DO FAMILY FIRMS IN TAIWAN CREATE VALUE AFTER ENDOGENEITY IS CONTROLLED?

[1]SHIH-TI YU, [2]DI-CHIEN LO, [3]CHIH-YI CHI

Department of Quantitative Finance, National Tsing Hua University
Email: styu@mx.nthu.edu.tw

Abstract - Whether family firms create value is not conclusive, and models treat a firm's type as exogenous. We find that whether a firm is family or non-family should be modeled as endogenous by using Hausman test and Heckman's (1979) two-step method. After controlling for the endogeneity, we find that family firms in Taiwan create value. Furthermore, we observe some firms switched their types from family to non-family or the other way around. We find the switch should also be considered as endogenous, and the switches create value.

Index Terms - Family firms, Hausman test, Two-step method, Tobin's q

I. INTRODUCTION

Family firms account for 2/3 of all businesses around the world, and create at least 70% of global GDP annually. The prevalence of family firms does not imply that family ownership always creates value. One characteristic of family firms is that they are controlled by large shareholders. In the moral hazard model, separation of ownership and management increases agency cost (Jensen and Meckling, 1976), and so by integrating ownership and management, firms controlled by large shareholders could reduce the agency cost. However, large shareholders might pursue private benefit at the cost of other shareholders, and the entrenchment effect would decrease firms' value (Shliefer and Vishny, 1986). Morck, Shleifer, and Vishny (1988) find an inverse-U shaped relationship between managerial equity ownership and firm value. Empirical studies on family firms' performance are ambiguous. Using Tobin's q as the measure, Holderness and Sheehan (1988) find that in the U.S., non-family firms perform better, while Anderson and Reed (2003) find the opposite. Claessens et al. (2002) distinguish cash-flow rights from control rights, and find that in East Asia concentrated ownership, including family firms and state enterprises, is positively correlated with market-to-book ratio, but family firms whose large shareholders own more control rights than cash-flow rights discount value. Cronqvist and Nilsson (2003) find similar results in Sweden.

Another characteristic of family firms is that the managers are usually related with the families of the controlling shareholders. In non-family firms with large shareholders, the managers can be disciplined by larger shareholders. But in family firms, the managers might be protected even if they are not competent. Villalonga and Amit (2006) consider how ownership, control, and management affect values of family firms. They find that family firms create value only when the founders are still active either as CEO or as chairmen with hired CEOs. Except Villalonga and Amit (2006), most studies treat whether a firm is family type or non-family type as exogenous. Although firms do not change their ownership from one type to the other frequently, the changes must be an important decision. A family firm might become a non-family firm because the family want to divest. Demsetz and Lehn (1985) argue that more concentrated ownership allows the control members to have "amenity potential." When the control members of a family firm can no longer exploit the potential, they might want to leave. Family firms might be taken over if their performances are bad. On the other hand, a non-family firm cannot become a family firm unless a family purchase a controlling portion of the shares. Either way, the switch is the result of deliberate decisions. In our sample of 1378 companies listed at Taiwan's stock exchange and over-the-counter markets from 1996 to 2013, 124 companies changed their types: 51 companies changed from non-family to family firms, 38 companies from family to non-family, and 16 companies changed their types twice or more. Furthermore, the performance of these firms after these changes improved. The 3-year average Tobin's q of 77 (62% of 124) companies after changes were higher than their 3-year average q before changes.

The improvement occurred to both firms who had been in decline and firms who had been stable. Let t be the year that a firm changed its type. We separate the companies into two groups: those whose q had been in decline before the changes, and those whose q had been increasing by the two criteria: (1) Comparing a firm's average q from years t-4 to t-6 with the average q from years t-1 to t-3; and (2) Comparing a firm's average q from years t-3 to t-4 with the average q from years t-1 to t-2. Table 1 summarizes the statistics. Using either criterion, at least 2/3 of firms that changed its type improved their q. Therefore, we conjecture that the choice of being a family or non-family firm is a deliberate decision, and should be modeled as endogenous.

We first use the Hausman test to check whether the choice of a firm's type is endogenous. We use several measures of Tobin's q as the explained variable, and find that except for one measure, a firm's type is not endogenous. Then we use Heckman's (1979) two-step method to test the endogeneity of a firm's type and find that the coefficient of the inverse Mill's ratio is significant, suggesting that a firm's type is endogenous. Villalonga and Amit (2006) also use Heckman's two-step method but they reject the endogeneity hypothesis. Last, we use Heckman's two-step method to examine whether the change of a firm's type should be treated as endogenous, and confirm it. After controlling for the endogeneity of firms' types, we find that family ownership creates value, and so does changing the type of a firm.

The paper is organized as follows. In Section II we describe our data and variables. Section III presents the results, and Section IV concludes.

II. DATA AND VARIABLES

A. Sample

Our sample consists of 763 companies listed at Taiwan's stock exchange market and 615 companies at the over-the-counter market from 1996 to 2013, for a total of 1378 firms and 12,509 firm-year observations. We do not in our sample public enterprises, financial institutions, or firms with missing data. The data are collected from the Taiwan Economic Journal (TEJ).

B. Definitions of family firms

There have been several definitions of family firms. Chrisman et al. (2004) summarize two common methods: the components-of-involvement approach focuses on ownership, governance, management and transgenerational succession; the essence approach looks at a family's influence and control. Astrachan et al. (2002) proposes the Family Influence on Power, Experience, and Culture scale (F-PEC scale) that measures how much a family affects its firm, not just whether it is a family firm. Villalonga and Amit (2006) use 9 definitions of family firms. Miller et al. (2007) list 28 definitions in the literature.

We adopt TEJ's approach, which classifies a firm as a family firm if it satisfies at least one of the following four criteria:

(1) Its chairman and CEO are of the same family.

(2) 50% or more of the directors of the board are family members, 33% or less directors are friends, and 33% or less directors are non-family and non-friend persons.

(3) 33% or more of the directors of the board are family members, and at least 3 members of the family are directors or managers.

(4) Voting rights controlled by a family is more than the critical control level.

C. Tobin's q

Tobin's q is the ratio of the firm's market value to the replacement cost of its assets. We calculate the market value of a firm by multiplying its common equity outstanding by share price at fiscal year-end, plus the book value of its debt. We use the firm's book value of asset as the replacement cost.

The average level of q might vary across industries. To control for the effect, we take the difference of a firm's q with the median q of the firms in the same industry in a year as the industry-adjusted q.

D. Other variables

Table 2 describes all variables we use. The variables voting right, pyramid, and cross-shareholding are as defined in La Porta et al. (1999).

