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Earnings management and performance in family-controlled firms

Evidence from an emerging economy

Administración de Ingresos y Desempeño en Empresas Familiares

Evidencia desde una Economía Emergente

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Abstract

Purpose – The purpose of this paper is to introduce an earnings management dimension to compute pre-manipulated accounting performance (free of discretionary accruals) to determine whether family-controlled firms perform better than non-family-controlled firms.

Design/methodology/approach – The authors used Jones' model (1991) to obtain a pre-manipulated performance measure for a sample of Chilean firms. The authors then regressed the pre-manipulated measures of accounting performance as dependent variables against the family nature of the largest shareholder using the Blundell and Bond generalized method of moments estimator.

Findings – The authors found that the pre-manipulated performance of family-controlled firms is superior to that of non-family-controlled firms. The authors also show that the presence of institutional investors in the firm's ownership structure has a positive influence on the performance of family companies. The results suggest that earnings management behavior is not sufficient to explain the better performance of family-controlled firms that has been reported in the literature.

Originality/value – The authors provide new evidence regarding the real superior performance of family business. These results provide some degree of confidence to investors since family firms provide good quality earnings measures of financial performance.

Keywords Family-controlled firms, Earnings management, Institutional investors

Paper type Research paper

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Resumen

Propósito – este estudio pretende determinar si las diferencias en performance entre empresas familiares y no familiares puede ser explicada por la existencia de manipulación contable de los retornos.
Diseño/metodología/enfoque – usamos el método de Jones (1991) para obtener una medida de retorno contable no manipulado para una muestra de empresas chilenas, y luego estimamos una regresión de tipo panel donde la medida de retorno sin manipular es la variable dependiente, la naturaleza familiar o no de la empresa es la variable independiente y una serie de variables de control. Debido a la posible endogeneidad entre retorno y tipo de empresa, usamos la técnica de Blundell y Bond (Método Generalizado de los Momentos).
Findings – encontramos que aun usando retornos libre de manipulación contable, las empresas familiares muestran un mejor desempeño que aquellas no familiares. Además, se observa que la presencia de inversionistas institucionales (AFPs) en la estructura de control de la firma, tiene un efecto positivo sobre el desempeño de las empresas familiares.
Originality/value – se presenta nueva evidencia que ratifica el mejor desempeño financiero de las empresas familiares. Además, mostramos, a diferencia de estudio previos, que la presencia de inversionistas institucionales explica parte del mejor desempeño financiero de dichas empresas. Lo anterior permite a inversionistas estar seguros que el mejor retorno de empresas familiares no se debe a la manipulación contable de las utilidades.

Palabras clave empresas familiares, manipulación de ingresos, inversionistas institucionales
Tipo de papel Trabajo de investigación

Introduction

Recent evidence in the literature on corporate finance and governance suggests that several capital markets contain an important portion of firms that do not present the classical widely dispersed ownership described by Berle and Means (1932) and Jensen and Meckling (1976). La Porta *et al.* (1999) show that concentrated ownership structures are common around the world and that, among such corporate ownership configurations, family-controlled firms are the predominant form of ownership[1].

The literature on family firms suggests that family-controlled corporations enjoy some advantages related to the reduction of agency problems between manager and shareholders (Isakov and Weisskopf, 2014). Conversely, more concentrated ownership can results in problems between controllers and minority shareholders, which arise because controllers take advantage of private benefits of control (Dyck and Zingales, 2004).

However, family-controlled firms are generally associated with higher accounting and stock market performance. Following the pioneering work of Anderson and Reeb (2003) for US firms, several authors have investigated whether financial performance differences exist between family-owned firms and their non-family counterparts (e.g. Maury, 2006; Villalonga and Amit, 2006). For instance, Barontini and Caprio (2006) and Maury (2006) find that family firms outperform their non-family counterparts when the family-controlled firm's CEO is the firm's founder and when second-generation family members do not hold managerial positions.

Our paper focusses on Chile. Evidence for Latin American markets suggests that family-controlled firms outperform non-family-controlled firms. González *et al.* (2012) analyze a sample of listed and non-listed Colombian firms and find that family firms exhibit better performance than their non-family counterparts. Martinez *et al.* (2007) and Bonilla *et al.* (2010) find similar results for the Chilean context. However, no studies have extended the comparison beyond profitability to include an earnings management dimension. Indeed, Bonilla *et al.* (2010) do not take into account that earnings management behavior, which can serve as a proxy of real accounting performance, may explain the performance differential between family and non-family firms.

We extend the previous literature by incorporating an earnings management dimension for Chilean firms. Our analyses are based on three fundamental motivations. First, earnings management can seriously influence accounting performance and directly affect stock performance (Sloan, 1996; Richardson *et al.*, 2005; Healy and Wahlen, 1999). Second, evidence on earnings management suggests that firms with high levels of ownership concentration (with insider CEO positions) in countries with weak investor protection are associated with higher levels of earnings management in order to hide the private benefits of control extraction. This effect is especially strong when a divergence exists between cash flow rights and control rights due to pyramidal control (Leuz *et al.*, 2003; Gopalan and Jayaraman, 2012). In this sense, earnings management can be important because the Chilean environment provides weak investor protection, given its French civil law legal origin[2], and firms have a high level of ownership concentration – primarily in the hands of individual shareholders, families, or holdings – which gives rise to pyramidal structures and the generation of internal capital markets (Lefort and González, 2008; Lefort and Walker, 2000). However, despite high levels of ownership concentration, Chilean family-controlled firms tend to show lower levels of divergence between cash flow rights and voting rights (Lefort and González, 2008). Consequently, family-controlled shareholders should be more aligned with minority shareholders.

