Family Ownership and Firm Performance in Chile: A Note on Martinez et al.'s Evidence

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Abstract

The authors revisit the evidence presented in Martinez et al. using new data and estimation techniques that take into account unobserved firm heterogeneity. The results of the earlier study are found to be robust to the new procedures because performance of family-controlled firms continues to be superior to that of nonfamily firms. The authors then add the risk dimension to the earlier analysis using a risk-adjusted return on assets (ROA) variable, and family-controlled firms again performed better. A test of the standard deviations of ROA for both firm categories revealed that family-controlled firms not only perform better but also show less volatility in their returns.

Keywords

family-controlled firms, performance, ROA, risk, returns volatility

Various authors have maintained that family-controlled firms are more profitable than nonfamily ones, basing their assertion on certain advantages such as the lower agency costs of dealings between family members and a longer-term management perspective. Others, however, take the opposite view, arguing that family businesses have significant disadvantages stemming from their limited capacity to hire external managers for key executive positions and the always-present possibility that the family may expropriate value from minority stakeholder. Either of these phenomena could presumably damage market confidence in companies controlled by families and negatively affect their share prices.

This research note is an extension of Martinez, Stöhr, and Quiroga (2007; hereafter simply Martinez) in which we incorporate certain methodological improvements, more recent data, and a new conceptual aspect that extends the comparisons beyond profitability to include the risk dimension. These innovations address a significant weakness in that comparing profitabilities of the two types of businesses is of little use without some idea of the risk differential.

These extensions to the Martinez study generate a number of interesting results. First, by using return on assets (ROA) as a profitability measure, we found that, as in Martinez, family-controlled firms are more profitable than nonfamily ones in Chile. Second, after controlling for AFP (private pension fund managers) investment in family-controlled firms and nonfamily ones, the outcome does not change. In other words, the fact that a firm is "AFPable" (i.e., its characteristics are such that AFPs may legally invest in it) does not explain the difference in profitability despite the influence AFPs have in the Chilean market. Furthermore, even after adjusting ROA for risk, by type of firm, we found that family-controlled businesses performed better than nonfamily ones.

Finally, and most importantly, we found that in family-controlled businesses profitability not only is higher but

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also has lower variance. This result contradicts the notion of a risk–return trade-off, which states that if a given asset or asset portfolio has a higher rate of return than some other one, its risk, in equilibrium, should also be higher. It therefore also constitutes indirect proof that the Chilean equity market does not satisfy the efficient market hypothesis, as was recently described in the finance literature by Romero, Bonilla, and Hinich (2007), because it is possible to build a portfolio with family firm stocks and obtain abnormal returns for a given level of risk. How to form such a portfolio is not the concern of this article; that such a possibility exists, however, is interesting in itself and indirectly corroborates empirical findings in the literature on the Chilean market.

Related Empirical Literature

Comparisons of the financial performance of family-controlled firms and nonfamily businesses have been the subject of some recent studies. Using data for 1992 through 1999 on the ROA for companies included in the Standard & Poor's 500, Anderson and Reeb (2003) found that family-controlled firms performed significantly better than nonfamily ones and that the highest profitability was reported by firms in which a family member was also the CEO. They thus concluded that family ownership is an effective organizational structure. From a similar perspective, Lee (2006) utilized data for 1992 through 2002 to confirm that family-controlled firms in the United States generated more employment and revenue growth and displayed higher profitability. These results bolster the theory that firm performance grows when founder members belonging to the family are involved in management. Another recent investigation by Allouche, Amann, Jaussaud, and Kurashina (2008) on the Japanese economy also showed that family-controlled firms perform better and have a stronger financial structure than do nonfamily firms. Their evidence was based on financial profitability indicators such as ROA, return on equity (ROE), and return on invested capital.