E. Descriptive statistics

Table 3 lists the descriptive statistics for our samples. Family firms represent 62.95% of our firm-year observations; 7875 family firm-year observations from 901 different firms. The mean q of family firms is 0.128 lower than that of non-family firms, and the difference increases to 0.435 in mean industry-adjusted q; both are significant at 1% level. This shows that there are value discounts of family firms in Taiwan, contrary to Villalonga and Amit's (2006) and Anderson and Reeb's (2003) findings of family firms premium for U.S. firms.

Family firms' total asset, net sales and ROA are also lower than non-family firms'. Sales growth and number of employees are higher in family firms, but not significantly. Family firms are older than non-family firms.

Family firms have more control rights and cash flow rights. Compared with non-family firms, the average control rights of the ultimate owners of family firms are 8.25% higher, the proportion of firms using cross-holding in family firms is 5% more, the cash flow rights of the ultimate owners in family firms are 9.72% higher, and the excess ownership in family firms is 7.34% higher. Furthermore, family firms have fewer outside directors, and fewer non-family blockholders.

Jensen (1986) and Faccio et al. (2001) suggest that dividend and debt can protect minority shareholders. Here we see mixed results. Family firms distribute significantly less dividends than non-family firms, while having higher debt to market ratio. Both R&D to net sales ratio and capital expenditure to fixed capital ratio are lower in family firms, and so is the idiosyncratic risk. Fewer family firms engage in diversification.

Family firms concentrate in certain industries, as table 4 shows. 100% firms in paper and pulp industry, more than 90% in cement, and glass and ceramic industries, and more than 80% in food, plastic, and textile industries are family firms. In contrast, only 40% firms

in semiconductor, and electronic product distribution industries are family business; and less than 40% firms in communication technology and internet industry are family firms. The way family firms distribute among industries might be related with their lower R&D to net sales and capital expenditure to fixed capital ratios.

III. MODELS AND RESULTS

We use three approaches. First we analyze whether a firm's type should be treated as endogenous. Second we use Heckman's (1979) two-step method to test whether a firm's type is its optimization decision, and how a firm's type affects its performance. Third we focus on whether a firm changes its type, and how it relates to its performance by using Heckman's two-step method as well.

A. Whether Firm Type Is Exogenous

In this setting, we first treat firms' types as exogenous and use OLS to estimate. Then we use a probit model to analyze the decision to be a family or non-family firm. From the probit model, we get the estimated probability of being a family firm, which we add into the exogenous model and redo the OLS regression. We then use the Hausman test to check if the coefficients from the exogenous and the endogenous models differ significantly.

We use Tobin's q and industry-adjusted q as the explained variable. For robustness, we add q of the previous year as the explained variable, and industry and time dummies.

Table 5 lists the results of the exogenous models. Model (1) and (2) use q while models (3)-(6) use industry-adjusted q as the explained variable. Model (2) adds lagged q, and model (5) and (6) add lagged industry-adjusted q as the explanatory variable. Model (1)-(3), and (5) include year and industry dummies.

Although there are value discounts for family firms from the descriptive statistics in Table 3, here we see that family firms significantly add values to its industry-adjusted q in Model (4), where no lagged q, year dummies, or industry dummies are included. After we control any of these effect, family firms' value premiums become insignificant.

The coefficients of voting rights of the ultimate owners are positive significantly in Models (1), (3), and (4). The coefficients of excess ownership and cross-holding are not consistent across models. Pyramid ownership decreases value in all models and are mildly significant in Models (1) and (4). The proportion of outside directors is not significant.

For financial variables, the coefficients of dividend to equity ratio, of idiosyncratic risks, and capital expenditure to fixed asset ratios are all significantly positive; and those of debt to market ratio significantly negative. R&D expense creates value in most models. The coefficients of beta are significantly positive in Models (1)-(4), but are negative in Models (5) and (6). Both ages and the size of assets are negatively correlated with performance. The coefficients of lagged q and lagged industry-adjusted q are both positive significantly.

Table 6 is the results of probit regression. The coefficients of excess ownership are significantly positive, while those of outside directors are significantly negative in all models, and those of voting rights of the ultimate owners are not significant except in Model (4). Using pyramid structure reduces the probability, but only significant in Models (1) and (4). The effects of cross-holdings are insignificant.

As to other variables, the higher the dividend to equity ratio or the size of assets, the less likely the firms are family type. The higher the beta or the older a firm, the more likely it is a family firm. The coefficient of lagged q is insignificant, and that of lagged industry-adjusted q is significantly positive in Model (6).

Table 7 is the main result of our first approach. From the probit model in table 6, we calculate the estimated probability of a firm being a family type, and put it into the regression. We find that family firms discount values in all models and significantly in Models (2), (4) and (6). The coefficients of voting rights of the ultimate owners in Models (1) and (6), and those of excess ownership in Models (2), and (4)-(6) are significantly positive. This suggests that larger ownership creates value. Cross-holdings' effects are ambiguous, while pyramid structure decreases value significantly in Models (1) and (4).

The coefficients of dividend to equity ratio, and of idiosyncratic risks are all significantly positive, and those of debt to market ratio are all significantly negative. Those of beta are significantly positive in Models (1)-(4), but are negative in Models (5) and (6). R&D create values in most models. Assets are negatively correlated with values, but ages are ambiguous. The coefficients of lagged q and lagged industry-adjusted q are all significantly positive, which shows that performances of last year are highly correlated with this year's. Furthermore, models including lagged q or lagged industry-adjusted q increase both R2 and adjusted R2.

We then use the Hausman test to check if the exogenous models in table 5 and the endogenous models in table 7 differ significantly. The coefficients of ・2 show that except in Model (4), we cannot reject the hypothesis that firms ' types are exogenous.

B. Heckman's Two-Step Method and Firms' Types

Our second approach is to use Heckman's (1979) two-step method to analyze whether being a family or non-family firm should be treated as endogenous. The first step is the same probit regression as in the Hausman test, and the result is in Table 6.

The second step includes the value of lambda (the inverse Mill's ratio) from the probit regression as an explanatory variable, and estimates the coefficients by OLS. The results are in Table 8.

The coefficients of lambda are significantly positive in all models. This shows that whether a firm is a family type should be the outcome of the firm's deliberate decision, and should be treated as endogenous. The coefficients of correlation in all models are positive, meaning that being a family firm creates value. When we only compare the average q between family firms and non-family firms (Table 3), family firms have lower q. When we treat the type of a firm as exogenous (Table 5), family firms create value only in Model (4). After we control the endogeneity of a firm's type, we see that family firms have value premium. This is consistent with Villalonga and Amit's (2006) and Anderson and Reeb's (2003).

The coefficients of voting rights are significantly positive in Models (1), (3), and (4). The coefficients of dividend to equity ratio and those of capital expenditure to fixed asset ratio are significantly positive; and those of debt to market ratio significantly negative in all models. Idiosyncratic risks are positively correlated with q in all models, and so are beta in Models (1)-(3). R&D expenses are positively correlated with q in Models (1), (3), and (4). Diversification helps q in Models (1) and (3). Size of asset are negatively correlated with q in all models, and sales growth rate are positively correlated in Models (2), (5), and (6). Pyramid structure decreases q in all models except (2) and (5). Lagged q or industry-adjusted q are positively correlated with current year's.

