Ownership concentration and earnings management: the S-curve hypothesis

Abstract

In this article, we study the relationship between ownership concentration and earnings management in an economy emergent. Using a sample of 84 companies listed in the Santiago Stock Exchange we found an inverted-S shape relationship.

This article broadens the study by Ding et al. (2007) by explaining the relationship between ownership concentration and earnings management in a small, emerging economy, with a weak minority shareholder protection.

Keywords

Ownership Concentration, Earnings Management, Emerging Economy, Panel Data.

Introduction

The earnings management practice has usually been related to cases of fraud in large companies[1] (Ronen and Yaari, 2008). These cases have caught the attention of researchers, developing an important area of corporate finance research over the last 30 years.

Research on earnings management practices has evolved from finding or improving models that enable generalizing their probable causes (Jones 1991, Dechow et al. 1995, Kothari et al. 2005) to reporting evidence of these practices in different parts of the world (Leuz et al. 2003), emphasizing aspects such as the discretion some agents show in deciding the amounts and timing in which these items are included in their consolidated financial statements[2] (Dechow et al. 2012), the contractual motivations between the firm and the directors (Watts and Zimmerman 1986), decisions of investing in new projects (Baber et al. 1991, Perry and Grinaker 1994) and in certain characteristics of the corporate government structure of companies applying these practices (Maury 2006, Pérez et al. 2007). This last case pays special attention on how the level of ownership concentration is related to earnings management practices (Fan and Wong 2002, Zhong, Gribbin and Zheng 2007, Ding et al. 2007, Roodposhti and Chasmi 2010, Desernder et al. 2011, Mard and Marsat 2012).

Ownership concentration is common in different parts of the world (La Porta et al. 1999) and main shareholders may represent their own interests, which do not necessarily align with those of the rest of the shareholders (Shleifer and Vishny 1997), thus, main shareholders could apply earnings management for their own benefit. Literature reports divergent results between ownership concentration and earnings

[1] Example cases of results manipulation are those of Xerox in 2000, with over-estimates of income of US$1.4 billion, carried out during four years; or of WorldCom in 2002, with an estimated loss of US$180 billion; or one of the most striking cases, that of Enron in 2001 (Ronen and Yaari, 2008).

[2] Discretion and non-discretion refers to the way of accruing certain items in financial statements such as interest on loans or the calculation of provisions for credit risk.

management: positive (Desender et al. 2011, Mard and Marsat 2012, Fan and Wong 2002), negative (Zhong, Gribbin and Zhen 2007, Roodposhti and Chasmi 2010), and non-linear (Ding et al. 2007). Precisely, it is Ding et al. (2007) who conciliate the divergent results, by confronting the "entrenchment versus alignment" effect[3], reporting an inverted-U relation. Ding et al. state that "unlike managers, controlling owners, as the largest shareholder, are effectively already entrenched, even when their shareholding is relatively small. So the initial increase in their ownership can only entrench them further, until they reach a point where they gain total control of the firm. Beyond that point, subsequent ownership concentration will increase their cash flow rights, and the alignment effect dominates" (Ding et al. 2007, p. 228). However, either legal aspects or characteristics of the local stock market could prevent the alignment effect from being permanent. In fact, in Chile, the law allows the controlling shareholder with two thirds of the ownership to adopt resolutions requiring qualified quorum, for example, to approve operations with related companies[4]. This way, the controller may increase their participation in company ownership in order to maximize their own wealth, to the detriment of minority shareholders, through investment and transactions with related companies. In this segment of higher ownership concentration, the controlling shareholder would have the authority to appoint management (administration) and, at the same time, to have control over the board, thus comfortably being able to apply earning management practices which would again be consistent with the entrenchment effect.

[3] The entrenchment effect is consistent with agency theory in that the concentration of ownership creates incentives for controlling shareholders to divert wealth from other shareholders and the alignment effect is consistent with the stewardship-theoretic effect where managers and owners have incentives to act in the interest of the organization rather than in personal goals (Davis et al. 1997).

[4] Title XVI (Of transactions with related parties in open corporations and their affiliates), Article 147 of the Law on Corporations #18,046: 4) In the event that an absolute majority of the members of the board of directors must abstain in voting to resolve the transaction, the transaction can only be carried out if it is approved by the unanimity of those members of the board who are not involved; or, were it not the case, if approved at an extraordinary shareholder meeting with the agreement of two thirds of issued shares with the right to vote.