On the family business sector in Chile, little work has yet been published, an exception being the 2007 Martinez study. Its authors examined the impact of family ownership on the performance of Chilean firms listed on the Bolsa de Comercio de Santiago, the country's principal stock exchange. Three performance measures were used—ROA, ROE, and a proxy for Tobin's *q*—and the results for family-controlled firms and nonfamily firms were subjected to difference of means testing. Their conclusion was that family-controlled businesses were more profitable. The same study obtained ordinary least squares (OLS) estimates of a model that included time fixed effects and dummy variables representing the industrial classification of the firms included in their panel data. These dummies captured unobservable heterogeneity at the industry level but not at the level of the individual firm. Indeed, unobservable factors such as management quality and organizational structure that could affect the profitability of the companies in both categories are not captured by incorporating dummies at the industry level. Furthermore, the unobserved firm heterogeneity could be correlated with explanatory variables. As an example, management quality, which affects profitability, might be correlated with the type of firm (family controlled or nonfamily), size, age, and indebtedness as well as other firm characteristics. Not picking up these correlations meant losing valuable information, and the OLS estimators could then be biased.

Martinez did not measure the effect of institutional (AFP) investors on the Chilean capital market, nor did Martinez incorporate the risk levels associated with the returns of family-controlled firms versus nonfamily ones. Both of these phenomena are included in the model we present below. In the case of AFPs, this reflects our view that the impact of the AFPs is significant and should be taken into account.

Method and Data

Hypotheses to Be Tested

Our first purpose is to investigate whether the results of previous studies on profitability are in fact true for Chile using a more robust methodology than Martinez, new data, and specific measures to control for the presence of AFPs. Therefore, the hypotheses we test are as follows:

> *Hypothesis 1:* Family-controlled firms listed on the Chilean stock market are more profitable than nonfamily firms.

The AFPs are major institutional investors that administer Chileans' pension funds and play a major role in the market because of the large amount of resources they manage. Their demand for a particular asset usually influences the stock price of it. Also, the financial assets in their portfolios reveal which firms they are investing in and may be an indicator of those firms' financial

solidity and attractiveness. It is not uncommon for other market players to follow the investment strategies of the AFPs. Therefore, when an AFP decides to buy a particular asset or increase the asset's portfolio weight, it is very likely that the stock price of that asset will be positively affected. Thus, it is interesting to see if the difference in profitability between family-controlled firms and nonfamily firms remains when controlling for the effect of AFPs.

Hypothesis 2: If the effect of AFPs is controlled for, the difference in profitability between family-controlled firms and nonfamily ones declines significantly or disappears.

In addition to studying the differences in profitability, we incorporate an analysis of the variance in the returns of the two types of businesses. Previous studies have not carried out such an analysis. We include it here to better explain the results and determine whether this variability is an important attribute in the Chilean market. This leads us to a third hypothesis:

Hypothesis 3: The returns to family-controlled firms in the Chilean market exhibit greater variance than returns to nonfamily firms and thus are consistent with the equilibrium risk–return trade-off.

In addition to testing for differences in variance, we adjust the returns for risk and type of firm to determine if the results in Martinez continue to hold. This leads us to our fourth hypothesis:

Hypothesis 4: After adjusting for risk, the difference in profitability between family-controlled firms and nonfamily firms disappears.

Definition of Family Firm in the Chilean Context

To classify a given company as a family firm, we employed three criteria. First, we examined the list of business groups published by the Chilean Superintendant of Securities and Insurance (SVS). As of year-end 2007, there were 117 such groups. In each case, if the group was clearly associated with a business family, the firms constituting it were considered to be family-controlled firms.

Second, if a company was not a member of any of these corporate groups, we categorized it as a family-controlled firm if it was controlled at the senior management level by one or more members of a family-controlled firm on the SVS list.

Third, a company not in any business group was classified as a family-controlled firm if its board of directors was controlled by one or more members of a family on the SVS list. For both this and the second criterion, we used information from credit rating agencies, company financial reports, market data, and other company sources. Nonfamily firms were defined as all companies not fitting these three family-controlled-firm criteria.[1]

Table 1. Number of Companies in Sample, by Year

Year	Total
1998	253
1999	255
2000	259
2001	251
2002	246
2003	241
2004	237
2005	260
2006	257
2007	246
Total	2,505

Source: Derived from databases (see text).