C. Heckman's Two-Step Method and Firms' Decision to Change Types

In our samples, some firms change their types from family to non-family or the other way around. Here we use Heckman's two-step method to examine whether the decision should be treated as endogenous. First we use a probit model to check the factors that affect a firm to switch its type. The results are in Table 9.

The coefficients of excess ownership of the ultimate owners, and those of the outside directors of all models are significantly negative, meaning that the higher the excess ownership or the proportion of outside directors, the less likely that the firm changes its type. Dividend to equity ratio is negatively correlated with a firm's switching its type, while debt to market ratio is positively correlated, though only in Models (1), (3), and (4).

Systematic risks (beta) is negatively correlated, but idiosyncratic risks are positively correlated with the switch. Firms with higher R&D expense, larger size of assets, or lower capital investment are less likely to switch. Older firms are also less likely to switch. Firms with pyramid structure are more likely to switch.

Table 10 is the results of the second step estimate. We use the lambda from the first step as an additional variable. Its coefficients in all models are significantly positive, meaning that whether a firm switch its type should be treated as endogenous. Furthermore, the coefficients of correlations are all positive, meaning that changing a firm's type creates value.

Excess ownership and the proportion of outside directors both are negatively correlated with firms' value. Pyramid structure benefits a firm, but cross-holding does not. Firms switching from non-family to family type creates value in Models (1), (3), and (4). Systematic risk (beta) is negatively correlated but idiosyncratic positively correlate with firms' value. R&D expense, size of asset, and ages all negatively correlated with q. Lagged q and industry-adjusted q are positively correlated with current year's.

CONCLUSIONS

We have shown that to test whether family firms create value, we need to consider the endogeneity of a firm's choice to be family or non-family type. In our sample of Taiwan's firms, the average q of non-family firms is larger than that of family firms. If we treat the type of a firm as exogenous in regressions, family firms create value only in one model.

We use two methods to treat the endogeneity: the Hausman test and Heckman's (1979) two-step method. The results of the Hausman test show that the decision to be family firm should be treated as endogenous only in one model, but Heckman's method shows that a firm's type should be considered as endogenous in all models. Furthermore, the results of Heckman's approach shows that being family firms is positively correlated with firms' value, while the results of Hausman test shows the opposite.

The Hausman test assumes the two types of firms have the same treatment effect, while Heckman's method assumes the two types of firms have different treatment effect, and so in the second step of our regression, only family firms are included. Winship and Mare (1992) think that Heckman's method is more appropriate and we concur.

Some firms switch their types between family and non-family. We also use Heckmans's two-step method to test the endogeneity of their switches, and find that the switches should be modeled as endogenous.

There have been several definitions of family firms.

We try two other different definitions and the findings are similar. The results are available among request.

Tables

Table 1. Tobin's *q* before and after firms' types were changed

Average q of years t-4 to t-6 (X) vs. average q of years t-1 to t-3 (Y)			
	q did not improve after change	q improved after change	total
Firms' $Y>X$	9 (32.14%)	19 (67.86%)	28 (100%)
Firms' $Y<X$	6 (23.08%)	20 (76.92%)	26 (100%)
	15	39	54
Average q of years t-3 and t-4 (X) vs. average q of years t-1 and t-2 (Y)			
	q did not improve after change	q improved after change	
Firms' $Y>X$	15 (33.33%)	30 (66.67%)	45 (100%)
Firms' $Y<X$	14 (29.79%)	33 (70.21%)	47 (100%)
	29	63	92

Note. Some firms do not have enough years of data before or after they change their types.

Table 2. Explanatory Variables

Variable	Description
Total asset	Sum of liquid asset, long-term investment, fixed asset, and other assets
Net sales	Gross revenue minus sales return and allowance
Sales growth	(net revenue in year t –net revenue in t-1)/ (net revenue in t-1)*100%
ROA	(net profit + interest expense*(1-tax rate))/(average total asset)*100%
Voting rights	The ultimate owner's direct and indirect voting rights. The indirect voting rights is counted at the end of the chain of control.
Pyramid	=1 if the ultimate owner controls another firm B via firm C; =0 otherwise
Cross-shareholding	=1 if the firm owns any shares in its controlling shareholder or in the companies along the chain of control; =0 otherwise
Cashflow rights	The ultimate owner's rights for earnings. It is the sum of its direct ownership and the indirect ownership in the chain of control.
Excess ownership	= voting rights – critical control level
Non-family blockholders	= number of non-family blockholders among the top 10 blockholders/10
Outside directors	=1- [(number of directors controlled by the ultimate owner) / (total number of directors)]
Dividend / equity	(Cash dividend of common stocks) / equity
Debt to market ratio	Debt / (common stocks outstanding * share price)
Beta	Estimated from market model.
Idiosyncratic risk	Standard error of estimate from market model
R&D / sales	R&D expense / net sales
CAPX / FA	Capital expenditure / total fixed asset
Diversification	=1 if the firm has two or more segments in different SIC codes; 0 otherwise

Table 3. Descriptive Statistics

	All firms		Family firms		Non-family firms		Differences	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.		
	(1)		(2)		(3)		(2)-(3)	p-value
Tobin's q (*10)	11.52	8.20	11.05	7.42	12.33	9.34	-1.28	0.00 ***
Industry adjusted q (%)	-0.11	69.60	-1.72	65.51	2.63	75.96	-4.35	0.00 ***
Total asset (billion NT)	16.72	60.12	15.68	55.50	18.48	67.22	-2.80	0.01 **
Net Sales (billion NT)	15.35	75.36	13.59	78.35	18.35	69.89	-4.76	0.00 ***
Employees (hundred)	31.13	195.38	32.67	236.06	28.52	91.30	4.15	0.25
Age	24.59	12.14	26.85	12.08	20.75	11.25	6.10	0.00 ***
Sales growth %	68.19	4219.39	73.46	4719.68	59.23	3194.74	14.23	0.86
ROA %	4.40	9.73	4.14	8.99	4.84	10.85	-0.70	0.00 ***
Voting rights %	30.04	17.27	33.10	17.00	24.85	16.46	8.25	0.00 ***
Pyramid (yes = 1)	0.24	0.43	0.24	0.42	0.24	0.43	0.00	0.60
Cross holding (yes = 1)	0.25	0.43	0.27	0.44	0.22	0.41	0.05	0.00 ***
Cashflow rights %	24.15	17.20	27.75	17.10	18.03	15.55	9.72	0.00 ***
Excess ownership %	16.47	14.32	19.19	14.26	11.85	13.18	7.34	0.00 ***
Outsider directors %	37.18	21.62	34.62	21.60	41.54	20.94	-6.92	0.00 ***
Non-family blockholders %	20.36	18.00	20.36	18.00	.	.		
Divident / equity %	4.47	5.47	4.09	5.19	5.12	5.86	-1.03	0.00 ***