In view of the above, the purpose of this paper is to study the relationship between ownership concentration and earnings management in a small, emerging economy, with weak minority shareholder protection and legal particularities that encourage ownership concentration. Using a sample of 84 companies listed in the Santiago Stock Exchange from 2003 to 2013, we found an inverted-S shape relationship between ownership concentration and earnings management. In the first stage, in cases in which the main shareholder has a low level of ownership or when the company does not have a clear controller, the type I agency (agent-manager) problem arises, which has a positive impact on the practice of earnings management and is consistent with the entrenchment effect. In a second stage, when there is a controller, the controller appoints the manager, eliminating the type I agency problem. On the other hand, monitoring carried out by institutional investors, an independent director and representatives of minority shareholders leads companies toward minimizing earnings management practices, consistent with the alignment effect. In the third stage, the controller has control over management and board thus enabling the controller to apply earnings management practices at will, which is again consistent with the entrenchment effect.

Our work contributes to the literature in several ways. First, our work broadens the study by Ding et al. (2007) by explaining the relationship between ownership concentration and earnings management in a small, emerging economy, with a weak minority shareholder protection and legal particularities that encourage ownership concentration. Second, we report updated evidence on the existence of earnings management in Chile. Third, our results extend previous works that have analyzed agency problems of high concentrated ownership structures and weak law investor protection (Silva and Majluf 2008). This article is structured as follows: the next section

summarizes the theoretical framework and hypotheses. Section III presents the sample and methodology. Section IV describes the results, and Section V shows our conclusions.

Theoretical framework and hypotheses

Earnings Management

The phenomenon of earnings management in companies is more frequent than expected, which has drawn the attention of researchers, developing an important area of research in corporate finance over the last 30 years. Earnings management is basically defined as an intervention or alteration of financial statements information by the discretionary accounting choices of the decision makers, using mainly accruals (Dechow et al. 1996, Dechow and Skinner 2000). According to Healy and Whalen (1999), this happens when the managers use judgment over financial information and in the structure of transactions to alter financial statements in order to deceive stakeholders regarding the economic results of a company or to influence the contractual results that depend on the reported accounting results.

Several ways of applying earnings management have been reported. For example, to structure transactions so as to affect revenue or expenditure; change in accounting procedures or modify accrual accounting payments (Arya et al. 1998, Baiman 1990, Schipper 1989) and modifying financial statement information in their favor (Dechow et al. 1996, Dechow and Skinner 2000, Ronen and Yaari 2008), among others.

In general, earnings management research seeks to improve models or to find new ones altogether in order to generalize possible causes based on large samples (Dechow et al. 1995 and 1996, Jones 1991, Kothari et al. 2005) and to corroborate or to

provide scientific evidence that these practices do exist in different parts of the world (Jones 1991, Leuz et al. 2003). In recent years, special attention has been placed on the degree of discretion certain agents have when deciding the amounts and the times at which some items of financial statements are allocated (Dechow et al. 2012) and in the structure of corporate governments, considering management and owners, and their relationship with the occurrence of earnings management (Maury 2006, Pérez et al. 2007).

Ownership Concentration and Earnings Management

There is no consensus on the relationship between ownership concentration and earnings management. Several authors have reported a positive relationship between both variables (Fan and Wong 2002, Desender et al. 2011, Mard and Marsat 2012) and others, a negative relationship (Zhong, Gribbin and Zheng 2007, Roodposhti and Chasmi 2010). In this scenario, Ding et al. (2007) try to conciliate these divergent results, confronting the "entrenchment versus alignment" effect, reporting an inverted-U relationship between both variables. Specifically, Ding et al. (2007) report that as ownership concentration increases, so does benefit manipulation. However, once it reaches the inflection point (at about 55 percent), greater ownership concentration is negatively related to benefit manipulation. The half to the left of the curve reflects the entrenchment effect, while the right half reflects the alignment effect. Thus, the alignment effect reduces the degree of benefit manipulation, and the entrenchment effect suggests that the practice of earnings management increases with ownership concentration.

The controller takes advantage of the benefits derived of control to apply earnings management practices during the entrenchment effect, from the start. Added

ownership does nothing but to secure the controlling shareholder in the ownership of the company by positively impacting the earnings management practice to a point where the controller's interests are in line with those of minority shareholders negatively impacting earnings management practices (alignment effect). This statement is true when there is a clear controller and there are no incentives to increase ownership concentration. In fact, on the one hand, when the company has a distinct controller, company management is usually resolved by this person. This way, the controller mitigates the agency conflict between the principal-agent (Type I) and can apply earnings management practices more freely (entrenchment effect). On the other hand, if there are no incentives for the controller to purchase a greater percentage of the company ownership, he will choose a level of ownership to maximize his wealth and that of the company (alignment effect). However, certain companies may not have a distinct controller. Also, certain laws may encourage controllers to increase their participation in company ownership in order to increase their own wealth.

