participation. We then sum the direct participation.

3.2. Variables

3.2.1. Dependent variable

To determine the value of a diversified company, we use the extent of excess value proposed by Berger and Ofek (1995) who divide the total value of the company by the sum of the values attributed to each productive segment as if each one is a single segment of an individual company. The excess value for a company is determined by the following equation:

$$\text{Exvalx}_{i,t} = \text{Log}\left(\frac{\text{MV}_{i,t}}{\text{Imputed Value}_{i,t}}\right) \quad (1)$$

[4] In some cases, the ultimate controller is a closed stock society. In this case, we identify the ultimate shareholder by the notarial document of the society constitution.

[5] In a few cases, we control dual class shares by weighting the voting power (number of directors elected by the series over total directors) of each share class.

$$\text{Imputed Value}_{i,t} = \sum (\text{SAsset}_{i,t} * \text{Multiplier}) \quad (2)$$

where $\text{Exvalx}_{i,t}$ is the excess value for firm i in year t; $\text{MV}_{i,t}$ is the firm's market capitalization (market value of common equity plus book value of debt) for firm i in year t; and Imputed Value is the sum of the product of the segment asset (and sales), SAsset, and the asset (and sales) multiplier, Multiplier, which is measured as the median total market capitalization to asset (and sales) for the single-segment firms in the same industry in the same year. A positive excess value indicates that the firm is worth more than the sum of its segments, whereas a negative excess value implies that the firm as a whole is worth less than the sum of its segments. Thus, a positive excess value implies a diversification premium, while a negative excess value indicates a discount. When we use the Multiple Assets, we term it resulting Excess Value EXALASSETS, and when we use the Multiple Sales, we refer to it as EXVALSALES. We also employ the market-to-book ratio to measure the performance of the company (QTOB) as a proxy of Tobin's q. We calculate the market-to-book ratio as the total book value of assets minus the book value of common equity plus the market value of common equity divided by the total book value of assets. This method of calculating company value has been widely used in the literature (Khanna & Palepu, 2000; Silva, Majluf, & Paredes, 2006).

3.2.2. Explanatory variables

To measure corporate diversification, we use a dichotomous variable *Div* that takes the value 1 when the company is diversified in non-related sectors, and 0 in other cases. To measure family ownership, we use the dichotomous variable *Fam* that takes the value 1 when the company is controlled by a family, and 0 in other cases. For pyramidal structure, we estimate the separation between rights to cash flow and control. The traditional argument to explain how pyramidal structures are formed is the separation between the rights to cash flow and voting (Almeida & Wolfenzon, 2006). Therefore, we calculate excess control rights (VRCR) as the difference between the cash flow rights (CR) and voting rights (VR) such that cash flow rights and control rights are estimated using the definition provided by Claessens et al. (2002) and Faccio and Lang (2002). Specifically, cash flow rights are the sum of the product of the ownership proportion along the control chain, and control rights are the minimum proportion along the chain of control. Additionally, in Appendix A we define SEP, which is a dichotomous variable that takes the value 1 when VRCR is greater than 0 and 0 in other cases. SEP1 and SEP2 are dichotomous variables where SEP 1 takes the value 1 when VRCR is greater than the VRCR average, and 0 in other cases, and SEP2 takes the value 1 when VRCR is lower than the VRCR average, and 0 in other cases, to measure companies with higher and lower pyramidal structures, respectively.

3.2.3. Control variables

We include a series of control variables that potentially affect company performance (Campa & Kedia, 2002), such as company size (LNTA) as measured by the natural logarithm of total assets, the degree of indebtedness (DTTA) as measured by the ratio of total debt to total assets, capital expenditures over sales (CAPEXSAL) representing growth opportunities. Additionally, we consider certain characteristics of the Chilean corporate system. CR represents cash flow rights, to capture high ownership concentration. Similarly, we include a PAFP variable to represent the percentage of ownership in the hands of institutional investors such as pension funds administrators to capture the degree of contestability with the controller and CRISIS, which is a dichotomous variable that takes the value 1 for the years of financial crisis, and 0 in other cases.