Table 3 (continued). Descriptive Statistics

	All firms		Family firms		Non-family firms		Differences	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.		
	(1)		(2)		(3)		(2)-(3)	p-value
Debt to market ratio %	10.77	38.37	11.90	46.59	8.85	16.72	3.05	0.00 ***
beta	0.84	0.37	0.81	0.36	0.88	0.38	-0.07	0.00 ***
Idiosyncratic risk	6.35	12.97	6.24	11.89	6.53	14.63	-0.29	0.23
R&D / sales %	38.66	234.53	35.87	289.63	43.40	76.83	-7.53	0.08 *
CPAX / FA %	19.58	117.42	17.67	70.41	22.83	169.64	-5.16	0.02 **
Diversification (yes = 1)	0.63	0.48	0.61	0.49	0.67	0.47	-0.06	0.00 ***
Stock exchange (=1) OTC (=0)	0.62	0.49	0.64	0.48	0.57	0.50	0.07	0.00 ***
Number of sbservations	12509		7875		4634			
Number of firms	1378		901		477			

Note: Asterisks denote statistical significance at the 1%(***), 5% (**), or 10% (*) level.

Table 4. Distribution of Family and Non-family Firms by Industry

TSE Code	Industry Description	All	Family Firms	Non-family Firms	%Family Firms in Industry	% Industry Of Total
1	Cement	66	61	5	92.42	0.77
2	Food	296	255	41	86.15	3.24
3	Plastic	308	270	38	87.66	3.43
4	Textile	650	520	130	80.00	6.60
5	Electric Machinery	691	489	202	70.77	6.21
6	Electrical and Cable	160	118	42	73.75	1.50
8	Glass and Ceramic	54	53	1	98.15	0.67
9	Paper and Pulp	92	92	0	100.00	1.17
10	Iron and Steel	509	351	158	68.96	4.46
11	Rubber	117	82	35	70.09	1.04
12	Automobile	53	42	11	79.25	0.53
14	Building material and Construction	735	541	194	73.61	6.87
15	Shipping and Transportation	168	105	63	62.50	1.33
16	Tourism	153	102	51	66.67	1.30
18	Trading and Consumer goods	211	127	84	60.19	1.61
20	Other	622	481	141	77.33	6.11
21	Chemical	424	325	99	76.65	4.13
22	Biotechnology and Medical Care	426	302	124	70.89	3.83
23	Oil/Gas and Electricity	134	68	66	50.75	0.86
24	Semiconductor	1,097	470	627	42.84	5.97
25	Computer and Peripheral Equipment	945	485	460	51.32	6.16
26	Optoelectronics	920	496	424	53.91	6.30
27	Communication Technology and Internet	628	210	418	33.44	2.67
30	Information Service	289	115	174	39.79	1.46
31	Other Electronics	607	408	199	67.22	5.18
32	Culture and Creative	101	75	26	74.26	0.95
	Total	12,509	7,875	4,634	62.95	100.00

Note. Number and percent of firm-years by Taiwan Stock Exchange industry code.

Table 5. Exogenous Firm Type Regressions

	Dependent Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Family firm (=1)	0.0428	0.0402	1.0414	3.4366***	0.4176	0.9311
	(0.3330)	(0.4038)	(0.8616)	(2.8506)	(0.4401)	(0.9893)
Voting rights %	0.0331***	-0.0083	0.1902**	0.3970***	-0.1293	-0.0832
	(3.2431)	(-0.9476)	(1.9821)	(4.2034)	(-1.5445)	(-1.0097)
Excess ownership%	-0.0245**	0.0161	-0.0878	-0.2683**	0.2115**	0.2093**
	(-1.9668)	(1.4997)	(-0.7505)	(-2.3342)	(2.0642)	(2.0783)
Outsider directors	0.0033	0.0001	0.0370	-0.0322	-0.0053	-0.0039
	(1.0527)	(0.0277)	(1.2586)	(-1.1382)	(-0.2314)	(-0.1781)
Pyramid	-0.2666*	-0.0451	-1.3875	-2.5607*	-0.2522	-0.9863
	(-1.7560)	(-0.3901)	(-0.9741)	(-1.7872)	(-0.2288)	(-0.8958)
Crossholding	-0.4051***	0.1566	-2.2922	-1.0363	1.8212*	2.2133**
	(-2.6681)	(1.3741)	(-1.6092)	(-0.7238)	(1.6755)	(2.0405)
Divident/equity %	0.6384***	0.3055***	5.8882***	5.4431***	2.6157***	2.3659***
	(55.9884)	(31.3651)	(54.9956)	(51.8866)	(28.2357)	(26.2495)
Debt/market %	-0.0094***	-0.0046***	-0.0793***	-0.0787***	-0.0405***	-0.0327***
	(-5.9814)	(-4.2811)	(-5.3856)	(-5.3426)	(-3.9855)	(-3.2456)
beta	2.3409***	0.4174***	13.2596***	6.6327***	-2.0894	-2.7262*
	(12.2498)	(2.5869)	(7.4003)	(3.9856)	(-1.3591)	(-1.9418)
Idiosyncratic risks	0.0409***	0.2637***	0.3769***	0.3882***	2.1267***	1.8221***
	(8.9614)	(18.4189)	(8.7808)	(8.9968)	(15.5548)	(14.4732)
R&D/Sales %	0.0027***	0.0004	0.0247***	0.0209***	0.0019	-0.0007
	(10.6474)	(1.5840)	(10.3833)	(8.7894)	(0.8294)	(-0.3014)
CAPX/FA %	0.0010**	0.0010***	0.0094**	0.0078*	0.0100***	0.0104***
	(1.9971)	(2.9308)	(2.0233)	(1.6714)	(3.1760)	(3.2793)
Divesisfication	0.1803	0.0676	2.3232**	-0.4636	0.3598	0.5561
	(1.4326)	(0.7030)	(1.9733)	(-0.3995)	(0.3922)	(0.6152)

Table 5 (continued). Exogenous Firm Type Regressions

	Dependent Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(asset)	-0.5348***	-0.1772***	-4.7169***	-3.5982***	-0.8378*	-0.6921
	(-9.2402)	(-3.8943)	(-8.7488)	(-6.8107)	(-1.9300)	(-1.6439)
Sales growth %	-0.0000	-0.0000	-0.0000	0.0000	-0.0002	-0.0001
	(-0.1509)	(-1.0452)	(-0.0697)	(0.0648)	(-0.9802)	(-0.7412)
Ln(age)	-1.8794***	-0.4803***	-13.8807***	-9.4057***	-3.4059***	0.5540
	(-14.5435)	(-4.1428)	(-11.5645)	(-8.5602)	(-3.0887)	(0.5592)
q of last year		0.5962***				
		(81.9907)				
Industry-adjusted q of last year					0.6172***	0.6326***
					(83.8334)	(86.7399)
Intercept	18.0866***	4.6558***	9.7928*	-5.9096	-7.9498	-23.8638***
	(21.0928)	(8.7515)	(1.6906)	(-1.2575)	(-1.5900)	(-5.6332)
Year dummy	controlled	controlled	controlled		controlled	
Industry dummy	controlled	controlled	controlled		controlled	
R^2	0.391	0.658	0.248	0.223	0.589	0.581
Adjusted R^2	0.388	0.656	0.245	0.222	0.587	0.580
Observations	12509	9159	12509	12509	9159	9159

Note. Numbers in parentheses are t values. Asterisks denote statistical significance at the 1%(***), 5% (**), or 10% (*) level. Models with lagged q have 9159 observations because we remove the first year observations.