In Chile, several companies, in absence of a distinct controller or having shareholder controllers with low levels of ownership, have been found to have manipulated their accounting, for example, La Polar[5]. The accounting manipulation of this company started in 2007. That year and in 2008, the main shareholder (Terold, S.A.R.L.) owned 10.85% of the company shares. In 2009, the main shareholder owned 9.26% of the company (Larraín Vial S.A. Corredora de Bolsa), declaring in the Annual Report that "as stated in Title XV of Law 18,045, the Company has neither a controller nor a majority shareholder(s)." The absence of a controlling shareholder or a majority

[5] In this Chilean retail company, executives manipulated the company's accounting to show increasing profits in financial statements to promote the purchase of company shares. While this happened, the directors and executives of the company liquidated their shares at a higher market price. In 2012, the Superintendency of Securities and Insurance (SVS) decided to penalize 22 former directors and executives of "La Polar"; the External auditing company of the La Polar and 1 partner of the auditing company for a number of infractions to the Securities Market Law and Corporations Law. Fines totaled over US$5.6 million.

shareholder was maintained in 2010, where the main shareholder (Banco de Chile on behalf of third parties) held 8.30% of the company's shares, and in 2011, where the main shareholder (Banchile Corredores de Bolsa S.A.) held 17.49% of the company's shares. That year the fraud came to light. Most of the managers at La Polar were involved in earnings management practices. By manipulating financial statements, managers were able to increase stock prices in the market, allowing them stock options and enabling them to sell stock at higher prices, therefore obtaining significant revenue through the manipulation of financial statements.

This implies that in the relationship between ownership concentration and earnings management, in the first stage, the entrenchment effect did not arise from the agency conflict between majority shareholder and minority shareholders (Type II) inferred by Ding et al. (2007), but rather from the agency conflict between the principal-agent (Type I). This is encouraged by the lack of a clear controller or when there is a controller with a low percentage of the whole ownership. In this case, the administrator (manager) could engage in earnings management practices for his own benefit by obtaining, for example, bonds or stock options. This way, there would be a positive relationship between ownership levels in the hands of the main shareholder and earnings management.

By increasing the ownership level of the controller, the earnings management practices may be reduced for two reasons. First, since the ownership of Chilean companies is mainly in the hands of families that put together well-diversified business groups (Lefort and González 2008, Lefort and Walker 2000), large company managers are chosen mainly by the controller who usually appoints family members or professionals who maintain a close working relationship and friendship with either the controller or with the controlling family. In this way, the manager's actions are aligned

with those of the controller and the earnings management practices carried out by the manager disappear. Secondly, it is common for Chilean companies to find institutional investment participation (mainly pension funds administrators, AFPs in Spanish, standing for "*Administradoras de Fondos de Pensiones*"). In Chile, the law allows the AFPs to have at least one independent director in the corporate board, which is highly valued by the Chilean stock market (Lefort and Walker 2000) and it also allows this type of shareholder, acting as a block-holder, to minimize agency problems between the major shareholder and minority shareholders. Additionally, the magnitude of the funds managed by the AFPs and the financial requirement by large Chilean companies are closely related. In fact, the funds managed by the AFPs in 2015 reached US$154,711.20 million[6] equivalent to 36% of the country's Gross Domestic Product (GDP) in 2015[7]. Of this amount, 56% ($86,406.73 million USD) are invested in the local market and 44% ($68,303.47 million USD), abroad. Of the total investment in the local market, $50,336.08 million USD are invested in the capital market, where large companies usually receive these funds as a financing source for their investment projects. The magnitude of the amounts and the companies' need for these funds, in addition to better monitoring by institutional investors would drive companies to report better quality financial information, which would consistently reduce earnings management practices consistent with the alignment effect.

So far, the conjectures between ownership concentration and earnings management in Chile are similar to those reported by Ding et al. (2007), but for a different reason at the first stage. However, in an emerging economy like Chile, a third stage can be found. In this stage, with high levels of ownership concentration, the alignment effect could not be maintained due to the particularities of the Chilean stock