3.3. Modelling procedure

We estimated the following general model:

$$\text{Val}_{i,t} = \beta_1 \text{Div}_{i,t} + \beta_2 \text{Div}_{i,t} * \text{Fam}_{i,t} + \beta_3 \text{Div}_{i,t} * \text{Fam}_{i,t} * \text{VRCR}_{i,j,t} + \beta_4 \text{Div}_{i,t} * \text{VRCR}_{i,j,t} + \beta_5 \text{FAM}_{i,t} * \text{VRCR}_{i,j,t} + \text{CV}_{i,t} + \text{i}_k + \text{y}_t + \text{u}_{i,t} \quad (3)$$

where $Val_{i,t}$ is the proxy for firm's value (ExvalSales, ExvalAssets or Qtob); $Div_{i,t}$ is the diversification dummy variable; $Fam_{i,t}$ is the family owned firm dummy variable; VRCR is the difference between control rights and cash flow rights; $CV_{i,t}$ is a set of control variables, previously defined. In addition, we include a set of fixed effects at different aggregation levels to control for unobservable time-invariant and time-variant fixed effects. In particular, fixed effects are included at industry level (i_k) and year level (y_t).

3.4. Endogeneity

Extensive literature has highlighted the existence of problems with endogenous selection in corporate diversification models (Campa & Kedia, 2002; Villalonga, 2004). If we consider as a key assumption of the model that the diversification decision is related to the relative value of the firm, then we can expect that diversification is correlated to the error term of equations. As such, the estimated β_x coefficients can be biased due to the existence of endogeneity of the model. In support of this premise, an extensive body of literature has highlighted the existence of selection problems endogenous to the diversification and performance models (Campa & Kedia, 2002; Villalonga, 2004). To tackle these problems, we estimate the equations through data panel methodology, providing estimators with an efficiency beyond that of other estimation methods (Alonso-Borrego & Arellano, 1999; Arellano, 2003).

To fix the problems of endogeneity, we employed the GMM estimator system developed by Blundell and Bond (1998) and used all of the independent variables with lags of two and three years as instruments in differences for the equations in levels. According to this estimation method, the consistency of the estimators critically depends on the absence of serial second-order auto-correlations of the residuals and on the validity of the instruments (Arellano & Bond, 1991). Consequently, in our estimates, we compute a statistical

Table1
Descriptive statistics. Mean, standard deviation, minimum and maximum of each variable for the total sample.

Variables	Mean	Stand. Dev.	Minimum	Maximum
ExvalSales	−0.019	0.086	−0.296	0.161
ExvalAssets	0.027	0.105	−0.443	0.286
Qtob	1.036	0.479	0.191	4.52
Div	0.539	0.498	–	–
VRCR	0.068	0.122	0	0.779
CR	0.429	0.251	0.005	0.995
VR.	0.498	0.240	0.005	0.995
Fam	0.704	0.456	–	–
CAPEXSAL.	0.113	0.109	0	0.722
LNTA.	19.77	1.780	13.316	24.328
DTTA	0.249	0.122	0	0.627
PAFP	0.042	0.063	0	0.259

Table 2
Descriptive statistics according to diversified vs. undiversified criteria.

Variables	Diversified		Non-diversified	
	Mean	S.D.	Mean	S.D.
ExvalAssets	−0.031	0.090	0.001	0.079
ExvalSales	0.025	0.101	0.031	0.110
Qtob	0.968	0.547	1.095	0.415
VRCR	0.069	0.126	0.066	0.121
VR	0.481	0.231	0.517	0.250
CR	0.411	0.231	0.450	
Total obs.	444		380	

test of absence of serial second-order auto-correlations that we call Auto 2. To test the validity of the instruments, we use the Hansen test of over-identification restrictions under the null hypothesis of the absence of a co-relationship between the instruments and the error term.

4. Results and discussion

4.1. Descriptive analysis

Table 1 presents the general statistics of the variables being studied herein. Of the companies in the sample, 70.4% are family owned (Fam = 0.704), which is similar to the 75% reported by Martínez et al. (2007) and the 68% reported by Bonilla et al. (2010).

Conversely, 53.9% of the Chilean companies are diversified (Div = 0.539). Statistically we are not able to state if there is a premium or a discount for diversification (negative ExvalSales and positive ExvalAssets). Nonetheless, Chilean companies exhibited relatively low debt levels (DTTA = 24.9%). Ownership concentration is high (VR = 49.8%), with a low participation of pension fund administrators (AFPs) in the ownership of these companies (PAFP = 4.2%).

Table 2 reports the averages and standard deviations of the main variables for diversified and non-diversified companies. It is noted that diversified companies exhibit the poorest performance compared to non-diversified firms (for ExvalAssets, ExvalSales and Qtob).