Table 6. First stage of endogenous model: Probit

	Dependent Var.: Family Firm = 1, Non-family firm = 0					
	(1)	(2)	(3)	(4)	(5)	(6)
Voting rights %	0.0024	-0.0016	0.0024	0.0060***	-0.0016	0.0002
	(1.1473)	(-0.6048)	(1.1474)	(2.9973)	(-0.6018)	(0.0630)
Excess ownership%	0.0176***	0.0220***	0.0169***	0.0141***	0.0220***	0.0209***
	(6.8929)	(6.6481)	(6.6951)	(5.8386)	(6.6401)	(6.5358)
Outsider directors	-0.0023***	-0.0034***	-0.0022***	-0.0028***	-0.0034***	-0.0036***
	(-3.4992)	(-4.4279)	(-3.3004)	(-4.4988)	(-4.4313)	(-4.9569)
Pyramid	-0.0508	-0.0465	-0.0509	-0.0952***	-0.0460	-0.0783**
	(-1.6068)	(-1.2669)	(-1.6202)	(-3.0932)	(-1.2547)	(-2.1786)
Crossholding	0.0265	-0.0337	0.0213	0.0578*	-0.0337	0.0009
	(0.8229)	(-0.9182)	(0.6663)	(1.8539)	(-0.9202)	(0.0239)
Divident/equity %	-0.0106***	-0.0110***	-0.0103***	-0.0140***	-0.0113***	-0.0155***
	(-4.4797)	(-3.5986)	(-4.3600)	(-6.2163)	(-3.7101)	(-5.2879)
Debt/market %	0.0009	0.0015**	0.0010*	0.0009	0.0015**	0.0015**
	(1.6381)	(2.1082)	(1.7566)	(1.5992)	(2.1196)	(2.2406)
beta	0.1063***	0.2378***	0.1304***	0.0033	0.2377***	0.0912**
	(2.6549)	(4.6105)	(3.2823)	(0.0907)	(4.6149)	(1.9794)
Idiosyncratic risks	0.0011	0.0008	0.0011	0.0013	0.0006	0.0002
	(1.1868)	(0.1685)	(1.1393)	(1.4662)	(0.1310)	(0.0509)
R&D/Sales %	0.0001	0.0000	0.0001	0.0001*	0.0000	0.0000
	(1.2458)	(0.3524)	(1.4292)	(1.6564)	(0.3436)	(0.2712)
CAPX/FA %	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
	(-0.9009)	(-0.7701)	(-0.8961)	(-1.0288)	(-0.7634)	(-0.7285)
Divesisfication	0.0081	-0.0011	0.0099	-0.0431*	-0.0013	-0.0386
	(0.3060)	(-0.0350)	(0.3746)	(-1.7077)	(-0.0436)	(-1.2914)
Ln(asset)	-0.0676***	-0.0883***	-0.0716***	-0.0566***	-0.0883***	-0.0760***
	(-5.6047)	(-6.0678)	(-5.9967)	(-4.9933)	(-6.0699)	(-5.5210)
Sales growth %	0.0000	-0.0000	0.0000	0.0000	-0.0000	-0.0000
	(0.3831)	(-0.6105)	(0.4279)	(0.5200)	(-0.6079)	(-0.5657)

Table 6 (continued.)

	Dependent Var.: Family Firm = 1, Non-family firm = 0					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(age)	0.3587***	0.4396***	0.3379***	0.4422***	0.4399***	0.5757***
	(13.6060)	(12.1585)	(12.9555)	(19.0869)	(12.2051)	(18.1484)
q of last year		0.0022				
		(0.9535)				
Industry-adjusted q of last year					0.0003	0.0007***
					(1.2269)	(2.8100)
Intercept	-0.1693	-1.1335***	-0.8109***	-1.1413***	-1.1116***	-1.5344***
	(-0.9805)	(-6.7554)	(-6.3458)	(-11.2912)	(-6.7227)	(-11.1145)
Year dummy	controlled	controlled	controlled			controlled
Industry dummy	controlled	controlled	controlled			controlled
Log likelihood	-7257.28	-5290.99	-7305.31	-7520.73	-5290.69	-5437.8
Observations	12509	9159	12509	12509	9159	9159

Note. Numbers in parentheses are t values. Asterisks denote statistical significance at the 1%(***), 5% (**), or 10% (*) level.

Table 7. Second Stage of Endogenous Model and the Hausman's Test

	Dependent Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Family firm prob	-3.8912	-4.0392**	-25.4649	-176.4160***	-24.9366	-69.3160***
	(-1.2623)	(-2.3716)	(-0.8233)	(-5.1850)	(-1.5630)	(-3.7314)
Voting rights %	0.0360**	-0.0108	0.2089	0.7575***	-0.1448	-0.0774
	(2.4896)	(-1.2196)	(1.5087)	(4.9335)	(-1.5683)	(-0.8218)
Excess ownership%	-0.0021	0.0454***	0.0595	0.5689***	0.3930**	0.6883***
	(-0.0907)	(2.8549)	(0.2685)	(2.6004)	(2.5547)	(4.0505)
Outsider directors	0.0002	-0.0046	0.0170	-0.2102***	-0.0345	-0.0912***
	(0.0416)	(-1.5839)	(0.4417)	(-4.6581)	(-1.2657)	(-2.9762)
Pyramid	-0.3210*	-0.0991	-1.7540	-7.9472***	-0.5836	-2.7116**
	(-1.8230)	(-0.9078)	(-1.0551)	(-4.1215)	(-0.5655)	(-2.4727)
Crossholding	-0.3728**	0.1109	-2.1258	2.2552	1.5365	2.1539**
	(-2.4588)	(1.0835)	(-1.4477)	(1.4152)	(1.5409)	(2.2123)
Divident/equity %	0.6237***	0.2899***	5.7913***	4.5429***	2.5152***	1.9825***
	(25.3476)	(16.3360)	(24.9667)	(18.4703)	(15.2927)	(12.2796)
Debt/market %	-0.0087***	-0.0036**	-0.0746***	-0.0518***	-0.0347**	-0.0167
	(-2.7791)	(-2.0497)	(-3.0336)	(-2.6174)	(-2.4246)	(-1.5716)
beta	2.4743***	0.7178***	14.3578***	6.2980***	-0.2249	-0.8866
	(8.1622)	(3.2403)	(4.9651)	(2.6461)	(-0.1072)	(-0.5451)
Idiosyncratic risks	0.0425***	0.2661***	0.3875***	0.4760***	2.1404***	1.8491***
	(2.6530)	(9.7846)	(2.7318)	(3.3677)	(9.0456)	(9.3674)
R&D/Sales %	0.0028*	0.0004	0.0256*	0.0271**	0.0022	-0.0003
	(1.9308)	(0.8131)	(1.8123)	(2.2065)	(0.4759)	(-0.1243)
CAPX/FA %	0.0008	0.0008	0.0085	0.0007	0.0092	0.0084
	(0.3795)	(0.4892)	(0.4049)	(0.0346)	(0.5643)	(0.5171)
Divesisfication	0.2009	0.0729	2.4547*	-2.9592**	0.3909	-0.2888
	(1.4224)	(0.8492)	(1.8585)	(-2.1335)	(0.4717)	(-0.3398)