Third, the desire to uphold the prestige and reputation of the family name may induce controlling shareholders of family firms – even second-generation family CEOs – to manage earnings to show better performance. As previously stated, performance is better in family firms when the founder is CEO, but declines when a second-generation family member holds the CEO position (Villalonga and Amit, 2006). This performance decline can be explained by issues related to tensions between the family and the firm's business objectives (Bennedsen *et al.*, 2007) or by less CEO managerial specialization and skills (Burkart *et al.*, 2003). However, we hypothesize that this relationship may not necessary hold for the Chilean context for two reasons. On the one hand, family CEO successors can engage in earnings management to meet performance targets to maintain the family reputation in a small capital market. On the other, a group of 15 conglomerates – most of them belonging to families – control 91 percent of the assets of listed non-financial companies in Chile (Lefort and Walker, 2007). According to the Boardex database, Thomson One database, and the Superintendencia de Valores y Seguros (SVS; Chilean Superintendent of Securities and Insurance), these conglomerates tend to select the best-qualified CEO, including second-generation family members.

Using an unbalanced panel data analysis, we verify our research hypothesis. We estimate pre-manipulated earnings performance, which we compute using a discretionary accruals Jones model with returns on assets (ROA) as a regressor, as proposed by Kothari *et al.* (2005). Our results show that, although family firms tend to have higher levels of discretionary accruals, their pre-manipulated performance is superior to that of non-family firms. We also found that participation in ownership by Chilean Pension Funds Administrators (AFPs) has a positive influence on firms' pre-manipulated performance. These results suggest that these kinds of investors alleviate potential agency problems in a setting characterized by higher levels of ownership concentration.

The remainder of the paper is structured as follows. Second section reviews the literature regarding family firms' performance and quality of accounting information. Third section formulates our research hypotheses, method, and sample selection. Fourth section provides the empirical results. Finally, fifth section presents a summary of our major conclusions.

Related empirical literature

Family shareholders and especially family control has attracted the attention of the academic world in the last decade since La Porta *et al.* (1999) showed that families are important in economies around the world. In broad terms, family firms account for 53 percent of European firms (Barontini and Caprio, 2006), 44 percent of Western Europe firms (Faccio and Lang, 2002), 37 percent of US firms (Villalonga and Amit, 2006), more than 65 percent of East Asia firms (Claessens *et al.*, 2000), and 50 percent of the Spanish quoted firms (Santana and Aguiar, 2006).

Studies that analyze family-controlled firms support the intuition that family-controlled firms alleviate agency problems because they have higher levels of ownership concentration. However, when concentrated ownership creates a conflict between large shareholders and minority shareholders, families can become entrenched. Guthrie and Sokolowsky (2010) demonstrate that excessive power concentration in the hands of a small number of shareholders attenuates managers-shareholders agency problems but may intensify the divergence of interests between controlling and minority shareholders. As the probability of entrenchment increases, the nature and the position of the largest shareholder are extremely important, particularly in family-controlled firms. On the one hand, entrenchment can be attenuated because families tend to maintain their utility function in terms of family name, prestige, and reputation, especially when the firm is controlled by the founder. On the other hand, the possibility of agreements among different family members in these firms may provide controlling shareholders with the incentive to behave opportunistically. This dynamic has led to increased research into family firms in several fields (Ali *et al.*, 2007; Barontini and Caprio, 2006; Ben-Amar and André, 2006; Faccio and Lang, 2002; Villalonga and Amit, 2009).

Several studies analyze the relationship between family-controlled firms and performance computed by stock performance and accounting performance (Anderson and Reeb, 2003; Villalonga and Amit, 2006; Faccio *et al.*, 2001; Maury, 2006; Lee, 2006; Jara-Bertin *et al.*, 2008). For instance (Maury, 2006) studies European markets and finds that better performance in family-owned firms is more pronounced when the family does not have total control of the firm. In a similar vein, Jara-Bertin *et al.* (2008) find that European family-owned firms perform better financially, measured by the market-to-book ratio, than non-family enterprises. Furthermore, they show that the performance of family-owned firms improves as contestability to the control of the largest shareholder increases.

Allouche *et al.* (2008) examine accounting performance for Japanese firms and find that family-controlled firms outperform non-family-controlled firms. Martinez *et al.* (2007) show that family-owned firms listed in the Chilean public stock market perform better than non-family firms. Bonilla *et al.* (2010) extend the work by Martinez *et al.* by including a risk dimension, controlling for more variables, and using a different estimation technique. They also find that family-controlled firms outperform non-family firms.

The studies previously mentioned use accounting measures (i.e. ROA, return on earnings) to proxy for financial performance; however, the use of accounting earnings performance measures may bias the results if firms (both family and non-family) engage in earnings management practices. Earnings management may seriously affect the quality of accounting information and stock performance (Dechow, 1994; Dechow *et al.*, 2010; Roychowdhury and Watts, 2007).

In this sense, recent evidence on earnings quality shows that family-owned firms in the USA have greater information quality about earnings compared with non-family firms (Ali *et al.*, 2007; Wang, 2006). Evidence also points to the better financial

information quality of family firms outside the USA. For instance, Prencipe *et al.* (2008) find that Italian family firms are less sensitive to income-smoothing motivations than their non-family counterparts. Cascino *et al.* (2010) report consistent results, showing that Italian family firms exhibit, on average, higher accounting quality compared to non-family firms.