[6] Source: http://www.safp.cl/apps/boletinEstadistico/genBoletin.php?nBoletin=220
[7] Source: http://www.bancomundial.org/es/country/chile

market. In fact, AFPs cannot invest in companies in which the main shareholder has above 65% of the direct stock (plus indirect participation). This situation sets in motion two opposed incentives: one, the incentive for the controlling shareholder to stay under 65% of the company ownership in order to capture AFP resources; and two, the incentive for the controlling shareholder, if he or she does not require this type of financing, to increase his stock participation. In the latter case, the controller could increase participation in company ownership in order to take the necessary measures to maximize his own wealth, to the detriment of minority stockholders, for example, in the case of operations with related companies. In fact, the law allows the controlling shareholder with two thirds of the ownership to adopt resolutions requiring qualified quorum, for example, to approve operations with related companies. Therefore, the controller may feel encouraged to invest in different companies creating economic groups with pyramid ownership structures, which would easily enable transferring resources of one company to another, thus maximizing the value of the parent company at the expense of the loss of value of the companies that are down below in the control chain (Jara-Bertin et al. 2015). After passing this threshold, there is no chance for a law-abiding decision made by a controller that could be defied by a vote from shareholders or from the board of directors (Lazén and Sepúlveda 2004). Therefore, in this the highest segment of ownership concentration, the controlling shareholder could appoint management (administration) and have control over the board, thus comfortably being able to apply earnings management practices, which would again be consistent with the entrenchment effect.

In view of the above, our work broadens the study by Ding et al. (2007) by explaining the relationship between ownership concentration and earnings management in a small, emerging economy, with weak shareholder protection and legal

particularities that encourage ownership concentration. Therefore, we propose the following hypothesis:

H1: Ownership concentration in Chilean companies has an inverted-S shape relationship with the practices of earnings management practices.

Sample and methods

Sample

The data comes from a panel made up of 84 companies that were listed on the Santiago Stock Exchange between 2003 and 2013. The combination between companies included and the periods analyzed provide an unbalanced panel with 752 observations.

The financial accounting information was obtained from Thomson Reuters and Economatica. The information on the rights of cash flow and rights of control was gathered from reports by the same companies. It is important to note that this work was done one company at a time because this data is not accessible in any public database in Chile.

Variables

Dependent Variable. The discretionary behavior has been analyzed by building econometric models, separating total revenue into discretionary and non-discretionary (Jones 1991), as one part is sustained by the transactions and the other depends on the decisions by managers and/or owners.

We have used the modified Jones Model (Kothari et al. 2005) to estimate the discretionary revenue that earnings management represents. We used this model

because it is the most widely used and accepted model in detecting the practice of earnings management.

Kothari et al. (2005) include company performance measured by ROA in the Jones Model (1991) as an independent variable in estimating discretionary revenue according to the following model:

$$TA_{it} = \beta_0 + \beta_1 \Delta REV_{it} + \beta_2 PPE_{it} + \beta_3 ROA_{it} + \varepsilon_{it} \quad (1)$$

Where TA_{it} are the total revenues of period *t* for the company *i* made up of:

$$TA_t = [\Delta\, Working\ capital_t - \Delta Cash_t\,] - [\Delta\, Current\ liability_t + Depreciation\ and\ Amortization_t\,] \quad (2)$$

ΔREV_{it} corresponds to the sales in year *t* minus the sales in period t_{-1} for company *i*; PPE_{it} is the immobilized raw material in period *t* for company *i*; all the variables are scaled by total assets, *A*, of period t_{-1} for company *i*. The absolute value of the estimation error corresponds to the discretionary accruals adjusted for the company's performance, which is used as proxy for earnings management (EM).

Explanatory variables: Ownership Concentration. To measure ownership concentration we used P1, representing the ownership percentage in the hands of the main shareholder.

Control Variables. We included a series of control variables that potentially affect earnings management. We also included control variables of the ownership structure

that could minimize the potential effect of these variables on the relationship between ownership concentration and earnings management. We included the size (SIZE) of the company measured by the natural logarithm of the total assets, the degree of debt (DEBT), measured by the total debt proportion over the total assets, the capital expenditure over sales (CAPEXSAL), which represents a proxy of growth opportunities. CRISIS is the dichotomous variable that takes value 1 for the years of financial crisis and zero in other cases. IFRS is the dichotomous variable that takes value 1 for the years in which the company reported its financial statements under IFRS and zero in other cases. Company growth (GROW) is measured by sales growth rate. Company age (AGE) is measured as the natural logarithm of the company's years of existence. Company performance is measured as the price-to-tangible book value (VMVL). FAM corresponds to the dichotomous variable that takes value 1 when the company is controlled by a family and zero in other cases. To consider a company to be controlled by a family, we used the following three criteria. First, from the list of company groups disclosed by the Superintendency of Securities and Insurance (SVS in Spanish), we classified them as family ownership if the group is related to a distinct family. Second, if the company belongs to one of the company groups, it was classified as a family controlled company if one or more members of a family-controlled company of the SVS list controls the company at a high management level. Third, the company was classified as a family controlled company if one or more members of the family in the SVS list controls the management board. For the last two criteria, we used information from credit rating agencies, company financial reports, market data and other company sources. We defined all companies that did not fit the above three criteria as non-familiar. GROUP denotes membership to a business group and corresponds to a dichotomous variable that takes value 1 when the company is