4.2. Explanatory analysis

Table 3 reports the results of the equation estimates (3) using the value proxies as the dependent variable. As primary result, in all the columns of Table 3 we observe a negative relationship between the degree of corporate diversification and the performance of Chilean companies.

Jara-Bertin et al. (2015) argue that the presence of pyramidal structures and the existence of a last owner suggest a set of agency problems that may result in inefficient use of resources and loss of value for companies at the last level of the ownership chain. This is supported by the negative relationship between excess control rights and performance (i.e., VRCR = −2.93 in column 3 of Table 3), means that the greater the separation between voting rights and cash flow rights (pyramidal structure approach), the poorer the company performance. This may be interpreted as the agency costs outweighing the benefits (for example creating an internal capital market) of building a pyramidal ownership structure. Methodologically, the GMM results in Table 3 and in Appendix A pass the

Table 3
Family firms, diversification and firm's value – GMM regressions. $Val_{i,t} = \beta_1 Div_{i,t} + \beta_2 Div_{i,t} * Fam_{i,t} + \beta_3 Div_{i,t} * Fam_{i,t} * VRCR_{i,j,t} + \beta_4 Div_{i,t} * VRCR_{i,j,t} + \beta_5 FAM_{i,t} * VRCR_{i,j,t} + CV_{i,t} + i_k + y_t + u_{i,t}$. Estimated coefficients (*t*-statistic from robust standard errors) from the GMM system estimator regressions. $Val_{i,t}$ is the firm's value, and is represented by the Tobin's Q, ExvalAssets (Excess value estimated by assets multiples), or ExvalSales (Excess value estimated by sales multiples). $Div_{i,t}$ is a dummy variable that takes value 1 when the firm belongs to the multi-segment group, and zero otherwise. $Fam_{i,t}$ represent a dummy variable that takes value 1 when the ultimate shareholder is family, and zero otherwise. VRCR represent the divergence between voting rights and cash flow rights. $CV_{i,t}$ represents a set of control variables defined in table X. i_k is the industry effect, y_t denotes the yearly dummies, and $u_{i,t}$ represents the individual error term. *t*-statistics from standard errors clustered at firm level are in parentheses. ***, **, and * indicates a significance level < 1%, < 5%, and < 10%, respectively.

Variables	$Qtob_{i,t}$			$ExvalAssets_{i,t}$			$ExvalSas_{i,t}$		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Fam_{i,t}$	−0.123*	−0.136**	−0.228**	−0.266***	−0.931**	−0.853***	−0.487***	−0.861***	−1.135***
	(−1.862)	(−2.017)	(−2.250)	(−2.771)	(−5 6 3)	(−3.912)	(−5.001)	(−4.271)	(−4.089)
$Div_{i,t}$	−0.197***	−0.257***	−0.404***	−0.136**	−0.848***	−1.579***	−0.151*	−0.691***	−1.194***
	(−4.301)	(−5.244)	(−3.933)	(−2.138)	(−3.567)	(−5.411)	(−1.800)	(−2.705)	(−4.396)
$Div_{i,t}$ x$Fam_{i,t}$		0.185**	0.342**		1.199***	1.782***		1.193***	2.199***
		(2.264)	(2.449)		(4.104)	(4.389)		(3.312)	(4.343)
$Div_{i,t}$ x$Fam_{i,t}$ x$VRCR_{i,t}$			−1.658*			−7.816***			−17.726***
			(−1.797)			(−2.750)			(−4.314)
$Div_{i,t}$ x$VRCR_{i,t}$			3.020***			6.543**			11.791***
			(4.280)			(2.609)			(3.290)
$Fam_{i,t}$ x$VRCR_{i,t}$			0.660			−0.990			5.446*
			(0.774)			(−0.442)			(1.782)
$VRCR_{i,t}$			−2.937***			−1.355			−7.774**
			(−4.067)			(−0.596)			(−2.557)
$CR_{i,t}$	−0.223***	−0.295***	−0.419***	−0.353**	−0.834***	−0.737***	−0.353**	−0.963***	−1.139***
	(−3.137)	(−3.360)	(−4.900)	(−2.210)	(−3.475)	(−2.637)	(−2.055)	(−4.476)	(−3.055)
$LNTA_{i,t}$	0.056***	0.050***	0.049***	0.101***	0.108***	0.078***	0.119***	0.163***	0.171***
	(5.170)	(3.868)	(3.170)	(9.937)	(8.775)	(2.992)	(7.999)	(7.943)	(5.471)
$DTTA_{i,t}$	−0.459***	−0.375***	−0.228*	−2.037***	−2.191***	−1.421***	−2.326***	−3.382***	−2.123***
	(−2.939)	(−2.835)	(−1.703)	(−9.568)	(−6 2 7)	(−4.175)	(−7.670)	(−8.520)	(−4.359)
$PAFP_{i,t}$	2.033***	1.202***	0.208	2.032**	1.255	1.188	0.416	0.880	2.599*
	(5.848)	(4.126)	(0.512)	(2.510)	(1.511)	0.125)	(0.812)	(1.021)	(1.926)
$CAPEXSAL_{i,t}$.	0.031	0.069	0.164***	0.004	0.047	0.202	1.666***	1.164***	0.788***
	(0.364)	(0.625)	(3.581)	(0.033)	(0.290)	(0.973)	(9.966)	(4.373)	(2.933)
Obs.	824	824	824	824	824	824	824	824	824
No. Firms	104	104	104	104	104	104	104	104	104
F-test	26.6	27.7	25.2	22.1	22.5	19.8	27.3	27.45	25.16
Auto(2) p-value	0.130	0.136	0.218	0. 291	0.395	0.358	0.585	0.641	0.488
Hansen p-value	0.590	0.597	0.502	0.516	0.447	0.655	0.405	0.434	0.514
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