Table 7 (continued).

	Dependent Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(asset)	-0.6216***	-0.2945***	-5.3472***	-7.1085***	-1.5666***	-2.4993***
	(-6.1575)	(-4.5753)	(-5.6369)	(-7.6040)	(-2.6631)	(-4.0386)
Sales growth %	-0.0000	-0.0000***	0.0000	0.0001	-0.0002***	-0.0003***
	(-0.0593)	(-5.4192)	(0.0219)	(1.0241)	(-4.5949)	(-5.1735)
Ln(age)	-1.3853***	0.1438	-10.7474***	19.1875***	0.4800	14.9885***
	(-3.3605)	(0.4979)	(-2.7127)	(3.5669)	(0.1784)	(3.8864)
q of last year		0.5988***				
		(26.8219)				
Industry-adjusted q of last year					0.6196***	0.6475***
					(30.2987)	(33.1968)
Intercept	19.7719***	5.1540***	15.9948	12.2265	-4.6956	-26.5478***
	(9.2399)	(7.4042)	(1.5554)	(1.6125)	(-0.8051)	(-5.9428)
Year dummy	controlled	controlled	controlled		controlled	
Industry dummy	controlled	controlled	controlled		controlled	
Hausman test (χ^2)	2.56	6.73	1.68	324.24***	8.13	10.43
R^2	0.3910	0.6579	0.2478	0.2239	0.5892	0.5812
Adjusted R^2	0.3880	0.6560	0.2448	0.2230	0.5870	0.5804
Observations	12509	9159	12509	12509	9159	9159

Note. Numbers in parentheses are t values. Asterisks denote statistical significance at the 1%(***), 5% (**), or 10% (*) level. Models with lagged q have 9159 observations because we remove the first year observations.

Table 8. Step 2 of Heckman's Two-Step Regression

	Dep. Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Voting rights %	0.0462***	-0.0010	0.4047***	0.7455***	-0.0036	0.0198
	(3.3534)	(-0.0975)	(3.0050)	(3.8744)	(-0.0347)	(0.1693)
Excess ownership%	0.0218	0.0240	0.2781	0.3289	0.1441	0.4916**
	(0.9328)	(1.6060)	(1.2172)	(1.1264)	(1.0016)	(2.3509)
Outsider directors	0.0012	-0.0029	0.0003	-0.1742***	-0.0447	-0.1126***
	(0.2480)	(-0.9464)	(0.0055)	(-2.6155)	(-1.5112)	(-2.7359)
Non-family blockholders %	0.0087*	0.0018	0.0553	-0.1075**	-0.0453	-0.0663**
	(1.8537)	(0.4966)	(1.2278)	(-2.0240)	(-1.2513)	(-1.9728)
Divident/equity %	0.5203***	0.2494***	4.8718***	4.0037***	2.1614***	1.6485***
	(27.4062)	(19.6397)	(26.2792)	(13.8360)	(17.7150)	(9.3672)
Debt/market %	-0.0069***	-0.0033***	-0.0595***	-0.0528**	-0.0323***	-0.0143
	(-3.5907)	(-3.0616)	(-3.1695)	(-2.0094)	(-3.1007)	(-1.0343)
beta	2.6116***	0.6951***	18.3049***	3.8264	0.4272	0.4022
	(9.4259)	(3.3803)	(6.7563)	(1.1987)	(0.2162)	(0.1958)
Idiosyncratic risks	0.0444***	0.2311***	0.4136***	0.4929***	1.7202***	1.5129***
	(6.7741)	(13.6181)	(6.4617)	(5.6316)	(10.5327)	(8.6041)
R&D/Sales %	0.0025***	0.0002	0.0234***	0.0229***	-0.0001	-0.0022
	(8.3123)	(0.7279)	(7.7487)	(5.3168)	(-0.0573)	(-0.7540)
CAPX/FA %	0.0068***	0.0063***	0.0648***	0.0559***	0.0611***	0.0588***
	(6.9354)	(9.5329)	(6.7806)	(4.3953)	(9.4943)	(8.7006)
Diversification	0.3815**	0.0572	4.5054***	-0.5256	0.3264	-0.3113
	(2.2613)	(0.5030)	(2.7276)	(-0.2353)	(0.2982)	(-0.2424)

Table 8 (continued).

	Dependent Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(asset)	-0.5705***	-0.1971***	-5.4663***	-4.4231***	-0.5701	-1.5762*
	(-5.5449)	(-3.1133)	(-5.4402)	(-3.3750)	(-0.9352)	(-1.8722)
Sales growth %	0.0000	0.0009***	0.0001	0.0002	0.0096***	0.0091**
	(0.5586)	(2.7067)	(0.7168)	(0.8174)	(2.9498)	(2.4603)
Ln(age)	-0.6848*	-0.1349	-4.1944	16.7991**	-1.4395	13.3592***
	(-1.7338)	(-0.6440)	(-1.0896)	(2.3760)	(-0.7146)	(2.7432)
Pyramid	-0.5189**	-0.1637	-4.1238**	-9.3517***	-1.0109	-3.4013**
	(-2.4518)	(-1.1539)	(-1.9921)	(-3.1278)	(-0.7394)	(-2.0337)
Crossholding	-0.1026	0.2648*	-0.6788	3.1897	2.6506**	2.9167*
	(-0.5067)	(1.9369)	(-0.3423)	(1.1493)	(2.0149)	(1.9110)
q of last year		0.6269***				
		(65.1849)				
Industry-adjusted q of last year					0.6432***	0.6768***
					(67.0932)	(58.2350)
Intercept	9.0412***	2.0249*	-105.1575***	-149.8100***	-21.7094**	-89.3044***
	(4.1436)	(1.8401)	(-4.9435)	(-3.8024)	(-2.0724)	(-3.6371)
lambda	6.2683***	1.7373***	64.1899***	103.9154***	12.1741**	45.1137***
	(3.4067)	(2.7426)	(3.5867)	(3.8610)	(2.0007)	(3.0970)
Year dummy	controlled	controlled	controlled		controlled	
Industry dummy	controlled	controlled	controlled		controlled	
Correlation Coefficient	0.8517	0.4254	0.8842	1.0000	0.3125	0.9012
R^2	0.3657	0.6449	0.2443	0.1934	0.5917	0.5798
Adjusted R^2	0.3608	0.6417	0.2385	0.1916	0.5880	0.5784
Observations	7875	5758	7875	7875	5758	5758