Data Set

The data set for our test samples of listed companies covered the period between January 1998 and December 2007. They were obtained from Economática (a Latin American database vendor), the SVS, the Chilean Superintendant of Pension Fund Administrators (SAFP), and the Santiago Stock Market. The number of enterprises in the sample for each year is shown in Table 1. As in Martinez, we have excluded nonprofit entities and holding companies, whose financial statements were a composite of their also-public subsidiaries. However, we did not exclude financial institutions as Martinez did. Financial institutions are an active part of the Chilean economy and may help to better explain the findings of the reference study.[2]

Based on the criteria described above, an average of 68% of the businesses in the sample were classified as family-controlled firms and 32% as nonfamily firms for the period covered. The figures for individual years, given in Table 2, reveal that the percentage of family-controlled

Table 2. Percentages of Family-Controlled Firms and Nonfamily Firms

Year	Family (%)	Nonfamily (%)	Total (%)
1998	70.8	29.2	100.0
1999	67.1	32.9	100.0
2000	68.0	32.0	100.0
2001	68.5	31.5	100.0
2002	68.7	31.3	100.0
2003	69.3	30.7	100.0
2004	69.6	30.4	100.0
2005	66.2	33.8	100.0
2006	66.5	33.5	100.0
2007	68.7	31.3	100.0

Source: Derived from databases (see text).

firms remained much higher than the percentage of nonfamily ones throughout the 10-year period.

Model Variables

Our regression model contains a single dependent and six independent variables. The dependent variable is ROA, which was chosen for two reasons: first, because it is the most commonly used variable in this type of analysis and, second, to ensure our results would be comparable to those of the Martinez study. ROA is a measure of financial performance that indicates how the firm's assets were managed during the period under study. The data for this variable were drawn from the Economatica database.

The independent control variables, measured for each firm, are the following:

- Family dummy (DFAM): Dummy variable that equals 1 for family-controlled firms
- AFP ownership dummy (DAFP): Dummy variable that equals 1 for firms whose ownership structure includes institutional (AFP) investors; the values for this variable were obtained from SAFP 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: Size of the firm, measured as the natural logarithm of total assets; the raw values were extracted from the Economatica database
- Age: Age of the firm, that is, the number of years since it was founded; this information was found on the companies' Web sites or through direct consultation by telephone
- Industry: The firm's industrial classification; the Economatica database uses a classification system of 19 sectors

Method

Our sample embraces information on a number of firms over a period of years (1998–2007) and thus constitutes a panel data set. As in Martinez, we first test for differences between the means of ROAs for family-controlled firms and for nonfamily ones.[3] We then estimate the model using the same method but with our new data. And because there exist nonobservable effects that are probably correlated with the independent variables (e.g., the type and quality of management may be different for firms of different size and age), we opted to estimate the relationship using a fixed-effects regression model before going into the risk comparison.

Nevertheless, we allow for the possibility that the unobservable factors are random and thus employ the Hausman test to decide which method is most appropriate. The basic model is written as follows:

$$\begin{gathered} ROA_{it} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AGE_{it} + \beta_3 DEBT_{it} + \\ \beta_4 DFAM_{it} + U_{it} \\ t = 1998, 1999, \ldots 2007 \\ i = \text{firm} \end{gathered} \quad (1)$$

Our first step is to determine whether the incorporation of the individual unobservable effects (α_i) changes the results found by Martinez. We then incorporate the DAFP dummy variable to establish whether the presence of AFPs in the ownership structure helps explain the profitability differences between family-controlled firms and nonfamily firms.

Finally, to ascertain the effect of risk, we carry out two procedures. First, we perform a difference of variance test on the two firm types. Second, we estimate Equation (1) in which the dependent variable ROA is adjusted for risk. We obtain the standard deviation of ROAs, by firm type, for each year in the sample. We use it as a proxy for risk and divide each firm's ROA by this measure, as explained in the Comparison of Risk-Adjusted ROA Values section below.

Table 3. Return on Assets (ROA) Sample Characteristics

Variable	Obs.	*M*	*SD*
ROA	2,446	0.0437126	0.134452

Table 4. Difference of Means Test for Return on Assets (ROA) of Family-Controlled Firms and Nonfamily Ones

	Means		Statistics	
	Family (%)	Nonfamily (%)	*t*	Significance Level
ROA	4.79	3.46	2.1745	.0149

Results and Discussion

Comparison of ROA Values

The sample data relating to the ROA variable are summarized in Table 3.