No studies have been undertaken about the link between family firm performance and earning management practices in Latin America. This study points in that direction and thus fills an important gap in the literature.

Earnings management definition

Discretionary accruals represent one of several proxies of earnings management suggested in the literature (Dechow *et al.*, 2010). In general terms, the use of accrual accounting is allowed by worldwide accounting standards, including the International Financial Reporting Standards conceptual framework (García Lara *et al.*, 2008; Leuz, 2010). The main function, according to the Financial Accounting Standards Board (1985) in Statement of Financial Accounting Concepts No. 6 is to "attempt to record the financial effects on an entity of transactions and other events and circumstances that have cash consequences for the entity in periods in which those transactions, events, and consequences occur rather than only in the period in which cash is received or paid by the entity."

First, Healy and Wahlen (1999) argue that earnings management arises "when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholder about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers." One common way to meet these consequences is the use of discretionary accruals. In fact, discretionary accruals are a key topic in research about earnings management (Dechow *et al.*, 2010, 2012). To better understand the implications of accrual accounting, let's assume we have two firms; they are the same in every way, except that the first delivers the products it sells uniformly throughout the year, while the second delivers the products it sells at the end of the period. In the balance sheet, the first firm will have more cash (liquid assets) and less account receivables than the second one. Then, if possible, managers will choose the timing of delivery in order to boost or hide some financial ratios.

The previous example is one of the many ways in which managers may hide or highlight information to display a better or worse financial condition. Other ways in which this is done may be: delaying the recognition of losses associated to non-performing loans, delaying the recognition of losses associated to fixed assets, etc.

Since the underlining argument of this paper relies on the assumption that earnings-based performance measures could be influenced by earnings management. We hypothesize that managers have superior information about real performance and future growth opportunities in comparison to external shareholders, so they will have incentives to engage in earnings management in order to achieve their own interest goals (Dechow *et al.*, 2010), and mislead investors' perceptions of the real financial performance (Gopalan and Jayaraman, 2012).

Accrual accounting is one way to achieve some degree of opportunistic behavior, and is especially important because it allows managers to establish a temporary gap between the recognition of the effects on earnings of an economic event, and its

subsequent cash flow realization. The most typical example in the Chilean context is the accounting treatment of accounts receivables and credit provisions that led "La Polar" to be one of the most cited financial scandals in recent times[3].

We attempted to obtain an earnings measure free of accrual accounting manipulation. To achieve that, we employed a typical discretionary accrual-based model. Most of the accrual-based models to detect earnings management attempt to separate the normal component of accruals from the discretionary components. While the normal component represents those accruals that are associated with the normal business conditions represented in earnings reports, the discretionary components are those that signal information about business conditions to managers or that managers use in a self-seeking opportunistic manner. We assume that discretionary accruals are the result of opportunistic behavior, since they are related to those earnings components that are not normal to industry trends, business cycles, and firms accounting strategies and investment levels.

Prior literature proposes several accrual-based models with an important volume of empirical research based on the Jones (1991) model or some of its improvements (Dechow *et al.*, 1995, 2003; Kothari *et al.*, 2005). We selected the model that incorporates ROA as a regression, in which ROA is considered a factor that potentially affects total accruals (Kothari *et al.*, 2005).

Others definitions, as proposed by Ronen (2010), include real activities manipulation and occur when "managerial decisions result in not reporting the true short-term, value-maximizing earnings. Earnings management could be beneficial, pernicious or neutral and take place from taking production/investment actions before earnings are realized or making accounting choices that affect the earnings numbers and their interpretation after the true earnings are realized."

Method and data

Hypotheses

Prior studies provide evidence indicating that, in Chile, family-owned firms perform better financially than non-family firms (Martinez *et al.*, 2007; Bonilla *et al.*, 2010). However, following Dechow (1994), Jara-Bertin and López-Iturriaga (2011) show that earnings-based measures explain stock performance better than cash flow-based measures. This finding suggests that the Chilean stock market, on average, seriously considers earnings-based measures like ROA to evaluate firms' performance and serves for valuation purposes. For example, comparable with the Enron and WorldCom cases in the USA and with the concern about size difference, the Chilean La Polar case of 2011 is the clearest example of how a non-family firm with relatively widespread ownership that pursues earnings management (and the reversal process) can mislead the market in terms of valuation, financing access, and risk exposure. This case resulted in a trust crisis in Chile and opened up a discussion about the credibility of accounting numbers.

We posit that family firms in the Chilean context serve to attenuate several agency problems derived from both managers-shareholders and controllers-minority agency problems. Even if family controllers manage earnings upward, we posit that they do this for signaling and not through opportunistic motives. Once earnings management noise is eliminated, family controlled-firms still outperform their non-family counterparts. Thus, our first hypothesis is as follows:

H1. The pre-manipulated profitability of family-controlled firms is greater than that of than non-family-controlled firms.