affiliated to an economic group. To define that a company is affiliated to a business group we considered the information published by the Superintendency of Securities and Insurance. AFP is a dichotomous variable that takes value 1 when institutional investors such as Pension Funds Administrators own part of the company. PYR denotes pyramid type ownership and corresponds to the separation between cash flow rights and control rights. The traditional argument to explain the construction of pyramidal structures is the separation between cash flow rights and voting rights (Almeida and Wolfenzon 2006). Therefore, we calculated the excess of control rights as the difference between cash flow rights and voting rights. The cash flow rights and control rights were estimated using the definition by Claessens et al. (2002) and Faccio and Lang (2002), where the cash flow rights are the sum of the proportion of the ownership in the chain of control and the control rights are the smallest proportion along the control chain. We included a dummy variable that takes the value 1 if the excess of control rights is greater than zero, and 0 in any other case. Finally, we introduced a set of sectoral dichotomous values according to the sectoral classification delivered by the Superintendency of Securities and Insurance (DSEC) and a set of temporary dichotomous variables (DAÑO).

Modeling Procedure

EM_{it} discretionary accruals, which for company i in year t is the absolute value of the residue for the estimation model, is used to study the relationship between earnings management and ownership concentration.

$$EM_{it} = \beta_{0i} + \beta_{1i}P1_{it} + \beta_{1i}P1_{it}^2 + \beta_{1i}P1_{it}^3 + \sum_{i=3}^{n} \beta_i X_{it} + \varepsilon_{it} \quad (3)$$

Where EM is the value of earnings management obtained from equation (1) of the Kothari et al. model. (2005); $P1$ is the ownership concentration; X_{it} is the set of control variables. $P1_{it}^2$ and $\beta_{1i}P1_{it}^3$ take value 0 to find the linear relation; $\beta_{1i}P1_{it}^3$ takes value 0 to find the squared relation.

Endogeneity is controlled by panel data methodology. This methodology allows us to control unobservable heterogeneity and endogeneity problems, providing estimators with better efficiency than other estimation methods (Arellano 2003, Baltagi 1995, Alonso-Borrego and Arellano 1999). To deal specifically with problems of endogeneity, we used the GMM system estimator developed by Blundell and Bond (1998) and Bond (2002). System GMM" (GMM-sys) is the augmented version of GMM outlined in Arellano and Bover (1995) and fully developed in Blundell and Bond (1998) who more precisely articulated the necessary assumptions for this augmented estimator and tested it with Monte Carlo simulations. Lagged levels are often poor instruments for first differences, especially for variables that are close to a random walk. Thus, the original equations in levels can be added to the system, and the additional moment conditions could increase efficiency. In these equations, predetermined and endogenous variables in levels are instrumented with suitable lags of their own first differences.

We have used independent variables with delay as instruments in differences for level equations. With this estimation method, the consistency of the estimators critically depends on the absence of second order autocorrelation of residuals and instrumental validity (Arellano and Bond 1991). Consequently, using our estimations we calculated a statistical test of absence of second-order serial autocorrelation.

We additionally used a second estimation method. Like Morck et al. (1988) and Silva et al. (2006), we divided our total sample using a piecewise definition in three

categories (low, medium and high), depending on the ownership concentration (P1). To estimate the two break points we use a grid search technique. This requires looking first for the level of economic rights concentration that produces the most significant slope coefficient on the first variable in the regression (Low), setting alm at this level. Then we search for the second level of economic rights that yields the most significant slope coefficients on the second and third variables in the regression (Medium, and High respectively), setting amh at this level. These two values are used as initial points in an iteration process aimed at determining the two levels of economic rights that provide the most significant slope coefficients on the three concentration variables simultaneously (Silva et al. 2006). The results report a low level of ownership concentration (under 32%), medium level of ownership concentration (between 33% and 54%) and high level of ownership Concentration (over 55%). These stages are incorporated into equation 3 as variables p1low, p1med and p1high, each corresponding to: under 32%, between 33% and 54% and over 55%, respectively. Endogeneity is corrected by including these variables and using the GMM estimating system developed by Blundell and Bond (1998) and Bond (2002).