A difference of means test was then performed on the mean ROA values for family-controlled firms and nonfamily enterprises, the results of which are given in Table 4.

As can be seen, family-controlled firms had a mean ROA of 4.79% over the 10 years under study and thus performed better than nonfamily firms, whose mean ROA was 3.46%. A *t* test yielded a value of 2.1745 (p = .0149), demonstrating that this difference is statistically significant and thus corroborating the first result from Martinez despite the use of a different sample.

We then estimate Equation (1) with the same method (OLS) as Martinez using similar independent variables with our new data. The results, set out here in Table 5, are comparable to those of Martinez both qualitatively and quantitatively. The Dfamily dummy variable is positive and statistically significant, implying that even when size, age, and debt are controlled for, family-controlled firms perform better than nonfamily firms.

As noted earlier, the model specification in Martinez could not capture unobservable heterogeneity in the various firms, whether family controlled or not. Factors such as management quality and organizational structure, though they clearly influence performance, are not observable. To incorporate them into the estimation, we can add dummies for each firm in the study, an approach that would limit the degrees of freedom, or estimate them using a fixed-effects panel model.

Thus, Equation (1) was reestimated allowing unobservable fixed effects correlated with the independent variables. The results are presented in Table 6. The second column contains the equivalent of the estimates in Martinez with unobservable heterogeneity permitted. The results do not change; the Dfamily variable continues to be significant at conventional levels. In other words, under the new methodology and with new data, family-controlled firms still perform better.

Table 5. Estimation Using the Method of Martinez et al. (2007)

Variable	Return of Assets
Intercept	−0.2945 (.000)***
Size	0.0174 (.000)***
Age	−0.0002 (.001)***
Debt/assets	−0.0015 (.000)***
DFamily	0.0354 (.000)***
Year dummies (9)	Yes
Industry dummies (18)	Yes
Adjusted R^2	.1175
F statistic	10.74 (.000)
Obs.	2,269

Note: Values in parentheses indicate *p* values.
***Significant at the 1% level.

An important variable not included in the Martinez analysis is the presence of the AFPs, Chile's largest investors. We have incorporated it in our model to determine the impact of these institutional investors on the performance of family-controlled firms and nonfamily companies. Existing studies have already described the major influence they wield in the small Chilean capital market (Romero et al., 2007).

The figures in the third column of Table 6 demonstrate 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. Family-controlled firms continue to show statistically significant higher average returns than nonfamily ones.

Comparison of Risk-Adjusted ROA Values

To investigate the possibility that the family-controlled firms' superior performance is accompanied by higher levels of risk, the ROA dependent variable in Equation

Table 6. Fixed-Effects Estimation of Model 1

Variable	ROA	ROA	ROARISK	ROARISK
Size	0.0545	0.0541	0.4081	0.4057
	(.000)***	(.000)***	(.000)***	(.000)***
Age	0.0001	0.0000	0.0015	0.0009
	(.837)	(.937)	(.785)	(.864)
Debt/assets	–0.0021	–0.0021	–0.0161	–0.0159
	(.000)***	(.000)***	(.000)***	(.000)***
Dfamily	0.0332	0.0303	0.2454	0.2275
	(.066)**	(.097)**	(.077)**	(.105)
DAFP		0.0099		0.0610
		(.277)		(.386)
R^2 (within)	.1006	.1011	.0975	.0979
F statistic	55.78	44.87	53.91	43.27
p value	(.000)	(.000)	(.000)	(.000)
Hausman (χ^2)	44.08	46.45	48.53	51.27
p value	(.000)	(.000)	(.000)	(.000)
Obs.	2,269	2,269	2,269	2,269

Note: ROA = return on assets. Values in parentheses indicate *p* values.
**Significant between 5% and 10%. ***Significant < 1%.