Note. Numbers in parentheses are t values. Asterisks denote statistical significance at the 1%(***), 5% (**), or 10% (*) level.

Table 9. First Step of Heckmans' Two-step Method: Whether A firm Changing Its Type

	Dependent Var. = 1 if a firm changes its type					
	(1)	(2)	(3)	(4)	(5)	(6)
Voting rights %	-0.0045	0.0026	-0.0045	-0.0057**	0.0025	0.0022
	(-1.5549)	(0.7167)	(-1.5549)	(-2.0834)	(0.6956)	(0.6328)
Excess ownership%	-0.0104***	-0.0189***	-0.0104***	-0.0085**	-0.0188***	0.0209***
	(-2.9567)	(-4.1791)	(-2.9567)	(-2.5465)	(-4.1629)	(-4.0281)
Outsider directors	-0.0041***	-0.0038***	-0.0041***	-0.0035***	-0.0038***	-0.0030***
	(-4.5137)	(-3.5291)	(-4.5137)	(-4.1534)	(-3.5318)	(-2.9289)
Pyramid	0.3436***	0.3337***	0.3436***	0.3160***	0.3339***	0.3069***
	(8.0662)	(6.7111)	(8.0662)	(7.6184)	(6.7134)	(6.3363)
Crossholding	-0.0502	0.0166	-0.0502	-0.0759*	0.0179	-0.0198
	(-1.1203)	(0.3221)	(-1.1203)	(-1.7474)	(0.3468)	(-0.3980)
Divident/equity %	-0.0532***	-0.0451***	-0.0532***	-0.0517***	-0.0457***	-0.0439***
	(-12.8511)	(-8.7349)	(-12.8511)	(-13.0515)	(-8.9134)	(-9.0106)
Debt/market %	0.0015***	0.0007	0.0015***	0.0010***	0.0007	0.0001
	(4.0803)	(1.4405)	(4.0803)	(2.9095)	(1.4795)	(0.1985)
beta	-0.3444***	-0.4120***	-0.3444***	-0.2615	-0.4141***	-0.3041**
	(-6.3140)	(-5.7765)	(-6.3140)	(-5.2727)	(-5.8125)	(-4.7478)
Idiosyncratic risks	0.0012	0.0327***	0.0012	0.0014	0.0326***	0.0272***
	(1.2316)	(6.0248)	(1.2316)	(1.5513)	(6.0049)	(5.4428)
R&D/Sales %	-0.0011***	-0.0011***	-0.0011***	-0.0009***	-0.0011***	-0.0008***
	(-4.5662)	(-3.8699)	(-4.5662)	(-4.0239)	(-3.9247)	(-2.9176)
CAPX/FA %	0.0004**	0.0004**	0.0004**	0.0004**	0.0004**	0.0004**
	(2.5508)	(2.1747)	(2.5508)	(2.4933)	(2.1863)	(2.2015)
Divesisfication	0.0081	0.0131	0.0081	0.0315	0.0129	0.0294
	(0.2171)	(0.2914)	(0.2171)	(0.8875)	(0.2876)	(0.6869)
Ln(asset)	-0.1088***	-0.0440***	-0.1088***	-0.0782***	-0.0438***	-0.0180
	(-6.1240)	(-2.0913)	(-6.1240)	(-4.6476)	(-2.0823)	(-0.9024)
Sales growth %	0.0000	-0.0000	0.0000	0.0000	-0.0000	-0.0000
	(1.4221)	(-0.2172)	(1.4221)	(1.5327)	(-0.2152)	(-0.1910)

	Dependent Var. = 1 if a firm changes its type					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(age)	-0.2640***	-0.3910***	-0.2640***	-0.2854***	-0.3873***	-0.3905***
	(-7.2332)	(-7.7057)	(-7.2332)	(-8.8328)	(-7.6756)	(-8.8414)
q of last year		-0.0016				
		(-0.4518)				
Industry-adjusted q of last year					-0.0000	-0.0004
					(-0.0757)	(-1.0044)
Intercept	0.5160***	0.5668**	0.5160***	0.3366**	0.5483**	0.3368*
	(2.8916)	(2.4019)	(2.8916)	(2.4110)	(2.3605)	(1.7511)
Year dummy	controlled	controlled	controlled			controlled
Industry dummy	controlled	controlled	controlled			controlled
Log likelihood	-3320.9074	-2341.4759	-3320.9074	-3429.0518	-2341.5763	-2425.1472
Observations	12509	9159	12509	12509	9159	9159

Note. Numbers in parentheses are t values. Asterisks denote statistical significance at the 1%(***), 5% (**), or 10% (*) level.

Table 10. Second Step of Heckman's Two-Step Method: q and Whether a Firm Changes Its Type