Institutional investors are very important in emerging small capital markets, where the ownership structure is concentrated and firms' internal corporate governance mechanisms arise as natural response of weaker enforcement of law. Pension funds (AFP) play an important monitoring role in the corporate governance process in the Chilean stock market (Lefort and González, 2008). In fact, as institutional investors, AFPs are very active[4] in the market; they maintain ownership stakes in 45 percent of the total number of Chilean traded firms and have an independent director on the board of roughly 44 percent of firms in which they participate (Superintendencia de Pensiones, 2012). In addition, the votes of independent directors elected by AFPs represent the most important portion of independent directors elected by minority shareholders (Lefort and Urzúa, 2008). Even though AFP regulators limit ownership stakes when firms present some specific considerations in terms of ownership structures and market liquidity, we hypothesize that controlling for AFPs influences the performance between family and non-family firms. Additionally, previous literature argue that institutional investors are more sophisticated in terms of recourses and abilities that would be able to detect any accrual-based earnings management behavior (Chung *et al.*, 2002). Thus, we state our second hypothesis, with pre-manipulated returns included, as follows:

H2. After controlling for the effect of AFPs, the difference in pre-manipulated profitability between family-controlled firms and non-family-controlled firms declines significantly or disappears.

We also test for the robustness of our results including a risk dimension. Most of the previous work on family firms do not control for risk differences between family and non-family firms. Bonilla *et al.* (2010) demonstrate that differences exist, and therefore by examining the dichotomy between family and non-family firms using pre-manipulated earnings, we provide reliable results. Therefore, following our arguments in support of *H1* and *H2*, we state our third and four hypotheses as follows:

H3. The variance of pre-manipulated returns of family-controlled firms differs from the variance of pre-manipulated returns of non-family firms.

H4. After adjusting for risk, the difference in pre-manipulated profitability between family-controlled firms and non-family firms does not disappear.

Definition of family firms

Following prior studies on Chilean family firms (Martinez *et al.*, 2007; Bonilla *et al.*, 2010) and international literature (Barontini and Caprio, 2006; Villalonga and Amit, 2009; Ruiz-Mallorquí and Santana-Martín, 2009), we classify a company as a family firm according to three criteria. First, we inspect the list of business groups produced by SVS. At the end of 2007, there were 117 such groups. In each case, if the group was undoubtedly associated with a business family, we classified firms within the group as family-controlled firms, including the family controlling the firm through pyramidal ownership. Second, if a company did not belong to any of these corporate groups, we categorized it as a family-controlled firm if one or more members of a family-controlled firm on the SVS list controlled the firm at the senior management level. Third, we classified a company not in any business group as a family-controlled firm if one or more members of a family on the SVS list controlled its board of directors. For the last two criteria, we used information from credit rating agencies, company financial

reports, market data, and other company sources. We define non-family firms as all companies not fitting these three family-controlled firm criteria.

Data set

Using a subset of the data set from Bonilla *et al.* (2010), our sample is composed of an unbalanced panel of 1,646 observations from 179 quoted Chilean companies for the period between January 1998 and December 2007. We obtain the data from Economatica (a Latin American database vendor), the SVS, and the Santiago Stock Market. Table I shows the number of firms in the sample for each year. The number of observations for each year differs from those used by Bonilla *et al.* (2010) for two reasons: first, to obtain pre-manipulated profit rates, as explained in the following discussion, we incorporate new variables into the sample, and in some cases observations are not available for all the companies in the baseline data set; and second, the methodology for the adjustment of profits requires at least ten years of observation, which further reduces the sample. As in Bonilla *et al.*, we exclude nonprofit entities and holding companies, whose financial statements are a composite of their public subsidiaries.

Based on these criteria, an average of 68 percent of sample firms are classified as family-controlled firms, and 32 percent of sample firms are classified as non-family firms for the period covered. Table II shows that the percentage of family-controlled firms is much higher than that of non-family firms throughout the ten-year period.

Year	Total
1998	169
1999	170
2000	174
2001	173
2002	175
2003	179
2004	150
2005	150
2006	150
2007	156
Total	1,646

Table I. Number of companies in sample, by year

Year	Non-family firms (%)	Family firms (%)	Total (%)
1998	23.1	76.9	100.0
1999	28.2	71.8	100.0
2000	28.7	71.3	100.0
2001	27.2	72.8	100.0
2002	28.0	72.0	100.0
2003	28.5	71.5	100.0
2004	26.7	73.3	100.0
2005	26.7	73.3	100.0
2006	30.0	70.0	100.0
2007	30.1	69.9	100.0
Total	27.7	72.3	100.0

Table II. Percentages of family-controlled firms and non-family firms

Model variables

We estimate abnormal accruals through the Jones (1991) model with ROA as a regressor (Kothari *et al.*, 2005). The dependent variable is total accruals (*A*), defined as the difference between the earnings before the extraordinary items and cash flows from the operations. As explanatory variables, we define ΔREV as the variation in total revenues between periods $t-1$ and t; gross property, plant, and equipment (GPPE) as total fixed asset; and ROA. DAJROA represents the estimated discretionary accruals from the year-industry estimation of Equation (1). To avoid heteroskedasticity problems, we scaled all the variables by average total assets.

Our regression model proposed in Equation (2) contains two dependent variables: ROA and pre-manipulated ROA (ROAPRE), defined as the difference between ROA and DAJROA. ROA is a measure of financial performance that indicates how a firm's assets were managed during the period under study; ROAPRE is similar to ROA but free of earnings manipulations. The data for these ROA and DAJROA are drawn from the Economática database and from Equation (1), respectively. We include these variables for two reasons. First, ROA is commonly used in this type of analysis. Second, ROA summarizes firm performance (Dechow, 1994). The Appendix provides a description of all the variables used in this study.