Table 7. Variance Ratio Test

Ratio = sd(ROAnofamiliy)/sd(ROAfamily)	
Ho: Ratio = 1	*F* statistic = 1.3315
Ha: Ratio' 1	prob (*F* > *f*) = 0.000
Ha: Ratio > 1	prob (*F* > *f*) = 0.000
Ha: Ratio < 1	prob (*F* < *f*) = 1.000

(1) is replaced with ROARISK, ROA adjusted for the risk factor,

$$\text{ROARISK}_{i,t} = \text{ROA}_{i,t}/\sigma_{j,t}$$
$$\text{for } i = \text{firm}, t = \text{year}, j = \text{family firms, nonfamily firms}$$

where ROA is as previously defined and $\sigma_{j,t}$ is the standard deviation of the returns on family-controlled businesses and nonfamily ones for the year *t*. Thus, we reestimate Equation (1) using a measure of the dispersion of the returns as a proxy for risk.[4]

The new estimates with risk-adjusted ROA are shown in Table 6. The results obtained when the AFP dummy variable is excluded, given in the fourth column, are statistically significant and reveal that family-controlled firms still perform better. The addition of the AFP dummy variable generates the results indicated in the fifth column, indicating that the variable is itself not significant but its inclusion causes the family-controlled firm dummy to become marginally nonsignificant. It continues to carry a positive sign, however.

Although intuitively we would expect the unobservable effects to be fixed rather than random and correlated with the independent variables such as size, we applied the Hausman test to check this assumption. The results for each specification confirmed that the fixed-effects estimation was the correct one for the present cases. The test values and their corresponding *p* values are shown in the lower panel of Table 6.

Finally, we tested whether the standard deviation of the returns (the risk proxy) for family-controlled firms was greater than that for nonfamily ones. This was done using a difference of standards deviations test, whose results are given in Table 7.

As can be seen, the standard deviation of the ROA values for nonfamily 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 nonfamily enterprises.

The foregoing implies that family-controlled firms not only perform better than nonfamily ones but also are less volatile on average. This is significant because it raises the question of whether it is possible to build an investment portfolio of family-controlled firm stocks that earns abnormal returns above the market line. The results indicate that this would be possible, indirectly suggesting that the Chilean market does not satisfy the weak efficiency hypothesis, as other recent studies have already demonstrated (Romero et al., 2007).

Conclusions

In this research note we studied the financial performance of family-controlled firms and nonfamily ones in the Chilean capital market. We extended the evidence presented in Martinez et al. (2007) and applied new data and a different and more robust methodology that took into account the unobservable heterogeneity in each firm. Our analysis also controlled for the effect of the private pension funds (AFPs) on the Chilean financial market and adjusted for return risk.

The results we obtained confirmed those presented in Martinez. Controlling for AFP also maintained their original findings. We embrace Martinez's explanation in the sense that market scrutiny and accountability to minority shareholders put pressure over family-controlled firms and make them overcome most of their traditional disadvantages. However, we also hypothesize that the quality of the institutional setup and the capital market regulations improvements implemented in the past 20 years—such as the laws that established that takeovers must be made through a public offer of acquisition and that minority shareholders may form audit committees and the mandatory regulation that requires the presence of independent members in the board of directors—make difficult the extraction of value from the minority stakeholders and help to explain the better performance of public family-controlled firms in Chile. Also, given the social structure of Chilean society, it is highly likely that the family members' human capital is among the highest in the country and that they benefit from the social capital and networking they have built over generations. All of these factors reinforce the advantages in reducing the agency problem of family-controlled firms over the disadvantages of this ownership structure.

We also provide a new interesting result in our article, showing that family-controlled firms are not only more profitable but also less risky. This result is especially interesting because it implies that, theoretically, a portfolio of family-controlled firm assets could be built whose returns would be above the expected rate for a given risk level. This constitutes indirect proof of the efficiency problems of the Chilean capital market, which have been recently documented in the literature.

Declaration of Conflicting Interests

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Notes

1. These criteria are similar to the ones in Martinez, except for the fourth one in their study, which we believe is less objective than the first three. We chose not to follow that criterion.
2. If we exclude financial institutions, our results do not change.
3. As in Martinez, we also perform difference in means tests for return on equity and Tobin's q, with results similar to the ones in Martinez. Because of space limitations we only show those for return on assets.
4. This is equivalent to suggest a possible source of heteroscedasticity. We checked it by a Goldfeld and Quandt test, and it did show that the variance was not the same for the two types of firms. That is, by deflating by the standard deviation, we are implicitly correcting for heteroscedasticity. We thank an anonymous referee for pointing this out.

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