required tests of autocorrelation (AR(2)) and instrument validity (Hansen). These tests do not reject neither the null hypothesis of validity of the instruments (Hansen) nor the null hypothesis of absence of second-order autocorrelation.[6]

4.2.1. Family ownership and company value

Regarding H1, the results in all the columns of Table 3 indicate a negative relationship between family ownership (Fam) and performance (Qtob from columns 1–3, ExvalAssets from columns 4–6, and ExvalSales from columns 7–9, respectively), thereby confirming H1. Though these results are consistent with those reported by Silva and Majluf (2008) and contrary to the findings of Martínez et al. (2007) and Bonilla et al. (2010), who use a ROA proxy for financial performance.[7]

We argue that the negative relationship between family ownership and performance may be explained by the weak minority shareholder protection, low contestability capacity of AFPs and high ownership concentration, which is primarily in the hands of families. Empirical evidence reports that a high concentration of ownership is negatively related to performance in Chilean companies (Espinosa, 2009; Silva & Majluf, 2008). In this scenario, the main shareholders (family in this case) have incentives to engage in direct or indirect tunnelling activities and thus negatively impact company performance.

4.2.2. Family ownership, corporate diversification and company value

We contend that the main shareholders have incentives to engage in direct or indirect tunnelling activities, thus negatively

[6] These results hold for all GMM system estimations in the remaining tables.

[7] However, the ROA financial measurement does not capture market expectations regarding company value. It must be considered that these expectations could cause significant differences in company value and performance due to the financial measurement.

impacting company performance. In this context, our attention is drawn to the role of the family when the company diversifies its product line.

Column 2 and 3 of Table 3 present a positive and statistically significant (at 5% percent) relationship between family-owned diversified companies and performance using Tobin's Q (Div*Fam = 0.342), thereby confirming H2a. The results of columns 5 and 6, and 8 and 9 confirm these findings using ExvalAssets and ExvalSales, respectively, as dependent variables.

From the agency theory perspective, diversified companies have less concentrated ownership than non-diversified companies (see Table 2). Similarly, excessive control rights are fewer. This may be a sign that the negative relationship between family ownership and performance could be influenced by concentration and by the pyramidal ownership structure of the company. In the case of diversified companies where concentration and pyramidal ownership structures are lower, family ownership may use its management and governing capacities to positively impact company performance.

4.2.3. Family and pyramidal ownership, corporate diversification and company value

In this section, we study the moderating effect of family ownership on the relationship between corporate diversification and performance when the company is structured by pyramidal ownership. Column 3 of Table 3 shows a negative relationship between pyramidal diversified family-owned companies and performance (Div*Fam*VRCR = −1.658), thus confirming H3. The results of columns 6 and 9 confirm these findings using ExvalAssets and ExvalSales, respectively, as dependent variables.

Specifically, we find evidence that the positive effect of family ownership of diversified companies on performance is diluted when the company has a pyramidal structure of ownership. Accordingly, we infer that the benefits of product diversification are not directed towards their own company, but towards the company at the base of the pyramid.