Results and discussion

Descriptive Analysis of Variables

Table 1 shows the general statistics of the studied variables. The mean absolute discretionary accrual was 3.8% with median of 3.0% (EM). Ownership in the hands of the main shareholder (P1) reaches an average of 46%. Meanwhile, 66% of the sampled companies have family ownership (FAM=0.660), slightly under the 75% reported by Martínez et al. (2007) and the 68% reported by Bonilla et al (2010). Business group affiliation (GROUP) reaches 74% and pyramid ownership (PYR) is at an average of

51%. On the other hand, 59% of the companies participate in Pension Fund Administration (AFP). The statistical analysis of the ownership structure sample shows a high level of ownership concentration, mainly in the hands of economic groups related to families with pyramidal ownership structure, favoring earnings management practices, in an environment with a weak shareholder protection. On the other hand, Chilean companies perform well (VMVL over 1), with relatively low levels of debt (DEBT=22%).

Table 2 shows the correlations between the studied variables. Ownership Concentration is inversely correlated with earnings management, which shows alignment between the interests of the main shareholder and minority shareholders. On the other hand, family ownership, pyramid ownership structure and the existence of AFPs in the company ownership of the sample are positively related to earnings management.

Econometric Results

Table 3 shows the results of the estimations of equation (3) using EM as a dependent variable, which is the earnings management valuable obtained from equation (1) of the Kothari et al. (2005) variable. Columns 1, 2, and 3 represent the results when the Panel Data estimation method is used. Columns 4, 5, and 6 show the relationship between the variables when the OLS Piecewise estimation method is used.

Columns 1 and 4 show the positive relationship between P1 and EM, consistent with the entrenchment effect. The effect is reverted when the main shareholder increases his or her participation in company ownership. Thus, an inverted U relationship between P1 and EM (column 2 and 5) is found. So far, we corroborate the results by Ding et al. (2007). However, when the main shareholder reaches a high

percentage of ownership, the relationship between P1 and EM becomes positive again (columns 3 and 6). At the end of table 3, and for each of the reported models – and in order to validate the consistency of the estimators which critically depend on the absence of second-order serial autocorrelation of the residuals and also on the validity of the instruments; we show the autocorrelation p-values of order - AR (2) - where the test for AR (2) is rejected at a level of 5%. Regarding the over-identification of restrictions, the Sargan test shows satisfactory p-values at a 1% level.

Discussion and Implications

The results prove our hypothesis, highlighting that in a small, emerging economy, with a weak minority shareholder protection and with legal particularities that encourage ownership concentration, the relationship between P1 and EM takes the shape of an inverted S.

In the first stage, ownership is more disperse, without a clear controller. The administrator (manager) takes advantage of this situation to inflate the utilities reported, for example in a change of accounting methodology (depreciation method or inventory valuation), which provides an artificial increase in reported revenue, thus obtaining the benefits for this action (performance bonds, for example).

In the second stage, the main shareholder chooses a level of ownership that enables him or her to gain control of the company. With this control, and given the characteristics of the Chilean equity market, the controller generally appoints the company managers. In large companies, managers usually come from the controlling family, or have close work and friendship relationships with the controllers. This way, the managers act in the best interest of the controllers, which produces alignment of interests between the administrator (manager) and the controller. This alignment of

interest mitigates the practice of earnings management by the management because it constitutes a decision by the controller. Even though the controller has control of the company, he or she does have obstacles in developing potential earnings management practices at the company's board level. In fact, the institutional investor representatives (AFPs) play an important role in company decisions, and may play a role of contestability to the decisions of the controller, mitigating the practice of earnings management.

In the third stage, the high degree of participation in company ownership on behalf of the main shareholder enables the controller to choose part of the board, adopt resolutions that require absolute majority of votes and adopt resolutions with qualified quorum. This way, on the one hand, he gains administration (management) control, and on the other, control of the board, which enables him to apply earnings management practices at will.

The results have important implications for financial literature and the discussion on how ownership concentration is related to accounting manipulation in emerging economies. On the one hand, we have found that ownership concentration is not *per se* related with accounting manipulation, but rather it is determined by the market structure of each country. In this context, in countries such as Chile, in which the law allows qualified quorum from a certain level of ownership, this type of measures may be seen as an incentive to excessively increase ownership concentration, thus potentially implying greater accounting manipulation, Secondly, it is important to mention that low levels of concentration would encourage management-administration to manipulate accounting where the companies do not have a clear controller. Therefore, ownership concentration is important so as to have a clear controller; if not, interests are misaligned between management and owners, increasing the probability of

accounting manipulation. On the other hand, the presence of institutional investors such as AFPs minimize the practice of earnings management, which, in a scenario in which there is a clear controller, the presences of these investors is important to minimize accounting manipulation.