Control variables, measured for each firm, are as follows:

- Family dummy (DFAM): a dummy variable that equals 1 for family-controlled firms, and zero otherwise.
- AFP ownership dummy (DAFP): a dummy variable that equals 1 for firms whose ownership structure includes institutional investors (AFP), and zero otherwise. The values for this variable are obtained from SVS reports on the investment portfolios of Chilean pension funds during the period under study.
- Debt/assets: leverage, defined here as the debt/assets ratio, extracted from the Economatica database.
- Size: firm size measured as the natural logarithm of total assets. The raw values are extracted from the Economatica database.
- Age: age of the firm, that is, number of years since it was founded. This information is obtained from companies' websites or through direct consultation by telephone.
- Industry: the firm's industrial classification. The Economatica database uses a classification system of 19 sectors.

Method

From a methodological point of view, we divided our research into two stages. First, to obtain our pre-manipulated ROA and ROAPRE measures, we estimated total accruals and computed the discretionary component as a proxy of earnings management through the cross-sectional industry-years specific Jones (1991) model with ROA as a regressor as proposed by Khotari *et al.* (2005)[5]. Second, we analyzed the relationship between ROA and pre-manipulated ROA and family firm dichotomy.

In line with Dechow *et al.* (2010), the Jones (1991) model with ROA as a regressor performs better than the ROA-matched model in terms of specification and power.

Thus, total accruals depend on REV, GPPE, and ROA, expressed as:

$$A_{it} = \alpha + \beta_1 \left(\frac{1}{\text{Assets}_{it}} \right) + \beta_2 \Delta \text{REV}_{it} + \beta_3 \text{GPPE}_{it} + \beta_4 \text{ROA}_{it} + \varepsilon, \quad (1)$$

where the residual ε_{it} corresponds to the discretionary or abnormal accruals of the model (DAJROA).

Once we estimated ROAPRE, we tested for differences between the means of ROA, ROAPRE, and DAJROA for family-controlled firms and non-family firms[6]. To control for the unobservable constant heterogeneity (i.e. fixed effects) in Model (2), we used the panel data approach (Arellano, 2003; Baltagi, 1995). This method also allows us to deal with potential endogeneity issues through the generalized method of moments. Prior research on ownership nature and firm characteristics show that endogeneity may arise (Demsetz and Villalonga, 2001; Himmelberg *et al.*, 1999). We therefore addressed this problem by estimating Equation (2) using the Blundell and Bond (1998) and Bond (2002) system estimator version of the generalized method of moments[7].

The consistency of the estimates depends on the absence of second-order serial correlation in the residuals and on the validity of the instruments (Arellano and Bond, 1991); accordingly, we use and report auto (2) test. To test the validity of the instruments, we used the Hansen test for over-identifying restrictions, which allows us to test the absence of correlation between the instruments and the error term and, therefore, to check the validity of the selected instruments. We also present two Wald tests, *z*1 and z2, which report the joint significance of the reported coefficients and the industry dummies, respectively. The basic model is written as:

$$\text{ROA}_{it} \text{ or } \text{ROAPRE}_{it} = \beta_1 \cdot \text{SIZE}_{it} + \beta_2 \cdot \text{AGE}_{it} + \beta_3 \cdot \text{DEBT}_{it} + \beta_4 \cdot \text{DFAM}_{it} + \eta_i + \eta_t + \varepsilon_{it} \quad (2)$$

Our first step is to determine whether the incorporation of the pre-manipulated ROA into a dynamic data panel model changes the results found by Bonilla *et al.* (2010). As in Bonilla *et al.*, we also incorporated the dummy variable *DAFP* to establish whether the presence of AFPs in the ownership structure helps to explain the differences in profitability between firms.

Finally, to ascertain the effect of risk, we carried out two procedures. First, we performed a difference of variance test on the two firm types. Second, we estimated Equation (1) in which the dependent variable ROA is adjusted for risk. We obtained the standard deviation of ROAs by firm type for each year in the sample. We used it as a proxy for risk and divided each firm's ROA by this measure, as explained in the fourth section.

Results and discussion

Descriptive statistics

Panel A of Table III summarizes the sample data relating to the ROA, ROAPRE, and DAJROA variables, and Panel B displays the correlation matrix. As observed in Panel A, the average ROA of our sample is 4.25 percent and ROAPRE is 4.32 percent. The difference between these two measures means that, on average, Chilean firms

Panel A: ROA, ROAPRE, and DAJROA sample characteristics

Variable	Obs. (n)	Mean	SD	P25	P50	P75	Shapiro-Wilk W-test (z-statistic)
ROA	1,646	0.0425	0.1045	0.004	0.049	0.088	11.933***
ROAPRE	1,646	0.0432	0.1228	−0.013	0.038	0.093	11.429***
DAJROA	1,646	−0.0007	0.066	−0.025	0.0007	0.028	12.305***

Panel B: Pearson correlations

	ROA	ROAPRE	Dfamily	DAFP	Size	Age
ROAPRE	0.843***					
Dfamily	0.026**	0.013*				
DAFP	0.179***	0.1376***	0.007			
Size	0.231***	0.186***	0.062*	0.395***		
Age	−0.009	0.002	0.072**	0.144***	−0.083	
Debt/assets	−0.197***	−0.189***	−0.058**	−0.132*	0.069*	0.049*

Note: *,**,***Significant at < 10, < 5, and < 1 percent levels, respectively

Table III.
ROA, ROAPRE and DAJROA sample characteristics and Pearson correlations

manage earnings downward in 0.07 percentage points. The average discretionary accruals is consistent with previous studies, which argue that earnings management must be zero for any random sample in order to corroborate with the model's specification (Dechow *et al.*, 1995).