4.2.4. Robustness

To give robustness to our final results, in Appendix A, we consider only the case in which excess control rights (VRCR) is higher than 0 (SEP). That is, we only evaluate the case in which the company has a separation between voting rights and cash flow rights. The results of columns 1, 3 and 5 confirm our findings. The three cases show negative relationships between family-owned pyramidal diversified companies as well as performance proxies.

Finally, we evaluate the case in which excess control rights are greater than and less than the average (SEP1 and SEP2, respectively). In general, regardless of the magnitude of the excess control rights (columns 2, 4 and 6), i.e., above or below the average, we found that pyramidal family ownership structure relates negatively to the performance of diversified companies in Chile.

5. Conclusions and future lines of research

Considering a sample of 104 companies listed on the Santiago Stock Exchange in Chile, between 2005 and 2016, we studied the pyramidal family ownership's moderating effect on the relationship between corporate diversification and performance in Chilean companies.

We conducted the research in four stages. We first studied the relationship between diversification and performance and found diversification discount in Chilean companies. We argue that due to high ownership concentration, and the weak protection provided to minority shareholders, as well as the presence of a pyramidal ownership structure, the controller may divert resources from sectors or business lines of the company that are more efficient and productive to other sectors or lines that are less efficient, with the intention of maximizing the base company value and not necessarily the value of the company which is lower in the chain of control.

Secondly, we studied the relationship between family ownership and performance and found that this relationship is negative. We argue that these results may be explained by the weak minority shareholder protection, low contestability capacity of AFPs and high ownership concentration, which is mainly in the hands of families. Thirdly, we analysed the moderating effect of family ownership over the relationship between corporate diversification and performance. We found that when the main shareholder is a family, the relationship between performance and diversification is positive, and we explained this result from the agency theory perspective, arguing that, with respect to diversified companies where the concentration and pyramidal ownership structures are lower than they are for non-diversified companies, family ownership can use their management and governability capacities to positively impact company performance.

Finally, we studied the moderating effect of pyramidal family ownership on the relationship between corporate diversification and performance and found that when family ownership has a pyramidal structure, the performance of diversified companies is negative. This means that the positive effect family ownership has on the performance of diversified companies when the controller is a family is diluted when the company has a pyramidal structure of ownership.

Our work contributes to the literature on family companies by broadening the empirical evidence on the relationship between family ownership and performance in a small, open and emerging economy. Moreover, this is the first study on an emerging economy in South America to investigate how family ownership moderates the relation between corporate diversification and performance. This is also the first article to study pyramidal family ownership's moderating effect on the relationship between corporate diversification and performance. Finally, we use the control chain method as it enables us to visualize the entire ownership pyramid and to identify the ultimate shareholders of the firms. Consequently, we compute the differences between voting rights and control rights, as such differences may result in potential tunnelling problems.

Future research may, in the context of agency theory, examine the relationship between the performance of family companies with pyramidal structures and other corporate strategies, such as international diversification. It would also be interesting to study the role of the family when the company diversifies its product line, as such a strategy may be more widespread than other types of

corporate strategies. On the other hand, it would be interesting to research whether the current regulation on Related-Party Transactions as a mechanism to avoid or mitigate tunnelling – either directly or indirectly – helps to prevent a negative relationship between performance and diversification.

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Appendix A. Family firms, diversification and firm's value (alternatives explanatory variables).