Regarding the practical implications, this study offers useful evidence for investors participating in equity markets. For example, when considering investing in a company that does not have a clear controller, the probability of accounting manipulation by the administrator is higher and, therefore, investment in those companies may be affected by these activities, therefore causing the loss of value of their investment (e.g. the case of La Polar). On the other hand, if the watchdog aims at a more transparent market and seeks to minimize the practice of accounting manipulation, the law should not allow the controlling shareholder to adopt resolutions that require absolute majority of votes or qualified quorum once he or she reaches a certain level of ownership.

Conclusions and further lines of research

In this article we studied the relationship of ownership Concentration and earnings management in an emerging economy using a sample of 84 companies that have traded in the Stock Exchange of Santiago de Chile during the period between 2003 and 2013. Using two methods of estimation (Panel Data and OLS Piecewise) we found a relation in the shape of an inverted S.

Our work broadens the study by Ding et al. (2007) by explaining the relationship between ownership concentration and earnings management in a small, emerging economy, with a weak minority shareholder protection and legal particularities that encourage ownership concentration. To Ding et al.'s proposal

(2007), which considers that the controller takes advantage of the benefits derived of control to apply earnings management practices during the entrenchment effect from the very beginning, and that additional ownership only consolidates the controller in the ownership of the company thus positively impacting the practice of earnings management, we come to offer an additional explanation that is valid for emerging economies. In these economies, such as Chile, in which the main shareholder has a low level of property or when the company does not have a clear controller, the type-I agency (agent-manager) problem arises, which has a positive impact on the practice of earnings management. In a second stage, when there is a controller, the controller appoints the manager, eliminating the type I agency problem. At the same time, monitoring by AFPs, an independent director and representatives of minority shareholders leads companies toward minimizing earnings management practices. In the third stage, the controller has control over management and board, enabling him to apply earnings management practices at will.

Future lines of research could, on the one hand, can evaluate the inverted S shape of the relationship between ownership concentration and accounting manipulation in economies with more disperse ownership, in economies were the controlling shareholder is not at liberty to make decisions based on a certain level of ownership and also in countries with different legal systems. Another line of research would be to study how accounting manipulation moderates the relationship between ownership concentration and performance. Different relationships have been reported between ownership concentration and company performance. However, so far the effect of accounting manipulation on that relationship has not been considered.

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Table 1. Descriptive statistics

Mean, median, minimum, maximum and standard deviation of each variable for the total sample.

	mean	median	min	max	sd
EM	0,038	0,030	0,000	0,213	0,033
P1	0,459	0,451	0,064	0,996	0,220
PYR	0,507	1,000			0,500
FAM	0,660	1,000			0,474
GROUP	0,742	1,000			0,438
AFP	0,592	1,000			0,492
VMVL	1,102	0,992	0,145	3,056	0,542
SIZE	19,411	19,382	14,584	23,980	1,860
DEBT	0,224	0,238	0,000	0,968	0,138
CAPEXSA L	0,118	0,078	0,000	3,124	0,172
GROW	0,217	0,095	-0,965	59,647	2,235
AGE	3,152	3,158	0,515	4,679	0,570

Table 2. Correlation Matrix.

	EM	P1	PYR	FAM	GROUP	AFP	VMVL	CRISIS	SIZE	DEBT	CAPEXSAL	GROW	AGE
EM	1												
P1	-0,010	1											
PYR	0,021	0,378	1										
FAM	0,043	-0,262	-0,098	1									
GROUP	-0,104	0,014	0,148	-0,119	1								
AFP	0,030	-0,181	0,142	-0,052	0,224	1							
VMVL	0,080	0,029	0,014	-0,116	-0,076	0,238	1						
CRISIS	0,116	-0,021	0,005	0,019	-0,019	0,074	-0,089	1					
SIZE	0,003	-0,004	0,082	-0,052	0,333	0,511	0,107	0,001	1				
DEBT	0,063	-0,207	0,022	-0,039	0,053	0,271	0,041	-0,016	0,412	1			
CAPEXSAL	0,001	-0,010	-0,045	0,068	0,055	-0,018	-0,012	-0,003	0,057	-0,059	1		
GROW	-0,003	-0,018	0,042	0,011	0,023	0,012	-0,051	-0,030	-0,005	-0,041	-0,021	1	
AGE	-0,092	0,041	-0,046	-0,004	0,062	-0,074	-0,213	-0,010	0,010	-0,133	0,138	0,064	1

Table 3.