Table IV provides the results of the difference of means test for family-controlled firms and non-family enterprises. The results show that family-controlled firms have a mean ROA of 4.79 percent over the ten years under study and thus perform better than non-family firms, whose mean ROA is 3.46 percent. A t-test value of 2.1745 (p-value = 0.0149) shows that this difference is statistically significant and thus corroborates the first result from Bonilla *et al.* (2010) despite the use of a somewhat different sample. In addition, although family firms show higher levels of upward earnings management (DAJROA is higher for families), when we eliminate the earnings management noise (ROAPRE), they still present superior performance compared to non-family firms.

Regression models

Table V presents the estimation results of the baseline model estimated by Anderson and Reeb (2003) and used in prior studies by Lee (2006), Barontini and Caprio (2006), Maury (2006), Martinez *et al.* (2007), and Pindado and Requejo (2015) among others. In columns 1-3 the dependent variable is ROA and in columns 4-6, the dependent variable is ROAPRE.

As we can see in columns 1-3 of Table V, the estimated coefficients of all columns suggest a positive relationship between family firms (Dfamily) and ROA. This result corroborates previous evidence presented in Martinez *et al.* (2007) and in Bonilla *et al.* (2010) who demonstrate the superior performance of family-owned firms. When ROAPRE is used as the dependent variable (columns 4-6), we can see that the effect of family firms is positive and significant at conventional levels. This result corroborates *H1*, implying that despite the fact that family firms display higher levels of earnings management, their performance still remains superior. In adittion, this evidence suggests that earnings management in family firms could signal growth oportunities (Prencipe *et al.*, 2008; Cascino *et al.*, 2010).

Panel A: difference of means test for ROA, ROAPRE, and DAJROA of family-controlled and non-family-controlled firms

	Means			
	Family (%)	Non-family (%)	*t*	Sig. level
ROA	4.36	3.13	1.7442	0.0406
ROAPRE	4.44	3.24	1.6832	0.0462
DAJROA	0.19	–0.78	2.2905	0.0111

Panel B: difference of means test for ROA, ROAPRE, and DAJROA of pension funds ownership participation firms and non-pension funds ownership participation

	Means			
	Pension funds (%)	Non-pension funds (%)	*t*	Sig. level
ROA	6.39	2.61	6.2715	0.0000
ROAPRE	6.26	2.85	4.7791	0.0000
DAJROA	0.13	–0.23	0.9618	0.1682

Panel C: GMM system estimator results of family's influence on discretionary accruals

Variable	DAJROA	DAJROA	DAJROA	DAJROA
Size			–0.0018 (–0.77)***	–0.0019 (–0.70)
Age			–0.0065 (–2.73)***	–0.0057 (–2.78)***
Debt/assets			–0.0004 (–1.05)	–0.0030 (–1.44)
Dfamily	0.0544 (4.73)***	0.0627 (3.47)***	0.0227 (3.52)***	0.0262 (3.49)***
Temporal effect	No	Yes	No	Yes
Sectorial effect	Yes	Yes	Yes	Yes
Auto (2)	1.46	1.37	1.12	1.30
$z1$	3.50 (16)***	26.17 (25)***	26.47 (19)***	35.06 (28)***
$z2$	3.65 (15)***	2.12 (24)***	8.66 (15)***	11.33 (24)***
Hansen test	14.42 (17)	18.53 (17)	50.34 (49)	50.21 (48)
Obs.	1,646	1,646	1,646	1,646

Notes: Estimated coefficients (*t*-statistics) from the generalized method of moments system estimator. The dependent variables is DAJROA that represents the estimated discretionary accruals from the year-industry estimation of Equation (1). The independent variables are Dfamily that is a dummy variable that equals 1 for family-controlled firms, and zero otherwise, the firms leverage (debt/assets), the natural logarithm of total assets (size) and, the natural logarithm of the age (age). $z1$ and $z2$ are the Wald tests of significance of the explanatory and time dummy variables, respectively. The Hansen test is a test of over-identifying constraints, asymptotically distributed as a χ^2 under the null hypothesis of absence of correlation between the instruments and the error term. Degrees of freedom for the χ^2 distribution test are in parentheses. *,**,***Significant at < 10, < 5, and < 1 percent levels, respectively

Table IV. Difference of means and generalized method of moments

Romero-Meza *et al.* (2007) describe the major influence that AFP may have in the small Chilean capital market. Therefore, as in Bonilla *et al.* (2010), we also tested for the presence of AFP in the property of the companies in the sample. Columns 3 and 6 of Table V show that despite the inclusion of a dummy variable to distinguish between firms that do and do not have AFP investors, the previous results remain valid to ROA and ROAPRE, respectively. Namely, family-controlled firms continue to show statistically significant higher average returns than non-family firms. Given that, we fail to accept *H2*.