$Val_{i,t} = \beta_1 Div_{i,t} + \beta_2 Div_{i,t} * Fam_{i,t} + \beta_3 Div_{i,t} * Fam_{i,t} * Z_{i,j,t} + \beta_4 Div_{i,t} * Z_{i,j,t} + CV_{i,t} + i_k + y_t + u_{i,t}$. Estimated coefficients (*t*-statistic from robust standard errors) from the GMM system estimator regressions. $Val_{i,l,t}$ is the firm's value, and is represented by the Tobin's Q, ExvalAssets (Excess value estimated by assets multiples), or ExvalSales (Excess value estimated by sales multiples). $Div_{i,t}$ is a dummy variable that takes value 1 when the firm belongs to the multi-segment group, and zero otherwise. $Fam_{i,t}$ represent a dummy variable that takes value 1 when the ultimate shareholder is family, and zero otherwise. $Z_{i,j,t}$ represent different specifications of separation between voting/cash flow rights duality, where j takes value 1 if firms present VRCR divergence; 2 if firms present lower levels of VRCR divergence; and 3 if firms present higher levels of VRCR divergence. $CV_{i,t}$ represents a set of control variables and the orthogonality conditions of interacted variables defined in table X. i_k is the industry effect, y_t denotes the yearly dummies, and $u_{i,t}$ represents the individual error term. *t*-Statistics from standard errors clustered at firm level are in parentheses. ***, **, and * indicates a significance level < 1%, < 5%, and < 10%, respectively.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
$Fam_{i,t}$	−0.342**	−0.226**	−0.316**	−0.465**	−0.927***	−1.174***
	(−2.467)	(−2.154)		(−2.460)	(−4.655)	(−3.338)
$Div_{i,t}$	−0.480***	−0.459***	−1.729***	−2.080***	−2.095***	−2.223***
	(−4.488)	(−3.346)	(−3.077)	(−3.239)	(−8.848)	(−7.486)
$Div_{i,t}$x$Fam_{i,t}$	0.432***	0.283*	1.434***	1.847***	1.693***	1.872***
	(3.391)	(1.747)	(2.755)	(2.787)	(6.121)	(6.425)
$Div_{i,t}$x$Fam_{i,t}$x$Sep_{i,t}$	−0.138*		−2.038***		−0.809**	
	(−1.805)		(−3.274)		(−2.398)	
$Div_{i,t}$x$Fam_{i,t}$x$Sep1_{i,t}$		−0.311		0.124***		−0.767
		(−0.457)		(−3.101)		(−1.653)
$Div_{i,t}$x$Fam_{i,t}$x$Sep2_{i,t}$		−0.413**		0.811*		−0.872**
		(−2.450)		(−1.730)		(−2.439)
$Div_{i,t}$x$Sep_{i,t}$	0.594***		2.194***		2.051***	
	(5.131)		(3.295)		(8.655)	
$Div_{i,t}$x$Sep1_{i,t}$		1.163*		2.597**		2.555***
		(1.920)		0.622)		(8.487)
$Div_{i,t}$x$Sep2_{i,t}$		0.700***		2.493**		1.413***
		(4.262)		(2.518)		(2.860)
$Fam_{i,t}$x$Sep_{i,t}$	−0.226**		−0.129		−0.686**	
	(−2.007)		(−0.447)		(−2.541)	
$Fam_{i,t}$x$Sep1_{i,t}$		−0.327		0.550		−0.565
		(−1.308)		(0.989)		(−1.567)
$Fam_{i,t}$x$Sep2_{i,t}$		−0.186		−0.539		−0.750*
		(−0.968)		(−0.740)		(−1.834)
$Sep_{i,t}$	−0.136		−0.323		−1.239***	
	(−1.517)		(−1.175)		(−6.138)	
$Sep1_{i,t}$		0.054		−0.561		−1.537***
		(0.435)		(−1.505)		(−5.175)
$Sep2_{i,t}$		−0.303**		−0.936		−0.956***
		(−2.004)		(−1.394)		(−2.829)
$CR_{i,t}$	−0.176*	−0.190*	−0.131	−0.088	−0.694***	−0.701***
	(−1.896)	(−1.748)	(−0.296)	(−0.209)	(−3.382)	(−2.831)
$LNTA_{i,t}$	0.034	0.017	0.016	0.054	0.162***	0.164***
	(1.579)	(0.569)	(0.337)	(0.935)	(6.296)	(6.679)
$DTTA_{i,t}$	−0.044	−0.219	−0.278	−0.100	−2.661***	−2.504***
	(−0.224)	(−0.695)	(−0.660)	(−0.234)	(−10.771)	(−5.736)

$PAFP_{i,t}$	0.256	0.176	0.761	1.231	1.584**	0.557
	(0.799)	(0.389)	(0.431)	(0.644)	(2.479)	(0.734)
$CAPEXSAL_{i,t}$	0.008	0.414**	0.849**	1.123***	0.677***	0.662***
	(0.050)	(2.188)	(2.580)	(2.936)	(4.096)	(3.056)
Obs.	824	824	824	824	824	824
No. Firms	104	104	104	104	104	104
F − Test	17.5	18.48	18.62	15.19	16.76	16.14
Auto(2) p-value	0.611	0.988	0.450	0.747	0.506	0.503
Hansen p-value	0.416	0.767	0.577	0.402	0.619	0.525
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

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