This table shows the non-linear relationship between ownership concentration and earnings management. Columns 1, 2, and 3 show the relationship between these variables using the Panel Data estimation method. Columns 4, 5, and 6 show the relationship between the variables using the OLS Piecewise estimation method. The dependent variable is earnings management (EM). P1, ownership Concentration, is the dependent variable. SIZE is the size of the company measured by the natural logarithm of the total of assets. DEBT is the degree of indebtedness measured by the ratio of total indebtedness to total assets. CAPEXSAL is capital expenditures over sales. CRISIS is a dichotomous variable that takes value 1 for the years of financial crisis and zero in other cases. IFRS is the dichotomous variable that takes value 1 for the years in which the company reported its financial statements under IFRS and zero in other cases. GROW represents the growth of the company measured by the growth rate of sales is the age of the company measured as the natural logarithm of the company's years of existence. VMVL is company performance measured as the market value ratio over the accountable variable. FAM is the dichotomous variable that takes value 1 when the company is controlled by a family and zero in other cases. GROUP is a dichotomous variable that takes the value 1 when the company is affiliated to an economic group. AFP is a dichotomous variable that takes value 1 when institutional investors such as Pension Funds Administrators own part of the company. PYR is the separation between cash flow rights and control rights. It is a dummy variable that takes the value 1 if the excess of control rights is greater than zero, and 0 in any other case. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

	Panel Data			OLS Piecewise		
VARIABLES	1	2	3	4	5	6
P1	0.0184***	0.1607***	0.2580***			
	(0.0056)	(0.0097)	(0.0223)			
P1^2		-0.1502***	-0.4085***			
		(0.0125)	(0.0540)			
P1^3			0.1917***			
			(0.0396)			
P1Low				0.0278***	0.1706***	0.1856***
				(0.0033)	(0.0168)	(0.0255)
P1Mid					-0.1903***	-0.1999***
					(0.0218)	(0.0415)
P1High						0.0329
						(0.0393)
FAM	0.0598***	0.0546***	0.0545***	0.0746***	0.0624***	0.0741***
	(0.0057)	(0.0065)	(0.0066)	(0.0050)	(0.0062)	(0.0163)
GROUP	0.0063	0.0047	0.0052	0.0122***	0.0167***	0.0052
	(0.0041)	(0.0038)	(0.0047)	(0.0036)	(0.0046)	(0.0097)
PYR	0.0316***	0.0203***	0.0223***	0.0313***	0.0211**	0.0162
	(0.0059)	(0.0055)	(0.0064)	(0.0079)	(0.0104)	(0.0184)
VMVL	-0.0080***	-0.0078***	-0.0079***	-0.0098***	-0.0088***	-0.0113***
	(0.0014)	(0.0014)	(0.0014)	(0.0017)	(0.0016)	(0.0032)
SIZE	0.0013	0.0031*	0.0034*	-0.0008	-0.0003	0.0045
	(0.0016)	(0.0018)	(0.0018)	(0.0020)	(0.0022)	(0.0037)

DEBT	0.0156***	0.0129*	0.0151**	0.0222***	0.0137**	-0.0006
	(0.0055)	(0.0072)	(0.0073)	(0.0063)	(0.0061)	(0.0128)
CAPEXSAL	0.0155***	0.0184***	0.0180***	0.0167***	0.0171***	0.0151***
	(0.0023)	(0.0019)	(0.0021)	(0.0031)	(0.0027)	(0.0044)
CRISIS	0.0071***	0.0067***	0.0070***	0.0074***	0.0076***	0.0058***
	(0.0009)	(0.0009)	(0.0010)	(0.0011)	(0.0013)	(0.0011)
IFRS	-0.0018***	-0.0022***	-0.0019***	-0.0013*	-0.0021***	-0.0011
	(0.0006)	(0.0006)	(0.0006)	(0.0007)	(0.0007)	(0.0016)
AFP	-0.0073***	-0.0070***	-0.0085***	-0.0054***	-0.0051**	-0.0068***
	(0.0027)	(0.0015)	(0.0027)	(0.0020)	(0.0022)	(0.0024)
GROW	0.0001	0.0000	0.0000	0.0000	0.0001	0.0002**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
AGE	0.0111***	0.0079**	0.0081**	0.0105***	0.0103**	-0.0012
	(0.0029)	(0.0038)	(0.0041)	(0.0029)	(0.0051)	(0.0068)
CONST	-0.1028***	-0.1472***	-0.1637***	-0.0802**	-0.1163***	-0.1600***
	(0.0190)	(0.0220)	(0.0204)	(0.0320)	(0.0311)	(0.0442)
Observations	627	627	627	627	627	627
Number of ct	83	83	83	83	83	83
sargan	61.55	63.02	63.27	60.93	57.99	53.75
psargan	0.632	0.581	0.572	0.988	0.994	0.369
arm1	-4.740	-4.789	-4.795	-4.651	-4.759	-4.942
arm2	-0.331	-0.394	-0.428	-0.388	-0.408	-0.394