Robustness check: risk-adjusted ROA values

To investigate the possibility that the family-controlled firms' superior performance is accompanied by higher levels of risk, we replaced the dependent variable ROA and ROAPRE in Equation (2) with ROARISK and ROAPRERISK, which are, respectively,

Table V.
Generalized method of moments system estimator results of Model 2

Variable	ROA	ROA	ROA	ROAPRE	ROAPRE	ROAPRE
Size	0.0340 (7.47)***	0.0364 (5.68)***	0.0342 (6.96)***	0.0406 (6.43)***	0.0467 (6.33)***	0.0408 (6.18)***
Age	0.0060 (1.25)	0.0001 (0.02)	0.0006 (0.13)	0.0043 (0.73)	0.0012 (0.22)	0.0021 (0.49)
Debt/assets	–0.0009 (–2.41)**	–0.0009 (–2.13)**	–0.0007 (–2.02)**	–0.0011 (–2.45)**	–0.0011 (–2.04)**	–0.0010 (–2.34)**
Dfamily	0.0625 (4.73)***	0.0478 (2.83)***	0.0296 (1.82)*	0.0151 (1.77)*	0.0149 (1.79)*	0.0180 (2.21)**
DAFP			0.0492 (5.53)***			0.0125 (1.81)*
Temporal effect	No	Yes	Yes	No	Yes	Yes
Sectorial effect	Yes	Yes	Yes	Yes	Yes	Yes
Auto (2)	1.32	1.48	1.52	0.40	0.41	0.41
$z1$	17.45 (19)***	36.15 (28)***	29.36 (29)***	16.15 (19)***	20.45 (28)***	49.68 (29)***
$z2$	10.95 (15)***	15.22 (24)***	10.19 (24)***	9.09 (15)***	8.22 (24)***	12.35 (24)***
Hansen test	46.83 (49)	45.19 (48)	51.61 (57)	52.72 (49)	51.40 (48)	55.70 (57)
Obs.	1,646	1,646	1,646	1,646	1,646	1,646

Notes: Estimated coefficients (t-statistics) from the generalized method of moments system estimator. The dependent variables are return on assets (ROA) and pre-manipulated return on assets (ROAPRE). The independent variables are Dfamily that represents a dummy variable that equals 1 for family-controlled firms, DAFP represents a dummy variable that equals 1 if AFPs are part of the ownership structure of the firm, the firms leverage (debt/assets), the natural logarithm of total assets (size) and, the natural logarithm of the age (age). $z1$ and $z2$ are the Wald tests of significance of the explanatory and time dummy variables, respectively. The Hansen test is a test of over-identifying constraints, asymptotically distributed as a χ^2 under the null hypothesis of absence of correlation between the instruments and the error term. Degrees of freedom for the χ^2 distribution test are in parentheses. *,**,***Significant at < 10, < 5, and < 1 percent levels, respectively

ROA and pre-manipulated ROA adjusted for risk:

$$\text{ROARISK}_{i,t} = \frac{\text{ROA}_{i,t}}{\sigma_{j,t}}$$

$$\text{for } i = \text{firm},\ t = \text{year},\ j = \text{family firms, non family firms}$$

where $\sigma_{j,t}$ is the standard deviation of the returns on family-controlled businesses and non-family firms for the year t. Thus, we re-estimate Equation (1) using a measure of the dispersion of the pre-manipulated returns as a proxy for risk[8].

Table VI shows the estimates with risk-adjusted ROA. We can see that even when depurating performance by risk, family firms display better performance than non-family ones. In all cases, the coefficient is positive and statistically significant at conventional levels. This finding implies that the result of superior accounting performance of family controlled firms remains valid even when we use risk adjusted pre-manipulated returns.

Finally as an addition, we tested whether the standard deviation of pre-manipulated returns (i.e. the risk proxy) for family-controlled firms is lower than that for non-family firms using a difference of standards deviations test. Table VII shows the results, which indicate that the standard deviation of the ROAPRE values for non-family firms is greater than that of the family-controlled firms.

The null hypothesis that the deviations for the two categories of firms are the same is therefore rejected with a high level of statistical confidence in favor of the alternative hypothesis according to which the variability of family-controlled firm returns is less than that of non-family firms.

Conclusions

This research takes into account earning management to test for differences in profitability between family and non-family firms in Chile. We used the Jones (1991) model to obtain a measure of pre-manipulated returns to use for testing. We found that family-owned firms perform better financially than non-family firms even when we use pre-manipulated returns and control for risk differences. In addition, we find that the presence of AFPs in the ownership structure of firms (both family and non-family) helps to explain the financial performance difference between family and non-family enterprises. Our study has implications for academia, practitioners, and policymakers. For academia, our evidence confirms a growing body of research that shows that family firms perform better financially than their non-family counterparts. However, Chilean firms are characterized by high ownership concentration and pyramidal ownership structures and are primarily controlled by families or individual investors and holdings. Therefore, new research on these ownership structures and the position of family shareholders should be welcome, especially in a Latin American cross-country analysis. For practitioners, our results point to some characteristics of the ownership structure that makes the financial information issued by firms more reliable. These characteristics are especially important in family firms, where ownership concentration gives owners clear control of the firm. For policymakers, our results are relevant in many other Latin American countries where family-owned firms are also the engine of economic growth and where financial regulation may be suboptimal such that earning management practices are usual.