	Dep. Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Voting rights %	0.0467	0.0453	0.3211	0.3063	0.4038	0.3302
	(1.1557)	(1.1422)	(0.8551)	(0.8466)	(1.1132)	(0.9457)
Excess ownership%	-0.1736***	-0.1367**	-1.4416***	-1.0303**	-1.2253**	-0.9141*
	(-3.3684)	(-2.4469)	(-3.0030)	(-2.2248)	(-2.3994)	(-1.8812)
Outsider directors	-0.0548***	-0.0351***	-0.4939***	-0.4256***	-0.3376***	-0.2682***
	(-4.4119)	(-2.9205)	(-4.2966)	(-3.9091)	(-3.0916)	(-2.6360)
Pyramid	3.1819***	2.3081***	24.1318***	16.8695***	16.3575***	12.8603**
	(4.9633)	(3.6706)	(4.0677)	(2.9791)	(2.8875)	(2.3898)
Crossholding	-1.7401***	-0.6193	-10.0381*	-12.2678**	-1.3876	-2.9592
	(-2.8940)	(-1.1037)	(-1.7980)	(-2.2742)	(-0.2703)	(-0.6078)
Debt/market %	-0.0116	-0.0181**	-0.0198	0.0177	-0.1085	-0.0624
	(-1.4423)	(-2.1231)	(-0.2620)	(0.2514)	(-1.3753)	(-0.8362)
beta	-1.1112	-2.7323***	-17.5355**	-17.2433***	-30.9459***	-25.7944***
	(-1.4848)	(-3.3307)	(-2.5323)	(-2.7433)	(-4.1450)	(-3.9082)
Idiosyncratic risks	0.0721***	0.4450***	0.6729***	0.7106***	3.7437***	3.3414***
	(4.7122)	(6.0212)	(4.6712)	(4.8608)	(5.5783)	(5.5341)
R&D/Sales %	-0.0108***	-0.0082***	-0.0754***	-0.0718***	-0.0555**	-0.0397*
	(-3.5891)	(-2.9320)	(-2.7453)	(-2.8467)	(-2.2078)	(-1.7702)
CAPX/FA %	0.0013	0.0010	0.0116	0.0107	0.0075	0.0080
	(1.4286)	(1.3292)	(1.3743)	(1.2976)	(1.1957)	(1.2767)
Divesisfication	-0.5389	-0.1086	-1.8936	5.4952	2.2799	7.7216*
	(-1.0706)	(-0.2215)	(-0.4054)	(1.2360)	(0.5069)	(1.7965)
	Dependent Var.: Tobin's q		Dep. Var.: Industry adjusted q			
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(asset)	-1.7085***	-0.4789*	-14.8223***	-12.3440***	-2.8524	-2.4056
	(-5.8391)	(-1.8248)	(-5.4378)	(-5.0193)	(-1.1829)	(-1.1064)
Sales growth %	0.0000	0.0041**	0.0003	0.0004	0.0300*	0.0286
	(1.0990)	(2.1776)	(1.2267)	(1.5707)	(1.6473)	(1.5704)
Ln(age)	-3.8004***	-2.6654***	-31.6238***	-24.2800***	-18.5920***	-15.6557***
	(-6.6514)	(-3.6846)	(-5.9195)	(-4.9968)	(-2.8433)	(-2.7028)
Nonfamily to family	1.0302***	0.3319	6.1042*	11.9385***	1.7984	3.4912
	(2.7444)	(0.8412)	(1.6841)	(3.4998)	(0.4759)	(1.0054)
q of last year		0.4064***				
		(10.5092)				
Industry-adjusted q of last year					0.4398***	0.4801***
					(12.0004)	(13.1850)
Intercept	10.7238***	4.5117*	3.3905	-59.9346***	-28.0342	-54.8337***
	(4.1675)	(1.6838)	(0.1414)	(-3.1578)	(-1.1514)	(-2.6142)
lambda	11.0623***	7.6281***	96.9507***	91.5945***	62.1716***	60.4274***
	(9.1972)	(5.3144)	(8.6476)	(8.2515)	(4.8241)	(4.7922)
Year dummy	controlled	controlled	controlled		controlled	
Industry dummy	controlled	controlled	controlled		controlled	
Correlation Coefficient	0.9807	0.9227	0.9577	0.9249	0.8710	0.8469
R^2	0.3509	0.4789	0.2442	0.1602	0.4226	0.3842
Adjusted R^2	0.3201	0.4439	0.2084	0.1479	0.3838	0.3705
Observations	1106	779	1106	1106	779	779

Note. Numbers in parentheses are t values. Asterisks denote statistical significance at the 1%(***), 5% (**), or 10% (*) level.

REFERENCES

[1] Anderson, Ronald and David M. Reeb, 2003, Founding family ownership and firm performance: Evidence from the S&P 500, Journal of Finance, 58, 1301–1329.

[2] Astrachan, Joseph H., Sabina Klein, and Kosmas Smyrnios, 2002, The F-PEC scale of family influence: A proposal for solving the family business definition problem. Family Business Review, 15, 45–58.

[3] Claessens, Stijn, Simeon Djankov, Joseph P.H. Fan, and Larry H.P. Lang, 2002, Disentangling the incentive and entrenchment effects of large shareholdings, Journal of Finance, 57, 2741–2772.

[4] Chrisman, James J., Jess H. Chua, and Reginald Litz, 2004, Comparing the agency costs of family and non-family firms: Conceptual issues and exploratory evidence, Entrepreneurship Theory and Practice, 28(4).

[5] Cronqvist, Henrik, and Mattias Nilsson, 2003, Agency costs of controlling minority shareholders, Journal of Financial and Quantitative Analysis, 38, 695–719.

[6] Cubbin, John, and Dennis Leech, 1983, The Effect of Shareholding Dispersion on the degree of control in British companies: Theory and measurement, The Economic Journal, 93, 351-369.

[7] Demsetz, Harold, and Kenneth Lehn, 1985, The structure of corporate ownership: Causes and consequences, Journal of Political Economy, 93, 1155–1177.

[8] Faccio, Mara, Larry H.P. Lang, and Leslie Young, 2001, Dividends and expropriation, American Economic Review, 91, 54–78.

[9] Heckman, James J., 1979. Sample selection bias as a specification error. Econometrica, 47, 153–161.

[10] Holderness, Clifford G., and Dennis P. Sheehan, 1988, The role of majority shareholders in publicly held corporations, Journal of Financial Economics, 20, 317–346.

[11] Jensen, Michael C., 1986, Agency costs of free cash flow, corporate finance, and takeovers, American Economic Review, 76, 2, 323–329.

[12] Jensen, Michael C. and William Meckling, 1976, Theory of the firm: managerial behavior, agency costs and ownership structure, Journal of Financial Economics, 3, 305–360.

[13]]La Porta, Rafael, Florencio López De Silanes, and Andrei Shleifer, 1999, Corporate ownership around the world, Journal of Finance, 54, 471–517.

[14] McConnell, John J., and Henri Servaes, 1990, Additional evidence on equity ownership and corporate value, Journal of Financial Economics, 27, 595–612.

[15] Miller, Danny, Isabelle Le Breton-Miller, Richard H. Lester, and Albert A. Cannella, 2007, Are family firms really superior performers? Journal of Corporate Finance,13, 829– 858.

[16] Morck, Randall, Andrei Shleifer, and Robert Vishny, 1988. Management ownership and market valuation: an empirical analysis, Journal of Financial Economics, 20, 293–315.

[17] Shleifer, Andrei, and Robert Vishny, 1986, Large shareholders and corporate control, Journal of Political Economy, 94, 461–488.

[18] Villalonga, Belén, and Raphael Amit, 2006, How do family ownership, management and control affect firm value? Journal of Financial Economics, 80, 385–417.

[19] Winship, Christopher, and Rpbert Mare, 1992, Models for Sample Selection Bias, Annual Review of Sociology, 18, 327–50.

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