Table VI.
Generalized method of moments system estimator of Model 2

Variable	ROARISK	ROARISK	ROARISK	ROAPRERISK	ROAPRERISK	ROAPRERISK
Size	0.471 (8.17)***	0.3586 (5.04)***	0.2505 (5.02)***	0.3469 (5.93)***	0.429 (6.82)***	0.3771 (6.56)***
Age	0.0073 (1.25)	0.0016 (0.29)	0.0084 (0.18)	0.0119 (0.22)	0.0276 (0.59)	0.0156 (0.42)
Debt/assets	–0.0092 (–2.05)**	–0.0075 (–1.88)*	–0.0095 (–2.49)**	–0.0113 (–2.55)**	–0.0103 (–2.00)**	–0.0129 (–3.60)***
Dfamily	0.647 (3.95)***	0.6720 (4.23)***	0.3308 (2.65)***	0.3438 (2.07)**	0.2699 (1.78)*	0.3791 (3.56)***
DAFP			0.5714 (7.07)***			0.3665 (5.78)***
Temporal effect	No	Yes	Yes	No	Yes	Yes
Sectorial effect	Yes	Yes	Yes	Yes	Yes	Yes
Auto (2)	1.40	1.23	1.24	0.44	0.22	0.24
$z1$	21.11 (19)***	36.93 (28)***	39.71 (29)***	10.57 (19)***	14.42 (28)***	37.14 (29)***
$z2$	10.13 (15)***	17.86 (24)***	23.57 (24)***	7.35 (15)***	6.70 (24)***	10.45 (24)***
Hansen test	44.22 (49)	43.33 (48)	46.31 (57)	50.53 (49)	46.34 (48)	54.14 (57)
Obs.	1,646	1,646	1,646	1,646	1,646	1,646

Notes: Estimated coefficients (t-statistics) from the generalized method of moments system estimator. The dependent variables are the risk-adjusted return on assets (ROARISK) and risk-adjusted pre-manipulated return on assets (ROAPRERISK). The independent variables are Dfamily that represents a dummy variable that equals 1 for family-controlled firms, DAFP represents a dummy variable that equals 1 if AFPs are part of the ownership structure of the firm, the firms leverage (debt/assets), the natural logarithm of total assets (size) and, the natural logarithm of the age (age). $z1$ and $z2$ are the Wald tests of significance of the explanatory and time dummy variables, respectively. The Hansen test is a test of over-identifying constraints, asymptotically distributed as a χ^2 under the null hypothesis of absence of correlation between the instruments and the error term. Degrees of freedom for the χ^2 distribution test are in parentheses. *,**,***Significant at < 10, < 5, and < 1 percent levels, respectively

Panel A. Ratio = SD (ROAnonfamily)/SD (ROAfamily)	
Ho: ratio = 1	*f*-statistic = 1.2047
Ha: ratio ≠ 1	Prob ($F > f$) = 0.048
Ha: ratio > 1	Prob ($F > f$) = 0.024
Ha: ratio < 1	Prob ($F < f$) = 0.975
Panel B. Ratio = SD (ROAPREnonfamily)/SD (ROAPREfamily)	
Ho: ratio = 1	*f*-statistic = 1.3338
Ha: ratio ≠ 1	Prob ($F > f$) = 0.000
Ha: ratio > 1	Prob ($F > f$) = 0.001
Ha: ratio < 1	Prob ($F < f$) = 0.999

Table VII.
Variance ratio test

Notes

1. La Porta *et al.* (1999) found that one-third of firms around the world are family controlled, while Faccio and Lang (2002) and Claessens *et al.* (2000) show that around 44 percent of continental European firms and two-thirds of firms in Asian countries are family controlled.
2. Some of the main differences concerning the country's legal origin are, for instance, creditors' rights (Levine, 1998), quality of accounting standards and the accounting process in general, ownership structure (Himmelberg *et al.*, 1999), market development, and per capita income (La Porta *et al.*, 2000). In general, common law systems provide greater investor protection than French civil law systems.
3. "La Polar" is a Chilean retailer whose top executives acknowledged, in 2011, that their inflated financial results did not recognize non-performing loans they had made in the past.
4. Information obtained from webpage of SVS, on 2012 pension funds holds over the 6 percent of total market firms' shareholders equity and over the 41 percent of Chilean corporate bonds issued. Additionally, pension funds participate in an important portion of transactions in the Chilean stock market.
5. We also estimated several discretionary accruals measures such as the modified Jones model (Dechow *et al.*, 1995), the Dechow and Dichev model modified by McNichols (2002), and the margin model proposed by Peasnell *et al.* (2000).
6. Additionally, we estimated a model where the dependent variable DAJROA tests differences in earnings management motivations between family firms and non-family ones.
7. Here we advance the methodology of Bonilla *et al.* because they do not address the potential endogeneity issue.
8. This equivalent suggests a possible source of heteroskedasticity. As in Bonilla *et al.* (2010), we tested it by using a Goldfeld and Quandt test. The results show that the variance is not the same for the two types of firms. That is, by deflating by the standard deviation, we are implicitly correcting for heteroskedasticity.

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Appendix

Abbreviation	Variable	Definition
Dependent variables		
ROA	Return on assets	Net income/total assets
ROAPRE	Pre-manipulated ROA	ROA – DAJROA
DAJROA	Estimated discretionary accruals	Estimated from the year-industry estimation of Equation (1)
A	Total accruals	Earnings before extraordinary items – cash flows from operations
Independent variables		
DFAM	Family-firm dummy	Dummy that takes the value of 1 if the firm is a family-owned firm, and zero otherwise
DAFP	AFP ownership dummy	Dummy that takes the value of 1 if AFPs are part of the ownership structure of the firm, and zero otherwise
Debt/assets	Leverage	Debt to total assets ratio
Size	Firm's size	Natural log of total assets
Age	Firm's age	Number of years since the firm was founded
Industry	Firm industrial classification	Industry were the firm operated based on a 19-sector system

Table AI. Definition of variables

About the authors

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